

Workshop Manual Audi A8 2010 ➤

Heating, air conditioning

Edition 09.2013



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List of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Repair Group

00 - Technical data

80 - Heating

87 - Air conditioning system



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – Technical data

1 General notes

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⇒ [“1.1 Type plates”, page 1](#)

⇒ [“1.2 Notes on odours in vehicles fitted with an air conditioner”, page 1](#)

⇒ [“1.3 Seat heating”, page 3](#)

⇒ [“1.4 Seat ventilation”, page 9](#)

⇒ [“1.5 Heated windscreen”, page 13](#)

⇒ [“1.6 Heated rear window”, page 16](#)

⇒ [“1.7 Solar panel for sun roof”, page 17](#)

⇒ [“1.8 Control components of air conditioner \(not located in passenger compartment\)”, page 22](#)

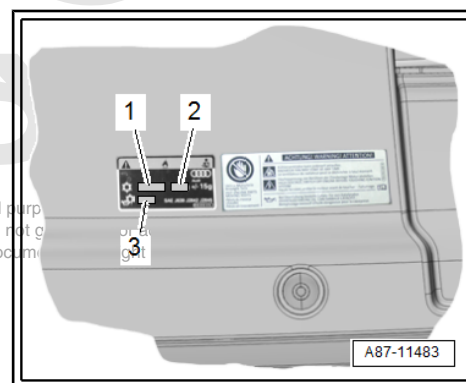
⇒ [“1.9 Control components of air conditioner \(in passenger compartment\)”, page 27](#)

⇒ [“1.10 General information on control motors”, page 33](#)

1.1 Type plates

The plate indicating the type of refrigerant and refrigerant capacity is located on the bonnet.

- 1 - Refrigerant designation, for example R134a
- 2 - Refrigerant capacity
- 3 - Designation of the refrigeration oil (PAG oil here), refer to ⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87](#); Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils for more information.



Note

For refrigerant R134a and refrigeration oil capacities as well as approved refrigeration oils, refer to ⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87](#); Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils.

1.2 Notes on odours in vehicles fitted with an air conditioner

Odours coming from the air conditioner can have various causes. Only some of these odours originate in the evaporator of the air conditioning unit and can be eliminated by cleaning the evaporator.

Type of odour	Possible cause and remedy
Smell of burnt oil	◆ Generally occurs in the engine compartment due to leakage at the engine or gearbox – Eliminate the leakage at the engine or gearbox

Type of odour	Possible cause and remedy
Sulphur-like smell of exhaust gas	◆ Leakage at the exhaust system ◆ Exhaust gas ingressing into the passenger compartment e.g. on reversing (on driving through cloud of exhaust fumes). – Eliminate the leakage at the exhaust system
Fishy smell of coolant	◆ Leakage at engine cooling system or air conditioner heat exchanger – If the fishy odour occurs in both fresh air and air recirculation mode, check the heat exchanger for the front or rear air conditioning unit for leaks
Scorched clutch smell	◆ Clutch linings worn or incorrect operation – Check clutch
Odours given off	◆ Floor coverings, retrofitted loose seat covers etc. – Check, replace or clean floor coverings or loose covers ◆ Dirt or moisture in the passenger's footwell or beneath the front seats – Check front passenger seat footwell for moisture, dry and clean – Check condensation drain on rear air conditioning unit. Check both condensation drains on rear air conditioning unit ⇒ page 566
Mouldy smell from front end of vehicle	◆ Water may flow via the drip rail into the fresh air intake if the plenum chamber cover is damaged or not properly fitted – Check air conditioning unit fresh air intake ⇒ page 594 ◆ Accumulation and deposits of foreign matter such as leaves, pine needles etc in the plenum chamber – Check plenum chamber for foreign matter ⇒ page 596 ◆ Water not able to drain out of the plenum chamber – Check water drains ⇒ page 596
Odour from air conditioning unit	◆ Too much condensation in air conditioning unit – Check air conditioning unit condensation drain ⇒ page 518 – Check rear air conditioning unit condensation drain ⇒ page 566 ◆ Old or severely contaminated dust and pollen filter – Check dust and pollen filter ⇒ page 501 ◆ Deposits on evaporator fins – Cleaning evaporator ⇒ page 468

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Note

- ◆ *The odour can only be eliminated by cleaning with the ultrasonic A/C cleaner - VAS 6189A- if it actually occurs in the evaporator.*
- ◆ *A wide variety of evaporator cleaning methods which act in different ways are available on the market. For the cleaning method for e.g. the evaporator currently checked and approved by Audi, use the ultrasonic A/C cleaner - VAS 6189A-. Further methods authorised and approved by Audi and the corresponding information can be found for example in the "Audi ServiceNet" (⇒ table).*
- ◆ *The following procedures are examples of how to access the "Audi ServiceNet" in Germany. In other countries, "Air conditioner cleaning" may be found in the "Genuine parts" sub-menu for example. For precise details of how to find the instructions on "Air conditioner cleaning", follow the directions given in the "Audi ServiceNet".com*

- Select the path:

Audi ServiceNet
Products
Maintenance and wear
Air conditioner cleaning

Or

Audi ServiceNet
AOT / AOZ
Product information
Info according to categories
Maintenance and wear
Air conditioner cleaning

1.3 Seat heating

⇒ ["1.3.1 Front seat heating", page 3](#)

⇒ ["1.3.2 Rear seat heating", page 6](#)

1.3.1 Front seat heating

Components involved in the front seat heating actuation process

The air conditioner front operating and display unit (Climatronic control unit - J255-) transmits the request to activate the seat heating via the data bus to the responsible control unit (control unit dependent on the vehicle model and equipment) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

- ◆ On vehicles without a seat and steering column adjustment control unit with memory - J136- or front passenger seat adjustment with memory control unit - J521- , the onboard supply control unit - J519- activates the driver's and front passenger side seat heating. The air conditioner front operating and display unit, Climatronic control unit - J255- sends the seat heating activation request via the data bus first to the data bus diagnostic interface - J533- , it is then relayed to -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations (for the appropriate vehicle system).
- ◆ On vehicles with a seat and steering column adjustment control unit with memory - J136- and a front passenger seat adjustment with memory control unit - J521- , -J136- activates the driver's side seat heating, and -J521- activates the front passenger's side seat heating. The seat heating activation request is transmitted by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus first to the data bus diagnostic interface - J533- and then relayed to -J136- and -J521- . If a vehicle is fitted with -J136- but not -J521- , -J136- actuates the driver side seat heating and the passenger side seat heating is actuated by -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations (for the corresponding vehicle system).
- ◆ A start/stop system is offered for this vehicle in combination with certain engines. On vehicles with a start/stop system, the seat heating might be deactivated while the stop function is active (to protect the battery - A-). However, the setting for activating the heated seats remains stored in the air conditioner front operating and display unit (Climatronic control unit - J255-). The seat heating is switched on again after the en-

gine has been re-started via the start function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ The heating setting for the driver's seat can be stored for a specific key. The settings made before switching off the ignition are then adopted for the next driving cycle ⇒ Owner's Manual .
- ◆ On vehicles with no seat occupied sensor for the front passenger's seat and the rear seats, the seat heating is currently not deactivated automatically if a seat is not occupied while the vehicle is being driven. If the ignition is switched off and not switched on again within approx. 10 minutes, the setting for actuation of the seat heating is deleted ⇒ Owner's Manual .
- ◆ Depending on the vehicle, seat heating setting may be reduced automatically by one level after a certain time (e.g. after 10 minutes) ⇒ Owner's manual .



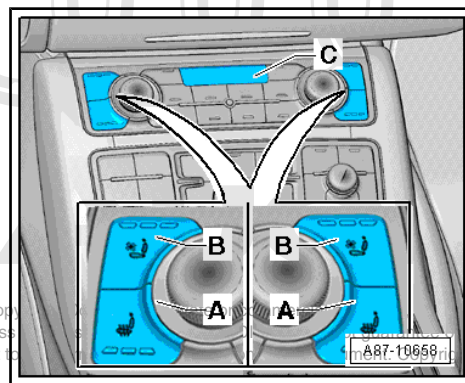
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Note

- ◆ *The seat heating may be activated differently depending on the vehicle model ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Depending on the model and vehicle equipment, the various pieces of information on the actuation of the seat heating (setting determined by the air conditioner front operating and display unit, (Climatronic control unit - J255-), specified and actual seat temperature, etc.) are displayed differently in the various measured value blocks in the different control units ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If a condition prevails in which the heating of the driver's seat or front passenger's seat cannot be activated (e.g. short circuit in connection to seat heating element, open circuit in power supply to corresponding control unit), this is stored as a fault in the onboard supply control unit - J519- , the seat and steering column adjustment control unit with memory - J136- or the front passenger seat adjustment with memory control unit - J521- (depending on model and vehicle equipment). On this vehicle, it is possible that no information is transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) indicating that the event memory in the relevant control unit has to be read out ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat heating, the first step should therefore always be to read out the event memories of the control units which activate the seat heating.*
- ◆ *The procedure for checking the activation of the seat heating is described in the Guided Fault Finding routine for the corresponding control unit (onboard supply control unit - J519- , seat and steering column adjustment control unit with memory - J136- or front passenger seat adjustment with memory control unit - J521- , depending on vehicle model and equipment) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If, for example, the voltage measured at the onboard supply control unit - J519- at terminal "30" drops below a value stored in -J519- , the seat heating power is reduced or the function is completely deactivated to relieve the load on the alternator - C- ⇒ Vehicle diagnostic tester "Guided Fault Finding" function.*
- ◆ *The "Reading measured values" function of the Guided Fault Finding routine for the air conditioner front operating and display unit, (Climatronic control unit - J255-) indicates the seat heating setting. Actuation of the seat heating, the actual and specified temperature in the seat and the actual current flowing via the seat heating etc. are displayed in the "Reading measured values" function of the Guided Fault Finding routine for the corresponding control unit depending on the vehicle model and equipment ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Depending on the vehicle model, the seat heating of the front passenger's seat may be deactivated after a certain period if the system detects that the seat is not occupied (at the start of production, no provision was made for deactivation via the seat occupied sensor; introduction not yet finalised) ⇒ Owner's Manual .*

- ◆ There are different versions of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Electronic parts catalogue . You can identify the different versions, for example, by the symbols in the buttons -A- (for vehicles with optional "seat heating") and -B- (for vehicles with optional "seat heating/ventilation")
- ◆ The function indicator lamps in buttons -A- light up when seat heating is switched on ⇒ Owner's Manual .
- ◆ The seat heating level is set on the air conditioner front operating and display unit (Climatronic control unit - J255-); this setting is then transmitted via the data bus to the corresponding control unit. The specified temperatures for the different seat heating settings are stored in the corresponding control units. Depending on the control unit version and the vehicle production period, the specified temperature for the seat heating may therefore differ in spite of identical settings on -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



1.3.2 Rear seat heating

Components involved in the rear seat heating actuation process

The activation of the rear seat heating differs according to the vehicle version and equipment.



Note

On vehicles without a operating and display unit for rear air conditioning system - E265- , the rear seat heating is set via the heated rear left seat switch with regulator - E128- , the button for left seat heating - E653- or rear left seat heating switch - E77- and the heated rear right seat switch with regulator - E129- , the button for right seat heating - E654- or the rear right seat heating switch - E78- (different designations depending on the model and production period of the vehicle ⇒ Current flow diagrams, Electrical fault finding and Fitting locations). The heated bench seat cushion for rear left seat - Z10- , the heated backrest for rear left seat - Z11- , the heated bench seat cushion for rear right seat - Z12- and the heated backrest for rear right seat - Z13- are activated by the heated rear seats control unit - J786- or the seat heating control unit - J882- (different designations depending on the model and production period of the vehicle ⇒ Current flow diagrams, Electrical fault finding and Fitting locations). This control unit does not currently have self-diagnosis capability. Actuation is however only implemented if corresponding release is issued by the onboard supply control unit - J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

On vehicles with rear Climatronic operating and display unit - E265- , the rear seat heating is set via -E265- . -E265- activates the rear seat heating differently depending on the vehicle equipment and model.

- ◆ On vehicles without control unit for rear left seat adjustment - J876- or control unit for rear right seat adjustment - J877- , the rear seat heating is activated by the rear Climatronic operating and display unit - E265- . The rear seat heating is switched on by -E265- if the onboard supply control unit - J519- does not detect a condition preventing activation of the seat heating. - J519- first transmits the request via the data bus to the data bus diagnostic interface - J533- ; it is then relayed to -E265- via the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams,

Electrical fault finding and Fitting locations (for the appropriate vehicle system).

- ◆ On vehicles with a control unit for rear left seat adjustment - J876- and a control unit for rear right seat adjustment - J877- , the rear seat heating is not actuated directly by the rear Climatronic operating and display unit - E265- . Actuation is implemented by the -J876- and -J877- . The request for activation of the seat heating is transmitted by -E265- to the air conditioner front operating and display unit, Climatronic control unit - J255- . By way of the data bus, this control unit first relays the request to the data bus diagnostic interface - J533- , from where it is transmitted to -J876- and -J877- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations (for the corresponding vehicle system).
- ◆ A start/stop system is offered for this vehicle in combination with certain engines. On vehicles with a start/stop system, the seat heating might be deactivated while the stop function is active (to protect the battery - A-). However, the setting for the activation of the seat heating remains stored in the operating and display unit for rear air conditioning system - E265- . The seat heating is switched on again after the engine has been re-started via the start function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



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**Note**

- ◆ *The seat heating may be activated differently depending on the vehicle model ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Depending on the model and vehicle equipment, the various pieces of information on the actuation of the seat heating (setting transmitted by the operating and display unit (rear Climatronic control unit - E265-), specified and actual seat temperature, etc.) are displayed differently in the various measured value blocks in the different control units ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If a condition prevails in which the heating of the rear seats cannot be activated (e.g. short circuit in connection to seat heating element, open circuit in power supply to corresponding control unit), this is stored as a fault in the rear Climatronic operating and display unit - E265- , the onboard supply control unit - J519- , the air conditioner front operating and display unit (Climatronic control unit - J255-), the data bus diagnostic interface - J533- , the control unit for rear left seat adjustment - J876- or the control unit for rear right seat adjustment - J877- (depending on the vehicle model and equipment). On this vehicle, the information that the event memory in the corresponding control unit has to be read out may not be transmitted via the data bus to -E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat heating, the first step should therefore always be to read out the event memories of the control units which activate the seat heating.*
- ◆ *Checking actuation of the heated seats is described in the Guided Fault Finding routine for the corresponding control unit (rear Climatronic operating and display unit - E265- , control unit for rear left seat adjustment - J876- or control unit for rear right seat adjustment - J877- , depending on vehicle model and equipment) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If, for example, the voltage measured at the onboard supply control unit - J519- at terminal "30" drops below a value stored in -J519- , the seat heating power is reduced or the function is completely deactivated to relieve the load on the alternator - C- ⇒ Vehicle diagnostic tester "Guided Fault Finding" function.*
- ◆ *The "Read measured values" function of the Guided Fault Finding routine for the operating and display unit for rear air conditioning system - E265-) indicates which seat heating setting has been selected. Actuation of the seat heating, the actual and specified temperature in the seat and the actual current flowing via the seat heating etc. are displayed in the "Reading measured values" function of the Guided Fault Finding routine for the corresponding control unit depending on the vehicle model and equipment ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Depending on the vehicle model, the rear seat heating may be deactivated after a certain period if the system detects that one of the seats is not occupied (at the start of production, no provision was made for deactivation via the seat occupied sensor; introduction not yet finalised) ⇒ Owner's Manual .*

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1.4 Seat ventilation

⇒ [“1.4.1 Front seat ventilation”, page 9](#)

⇒ [“1.4.2 Rear seat ventilation”, page 11](#)

1.4.1 Front seat ventilation

Components involved in the front seat ventilation actuation process

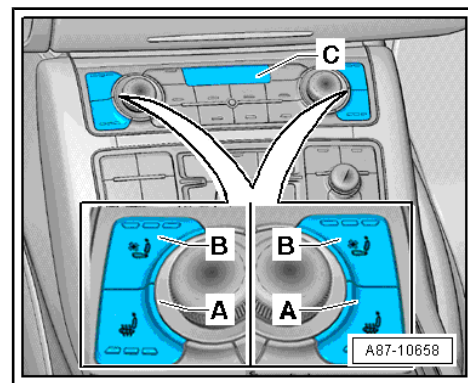
The air conditioner front operating and display unit (Climatronic control unit - J255-) transmits the request to activate the seat ventilation via the data bus to the responsible control unit (control unit dependent on the vehicle model and equipment) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

- ◆ Vehicles with seat ventilation are always fitted with a seat and steering column adjustment control unit with memory - J136- and a front passenger seat adjustment with memory control unit - J521- . These control units activate the seat ventilation. Actuation is the same as for vehicles with seat heating only and fitted with -J136- and -J521- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations (for the corresponding vehicle system).
- ◆ A start/stop system is offered for this vehicle in combination with certain engines. On vehicles with a start/stop system, the seat ventilation might be deactivated while the stop function is active (to protect the battery - A-). However, the setting for activating the seat ventilation remains stored in the air conditioner front operating and display unit (Climatronic control unit - J255-). The seat ventilation is switched on again after the engine has been re-started via the start function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ◆ The ventilation setting for the driver's seat can be stored for a specific key. The settings made before switching off the ignition are then adopted for the next driving cycle ⇒ Owner's Manual .
- ◆ On vehicles with no seat occupied sensor for the front passenger's seat and the rear seats, the seat ventilation is currently not deactivated automatically if a seat is not occupied while the vehicle is being driven. If the ignition is switched off and not switched on again within approx. 10 minutes, the setting for actuation of the seat ventilation is deleted ⇒ Owner's Manual .
- ◆ Depending on the vehicle, seat ventilation setting may be reduced automatically by one level after a certain time (e.g. after 10 minutes) ⇒ Owner's Manual .

**Note**

- ◆ *The seat ventilation may be activated differently depending on the vehicle model ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Depending on the model and vehicle equipment, the various pieces of information on the actuation of the seat ventilation (setting determined by the air conditioner front operating and display unit, (Climatronic control unit - J255-), specified and actual seat temperature, etc.) are displayed differently in the various measured value blocks in the different control units ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If a condition prevails in which the ventilation of the driver's seat or front passenger's seat cannot be activated (e.g. short circuit or open circuit in power supply to corresponding control unit), this is stored as a fault in the onboard supply control unit - J519- , the seat and steering column adjustment control unit with memory - J136- or the front passenger seat adjustment with memory control unit - J521- (depending on model and vehicle equipment). On this vehicle, it is possible that no information is transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) indicating that the event memory in the relevant control unit has to be read out ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat ventilation, the first step should therefore always be to read out the event memories of the control units which activate the seat ventilation.*
- ◆ *The procedure for checking the activation of the seat ventilation is described in the Guided Fault Finding routine for the corresponding control unit (onboard supply control unit - J519- , seat and steering column adjustment control unit with memory - J136- or front passenger seat adjustment with memory control unit - J521- , depending on vehicle model and equipment) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If, for example, the voltage measured at the onboard supply control unit - J519- at terminal "30" drops below a value stored in J519- , the seat ventilation power is reduced or the function is completely deactivated to relieve the load on the alternator - C ⇒ Vehicle diagnostic tester "Guided Fault Finding" function.*
- ◆ *The "Reading measured values" function of the Guided Fault Finding routine for the air conditioner front operating and display unit, (Climatronic control unit - J255-) indicates the seat ventilation setting. Actuation of the seat ventilation, the actual and specified temperature in the seat and the actual current flowing via the seat ventilation etc. are displayed in the "Reading measured values" function of the Guided Fault Finding routine for the corresponding control unit depending on the vehicle model and equipment ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Depending on the vehicle model, the seat ventilation of the front passenger's seat may be deactivated after a certain period if the system detects that the seat is not occupied (at the start of production, no provision was made for deactivation via the seat occupied sensor; introduction not yet finalised) ⇒ Owner's Manual .*

- ◆ There are different versions of the air conditioner front operating and display unit, Climatronic control unit - J255- ➔ Electronic parts catalogue . You can identify the different versions, for example, by the symbols in the buttons -A- (for vehicles with optional "seat heating") and -B- (for vehicles with optional "seat heating/ventilation")
- ◆ When the seat ventilation is switched on, the function indicator lamps in buttons -B- light up ➔ vehicle Owner's Manual .
- ◆ The seat ventilation level is set on the air conditioner front operating and display unit (Climatronic control unit - J255-); this setting is then transmitted via the data bus to the corresponding control unit. The specified temperatures for the different seat ventilation settings are stored in the corresponding control units. Depending on the control unit version and the vehicle production period, the specified temperature for the seat ventilation may therefore differ in spite of identical settings on - J255- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.



1.4.2 Rear seat ventilation

Components involved in the rear seat ventilation actuation process

The activation of the rear seat ventilation differs according to the vehicle version and equipment.



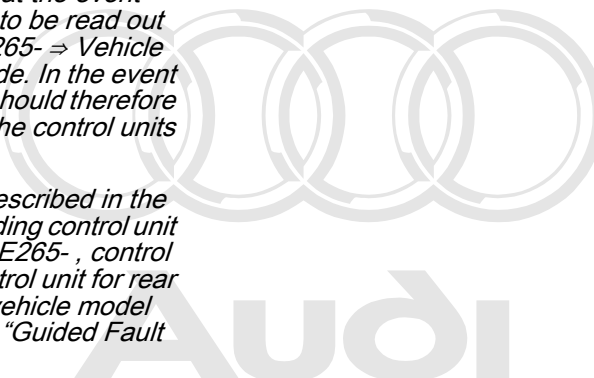
Note

On vehicles with rear Climatronic operating and display unit - E265- , the rear seat heating and rear seat ventilation are set via -E265- . -E265- activates the rear seat heating and rear seat ventilation differently depending on the vehicle equipment and model.

- ◆ On vehicles with a control unit for rear left seat adjustment - J876- and a control unit for rear right seat adjustment - J877- , the rear seat ventilation is not actuated directly by the rear Climatronic operating and display unit - E265- . Actuation is implemented by the -J876- and -J877- . The request for activation of the seat ventilation is transmitted by -E265- to the air conditioner front operating and display unit, Climatronic control unit - J255- . By way of the data bus, this control unit first relays the request to the data bus diagnostic interface - J533- , from where it is transmitted to -J876- and -J877- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations (for the corresponding vehicle system).
- ◆ Vehicles with seat ventilation are always fitted with a control unit for rear left seat adjustment - J876- and a control unit for rear right seat adjustment - J877- . These control units activate the seat ventilation ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations (for the corresponding vehicle system).
- ◆ A start/stop system is offered for this vehicle in combination with certain engines. On vehicles with a start/stop system, the seat ventilation might be deactivated while the stop function is active (to protect the battery - A-). However, the setting for the activation of the seat ventilation remains stored in the operating and display unit for rear air conditioning system - E265- . The seat ventilation is switched on again after the engine has been re-started via the start function ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

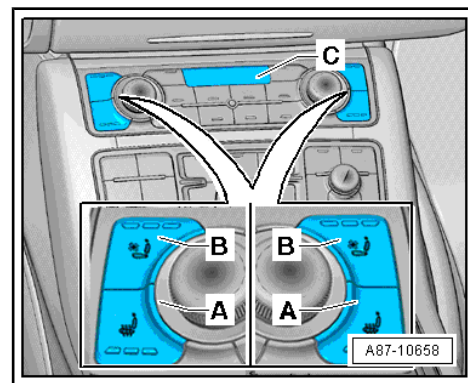
- ◆ *The seat ventilation may be activated differently depending on the vehicle model ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Depending on the model and vehicle equipment, the various pieces of information on the actuation of the seat ventilation (setting transmitted by the operating and display unit (rear Climatronic control unit - E265-), specified and actual seat temperature, etc.) are displayed differently in the various measured value blocks in the different control units ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If a condition prevails in which the ventilation of the rear seats cannot be activated (e.g. open circuit in power supply to corresponding control unit), this is stored as a fault in the rear Climatronic operating and display unit - E265- , the onboard supply control unit - J519- , the air conditioner front operating and display unit (Climatronic control unit - J255-), the data bus diagnostic interface - J533- , the control unit for rear left seat adjustment - J876- or the control unit for rear right seat adjustment - J877- (depending on the vehicle model and equipment). On this vehicle, the information that the event memory in the corresponding control unit has to be read out may not be transmitted via the data bus to -E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat ventilation, the first step should therefore always be to read out the event memories of the control units which activate the seat ventilation.*
- ◆ *Checking actuation of the seat ventilation is described in the Guided Fault Finding routine for the corresponding control unit (rear Climatronic operating and display unit - E265- , control unit for rear left seat adjustment - J876- or control unit for rear right seat adjustment - J877- , depending on vehicle model and equipment) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If, for example, the voltage measured at the onboard supply control unit - J519- at terminal "30" drops below a value stored in -J519- , the seat ventilation power is reduced or the function is completely deactivated to relieve the load on the alternator - C- ⇒ Vehicle diagnostic tester "Guided Fault Finding" function.*
- ◆ *The "Read measured values" function of the Guided Fault Finding routine for the operating and display unit for rear air conditioning system - E265-) indicates which seat ventilation setting has been selected. Actuation of the seat ventilation, the actual and specified temperature in the seat and the actual current flowing via the seat ventilation etc. are displayed in the "Reading measured values" function of the Guided Fault Finding routine for the corresponding control unit depending on the vehicle model and equipment ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Depending on the vehicle model, the rear seat ventilation may be deactivated after a certain period if the system detects that one of the seats is not occupied (at the start of production, no provision was made for deactivation via the seat occupied sensor; introduction not yet finalised) ⇒ Owner's Manual .*



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Please also observe the following notes regarding the operation of the seat ventilation:

- ◆ On this vehicle, the seats are not heated automatically when seat ventilation is switched on (activated/deactivated using button -B-), but rather only if the seat heating is switched on additionally using button -A-. The following modes are therefore possible: seat heating without seat ventilation, seat ventilation without seat heating and seat heating with seat ventilation ⇒ Owner's Manual .
- ◆ The activation of the fans for the seat cushion and backrest (e.g. one fan in backrest and one in cushion of each seat) depends on the selected seat ventilation level (approx. 40 % of maximum power at level 1 and approx. 85 % at level 3) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The seat ventilation setting for the driver's seat is stored when you switch off the ignition and is allocated via the ignition key. After switching on the ignition/starting the engine, the seat ventilation is activated according to the last setting ⇒ Owner's Manual .
- ◆ The ventilation setting for the front passenger's seat and rear seats is also stored when you switch off the ignition. However, if the ignition remains switched off longer than approx. 10 minutes, the seat ventilation will not be re-activated when the ignition is switched on/the engine is started (the settings will be erased) ⇒ Owner's Manual .



1.5 Heated windscreen

⇒ ["1.5.1 Heated windscreen", page 13](#)

⇒ ["1.5.2 Operation of heated windscreen", page 14](#)

1.5.1 Heated windscreen

- ◆ The heated windscreen control unit - J505- is activated by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus. To do so, the request is first transmitted to the data bus diagnostic interface - J533- via the databus; from there it is relayed to the convenience system central control unit - J393- . -J393- then sends the request to -J505- , which switches on the heating of -Z2- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ Activation of -J505- is displayed in the "Reading measured values" function of the Guided Fault Finding routine for the - J255- ⇒ Vehicle diagnostic tester.
- ◆ The "Reading measured values" function of the Guided Fault Finding routine for the convenience system central control unit - J393- and the air conditioner front operating and display unit (Climatronic control unit - J255-) indicates that a request has been made and why this may not be implemented ⇒ Vehicle diagnostic tester.
- ◆ Checking activation of heated windscreen ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ [Operation of heated windscreen ⇒ page 14](#)
- ◆ If the resistance value calculated by the convenience system central control unit - J393- and displayed as measured values is greater than 2.4 ohms or less than 1.5 ohms, check for a short circuit or contact resistance in the wiring between the heated windscreen control unit - J505- and the heated windscreen - Z2- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode function.

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- ◆ If the resistance value calculated by the convenience system central control unit - J393- is greater than 3.4 ohms or less than 1.4 ohms, -J393- does not activate the heated windscreen control unit - J505- or this control unit does not activate the heating of -Z2- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

1.5.2 Operation of heated windscreen

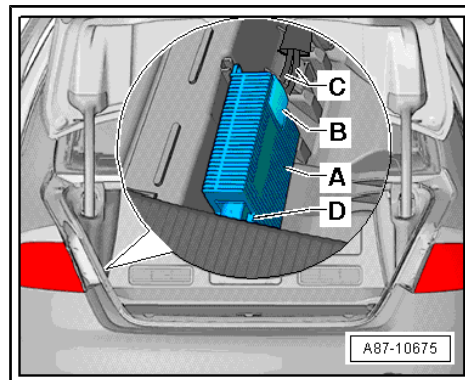
The heated windscreen control unit - J505- -A- is activated by the convenience system central control unit - J393- in response to a request from the air conditioner front operating and display unit (Climatronic control unit - J255-) via the connector -D- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Activation of the windscreen heating is requested by -J255- under the following conditions (for exact description, refer to ⇒ Owner's Manual and ⇒ Owner's Manual for "Infotainment / MMI"):

- ◆ Every time the engine is started cold (when the ambient temperature is below + 5° C, the air conditioner front operating and display unit (Climatronic control unit - J255-) is set to "Auto" mode and the function has not been deactivated using the MMI (Multi Media Interface) ⇒ Owner's Manual and ⇒ Owner's Manual for "Infotainment / MMI"). The temperature on -J255- must be set so that the air conditioner is in heating mode, and the temperature measured by the left vent temperature sender - G150- and right vent temperature sender - G151- is less than +35 °C. The heating period depends on the ambient temperature (max. 6 minutes at -40°).
- ◆ "Defrost" mode is selected on -J255- , the ambient temperature is less than + 5° C and the function has not been deactivated on the MMI (Multi Media Interface). Depending on the ambient temperature, the heating period is between 2 and 6 minutes. As long as the heated windscreen - Z2- is activated, the lamp in the Defrost button flashes. Activation only takes place when the engine is running.

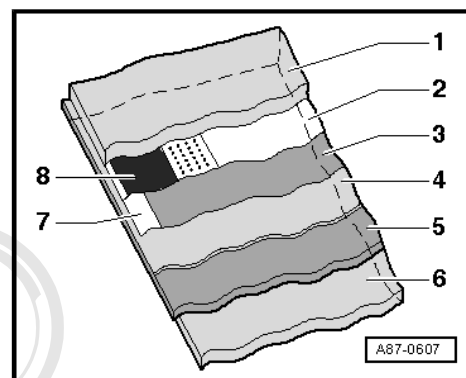
The heated windscreen control unit - J505- -A- switches on the heating for the heated windscreen - Z2- if the following conditions are fulfilled:

- ◆ The front operating and display unit (Climatronic control unit - J255-) transmits an activation request to the convenience system central control unit - J393- , which is then relayed by - J393- to -J505- .
- ◆ The voltage at -J505- is greater than 12.70 V.
- ◆ -J505- is not overheated.



Note

- ◆ The heated windscreen - Z2- can be deactivated via a function on the MMI (Multi Media Interface) ⇒ Owner's Manual and ⇒ Operating Manual "Infotainment / MMI".
- ◆ The heated windscreen control unit - J505- is activated by the convenience system central control unit - J393- via a data line. If a condition prevails in the -J505- that prevents the windscreen heating from switching on, the -J393- is notified via this data line. The -J393- then relays the information that the windscreen heating does not switch on to the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The resistance of the metal foil -1- in the heated windscreen - Z2- is approx. 1.9 ohms. A voltage greater than the voltage of the electrical system is required to achieve the maximum possible heat output of approx. 1000 W (watts) at the windscreen. The heated windscreen control unit - J505- converts the voltage of the electrical system into a variable voltage of between 25 V and 48 V depending on the electrical system voltage. If the voltage at -J505- is greater than 13.10 V, Z2- is activated with a voltage greater than 41 V (up to max. 48 V) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ To prevent the electrical system from overloading, -J505- regulates the heat output of the heated windscreen (approx. 200 W when the electrical system voltage is 12.70 V and with infinitely variable regulation up to 1000 W at 13.10 V). The heated windscreen control unit - J505- permits an increase in power output of max. 200 W per second to prevent a drop in the electrical system voltage when the heated windscreen is switched on.
- ◆ To prevent the heated windscreen - Z2- from being activated in the event of a short circuit or open circuit in the wiring, the heated windscreen control unit - J505- monitors the resistance of -Z2-. If the resistance measured is less than approx. 1.5 ohms (short circuit) or greater than approx. 3.3 ohms (open circuit or contact resistance), the -J505- does not switch on the heating or switches it off ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ In the final control diagnosis the heated windscreen - Z2- is only activated at temperatures in the passenger compartment of up to 40 °C. If the temperature is higher, the display of the fault reader will show e.g. "Function unknown" or "Function cannot be performed at present" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The activation function of the heated windscreen control unit - J505- can be checked e.g. using the multimeter - V.A.G 1715-. To do so, place pick-up clamp of multimeter - V.A.G 1715- on positive wire from heated windscreen control unit - J505- to heated windscreen - Z2- and select the function "Measuring current with pick-up clamp" on the multimeter - V.A.G 1715-. The display on the multimeter - V.A.G 1715- changes from approx. 0 A to greater than 7 A ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



1.6 Heated rear window

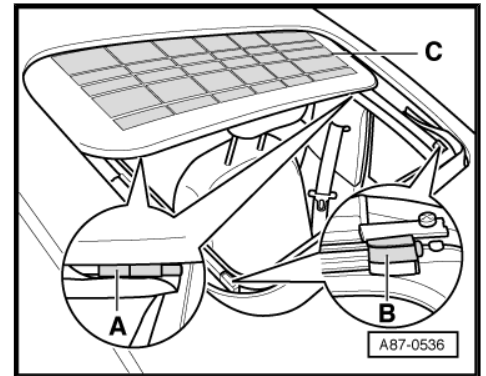


Note

- ◆ *If a condition is met which does not permit the heated rear window to be switched on (short circuit in the connection to the heated rear window relay - J9- , open circuit in the power supply to the convenience system central control unit - J393- etc.), this is stored as a fault in -J393- and transmitted to the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus/ data bus diagnostic interface - J533- ; the event memory in -J393- must be read out ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. Actuation of the heated rear window - Z1- is displayed in the measured value of -J393- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If the voltage measured at terminal "30" of the onboard supply control unit - J519- falls below a value stored in -J519- or the air conditioner front operating and display unit (Climatronic control unit - J255-), the heated rear window is switched off completely (or the power reduced) to relieve the load on the alternator - C- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If the voltage is so low that operation of the heated rear window - Z1- must be switched off, the indicator lamp in the heated rear window button in the air conditioner front operating and display unit (Climatronic control unit - J255-) stays illuminated. However, -J255- will switch the indicator lamp off if the heated rear window is deactivated for longer than approx. 100 seconds.*
- ◆ *The information in the "Reading measured values" function of the Guided Fault Finding routine for the air conditioner front operating and display unit (Climatronic control unit - J255-) indicates that the heated rear window is switched on/why no activation occurred in spite of a request ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The procedure for checking the activation of the heated rear window is described in the Guided Fault Finding for the convenience system central control unit - J393- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The amount of time for which the heated rear window is activated depends on various factors (encoding of the rear window version in -J255- , the measured ambient temperature etc.). For example, the heating for a certain type of rear window may switch off after just three minutes when the ambient temperature is above +5 °C , but may remain switched on for up to 20 minutes on a different type of rear window when the ambient temperature is below -20 °C ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *However, the heated rear window can be activated permanently (until the ignition is switched off) by pressing and holding the "heated rear window" button on the air conditioner front operating and display unit (Climatronic control unit - J255-). The length of time for which the button has to be pressed can be set by way of the "Adaption" function in -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Owner's Manual .*
- ◆ *If the ambient temperature changes while you are driving (e.g. rises above 0 °C) the heated rear window is deactivated automatically after the operating period set in the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Owner's Manual .*

- ◆ *A start/stop system is offered for this vehicle in combination with certain engines. On vehicles with a start/stop system, the rear window heating might be deactivated while the stop function is active (to protect the battery - A-). However, the setting for activating the heated rear window - Z1- remains stored in the air conditioner front operating and display unit (Climatronic control unit - J255-). The rear window heating is switched on again after the engine has been re-started via the start function => Vehicle diagnostic tester in "Guided Fault Finding" mode.*

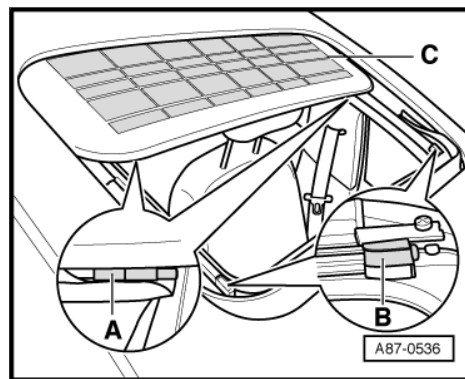
1.7 Solar panel for sun roof



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Note

- ◆ *Solar mode is only possible with the sun roof closed or tilted. The solar panel -C- converts solar energy into electrical energy, which is supplied to the vehicle electrical system via contacts -A- (at the front edge of the sun roof) and -B- (on the sun roof frame).*
- ◆ *Solar mode is not possible with the ignition on and in auxiliary heating/auxiliary ventilation mode (fresh air blower control unit - J126- interrupts connection between solar panel and fresh air blower - V2-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *If the solar mode of the fresh air blower is not required, the function can be deactivated on the front operating and display unit (Climatronic control unit - J255-) or on the MMI (Multi Media Interface) ⇒ Owner's Manual and ⇒ Operating Manual "Infotainment / MMI".*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .*
- ◆ *The "Reading measured values" function of the Guided Fault Finding routine for -J255- indicates how long the fresh air blower - V2- has operated in solar mode (in hours) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The temperature at which "solar roof" is switched on/off can be entered in the -J255- via the "Adaption" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The fresh air blower control unit - J126- is designed so that, when solar mode is active, the fresh air blower - V2- is only activated if the solar cells have generated sufficient energy for operation (at present, the minimum voltage must be greater than 2 V to activate the fresh air blower - V2-).*
- ◆ *The solar cells on the solar roof must generate a voltage greater than 12.3 V (off-load voltage) for the current generated by the solar cells to be connected through from the fresh air blower control unit - J126- to the fresh air blower - V2- . Once the -J126- detects a voltage greater than 12.3 V, the -V2- is activated until the current generated by the solar cells drops below approx. 2 V (or the ignition, auxiliary ventilation or auxiliary heating is switched on).*
- ◆ *The energy generated by the solar cells - C20- is transferred directly to the fresh air blower - V2- via the fresh air blower control unit - J126- . The fresh air blower converts the electrical energy generated into blower output.*
- ◆ *On vehicles with no solar roof, all the control motors of the air conditioner stop in their current positions when the ignition is switched off. However, the fresh air flaps and air recirculation flaps must be set to "fresh air mode" in order to ventilate the passenger compartment in solar mode. On vehicles with a solar panel for the sun roof, -J255- is therefore informed that the vehicle is fitted with solar cells by way of the encoding. -J255- then sets the flaps in the air conditioning unit to the "fresh-air mode" position after switching off the ignition.*



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- ◆ *The fresh air blower control unit - J126- interrogates the voltage at the input of the solar cells at regular intervals when the ignition is off (no signal detected by -J255-) and converts the voltage generated by the solar cells in such a manner that the fresh air blower runs at the maximum possible speed if sufficient solar energy is being generated.*
- ◆ *Contacts -A- and -B- (at the sun roof and sun roof frame) for transferring the electrical energy generated must be clean and free from normal lubricant.*
- ◆ *If necessary, contacts -A- and -B- can be coated with a small quantity of contact grease (electrically conductive preservative and lubricant available from electronics dealers).*
- ◆ *The electrical energy supplied by the solar panel for the sun roof is approx. 12 W with a sunlight penetration of 500 W/m².*

Example:

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$$500 \text{ W/m}^2 \text{ (sunlight penetration)} \times 0.21 \text{ m}^2 \text{ (sun roof solar area)} \times 0.13 \text{ (efficiency of solar cells - C20-)} \times 0.9 \text{ (efficiency of fresh air blower control unit - J126-)}.$$

Checking operation of solar panel for sun roof

- Move the vehicle into the sun.



Note

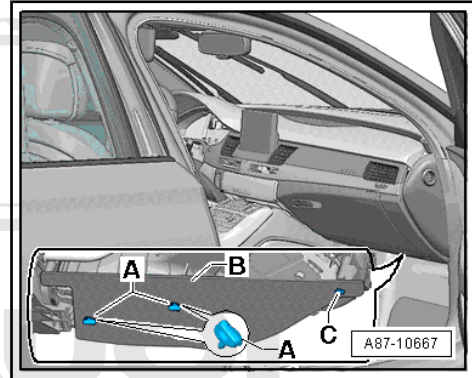
- ◆ *If the weather conditions are not suitable, shine two commercially available 1000 W halogen lamps for example onto the solar panel for the sun roof, maintaining a distance of at least 500 mm from the solar panel for the sun roof. To enable the solar cells - C20- to supply sufficient electrical energy to drive the fresh air blower - V2- , it must be ensured that all sun roof solar cells - C20- are evenly and fully illuminated.*
 - ◆ *The electrical energy supplied is only approx. 1.5 W on shining halogen lamps onto the solar panel for the sun roof (the fresh air blower - V2- rotates but a flow of air is hardly perceptible).*
 - ◆ *Depending on the version, the "Reading measured values" function of the Guided Fault Finding routine for -J255- indicates the current power output of the solar cells - C20- (voltage and current level) immediately after switching off the ignition ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- Open the "centre" dash panel vents and close all other vents.
 - Check the setting on -J255- or the MMI (Multi Media Interface). The "solar mode" function must have been set ⇒ Owner's manual and ⇒ Operating instructions for "Infotainment / MMI".
 - Close sunroof.
 - Switch off the ignition (-J255- not illuminated).

A current of air can be felt from the dash panel vents (moisten palm of hand to check if necessary).

If no current of air can be felt:

- Interrogate the event memory of -J255- and check the encoding of -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

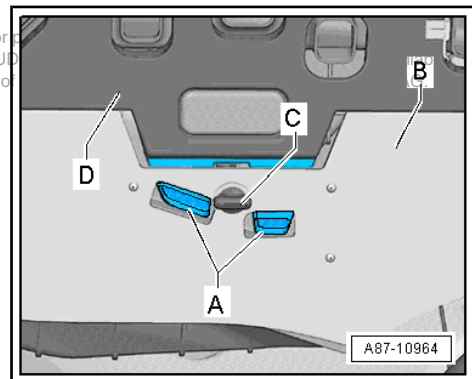
- Check the setting (and, if applicable, the adaption) on -J255- and on the MMI (the "Solar mode" function must be activated)
⇒ Owner's Manual , ⇒ Operating instructions for "Infotainment / MMI" and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the screw-type clip -A-.
- Unfasten the insulating mat -B- from the bracket -C- and detach.



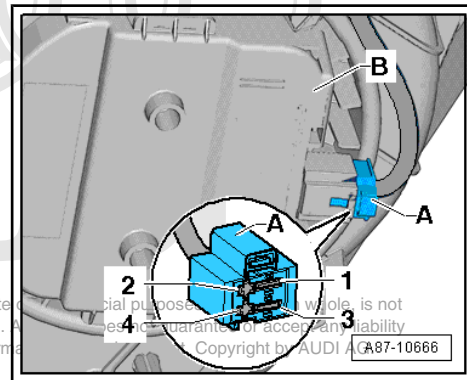
Note

To facilitate installation, the glove compartment -D- is provided with lugs with hooks -A- which are engaged as shown in the insulating mat -B- openings on fitting. If the glove compartment -D- has not been correctly installed (lugs with hooks -A- pressing against insulating mat -B- from underneath), the insulating mat -B- can only be removed after taking out the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

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- Unplug the connector -A- from the fresh air blower control unit - J126- -B-.
- Measure the voltage between contact -2- (of the solar panel for the sun roof) and contact -1- (earth) at the connector -A- ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ Specification: greater than 12.3 V (depending on intensity of sunlight)
- Connect up a test lamp (12 V, max. 5 W) between contacts -2- and -1- at the connector -A- ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- The test lamp glows or lights (depending on sunlight intensity).



Note

- ◆ For the current generated by the solar cells of the solar panel for the sun roof to be switched from the fresh air blower control unit - J126- to the fresh air blower - V2- , the voltage generated by the solar cells must be greater than approx. 12.3 V (no-load voltage). Once -J126- has detected a voltage greater than approx. 12.3 V, -V2- is activated as long as the voltage supplied by the solar cells remains in excess of roughly 2 V (or the ignition, auxiliary ventilation or auxiliary heating is switched on).
- ◆ If the test lamp glows or lights up, the solar panel for the sun roof is functioning properly. If the fresh air blower does not run, check -V2- for freedom of movement as well as activation of -J126- by the front operating and display unit (Climatronic control unit - J255-) ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If the test lamp does not glow or light, check the wiring to the two contacts at the sun roof opening. Check solar panel if no fault is found ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ The electrical energy supplied is only approx. 1.5 W on shining halogen lamps onto the solar panel for the sun roof (the fresh air blower rotates but a flow of air is hardly perceptible).
- ◆ Depending on the version of the -J255- , the current supplied by the sun roof with solar cells - C20- to the fresh air blower - V2- can be read out in the "Reading measured values" function of the Guided Fault Finding routine. Position the vehicle with the sunroof closed in the sun for example (or under two lamps as described above) and then select the corresponding measured value of -J255- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode. After switching off the ignition, the display shows the current supplied by the sun roof with solar cells - C20- on switching off the ignition (and for a short time afterwards).

1.8 Control components of air conditioner (not located in passenger compartment)

⇒ [“1.8.1 Notes on controlling and regulating air conditioner”, page 22](#)

⇒ [“1.8.2 Components not located in passenger compartment, all models”, page 23](#)

⇒ [“1.8.3 Components not located in passenger compartment - vehicles with high-voltage system”, page 23](#)

⇒ [“1.8.4 Components of the battery cooling module - vehicles with high-voltage system”, page 25](#)

1.8.1 Notes on controlling and regulating air conditioner



Note

◆ *In the event of a fault in the air conditioner, start by reading out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) and the operating and display unit for rear air conditioning system - E265- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode. If an instruction to read out the event memory of another control unit appears, also read out the event memory of this control unit (e.g. onboard supply control unit - J519- or convenience system central control unit - J393-). Certain air conditioner components (e.g. the air conditioner compressor regulating valve - N280- and the refrigerant pressure and temperature sender - G395-) are no longer activated directly by -J255- or their measured values are no longer directly evaluated by -J255- .*

◆ *If no fault is displayed, read out the relevant measured values of the air conditioner front operating and display unit (Climatronic control unit - J255-) and the operating and display unit for rear air conditioning system - E265- , and activate any problematic components by way of the “Final control diagnosis” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

◆ *The “Electrical check” function is not described in this Workshop Manual. When performing the electrical check with the “Guided Fault Finding” function, information is provided on the functions to be checked ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

◆ *The temperature-sensitive resistance values for the various temperature sensors are listed in tables which can be called up via the “Guided Fault Finding” function ⇒ Vehicle diagnostic tester.*

◆ *Electrical checking of the various control motors is described in the Guided Fault Finding ⇒ Vehicle diagnostic tester.*

◆ *Servicing refrigerant circuit ⇒ [page 147](#)*

◆ Perform the following work after completing the repairs:

- Interrogate the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) and the operating and display unit for rear air conditioning system - E265- , and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check encoding of -J255- and -E265- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

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- Check adaptation of -J255- and -E265- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Perform basic setting of -J255- and -E265- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *Components which are identical on vehicles both with and without a high-voltage system*
⇒ *“1.8.2 Components not located in passenger compartment, all models”, page 23*
- ◆ *Components not located in the passenger compartment and only fitted on vehicles with a high-voltage system (hybrid vehicles) or differing from those in vehicles with no high-voltage system*
⇒ *“1.8.3 Components not located in passenger compartment - vehicles with high-voltage system”, page 23*

1.8.2 Components not located in passenger compartment, all models



Note

- ◆ *Detaching and attaching coolant hoses at connections to heat exchanger of air conditioning unit*
⇒ *“5.15 Removing and installing heat exchanger”, page 507*
- ◆ *Incorporation of air conditioning unit heat exchanger into engine coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses*
- ◆ *Depending on the production period of the vehicle, certain models may be fitted with joints in the refrigerant lines (currently not implemented, introduction not yet finalised) ⇒ Electronic parts catalogue . As is the case with the connections at the various components, these joints should only be unfastened after discharging the refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner*

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1.8.3 Components not located in passenger compartment - vehicles with high-voltage system

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

**Note**

Components not located in passenger compartment on vehicles without and with a high-voltage system

⇒ "1.8.2 Components not located in passenger compartment, all models", page 23

1.8.4 Components of the battery cooling module - vehicles with high-voltage system

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
 ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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**Note**

Components are activated by the battery regulation control unit - J840- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

1.9 Control components of air conditioner (in passenger compartment)

⇒ [“1.9.1 Notes on controlling and regulating air conditioner”, page 27](#)

⇒ [“1.9.2 Air conditioner front operating and display unit \(Climatronic control unit J255 \) for controlling and regulating air conditioner”, page 29](#)

⇒ [“1.9.3 Rear Climatronic operating and display unit E265 for controlling and regulating air conditioner”, page 32](#)

1.9.1 Notes on controlling and regulating air conditioner



Note

- ◆ *In the event of a fault in the air conditioner, start by reading out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) and the operating and display unit for rear air conditioning system - E265- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode. If an instruction to read out the event memory of another control unit appears, also read out the event memory of this control unit (e.g. onboard supply control unit - J519- or convenience system central control unit - J393-). Certain air conditioner components (e.g. air conditioner compressor regulating valve - N280- , refrigerant pressure and temperature sender - G395-) are not actuated directly by -J255- or their measured values are not evaluated directly by -J255- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *If no fault is displayed, read out the relevant measured values from the air conditioner front operating and display unit, Climatronic control unit - J255- (and the rear Climatronic operating and display unit - E265-) and actuate any problematic components by way of the “Final control diagnosis” function ⇒ Vehicle diagnostic tester.*
- ◆ *The “Electrical check” function is not described in this Workshop Manual. When implementing electrical checks by way of the “Guided Fault Finding” function, information is given on the functions to be checked ⇒ Vehicle diagnostic tester.*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the “A/C” function on the “Car” / “Car systems” menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the “A/C” function of the “Car” / “Car systems” menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual.*
- ◆ *The temperature-sensitive resistance values for the various temperature sensors are listed in tables which can be called up via the “Guided Fault Finding” function ⇒ Vehicle diagnostic tester.*
- ◆ *Electrical checking of the various control motors is described in the Guided Fault Finding ⇒ Vehicle diagnostic tester.*
- ◆ *Servicing refrigerant circuit ⇒ [page 147](#)*
- ◆ *Perform the following work after completing the repairs:*
 - *Interrogate the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) and the operating and display unit for rear air conditioning system*

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- E265- , and erase any faults displayed ⇒ Vehicle diagnostic tester.
- Check encoding of air conditioner front operating and display unit, Climatronic control unit - J255- (and rear Climatronic operating and display unit - E265-) ⇒ Vehicle diagnostic tester.
- Check adaptation of air conditioner front operating and display unit, Climatronic control unit - J255- (and rear Climatronic operating and display unit - E265-) ⇒ Vehicle diagnostic tester.
- Perform basic setting of air conditioner front operating and display unit, Climatronic control unit - J255- (and rear Climatronic operating and display unit - E265-) ⇒ Vehicle diagnostic tester.



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1.9.2 Air conditioner front operating and display unit (Climatronic control unit - J255-) for controlling and regulating air conditioner



Note

- ◆ *At present, air conditioner front operating and display units, Climatronic control unit - J255- cannot be interchanged in the familiar manner (component protection active). The component protection feature (anti-theft system) can only be cancelled by entering certain vehicle data ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If a -J255- with active component protection (anti-theft system) is installed in a different vehicle, the functions required for vehicle security can still be selected, but not the convenience functions ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Pay attention to precise assignment on replacement of -J255- . There are different versions for vehicles with or without buttons for seat heating and / or seat ventilation etc. ⇒ Electronic parts catalogue .*
- ◆ *Lengthy pressing of the buttons on -J255- or on the rear Climatronic operating and display unit - E265- (e.g. caused by objects resting on them) may lead to the buttons sticking and a fault being stored in the event memory. If applicable, check the operation of the buttons and erase the event memory if no problem is found.*
- ◆ *The seat heating and ventilation settings are made on -J255- . These settings are transmitted via the data bus to the onboard supply control unit - J519- for example. The specified temperatures for the different seat heating and seat ventilation settings are stored in the -J519- . Depending on the version of -J519- and the vehicle production period, the specified temperature for the seat heating and seat ventilation may therefore differ in spite of identical settings on -J255- ⇒ **"1.3 Seat heating", page 3** and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J519-).*
- ◆ *If a new -J255- has been installed and basic setting not performed, air conditioner control action is restricted and this is displayed as a fault in the event memory. After fitting -J255- , air conditioner basic setting is therefore to be performed as specified ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The buttons, display and rotary controls of -J255- are illuminated by light-emitting diodes (LEDs, cannot be replaced).*
- ◆ *The function indicator lamps in the buttons and rotary controls of -J255- as well as the rotary controls and buttons cannot be replaced separately.*
- ◆ *In the event of incorrect measurement by the infrared temperature and sunlight penetration sensor installed in -J255- , check the panel of -J255- . The infrared temperature and sunlight penetration sensor must not be covered or concealed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The functions selected are indicated by lighting of the function indicator lamps in the various buttons and rotary controls or in the -J255- display zones above these.*

- ◆ Depending on the version and the setting on -J255-, the currently selected functions are indicated on the display of -J255- and on the display of the Multi Media Interface (MMI) or just on the display of -J255-. The duration of the display on the Multi Media Interface can be set by way of the "Adaption" function in the Guided Fault Finding routine for -J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If no fault has been stored and a -J255- function is not available, check the adaption of -J255- (the function may have been deactivated by way of a setting). If applicable, reset the adaption in all adaption channels to the factory setting → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If a condition prevails in which heating or ventilation of the driver's seat or front passenger's seat cannot be activated, this is stored as a fault in the onboard supply control unit - J519-, the seat and steering column adjustment control unit with memory - J136- or the front passenger seat adjustment with memory control unit - J521- (depending on model and vehicle equipment). On this vehicle, no information is currently transmitted via the data bus to the air conditioner operating and display unit, Climatronic control unit - J255- indicating that the event memory in the corresponding control unit or in the convenience system central control unit - J393- has to be read out → Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat heating or ventilation, the first step should therefore always be to read out the event memories of the control units which activate the seat heating and ventilation.
- ◆ A start/stop system is offered as an optional extra for this vehicle in combination with certain engines. On vehicles with start/stop system, the stop function may be inhibited depending on the setting on the operating and display unit (Climatronic control unit - J255-). For example, the stop function is not possible or the stop function is interrupted and the engine is switched on as soon as the "defrost" mode is selected. This also applies if the difference between the set specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI → Infotainment/MMI Operating Manual.
- ◆ Modified air conditioner operating and display units, Climatronic control unit - J255- are gradually (date not yet finalised) to be introduced as of Model Year 2014 (different functions, with part number up to index "H", can be seen for example from button  and with part number as of index "J", can be seen for example from button ) → Electronic parts catalogue.

Vehicles with auxiliary heater

- ◆ Pay attention to correct assignment of the air conditioner operating and display unit, Climatronic control unit - J255- to the remote control hand transmitter and to the remote control receiver for auxiliary heater - R64-. Different versions of the remote control hand transmitter and -R64- for -J255- with a part number up to index "H" (can be seen for example from the button ) and with part number as of index "J" (can be seen for example from the button ) . Possibly no function in the case of "combined fitting", incorrect encoding or adaption (ex-

act date of introduction on Audi A8 not yet finalised, gradual conversion planned as of Model Year 2014) ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ Additional functions of the auxiliary heater may be controlled by the Climatronic control unit - J255- and control unit for front display and information control panel - J523- , depending on the control unit version and the vehicle production period. For further information, refer to ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .

Vehicles with high-voltage system (hybrid vehicles)

- ◆ To enable the necessary functions to be implemented by the operating and display unit, Climatronic control unit - J255- on vehicles with a high-voltage system, such vehicles are only to be fitted with a -J255- provided with these. The functions required for vehicles with a high-voltage system are integrated into a -J255- with part number 4H0 820 043 as of index "F" ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *At the start of production, vehicles with a high-voltage system will only be available with an air conditioner rear air distribution housing (no rear air conditioning unit).*
- ◆ *For example, control units -J255- with part number 4G0 820 043 and index "F", "G" or "H" are installed in vehicles with high-voltage system from the start of production onwards ⇒ Electronic parts catalogue .*

Always perform the following operations after replacing the operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Check coding.
- Perform basic setting.
- Check adaption if applicable.
- Read out event memory and delete any entries displayed.
- ◆ Removing and installing air conditioner front operating and display unit
 ⇒ ["9.2.1 Removing and installing air conditioner front operating and display unit, Climatronic control unit J255", page 630](#)

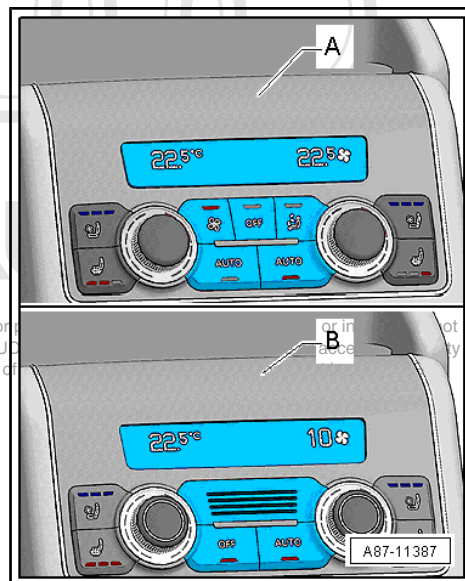
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1.9.3 Rear Climatronic operating and display unit - E265- for controlling and regulating air conditioner



Note

- ◆ Lengthy pressing of the buttons on the air conditioner front operating and display unit, Climatronic control unit - J255- or on -E265- (e.g. caused by objects resting on them) may lead to the buttons sticking and a fault being stored in the event memory. If applicable, check the operation of the buttons and erase the event memory if no problem is found.
- ◆ There are different versions of -E265-. When replacing -E265-, attention is therefore to be paid to correct assignment → Electronic parts catalogue .
- ◆ On -E265-, the "Component protection" function is currently not active (introduction of this function not yet finalised) → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The functions selected are indicated by the lighting of light-emitting diodes (LEDs) in the various -E265- buttons.
- ◆ The display zones and controls of -E265- are illuminated by light-emitting diodes (these LEDs cannot be replaced).
- ◆ If a new -E265- has been installed and basic setting not performed, air conditioner control action is restricted and this is displayed as a fault in the event memory → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ After replacing the air conditioner front operating and display unit, Climatronic control unit - J255- and / or -E265-, always perform basic setting, check the adaption and interrogate the event memory of the air conditioner → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI → Infotainment/MMI Operating Manual .
- ◆ At the start of production, -E265- -A- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265- -B-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version.
- ◆ This illustration shows the two versions of -E265-, each with the buttons for activation of the heated rear seats and rear seat ventilation. Pay attention to the correct assignment to the vehicle and to the air conditioner front operating and display unit, Climatronic control unit - J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode and → Electronic parts catalogue .



1.10 General information on control motors

⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**

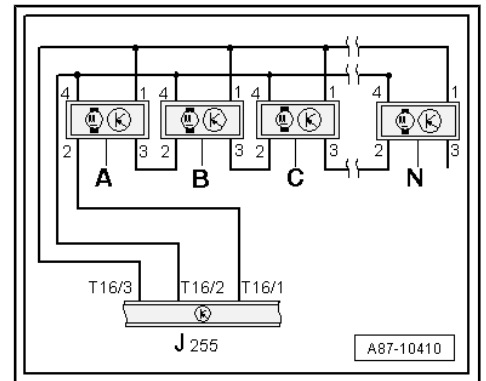
1.10.1 Overview of control motors of air conditioner



- ◆ On this vehicle the various control motors (-A- to -N-) at the front air conditioning unit, beneath the dash panel, at the rear air conditioning unit or at the rear air distribution housing are matched and activated by way of data lines. By way of these data lines (LIN bus 1, LIN bus 2), the various control motors (-A- to -N-) are connected in series to the air conditioner front operating and display unit, Climatronic control unit - J255- / to the rear Climatronic operating and display unit - E265-. A fault in a control motor connected by way of this data line or a fault in the wiring may lead to various entries in the event memory with different types of fault ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

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- ◆ The number of control motors connected to -J255- or -E265- by way of the data line (LIN bus 2) differs depending on vehicle equipment. A fault in a control motor connected by way of this data line or a fault in the wiring may lead to various entries in the event memory with different types of fault ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ At present, 16 control motors are connected in series via the data line (LIN bus 1) to -J255- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ On vehicles fitted with -E265-, 2 further control motors (installed beneath the dash panel) are currently connected in series via the data line (LIN bus 2) to -J255-. On vehicles with no -E265-, 6 further control motors (installed beneath the dash panel and at the rear air distribution housing) are connected in series via this data line to -J255- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ On vehicles with -E265-, the control motors installed at the rear air conditioning unit (currently 7x) are connected by way of a data line to -E265-. These control motors are activated in the same manner as the control motors connected to -J255- (also by way of this series connection) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ The sequence of the control motors in the wiring is currently not dependent on the version of the air conditioner or the vehicle model (left or right-hand drive) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



- ◆ In the "Basic setting" function, matching of the control motors connected to the various data lines (LIN bus 1 and LIN bus 2 to -J255- and LIN bus to -E265-) is only to be performed if there are no faults stored in -J255- with a cause other than a non-matched or incorrectly matched control motor. In addition, match the control motors one after the other using the two signal wires at -J255- . For matching of the control motors connected to the two data lines, interrogate the event memory of -J255- after performing matching via one data line. Do not start matching by way of the second data line until the first operation has been successfully completed. In the event of a fault at one of the two data lines of -J255- , it may no longer be possible (depending on the fault) to clearly establish the data line on which the fault occurred if matching has been performed in immediate succession by way of the two data lines of -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

The effect of a fault and the type of fault stored in the event memory differ depending on the operating status or the air conditioner Guided Fault Finding function in which a specific fault occurs
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ In the event of a fault concerning the control motor sequence (two or more connectors at the control motors or control motors interchanged on installation):
 - Operation of the control motors may still be OK until basic setting (addressing of control motors) is next performed if the connectors have been interchanged. The next time basic setting is performed, these control motors will however be incorrectly matched (addressed) and activation of the control motors (and thus the flaps) will no longer be correct as of this point in time (wrong assignment).
 - If the connectors at the control motors have been interchanged, these control motors will be incorrectly matched (addressed) in the basic setting function and the control motors (and thus the flaps) will not be activated properly (wrong assignment). Check the wiring between the control motors if interchanged connectors are suspected ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
 - Depending on the adjustment range for this control motor, an incorrect end stop will be detected during basic setting and stored as a fault in the event memory and basic setting will be terminated.
 - The wrong flaps will be moved and the air outflow direction will be incorrect. Depending on the adjustment range of the control motor, this is not always recognised as a fault. Before detaching, the fitting locations of all connectors and control motors are therefore to be marked and basic setting performed following re-connection.
- ◆ Faults which exist or occur during normal air conditioner operation may lead to the following event memory entries, depending on the type of fault:
 - In the event of a fault in the positive or earth connection to a control motor, this control motor can no longer exchange information with -J255- (or -E265-) and the corresponding control motor is stored in the event memory.
 - In the event of a fault in the data line to a control motor (e.g. open circuit in connector to contact "2" of control motor -B-), this control motor and all the control motors (-C- to -N-) series-connected downstream of this control motor can no longer exchange information with -J255- (or -E265-) and the corresponding control motor as well as those connected downstream of it are stored in the event memory.

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- In the event of a fault in the electronics of a control motor (e.g. in control motor -B-), control motor -B- may, depending on the type of fault, still be able to exchange information with -J255- (or -E265-), but all control motors (-C- to -N-) connected downstream of this control motor are stored in the event memory.
- ◆ Faults which exist or occur during basic setting of the air conditioner may lead to the following event memory entries, depending on the type of fault:
 - In the event of a fault in the positive or earth connection to a control motor (e.g. control motor -B-), this control motor cannot exchange information with -J255- (or -E265-) and is thus not recognised during basic setting. As all control motors are re-assigned and re-adapted starting from the last control motor -N- during the basic setting function, this control motor is missing in the series. -J255- (or -E265-) detects a missing control motor and stores the first control motor in the series connection as missing. In addition, the fault "Automatic addressing not OK" is displayed and, with certain control motors, possibly also "Upper or lower limit value exceeded".
 - In the event of a fault in the signal wire to a control motor (e.g. open circuit in connector to contact "2" of control motor -C-), this control motor and all the control motors series-connected downstream of this control motor can no longer exchange information with -J255- (or -E265-) and these control motors are thus not recognised during basic setting. As all control motors are re-assigned and re-adapted starting from the last control motor -N- during the basic setting function, these control motors are missing in the series. -J255- (or -E265-) recognises that several control motors are missing (for instance only control motors -B- -A- are detected incorrectly as assigned and matched). All other control motors are stored as missing in the event memory and the fault "Automatic addressing not OK" is displayed.
 - In the event of a fault in the electronics of a control motor or if a fault occurs during basic setting (e.g. in control motor -C-), this control motor may, depending on the type of fault, still be able to exchange information with -J255- (or -E265-), but is no longer able to exchange data with all the control motors (as far as control motor -N-) connected downstream of it. -J255- (or -E265-) recognises that several control motors are missing (possibly only control motors -C- to -A- are incorrectly assigned and matched). All other control motors are stored as missing in the event memory and the fault "Automatic addressing not OK" is displayed.

2 Safety precautions

⇒ [“2.1 Safety precautions when working on high-voltage vehicles”, page 36](#)

⇒ [“2.2 Safety precautions when working on vehicles with start/stop system”, page 43](#)

⇒ [“2.3 Safety precautions when using testers and measuring instruments during a road test”, page 43](#)

⇒ [“2.4 Safety precautions when working on the cooling system”, page 44](#)

⇒ [“2.5 Safety precautions when handling refrigerants”, page 44](#)

2.1 Safety precautions when working on high-voltage vehicles

⇒ [“2.1.1 Working on vehicles with high-voltage system \(hybrid vehicles\)”, page 36](#)

⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#)

2.1.1 Working on vehicles with high-voltage system (hybrid vehicles)

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WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent it from being switched back on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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**Note**

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - De-energise high-voltage system (Rep. gr. 93)
- ◆ *Before starting work on the high-voltage system, an Audi high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93; De-energising high-voltage system .*
- ◆ *The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .*



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**Note**

- ◆ *When working on hybrid vehicle components connected to the high-voltage system (e.g. the electrically driven air conditioner compressor), the high-voltage system must always be isolated from the supply before starting work.*
- ◆ *Work on the air conditioner in hybrid vehicles which does not directly affect the high-voltage system (e.g. refrigerant circuit pressure test, Guided Fault Finding for air conditioner or control unit for air conditioning compressor - J842- etc.) is only to be performed by qualified electricians ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warnings for work on high-voltage system and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery control.*
- ◆ *For certain work on hybrid vehicle components that are installed near high-voltage system components, the high-voltage system must be de-energised prior to beginning work ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .*

Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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Note

- ◆ *High-voltage system re-activation:*
- ◆ *Connect the vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - Re-energise high-voltage system (Rep. gr. 93)

Working with ignition switched on or high-voltage system active



DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

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Working on vehicles with a high-voltage system

- ◆ If work is necessary in the vicinity of high-voltage system components, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- ◆ If work is necessary on high-voltage system components, de-energise the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- ◆ To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- ◆ For test and measurement work that requires the vehicle's drive system to be active (READY) or the ignition to be switched on, move the selector lever to position "P", activate the parking brake and take care to keep well clear of the engine when it is running. Set up any tools needed so that they cannot come into contact with moving parts.



Note

- ◆ *Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).*
- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter" ⇒ Owner's Manual .*
- ◆ *Activating and deactivating drive system ⇒ Owner's Manual (note display of control unit in dash panel insert - J285-).*

2.1.2 Visual inspection of high-voltage components and wiring for damage



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

Procedure: Performing visual inspection

- ◆ Visual inspection in the engine compartment area involves checking the power and control electronics for the electrical system, the high-voltage cables for the battery and air conditioner compressor and the high-voltage cable for the drive motor (electric drive motor).
- ◆ Visual inspection of the underbody involves checking the high-voltage cables and the corresponding covers.
- ◆ When performing the visual inspection at the rear of the vehicle, pay particular attention to the drive battery - A2- , the high-voltage wiring for the battery and the electronics box with the maintenance connector for high-voltage system.

Check the following when performing the visual inspection:

- ◆ There must be no external damage on any high-voltage components.
- ◆ The insulation of the high-voltage wiring must be intact and undamaged.
- ◆ Check for unusual deformations of the high-voltage wiring.
- ◆ If you notice anything unusual or if anything is unclear, ask the responsible high-voltage technician or electrically skilled person.

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- ◆ For further information on the high-voltage system, refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Voltage levels in the high-voltage system of the hybrid vehicle constitute a safety hazard. Danger of electrocution!

- ◆ *It is very important to report any faults discovered to the high-voltage technician responsible immediately ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .*

2.2 Safety precautions when working on vehicles with start/stop system



WARNING

Injury risk due to automatic engine start (vehicles with start/stop system).

- ◆ *On vehicles with an activated start/stop system (indicated by a message in the instrument cluster display), the engine may start automatically on demand.*
- ◆ *Therefore, please make sure that the start/stop system is deactivated when performing repair work on the vehicle (switch off the ignition, and switch it on again if required).*

2.3 Safety precautions when using testers and measuring instruments during a road test

If testers and measuring instruments are to be used during a road test, please note the following:



WARNING

Accidents can be caused if the driver is distracted by test equipment, or if test equipment is not properly secured.

Injuries can also be caused if the passenger airbag is triggered in a collision.

- *The use of test equipment while driving causes distraction.*
- *There is an increased risk of injury if test equipment is not secured.*
- ◆ *Testers and measuring instruments should always be secured on the rear seat with a strap and should be operated by a second person sitting in the rear.*

2.4 Safety precautions when working on the cooling system

Note the following when working on the cooling system:



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*



Caution

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Risk of overheating if cap is not fitted properly.

- ◆ *You must feel and hear cap engage when closing it.*

2.5 Safety precautions when handling refrigerants

The components and piping system of the air conditioner are filled with the following refrigerant:

1.1.1 2-tetrafluoroethane (CF₃-CH₂F or CH₂F-CF₃)

This refrigerant is currently known in Germany by the trade names R134a, H-FKW 134a, SUVA 134a and KLEA 134a (other trade names may be used in other countries).

The following safety measures are to be observed in Germany for this refrigerant (additional regulations may apply in other countries).



Caution

Refrigerant is a potential health hazard

- ◆ *Always drain the refrigerant circuit before performing repair work with the circuit open ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .*
- ◆ *Only work on the refrigerant circuit in well ventilated areas. Care should be taken to ensure that there are no inspection pits, shafts or cellar entrances within a radius of 5 metres.*



WARNING

Risk of asphyxiation from refrigerant/air mixture if refrigerant escapes.

- ◆ ***Switch on the exhaust gas extraction system.***
- ◆ ***Escaping refrigerant is colourless, odourless, heavier than air and displaces oxygen. Should refrigerant gas escape, there will be a previously imperceptible risk of asphyxiation in poorly ventilated areas and inspection pits.***

Risk of dry coughing and nausea caused by toxic chemical refrigerant gas decomposition products.

- ◆ ***Smoking, welding, soldering and brazing are not permitted in areas exposed to refrigerant. The high temperature of a naked flame or hot objects causes refrigerant gas to undergo chemical decomposition. The resultant decomposition products are toxic.***

Risk of eye injuries!

- ◆ ***Keep an eye bath to hand.***
- ◆ ***If liquid refrigerant comes into contact with the eyes, rinse them thoroughly with water for about 15 minutes.***
- ◆ ***Then apply eye drops and consult a doctor immediately, even if you do not experience any pain in the eyes.***
- ◆ ***Inform the doctor of the type of refrigerant which caused the frostbite.***

Intensive exposure to refrigerant would cause frostbite on unprotected parts of the body. Avoid contact with liquid refrigerant or refrigerant vapours.

- ◆ ***Wear rubber gloves to protect the hands.***
- ◆ ***Wear safety goggles to protect the eyes.***
- ◆ ***If liquid refrigerant comes into contact with other parts of the body, rinse these thoroughly with cold water for about 15 minutes.***

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3 Repair notes

⇒ [“3.1 Rules for cleanliness”, page 46](#)

⇒ [“3.2 General notes”, page 46](#)

⇒ [“3.3 General repair instructions”, page 46](#)

⇒ [“3.4 Contact corrosion”, page 47](#)

⇒ [“3.5 Pipe/wire routing and attachment”, page 48](#)

⇒ [“3.6 Fitting radiator and condensers”, page 48](#)

⇒ [“3.7 Checking heating output”, page 48](#)

⇒ [“3.8 Checking cooling output”, page 70](#)

⇒ [“3.9 Working on refrigerant circuit”, page 108](#)

⇒ [“3.10 Discharging refrigerant circuit”, page 109](#)

⇒ [“3.11 Notes on general repairs”, page 110](#)

⇒ [“3.12 Paint repairs on vehicles with air conditioning system”, page 116](#)

⇒ [“3.13 Refrigerant circuit seals”, page 116](#)

3.1 Rules for cleanliness

Even slight soiling can cause faults. The following rules for cleanliness should therefore be observed when working on the air conditioner:

- ◆ Seal open pipes and connections immediately with clean plugs for example from the engine bung set - VAS 6122- .
- ◆ Place parts removed on a clean surface and cover over (do not use fluffy cloths).
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately
- ◆ Only install clean components: Replacement parts should only be unpacked immediately prior to installation. Do not use parts that have been stored loose (e.g. in tool boxes).
- ◆ Do not work with compressed air when the system is open.
- ◆ Protect unplugged connectors against dirt and moisture and always dry off before connecting.

3.2 General notes

- ◆ For the applicable current flow diagrams, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ A label in the engine compartment indicates the refrigerant used as well as the capacity ⇒ [page 1](#) .
- ◆ For further information on repair work for vehicles with air conditioning and on handling refrigerant, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.3 General repair instructions



WARNING

Remove the appropriate fuse(s) before working on electrical wiring.

 Note

Disconnect the battery before starting electric welding work on the vehicle ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

The air conditioner refrigerant circuit is only to be drained and opened:

- ◆ If this is required by the safety precautions (⇒ [page 44](#)).
- ◆ If this is necessary for the removal of other components.
- ◆ If components of the air conditioner refrigerant circuit have to be removed or replaced.

The air conditioner refrigerant circuit must remain closed during all other normal vehicle repair steps.

 Note

The connections for the senders/switches described in this Workshop Manual are fitted with a valve which closes automatically when the switches are unscrewed. These switches may therefore be renewed in any VW/Audi workshop without discharging the refrigerant circuit.

If drainage and opening of the air conditioner refrigerant circuit are required for performing certain repair operations on the heater and air conditioner, the work involved is described in the corresponding work procedure. Draining of the refrigerant circuit requires the use of specific tools and such work is also only to be performed by qualified personnel ⇒ **Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .**

 Note

*The necessary tools and expertise are prerequisites for performing repair work on the air conditioner refrigerant circuit involving drainage and opening of the refrigerant circuit. The vehicle may have to be taken to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel. The refrigerant circuit can then be drained and opened in the prescribed manner ⇒ **Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner***

3.4 Contact corrosion

Contact corrosion can occur if unsuitable connecting elements (bolts, nuts, washers), rivets, plugs, grommets, adhesives, etc. are used.

For this reason, the manufacturer only fits connecting elements with a special coating. In addition, rubber components, plastic components and adhesives are made of non-conductive materials. These tested, aluminium-compatible components are also available as replacement parts ⇒ **Electronic parts catalogue .**

Please note:

- ◆ If you have any doubts about the reusability of certain parts, always use new components.
- ◆ We recommend the use of genuine replacement parts only, as these have been checked and are compatible with aluminium ⇒ **Electronic parts catalogue .**

- ◆ We recommend using Audi Accessories ⇒ Electronic parts catalogue .
- ◆ Damage caused by contact corrosion is not covered by the warranty.

3.5 Pipe/wire routing and attachment

- ◆ To avoid interchange and to maintain the original installation position, mark the fuel, hydraulic system, vacuum and ACF system pipes or any wiring for example prior to removal. Make sketches or take photographs if necessary.
- ◆ To avoid damaging pipes and wires, ensure adequate clearance from all moving or hot components in the engine compartment on account of the confined space.
- ◆ Following attachment, check the routing of the refrigerant lines. They must be inserted in the holders provided and not make contact with other components.

3.6 Fitting radiator and condensers

- ◆ Even if fitted correctly, there may be slight pressure marks on the radiator and condenser fins. This is not to be viewed as damage. Neither radiator nor condensers are to be replaced on account of such minor pressure marks.
- ◆ If the condenser and radiator are no longer parallel as a result of slight deformation at the securing lugs on the sides of the condenser (e.g. following an accident), this can be corrected by bending the lugs back into position, provided that the condenser is still functioning properly and that there is no leakage. If the lugs are slightly deformed, the condenser does not have to be renewed.
- ◆ Slight bending of the condenser (up to 4 mm) is not a problem as long as there is enough of a gap (at least 4 mm) between the condenser and the radiator, the condenser is still functioning properly and there is no leakage. If there are slight deformations, the condenser does not have to be renewed.

3.7 Checking heating output

⇒ **“3.7.1 Requirements for checking heating output and activation of temperature flaps of air conditioner”, page 48**

⇒ **“3.7.2 Checking heating output and activation of temperature flaps of air conditioner”, page 56**

⇒ **“3.7.3 Checking heat output and activation of temperature flaps”, page 59**

3.7.1 Requirements for checking heating output and activation of temperature flaps of air conditioner

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ **page 36** and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage”
⇒ **“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41** and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid;

Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

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WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

Working with ignition switched on or high-voltage system active

**DANGER!**

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When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical

system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- For test and measurement work that requires the vehicle's drive system to be active (READY) or the ignition to be switched on, move the selector lever to position "P", activate the parking brake and take care to keep well clear of the engine when it is running. Set up any tools needed so that they cannot come into contact with moving parts.



Note

- ◆ *Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).*

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◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter" ⇒ Owner's Manual .*

- ◆ *Activating and deactivating drive system ⇒ Owner's Manual (note display of control unit in dash panel insert - J285-).*

All vehicles

- ◆ Coolant circuit properly bled ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .
- ◆ Engine warm (coolant temperature above 80 °C).
- ◆ Radiator and condenser clean; clean if necessary.
- ◆ All air ducts, covers and seals OK and properly installed.
- ◆ Air flow through dust and pollen filter not impeded by dirt ⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#) .
- ◆ Air intake for front air conditioning unit (in fresh-air and air recirculation mode) not impeded by contamination or retrofitted components.
- ◆ Air outlet from rear footwell vents (beneath front seats) not impeded by mats or other objects (check).
- ◆ Air duct to glove box for glove box cooling fitted as specified ⇒ ["7.6.5 Removing and installing air duct for glove box cooling", page 590](#) .
- ◆ Vehicle not exposed to direct sunlight
- ◆ Event memory of air conditioner front operating and display unit, Climatronic control unit - J255- (and if applicable of rear Climatronic operating and display unit - E265-) interrogated and erased, basic setting performed and encoding of -J255- (and if fitted -E265-) checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The adaptation of -J255- (and -E265- , if available) has been checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Following air conditioner settings made in MMI (Multi Media Interface) by way of "A/C" function in "Car" / "Car systems" menu: Auto recirculation "Off", Air flow "A/C mode medium" and footwell temperature "medium" (upward-pointing arrow).

**Note**

- ◆ *The functions for setting the air conditioner in the MMI (Multi Media Interface) ("A/C" function in "Car"/"Car systems" menu) vary depending on the version of the air conditioner, the production period and the vehicle model (some functions may not be provided on all models) ⇒ Owner's Manual .*
- ◆ *On vehicles for the USA, certain settings for the air conditioner via the MMI will no longer be available as of a particular production date (e.g. the "A/C style" function) ⇒ Owner's Manual . Also note the encoding and adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ All dash panel vents, as well as vents in B-pillars and in rear centre console open.
- ◆ Bonnet closed.

Vehicles with high-voltage system (hybrid vehicles)

- ◆ Ignition on and READY activated, the engine only starts or runs if warmer coolant is required to attain the set temperature in the passenger compartment or e.g. the drive battery - A2- (hybrid battery) is not sufficiently charged.
- ◆ With the ignition on and "warm" temperature setting on the air conditioner operating and display unit, Climatronic control unit - J255- ("HI" displayed on air conditioner operating and display unit and Multi Media Interface), the flow of coolant through the heat exchanger of the air conditioning unit is maintained by way of the coolant circulation pump - V50- ⇒ Rep. gr. 19 ; Coolant pump/coolant regulator unit; Exploded view - coolant pump .

**DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

With the engine running (READY active on vehicles with high-voltage system) and "warm" temperature setting on the air conditioner operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- ("HI" displayed on air conditioner operating and display unit and Multi Media Interface).

Vehicles without high-voltage system

- ◆ Engine running

- ◆ With the engine running and "warm" temperature setting on -J255- ("HI" display for driver and passenger side on -J255- and if fitted on -E265-).

All vehicles

- ◆ With the engine running (READY active on vehicles with high-voltage system) and "warm" temperature setting ("HI" display) on -J255- (and if fitted on -E265-) and in Multi Media Interface display.
- If fitted, the coolant shut-off valve - N82- is not activated.
- On vehicles with a regulated coolant circuit (only fitted with certain engines as of Model Year 2010), the related components (e.g. the regulated coolant pump and the coolant valve for cylinder head - N489-) must function and be activated properly ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .



Note

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Vehicles with an engine with regulated coolant circuit (e.g. with a regulated coolant pump and coolant valve for cylinder head - N489-) are currently not fitted with -N82- . On engines with a regulated coolant pump, the engine control unit activates the coolant pump to regulate coolant circulation ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .

- On vehicles with auxiliary heater, the heater coolant shut-off valve - N279- is not activated.
- If fitted, the coolant circulation pump - V50- is activated.
- On vehicles with auxiliary heater, the circulation pump - V55- is activated.



Note

- ◆ *If on vehicles with coolant shut-off valve - N82- (not fitted on all vehicles) or with heater coolant shut-off valves - N279- this component is activated, the passenger compartment is not heated
⇒ "8.3.1 Coolant shutoff valve N82 function", page 616 and
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If -N82- / -N279- does not open fully when not activated, problems may also be encountered with a lack of heat output.*
- ◆ *Vehicles with "auxiliary heater" as optional extra have no -N82- and no -V50- . On these vehicles, this function is assumed by the components of the auxiliary heater (-N279- and -V55-) ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Overview of fitting locations - auxiliary/supplementary heater; Overview of fitting locations - components not located in passenger compartment .*
- ◆ *If, on vehicles fitted with an "auxiliary heater" as optional extra, the auxiliary heater circulation pump - V55- is activated and the heater coolant shut-off valve - N279- is not, refer to ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Overview of fitting locations - auxiliary/supplementary heater; Overview of fitting locations - components not located in passenger compartment .*

For checking the heat output it is recommended to call up the displays for the following measured values of -J255- :

- ◆ The measured values of the following temperature sensors (left vent temperature sender - G150- , right vent temperature sender - G151- , left footwell vent temperature sender - G261- , right footwell vent temperature sender - G262- , evaporator output temperature sender - G263-).
- ◆ The measured value of the temperature sensor for rear intake air temperature - G639- (only on vehicle with no rear air conditioning unit, with and without a rear Climatronic operating and display unit - E265-)
- ◆ Activation of the following components (fresh air blower - V2- , rear fresh air blower - V80- , radiator fan - V7- , radiator fan 2 - V177-).
- ◆ Activation of the following components (if fitted, depending on equipment and type of engine: coolant circulation pump - V50- / circulation pump - V55- , coolant shut-off valve - N82- / heater coolant shut-off valve - N279-)
- ◆ Activation of the air conditioner compressor regulating valve - N280- (compressor shut-off criteria and actual compressor current) on vehicles with no high-voltage system.
- ◆ Activation of electrical air conditioner compressor - V470- (compressor shut-off criteria and compressor speed) on vehicles with high-voltage system.
- ◆ Coolant temperature and ambient temperature.
- ◆ Measured value of refrigerant pressure and temperature sender - G395- (refrigerant pressure).

**Note**

*On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265- . On this type of -E265- , it is only possible to set one temperature and there is only one **AUTO** button*

⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632 .

Checking

Following settings made on air conditioner front operating and display unit, Climatronic control unit - J255- :

- ◆ "Auto" mode (lamps in both **AUTO** buttons light)
- ◆ "Cold" temperature setting for driver's and front passenger's side (display "LO" for driver's and front passenger's side on display of air conditioner operating and display unit and Multi Media Interface)
- ◆ Air conditioner compressor on (lamp in **AC** or **A/C** button lights).
- ◆ Fresh air blowers (fresh air blower - V2- and rear fresh air blower - V80-) set to "maximum speed" (reading on display of -J255- and of Multi Media Interface "10" or higher).

Following settings made on rear Climatronic operating and display unit - E265- if fitted:

- ◆ "Auto" mode (lamps in **AUTO** button(s) light(s))
- ◆ "Cold" temperature setting ("LO" display for left and right side)
- ◆ Rear fresh air blower - V80- set to "maximum speed".

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Note

- ◆ *Manual alteration of the fresh air blower speed causes the lamps in the **AUTO** buttons of -J255- / -E265- to go out.*
- ◆ *The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).*
- On vehicles with a diesel engine and on vehicles with a high-voltage system (hybrid vehicles with petrol engine), activation and operation of supplementary heater OK.

Note

- ◆ *The type of supplementary heating system depends on the vehicle equipment. Vehicles with a diesel engine with no "auxiliary heater" optional extra are fitted with an auxiliary air heater control unit - J604- with an auxiliary air heater element - Z35-. Vehicles with an "auxiliary heater" as optional extra have no - J604- with -Z35- and the auxiliary heater is activated as a supplementary heater
⇒ ["3.11.4 Checking supplementary heating system", page 114](#).*
- ◆ *Vehicles with a high-voltage system (hybrid vehicles with petrol engine) are fitted with a auxiliary air heater control unit - J604- with auxiliary air heater element - Z35-
⇒ ["3.11.4 Checking supplementary heating system", page 114](#).*
- ◆ *In the event of problems with insufficient heat output at low ambient temperatures on vehicles with a diesel engine or on vehicles with a high-voltage system (hybrid vehicles with petrol engine), check the settings in the MMI for the supplementary heater as well as activation and operation of the supplementary heater
⇒ ["5.7.1 Checking electric supplementary heater", page 470](#)
or ⇒ Auxiliary/supplementary heater; Rep. gr. 82; Auxiliary/supplementary heater (depending on vehicle equipment).*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual.*

**Functions with engine running (not hybrid vehicles) / drive system/
READY activated (hybrid vehicles):****Note**

On vehicles with a high-voltage system (hybrid vehicles) and vehicles with a start/stop system, the engine may only run if additional heat output is required to attain the set temperature.

- Radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177-) running (activation and speed are governed by pressure in refrigerant circuit and engine temperature).

**Note**

Depending on the version of the air conditioner front operating and display unit, Climatronic control unit - J255- , the radiator fan (s) (radiator fan - V7- and radiator fan 2 - V177-) is/are only switched in as of a certain pressure in the refrigerant circuit (currently as of a pressure of approx. 9 bar). Activation of the radiator fan(s) is displayed in the "Reading measured values" function of the Guided Fault Finding routine ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Fresh air blower - V2- running at maximum speed (speed "10" or higher)
- Operation of rear fresh air blower - V80- at maximum speed

**Note**

The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).

- Switching of the front air conditioner to air recirculation mode (approx. 1 minute after starting the vehicle, the air flow/fresh-air flap is closed and the air recirculation flap opened, air is drawn in by the fresh air blower - V2- from the passenger compartment beneath the dash panel/glove box).

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If one of these requirements is not satisfied, interrogate the event memory, perform final control diagnosis and read out the corresponding measured value ⇒ Vehicle diagnostic tester.

If the conditions listed above are met:

- ◆ For checking heat output and activation of the temperature flaps, refer to
⇒ ["3.7.2 Checking heating output and activation of temperature flaps of air conditioner", page 56](#) .

3.7.2 Checking heating output and activation of temperature flaps of air conditioner

Vehicles with high-voltage system (hybrid vehicles)

- ◆ Ignition on and READY activated, the engine only starts or runs if warmer coolant is required to attain the set temperature in the passenger compartment or e.g. the drive battery - A2- (hybrid battery) is not sufficiently charged.

- ◆ Ignition on and "warm" temperature setting on air conditioner operating and display unit, Climatronic control unit - J255- ("HI" in display of air conditioner operating and display unit and Multi Media Interface).



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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Working with ignition switched on or high-voltage system active

**DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical

system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- For test and measurement work that requires the vehicle's drive system to be active (READY) or the ignition to be switched on, move the selector lever to position "P", activate the parking brake and take care to keep well clear of the engine when it is running. Set up any tools needed so that they cannot come into contact with moving parts.



Note

- ◆ *Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).*
- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter" ⇒ Owner's Manual .*
- ◆ *Activating and deactivating drive system ⇒ Owner's Manual (note display of control unit in dash panel insert - J285-).*
- Activate drive system/READY (observe display in control unit in dash panel insert - J285-) ⇒ Owner's Manual .

All vehicles

Requirements satisfied

⇒ ["3.7.1 Requirements for checking heating output and activation of temperature flaps of air conditioner", page 48](#)

- ◆ For checking heat output and activation of the temperature flaps, refer to
⇒ ["3.7.3 Checking heat output and activation of temperature flaps", page 59](#) .

3.7.3 Checking heat output and activation of temperature flaps

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Note

An air conditioner with a rear air conditioning unit is currently not available for vehicles with a high-voltage system.

- Close bonnet.
- Close doors, bonnet, windows, sun roof and rear lid.
- Open all the dash panel vents and the vents in the rear centre console.
- Open the vent in the B-pillars on the left and right.
- Close the vent for glove box cooling (in the glove box).
- Switch on the ignition and activate READY, the engine starts automatically if required (on vehicles with a high-voltage system).
- Start engine (not on vehicles with high-voltage system).

Make the following settings on the air conditioner front operating and display unit, Climatronic control unit - J255- :

**Note**

Pressing the **[SYNC]** button on -J255- stores the settings for the front driver's side at the front passenger's side as well and if applicable also at -E265-.

- ◆ On -J255- press the **[SYNC]** button.
- ◆ Select "Auto" mode for the driver's and front passenger's side (lamps in **[AUTO]** buttons light).
- ◆ "Cold" temperature setting for driver's and passenger's side (display "LO" on -J255- and Multi Media Interface)
- ◆ Air conditioner compressor on (lamp in **[AC]** or **[A/C]** button lights).
- ◆ Fresh air blowers (front and rear) set to "Maximum speed" (reading in display of -J255- and Multi Media Interface "10" or higher).
- ◆ Use the rotary controls at -J255- to set the air outflow direction for the driver's and front passenger's side to "footwell" and "dash panel vents" (indicated on display of -J255- and Multi Media Interface).

Following settings made on rear Climatronic operating and display unit - E265- if fitted:

- ◆ "Auto" mode (lamps in **[AUTO]** button(s) light(s)).
- ◆ "Cold" temperature setting ("LO" display for left and right side)
- ◆ Rear fresh air blower - V80- set to "maximum speed".
- ◆ Use the rotary controls at -E265- to set the air outflow direction for the left and right side to "footwell" and "vents in B-pillars" (indicated on display of -E265-).

**Note**

- ◆ *The lamps in the **[AUTO]** buttons go out when the air outflow direction and/or the fresh air blower speed is/are altered manually.*
- ◆ *The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).*
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- ◆ *Dash panel vents, as well as vents in B-pillars and in rear centre console open.*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **[AUTO]** button*
⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632.
- Start front air conditioner Guided Fault Finding and select the "Reading measured values" function ⇒ Vehicle diagnostic tester.
- Allow the air conditioner to run for several minutes at maximum cooling output (air conditioner compressor switched on, lamp in **[AC]** or **[A/C]** button lights).

- Compare the measured value of -G263- to the measured values of -G150- , -G151- , -G261- , -G262- (and -G639-).



Note

The temperature sensor for rear intake air temperature - G639- is only fitted on vehicles with a rear air distribution housing (no rear Climatronic operating and display unit - E265- and no rear air conditioning unit).

Specifications:

- ◆ After 5 minutes, the measured values for the temperature sensors (downstream of the heat exchanger) -G150- , -G151- , -G261- , -G262- (and -G639-) must not be more than 9 °C higher than the value for -G263- .



Note

On account of the design of the air conditioning unit and the air routing in the vehicle there is always a certain increase in the temperature of the air.

If the required values are not obtained, perform the fault finding measures to be taken in the event of an increase in temperature downstream of the evaporator ➔ [page 69](#) .



Note

If the measured value for one or two temperature sensors differs from the measured values of the other temperature sensors, check this temperature sensor and the control motor which actuates the temperature flap upstream of this temperature sensor ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Then additionally on vehicles with an air conditioning unit (and a rear Climatronic operating and display unit - E265-).

- Start rear air conditioner Guided Fault Finding and select the "Reading measured values" function ➔ **Vehicle diagnostic tester** in "Guided Fault Finding" mode.
- Compare the measured value for -G263- to the measured values for -G635- , -G636- , -G637- and -G638- .

Specifications:

- ◆ The measured values displayed must not be more than 10 °C higher than the measured value displayed for the evaporator output temperature sender - G263- .

If the required values are not attained, refer to ➔ **"3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system", page 86** .

- Use the rotary control on the air conditioner front operating and display unit, Climatronic control unit - J255- to set the temperature for the driver's side to "warm" (display "Hi" on display of -J255- and if fitted of rear Climatronic operating and display unit - E265-).

**Note**

- ◆ *If the temperature selected for the driver's side on -J255- is not adopted for all vents, press the **[SYNC]** button on -J255-.*
- ◆ *Pressing the **[SYNC]** button on -J255- stores the settings for the front driver's side at the front passenger's side as well and if applicable also at -E265-.*

The display for the temperature settings changes for all vents (driver's and front passenger's side, for rear left and right) from "LO" to "HI".

- Start front air conditioner Guided Fault Finding and select the "Reading measured values" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Read out the measured values displayed in the "Reading measured values" function of the Guided Fault Finding routine for the -J255- various temperature sensors -G150- , -G151- , -G261- , -G262- (and -G639-) ⇒ Vehicle diagnostic tester.

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**Note**

The temperature sensor for rear intake air temperature - G639- is only fitted on vehicles with no rear Climatronic operating and display unit - E265-.

Specifications:

- ◆ The measured temperature for all temperature sensors increases to in excess of 50 °C (depending on the instantaneous engine temperature).

**Note**

- ◆ *On vehicles with a high-voltage system, reduce the speed of the fresh air blower - V2- and the rear fresh air blower - V80- if applicable. The delivery capacity of the coolant circulation pump - V50- may not always be sufficient to attain the required heat output with the engine stopped and at maximum fresh air blower speed.*
- ◆ *On vehicles with start/stop system and vehicles with high-voltage system, the flow of coolant through the heating system heat exchanger in the air conditioning unit is maintained by the coolant circulation pump - V50- when the engine is stopped.*
- ◆ *-V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.*
- ◆ *The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

If the required values are attained at all temperature sensors:

- ◆ Continue testing for vehicles with no rear air conditioning unit (with and without a rear Climatronic operating and display unit - E265-) ⇒ [page 65](#) (check partition for temperature regu-

lation between left and right side in front and rear air conditioning unit).

- ◆ Continue testing for vehicles with a rear air conditioning unit (and a rear Climatronic operating and display unit - E265-)
 ⇒ [page 64](#) (check heat output of rear air conditioning unit).



Note

At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version

⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265-", [page 632](#)

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If the required values are not attained at any of the temperature sensors:

- ◆ Check activation and operation of the coolant circulation pump - V50- (circulation pump - V55-) and the coolant shut-off valve - N82- (heater coolant shut-off valve - N279-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Check incorporation of the air conditioner into the coolant circuit ⇒ [page 599](#) .
- ◆ Check bleeding of coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .
- ◆ Check the heat output of the air conditioner at an engine speed of approx. 1500 to 2000 rpm (repeat the test at a higher engine speed). If the required heat output is attained at this engine speed, the problem is not in the air conditioning unit, but rather in the coolant circuit (incorporation of air conditioner into coolant circuit, delivery rate of engine coolant pump, flow of coolant through heat exchanger in front air conditioning unit, incorporation of -V50- into coolant circuit etc.)
 ⇒ "8.1 Incorporation of air conditioner into coolant circuit", [page 599](#) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .
- ◆ Check for proper operation of the engine coolant pump (if the coolant pump is defective or -V50- not properly incorporated, too little coolant may flow through the heating system heat exchanger in the front and rear air conditioning unit) ⇒ Rep. gr. 19 ; Coolant pump/coolant regulator unit; Exploded view - electrical coolant pump .



Note

Vehicles with an engine with regulated coolant circuit (e.g. with a regulated coolant pump and coolant valve for cylinder head - N489-) are currently not fitted with -N82- . On engines with a regulated coolant pump, the engine control unit activates the coolant pump to regulate coolant circulation.

If the required values are not attained at just one or two temperature sensors:

- ◆ Check actuation and operation of the various control motors for the temperature flaps in the front air conditioning unit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ Check the measured values of the various temperature sensors ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Perform the fault-finding procedure for a temperature increase downstream of the evaporator ⇒ [page 69](#) .
- ◆ Check the foam seal at the heating system heat exchanger of the front air conditioning unit
⇒ ["5.15.2 Removing and installing heat exchanger", page 508](#) .
- ◆ On vehicles with an auxiliary air heater element - Z35- , check the partition between the left and right side in the front air conditioning unit by way of the -Z35- mounting slot
⇒ ["5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604 ", page 474](#) .
- ◆ Check bleeding of coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant

Additional testing for vehicles with a rear air conditioning unit (and an operating and display unit for rear air conditioning system - E265-), checking heat output of rear air conditioning unit

**Note**

Continuation of checking of heat output and activation of temperature flaps for vehicles with a rear air conditioning unit

The heat output and the activation of the temperature flaps of the front air conditioner have been checked and are OK

⇒ ["3.7.2 Checking heating output and activation of temperature flaps of air conditioner", page 56](#)

- Read out the measured values displayed in the "Reading measured values" function of the -E265- Guided Fault Finding routine for the various temperature sensors -G635- , -G636- , -G637- and -G638- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

Use can additionally be made of a commercially available thermometer to measure the temperature of the air emerging from the rear centre console vents (on the left and right).

Specifications:

- ◆ The measured temperature for all temperature sensors increases to in excess of 50 °C (depending on the instantaneous engine temperature).

If the required values are attained at all temperature sensors:

- ◆ Continue checking ⇒ [page 65](#) (check partition for temperature regulation between left and right side in air conditioning unit).

If the required values are not attained at any of the temperature sensors:

- ◆ Check activation and operation of the coolant circulation pump - V50- (circulation pump - V55-) and the coolant shut-off valve - N82- (heater coolant shut-off valve - N279-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ Check incorporation of the rear air conditioner into the coolant circuit ⇒ [page 599](#) .
- ◆ Check bleeding of coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant
- ◆ Check the heating output at an engine speed of approx. 1500 rpm to 2000 rpm (i.e. repeat the test at an increased engine speed). If the required heat output is attained at this engine speed, the fault is not in the air conditioning unit, but rather in the coolant circuit (check incorporation of the air conditioner into the coolant circuit, engine coolant pump delivery, flow of coolant through heat exchanger in rear air conditioning unit etc.)
⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ Check the coolant temperature regulator in the engine (the engine coolant may not warm up properly if the regulator is defective) ⇒ Rep. gr. 19 ; Coolant pump/coolant regulator unit; Checking coolant regulator unit .
- ◆ Check for proper operation of the engine coolant pump (if the coolant pump is defective or -V50- not properly incorporated, too little coolant may flow through the heating system heat exchanger in the front and rear air conditioning unit) ⇒ Rep. gr. 19 ; Coolant pump/coolant regulator unit; Exploded view - coolant pump .
- ◆ Check the foam seal at the heating system heat exchanger of the rear air conditioning unit
⇒ ["6.8 Removing and installing heat exchanger", page 553](#) .

If the required values are not attained at just one or two temperature sensors:

- ◆ Check actuation and operation of the various control motors for the temperature flaps in the rear air conditioning unit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Check the measured values of the various temperature sensors in the rear air ducts ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Continuation of heat output test for front and rear air conditioning units (check partition for temperature regulation between left and right side in air conditioning unit).

- Use the rotary control on the air conditioner front operating and display unit, Climatronic control unit - J255- (and if fitted the rear Climatronic operating and display unit - E265-) to set the temperature for the passenger side (front and rear) to "cold" ("LO") on display of -J255- (and if fitted -E265-) for passenger side.
- Leave the temperature for the driver side (front and rear) set to "warm" ("HI") display on -J255- (and if fitted -E265-).
- Start front air conditioner Guided Fault Finding and select the "Reading measured values" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Allow the air conditioner to run for several minutes in this setting (air conditioner compressor switched on, lamp in **A/C** or **A/C** button lights).
- Compare the measured value of the evaporator output temperature sender - G263- to the measured values of the left vent temperature sender - G150- , right vent temperature sender - G151- , left footwell vent temperature sender - G261- , right footwell vent temperature sender - G262- (and temperature sensor for rear intake air temperature - G639-).

**Note**

- ◆ *If the temperature setting for one side (driver's or passenger's side) is "warm", the specified outflow temperature at the evaporator is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- to a higher value (up to approx. 10 °C).*
- ◆ *The temperature sensor for rear intake air temperature - G639- is only fitted on vehicles with no rear air conditioning unit (with and without rear Climatronic operating and display unit - E265-).*
- ◆ *On vehicles with no rear air conditioning unit (with rear air distribution housing), the temperature of the air flowing out of the front air conditioning unit to the rear air distribution housing is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- such that a medium temperature is set for the air from the vents in the rear area. For this purpose the specified temperature for the air from the vents in the rear area is calculated by J255- by way of the setting for the left and right side on -J255-. If however the setting on -J255- is such that the temperature is no longer regulated (e.g. "HI" for maximum heating or "LO" for maximum cooling), the temperature of the air from the vents in the rear area is no longer regulated. If for example, the settings on -J255- are maximum heating "HI" for one side and maximum cooling "LO" for the other side, the air for the vents in the rear area is heated to the maximum level.*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).*

Specifications:

- ◆ At -G150- and -G261- the temperature remains in excess of 50 °C (depending on the instantaneous engine temperature).
- ◆ At -G151- and -G262- the temperature drops within 5 minutes to a value which must not exceed the measured value of the evaporator output temperature sender - G263- by more than 15 °C.
- ◆ The temperature at the temperature sensor for rear intake air temperature - G639- settles at a level roughly corresponding to the temperature on the warmer side (can be ignored).
- ◆ The temperatures displayed in the "Reading measured values" function of the Guided Fault Finding routine for the temperature sensors on one side (-G150- and -G261-) as well as (-G151- and -G262-) settle at a similar level within 5 minutes (temperature difference in each case less than 9 °C).



Note

- ◆ *On vehicles with a high-voltage system, reduce the speed of the fresh air blower - V2- and the rear fresh air blower - V80- if applicable. The delivery capacity of the coolant circulation pump - V50- may not always be sufficient to attain the required heat output with the engine stopped and at maximum fresh air blower speed.*
- ◆ *On vehicles with start/stop system and vehicles with high-voltage system, the flow of coolant through the heating system heat exchanger in the air conditioning unit is maintained by the coolant circulation pump - V50- when the engine is stopped.*
- ◆ *-V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.*
- ◆ *The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- On vehicles with no rear air conditioning unit (with and without rear Climatronic operating and display unit - E265-) set the temperature for the passenger side to 18 °C and for the driver side to 28 °C.
- ◆ The temperature at the temperature sensor for rear intake air temperature - G639- settles to a level between the values for the left and right (the air for the left and right side from the front air conditioning unit is mixed in the rear air distribution housing).
- Start rear air conditioner Guided Fault Finding (vehicles with a rear air conditioning unit only) and select the "Reading measured values" function ⇒ Vehicle diagnostic tester.
- Compare the measured value for the evaporator output temperature sender - G263- to the measured values for the rear left chest vent temperature sender - G635- , rear right chest vent temperature sender - G636- , vent temperature sender for rear left footwell - G637- and vent temperature sender for rear right footwell - G638- .

Specifications:

- ◆ The temperature at the rear left chest vent temperature sender - G635- and the vent temperature sender for rear left footwell - G637- remains in excess of 50 °C (depending on the instantaneous engine temperature).
- ◆ At the rear right chest vent temperature sender - G636- and the vent temperature sender for rear right footwell - G638- , the temperature drops within 5 minutes to a value which must not exceed the measured value of the evaporator output temperature sender - G263- by more than 15 °C.
- ◆ The temperatures displayed in then "Reading measured values" function of the Guided Fault Finding routine for the temperature sensors on one side (-G635- and -G637-) as well as (-G636- and -G638- -G262-) are assimilated within 5 minutes (the temperature difference in each case is less than 9 °C).

**Note**

On vehicles with a high-voltage system, reduce the speed of the fresh air blower - V2- and the rear fresh air blower - V80- if applicable. The delivery capacity of the coolant circulation pump - V50- may not always be sufficient to attain the required heat output with the engine stopped and at maximum fresh air blower speed.

Testing is over if the specifications are attained.

**Note**

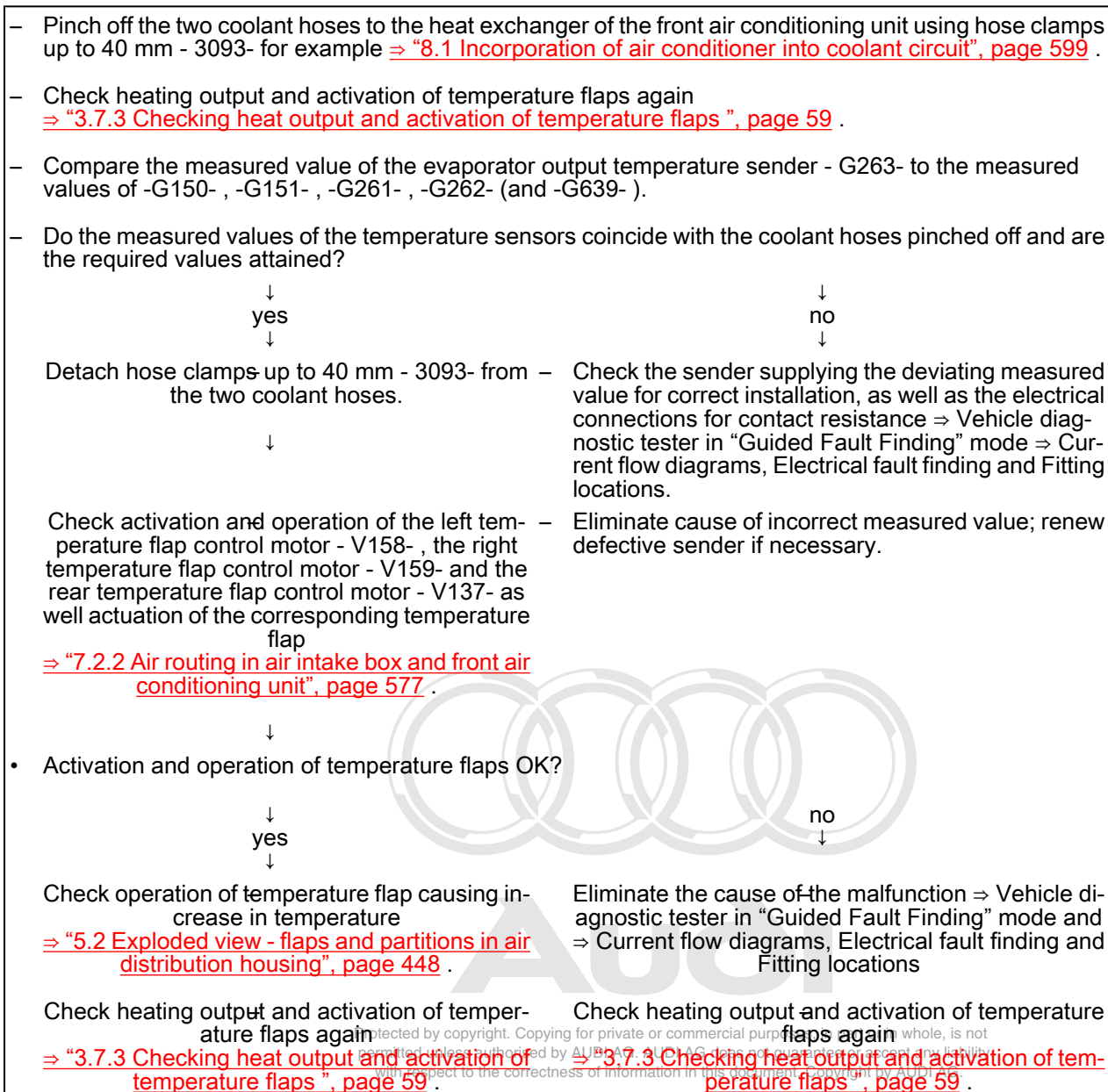
After setting the temperature for the driver side to "LO" and for the passenger's side to "Hi", this test can be repeated with the opposite measured values.

Check the following if readout does not match specifications:

- ◆ Check activation and operation of the various control motors for the temperature flaps in the front or rear air conditioning unit (depending on where the specifications were not attained)
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Check the foam seal at the heating system heat exchanger of the front or rear air conditioning unit (depending on where the specifications were not attained)
⇒ ["5.15.2 Removing and installing heat exchanger", page 508](#) and
⇒ ["6.8 Removing and installing heat exchanger", page 553](#).
- ◆ Check bleeding of coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant
- ◆ On vehicles with an auxiliary air heater element - Z35- , check the partition between the left and right side in the front air conditioning unit by way of the -Z35- mounting slot (only if the values in the front air conditioning unit are not attained)
⇒ ["5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604", page 474](#).
- ◆ Check activation and operation of the coolant circulation pump - V50- (circulation pump - V55-) and the coolant shut-off valve - N82- (heater coolant shut-off valve - N279-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Check for proper operation of the engine coolant pump (if the coolant pump is defective or -V50- not properly incorporated, too little coolant may flow through the heating system heat exchanger in the front and rear air conditioning unit) ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ Check incorporation of the air conditioner into the coolant circuit ⇒ [page 599](#) .

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Fault-finding in the event of temperature increase downstream of evaporator (in front air conditioning unit)



3.8 Checking cooling output

⇒ "3.8.1 Notes on checking the cooling output - vehicles without high-voltage system", page 70

⇒ "3.8.2 Requirements for checking cooling output of air conditioner - vehicles without high-voltage system", page 71

⇒ "3.8.3 Checking - vehicles without high-voltage system", page 74

⇒ "3.8.4 Measures to be taken if readout does not match specification (required cooling output of front air conditioning unit is not attained) - vehicles without high-voltage system", page 81

⇒ "3.8.5 Fault isolation following ice formation on evaporator - vehicles without high-voltage system", page 83

⇒ "3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system", page 86

⇒ "3.8.7 Notes on checking the cooling output - vehicles with high-voltage system", page 88

⇒ "3.8.8 Requirements for checking cooling output of air conditioner - vehicles with high-voltage system", page 91

⇒ "3.8.9 Checking - vehicles with high-voltage system", page 96

⇒ "3.8.10 Fault finding if readout does not match specification (required cooling output is not attained), vehicles with high-voltage system", page 104

⇒ "3.8.11 Fault isolation following ice formation on evaporator - vehicles with high-voltage system", page 107

3.8.1 Notes on checking the cooling output - vehicles without high-voltage system

Vehicles with a mechanically driven air conditioner compressor only



Note

- ◆ *A start/stop system is available as optional extra for this vehicle with certain engines. Depending on the setting on the front operating and display unit, Climatronic control unit - J255- (and if applicable also on the rear Climatronic operating and display unit - E265-) the stop function may be inhibited by these units. If -J255- has been set to "Defrost" mode for example, no stop function is possible or the stop function is terminated and the engine started as soon as this mode is selected. This also applies if the difference between the set specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *On this vehicle, the coolant circulation pump - V50- is actuated not only with the "Stop function" active but also with the engine running e.g. with "warm" temperature setting on the air conditioner front operating and display unit, Climatronic control unit - J255- ("HI" display on -J255- and Multi Media Interface). The coolant circulation pump - V50- is also actuated on this vehicle to assist the engine coolant pump ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

- ◆ Vehicles with an "auxiliary heater" as optional extra may not be fitted with a coolant circulation pump - V50- (or a coolant shut-off valve - N82-). On vehicles with no -V50- or -N82- , this function is assumed by the auxiliary heater components (heater coolant shut-off valve - N279- and circulation pump - V55-) ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses .
- ◆ On vehicles with no rear air conditioning unit (with rear air distribution housing), the temperature of the air flowing out of the front air conditioning unit to the rear air distribution housing is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- such that a medium temperature is set for the air from the vents in the rear area. For this purpose the specified temperature for the air from the vents in the rear area is calculated by -J255- by way of the setting for the left and right side on -J255- . If however the setting on -J255- is such that the temperature is no longer regulated (e.g. "HI" for maximum heating or "LO" for maximum cooling), the temperature of the air from the vents in the rear area is no longer regulated. If for example, the settings on -J255- are maximum heating "HI" for one side and maximum cooling "LO" for the other side, the air for the vents in the rear area is heated to the maximum level.
- ◆ On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#)
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Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .

3.8.2 Requirements for checking cooling output of air conditioner - vehicles without high-voltage system

Vehicles with a mechanically driven air conditioner compressor only

- ◆ Ambient temperature above 15 ° C.
- ◆ Radiator and condenser clean; clean if necessary.
- ◆ Poly V-belt for compressor drive OK and correctly tensioned, pulley actually driving air conditioner compressor (vehicles with 8-cyl. TDI or 6 and 12-cyl. engine)
⇒ ["3.2 Exploded view - pulley", page 253](#)
- ◆ Drive unit of air conditioner compressor correctly installed, compressor actually being driven (vehicles with 8-cyl. FSI engine) ⇒ [page 250](#) .
- ◆ All air ducts, covers and seals OK and properly installed.
- ◆ Air flow through dust and pollen filter not impeded by dirt
⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#) .

- ◆ Air intake (in fresh air and air recirculation mode) not impeded by dirt or retrofitted components.
- ◆ Air duct to glove box for glove box cooling fitted as specified
⇒ ["7.6.5 Removing and installing air duct for glove box cooling", page 590](#).
- ◆ Vehicle not exposed to direct sunlight
- ◆ Engine warm (coolant temperature above 80 °C).
- ◆ Event memory of air conditioner front operating and display unit, Climatronic control unit - J255- (and if applicable of rear Climatronic operating and display unit - E265-) interrogated and erased, basic setting performed and encoding of -J255- (and -E265-) checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The adaptation of -J255- (and -E265- , if available) has been checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Following air conditioner settings made in MMI (Multi Media Interface) by way of "A/C" function in "Car" / "Car systems" menu: Auto recirculation "Off", Air flow "A/C mode medium" and footwell temperature "medium" (upward-pointing arrow).

**Note**

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- ◆ *The functions for setting the air conditioner in the MMI (Multi Media Interface) ("A/C" function in "Car" / "Car systems" menu) vary depending on the version of the air conditioner, the production period and the vehicle model (some functions may not be provided on all models) ⇒ Owner's Manual.*
- ◆ *On vehicles for the USA, certain settings for the air conditioner via the MMI will no longer be available as of a particular production date (e.g. the "A/C style" function) ⇒ Owner's Manual. Also note the encoding and adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ All dash panel vents and vents in rear centre console and B-pillar open
- ◆ Vent for glove box cooling (in glove box) closed
- ◆ Air outlet from rear footwell vents (beneath front seat) not impeded by mats or other objects (check).
- ◆ Bonnet closed.
- ◆ Engine running.

Following settings made on air conditioner front operating and display unit, Climatronic control unit - J255- :

- ◆ "Auto" mode (lamps in both **AUTO** buttons light)
- ◆ "Cold" temperature setting for driver's and front passenger's side (display "LO" for driver's and front passenger's side on display of -J255- and Multi Media Interface)
- ◆ Air conditioner compressor on (lamp in **AC** or **A/C** button of -J255- lights).
- ◆ Fresh air blower - V2- (and rear fresh air blower - V80-) set to "maximum speed" (reading on display of -J255- and of Multi Media Interface "10" or higher).

Following settings made on rear Climatronic operating and display unit - E265- if fitted:

- ◆ “Auto” mode (lamps in both **AUTO** buttons light)
- ◆ “Cold” temperature setting (“LO” display for left and right side)
- ◆ Rear fresh air blower - V80- set to “maximum speed”.



Note

- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button
⇒ “9.2.2 Removing and installing rear Climatronic operating and display unit E265”, page 632.*
- ◆ *Manual alteration of the fresh air blower speed causes the lamps in the **AUTO** buttons to go out.*
- ◆ *The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).*

Functions with engine running:

- Radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177-) running (activation and speed are governed by pressure in refrigerant circuit and engine temperature).



Note

Depending on the version of the air conditioner front operating and display unit, Climatronic control unit - J255-, the radiator fan (s) (radiator fan - V7- and radiator fan 2 - V177-) is/are only switched in as of a certain pressure in the refrigerant circuit (currently as of a pressure of approx. 9 bar). Actuation of the radiator fan(s) is displayed in the “Reading measured values” function of the Guided Fault Finding ⇒ Vehicle diagnostic tester.

- Fresh air blower - V2- running at maximum speed (speed “10” or higher)
- Operation of rear fresh air blower - V80- at maximum speed



Note

The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).

- Switching of the front air conditioner to air recirculation mode (approx. 1 minute after starting the engine, the air flow/fresh-air flap is closed and the air recirculation flap opened, air is drawn in by the fresh air blower - V2- from the passenger compartment beneath the dash panel/behind the glove box).

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**Note**

If any of these requirements is not satisfied, interrogate the event memory, perform final control diagnosis and read out the corresponding measured values ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

3.8.3 Checking - vehicles without high-voltage system

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester with "Guided Fault Finding" function and the corresponding connecting leads ⇒ **Workshop equipment**
- ◆ Commercially available thermometer (for measuring temperature; if applicable use thermometer with 2 probes for simultaneous measurement of temperature e.g. on right and left)

Not on vehicles with high-voltage system (hybrid vehicles)

- ◆ Requirements for checking cooling output met
⇒ "3.8.2 Requirements for checking cooling output of air conditioner - vehicles without high-voltage system", page 71
- Measure ambient temperature (it must be over 15 °C).
- Close doors, bonnet, windows, sun roof and rear lid.
- Open all dash panel vents, as well as the vents in the B-pillars and in the rear centre console.
- Start engine.
- Switch off the air conditioner compressor ("Econ" mode set on air conditioner front operating and display unit, Climatronic control unit - J255- , lamp in **AC** or **A/C** button not lit).
- Start air conditioner Guided Fault Finding ⇒ Vehicle diagnostic tester.
- Select the measured values for activation of the air conditioner compressor and the pressure in the refrigerant circuit in the "Reading measured values" function and read out the measured values ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

*Various measured values can be selected in the Guided Fault Finding routine for the following test and displayed in a table
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

For checking the cooling output it is appropriate to have the following measured values of -J255- displayed:

- ◆ The measured values of the following temperature sensors (left vent temperature sender - G150- , right vent temperature sender - G151- , left footwell vent temperature sender - G261- , right footwell vent temperature sender - G262- , evaporator output temperature sender - G263-).
- ◆ The measured value of the temperature sensor for rear intake air temperature - G639- (only on vehicle with rear air distribution housing, without and with a rear Climatronic operating and display unit - E265-)
- ◆ At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no

rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version

⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).

- ◆ Activation of the following components (fresh air blower - V2- , rear fresh air blower - V80- , radiator fan - V7- , radiator fan 2 - V177-).
- ◆ Activation of the following components (if fitted, depending on equipment and type of engine: coolant circulation pump V50- / circulation pump - V55- ; coolant shut-off valve - N82- / heater coolant shut-off valve - N279-)
- ◆ Activation of the air conditioner compressor regulating valve - N280- (compressor shut-off criteria and compressor actual current)
- ◆ Coolant temperature and ambient temperature.
- ◆ Measured value of refrigerant pressure and temperature sender - G395- (refrigerant pressure).

Checking

- ◆ Air conditioner compressor switched off, current reading of 0 A (amps) for activation of -N280- .
- ◆ Pressure in refrigerant circuit is identical to or above value in table below (depending on ambient temperature).

Ambient temperature in ° C	Pressure displayed (in bar)
15	3,0
20	4,0
25	5,0
30	6,0
35	7,0

**Note**

- ◆ *On the absolute pressure scale, 0 bar corresponds to an absolute vacuum. Normal ambient pressure thus corresponds to roughly 1 bar absolute and 0 bar gauge pressure. On the scales of most pressure gauges, 0 bar gauge pressure corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- ◆ *Depending on the version of -J255-, only whole numbers may be indicated as measured values. The display fluctuates between two values if the measured pressure is between the two.*
- ◆ *The pressure in the refrigerant circuit depends on the ambient temperature. Due to the radiation of heat by components (e.g. radiator), the pressure displayed when the engine is warm is slightly higher than that given for the corresponding ambient temperature.*
- ◆ *If the pressure displayed is lower than that given in the table, check the signal of the refrigerant pressure and temperature sender - G395- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. If no fault is found at the -G395-, there is not enough refrigerant in the circuit. The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.*

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If pressure in refrigerant circuit is OK:

- Switch on the air conditioner compressor by selecting "Auto" mode on the air conditioner front operating and display unit, Climatronic control unit - J255- (lamps in **AUTO** buttons and **AC** or **A/C** button light).

**Note**

Pressing the **SYNC** button on -J255- stores the settings for the front driver's side at the front passenger's side as well and if applicable also at -E265-.

- Use the rotary control(s) of -J255- to set the temperature to "cold" (for the driver's and front passenger's side).
- On vehicles with a rear Climatronic operating and display unit - E265-, also set the rear temperature to "cold" (for the left and right side)
- By way of the rotary controls on -J255-, set the air delivery to "dash panel vents" (for driver's and front passenger's side).
- On vehicles with -E265-, set the air delivery by way of the rotary controls on -E265- to the vents in the rear centre console.

**Note**

- ◆ *The lamp in the **AUTO** buttons goes out when the air outflow direction and/or the fresh air blower speed is/are altered manually.*
- ◆ *The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).*

- In the "Reading measured values" function, read out the actual current with which the air conditioner compressor regulating valve - N280- is actuated (an actual current greater than 0.3 A is displayed, the air conditioner compressor is switched on) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The specified current is calculated by -J255-. The request is transmitted via the data bus to the onboard supply control unit - J519-, -J519- actuates -N280- and provides feedback on the actual current ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
 - ◆ *If no or insufficient current is displayed as measured value, check activation of -N280-
 ⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#).*
 - ◆ *-N280- is activated by -J255- via -J519-. Actuation of -N280- is also displayed as measured value in -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
 - ◆ *The actual current flowing via -N280- is measured by -J519- and transmitted by way of the data bus to -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
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- In the "Reading measured values" function, read out the pressure in the refrigerant circuit measured by the refrigerant pressure and temperature sender - G395-. The pressure displayed increases to above the value with the air conditioner compressor switched off ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *If the pressure displayed as measured value does not change and actuation of the air conditioner compressor is OK ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode, check again whether the air conditioner compressor is actually being driven and the air conditioner compressor regulating valve - N280- activated. There is a fault in the refrigerant circuit if the air conditioner compressor is being driven and -N280- activated. The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner . There may be problems with air conditioner compressor control. Inform the workshop of the problem encountered.*
- ◆ *-N280- is activated by -J255- (via -J519-) such that the temperature of the air downstream of the evaporator reaches the specified value (approx. 2 to 5 °C).*
- ◆ *After starting the vehicle, a value greater than 0.55 A is displayed for activation of -N280- depending on the measured temperature, engine speed and electrical system voltage. As soon as the temperature measured by the evaporator output temperature sender - G263- approaches the specified value, the activation is reduced and the compressor output is decreased.*
- ◆ *Under certain operating conditions, residual moisture in the refrigerant circuit may lead to the formation of ice at -N280- (and at the expansion valve). Such ice formation impedes the control of the air conditioner compressor. The evaporator is cooled down too much and ices up. An iced-up evaporator may cause various problems
⇒ "3.8.5 Fault isolation following ice formation on evaporator - vehicles without high-voltage system", page 83 .*
- Press the air recirculation mode button on the air conditioner front operating and display unit, Climatronic control unit - J255- (the symbol for "air recirculation mode" in the air recirculation button lights).
- Set the engine speed to 2000 rpm (start of time measurement).
- In "Read measured values" function, read out measured value of evaporator output temperature sender - G263- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Use thermometer to measure temperature of air from vent in rear centre console.

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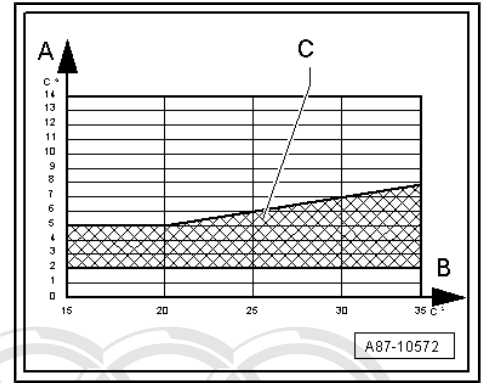
- Compare measured value displayed (for -G263-) to values in graph.

A - Air temperature measured by -G263- (downstream of evaporator in front air conditioning unit)

B - Ambient temperature

C - Permissible tolerance range

- ◆ Depending on the ambient temperature, the measured air temperature downstream of the front evaporator (measured value of -G263-) must be within the stated tolerance range -C- after 5 minutes.
- ◆ The measured temperatures from the vents of the rear centre console correspond to the temperature measured by -G263- . The permissible deviation from the measured value of -G263- at the front is max. + 9 °C for a vehicle with no rear Climatronic operating and display unit - E265- and + 6 °C /- 3 °C for a vehicle with -E265- (however not less than +1 °C).



Note

- ◆ If the required values at the front are not attained, check the measured value of -G263- . To do so, compare the measured value displayed for -G263- to the measured values of the left vent temperature sender - G150- and the right vent temperature sender - G151- .
- ◆ If the measured value for -G263- only differs slightly from the measured value for -G150- / -G151- . Perform Fault Finding if readout does not match specification
⇒ "3.8.4 Measures to be taken if readout does not match specification (required cooling output of front air conditioning unit is not attained) - vehicles without high-voltage system", page 81 .
- ◆ If the measured value for -G263- is greater than the measured value for -G150- and/or -G151- , check for proper installation of -G263-
⇒ "10.11 Removing and installing evaporator output temperature sender G263", page 651 and perform the electrical checks for this sender ⇒ Vehicle diagnostic tester "Guided Fault Finding" function
- ◆ Operation of the air conditioner can be recognised for example from the fact that the "low-pressure side" refrigerant line (thick pipe in plenum chamber between expansion valve and refrigerant line with internal heat exchanger beneath left wing) cools down and the "high-pressure side" refrigerant line (thin pipe between internal heat exchanger and expansion valve) becomes warm
⇒ "2.1.1 System overview - refrigerant circuit, vehicles without high-voltage system", page 147 .
- ◆ In the event of an excessive deviation between the rear and front measured values, refer to
⇒ "3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system", page 86

The cooling output test is over if the measured value of the evaporator output temperature sender - G263- (and thus the cooling output of the front air conditioner) is OK and there are no problems.

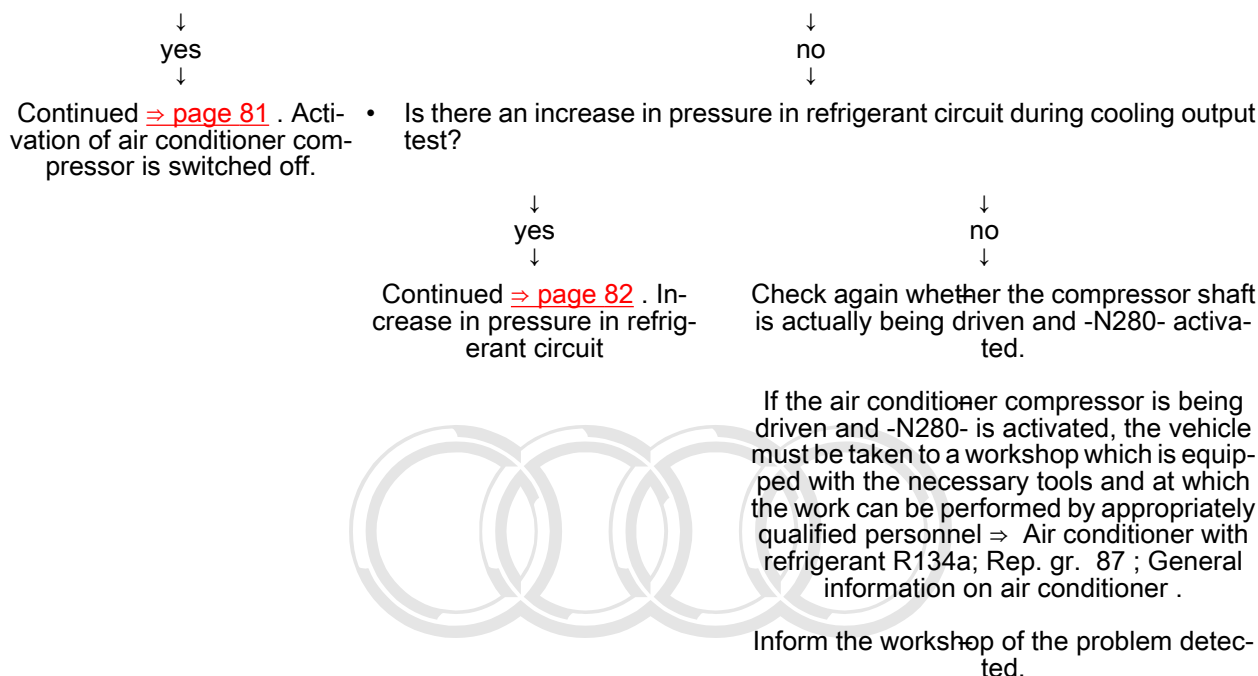
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is not OK, perform the measures to be taken if the readout does not match the specification (the required cooling output is not attained)
⇒ “3.8.4 Measures to be taken if readout does not match specification (required cooling output of front air conditioning unit is not attained) - vehicles without high-voltage system”, page 81 .
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and there is a problem with excessively high or differing front air conditioner outflow temperatures, check activation of the temperature flaps in the front air conditioning unit
⇒ “3.7.2 Checking heating output and activation of temperature flaps of air conditioner”, page 56 .
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and problems are encountered on vehicles with a rear Climatronic operating and display unit - E265- on account of excessively high or differing outflow temperatures from the rear vents, check the cooling output of the rear air conditioner
⇒ “3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system”, page 86 .
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and problems are encountered on vehicles with no rear Climatronic operating and display unit - E265- on account of a lack of cooling output from the rear vents (excessively high or differing air outflow temperatures from the rear vents), check activation of the temperature flaps in the front air conditioning unit
⇒ “3.7.2 Checking heating output and activation of temperature flaps of air conditioner”, page 56 .
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and problems are encountered on vehicles with a rear Climatronic operating and display unit - E265- on account of an inadequate outflow temperature from the rear vents or a lack of air from the rear vents after a certain time, check the cooling output of the rear air conditioner
⇒ “3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system”, page 86 .

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3.8.4 Measures to be taken if readout does not match specification (required cooling output of front air conditioning unit is not attained) - vehicles without high-voltage system

Not on vehicles with high-voltage system (hybrid vehicles)

- Select displays with measured values for activation of air conditioner compressor and pressure in refrigerant circuit in “Read measured values” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Repeat cooling output test ⇒ [“3.8.3 Checking - vehicles without high-voltage system”, page 74](#) .
- Observe displays for compressor activation during cooling output test.
- Air conditioner compressor regulating valve - N280- deactivated during cooling output test (specified and/or actual control current drops below 0.35 A)?



Continuation of test: “Activation of air conditioner compressor is cancelled”

- -N280- deactivated during cooling output test by air conditioner front operating and display unit, Climatronic control unit - J255- /onboard supply control unit - J519- (specified current and actual current drop below 0.35 A)?
- ↓ yes ↓
- Interrogate event memory and relevant measured values of -J255- and -J519- and eliminate cause of deactivation ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ↓ no ↓
- -N280- deactivated during cooling output test by -J255- or -J519- (actual current drops below 0.35 A)?
 - Interrogate event memory of - J255- and -J519- , rectify fault displayed and erase event memory ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Repeat cooling output test
⇒ ["3.8.3 Checking - vehicles with-out high-voltage system", page 74](#) .

In the "Reading measured values" function of the Guided Fault Finding routine for - J255- and -J519- , read out the displays indicating the measured values for activation of -N280- .

Check activation of -N280- by -J519- and eliminate cause of shut-off

⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#) .

Repeat cooling output test
⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .

Continuation of test: "Increase in pressure in refrigerant circuit"

- Open bonnet.
- Repeat cooling output test ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .
- Read out the pressure in the refrigerant circuit and actuation of the radiator fans from the measured values of -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- The radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177-) run(s) as activation during the cooling output test. Speed is governed by coolant temperature and pressure in refrigerant circuit (determined by engine control unit). Or are radiator fans switched in as soon as pressure in refrigerant circuit exceeds a pressure of approx. 9 bar?

↓
yes
↓

↓
no
↓

- Read out the measured values with the display for the "pressure in the refrigerant circuit" and "actuation of the radiator fans" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Operation of radiator fan(s) at higher speed as the pressure in the refrigerant circuit increases in line with the request from -J255- (difference between specified and actual values is permissible)?
- Check activation of radiator fan(s), e.g. in "Final control diagnosis" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Service activation system for radiator fan(s).
- Repeat cooling output test ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .

↓
yes
↓

↓
no
↓

- Take the vehicle to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner
- Check activation of radiator fans, e.g. in "Final control diagnosis" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Actuation of the radiator fans is requested by -J255- . Actuation is itself however implemented by other control units. The actual value for actuation of the radiator fans may therefore differ from the required specification ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Service the activation system for the radiator fan(s).
- Repeat cooling output test ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .
- Inform this workshop of the problem detected.



Note

- ◆ *The pressure in the refrigerant circuit depends on various influencing factors. In general, however, the pressure should not exceed 20 bar at an ambient temperature of 20 to 25 °C. Under extreme usage conditions (e.g. in hot countries with high ambient temperatures, "stop and go traffic" and high relative humidity), the extremely high cooling output involved may also result in pressures of up to 31 bar.*
- ◆ *At ambient temperatures below 25 °C, the pressure in the refrigerant circuit does not usually rise above 16 bar (radiator fan (s) running and cooling condenser).*
- ◆ *The measured value of the refrigerant pressure and temperature sender - G395- is used by the air conditioner front operating and display unit, Climatronic control unit - J255- to calculate the pressure in the refrigerant circuit, which it then displays ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *At absolute pressures of less than approx. 1.8 bar and greater than approx. 32 bar, -J255- does not switch on the air conditioner compressor (the air conditioner compressor regulating valve - N280- is not activated). The air conditioner compressor is only re-activated once the absolute pressure has risen above 1.8 bar or dropped below 16 bar.*
- ◆ *For further notes on the pressure in the refrigerant circuit, refer to Guided Fault Finding ⇒ Vehicle diagnostic tester.*
- ◆ *To prevent abrupt air conditioner compressor shut-off on account of excessive pressure in the refrigerant circuit or excessive coolant temperature, the compressor output is reduced by -J255-. As soon as the pressure in the refrigerant circuit exceeds approx. 30 bar (absolute) (full compressor output is not released again until the pressure has dropped below 27 bar) or the coolant temperature exceeds 115 °C (complete shutdown at 118 °C).*

3.8.5 Fault isolation following ice formation on evaporator - vehicles without high-voltage system

Not on vehicles with high-voltage system (hybrid vehicles)

- ◆ *The air conditioner compressor regulating valve - N280- is activated by the air conditioner front operating and display unit, Climatronic control unit - J255- such that the temperature of the air downstream of the evaporator in the front air conditioning unit reaches the specified value (approx. 2 to 5 °C).*
- ◆ *After starting the engine a value greater than 0.55 A is displayed as the relevant -J255- measured value depending on the measured temperature, engine speed and vehicle electrical system voltage ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. As soon as the temperature measured by the evaporator output temperature sender - G263- approaches the specified value, the activation is reduced and the compressor output is decreased.*
- ◆ *There is no temperature sensor downstream of the evaporator in the rear air conditioning unit. In the event of excessive refrigerant flow through this evaporator (e.g. if rear expansion valve is too far open), the evaporator in the rear air conditioning unit may also ice up. As the air flowing through the evaporator in the rear air conditioning unit has already been dried in the front air conditioning unit, this does not normally result in icing-up of this evaporator or only after a lengthy period. If*

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the evaporator in the rear air conditioning unit does however ice up, the flow of air from the rear vents will then be reduced until neither cooling nor heat output can be detected at the rear.

Under certain operating conditions, residual moisture in the refrigerant circuit may lead to the formation of ice at -N280- (and at the expansion valves). Such ice formation impedes air conditioner compressor control. The evaporator concerned is excessively cooled and ices up. An iced-up evaporator may cause the following problems:

Icing-up of evaporator in front air conditioning unit:

- The air conditioner fails repeatedly or sporadically (no cooling/heating output) after extended driving; after the vehicle has been stopped, the air conditioner functions properly again (after a short wait).
- Misting up of the windscreen, rear window and/or door windows on the inside after a lengthy journey; the windscreen, rear window and/or door windows are initially not cleared even by pressing the “Defrost” button of the air conditioner front operating and display unit, Climatronic control unit - J255- ; the air conditioner functions properly again after a short delay following engine shut-off (or switching off the air conditioner).



Note

Under extreme ambient conditions ice could form at the evaporator if certain settings are selected on the air conditioner, for example air outflow direction set to dash panel vents with these vents closed, maximum cooling output with minimum fresh air blower speed selected. When these settings are selected, air no longer flows through the evaporator, which means that the temperature measured by the evaporator output temperature sender - G263- is higher than the actual temperature at the evaporator. The air conditioner control system however assumes that the measured value of -G263- corresponds to the actual evaporator temperature and continues to activate -N280-, with the result that the evaporator is excessively cooled.

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Checking

- Check the measured value of the evaporator output temperature sender - G263- in the “Reading measured values” function
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- If measured value for -G263- is too high under usage conditions described by customer (above e.g. 10 °C depending on ambient temperature) although air conditioner is functioning properly, check -G263- (incorrect measured value can cause evaporator to ice up).
- If the measured value for -G263- is too low under the usage conditions described by the customer (at ambient temperature above 0 °C, colder than 0 °C for lengthy period): The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner . Inform the workshop of the problem detected.
- Check the “low-pressure side” refrigerant line (thick line between expansion valve and refrigerant line with internal heat exchanger)
⇒ [“2.1.1 System overview - refrigerant circuit, vehicles without high-voltage system”, page 147](#) with the engine running. If this pipe is severely iced up when problem occurs (thin layer of ice is permissible), this also indicates that evaporator temperature is too low. The vehicle must be taken to a workshop which is

equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner . There may be problems with air conditioner compressor control. Inform the workshop of the problem encountered.

Icing-up of evaporator in rear air conditioning unit:

- Repeated or sporadic failure of the rear air conditioner (no cooling/heat output) after a lengthy journey; operation of the air conditioner soon returns to normal after switching off the engine

Checking front (and rear) evaporator if icing-up is suspected:

- Open the vent in the rear centre console.
- Open the vent in the B-pillars on the left and right.
- Start engine.
- Switch on the air conditioner compressor by selecting “Auto” mode on the air conditioner front operating and display unit, Climatronic control unit - J255- (lamps in **AUTO** buttons and **AC** or **A/C** button light).
- Use the rotary control(s) of -J255- to set the temperature to “cold” (for the driver's and front passenger's side).
- On -J255- set the lowest possible speed for the fresh air blower - V2- (lowest possible cooling output of front air conditioning unit).
- Set the rear Climatronic operating and display unit - E265- to the “cold” temperature setting (for the left and right side).
- On -E265- , set the air outflow direction by way of the rotary controls on -E265- to the vents in the rear centre console.
- On -E265- set a medium speed for the rear fresh air blower - V80- .
- Set the engine speed to 2000 rpm.
- In “Read measured values” function, read out measured value of evaporator output temperature sender - G263- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Use thermometer to measure temperature of air from vent in rear centre console.
- Does the measured temperature at the rear correspond to the temperature measured at the evaporator output temperature sender - G263- with a maximum permissible deviation from the front measured value of +6 °C /- 3 °C (however not less than +1 °C)?
- If the measured value for the air from the vents in the rear centre console is too low (at ambient temperatures above 0 °C, colder than 0 °C for a lengthy period). The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner . Inform the workshop of the problem detected.

**Note**

- ◆ Check the "low-pressure side" refrigerant line (thick line between rear expansion valve and refrigerant line with internal heat exchanger)
⇒ "2.1.1 System overview - refrigerant circuit, vehicles without high-voltage system", page 147 with the engine running. If this line is severely iced up when the problem occurs (a thin layer of ice is permissible), this is also an indication that the temperature in the rear evaporator is too low. The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner. There may be problems with rear expansion valve control. Inform the workshop of the problem encountered.
- ◆ If the measured value for the air from the vents in the rear centre console is too high, perform the cooling output test
⇒ "3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system", page 86.

Icing-up in expansion valve:

- Repeated or sporadic failure of the air conditioner (no cooling/heat output via the air conditioning unit downstream of this expansion valve) after a lengthy journey; operation of the air conditioner soon returns to normal after switching off the engine.
- Take the vehicle to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.
- Inform this workshop of the problem detected.

3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system

Only to be performed on vehicles with rear Climatronic operating and display unit - E265- and a rear air conditioning unit

Not on vehicles with high-voltage system (hybrid vehicles)

Prerequisite for this test:

- ◆ Cooling output of front air conditioner checked and OK
⇒ "3.8.3 Checking - vehicles without high-voltage system", page 74.

For checking the cooling output it is appropriate to have the following measured values of the rear Climatronic operating and display unit - E265- displayed:

- ◆ The measured values of the following temperature sensors (rear left chest vent temperature sender - G635-, rear right chest vent temperature sender - G636-, vent temperature sender for rear left footwell - G637- and vent temperature sender for rear right footwell - G638-).

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- Open the vent in the B-pillars on the left and right.
- Air outlet from rear footwell vents (beneath front seats) not impeded by mats or other objects (check).
- Set the air distribution at -E265- such that air is routed to all the vents.
- In the "Reading measured values" function of -E265- , select the displays with the measured values for the temperature sensors -G635- , -G636- , -G637- and -G638- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Repeat cooling output test ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .
- Use a thermometer to measure the temperature of the air from the vent in the rear left and right of the centre console (the measured values correspond to the temperatures previously measured by the evaporator output temperature sender - G263- (permissible deviation + 6 °C / - 3 °C, however not less than +1 °C) ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#)).
- Observe the measured values of the various temperature sensors during the cooling output test.
- Do the temperatures measured at the rear by the various temperature sensors correspond to the temperature of the air from the vent in the rear left and right of the centre console measured with the thermometer (permissible deviation of display values from thermometer measured values less than + 9 °C / - 3 °C)?
- No temperature less than +1 °C measured at any location

↓
yes
↓

- ◆ Rear cooling output OK (end of test)

In the event of problems with lack of heat output, refer to ⇒ [page 478](#)

In the event of problems with differing air temperatures from the rear vents (check temperature sensors and control motors of rear air conditioner) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

↓
no
↓

- Temperatures at one measurement location or for one side too high (or too low)?

- Check the temperature sensor with the incorrect measured value ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check activation and operation of the control motors attached to the rear air conditioning unit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Temperatures at all measurement locations (or measurement locations for one side) too high?

- Pinch off both coolant hoses to the heat exchanger of the rear air conditioning unit with hose clamps up to 40 mm - 3093- for example ⇒ ["8.1.4 Incorporation of air conditioner \(rear\) into refrigerant and coolant circuit", page 605](#) and repeat the cooling output test at the rear ⇒ ["3.8.6 Measures to be taken if cooling output of front air conditioner is OK, but the required values are not attained at the rear - vehicles without high-voltage system", page 86](#) .

- ◆ If the measured values of the temperature sensors are OK with the coolant lines clamped off, check activation of the control motors -V314- and -V315- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ If the measured values of the temperature sensors are still not OK with the coolant lines pinched off, take the vehicle to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel (there may be too little refrigerant in the circuit or the flow of refrigerant through the rear evaporator may not be sufficient) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

- Temperature measured with thermometer too low (less than +1 °C)?

- The vehicle is to be taken to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel (there may be an excessive flow of refrigerant through the evaporator in the rear air conditioning unit) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.8.7 Notes on checking the cooling output - vehicles with high-voltage system

Only vehicles with electrically driven air conditioner compressor



Note

- ◆ *An air conditioner with a rear air conditioning unit is currently not available for vehicles with a high-voltage system.*
- ◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version
⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632.*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button
⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632.*

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ page 36 and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage"
⇒ "2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41 and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

Working with ignition switched on or high-voltage system active

**DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- For test and measurement work that requires the vehicle's drive system to be active (READY) or the ignition to be switched on, move the selector lever to position "P", activate the parking brake and take care to keep well clear of the engine when it is running. Set up any tools needed so that they cannot come into contact with moving parts.

**Note**

- ◆ *Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).*
- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter" ⇒ Owner's Manual .*
- ◆ *Activating and deactivating drive system ⇒ Owner's Manual (note display of control unit in dash panel insert - J285-).*

**Note**

- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter".*
- ◆ *Activating vehicle drive system (check "READY" display in control unit in dash panel insert - J285-) ⇒ Owner's Manual*
- ◆ *Move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active.*

Problems relating to poor or insufficient cooling output at the battery cooling module on vehicles with a high-voltage system when

the cooling output at the evaporator in the air conditioning unit is OK may be caused by the following:

- ◆ Activation or operation of the control motors at the battery cooling module (control motor of air recirculation flap 1 for hybrid battery - V479- and control motor of air recirculation flap 2 for hybrid battery - V480-) not OK; checking activation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for battery regulation control unit - J840-)
- ◆ Activation or operation of the shut-off valve 2 for refrigerant of hybrid battery - N517- (part of expansion valve at battery cooling module) not OK; checking activation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for battery regulation control unit - J840-)
- ◆ Measured values of temperature sensors in battery cooling module not OK (temperature sensor upstream of evaporator for hybrid battery - G756- , temperature sensor downstream of evaporator for hybrid battery - G757-); checking measured values ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for battery regulation control unit - J840-)
- ◆ Air routing from battery cooling module (to or from drive battery - A2-) or to or from battery cooling module (for vehicle forced air extraction) not OK; check ⇒ [page 666](#) .



Note

- ◆ *This vehicle is fitted with 2 evaporators (one in the air conditioning unit beneath the dash panel and one in the battery cooling module). If the measured temperature corresponds to or is below the specified value at one evaporator but the required specified value is not attained at the other evaporator, the system is controlled as follows: The battery regulation control unit - J840- activates the electric air conditioner compressor at a higher speed via the power and control electronics for electric drive - JX1- and the control unit for air conditioning compressor - J842- . This causes the cooling output of the air conditioner to increase and the pressure on the low-pressure side and the evaporator temperature to drop. If the temperature set value is then not reached at one evaporator, -J840- activates the refrigerant shut-off valve 1 for hybrid battery - N516- or the refrigerant shut-off valve 2 for hybrid battery - N517- such that refrigerant no longer flows through the evaporator which is too cold ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *As the cooling output of the evaporator in the battery cooling module is considerably less than that of the evaporator in the air conditioning unit, the required temperature may still be reached in the battery cooling module when there is insufficient refrigerant in the circuit, but the required temperature will no longer be reached at the evaporator in the air conditioning unit (although the air conditioner compressor is being activated at a higher speed).*

3.8.8 Requirements for checking cooling output of air conditioner - vehicles with high-voltage system

Vehicles with a high-voltage system only (hybrid vehicles with electrically driven air conditioner compressor), not for vehicles with mechanically driven air conditioner compressor

- ◆ Ambient temperature above 15 ° C
- ◆ Radiator and condenser clean; clean if necessary.

- ◆ During this test the vehicle batteries are charged by way of a battery charger in battery back-up mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Charging battery
- ◆ All air ducts, covers and seals OK and properly installed.
- ◆ Air flow through dust and pollen filter not impeded by dirt ⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#) .
- ◆ Air intake (in fresh air and air recirculation mode) not impeded by dirt or retrofitted components.
- ◆ Air duct to glove box for glove box cooling fitted as specified ⇒ ["7.6.5 Removing and installing air duct for glove box cooling", page 590](#) .
- ◆ Vehicle not exposed to direct sunlight
- ◆ Engine warm (coolant temperature above 80 °C).
- ◆ No faults entered in event memory of power and control electronics for electric drive - JX1- , battery regulation control unit - J840- and control unit for air conditioning compressor - J842- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Event recorder of operating and display unit, Climatronic control unit - J255- and rear Climatronic operating and display unit - E265- interrogated and erased, basic setting performed and encoding of -J255- and -E265- checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Adaption of -J255- checked ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Following air conditioner settings made in MMI (Multi Media Interface) by way of "A/C" function in "Car" / "Car systems" menu: Auto recirculation "Off", Air flow "A/C mode medium" and footwell temperature "medium" (upward-pointing arrow).

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Note

- ◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version*
⇒ *"9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632* .
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button*
⇒ *"9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632* .
- ◆ *The functions for setting the air conditioner in the MMI (Multi Media Interface) ("A/C" function in "Car" / "Car systems" menu) vary depending on the version of the air conditioner, the production period and the vehicle model (some functions may not be provided on all models) ⇒ Owner's Manual .*
- ◆ *On vehicles for the USA, certain settings for the air conditioner via the MMI are not available (e.g. the "A/C style" function) ⇒ Owner's Manual . Also note the encoding and adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ All dash panel vents and vents in rear centre console and B-pillar open
- ◆ Air outlet from rear footwell vents (beneath front seats) not impeded by mats or other objects (check).
- ◆ Bonnet closed.
- ◆ Ignition switched on and READY activated, **engine only running** if e.g. drive battery - A2- not sufficiently charged.

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DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**Note**

- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter".*
- ◆ *Activating vehicle drive system (check "READY" display in control unit in dash panel insert - J285-) ⇒ Owner's Manual*
- ◆ *Move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active.*

Following settings made on air conditioner front operating and display unit, Climatronic control unit - J255- :

- ◆ "Auto" mode (lamps in both **AUTO** buttons light)
- ◆ "Cold" temperature setting for driver's and front passenger's side (display "LO" for driver's and front passenger's side on display of -J255- and Multi Media Interface)
- ◆ Air conditioner compressor on (lamp in **AC** or **A/C** button of -J255- lights).
- ◆ Fresh air blower - V2- (and rear fresh air blower - V80-) set to "maximum speed" (reading on display of -J255- and of Multi Media Interface "10" or higher).

Following settings made on rear Climatronic operating and display unit - E265- if fitted:

- ◆ "Auto" mode (indicator lamp in **AUTO** button on).
- ◆ "Cold" temperature setting (display "LO").
- ◆ Rear fresh air blower - V80- set to "maximum speed".

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Note

- ◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version*
⇒ *"9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632*.
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button*
⇒ *"9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632*.
- ◆ *Manual alteration of the fresh air blower speed causes the lamps in the **AUTO** buttons to go out.*
- ◆ *The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).*

Functions with drive system active (READY):

- Radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177-) running (activation and speed are governed by pressure in refrigerant circuit and engine temperature).

Note

Depending on the version of the air conditioner operating and display unit (Climatronic control unit - J255-), the radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177-) is/are only switched in when a certain pressure is reached in the refrigerant circuit (currently pressure of approx. 9 bar). The activation of the radiator fan(s) is displayed as a measured value ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Fresh air blower - V2- running at maximum speed (speed "10" or higher)
- Operation of rear fresh air blower - V80- at maximum speed

Note

The maximum possible fresh air blower speed depends on various factors (coolant temperature, vehicle's electrical system voltage etc.).

- Switching of the front air conditioner to air recirculation mode (approx. 1 minute after starting the engine/activating READY, the air flow/fresh air flap is closed and the air recirculation flap opened, air is drawn in by the fresh air blower - V2- from the passenger compartment beneath the dash panel/behind the glove compartment).

**Note**

If one of these requirements is not met, interrogate event memory of Climatronic control unit - J255- , perform final control diagnosis and read out measured values ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

3.8.9 Checking - vehicles with high-voltage system

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester with appropriate connecting wire
- ◆ Battery charger, 60A - VAS 5904-
- ◆ Commercially available thermometer (for measuring temperature; if applicable use thermometer with 2 probes for simultaneous measurement of temperature e.g. on right and left)

Vehicles with a high-voltage system only (hybrid vehicles with electrically driven air conditioner compressor), not for vehicles with mechanically driven air conditioner compressor

- ◆ Requirements for checking cooling output met ⇒ [page 91](#)
- Measure ambient temperature (it must be over 15 °C).
- Close doors, bonnet, windows, sun roof and rear lid.
- Open all dash panel vents, as well as the vents in the B-pillars and in the rear centre console.

**DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ Move selector lever to position P
- ◆ Activate parking brake
- ◆ Switch off ignition
- ◆ Open bonnet
- ◆ Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system
- ◆ Switch on ignition

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

Note

- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter".*
- ◆ *Activating vehicle drive system (check "READY" display in control unit in dash panel insert - J285-) ⇒ Owner's Manual*
- ◆ *Move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active.*

- Ignition switched on and READY active, engine only starts or runs if e.g. drive battery - A2- not sufficiently charged.
- Switch off the air conditioner compressor ("Econ" mode set on air conditioner operating and display unit, Climatronic control unit - J255- , lamp in AC or A/C button not lit).
- Start air conditioner Guided Fault Finding ⇒ Vehicle diagnostic tester.
- In the "Reading measured values" function, select the displays with the measured values for activation of the air conditioner compressor and the pressure in the refrigerant circuit and read out the measured values (display in different measured value blocks for electrical air conditioner compressor - V470- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode).

For checking the cooling output, it is appropriate to additionally have the following measured values of -J255- displayed:

- ◆ The measured values of the following temperature sensors (left vent temperature sender - G150- , right vent temperature sender - G151- , left footwell vent temperature sender - G261- , right footwell vent temperature sender - G262- , temperature sensor for rear intake air temperature - G639- , evaporator output temperature sender - G263-).
- ◆ Activation of the following components (fresh air blower - V2- , rear fresh air blower - V80- , radiator fan - V7- , radiator fan 2 - V177- , coolant circulation pump - V50- , coolant shut-off valve - N82-).
- ◆ Activation of the electrical air conditioner compressor - V470- (compressor shut-off criteria and compressor speed).
- ◆ Coolant temperature and ambient temperature.
- ◆ Measured value of refrigerant pressure and temperature sender - G395- (refrigerant pressure).

Note

Various measured values can be selected in the Guided Fault Finding routine for the following test and displayed in a table ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ◆ The air conditioner compressor is deactivated, no compressor speed is displayed.
- ◆ Pressure in refrigerant circuit is identical to or above value in table below (depending on ambient temperature).

Ambient temperature in ° C	Pressure displayed (in bar)
15	3,0



Ambient temperature in °C	Pressure displayed (in bar)
20	4,0
25	5,0
30	6,0
35	7,0

**Note**

- ◆ *On the absolute pressure scale, 0 bar corresponds to an absolute vacuum. Normal ambient pressure thus corresponds to roughly 1 bar absolute and 0 bar gauge pressure. On the scales of most pressure gauges, 0 bar gauge pressure corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- ◆ *Depending on the version of the air conditioner operating and display unit, Climatronic control unit - J255- , only whole numbers may be displayed as measured values. The display fluctuates between the two values if the measured pressure is between the two.*
- ◆ *The displays for the activation of the air conditioner compressor differ. For a mechanically driven air conditioner compressor, the tester displays the specified and actual current for activation of the air conditioner compressor regulating valve - N280- . For an electrical air conditioner compressor - V470- , the specified and actual speed of -V470- , which are transmitted by the control unit for air conditioning compressor - J842- , are displayed in a different measured value block ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The pressure in the refrigerant circuit depends on the ambient temperature. Due to the radiation of heat by components (e.g. radiator), the pressure displayed when the engine is warm is slightly higher than that given for the corresponding ambient temperature.*
- ◆ *If the pressure displayed is lower than that given in the table: Check the signal of the refrigerant pressure and temperature sender - G395- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. If no fault is found at the -G395- , there is not enough refrigerant in the circuit. The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

If pressure in refrigerant circuit is OK:

- Switch on the air conditioner compressor by selecting "Auto" mode on the air conditioner operating and display unit, Climatronic control unit - J255- (lamps in **AUTO** buttons and **AC** or **A/C** button light).
- Use the rotary controls of the air conditioner operating and display unit, Climatronic control unit - J255- to make "cold" temperature setting (for the driver and passenger side).
- By way of the rotary controls on -J255- , set the air delivery to "dash panel vents" (for driver's and front passenger's side).

 Note

- ◆ *The lamps in the **AUTO** buttons go out when the air outflow direction and/or the fresh air blower speed is/are altered manually.*
- ◆ *The maximum possible fresh air blower speed depends on several factors (electrical system voltage etc.).*
- In the “Read measured values” function, read out the speed at which the electrical air conditioner compressor - V470- is activated by the control unit for air conditioning compressor - J842- (the display will show a speed greater than 800 rpm: air conditioner compressor is running) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

 Note

- ◆ *The specified speed is calculated by the air conditioner operating and display unit, Climatronic control unit - J255-. The request is transmitted via the data bus to the control unit for air conditioning compressor - J842- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *When driving, the air conditioner compressor operates over a speed range of 800 to 8600 rpm.*
- ◆ *When the vehicle is stationary or only moving slowly (up to a speed of approx. 45 km/h), the air conditioner compressor is not activated at the maximum specified speed (of approx. 8500 rpm); the air conditioner compressor speed is limited to approx. 5000 rpm.*
- ◆ *At an air conditioner compressor speed of 5000 rpm, with a very high ambient temperature (in excess of 35 °C) and a high fresh air blower speed (unfavourable ambient conditions), the output (delivery volume) of the air conditioner compressor is not always sufficient at first to reduce the temperature of the air downstream of the evaporator to the specified value. One way of checking the control action of the air conditioner compressor under these conditions is to activate the fresh air blower with only approx. 40 % of the maximum voltage and to check the temperature at reduced fresh-air blower speed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode for air conditioner and battery regulation.*
- ◆ *If no or an inadequate speed is displayed as measured value (speed less than 4000 rpm although the required temperature of the air downstream of the evaporator has not yet been attained), check activation of the electrical air conditioner compressor - V470- by the control unit for air conditioning compressor - J842- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- In the “Reading measured values” function, read out the pressure in the refrigerant circuit measured by the refrigerant pressure and temperature sender - G395-. The pressure displayed increases to above the value with the air conditioner compressor switched off ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

**Note**

- ◆ *If the pressure displayed as the measured value does not change and activation of the air conditioner compressor is OK ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode, there is a fault in the refrigerant circuit. The vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner. There may be problems with air conditioner compressor control. Inform the workshop of the problem encountered.*
- ◆ *The air conditioner compressor is activated by the control unit for air conditioning compressor - J842- (when requested by the air conditioner operating and display unit, Climatronic control unit - J255-) such that the temperature of the air downstream of the evaporator reaches the specified value (approx. 2 to 5 °C).*
- ◆ *After the engine is started, the air conditioner compressor is activated at a speed greater than 3000 rpm depending on the measured temperature, engine speed and electrical system voltage. As soon as the temperature measured by the evaporator output temperature sender - G263- approaches the specified value, the activation is reduced and the compressor output is decreased.*
- ◆ *Under certain operating conditions, residual moisture in the refrigerant circuit may lead to the formation of ice at the expansion valve for the evaporator in the air conditioning unit. Such ice formation impedes expansion valve / air conditioner compressor control. The evaporator is insufficiently or excessively cooled and may ice up. An iced-up evaporator may cause various problems ⇒ [page 107](#).*
- ◆ *This vehicle is fitted with 2 evaporators (one in the air conditioning unit and one in the battery cooling module). If the measured temperature corresponds to or is below the specified value at one evaporator but the required specified value is not attained at the other evaporator, the system is controlled as follows: The battery regulation control unit - J840- activates the electric air conditioner compressor at a higher speed via the power and control electronics for electric drive - JX1- and the control unit for air conditioning compressor - J842-. This causes the cooling output of the air conditioner to increase and the pressure on the low-pressure side and the evaporator temperature to drop. If the temperature set value is then not reached at one evaporator, -J840- activates the refrigerant shut-off valve 1 for hybrid battery - N516- or the refrigerant shut-off valve 2 for hybrid battery - N517- such that refrigerant no longer flows through the evaporator which is too cold ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *As the cooling output of the evaporator in the battery cooling module is considerably less than that of the evaporator in the air conditioning unit, the required temperature may still be reached in the battery cooling module when there is insufficient refrigerant in the circuit, but the required temperature will no longer be reached at the evaporator in the air conditioning unit (although the air conditioner compressor is being activated at a higher speed).*
- Press the air recirculation mode button on the air conditioner operating and display unit, Climatronic control unit - J255- (the symbol for "air recirculation mode" in the air recirculation button lights).

- In "Read measured values" function, read out measured value of evaporator output temperature sender - G263- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Use thermometer to measure temperature of air from vent in rear centre console.

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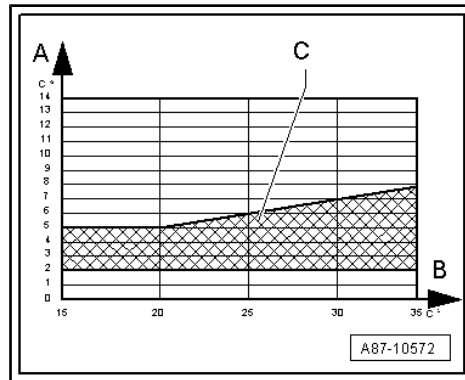
- Compare measured value displayed (for -G263-) to values in graph.

A - Air temperature (downstream of evaporator in air conditioning unit) measured by evaporator output temperature sender - G263-

B - Ambient temperature

C - Permissible tolerance range

- ◆ Depending on the ambient temperature, the measured air temperature downstream of the evaporator (measured value of -G263-) must be within the stated tolerance range -C- after 5 minutes.
- ◆ The measured temperatures from the vents of the rear centre console correspond to the temperature measured by -G263- . Permissible deviation from measured value of -G263- at front max. + 9 °C (however not below +1 °C).



Note

- ◆ If the required values at the front are not attained, check the measured value of -G263- . To do so, compare the measured value displayed for -G263- to the measured values of the left vent temperature sender - G150- and the right vent temperature sender - G151- .
- ◆ If the measured value for -G263- only differs slightly from the measured value for -G150- / -G151- . Perform Fault Finding if readout does not match specification ⇒ [page 104](#) .
- ◆ If the measured value for -G263- is greater than the measured value for -G150- and/or -G151- , check for proper installation of -G263-
⇒ [“10.11 Removing and installing evaporator output temperature sender G263”](#), [page 651](#) and perform the electrical checks for this sender ⇒ Vehicle diagnostic tester “Guided Fault Finding” function
- ◆ If the measured temperatures from the rear centre console vents are more than 1 °C lower than the measured value for -G263- , check the temperature sensors used for measurement (the design of the air conditioner is such that the temperature at the rear cannot be lower than at the front).
- ◆ Operation of the air conditioner can be seen for example from the fact that the “low-pressure end” refrigerant line (thick line between internal heat exchanger and air conditioner compressor) cools down and the “high-pressure end” refrigerant line (thin line between condenser and internal heat exchanger) becomes warm
⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”](#), [page 208](#) .

If the measured value for the evaporator output temperature sender - G263- (and thus the cooling output of the air conditioner) and the measured temperature of the air from the rear centre console vents are OK and there are no problems, the cooling output test is completed.

- ◆ If the measured value of -G263- (and thus the cooling output of the air conditioner) is not OK, perform the measures to be taken if the readout does not match the specification (the required cooling output is not attained) ⇒ [page 104](#) .

- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and there is a problem with excessively high or differing front air conditioner outflow temperatures, check activation of the temperature flaps in the front air conditioning unit
⇒ "3.7.2 Checking heating output and activation of temperature flaps of air conditioner", page 56 .
- ◆ If the measured value of -G263- (and thus the cooling output of the front air conditioner) is OK and there are problems with a lack of cooling output from the rear vents (excessively high or differing air outflow temperatures from the rear vents), check activation of the temperature flaps in the front air conditioning unit
⇒ "3.7.2 Checking heating output and activation of temperature flaps of air conditioner", page 56 .



Note

The shut-off valve 1 for refrigerant of hybrid battery - N516- installed in the refrigerant line to the expansion valve upstream of the evaporator in the air conditioning unit is open when not actuated. If this valve is activated or closed off, refrigerant cannot flow to the expansion valve; checking operation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J840-).

If the measured value of the evaporator output temperature sender - G263- (and thus the cooling output of the air conditioner) is OK and there is a problem with a lack of cooling output for battery cooling.

- ◆ Check activation and operation of the components of the battery cooling module by the battery regulation control unit - J840- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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Note

The refrigerant shut-off valve 2 for hybrid battery - N517- attached to the expansion valve of the battery cooling module is closed when not activated; check operation using ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J840-),

⇒ "3.8.10 Fault finding if readout does not match specification (required cooling output is not attained), vehicles with high-voltage system", page 104

⇒ "3.8.11 Fault isolation following ice formation on evaporator - vehicles with high-voltage system", page 107

3.8.10 Fault finding if readout does not match specification (required cooling output is not attained), vehicles with high-voltage system

Vehicles with high-voltage system (hybrid vehicles)

- Select display with measured values for activation of air conditioner compressor and pressure in refrigerant circuit in “Read measured values” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Repeat cooling output test ⇒ [page 96](#) .
- Observe displays for compressor activation during cooling output test.
- Is air conditioner compressor deactivated during cooling output test (specified speed drops below 1500 rpm)?

↓
yes
↓

Continued ⇒ [page 104](#) . Activation of air conditioner compressor is switched off.

↓
no
↓

- Is there an increase in pressure in refrigerant circuit during cooling output test?

↓
yes
↓

Continued ⇒ [page 105](#) . Increase in pressure in refrigerant circuit

↓
no
↓

In “Read measured values” function of battery regulation control unit - J840- , select display with measured values for activation of refrigerant shut-off valve 1 for hybrid battery - N516- using ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

If -N516- is activated, eliminate the cause of activation.

If the air conditioner compressor is activated and -N516- is not activated, the vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

Inform the workshop of the problem found (possibly insufficient refrigerant in circuit, -N516- is blocked or electrical air conditioner compressor - V470- is defective).

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Continuation of test: “Activation of air conditioner compressor is cancelled”

- Deactivation of air conditioner compressor during cooling output test by air conditioner operating and display unit, Climatronic control unit - J255- (by battery regulation control unit - J840- or control unit for air conditioning compressor - J842-), drop in specified speed to below 1500 rpm?

↓
yes
↓

↓
no
↓

- Interrogate event memory of -J255-, -J840- and -J842- .
Eliminate faults displayed and erase event memory.
- Read out measured value with compressor shut-off criteria of -J255- and eliminate cause of deactivation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Repeat cooling output test ⇒ [page 96](#) .
- Air conditioner compressor deactivated during cooling output test by -J840- or -J842- (only the actual speed drops below 1500 rpm)?
Interrogate event memory of -J840- and -J842- , rectify fault displayed and erase event memory ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- In "Read measured values" function for -J840- and -J842- , read out displays indicating measured values for activation of electrical air conditioner compressor - V470- .
- Check activation of -V470- by -J842- and eliminate cause of shut-off ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Repeat cooling output test ⇒ [page 96](#) .

Continuation of test: "Increase in pressure in refrigerant circuit"

- Open bonnet.
- Repeat cooling output test ⇒ [page 96](#) .
- In the "Reading measured values" function of the air conditioner operating and display unit, Climatronic control unit - J255- read out the pressure in the refrigerant circuit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Radiator fan(s) (radiator fan - V7- and radiator fan 2 - V177- running during cooling output test? Speed is governed by coolant temperature and pressure in refrigerant circuit (determined by engine control unit). Or are radiator fans switched in as soon as pressure in refrigerant circuit exceeds a pressure of approx. 9 bar?

↓
yes
↓

- Read out the measured values with the display for the "pressure in the refrigerant circuit" and "actuation of the radiator fans" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Radiator fan(s) running at a higher speed as pressure in refrigerant circuit increases (according to request from -J255-)?

↓
no
↓

- Check activation of radiator fan(s), e.g. in "Final control diagnosis" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Service activation system for radiator fan(s).

- Repeat cooling output test ⇒ [page 96](#) .

↓
yes
↓

↓
no
↓

- In "Read measured values" function of battery regulation control unit - J840- , select display with measured values for activation of refrigerant shut-off valve 1 for hybrid battery - N516- using ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
 - If -N516- is activated, eliminate the cause of activation.
 - If the air conditioner compressor is activated and -N516- is not activated, the vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .
 - Inform the workshop of the problem found (possibly insufficient refrigerant in circuit, -N516- is blocked or electrical air conditioner compressor - V470- is defective).
- Check activation of radiator fans, e.g. in "Final control diagnosis" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
 - Service activation system for radiator fan(s).
 - Repeat cooling output test ⇒ [page 96](#) .

**Note**

- ◆ *The pressure in the refrigerant circuit depends on various influencing factors. In general, however, the pressure should not exceed 20 bar at an ambient temperature of 20 to 25 °C. Under extreme usage conditions (e.g. in hot countries with high ambient temperatures, stop-and-go traffic, or high relative humidity), the extremely high cooling output involved may also result in pressures of up to 31 bar.*
- ◆ *At ambient temperatures below 25 °C, the pressure in the refrigerant circuit does not usually rise above 16 bar (radiator fan(s) running and cooling condenser).*
- ◆ *The measured value of the refrigerant pressure and temperature sender - G395- is used by the operating and display unit, Climatronic control unit - J255- to calculate the pressure in the refrigerant circuit, which it then displays ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *At an absolute pressure less than approx. 1.8 bar and greater than approx. 32 bar, the operating and display unit, Climatronic control unit - J255- does not switch on the air conditioner compressor (the control unit for air conditioning compressor - J842- and thus the electrical air conditioner compressor - V470- are not activated). The air conditioner compressor is only re-activated once the absolute pressure has risen above 1.8 bar or dropped below 16 bar.*
- ◆ *Further information on the pressure in the refrigerant circuit can be found in the Guided Fault Finding ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *To prevent abrupt air conditioner compressor shut-off on account of excessive pressure in the refrigerant circuit or excessive coolant temperature, the compressor output is reduced by the air conditioner operating and display unit, Climatronic control unit - J255- . As soon as the pressure in the refrigerant circuit exceeds approx. 30 bar (absolute) (full compressor output is not released again until the pressure has dropped below 27 bar) or the coolant temperature exceeds 115 °C (complete shutdown at 118 °C).*

3.8.11 Fault isolation following ice formation on evaporator - vehicles with high-voltage system

Vehicles with high-voltage system (hybrid vehicles)

- ◆ The electrical air conditioner compressor - V470- is activated via the control unit for air conditioning compressor - J842- by the air conditioner operating and display unit, Climatronic control unit - J255- such that the temperature of the air downstream of the evaporator reaches the specified value (approx. 2 to 5 °C).
- ◆ After the ignition is switched on, a value greater than 4000 rpm is displayed depending on the road speed, the measured temperature and the voltage of the vehicle's electrical system. As soon as the temperature measured by the evaporator output temperature sender - G263- approaches the specified value, the activation is reduced and the compressor output is decreased.

The following problems may be encountered if the measured value of the evaporator output temperature sender - G263- is incorrect (too high):

- The air conditioner fails repeatedly or sporadically (no cooling/heating output) after extended driving; after the vehicle has been stopped, the air conditioner functions properly again (after a short wait).
- The windows mist up on the inside during long journeys; the windows are not de-misted even after pressing the "defrost" button on the air conditioner operating and display unit (Climatronic control unit - J255-); after the vehicle has been stopped (or the air conditioner has been switched off) and waiting a short while, the air conditioner functions properly again.



Note

Under extreme ambient conditions ice could form at the evaporator if certain settings are selected on the air conditioner, for example air outflow direction set to dash panel vents with these vents closed, maximum cooling output with minimum fresh air blower speed selected. When these settings are selected, air no longer flows through the evaporator, which means that the temperature measured by the evaporator output temperature sender - G263- is higher than the actual temperature at the evaporator. The air conditioner control system however assumes that the measured value of -G263- corresponds to the actual evaporator temperature and continues to activate -V470- at increased speed, with the result that the evaporator is excessively cooled.

Remedy:

- Check the measured value of the evaporator output temperature sender - G263- in the "Reading measured values" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- If measured value for -G263- is too high under usage conditions described by customer (above e.g. 10 °C depending on ambient temperature) although air conditioner is functioning properly, check -G263- (incorrect measured value can cause evaporator to ice up).

Operation of the air conditioner can be seen for example from the fact that the "low-pressure end" refrigerant line (thick line between internal heat exchanger and air conditioner compressor) cools down and the "high-pressure end" refrigerant line (thin line be-

tween condenser and internal heat exchanger) becomes warm
⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#) .

- If the measured value for -G263- is too low under the usage conditions described by the customer (at ambient temperature above 0 °C, colder than 0 °C for lengthy period), check activation of electrical air conditioner compressor - V470- and refrigerant shut-off valve 1 for hybrid battery - N516- by battery regulation control unit - J840- . If, for example, -N516- is not activated correctly when hybrid drive is active (no activation despite only drive battery - A2- cooling being required), the evaporator in the air conditioning unit may ice up.
- Check the “low-pressure end” refrigerant line (thick line between internal heat exchanger and air conditioner compressor)
⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#) with the engine / air conditioner compressor running. If this pipe is severely iced up when problem occurs (thin layer of ice is permissible), this also indicates that evaporator temperature is too low. Check the measured value of the evaporator output temperature sender - G263- as well as the activation and operation of the electrical air conditioner compressor - V470- , the refrigerant shut-off valve 1 for hybrid battery - N516- , the refrigerant shut-off valve 2 for hybrid battery - N517- , the control unit for air conditioning compressor - J842- and the battery regulation control unit - J840- . If a fault is found at -V470- , -N516- , -N517- or -J842- , the vehicle is to be taken to a workshop equipped with the necessary tools where the work can be performed by appropriately qualified personnel ⇒ Vehicle diagnostic tester in “Guided fault-finding” mode and ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner . Inform the workshop of the problem detected.

3.9 Working on refrigerant circuit

Always perform work on the refrigerant circuit in well ventilated areas. Make sure that there are no inspection pits, shafts or cellar entrances within a radius of 5 metres. Switch on extraction systems.

Reason:

The refrigerant emerging is not only colourless and odourless, but also heavier than air and thus displaces oxygen. Should refrigerant gas escape even though the safety precautions have been observed, this can result in an imperceptible danger of asphyxiation in poorly ventilated areas and inspection pits.



Note

The mixture of gas and air which forms when refrigerant gas escapes must not be inhaled. Use suitable workshop extractors.

Welding, brazing and soldering work must not be performed on components of air conditioning system when charged. This also applies to welding and soldering work on the vehicle if there is a danger of air conditioner components becoming hot.

Reason:

Exposure to heat generates considerable pressure in the system, which could cause it to burst.

Remedy:

Discharge refrigerant circuit

⇒ [“3.10 Discharging refrigerant circuit”, page 109](#) .



Note

Do not repair damaged or leaking parts of the air conditioner by welding or soldering - they should be renewed.

When servicing the air conditioner, re-seal all open components and pipe connections immediately.

Reason:

Moisture will enter air conditioner components if they are left open for more than a certain amount of time. For this reason, air conditioners which have been left open for a long period cannot be re-charged without renewing parts of the system.

3.10 Discharging refrigerant circuit

Refrigerant must not be allowed to escape into the environment; it should be extracted from the refrigerant circuit with a suction unit or an air conditioner service station. The extracted refrigerant must then either be re-processed on site or returned to the manufacturer for proper disposal (different or additional regulations may apply in other countries). For this reason, the vehicle must be taken to a workshop which is equipped with the necessary tools and at which the work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

Reason:

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If refrigerant R134a escapes into the earth's atmosphere, it contributes towards the greenhouse effect.



Note

- ◆ *Refrigerant R134a has far less of a greenhouse effect than R12.*
- ◆ *Refrigerant R134a does not affect the earth's ozone layer (R134a is an HFC with no chlorine atoms). Depletion of the ozone layer in the upper atmosphere is only brought about by the splitting of carbon-chlorine bonds (as is the case, for example, with refrigerant R12).*

After discharging air conditioner, unplug connector from air conditioner compressor regulating valve - N280- or from refrigerant pressure and temperature sender - G395- .

Reason:

The air conditioner compressor regulating valve - N280- is then no longer activated and the compressor runs at idle. The design of the air conditioner compressor is such that lubrication of the air conditioner compressor components is provided by way of an internal oil circuit at idling speed (provided there is sufficient refrigerant oil in the air conditioner compressor).

3.11 Notes on general repairs

⇒ [“3.11.1 Checking electrical air conditioner components activated or evaluated via other control units”, page 110](#)

⇒ [“3.11.2 Checking electrical components activated by air conditioning system”, page 111](#)

⇒ [“3.11.3 Checking air conditioner components on vehicles with high-voltage system”, page 111](#)

⇒ [“3.11.4 Checking supplementary heating system”, page 114](#)

⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#)

⇒ [“3.11.5 Notes on dust and pollen filter with activated charcoal element”, page 115](#)

3.11.1 Checking electrical air conditioner components activated or evaluated via other control units



Note

- ◆ *Certain components of the air conditioner are not activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). For example, the air conditioner compressor regulating valve - N280- is activated via the onboard supply control unit - J519- . The data are exchanged between the two control units by way of the data bus ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *The measured values of certain air conditioner components are no longer evaluated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). Thus, for example, the pressure signal of the refrigerant pressure and temperature sender - G395- is evaluated by the onboard supply control unit - J519- and the measured values are transmitted by way of the data bus to -J255- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *A start/stop system is offered for this vehicle in combination with certain engines. Depending on the setting, the air conditioner front operating and display unit (Climatronic control unit - J255-), may inhibit the stop function. For example, the stop function is not possible, or the stop function is interrupted and the engine is switched on as soon as the “defrost” mode is selected. This also applies if the difference between the set specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the “A/C” function on the “Car” / “Car systems” menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the “A/C” function of the “Car” / “Car systems” menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .*

3.11.2 Checking electrical components activated by air conditioning system



Note

- ◆ *Certain electrical components in the vehicle (e.g. heated rear window - Z1- and heated seats) which are not part of the air conditioning system are activated by the air conditioner front operating and display unit (Climatronic control unit - J255-) or the operating and display unit for rear air conditioning system - E265- . For example, the request to switch on -Z1- is first transmitted to the data bus diagnostic interface - J533- via the data bus and then relayed to the convenience system central control unit - J393- , which then activates -Z1- via the heated rear window relay - J9- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations. Perform the electrical check for these components as described in the Guided Fault Finding routine for the air conditioner and -J393- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .*

⇒ ["1.6 Heated rear window", page 16](#)

⇒ ["1.3 Seat heating", page 3](#)

3.11.3 Checking air conditioner components on vehicles with high-voltage system

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Hybrid vehicles

- ◆ Air conditioner (and refrigerant circuit) components which are identical on vehicles with and without a high-voltage system can be checked, removed and installed as described for vehicles with no high-voltage system (e.g. the control motors at the air conditioning unit) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner.
- ◆ Air conditioner components which are largely identical on vehicles with and without a high-voltage system, but whose functions may differ for example, can be checked, removed and installed as described for vehicles with no high-voltage system (e.g. air conditioner operating and display unit, Climatronic control unit - J255-) ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner.
- ◆ Air conditioner (and refrigerant circuit) components which differ on vehicles with and without a high-voltage system (e.g. the electrical air conditioner compressor - V470- with the control unit for air conditioning compressor - J842-) should be checked, removed and installed as described for vehicles with a high-voltage system (e.g. -J842- with address word "40" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode). The control unit for air conditioning compressor - J842- (and thus the electrical air conditioner compressor - V470-) are supplied with power by the power and control electronics for electric drive - JX1- . -JX1- (address word "51") should therefore also be checked in the event of a problem ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

- ◆ Air conditioner (and refrigerant circuit) components only fitted on vehicles with a high-voltage system (e.g. the electrical components of the battery cooling module, the refrigerant shut-off valve 1 for hybrid battery - N516- and the refrigerant shut-off valve 2 for hybrid battery - N517-) are removed and installed as described for vehicles with a high-voltage system. These components are not activated directly by the air conditioner operating and display unit (Climatronic control unit - J255-). These components are actuated for example by way of the battery regulation control unit - J840- (with address word "8C") ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

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**WARNING**

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- Activate vehicle drive system (with ignition switched on, check "READY" display in control unit in dash panel insert - J285-).



Note

- ◆ ***The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter".***
- ◆ ***Activating vehicle drive system (check "READY" display in control unit in dash panel insert - J285-) ⇒ Owner's Manual***
- ◆ ***Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).***

3.11.4 Checking supplementary heating system



Note

- ◆ Vehicles with diesel engine and vehicles with a high-voltage system (hybrid) and petrol engine are currently provided with a supplementary heating function. The type of supplementary heating depends on the vehicle equipment ⇒ Audi sales literature .
- ◆ Vehicles with a diesel engine and no auxiliary heater as an optional equipment and vehicles with a high-voltage system (hybrid) and a petrol engine are equipped with an auxiliary air heater control unit - J604- and an auxiliary air heater element - Z35- for supplementary heating. After leaving the heat exchanger in the front air conditioning unit, the air is heated additionally by -Z35-
⇒ ["5.7.1 Checking electric supplementary heater", page 470](#)
and ⇒ Audi sales literature .
- ◆ Certain air conditioner functions (e.g. activation of the supplementary heating system) can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .
- ◆ On vehicles with diesel engine and "auxiliary heater" as optional extra (these vehicles are currently not fitted with an auxiliary air heater element - Z35-), the auxiliary heater assumes the function of the auxiliary air heater element - Z35- and operates as a fuel-driven supplementary heater ⇒ Audi sales range . On these vehicles, the auxiliary heater warms the coolant additionally when the engine is running.
- ◆ The procedure for checking the activation of the auxiliary air heater element - Z35- via the auxiliary air heater control unit - J604- is described in the Guided Fault Finding routine for the air conditioning system ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and
⇒ ["5.7.1 Checking electric supplementary heater", page 470](#) .
- ◆ The information in the "Reading measured values" function of the Guided Fault Finding routine for the air conditioner front operating and display unit (Climatronic control unit - J255-) indicates that the supplementary heater is activated/why no activation occurred in spite of a request ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Except for vehicles with high-voltage system (hybrid), vehicles with petrol engine are currently not fitted with a supplementary heater, or an auxiliary heater fitted as optional extra is not activated as a supplementary heater.
- ◆ Vehicles with a high-voltage system (hybrid vehicles) and petrol engine are currently equipped with an electrical auxiliary air heater element - Z35- to provide a supplementary heating function
⇒ ["5.7.1 Checking electric supplementary heater", page 470](#) .

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3.11.5 Notes on dust and pollen filter with activated charcoal element

- ◆ There are different versions of the dust and pollen filter -D- without and with activated charcoal filter element ⇒ Electronic parts catalogue . The Audi A8 is currently fitted with a dust and pollen filter with an activated charcoal filter element.
- ◆ The filter with activated charcoal filter insert acts as a dust and pollen filter. However, it can also filter gaseous pollutants such as ozone, benzene and nitrogen dioxide out of the air. The main function of the activated charcoal layer in the dust and pollen filter is to prevent peak pollution levels from entering the passenger compartment.
- ◆ A further function of the activated charcoal is to absorb certain gaseous pollutants in the air flow. The activated charcoal layer in the dust and pollen filter has a different effect on the various pollutants in the air:

- Certain pollutants are bonded in the charcoal layer
- Others are converted into harmless compounds as in a catalytic converter.

- In all other respects, the activated charcoal acts like a condenser. As the impact level increases, pollutants are initially absorbed until a certain degree of saturation is attained. If the pollutant level drops, the activated charcoal layer continuously emits these absorbed particles again.

- ◆ As the activated charcoal layer permanently binds some of the gaseous pollutants in addition to the dust and pollen, it is advisable to renew the dust and pollen filter sooner than specified if the vehicle is used under the following conditions:

- Vehicle operation in areas with constant severe air pollution. The activated charcoal layer in the dust and pollen filter becomes saturated sooner than specified.
- Vehicle operation with "automatic air recirculation" function predominantly deactivated

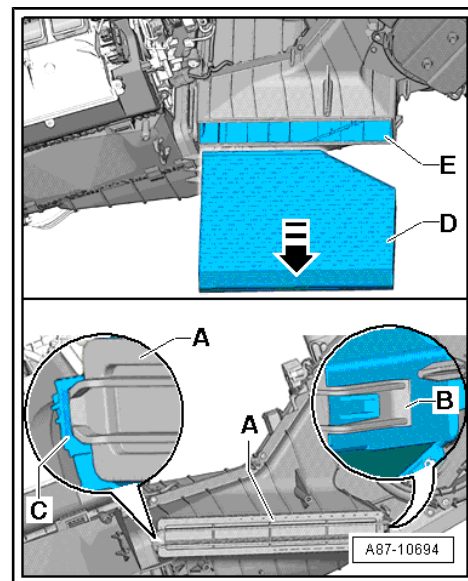
- ◆ On vehicles with an air quality sensor - G238- , the air conditioner should be operated in "automatic air recirculation" mode whenever possible. Should it however be necessary or desirable to deactivate the function, please observe the following:

- The activated charcoal layer in the dust and pollen filter becomes saturated after a certain length of time.

- A saturated filter can no longer absorb pollutants, which then pass through unhindered

- ◆ The main function of the active charcoal layer of the dust and pollen filter and the air quality sensor - G238- is to prevent peak pollution levels from entering the passenger compartment. However, observe the following:

- If a vehicle is driven in an area with a relatively clean environment (with few gaseous pollutants in the air), the point at which switching from fresh-air to air recirculation mode takes place is different to that in areas with a high basic impact level (e.g. industrial estates).
- Irrespective of the basic impact level, the system always switches from fresh air mode to air recirculation mode if there is an increase in the level of pollutants (e.g. when driving through a cloud of diesel emissions from a lorry).



3.12 Paint repairs on vehicles with air conditioning system

When performing paintwork repairs, object temperatures of 80 °C must not be exceeded in drying booths or their preheating zones.

Reason:

Exposure to heat generates considerable pressure in the system, which could cause it to burst.

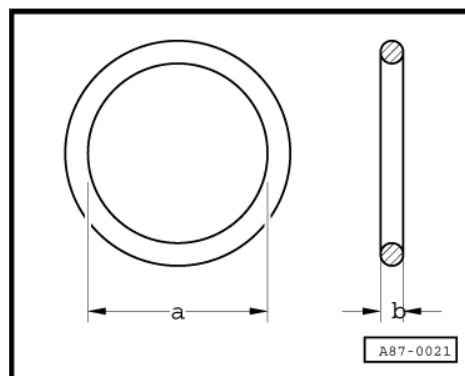
3.13 Refrigerant circuit seals

- ◆ O-rings can only be used once and must then be renewed.
- ◆ Lubricate O-rings lightly with refrigerant oil before fitting.
- ◆ Make sure O-rings are positioned correctly on pipe or in groove.
- ◆ Check connections at components and refrigerant lines for damage (even slight scratches can cause leaks).
- ◆ Ensure absolute cleanliness when working (even the slightest contamination, e.g. a single hair, could cause leakage).



Note

- ◆ Use only O-rings which are resistant to refrigerant R134a and the corresponding refrigerant oil. These O-rings are colour-coded to prevent mix-ups (currently "red", "purple" or "violet") ⇒ *Electronic parts catalogue*.
- ◆ Dimensions -a- and -b- differ depending on where the O-ring is fitted ⇒ *Electronic parts catalogue*.
- ◆ In addition to the coloured O-rings, black O-rings are also used at the factory for certain connections.



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4 Technical data

⇒ ["4.1 Capacities", page 117](#)

⇒ ["4.2 Refrigerant oil", page 117](#)

⇒ ["4.3 Oil distribution", page 118](#)

4.1 Capacities

For refrigerant R134a and refrigeration oil capacities, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .



Note

There are different refrigerant R134a capacities for vehicles with no rear air conditioning unit (with one evaporator) and vehicles with a rear air conditioning unit (with two evaporators) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .

- Draining, evacuating and charging the refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .



Note

- ◆ *The compressor version may differ depending on the production period and engine ⇒ Electronic parts catalogue .*
- ◆ *The specified refrigeration oil capacities for the refrigerant circuit may differ depending on the type of air conditioner compressor ⇒ Electronic parts catalogue and ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .*
- ◆ *Always charge the refrigerant circuit as far as the upper tolerance limit (some refrigerant remains in filler hoses).*
- ◆ *For further notes refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

4.2 Refrigerant oil

The special refrigeration oil only to be used for R134a refrigerant circuits is not available on the refrigeration oil market ⇒ [Electronic parts catalogue](#) .

For refrigerant R134a and refrigeration oil capacities, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .

- Draining, evacuating and charging the refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

**Caution**

Filling with the wrong refrigeration oil will cause the air conditioner to malfunction.

- ◆ ***The refrigerant circuit is only to be filled with approved refrigeration oils ⇒ Electronic parts catalogue . The correct refrigeration oil depends on the make and type of the air conditioner compressor fitted ⇒ Air conditioner with refrigerant; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .***

Filling with an incorrect quantity of refrigeration oil will cause the air conditioner to malfunction.

- ◆ ***Too much refrigeration oil in the refrigerant circuit results in higher pressures and a reduction in the cooling output of the system.***
- ◆ ***Insufficient refrigeration oil in the refrigerant circuit may result in failure of the air conditioner compressor on account of lubrication problems.***

Risk of corrosion in refrigerant circuit.

- ◆ ***Refrigeration oil absorbs moisture. Never use refrigeration oil from containers which have been standing open for a lengthy period ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .***

Important information:

As refrigeration oil is extremely hygroscopic, open containers must be immediately re-sealed after use to prevent the ingress of moisture.

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4.3 Oil distribution

- ◆ During operation of the air conditioner, the refrigeration oil present in the air conditioner compressor prior to initial switch-on of the air conditioner is distributed throughout the refrigerant circuit.
- ◆ The refrigeration oil will be distributed in the refrigerant circuit to differing extents depending on the last air conditioner operating status prior to switch-off and the ambient temperatures etc. Generally applicable information on the distribution of the refrigeration oil in the refrigerant circuit can thus not be given. Attention should therefore be paid to the information on replacement of refrigerant circuit components ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

80 – Heating

1 Exploded view of fitting locations - heater

Only one type of air conditioner is available for the Audi A8. There is currently no provision for a heater separate from the air conditioner.

All the information required for servicing the heating and air conditioning system can be found in
⇒ [g r.87 "Air conditioning system", page 120](#) .



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87 – Air conditioning system

1 Exploded view of fitting locations - air conditioner

⇒ "1.1 Exploded view of fitting locations - components not located in passenger compartment", page 120

⇒ "1.2 Exploded view of fitting locations - components in passenger compartment at front", page 130

⇒ "1.3 Overview of fitting locations - components in rear passenger compartment", page 139

1.1 Exploded view of fitting locations - components not located in passenger compartment

⇒ "1.1.1 Exploded view of fitting locations - components not located in passenger compartment, front component group 1", page 120

⇒ "1.1.2 Exploded view of fitting locations - components not located in passenger compartment, front component group 2", page 123

⇒ "1.1.3 Exploded view of fitting locations - components not located in passenger compartment, rear", page 128

1.1.1 Exploded view of fitting locations - components not located in passenger compartment, front component group "1"

Components at front of vehicle and in engine compartment

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1 - Sunroof (with solar cells - C20-)

- ❑ Only fitted on vehicles with this optional extra
- ❑ Checking operation of - C20-
⇒ ["1.7 Solar panel for sun roof", page 17](#)
- ❑ Removing and installing
⇒ General body repairs, Exterior; Rep. gr. 60 ; Sunroof; Exploded view - sunroof
- ❑ Activation and operation of the fresh air blower - V2- by the fresh air blower control unit - J126- are governed by factors such as sunlight penetration and the settings in the MMI (Multi Media Interface) and on the front operating and display unit (Climatronic control unit - J255-)
⇒ ["1.7 Solar panel for sun roof", page 17](#) and
⇒ Owner's Manual .

2 - Heated windscreen - Z2-

- ❑ Only fitted on vehicles with this optional extra
- ❑ Activated via heated windscreen control unit - J505-
- ❑ The heated windscreen control unit - J505- is activated by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus. To do so, the request is first transmitted to the data bus diagnostic interface - J533- via the databus; from there it is relayed to the convenience system central control unit - J393- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

- ❑ ⇒ ["10.1 Removing and installing heated windscreen control unit J505 ", page 635](#)

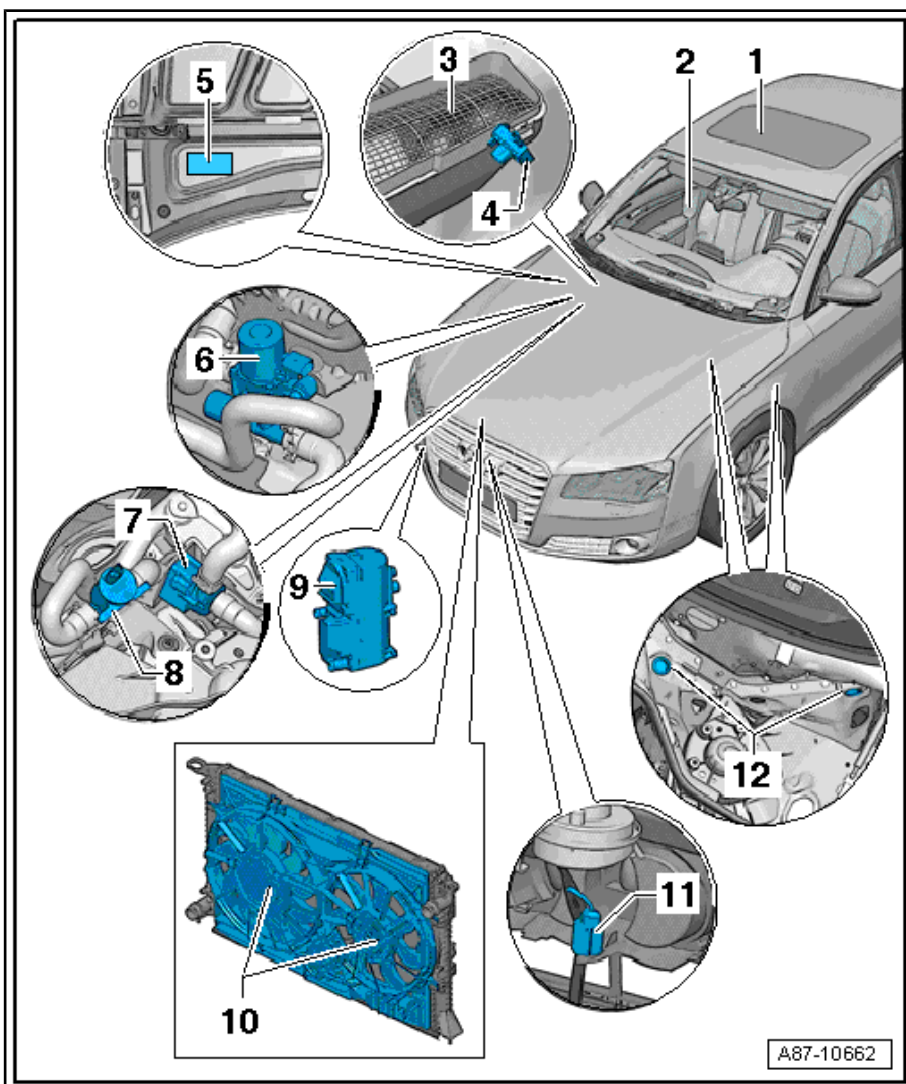
- ❑ Removing and installing windscreen ⇒ General body repairs, exterior; Rep. gr. 64 ; Windscreen; Removing and installing windscreen

3 - Fresh-air intake with intake grille

- ❑ Check that cowl panel trim with cover for fresh-air intake is installed properly and is not damaged. Check that seals between cover for fresh-air intake, windscreen cross member and cowl panel trim are seated correctly and are not damaged. These seals prevent water from running between windscreen cross member and cowl panel trim into intake duct of air conditioning unit ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber cover .
- ❑ Checking, removing and installing ⇒ ["7.9 Removing and installing fresh air intake", page 594](#)
- ❑ Check that intake grille is properly seated. Intake grille prevents foreign matter (e.g. leaves) from ingressing into intake duct of air conditioning unit.
- ❑ Depending on the version, a filter designed to stop the fresh-air blower from drawing in dust and sand may be fitted instead of the intake grille for certain countries with a high dust level in the ambient air (e.g. for China) ⇒ ["7.9 Removing and installing fresh air intake", page 594](#) and ⇒ Electronic parts catalogue .

4 - Air quality sensor - G238- with humidity sender in fresh air intake duct - G657-

- ❑ -G238- and -G657- are combined in one component on this vehicle.
- ❑ ⇒ ["10.3 Operation of air quality sensor G238 ", page 637](#)
- ❑ Checking ⇒ [page 637](#)



- ❑ ⇒ ["10.4.1 Removing and installing air quality sensor G238 with humidity sender in fresh air intake duct G657", page 646](#)
- ❑ The measured value of -G238- and -G657- is evaluated by onboard supply control unit - J519- and transmitted via data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-). In response to a request, -J255- switches to air recirculation mode if no shut-off criterion applies ⇒ Vehicle diagnostic tester "Guided fault-finding" function.

5 - Label

- ❑ Indicates type of refrigerant and specified capacity ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils

6 - Heater coolant shut-off valve - N279-

- At present, -N279- is only installed in vehicles with "auxiliary heater" as optional extra ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses . On vehicles with an auxiliary heater, it assumes the function of the coolant shut-off valve - N82- .
- ❑ ⇒ ["8.4.1 Heater coolant shut-off valve N279 function", page 620](#)
- ❑ ⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#)

7 - Coolant circulation pump - V50-

- ❑ -V50- is not currently fitted on all vehicles. -V50- may not be fitted on vehicles with auxiliary heating as an optional extra (the circulation pump - V55- fitted on vehicles with auxiliary heating then assumes this function ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses).
- ❑ ⇒ ["5.9 Checking heating output of activation of air conditioner temperature flap", page 478](#)
- ❑ ⇒ ["8.2.1 Coolant circulation pump V50 function", page 611](#)
- ❑ ⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#)



Note

- ◆ *-V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber as shown in the illustration. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.*
- ◆ *The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

8 - Coolant shut-off valve - N82-

- ❑ Depending on engine, shut-off valve is fitted in supply line or return line for coolant from engine to heat exchanger of air conditioning unit.
- At present, the shut-off valve is only fitted on vehicles with certain engines (currently not fitted for example on vehicles with an 8-cyl. TDI engine) ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses).
- ❑ If an auxiliary heater is installed as an optional extra in a vehicle with an engine usually fitted with -N82- , no -N82- is installed, as its function is assumed by the heater coolant shut-off valve - N279- fitted on vehicles with auxiliary heating ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses .
- ❑ ⇒ ["8.3.1 Coolant shutoff valve N82 function", page 616](#)

- ❑ ➔ [“8.1 Incorporation of air conditioner into coolant circuit”, page 599](#)

9 - Auxiliary heater with auxiliary heater control unit - J364-

- ❑ Only fitted on vehicles with this optional extra
- ❑ Exchanges information with the air conditioner front operating and display unit, Climatronic control unit - J255- ➔ Auxiliary/supplementary heater; Rep. gr. 82 ; Auxiliary/supplementary heater; Overview of fitting locations - auxiliary/supplementary heater and ➔ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Is activated as fuel-burning supplementary heater on vehicles with diesel engine and no electric supplementary heater (auxiliary air heater element - Z35- and auxiliary air heater control unit - J604-) ➔ Auxiliary/supplementary heater; Rep. gr. 82 ; Auxiliary/supplementary heater; Overview of fitting locations - auxiliary/supplementary heater and ➔ [“5.7.1 Checking electric supplementary heater”, page 470](#) (Checking electrical components of auxiliary heater).

10 - Radiator fan - V7- and radiator fan 2 - V177-

- ❑ Depending on vehicle equipment, different versions of radiator fan - V7- and radiator fan 2 - V177- are fitted ➔ Electronic parts catalogue .
- ❑ The request for activation of the V7- / V177- is transmitted by the air conditioner front operating and display unit (Climatronic control unit - J255-) to the engine control unit via the data bus. The engine control unit then actuates the fan(s) (-V7- and V177-) either directly or by way of the radiator fan control unit - J293- ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ❑ Checking activation of radiator fans by -J255- ➔ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ The corresponding engine control unit switches e.g. -V7- and -V177- (either directly or by way of the radiator fan control unit - J293-) to the desired output (depending on engine type) ➔ Vehicle diagnostic tester “Guided Fault Finding” function and ➔ Current flow diagrams, Electrical fault finding and Fitting locations

11 - Ambient temperature sensor - G17-

- ❑ The measured value of the ambient temperature sensor - G17- is evaluated by the onboard supply control unit - J519- and transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) ➔ Vehicle diagnostic tester in “Guided Fault Finding” mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ❑ ➔ [“10.5 Removing and installing ambient temperature sensor G17 ”, page 648](#)

12 - Plenum chamber water drains

- ❑ Two water drains each are fitted on the left and right in the plenum chamber.
- ❑ ➔ [“7.10 Checking plenum chamber water drain”, page 596](#) .

1.1.2 Exploded view of fitting locations - components not located in passenger compartment, front component group “2”

Components of refrigerant and coolant circuit, as well as plenum chamber water drains

1 - Refrigerant line with internal heat exchanger with quick-release couplings

- ❑ Fitted in area of A-pillar below left wing
- ❑ ⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#) .
- ❑ ⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183](#) .



WARNING

Only release and open the quick-release couplings after completely discharging the refrigerant circuit.



Note

In this refrigerant line, the hot refrigerant (liquid) flowing through the high-pressure side gives off energy to the cold refrigerant (vaporous) flowing through the low-pressure side, thus enhancing the efficiency of the air conditioner.

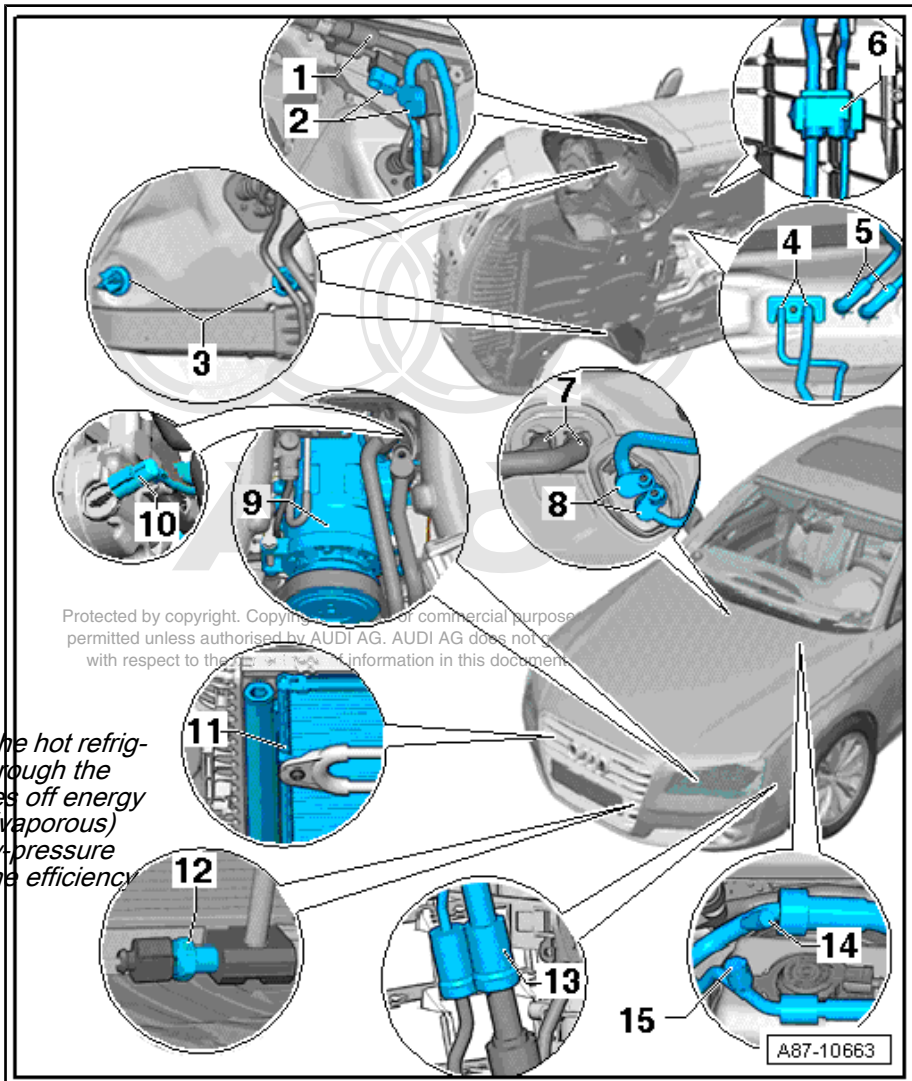
2 - Refrigerant line outlet to evaporator in air conditioning unit (rear)

- ❑ Only fitted on vehicles with rear air conditioning unit (optional extra)



Caution

*Danger from the escape of pressurised refrigerant.
Frostbite on the skin and other parts of the body.
Only unfasten the screws on the joints after discharging the refrigerant circuit.*



3 - Plenum chamber water drains

- ❑ Two water drains each are fitted on the left and right in the plenum chamber.
- ❑ ⇒ [“7.10 Checking plenum chamber water drain”, page 596](#) .

4 - Refrigerant lines to evaporator in air conditioning unit (rear)

- ❑ Only fitted on vehicles with rear air conditioning unit (optional extra)

5 - Coolant pipe connection to heat exchanger for heater in air conditioning unit (rear)

- ❑ Detaching and attaching coolant hoses ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)
- ❑ ⇒ [page 625](#)

6 - Expansion valve (rear)

- ☐ Only fitted on vehicles with rear air conditioning unit (optional extra)
- ☐ For evaporator in rear air conditioning unit (fitted on underbody of vehicle in area of centre tunnel).



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

Only unfasten the screws on the joints after discharging the refrigerant circuit.

- ☐ ⇒ [“2.9.5 Removing and installing rear expansion valve”, page 221](#)
- ☐ Ensure correct allocation ⇒ Electronic parts catalogue
- ☐ Check operation ⇒ [“3.8.3 Checking - vehicles without high-voltage system”, page 74](#)

Note

After the air conditioner compressor is switched off, it might take a relatively long time with this vehicle before the pressure in the high-pressure side drops (the expansion valve(s) is/are cold and the pressure in the low-pressure side increases rapidly after the compressor is switched off, the expansion valve(s) is/are closed and the refrigerant can flow only slowly to the low-pressure side).

7 - Coolant connections to heating system heat exchanger in air conditioning unit (front)

- ☐ Detaching and attaching coolant hoses, bleeding coolant circuit
⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

8 - Refrigerant lines to expansion valve (front)

- ☐ ⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210](#) .
- ☐ ⇒ [“2.9.3 Removing and installing expansion valve \(front\)”, page 216](#) .



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

Only unfasten the screws on the joints after discharging the refrigerant circuit.

9 - Air conditioner compressor

- ☐ Different layouts depending on engine
- ☐ ⇒ [“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271](#) ¹⁾
- ☐ ⇒ [“3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine”, page 274](#) ¹⁾

**Note**

- ◆ *The specified capacity for vehicles with a 6-cyl. FSI engine or 8-cyl. FSI / TFSI engine, the air conditioner compressor can only be detached from the holder and removed after discharging the refrigerant circuit*
⇒ ["3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine", page 297](#),
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#).
- ◆ *The specified capacity for vehicles with a 12-cyl. FSI engine, the air conditioner compressor can only be detached from the holder and removed after discharging the refrigerant circuit*
⇒ ["3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine", page 265](#).

10 - Air conditioner compressor regulating valve - N280-

- ☐ Different layouts of air conditioner compressor depending on engine
- ☐ Checking activation and function
⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#)

**Note**

- ◆ *-N280- is activated by the on-board supply control unit - J519-
⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#). The air conditioner front operating and display unit (Climatronic control unit - J255-) first sends the request to activate -N280- via the data bus to the data bus diagnostic interface - J533-. From there the request is then relayed to -J519-.* ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

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- ◆ *Certain malfunctions of -N280- (e.g. sticking valve or open circuit in coil) can lead to problems with the air conditioner compressor (no cooling output from air conditioner, evaporator icing up etc.). If -N280- (and not the air conditioner compressor itself) is the cause of the problem, the air conditioner compressor can be serviced by renewing -N280- ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .*
- ◆ *-N280- is not available as replacement part for all air conditioner compressors. If -N280- cannot be obtained separately for a particular air conditioner compressor (different versions available), the entire air conditioner compressor must be renewed if problems occur ⇒ Electronic parts catalogue .*

11 - Condenser with receiver

- ☐ Exploded view ⇒ [page 157](#)

12 - Refrigerant pressure and temperature sender - G395-

- ☐ ⇒ [“2.6 Removing and installing refrigerant pressure/temperature sender G395 ”, page 176](#)
- ☐ To check the signal of ⇒ Vehicle diagnostic tester in “Guided fault-finding” mode.



Note

The refrigerant pressure and temperature sender - G395- uses a local data bus to exchange information with the onboard supply control unit - J519- . -J519- then transmits the measured values to the data bus diagnostic interface - J533- . From there, it is relayed via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode and ⇒ [Current flow diagrams, Electrical fault finding and Fitting locations](#)

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13 - Refrigerant line with internal heat exchanger and with quick-release couplings

- ☐ Fitted in area below left headlight
- ☐ ⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208 .](#)
- ☐ ⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183 .](#)



WARNING

Only release and open the quick-release couplings after completely discharging the refrigerant circuit.

**Note**

In this refrigerant line, the hot refrigerant (liquid) flowing through the high-pressure side gives off energy to the cold refrigerant (vaporous) flowing through the low-pressure side, thus enhancing the efficiency of the air conditioner.

14 - Service connection (low-pressure side)

- ☐ For details on how to measure and discharge refrigerant circuit, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- ☐ Cap with seal, always screw on
- ☐ Different versions (with primary sealing valve or Schrader valve) depending on refrigerant line; distinguishing features ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

15 - Service connection on high-pressure side

- ☐ For details on how to measure, discharge and charge refrigerant circuit, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- ☐ Fitted under a flap in the plenum chamber cover
- ☐ Cap with seal, always screw on
- ☐ Different versions (with primary sealing valve or Schrader valve) depending on refrigerant line; distinguishing features ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

1.1.3 Exploded view of fitting locations - components not located in passenger compartment, rear

Components at rear of vehicle and in luggage compartment



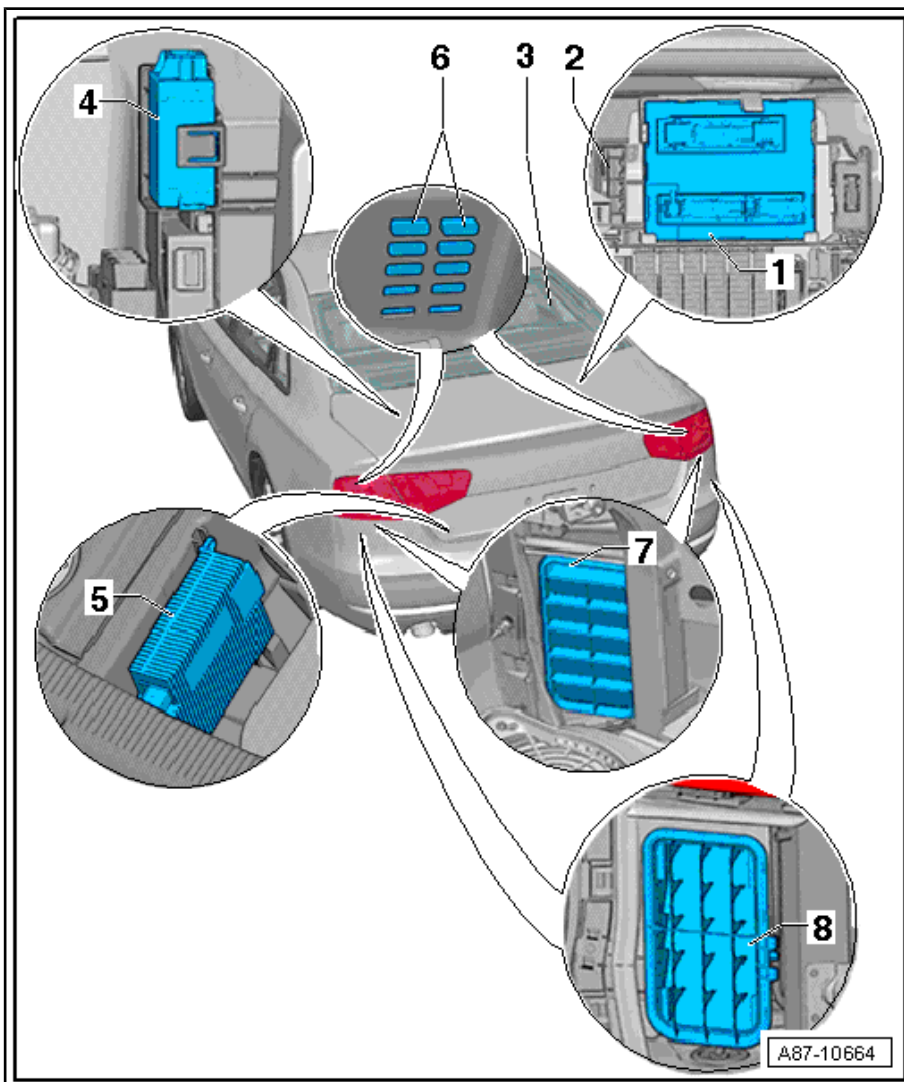
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1 - Convenience system central control unit - J393-

- ❑ -J393- activates various vehicle systems (e. g. heated rear window - Z1-, heated windscreen - Z2-) and evaluates the signals of other components (e. g. signal from humidity sender - G355-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations, ⇒ Electrical system and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ Removing and installing ⇒ General body repairs, exterior; Rep. gr. 57; Central locking; Removing and installing convenience system central control unit - J393-

2 - Data bus diagnostic interface - J533-

- ❑ By way of -J533- the air conditioner front operating and display unit, Climatronic control unit - J255- exchanges information on the data bus with other control units (e. g. convenience system central control unit - J393-, onboard supply control unit - J519-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode



3 - Heated rear window - Z1-

- ❑ The request for rear window heating is transmitted from the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to the convenience system central control unit - J393-. -J393- activates the heated rear window - Z1- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding".
- ❑ Notes on operation of heated rear window ⇒ ["1.6 Heated rear window", page 16](#)
- ❑ Removing and installing rear window ⇒ General body repairs, exterior; Rep. gr. 64; Rear window; Removing and installing rear window.

4 - Remote control receiver for auxiliary heater - R64-

- ❑ Only fitted on vehicles with "auxiliary heater" as an optional extra.
- ❑ As soon as an activation signal from the auxiliary heater remote control hand transmitter is detected, the auxiliary heater control unit - J364- interrogates the air conditioner front operating and display unit (Climatronic control unit - J255-). -J255- then determines whether auxiliary heating mode is required to attain the temperatures set or whether auxiliary ventilation mode is sufficient.

5 - Heated windscreen control unit - J505-

- ❑ Only fitted on vehicles with this optional extra
- ❑ Notes on operation of -J505- and actuation of the heated windscreen - Z2- ⇒ ["1.5 Heated windscreen", page 13](#)
- ❑ Removing and installing ⇒ [page 635](#)

6 - Ventilation slots in luggage compartment lining

- ☐ To ensure proper ventilation of passenger compartment, air ducts must not be blocked by luggage compartment lining.
- ☐ Checking, removing and installing
⇒ [“7.7 Removing and installing passenger compartment forced air extractor”, page 592](#)

7 - Forced ventilation from luggage compartment

- ☐ View from inside with luggage compartment lining (left and right) removed
- ☐ One forced ventilation vent each is fitted on either side beneath rear bumper.
- ☐ Sealing lips of ventilation frame must move freely and close automatically.
- ☐ To ensure proper ventilation of passenger compartment, air ducts must not be blocked by luggage compartment lining.
- ☐ Checking, removing and installing
⇒ [“7.7 Removing and installing passenger compartment forced air extractor”, page 592](#)

8 - Forced ventilation from luggage compartment

- ☐ External view with bumper cover removed
- ☐ Further notes ⇒ [Item 7 \(page 130\)](#)

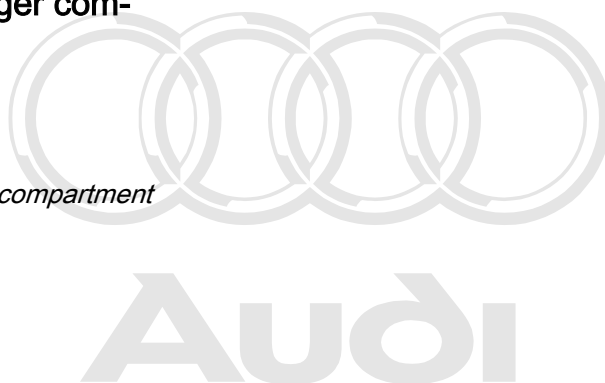
1.2 Exploded view of fitting locations - components in passenger compartment at front

⇒ [“1.2.1 Exploded view of fitting locations - components in passenger compartment at front, from left side of passenger compartment”, page 130](#)

⇒ [“1.2.2 Exploded view of fitting locations - components in passenger compartment at front, from right side of passenger compartment”, page 135](#)

1.2.1 Exploded view of fitting locations - components in passenger compartment at front, from left side of passenger compartment**Note**

This illustration shows the left side of the passenger compartment for a left-hand drive vehicle.



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1 - Multimedia system operating unit - E380-

- ❑ The "Car" / "Car systems" button can be used to call up various air conditioner additional functions and alter the setting ⇒ Infotainment / MMI operating instructions
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- ❑ The various functions of the air conditioner can only be selected on - E380- and displayed on the display unit for front information display and operating unit control unit - J685- if the correct version of the air conditioner front operating and display unit, Climatronic control unit - J255- has been installed and correctly encoded ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

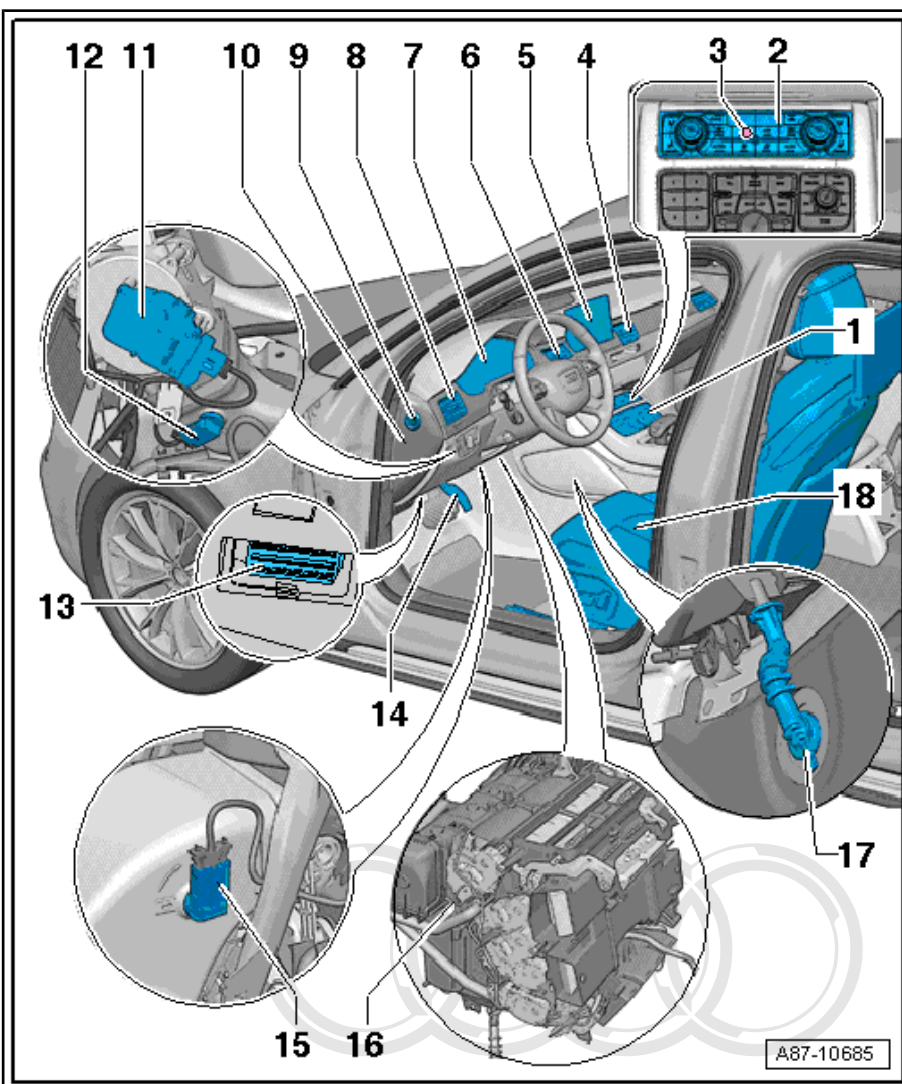
2 - Air conditioner front operating and display unit (Climatronic control unit - J255-)

- ❑ Different versions (for vehicles without or with seat heating/seat ventilation, depending on the production period and vehicle equipment); for assignment, refer to ⇒ Electronic parts catalogue
- ❑ ⇒ ["9.2.1 Removing and installing air conditioner front operating and display unit, Climatronic control unit J255", page 630](#) .
- ❑ The infrared temperature and sunlight penetration sensor is integrated into -J255- (cannot be replaced separately).
- ❑ Perform Guided Fault Finding for the -J255- as described ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ Also heed the additional notes on the air conditioner front operating and display unit, Climatronic control unit - J255-
⇒ ["9.2.1 Removing and installing air conditioner front operating and display unit, Climatronic control unit J255", page 630](#) .



Note

- ◆ *The buttons and rotary controls are illuminated by LEDs which cannot be renewed separately.*
- ◆ *The function indicator lamps in the buttons and rotary controls and the rotary controls and buttons cannot be renewed separately.*



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- ◆ *Pay attention to the correct assignment, encoding and adaption of -J255- with respect to the control unit for front display and information control panel - J523- / control unit 1 for information electronics - J794- ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. If the assignment, encoding or adaption are incorrect, the various functions of the air conditioning system cannot be displayed and selected on the MMI.*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/ MMI Operating Manual .*
- ◆ *Additional functions of the auxiliary heater may be controlled by the Climatronic control unit - J255- and control unit for front display and information control panel - J523- , depending on the control unit version and the vehicle production period. For further information, refer to ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .*



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3 - Infrared temperature and sunlight penetration sensor

- ☐ The sensor determines the temperature and sunlight penetration acting on the air conditioner front operating and display unit, Climatronic control unit - J255- . It is permanently installed and cannot be replaced separately.
- ☐ If the infrared sensor is concealed or contaminated, it can no longer supply correct measured values and the air conditioner will not be regulated properly.
- ☐ Check measured value ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

4 - Potentiometer in right centre dash panel vent - G627-

- ☐ Remove and install centre dash panel vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ☐ Checking -G627- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

5 - Display unit for front information display and operating unit control unit - J685-

- ❑ Multi Media Interface (MMI) display
- ❑ Different versions and operation depending on the type of MMI and vehicle equipment ⇒ Infotainment/ MMI operating instructions .
- ❑ The MMI display indicates certain functions selected on the air conditioner front operating and display unit, Climatronic control unit - J255- (and various additional air conditioner functions) ⇒ Infotainment/ MMI operating instructions .
- ❑ The "Car" / "Car systems" button of the Multimedia system operating unit - E380- (depending on vehicle equipment) can be used to call up various air conditioner additional functions and alter the setting ⇒ Infotainment / MMI operating instructions .



Note

- ◆ *Pay attention to correct assignment, encoding and adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- with respect to the control unit for front display and information control panel - J523- / control unit 1 for information electronics - J794- (different versions depending on the production period and vehicle equipment) ⇒ Electronic parts catalogue . In the event of incorrect assignment, encoding and adaption, the various air conditioner functions cannot be displayed in the MMI and selected.*
- ◆ *A start/stop system is offered as an optional extra for this vehicle in combination with certain engines. On vehicles with start/stop system, the stop function may be inhibited depending on the setting on the air conditioner front operating and display unit, Climatronic control unit - J255- . For example, the stop function is not possible or the stop function is interrupted and the engine is switched on as soon as the "defrost" mode is selected. This also applies if the difference between the set specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/ MMI Operating Manual .*



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6 - Potentiometer in left centre dash panel vent - G626-

- ❑ Remove and install centre dash panel vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents

**Note**

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ❑ Checking -G626- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

7 - Control unit in dash panel insert - J285-

- ❑ With ambient temperature indicator in driver information system (DIS)
- ❑ If there are problems with an excessively high display value for the ambient temperature indicator - G106- (caused by an excessively high -G17- measured value), refer to [⇒ "10.5 Removing and installing ambient temperature sensor G17", page 648](#).
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

8 - Left side vent with potentiometer in left side vent - G628-

- ❑ Remove and install side vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents
- ❑ Checking -G628- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

**Note**

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ❑ ⇒ ["7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window", page 586](#)
- ❑ ⇒ ["7.6.2 Removing and installing air duct to left dash panel vent and side window", page 587](#)

9 - Vent to front left door (driver's door)

- ❑ ⇒ ["7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window", page 586](#)
- ❑ ⇒ ["7.6.2 Removing and installing air duct to left dash panel vent and side window", page 587](#)

10 - Onboard supply control unit - J519-

- ❑ Various components (e.g. air conditioner compressor regulating valve - N280-) are activated by the air conditioner via -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for air conditioner and -J519-)
- ❑ Removing and installing, checking ⇒ Electrical system; Rep. gr. 97 ; Control units; Removing and installing onboard supply control unit - J519-

11 - Control motor for left side window defroster flap - V409-

- ❑ ⇒ ["4.24 Removing and installing control motor for left side window defroster flap V409", page 407](#)
- ❑ ⇒ ["7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window", page 586](#)
- ❑ ⇒ ["7.6.2 Removing and installing air duct to left dash panel vent and side window", page 587](#)

12 - Left vent temperature sender - G150-

- ❑ ⇒ ["10.7 Removing and installing left vent temperature sender G150", page 649](#).
- ❑ Checking left vent temperature sender - G150- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

13 - Diagnostic connection

- ☐ Air conditioner Guided Fault Finding procedure ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

14 - Accelerator mechanism

- ☐ Kick-down deactivation of air conditioner compressor (via air conditioner compressor regulating valve - N280-) is performed when requested by engine control unit (data are exchanged via data bus). In the “Reading measured values” function of the Guided Fault Finding routine for the air conditioner front operating and display unit, Climatronic control unit - J255- it is possible to read off the current -N280- activation status ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode (perform Guided Fault Finding for air conditioner and - depending on engine - for injection and ignition system or diesel glow plug and injection system).

15 - Left footwell vent temperature sender - G261-

- ☐ ⇒ [“10.9 Removing and installing left footwell vent temperature sender G261 ”, page 650](#)
- ☐ Checking left vent temperature sender - G150- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

16 - Air conditioning unit with evaporator (viewed from left)

- ☐ Different versions depending on model and vehicle equipment
 ⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#)
 and ⇒ Electronic parts catalogue
- ☐ Further notes ⇒ [Item 10 \(page 137\)](#)

17 - Condensation drain, left-side (driver's side)

- ☐ ⇒ [“5.16 Removing and installing condensation drain”, page 518](#)

18 - Seat, left-side (driver's seat) with components for seat heating and seat ventilation

- ☐ Components for seat heating (front left seat temperature sender - G344- , heated seat cushion for front left seat - Z45-) and seat ventilation (control unit and various fans) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Overview of fitting locations - electrical and electronic components
- ☐ Not all vehicles are equipped with seat heating and ventilation (optional extra).
- ☐ The seat heating and ventilation settings are made on the air conditioner front operating and display unit, Climatronic control unit - J255- . Activation of the seat heating and seat ventilation is displayed in the “Reading measured values” function of the Guided Fault Finding routine for -J255- , check ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ☐ The seat heating and seat ventilation are activated by way of different control units depending on the vehicle equipment and model ⇒ [“1.3 Seat heating”, page 3](#) , ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode (for -J519- , -J136- and -J521- depending on vehicle).
- ☐ Servicing seat heating and seat ventilation ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Overview of fitting locations - electrical and electronic components
- ☐ Notes on operation of seat heating and ventilation ⇒ [“1.3 Seat heating”, page 3](#)

1.2.2 Exploded view of fitting locations - components in passenger compartment at front, from right side of passenger compartment



Note

This illustration shows the right side of the passenger compartment for a left-hand drive vehicle.

1 - Mirror base with humidity sender - G355-

- ❑ Removing and installing
⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Removing and installing interior mirror
- ❑ Check humidity sender - G355- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

2 - Indirect ventilation vent / cover for centre dash panel loudspeaker

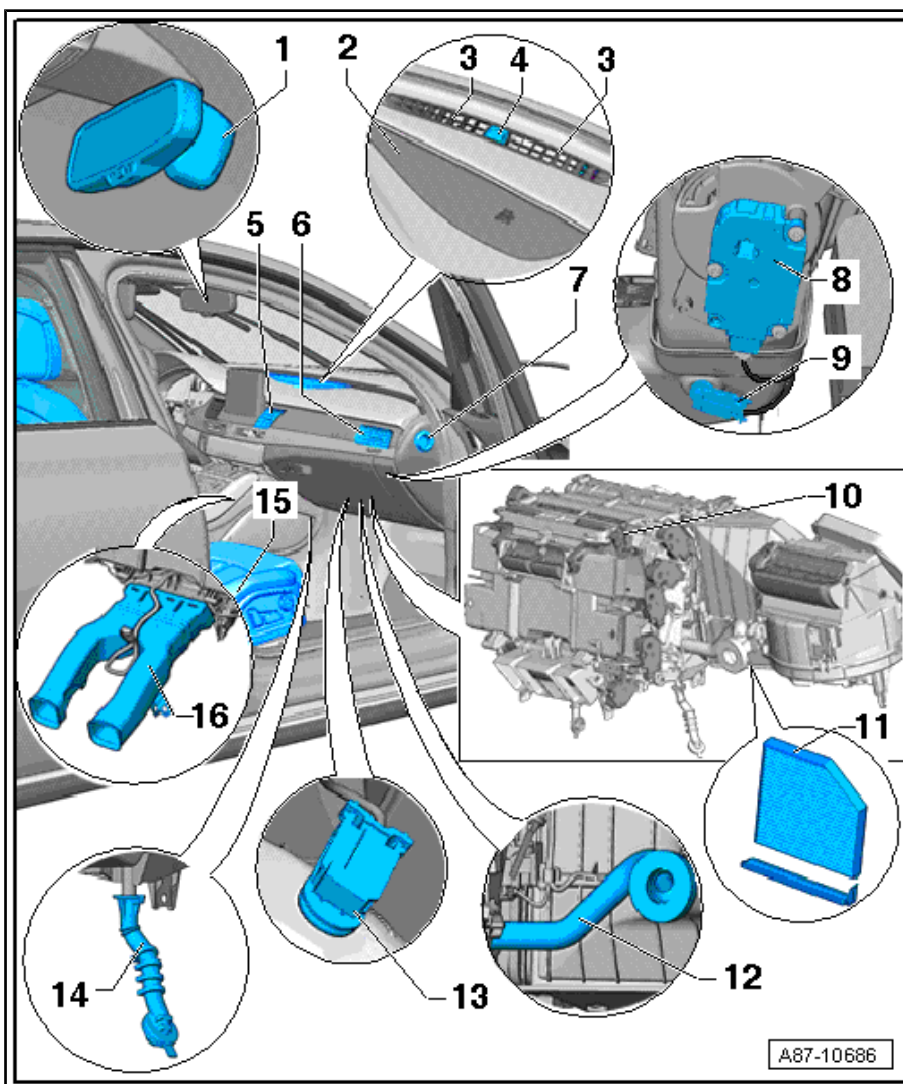
- ❑ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing front centre defroster vent

3 - Windscreen defroster vent

- ❑ Remove and install ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing front centre defroster vent

4 - Sunlight penetration photo-sensor - G107-

- ❑ Removing and installing
⇒ ["10.2 Removing and installing sunlight penetration photosensor G107"](#), page 636



5 - Potentiometer in right centre dash panel vent - G627-

- ❑ Remove and install centre dash panel vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ❑ Checking -G627- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

6 - Right side vent with potentiometer in right side vent - G629-

- ❑ Remove and install left side vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ☐ Checking -G629- → Vehicle diagnostic tester in "Guided Fault Finding" mode
- ☐ ⇒ ["7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window", page 588](#)
- ☐ ⇒ ["7.6.4 Removing and installing air duct to right dash panel vent and side window", page 589](#)

7 - Vent to front right door (front passenger's door)

- ☐ ⇒ ["7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window", page 588](#)
- ☐ ⇒ ["7.6.4 Removing and installing air duct to right dash panel vent and side window", page 589](#)

8 - Control motor for right side window defroster flap - V410-

- ☐ ⇒ ["4.25 Removing and installing control motor for right side window defroster flap V410", page 409](#)
- ☐ ⇒ ["7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window", page 588](#)
- ☐ ⇒ ["7.6.4 Removing and installing air duct to right dash panel vent and side window", page 589](#)

9 - Right vent temperature sender - G151-

- ☐ ⇒ ["10.8 Removing and installing right vent temperature sender G151", page 650](#)
- ☐ Checking right vent temperature sender - G151- → Vehicle diagnostic tester in "Guided Fault Finding" mode

10 - Air conditioning unit with evaporator and add-on parts

- ☐ Different versions depending on model and vehicle equipment
⇒ ["5.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 440](#)
and → Electronic parts catalogue
- ☐ Routing of air flow in air conditioning unit and vehicle
⇒ ["7.1 Exploded view of air routing and air distribution in passenger compartment", page 569](#)
- ☐ ⇒ ["5.6.1 Cleaning evaporator", page 468](#)
- ☐ ⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)

11 - Dust and pollen filter (with or without ACF insert)

- ☐ Observe replacement intervals → Maintenance tables
- ☐ Different versions depending on model and vehicle equipment → Electronic parts catalogue
- With ACF element (activated charcoal filter element). Such vehicles are also fitted with an air quality sensor - G238- ⇒ ["3.11.5 Notes on dust and pollen filter with activated charcoal element", page 115](#).
- ☐ ⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#)

12 - Air duct for glove box cooling

- ☐ Check foam seal for glove box for damage
- ☐ ⇒ ["7.6.5 Removing and installing air duct for glove box cooling", page 590](#)

13 - Right footwell vent temperature sender - G262-

- ☐ ⇒ ["10.10 Removing and installing right footwell vent temperature sender G262", page 651](#)
- ☐ The right footwell vent temperature sender - G262- is installed in the front right footwell vent.
- ☐ Checking right footwell vent temperature sender - G262- → Vehicle diagnostic tester in "Guided Fault Finding" mode

14 - Condensation drain, right-side (front passenger's side)

- ☐ ⇒ ["5.16 Removing and installing condensation drain", page 518](#)

15 - Seat, right-side (front passenger's seat) with components for seat heating and seat ventilation

- ❑ Components for seat heating (front right seat temperature sender - G345- and heated seat cushion for front right seat - Z46-) and seat ventilation (control unit and various fans) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Overview of fitting locations - electrical and electronic components
- ❑ Not all vehicles are equipped with seat heating and ventilation (optional extra).
- ❑ The seat heating and ventilation settings are made on the air conditioner front operating and display unit, Climatronic control unit - J255- . Activation of the seat heating and seat ventilation is displayed in the "Reading measured values" function of the Guided Fault Finding routine for -J255- , check ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ The seat heating and seat ventilation are activated by way of different control units depending on the vehicle equipment and model ⇒ ["1.3 Seat heating", page 3](#) , ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J519- , -J136- and -J521- depending on vehicle).
- ❑ Servicing seat heating and seat ventilation ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Overview of fitting locations - electrical and electronic components
- ❑ Notes on operation of seat heating and ventilation ⇒ ["1.3 Seat heating", page 3](#)



Note

- ◆ *If a condition prevails in which heating or ventilation of the driver's seat or front passenger's seat cannot be activated, this is stored as a fault in the onboard supply control unit - J519- , the seat and steering column adjustment control unit with memory - J136- or the front passenger seat adjustment with memory control unit - J521- (depending on model and vehicle equipment). On this vehicle, no information is currently transmitted via the data bus to -J255- indicating that the event memory in the corresponding control unit or in the convenience system central control unit - J393- has to be read out ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat heating or ventilation, the first step should therefore always be to read out the event memories of the control units which activate the seat heating and ventilation.*
- ◆ *The seat heating and ventilation settings are made on -J255- . These settings are transmitted via the data bus to the onboard supply control unit - J519- . The specified temperatures for the different seat heating and seat ventilation settings are stored in the -J519- . Depending on the version of the -J519- and the production period, the specified temperature for the seat heating and seat ventilation may be different even if the setting on the air conditioner operating and display unit (Climatronic control unit - J255-) is the same ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for onboard supply control unit - J519-).*

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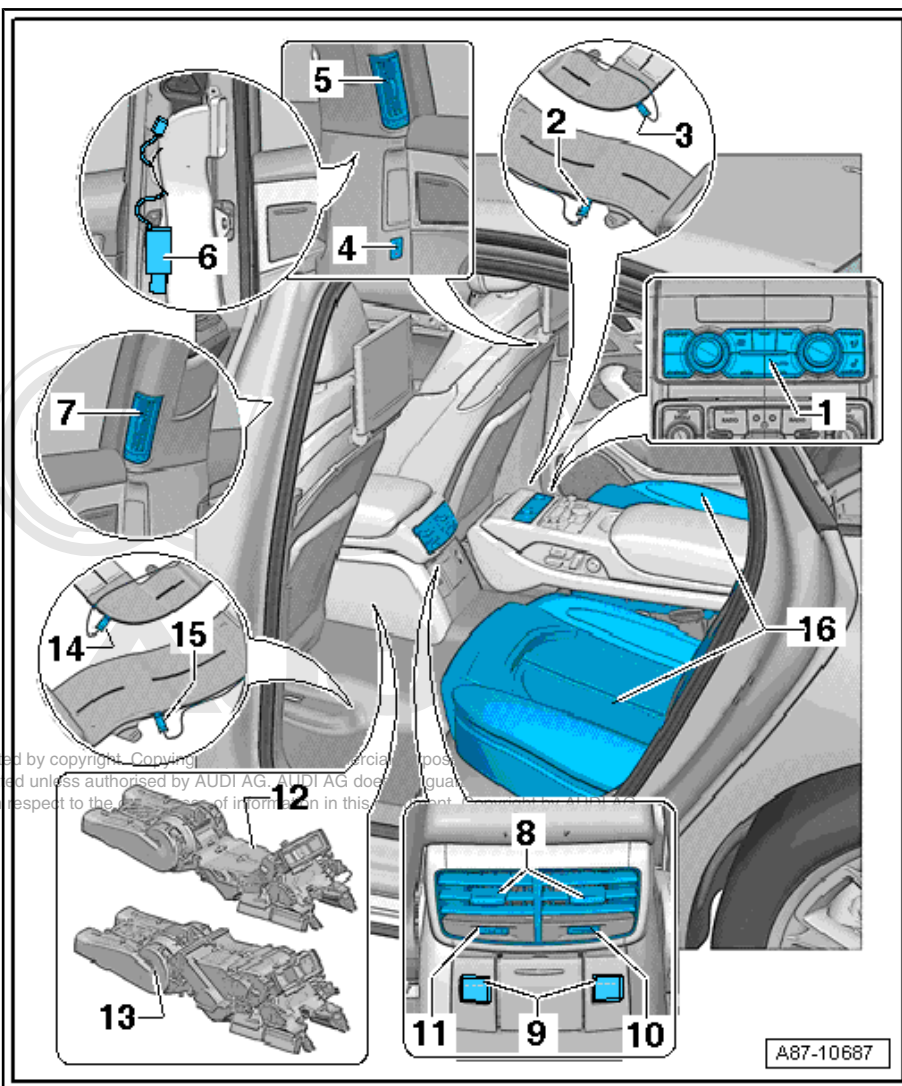
16 - Air duct from front air conditioning unit to rear air distribution housing / air conditioning unit

- ❑ Removing and installing
⇒ [“6.5 Removing and installing air intake box of heater and air conditioning unit”, page 544](#)

1.3 Overview of fitting locations - components in rear passenger compartment

1 - Rear Climatronic operating and display unit - E265-

- ❑ The rear air conditioning unit and the rear Climatronic operating and display unit - E265- are optional extras.
- ❑ Different versions available (for vehicles with or without seat heating/ seat ventilation, with and without rear air conditioning unit); for allocation refer to ⇒ Electronic parts catalogue
- ❑ ⇒ [“9.2.2 Removing and installing rear Climatronic operating and display unit E265”, page 632](#)
- ❑ A child-proof lock is not available at present for -E265- (introduction not yet finalised). If a child-proof lock is introduced for -E265- at a later date and if this is active in the vehicle, the rear air conditioner and seat heating/seat ventilation settings cannot be altered by -E265- (three lines appear in the two displays on actuating a button or rotary control). The settings can then only be altered by way of the air conditioner front operating and display unit, Climatronic control unit - J255- and the MMI terminal ⇒ Owner's Manual .



- ❑ Also heed the additional information on -E265-
⇒ [“9.2.2 Removing and installing rear Climatronic operating and display unit E265”, page 632](#)
- ❑ -E265- Guided Fault Finding procedure ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Buttons and display zones are illuminated by LEDs which cannot be renewed.

**Note**

- ◆ *When replacing -E265-, pay attention to correct assignment of the front operating and display unit, Climatronic control unit - J255-. If the assignment is incorrect, it may not be possible to display and select various rear air conditioner functions for example ⇒ Electronic parts catalogue .*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/ MMI Operating Manual .*
- ◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265- . This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#) .*

2 - Rear right chest vent temperature sender - G636-

- ☐ Only fitted on vehicles with rear air conditioning unit and rear Climatronic operating and display unit - E265- .

**Note**

*At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265- . This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#) .*

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- ❑ ➔ ["10.13 Removing and installing rear right chest vent temperature sender G636", page 653](#)

- ❑ Checking -G636- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode

3 - Vent temperature sender for rear right footwell - G638-

- ❑ Only fitted on vehicles with rear air conditioning unit and rear Climatronic operating and display unit - E265- .



Note

At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265- . This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version

➔ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#) .

- ❑ ➔ ["10.15 Removing and installing vent temperature sender for rear right footwell G638", page 654](#)

- ❑ Checking -G638- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode

4 - Button for air ionisation system - E677-

- ❑ Clipped into B-pillar trim
- ❑ Not installed in all vehicles



Note

◆ *The air ionisation system is only available for vehicles with a rear Climatronic operating and display unit - E265- and only in combination with a certain country-specific version - Audi sales range .*

◆ *-E677- and the control unit for air ionisation system - J897- are always installed in the B-pillar behind the front passenger's seat (in the right B-pillar on left-hand drive vehicles).*

◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265- . This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version*
➔ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#) .

- ◆ *To remove, remove B-pillar trim
⇒ General body repairs, interior;
Rep. gr. 70 ; Passenger compartment trim;
Removing and installing B-pillar trim .*

5 - Vent in right B-pillar

- ☐ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim

6 - Control unit for air ionisation system - J897-

- ☐ Fitted at air duct to vent in B-pillar
- ☐ ⇒ ["10.6 Removing and installing control unit for air ionisation system J897 ", page 649](#)
- ☐ Not installed in all vehicles



Note

- ◆ *The air ionisation system is only available for vehicles with a rear Climatronic operating and display unit - E265- and only in combination with a certain country-specific version ⇒ Audi sales range .*
- ◆ *The button for air ionisation system - E677- and -J897- are always installed in the B-pillar behind the front passenger's seat (in the right B-pillar on left-hand drive vehicles).*



7 - Vent in left B-pillar

- ☐ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim

8 - Vent in centre console (rear)

- ☐ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console

9 - Switches with regulator for heated rear seats

- ☐ Not all vehicles are equipped with seat heating and ventilation (optional extra).
- ☐ These switches are only fitted on vehicles with no rear Climatronic operating and display unit - E265- .
- ☐ Different designations (heated rear left seat switch with regulator - E128- , button for left seat heating - E653- or rear left seat heating switch - E77- , and heated rear right seat switch with regulator - E129- , button for right seat heating - E654- or rear right seat heating switch - E78-) depending on vehicle equipment, model and production period ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ☐ The seat heating and seat ventilation are activated by way of different control units depending on the vehicle equipment and model ⇒ ["1.3 Seat heating", page 3](#) , ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J519-).
- ☐ Servicing seat heating and seat ventilation ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats
- ☐ Notes on operation of seat heating and ventilation ⇒ ["1.3 Seat heating", page 3](#)

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Note

- ◆ *These switches have no self-diagnosis capability at present. Actuation of the seat heating is however only implemented if corresponding release is issued by the onboard supply control unit - J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Check operation of rear seat heating for vehicles with no rear Climatronic operating and display unit - E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for the onboard supply control unit - J519-)*
- ◆ *Check operation of rear seat heating and ventilation for vehicles with -E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner.*
- ◆ *On vehicles with -E265- , the heating and ventilation settings for the rear seats are made by way of -E265- . -E265- then activates the heating and ventilation for the rear seats differently depending on the vehicle equipment and model ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

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10 - Potentiometer for rear right chest vent - G631-

- ☐ Part of vent in rear centre console
- ☐ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console
- ☐ Check potentiometer for rear right chest vent - G631- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the rear Climatronic operating and display unit - E265- and the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

11 - Potentiometer in rear left chest vent - G630-

- ☐ Part of vent in rear centre console
- ☐ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console
- ☐ Check potentiometer for rear left chest vent - G630- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

**Note**

After replacing the potentiometer (for learning the end stops), perform adaption of the rear Climatronic operating and display unit - E265- and the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

12 - Rear air distribution housing with add-on components

- ☐ Only fitted on vehicles without air conditioning unit (rear)
- ☐ Different versions depending on model and vehicle equipment ⇒ Electronic parts catalogue
- ☐ Air routing in rear air distribution housing and at rear of vehicle
 - ⇒ ["7.2.3 Air routing in rear air distribution housing", page 580](#) and
 - ⇒ ["7.1.2 Air ducts and vents at rear of passenger compartment", page 572](#)
- ☐ ⇒ ["4.3 Overview of fitting locations - control motors at rear", page 337](#)
- ☐ ⇒ ["6.5 Removing and installing air intake box of heater and air conditioning unit", page 544](#)

13 - Rear air conditioning unit with evaporator and add-on components

- ☐ The rear air conditioning unit and the rear Climatronic operating and display unit - E265- are optional extras.

**Note**

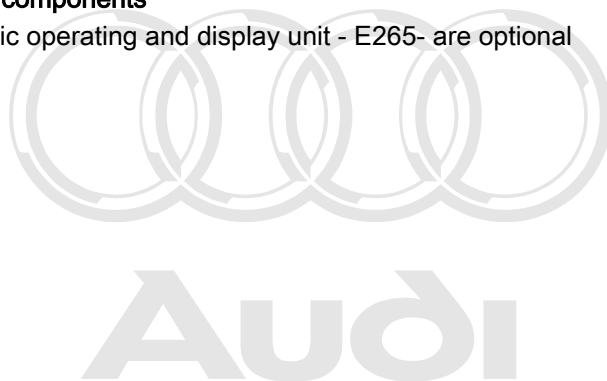
At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version

⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).

- ☐ Different versions depending on model and vehicle equipment ⇒ Electronic parts catalogue
- ☐ Air routing in rear air conditioning unit and in vehicle
 - ⇒ ["7.2.4 Routing of air flow in air conditioning unit \(rear\)", page 582](#) and
 - ⇒ ["7.1.2 Air ducts and vents at rear of passenger compartment", page 572](#)
- ☐ Cleaning evaporator of rear air conditioner with ultrasonic A/C cleaner - VAS 6189-
 - ⇒ ["5.6.1 Cleaning evaporator", page 468](#)
- ☐ ⇒ ["6.4 Removing and installing heater and air conditioning unit", page 535](#)
- ☐ ⇒ ["6.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 523](#)
- ☐ Bleeding rear coolant circuit after fitting heat exchanger ⇒ [page 625](#)

14 - Rear left chest vent temperature sender - G635-

- ☐ Only fitted on vehicles with rear air conditioning unit and rear Climatronic operating and display unit - E265-.



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Note

At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version

⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265"](#), page 632.

- ☐ ⇒ ["10.12 Removing and installing rear left chest vent temperature sender G635"](#), page 652
- ☐ Checking -G635- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

15 - Vent temperature sender for rear left footwell - G637-

- ☐ Only fitted on vehicles with rear Climatronic operating and display unit - E265-.
- ☐ ⇒ ["10.14 Removing and installing vent temperature sender for rear left footwell G637"](#), page 653
- ☐ Checking -G637- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

16 - Rear seat (with components for seat heating and ventilation)

- ☐ Components for seat heating (rear left seat temperature sensor - G94- , rear right seat temperature sensor - G95- , heated bench seat cushion for rear left seat - Z10- heated backrest for rear left seat - Z11- etc.) and components for seat ventilation (control unit and various fans) ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats
- ☐ Not all vehicles are equipped with seat heating and ventilation (optional extra).
- ☐ The seat heating settings are made by way of different switches (depending on vehicle equipment) ⇒ [Item 9 \(page 142\)](#)
- ☐ On vehicles with rear Climatronic operating and display unit - E265- , the seat heating and ventilation settings are always made by way of -E265-. Activation of the seat heating and seat ventilation is displayed in the "Reading measured values" function of the Guided Fault Finding routine for -E265- , check ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ☐ The seat heating and seat ventilation are activated by way of different control units depending on the vehicle equipment and model ⇒ ["1.3 Seat heating"](#), page 3 , ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (for -J519- , -J136- and -J521- depending on vehicle).
- ☐ Servicing seat heating and seat ventilation ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats
- ☐ Notes on operation of seat heating and ventilation ⇒ ["1.3 Seat heating"](#), page 3



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**Note**

- ◆ *Situations preventing activation of the seat heating or ventilation are stored as faults in the on-board supply control unit - J519-, the seat and steering column adjustment control unit with memory - J136- or the front passenger seat adjustment with memory control unit - J521- (depending on the vehicle model and equipment). On this vehicle, no information is currently transmitted via the data bus to the air conditioner front operating and display unit, Climatronic control unit - J255- / rear Climatronic operating and display unit - E265- indicating that the event memory in the corresponding control unit or in the convenience system central control unit - J393- has to be read out ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. In the event of problems with seat heating or ventilation, the first step should therefore always be to read out the event memories of the control units which activate the seat heating and ventilation.*
- ◆ *The seat heating and ventilation settings are made on -J255- / -E265-. These settings are transmitted via the data bus to the onboard supply control unit - J519-. The specified temperatures for the different seat heating and seat ventilation settings are stored in the -J519-. Depending on the version of -J519- and the vehicle production period, the specified temperature for the seat heating and seat ventilation may therefore differ in spite of identical settings on -J255- / -E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode (also for onboard supply control unit - J519-).*



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2 Refrigerant circuit

- ⇒ [“2.1 System overview - refrigerant circuit”, page 147](#)
- ⇒ [“2.2 Exploded view - condenser”, page 157](#)
- ⇒ [“2.3 Overview of fitting locations - refrigerant lines”, page 161](#)
- ⇒ [“2.4 Exploded view - refrigerant lines”, page 163](#)
- ⇒ [“2.5 Removing/installing and replacing air conditioner compressor regulating valve N280”, page 171](#)
- ⇒ [“2.6 Removing and installing refrigerant pressure/temperature sender G395”, page 176](#)
- ⇒ [“2.7 Disconnecting and connecting refrigerant lines”, page 180](#)
- ⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#)
- ⇒ [“2.9 Removing and installing expansion valve”, page 210](#)
- ⇒ [“2.10 Removing and installing condenser”, page 232](#)
- ⇒ [“2.11 Removing and installing desiccant bag/dryer cartridge”, page 238](#)
- ⇒ [“2.12 Removing and installing purge valve and filling valve at high-pressure and low-pressure side”, page 240](#)
- ⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#)

2.1 System overview - refrigerant circuit

- ⇒ [“2.1.1 System overview - refrigerant circuit, vehicles without high-voltage system”, page 147](#)
- ⇒ [“2.1.2 System overview - refrigerant circuit, vehicles with high-voltage system”, page 151](#)

2.1.1 System overview - refrigerant circuit, vehicles without high-voltage system

HD = High-pressure side

ND = Low-pressure side



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1 - Air conditioner compressor regulating valve - N280-

- ☐ Checking
⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#)

2 - Air conditioner compressor

- ☐ Exploded view
⇒ [page 246](#)

3 - Pulley / drive unit for air conditioner compressor

- ☐ Renewing pulley
⇒ [page 253](#)
- ☐ Replacing air conditioner compressor drive unit
⇒ [page 250](#)

4 - Oil drain plug

5 - High-pressure safety valve



Caution

Danger from the escape of pressurised refrigerant in the event of a defective valve. Frostbite on the skin and other parts of the body. Only to be removed after draining the refrigerant circuit. The connection has no valve.

6 - Connection in refrigerant line

- ☐ Depending on vehicle version and engine, these connection points may be at different locations on the refrigerant lines



Caution

Danger from the escape of pressurised refrigerant. Frostbite on the skin and other parts of the body. Only unfasten the screws on the joints after discharging the refrigerant circuit.

7 - Connection with valve

8 - Refrigerant pressure and temperature sender - G395-

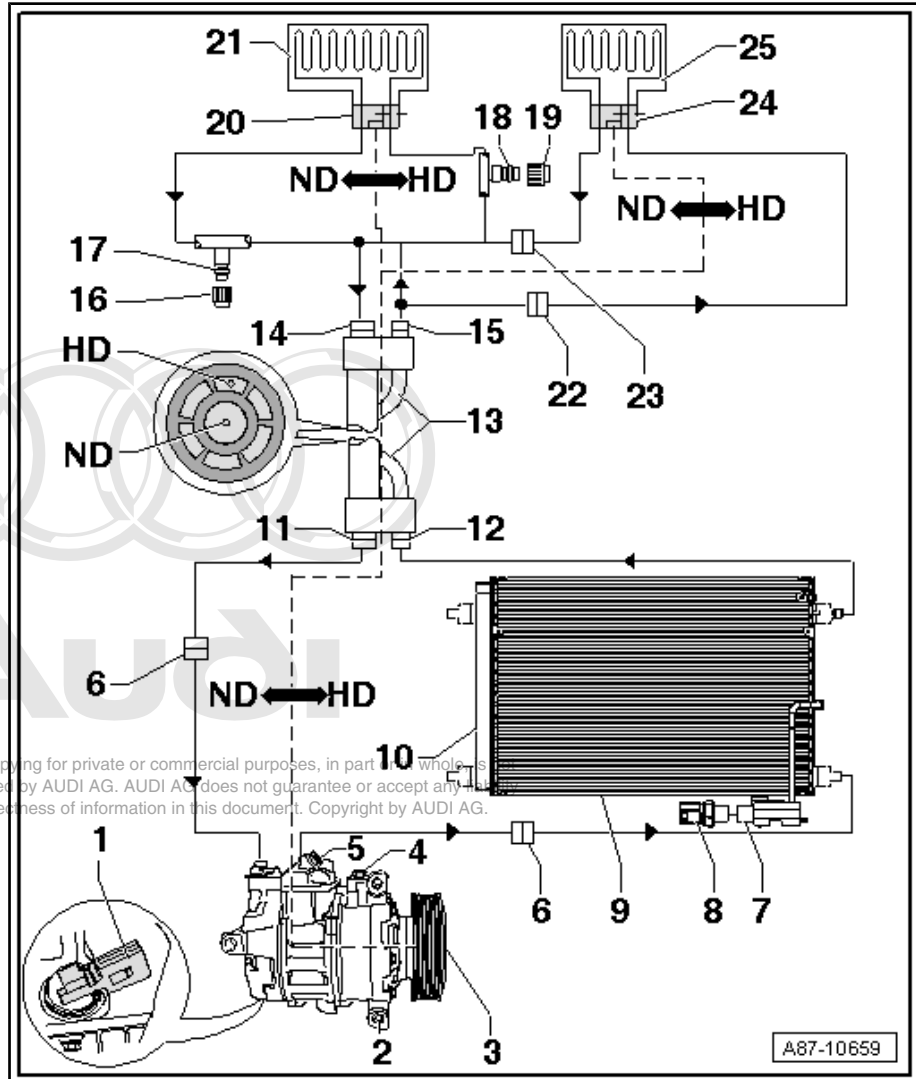
- ☐ Removing and installing ⇒ [page 176](#)
- ☐ Checking ⇒ [page 177](#)

9 - Condenser

- ☐ Exploded view ⇒ [page 157](#)

10 - Receiver (for condenser with dryer cartridge)

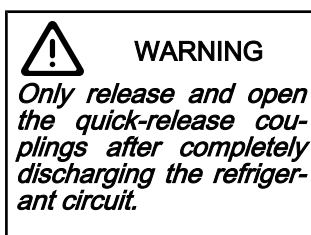
- ☐ Receiver is integrated in condenser



- ☐ Exploded view ➔ [page 157](#)

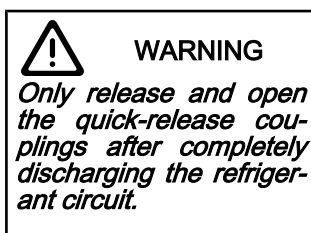
11 - Quick-release coupling of refrigerant line (low-pressure side)

- ☐ Fitted in area below left headlight



12 - Quick-release coupling of refrigerant line (high-pressure side)

- ☐ Fitted in area below left headlight

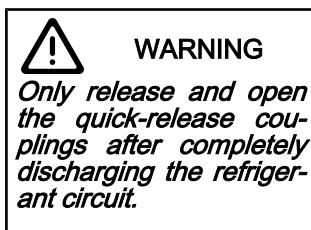


13 - Refrigerant line with internal heat exchanger

- ☐ In this refrigerant line, the hot liquid refrigerant flowing on the high-pressure side supplies energy to the cold refrigerant vapour flowing on the low-pressure side, thus enhancing the efficiency of the air conditioner

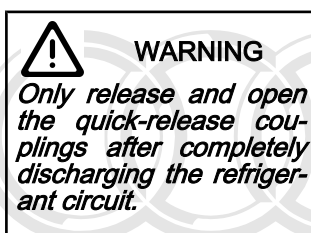
14 - Quick-release coupling of refrigerant line (low-pressure side)

- ☐ Fitted in area of A-pillar below left wing



15 - Quick-release coupling of refrigerant line (high-pressure side)

- ☐ Fitted in area of A-pillar below left wing



16 - Cap

- ☐ With seal
- ☐ Always screw on

17 - Service connection on low-pressure side

- ☐ For measuring, discharging and charging
- ☐ Fitted in the plenum chamber on the left side under a flap in the plenum chamber cover

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**Caution**

Danger from the escape of pressurised refrigerant in the event of a defective valve in the refrigerant line.

Frostbite on the skin and other parts of the body.

Only to be removed after draining the refrigerant circuit. The connection has no valve ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.

18 - Service connection on high-pressure side

- ☐ For measuring, discharging and charging
- ☐ Fitted in the plenum chamber on the left side under a flap in the plenum chamber cover

**Caution**

Danger from the escape of pressurised refrigerant in the event of a defective valve in the refrigerant line.

Frostbite on the skin and other parts of the body.

Only to be removed after draining the refrigerant circuit. The connection has no valve ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.

19 - Cap

- ☐ With seal
- ☐ Always screw on

20 - Expansion valve (front)

- ☐ Exploded view ⇒ [page 163](#)

21 - Evaporator

- ☐ in front air conditioning unit (fitted beneath dash panel)

22 - Connection of refrigerant line to evaporator in air conditioning unit (rear)

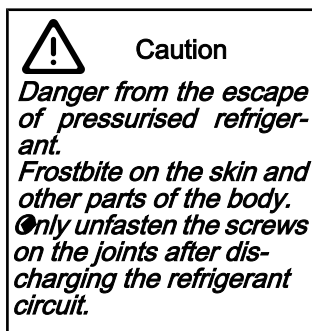
- ☐ Only fitted on vehicles with rear air conditioning unit
- ☐ High-pressure side

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23 - Connection in refrigerant line to evaporator in air conditioning unit (rear)

- ☐ Only fitted on vehicles with rear air conditioning unit



24 - Expansion valve (rear)

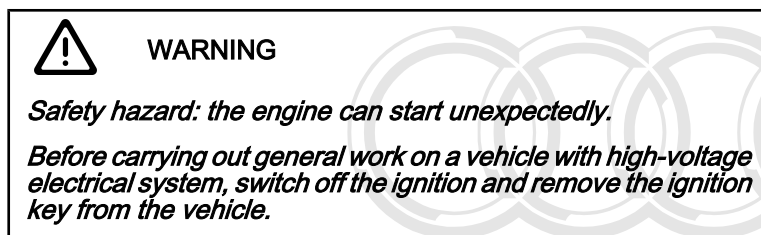
- ☐ Exploded view ➔ [page 165](#)

25 - Evaporator (rear)

- ☐ installed in rear air conditioning unit (air conditioning unit fitted in centre console)

2.1.2 System overview - refrigerant circuit, vehicles with high-voltage system

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ➔ [page 36](#) and ➔ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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If work is necessary in the vicinity of high-voltage system components, perform "Visual inspection of high-voltage components and cables for damage" ⇒ [page 41](#) and heed the "General warnings for working on high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warnings for working on high-voltage system

If work is necessary on high-voltage system components, de-energise the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system and "note general warning instructions for work on the high-voltage system" ⇒ Elec-

trical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

HD = High pressure side = red connections

ND = Low pressure side = blue connections

1 - Electrically driven air conditioner compressor

- ☐ Exploded view
⇒ [page 246](#)

2 - Connection in refrigerant line

- ☐ Depending on vehicle version and engine, these connection points may be at different locations on the refrigerant lines



Caution

*Danger from the escape of pressurised refrigerant.
Frostbite on the skin and other parts of the body.
Only unfasten the screws on the joints after discharging the refrigerant circuit.*

3 - Quick-release coupling of refrigerant line (low-pressure side)

- ☐ In the area beneath the left headlight

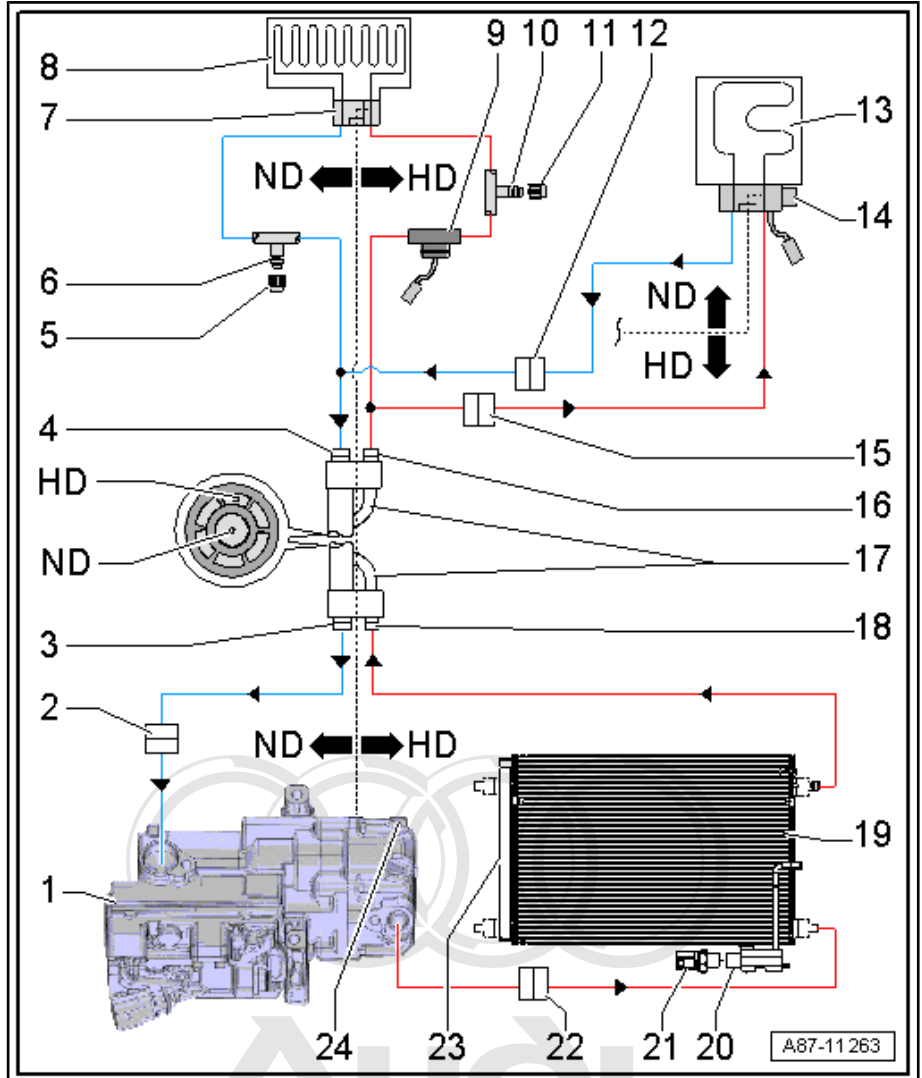


Caution

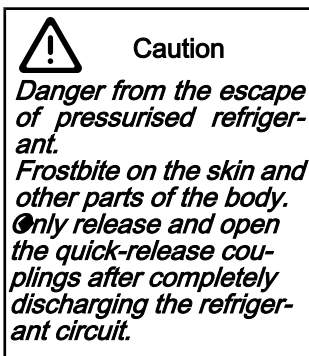
*Danger from the escape of pressurised refrigerant.
Frostbite on the skin and other parts of the body.
Only release and open the quick-release couplings after completely discharging the refrigerant circuit.*

4 - Quick-release coupling of refrigerant line (low-pressure side)

- ☐ In the area of the A-pillar beneath the left wing



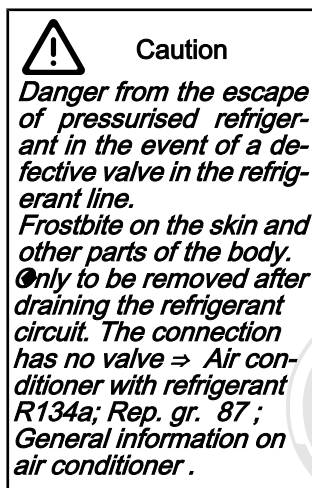
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**5 - Cap**

- ☐ With seal
- ☐ Always screw on

6 - Service connection (low-pressure side)

- ☐ For measuring, discharging and charging
- ☐ Accessible in the plenum chamber on the left side under a flap in the plenum chamber cover

**7 - Expansion valve**

- ☐ For evaporator in air conditioning unit
- ☐ Check operation ⇒ [page 96](#)

8 - Evaporator in air conditioning unit**9 - Refrigerant shut-off valve 1 for hybrid battery - N516-**

- ☐ Fitted in plenum chamber (left side)
- ☐ Check operation ⇒ [page 96](#)

**Note**

-N516- is activated, for example, if the battery needs to be cooled but the air conditioner is not set to cooling mode for the passenger compartment (valve open when not activated).

10 - Service connection on high-pressure side

- ☐ For measuring, discharging and charging
- ☐ Fitted in the plenum chamber on the left side under a flap in the plenum chamber cover



Caution

Danger from the escape of pressurised refrigerant in the event of a defective valve in the refrigerant line.

Frostbite on the skin and other parts of the body.

Only to be removed after draining the refrigerant circuit. The connection has no valve ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

11 - Cap

- ☐ With seal
- ☐ Always screw on

12 - Connection of refrigerant line to evaporator in battery cooling module

- ☐ Low-pressure side



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

Only unfasten the screws on the joints after discharging the refrigerant circuit.

13 - Evaporator in battery cooling module

14 - Expansion valve with refrigerant shut-off valve 2 for hybrid battery - N517-

- ☐ Exploded view ⇒ [page 661](#)

15 - Connection of refrigerant line to evaporator in battery cooling module

- ☐ High-pressure side



Caution

Danger from the escape of pressurised refrigerant.

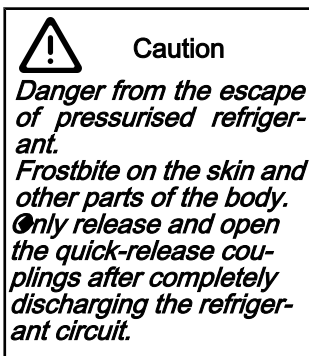
Frostbite on the skin and other parts of the body.

Only unfasten the screws on the joints after discharging the refrigerant circuit.

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16 - Quick-release coupling of refrigerant line (high-pressure side)

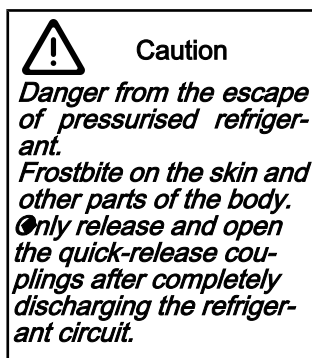
- ☐ Fitted in area of A-pillar below left wing

**17 - Refrigerant line with internal heat exchanger**

- ☐ In this refrigerant line, the hot liquid refrigerant flowing through the high-pressure side gives off energy to the cold refrigerant vapour flowing through the low-pressure side, thus enhancing the efficiency of the air conditioner.

18 - Quick-release coupling of refrigerant line (high-pressure side)

- ☐ Fitted in area below left headlight

**19 - Condenser**

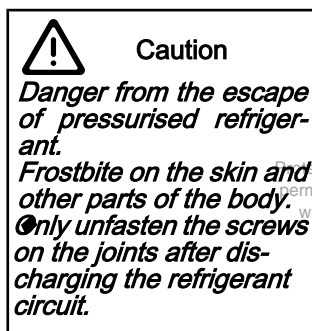
- ☐ Exploded view ⇒ [page 157](#)

20 - Connection with valve**21 - Refrigerant pressure and temperature sender - G395- 1)**

- ☐ Removing and installing ⇒ [page 176](#)
- ☐ Checking ⇒ [page 177](#)

22 - Connection in refrigerant line

- ☐ Depending on vehicle version and engine, these connection points may be at different locations on the refrigerant lines

**23 - Receiver with dryer cartridge**

- ☐ Different versions ⇒ Electronic parts catalogue



Note

Depending on the version, the receiver is integrated into or attached to the condenser.

24 - High-pressure safety valve

2.2 Exploded view - condenser

⇒ ["2.2.1 Exploded view - condenser", page 157](#)

⇒ ["2.2.2 Exploded view - condenser, desiccant bag/dryer cartridge", page 160](#)

2.2.1 Exploded view - condenser

1 - Bolt

- ☐ 9 Nm

2 - Refrigerant line

- ☐ From condenser
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting", page 232](#)

3 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

4 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

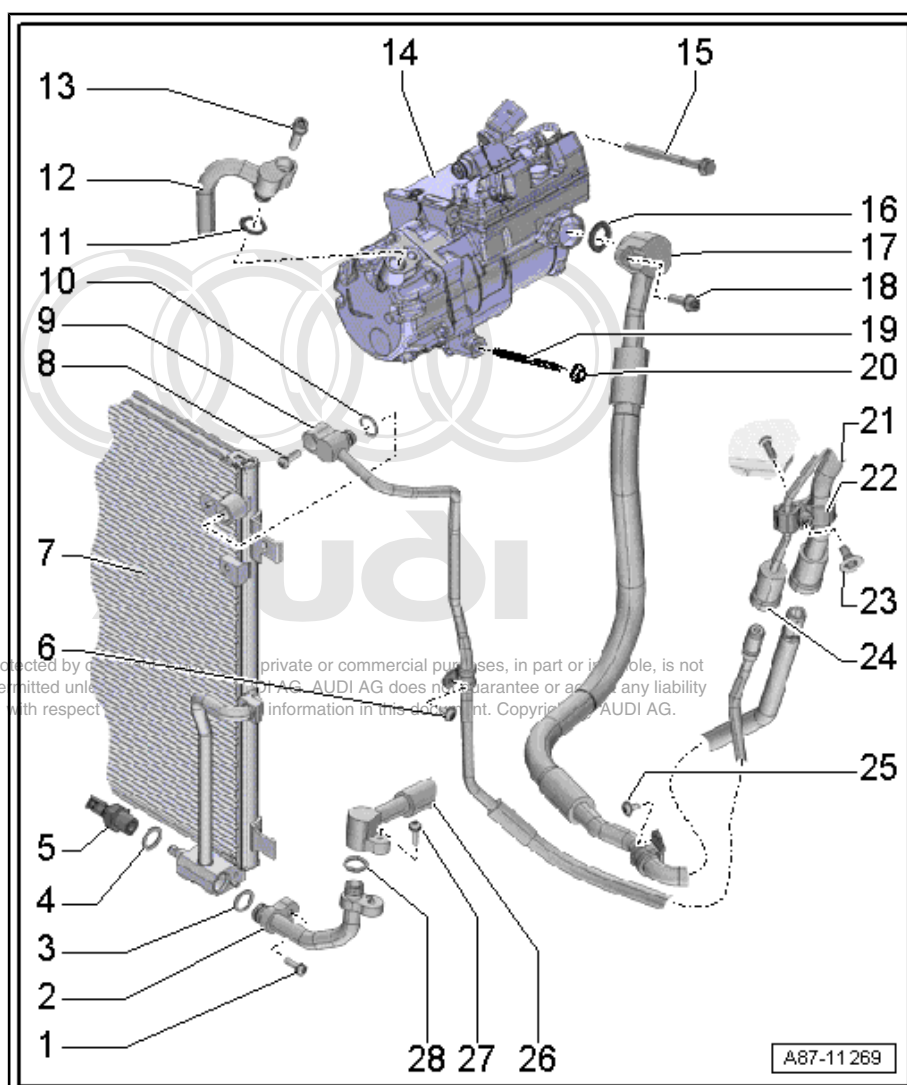
5 - Refrigerant pressure and temperature sender - G395-

- ☐ ⇒ ["2.6 Removing and installing refrigerant pressure/temperature sender G395", page 176](#)

6 - Bolt

7 - Condenser

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching refrigerant lines
⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting", page 232](#)
- ☐ Removing and installing ⇒ [page 235](#)



8 - Bolt

- ☐ 9 Nm

9 - Refrigerant line

- ☐ to front evaporator
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting", page 232](#)
- ☐ ⇒ ["2.7.2 Unfastening and assembling connection points in refrigerant lines", page 181](#)

10 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

11 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

12 - Refrigerant line

- ☐ To condenser
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 277](#)

13 - Bolt

- ☐ Tightening torque ⇒ [page 246](#)

14 - Air conditioner compressor

- ☐ Exploded view ⇒ [page 246](#)

15 - Bolt

- ☐ Tightening torque ⇒ [page 246](#)

16 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

17 - Refrigerant line - low-pressure side

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 277](#)

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18 - Bolt

- ☐ Tightening torque ⇒ [page 246](#)

19 - Threaded pin

- ☐ Bolt -item 15- may also be fitted instead of threaded pin ⇒ Electronic parts catalogue . Tightening torque: 25 Nm
- ☐ 2x
- ☐ Screw in hand-tight

20 - Nut

- ☐ Bolt -item 15- may be fitted instead of threaded pin and nut ⇒ Electronic parts catalogue
- ☐ 2x
- ☐ 25 Nm

21 - Refrigerant line - low-pressure end at internal heat exchanger

- ☐ In this refrigerant line, the hot refrigerant (liquid) flowing through the high-pressure side gives off energy to the cold refrigerant (vaporous) flowing through the low-pressure side, thus enhancing the efficiency of the air conditioner.
- ☐ Removing and installing
⇒ ["2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger", page 186](#)
- ☐ ⇒ ["2.8 Removing and installing refrigerant line with internal heat exchanger", page 208](#)

22 - Bracket

- ☐ For refrigerant lines

23 - Speed nut

- ☐ 2.2 Nm

24 - Refrigerant line - high-pressure end at internal heat exchanger

- ☐ In this refrigerant line, the hot refrigerant (liquid) flowing through the high-pressure side gives off energy to the cold refrigerant (vaporous) flowing through the low-pressure side, thus enhancing the efficiency of the air conditioner.
- ☐ Removing and installing
⇒ [“2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger”, page 186](#)
- ☐ ⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#)

25 - Bolt

26 - Refrigerant line

- ☐ To air conditioner compressor
- ☐ Different versions ⇒ Electronic parts catalogue

27 - Bolt

- ☐ 9 Nm
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28 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

2.2.2 Exploded view - condenser, desiccant bag/dryer cartridge

1 - Condenser

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching refrigerant lines ⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting"](#), page 232
- ☐ Removing and installing ⇒ [page 235](#)

2 - Receiver

- ☐ Receiver is part of condenser
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 238](#)

3 - O-ring

- ☐ Renew if removed; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

4 - Filter element

- ☐ Renew if removed

5 - O-ring

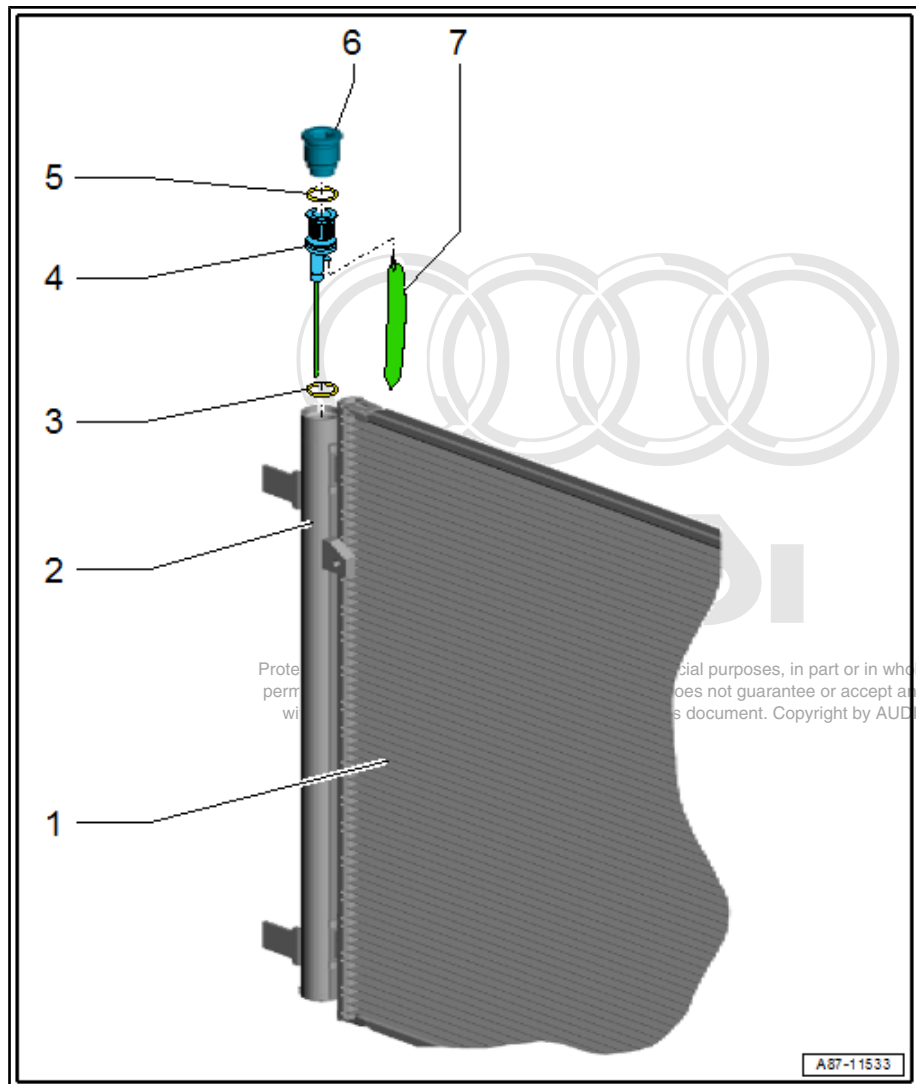
- ☐ Renew if removed; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

6 - Plug

- ☐ Renew if removed
- ☐ 2 Nm

7 - Dryer cartridge

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 238](#)



2.3 Overview of fitting locations - refrigerant lines

⇒ ["2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system", page 161](#)

2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

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1 - Retainer

- ☐ For refrigerant lines

2 - Bolt

- ☐ Tightening torque
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)

3 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

4 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

5 - Leadthrough for refrigerant lines into luggage compartment

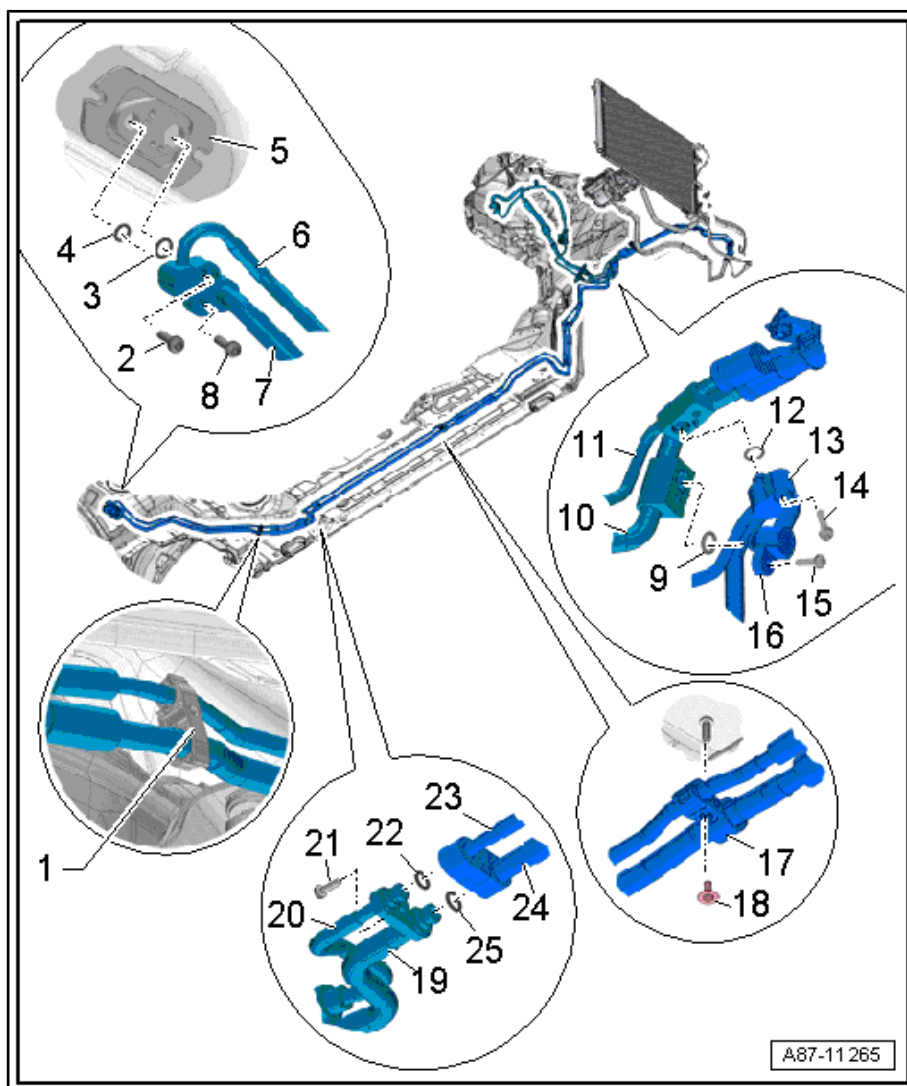
- ☐ Exploded view
⇒ [page 169](#)

6 - Refrigerant line - high-pressure side

- ☐ On underbody (rear)
- ☐ Exploded view
⇒ [page 169](#)

7 - Refrigerant line - low-pressure side

- ☐ On underbody (rear)
- ☐ Exploded view ⇒ [page 169](#)



8 - Bolt

- ☐ Tightening torque
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)

9 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

10 - Refrigerant line - low-pressure side

- ☐ At A-pillar

11 - Refrigerant line - high-pressure side

- ☐ At A-pillar

12 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

13 - Refrigerant line - high-pressure side

- ☐ At A-pillar (left-side)

14 - Bolt

- ☐ Tightening torque
⇒ ["2.7.2 Unfastening and assembling connection points in refrigerant lines", page 181](#)

15 - Bolt

- ☐ Tightening torque
⇒ ["2.7.2 Unfastening and assembling connection points in refrigerant lines", page 181](#)

16 - Refrigerant line - low-pressure side

- ☐ At A-pillar (left-side)

17 - Retainer

- ☐ For refrigerant lines

18 - Speed nut

- ☐ 2.2 Nm

19 - Refrigerant line - low-pressure side

- ☐ On underbody (rear)

20 - Refrigerant line - high-pressure side

- ☐ On underbody (rear)
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21 - Bolt

- ☐ Tightening torque
⇒ ["2.7.2 Unfastening and assembling connection points in refrigerant lines", page 181](#)

22 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

23 - Refrigerant line - high-pressure side

- ☐ On underbody (front)

24 - Refrigerant line - low-pressure side

- ☐ On underbody (front)

25 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

2.4 Exploded view - refrigerant lines

⇒ [“2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger”, page 163](#)

⇒ [“2.4.2 Exploded view - refrigerant lines, front and rear refrigerant lines and vehicles without high-voltage system”, page 165](#)

⇒ [“2.4.3 Exploded view - refrigerant lines, front and rear refrigerant lines, rear refrigerant lines with high-voltage system”, page 167](#)

⇒ [“2.4.4 Exploded view - refrigerant lines, rear refrigerant lines on vehicles with high-voltage system”, page 169](#)

2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

1 - Refrigerant line with internal heat exchanger

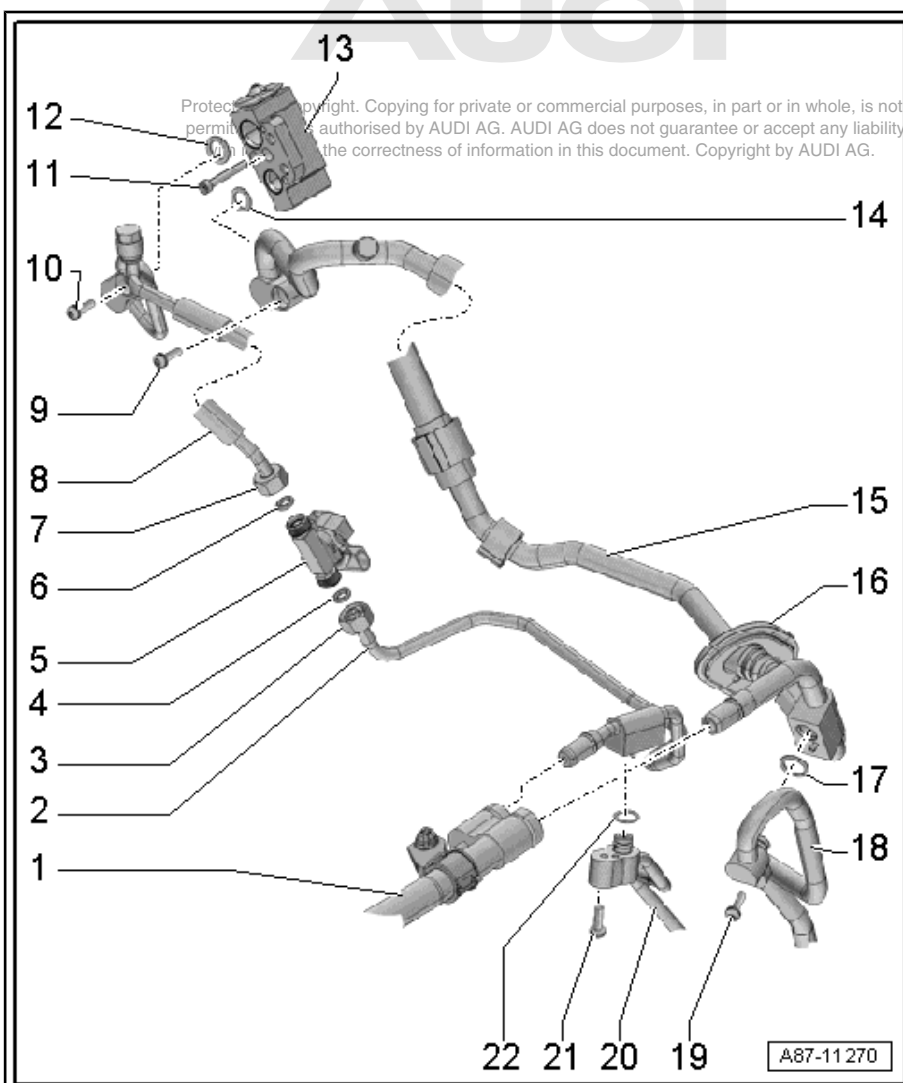
- ❑ The hot liquid refrigerant flowing on the high-pressure side supplies energy to the cold refrigerant vapour flowing on the low-pressure side, thus enhancing the efficiency of the air conditioner
- ❑ Removing and installing
⇒ [“2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger”, page 186](#)
- ❑ ⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#)

2 - Refrigerant line - high-pressure side

- ❑ From condenser
- ❑ Detaching and attaching refrigerant line
⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210](#) and
⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183](#)

3 - Union nut

- ❑ 16.5 Nm



4 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

5 - Refrigerant shut-off valve 1 for hybrid battery - N516-

- ☐ Only vehicles with high-voltage system
- ☐ ⇒ ["11.6.2 Removing and installing refrigerant shut-off valve 1 for hybrid battery N516", page 673](#)

6 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

7 - Union nut

- ☐ 16.5 Nm

8 - Refrigerant line - high-pressure side

- ☐ with service connection on high-pressure side
- ☐ To expansion valve
- ☐ Removing and installing
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ Removing and installing purge valve and filling valve ⇒ [page 240](#)

9 - Bolt

- ☐ 10 Nm

10 - Bolt

- ☐ 10 Nm

11 - Bolt

- ☐ 2x
- ☐ 10 Nm

12 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

13 - Expansion valve

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching refrigerant line
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ Removing and installing ⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#)

14 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

15 - Refrigerant line - low-pressure side

- ☐ with service connection on low-pressure side
- ☐ From expansion valve
- ☐ Removing and installing
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ Removing and installing purge valve and filling valve ⇒ [page 240](#)

16 - Grommet**17 - O-ring**

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

18 - Refrigerant line - low-pressure side

- ☐ Exploded view ⇒ [page 169](#)

19 - Bolt

- ☐ Tightening torque ⇒ [page 167](#)

20 - Refrigerant line - high-pressure side

- ☐ Exploded view ⇒ [page 169](#)

21 - Bolt

- ☐ Tightening torque ⇒ [page 167](#)

22 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

2.4.2 Exploded view - refrigerant lines, front and rear refrigerant lines and vehicles without high-voltage system



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*



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1 - Bolt

- ☐ 9 Nm

2 - Bolt

- ☐ 9 Nm

3 - Refrigerant line - high-pressure side

- ☐ At front of underbody (vehicle floor)
- ☐ Removing and installing
⇒ ["2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger"](#), page 186
- ☐ Removing from and installing in rear expansion valve
⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve"](#), page 225

4 - O-ring

- ☐ Renew if removed
⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

5 - Refrigerant line - high-pressure side

- ☐ Exploded view
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger"](#), page 163

6 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

7 - Refrigerant line - low-pressure side

- ☐ Exploded view
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger"](#), page 163

8 - Bolt

- ☐ 2x
- ☐ 9 Nm

9 - Refrigerant line - low-pressure side

- ☐ in the centre of the underbody (vehicle floor)

10 - Nut

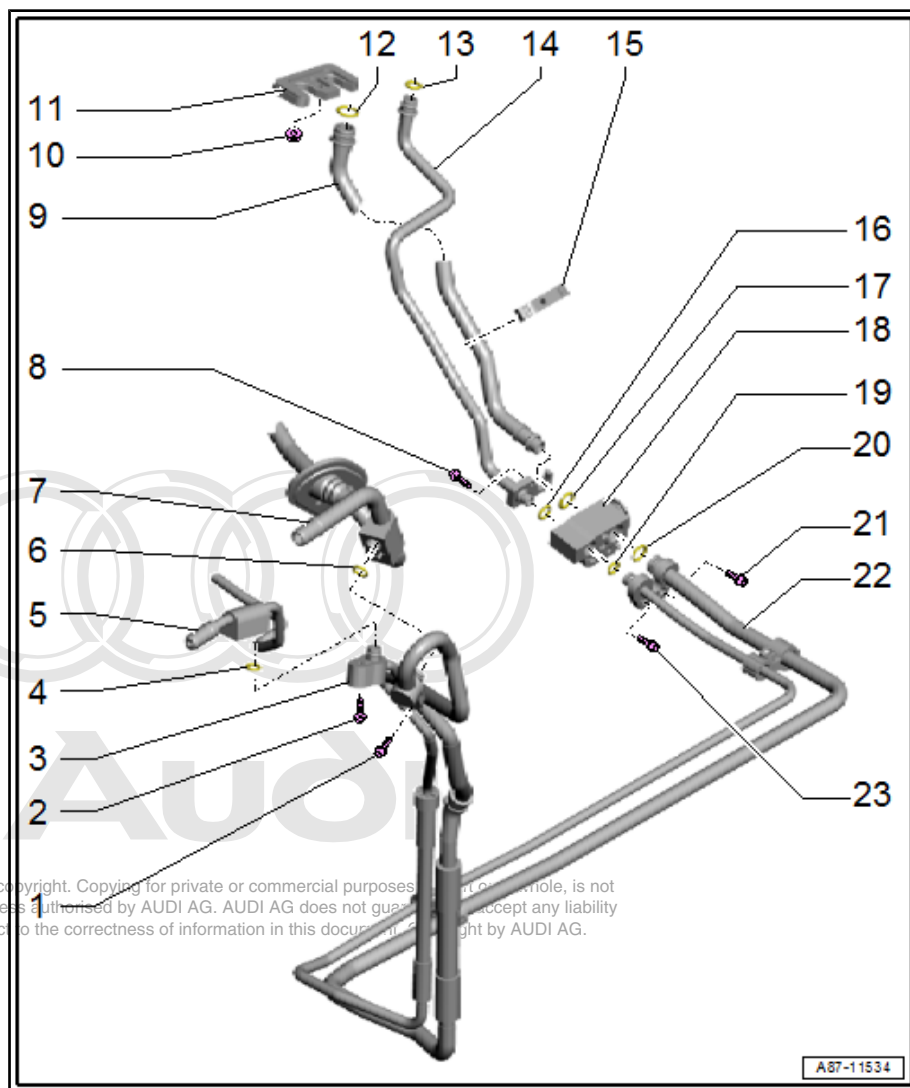
- ☐ 9 Nm

11 - Retaining plate

- ☐ for securing the refrigerant lines

12 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil



13 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

14 - Refrigerant line - high-pressure side

- ☐ in the centre of the underbody (vehicle floor)

15 - Bracket

- ☐ For refrigerant lines
- ☐ Bolt tightening torque ⇒ [page 161](#)

16 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

17 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

18 - Expansion valve (rear)

- ☐ Equipment-specific
- ☐ Detaching and attaching refrigerant line ⇒ [page 223](#)
- ☐ Removing and installing ⇒ [page 221](#)

19 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

20 - O-ring

- ☐ Renew if removed ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

21 - Bolt

- ☐ 9 Nm

22 - Refrigerant line - low-pressure side

- ☐ At front of underbody (vehicle floor)
- ☐ Removing and installing
 ⇒ ["2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger", page 186](#)
- ☐ Removing from and installing in rear expansion valve
 ⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)

23 - Bolt

- ☐ 9 Nm

2.4.3 Exploded view - refrigerant lines, front and rear refrigerant lines, rear refrigerant lines with high-voltage system



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

1 - Bolt

- ☐ 9 Nm

2 - Refrigerant line - high-pressure side

- ☐ At front of underbody (vehicle floor)
- ☐ Removing and installing
⇒ ["2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger", page 186](#)
- ☐ Removing from and installing in rear expansion valve
⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)

3 - Bolt

- ☐ 9 Nm

4 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

5 - Refrigerant line - high-pressure side

- ☐ Exploded view
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger", page 163](#)

6 - Refrigerant line - low-pressure side

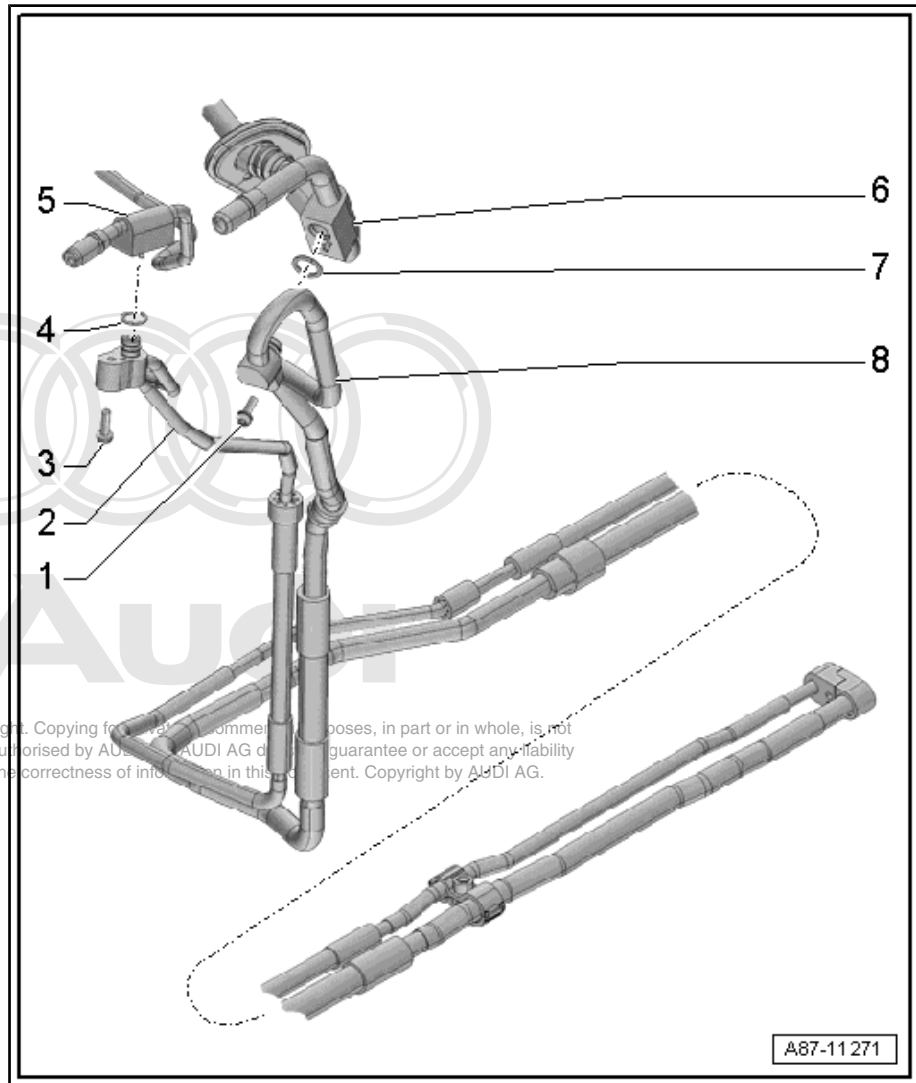
- ☐ Exploded view
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger", page 163](#)

7 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

8 - Refrigerant line - low-pressure side

- ☐ At front of underbody (vehicle floor)
- ☐ Removing and installing
⇒ ["2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger", page 186](#)
- ☐ Removing from and installing in rear expansion valve
⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)



2.4.4 Exploded view - refrigerant lines, rear refrigerant lines on vehicles with high-voltage system



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

1 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

2 - Bolt

- ☐ 9 Nm

3 - Refrigerant line - high-pressure side

- ☐ At rear on underbody (vehicle floor)
- ☐ Removing and installing ⇒ ["2.7.8 Removing and installing refrigerant lines to battery cooling module on vehicle floor at rear"](#), [page 195](#)

4 - Bolt

- ☐ 9 Nm

5 - Bolt

- ☐ 9 Nm

6 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

7 - Seal

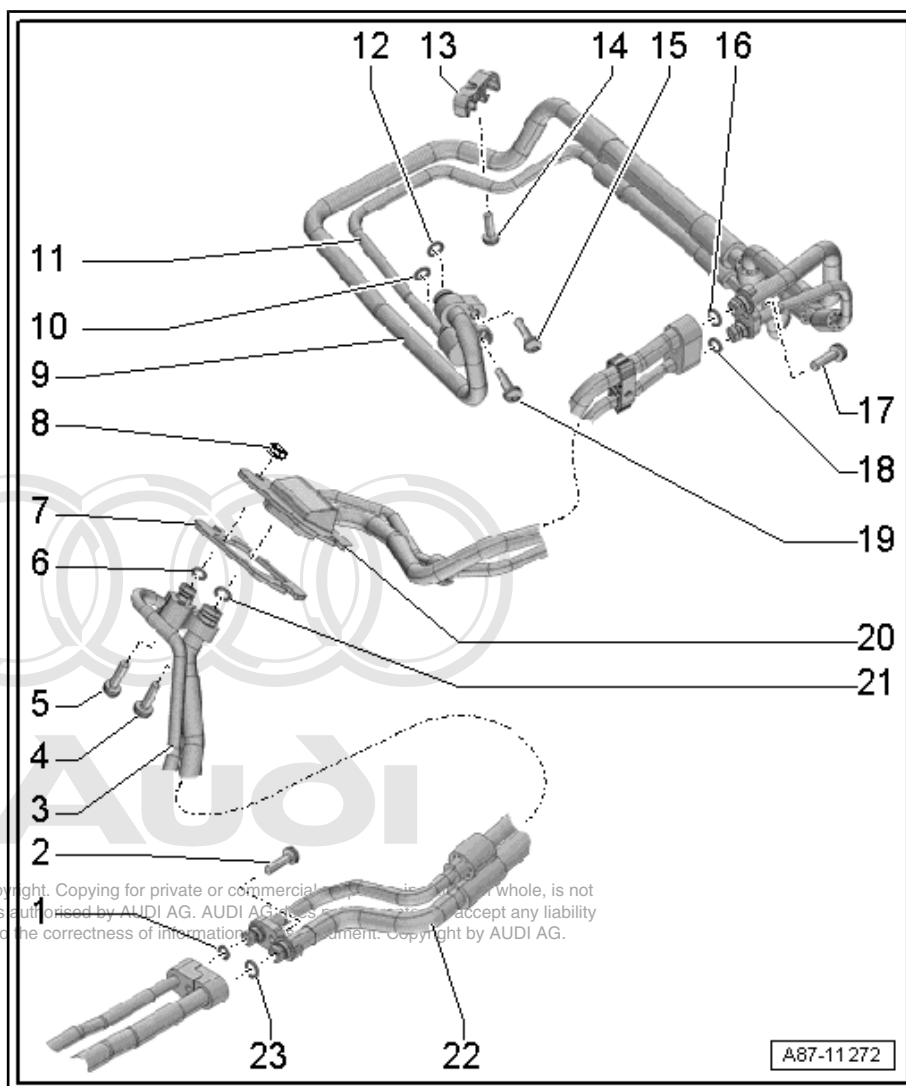
- ☐ For infeed of refrigerant line into luggage compartment
- ☐ Check for damage

8 - Nut

- ☐ 2x
- ☐ 8 Nm

9 - Refrigerant line - low-pressure side

- ☐ To battery cooling module in luggage compartment



- ☐ Removing and installing
⇒ [“2.7.10 Removing and installing refrigerant lines to battery cooling module in luggage compartment”, page 204](#)

10 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

11 - Refrigerant line - high-pressure side

- ☐ To battery cooling module in luggage compartment
- ☐ Removing and installing
⇒ [“2.7.10 Removing and installing refrigerant lines to battery cooling module in luggage compartment”, page 204](#)

12 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

13 - Bracket

- ☐ For refrigerant lines

14 - Bolt**15 - Bolt**

- ☐ 9 Nm

16 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

17 - Bolt

- ☐ 9 Nm

18 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

19 - Bolt

- ☐ 9 Nm

20 - Bushing for refrigerant line into luggage compartment

- ☐ Removing and installing ⇒ [page 198](#)

21 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

22 - Refrigerant line - low-pressure side

- ☐ At rear on underbody (vehicle floor)
- ☐ Removing and installing
⇒ [“2.7.8 Removing and installing refrigerant lines to battery cooling module on vehicle floor at rear”, page 195](#)

23 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

2.5 Removing/installing and replacing air conditioner compressor regulating valve - N280-

⇒ ["2.5.1 Checking cut-in signal for air conditioner compressor regulating valve N280", page 171](#)

⇒ ["2.5.2 Checking activation of air conditioner compressor regulating valve N280", page 175](#)

2.5.1 Checking cut-in signal for air conditioner compressor regulating valve - N280-



Note

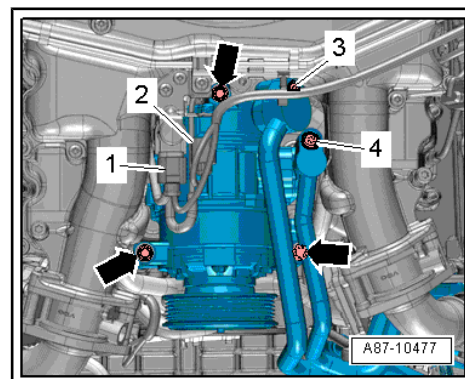
- ◆ *The following describes the procedure for checking a "Denso" air conditioner compressor (type "6 SEU 14"). Perform the check in the same manner on vehicles with a different type of compressor or a compressor from a different manufacturer.*
- ◆ *The following contains a description for checking a vehicle with a 8-cyl. TDI engine, the procedure for vehicles with a different engine (6-cyl. TDI or FSI engine, 8-cyl. FSI / TFSI engine and with 12-cyl. engine) may differ.*
- ◆ *Certain malfunctions of -N280- (e.g. sticking valve or open circuit in coil) can lead to problems with the air conditioner compressor (no cooling output from air conditioner, evaporator icing up etc.). If -N280- (and not the air conditioner compressor itself) is the cause of the problem, the air conditioner compressor can be serviced by renewing -N280- ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .*
- ◆ *-N280- is not available as replacement part for all air conditioner compressors. If -N280- cannot be obtained separately for a particular air conditioner compressor (different versions available), the entire air conditioner compressor must be renewed if problems occur ⇒ Electronic parts catalogue .*

Preparation

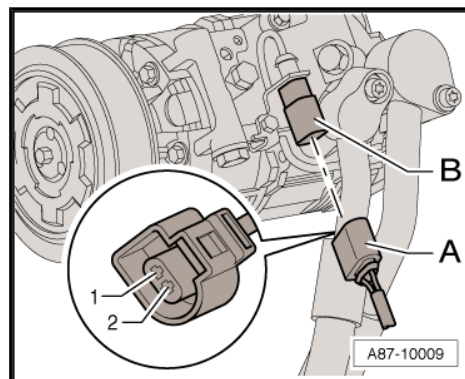
- Switch off ignition.
- Remove the noise insulation at front (not on 8-cyl. TDI engine) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove top engine cover panel (only on 8-cyl. TDI engine) ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Test sequence

- Unplug electrical connector -2- for air conditioner compressor regulating valve - N280- .

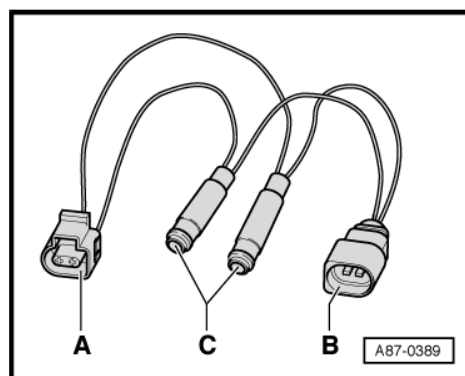


- Use an adapter cable from auxiliary measuring set - V.A.G 1594 C- to re-establish connection between connector -A- and connector -B- at air conditioner compressor regulating valve - N280- .



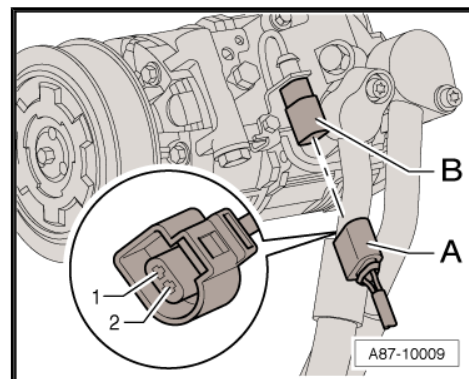
Note

- ◆ -N280- is activated by the onboard supply control unit - J519- in response to a request from the air conditioner front operating and display unit (Climatronic control unit - J255-)
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ The top illustration shows an air conditioner compressor on which the connector -A- to the vehicle wiring harness is plugged in directly at -N280- (connector -B-). Depending on the version of the air conditioner compressor, the connector -B- may also be provided with a short wire.
- ◆ Activation of -N280- is displayed in the "Reading measured values" function of the Guided Fault Finding routine for the onboard supply control unit - J519- and for -J255- . The maximum control current depends on the version of -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ The measured current which flows via -N280- is displayed in the "Reading measured values" function of the Guided Fault Finding routine for -J255- and in the "Reading measured values" in function of the Guided Fault Finding routine for -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If the required actual current does not flow via the -N280- , check the positive and earth connections of the -J519- and the wiring between -J519- and -N280- on the basis of the current flow diagram for open circuit, contact resistance and interchange ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ You can also use an improvised adapter lead for this test. For this you will need e.g. one connector each (-A- and -B-; part numbers 1J0 973 702 and 1J0 973 802 and the corresponding plug contacts), two commercially available sockets for banana plugs -C- and two wires (cross-section = 0.5 mm²).



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- Connect probe - VAS 5051/8- to adapter cables.
- Test lead (signal wire) to contact -2- of connector -B-
- Test lead (screen, earth) to contact -1- of connector -B-
- Set Test instruments mode on vehicle diagnostic system: DSO (digital storage oscilloscope) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Select the setting 5V/Div = 0.5ms/Div (5 V DC and 0.5 milliseconds per unit).
- Start engine.
- Set temperature on air conditioner front operating and display unit (Climatronic control unit - J255-) to maximum cooling output.
- On -J255- , press **AC** (or **A/C**) button (with indicator lamp when air conditioner compressor is on) to activate and deactivate -N280- .



Depending on setting of -J255- , display of oscilloscope will show:

- When switched "OFF" (or "AC off"), (lamp in **AC** or **A/C** button not lit), no square-wave signal (-N280- is not activated).

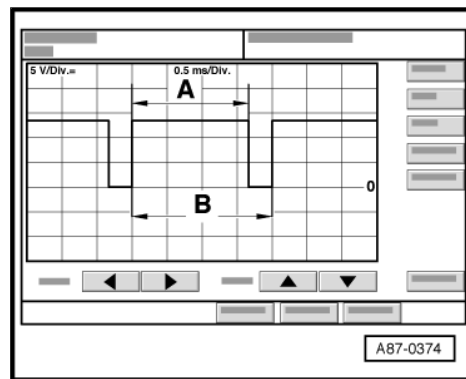


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- In “Auto” or “AC on” mode (indicator lamps in buttons on) and with temperature set to maximum cooling output, there is a square-wave signal with a pulse width -A- of between 75% and 100% (regulating valve is activated).


Note

- ◆ The illustration shows a signal with a duty cycle of approx. 80%.
 - ◆ Pulse width -A- depends on required cooling output, electrical system voltage etc. (over width of area -A-, current is controlled via -N280- by -J519- on basis of request from -J255-).
 - ◆ The signal distance -B- is always 2 milliseconds (corresponding to a frequency of 500 Hertz).
 - ◆ The duty cycle is derived from the ratio of pulse width -A- to signal distance -B-.
- The setting on -J255- and the measured ambient influences govern the pulse width of the square-wave signal (duty cycle between 30 % and 100 %; -N280- is activated in such a way that the compressor output required to obtain the specified temperatures is achieved).


Note

- ◆ In “Auto” and “AC on” mode (indicator lamps in buttons on) and with the temperature set to “LO”, the -N280- is activated so that the maximum permissible current of approx. 0.65 A flows via the -N280- (maximum compressor output).
- ◆ In control mode, the activation time is governed by the required cooling output and the voltage of the vehicle’s electrical system, for example; however, it is always long enough to achieve a mean current of 0.3 A.
- ◆ Checking activation of -N280-
⇒ [“2.5.2 Checking activation of air conditioner compressor regulating valve N280”, page 175](#)

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2.5.2 Checking activation of air conditioner compressor regulating valve - N280-



Note

- ◆ Perform electrical check of -N280- activation as described in the Guided Fault Finding routine for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The -N280- is activated by the onboard supply control unit - J519- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations. The request for actuation of -N280- and the current level required for control of the compressor output to attain the desired temperature at the evaporator are transmitted via the data bus by the air conditioner front operating and display unit, Climatronic control unit - J255- to -J519-. The -J519- then activates the -N280-.
- ◆ If a fault is detected in the activation of -N280-, an entry is made in the event memory of -J519- and -J255-. When reading out the event memory of -J255-, the operator is prompted to interrogate the event memory of -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Activation of -N280- is displayed in the "Reading measured values" function of the Guided Fault Finding routine for -J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Certain malfunctions of -N280- (e.g. sticking valve or open circuit in coil) can lead to problems with the air conditioner compressor (no cooling output from air conditioner, evaporator icing up etc.). If -N280- (and not the air conditioner compressor itself) is the cause of the problem, the air conditioner compressor can be serviced by renewing -N280- ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Renewing components of refrigerant circuit.
- ◆ -N280- is not available as replacement part for all air conditioner compressors. If -N280- cannot be obtained separately for a particular air conditioner compressor (different versions available), the entire air conditioner compressor must be renewed if problems occur ⇒ Electronic parts catalogue.

2.6 Removing and installing refrigerant pressure/temperature sender - G395-

⇒ ["2.6.1 Removing and installing refrigerant pressure/temperature sender G395", page 176](#)

⇒ ["2.6.2 Checking refrigerant pressure and temperature sender G395", page 177](#)

⇒ ["2.6.3 Checking pressure signal at refrigerant pressure and temperature sender G395", page 178](#)

2.6.1 Removing and installing refrigerant pressure/temperature sender - G395-



WARNING

Danger from the escape of pressurised refrigerant in the event of a defective valve in the refrigerant line.

Frostbite on the skin and other parts of the body.

- ◆ *If refrigerant emerges from the refrigerant line for more than 1 second on unfastening -G395-, immediately re-tighten -G395-.*
- ◆ *Refrigerant extraction for removal and installation ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .*
- ◆ *Replacement of defective valve in refrigerant line ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

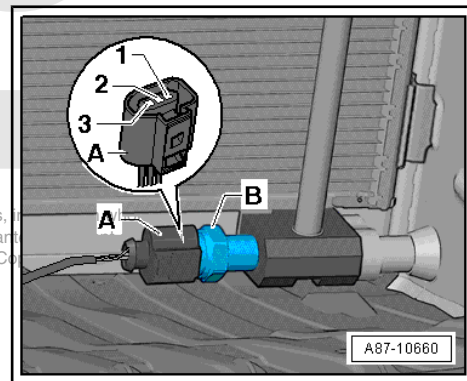


Note

- ◆ *The cooling output cannot be checked if the refrigerant pressure and temperature sender - G395- is removed; the air conditioner front operating and display unit (Climatronic control unit - J255-) does not switch on the air conditioner compressor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The refrigerant circuit remains closed (connection with valve).*
- ◆ *This vehicle may only be fitted with a refrigerant pressure and temperature sender - G395- ⇒ Electronic parts catalogue .*
- ◆ *These vehicles should not be fitted with a high-pressure sender - G65- (only emits square-wave signals) ⇒ Electronic parts catalogue .*
- ◆ *The refrigerant pressure and temperature sender - G395- uses a local data bus to exchange information with the on-board supply control unit - J519- . -J519- transmits the data via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-). This vehicle should therefore not be fitted with a high-pressure sender - G65- (only emits square-wave signals) ⇒ Electronic parts catalogue .*
- ◆ *Due to the version of the refrigerant pressure and temperature sender - G395- and its fitting location, the temperature measured by the -G395- differs from the actual temperature of the refrigerant in the refrigerant circuit. Currently this is therefore not evaluated and used for the control of the air conditioner.*

Removing

- Switch off ignition.
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Vehicles with 8-cyl. TFSI engine: Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover
- Unplug electrical connector -A-.

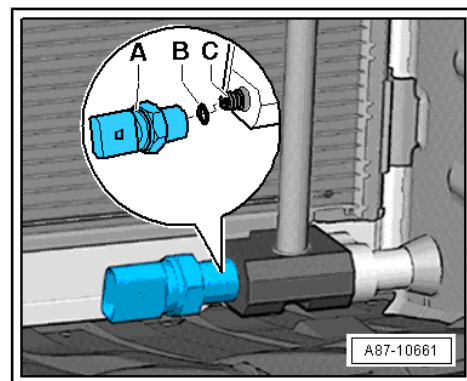


- Remove refrigerant pressure and temperature sender - G395-A- from connection at condenser -C-.

Installing

Install in reverse order of removal; note the following:

- Renew O-ring -B- ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue .
- Secure refrigerant pressure and temperature sender - G395-A-.
- Tightening torque: 5 Nm
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



2.6.2 Checking refrigerant pressure and temperature sender - G395-

Checking signal of refrigerant pressure and temperature sender - G395- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

**Note**

- ◆ *Check the signal of the refrigerant pressure and temperature sender - G395- as described in the Guided Fault Finding routine for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode*
 - ◆ *The signal from the refrigerant pressure and temperature sender - G395- is evaluated by the onboard supply control unit - J519- . It is transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
 - ◆ *If a fault is detected in the -G395- signal, a fault is entered in the event memory of -J519- and -J255- . When reading out the event memory of -J255- , the operator is prompted to interrogate the event memory of the onboard supply control unit - J519- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
 - ◆ *The measured values of -G395- are displayed in the "Reading measured values" function of the Guided Fault Finding routine for -J519- and -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. The temperature value displayed is not used at present by -J255- .*
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2.6.3 Checking pressure signal at refrigerant pressure and temperature sender - G395-

**Note**

- ◆ *The cooling output cannot be checked if -G395- is removed; the air conditioner front operating and display unit (Climatronic control unit - J255-) does not switch on the air conditioner compressor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *To check measured values of -G395- , refer to ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The -G395- uses a local data bus to exchange information with the onboard supply control unit - J519- . -J519- transmits the data via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-).*
- ◆ *Due to the version of the refrigerant pressure and temperature sender - G395- and its fitting location, the temperature measured by the -G395- differs from the actual temperature of the refrigerant. Therefore, this value is not currently evaluated and used for regulating the air conditioning.*
- ◆ *This vehicle may only be fitted with a refrigerant pressure and temperature sender - G395- ⇒ Electronic parts catalogue .*
- ◆ *After the air conditioner compressor is switched off, it might take a relatively long time with this vehicle before the pressure in the high-pressure side drops. The expansion valve(s) is/are "cold" and the pressure on the low-pressure end increases rapidly after switch-off, the expansion valve(s) close(s) and the refrigerant can only flow slowly to the low-pressure end.*

Preparation

- Switch off ignition.

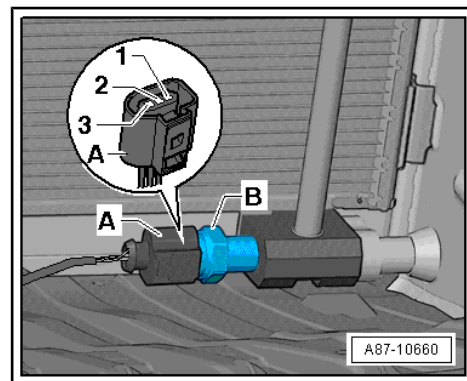
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Vehicles with 8-cyl. TFSI engine: Remove the front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover .
- Unplug electrical connector -A-.

Assignment of 3-pin connector at refrigerant pressure and temperature sender - G395- -A-

- 1 - Earth
- 2 - Signal output – to onboard supply control unit - J519- via local data bus
- 3 - Terminal “75” (positive)

Test sequence:

- Switch on ignition.
- Check earth and positive connection to connector -A-.
- Check connection and operation of refrigerant pressure and temperature sender - G395- as described in Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *When the electrical connector -A- is unplugged, the air conditioner compressor (air conditioner compressor regulating valve - N280-) is not activated.*
- ◆ *-G395- is an electronic control unit which exchanges information with the onboard supply control unit - J519- by way of a local data bus ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

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2.7 Disconnecting and connecting refrigerant lines

⇒ [“2.7.1 Notes on refrigerant lines on compressor”, page 180](#)

⇒ [“2.7.2 Unfastening and assembling connection points in refrigerant lines”, page 181](#)

⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183](#)

⇒ [“2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger”, page 184](#)

⇒ [“2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger”, page 186](#)

⇒ [“2.7.6 Attaching refrigerant lines to quick-release couplings”, page 190](#)

⇒ [“2.7.7 Removing and installing refrigerant lines to battery cooling module on vehicle floor at front”, page 191](#)

⇒ [“2.7.8 Removing and installing refrigerant lines to battery cooling module on vehicle floor at rear”, page 195](#)

⇒ [“2.7.9 Removing and installing leadthrough for refrigerant lines into luggage compartment”, page 198](#)

⇒ [“2.7.10 Removing and installing refrigerant lines to battery cooling module in luggage compartment”, page 204](#)

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2.7.1 Notes on refrigerant lines on compressor



Note

- ◆ *The air conditioner compressor is always driven when the engine is running (there is no magnetic clutch). Therefore do not start the engine unless the refrigerant circuit has been properly assembled. If, for example, the refrigerant lines are not connected to the air conditioner compressor when the engine is running, the compressor might heat up (internal heat generation) so much that this can lead to irreparable damage to the compressor. The internal heat generation is caused by the air conditioner compressor operating against a fixed resistance even at approximately 0 % delivery rate (closed circuit).*
- ◆ *Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).*
- ◆ *Detaching and attaching refrigerant lines from air conditioner compressor (vehicles with 12-cyl. engine)
⇒ [“3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine”, page 265](#)*

2.7.2 Unfastening and assembling connection points in refrigerant lines



Note

- ◆ *The dismantling procedure applies to all connection points in the refrigerant circuit and to the refrigerant junction to the rear air conditioning unit. There are differences as regards the diameter of the pipe connections, the design of the O-rings and the bolts.*
- ◆ *Depending on the fitting location, various components in the area of the connection points have to be unfastened or removed to separate the connection*
- ◆ *The following illustration shows the connection points between the refrigerant lines to the front and rear air conditioning unit (these are fitted in the area beneath the front left wing in the vicinity of the A-pillar).*
- ◆ *On vehicles with a high-voltage system (hybrid vehicles with battery cooling module), detach and attach the refrigerant lines to the battery cooling module in the same manner as for the rear air conditioning unit.*

Unfastening

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove the front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) (to provide access to the connection point shown).



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- Remove bolts -A-.
- Unfasten the connection of the refrigerant lines -B- and -C-.
- Unfasten the connection of the refrigerant lines -D- and -E-.



Note

- ◆ This illustration shows the connection point in the area of the A-pillar beneath the front left wing (refrigerant line outlet to evaporator in rear air conditioning unit/in battery cooling module).
- ◆ Seal the open line connections with suitable caps (to prevent the ingress of dirt and moisture).

Assembling

Assemble in reverse order; note the following:

- Replace the O-rings -F- and -H-; for version refer to ⇒ Electronic parts catalogue .
- Thoroughly clean connection area of refrigerant lines and check for damage.
- Check the fitted pins -G- (not provided at all connections) for damage and proper attachment.



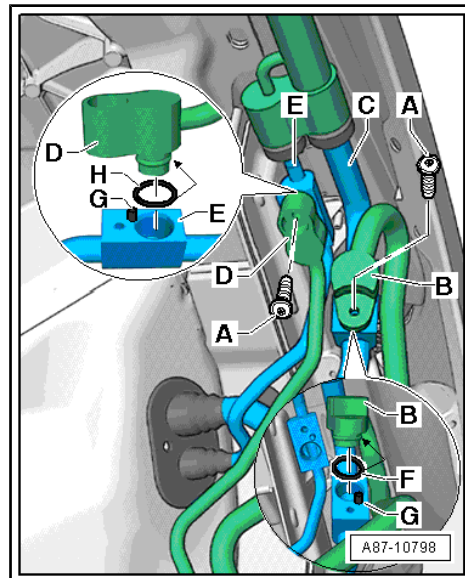
Note

- ◆ Lubricate O-rings lightly with refrigerant oil before fitting ⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- ◆ Observe the different tightening torques of the bolts -A-.
- ◆ Tightening torque for bolts -A- with “M6” thread: 10 Nm
- ◆ Tightening torque for bolts -A- with “M8” thread: 20 Nm
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Re-install the components removed in reverse order/re-attach the components unfastened.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

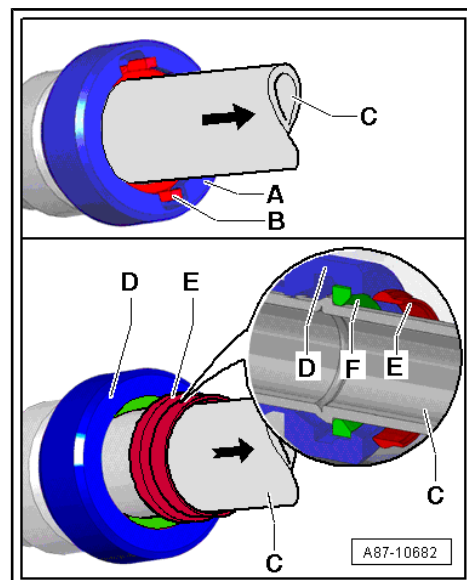


2.7.3 Detaching and attaching refrigerant lines at quick-release couplings

Special tools and workshop equipment required

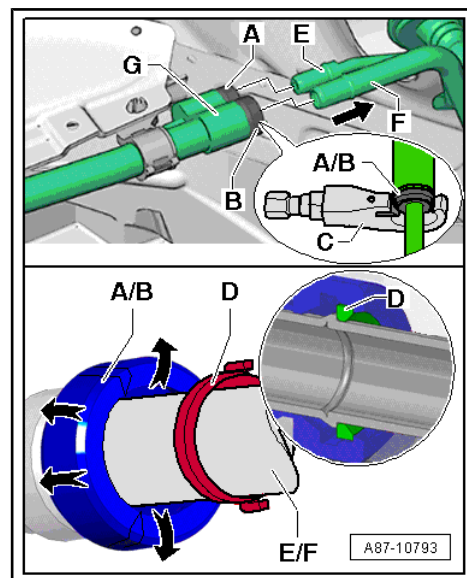
- ◆ Release tool - T40149-
- ◆ Disassembly tool - T40232-

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Note

- ◆ There are different versions of the quick-release couplings -A- and -D-. For both versions of these quick-release couplings, the refrigerant lines -C- can be released and removed in the same way using release tool -T40149/1- or removal tool -T40232-.
- ◆ With the quick-release coupling -A- installed at the start of production, the pins -B- become visible after the refrigerant line -C- has been installed if you pull the locked refrigerant line -C- in the direction of the arrow after assembly.
- ◆ With the gradually introduced quick-release coupling -D-, the refrigerant line -C- is fitted in the same manner as for the quick-release coupling -A-. If, on this version, the refrigerant line -C- is pulled in the direction of the arrow after it is assembled, the snap ring -E- emerges from the quick-release coupling -D-, showing that the retaining ring -F- is completely locked onto the refrigerant line -C-. Subsequently the snap ring -E- must be detached from the refrigerant line -C-.
- ◆ On account of the confined space, the quick-release couplings -A- and -B- (fitted beneath the wing in the area of the A-pillar) cannot be released on all vehicles using -T40149- without destroying them (e.g. not on vehicles with a rear air conditioning unit). Therefore, on these vehicles, unfasten quick-release couplings -A- and -B- at three points on the outside using the removal tool -T40232- -C- before releasing the retaining ring -D- from the quick-release couplings -A- and -B- and the refrigerant lines -E- and -F-. Then remove the refrigerant lines -E- and -F- from the quick-release couplings -A- and -B-.



2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger



Caution

Risk of damaging vehicle components on unfastening quick-release couplings.

- ◆ **The wing or refrigerant line with internal heat exchanger could be damaged on unfastening the refrigerant lines.**
- ◆ **Start by detaching the refrigerant line from the O-ring and then remove carefully from the connection.**

Detaching

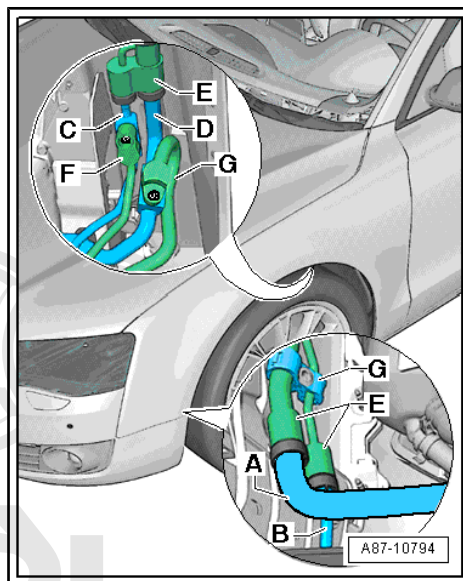
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Clean the refrigerant lines -A- and -B- unfastened from the quick-release couplings at the internal heat exchanger -E- in the area of the quick-release couplings.



Note

To avoid damaging the refrigerant line with the internal heat exchanger -E- on detaching the refrigerant lines -C- and -D-, detach the refrigerant lines before unfastening the holder -G-.

Unfasten the connection at the quick-release couplings using the refrigerant line release tools -T40149- .



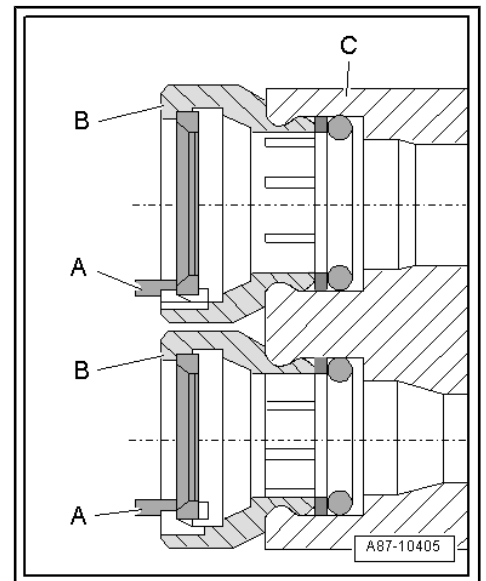
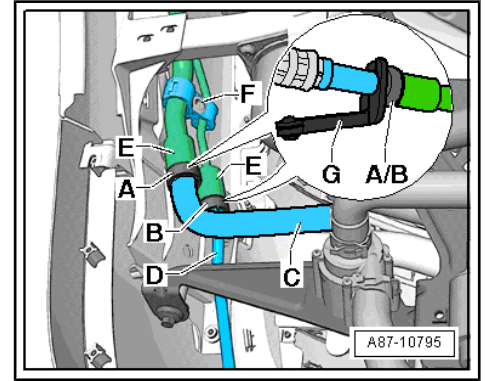
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- Spray silicone-free lubricant onto the refrigerant lines -C- and -D- in the area of the quick-release couplings -A- and -B-.

 Note

The refrigerant lines adhere to the O-ring during air conditioner operation. Release the O-ring before inserting the refrigerant line release tools, e.g. by pulling and pushing the refrigerant line (take care never to twist the refrigerant lines when doing so).

- Press home the refrigerant lines -C- and -D- in the quick-release couplings -A- and -B-.
- Press home the refrigerant line release tool -T40149/1- -G- on the refrigerant line -C-. This expands the retaining ring (retaining ring is heard and felt to open).
- Pull the refrigerant line -C- with the refrigerant line release tool -G- out of the quick-release coupling -A- at the refrigerant line with internal heat exchanger -E-.
- Press home the refrigerant line release tool -T40149/2- -G- on the refrigerant line -D-. This expands the retaining ring (retaining ring is heard and felt to open).
- Pull the refrigerant line -D- with the refrigerant line release tool -G- out of the quick-release coupling -A- at the refrigerant line with internal heat exchanger -E-.



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Note

- ◆ *If the refrigerant lines cannot be pulled out or pushed in, DO NOT twist them in the connection piece -C-.*
- ◆ *In this case, open the quick-release couplings -A- or -B- using removal tool -T40232- or similar.*
- Seal open lines and the connections at the refrigerant line with internal heat exchanger using suitable caps (to prevent the ingress of dirt and moisture).

Unfasten the connection at the quick-release couplings with removal tool -T40232- .

- Apply removal tool -C- to quick-release coupling -A- or -B- and cut through quick-release coupling at three points on outside.

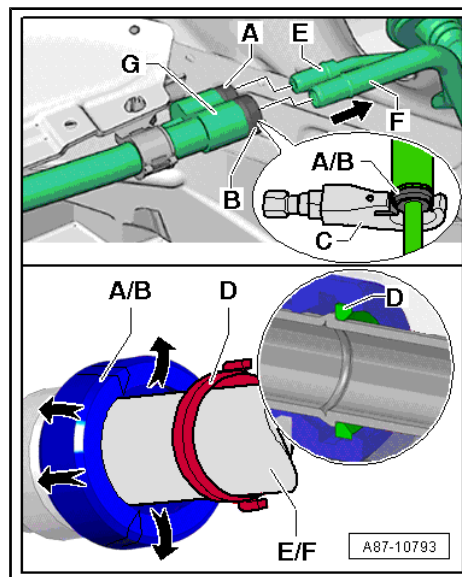

Note

- ◆ *When separating the quick-release coupling -A- and -B-, take care not to damage the connection area at the internal heat exchanger -G- and the refrigerant lines -E- and -F-.*
- ◆ *Only insert blade of removal tool -C- in quick-release coupling until you can hear and feel it break at cutting point.*
- Carefully bend open the separated quick-release coupling -A- or -B- (taking care not to damage the refrigerant line) and remove the retaining ring -D-.
- Spray silicone-free lubricant onto the refrigerant lines in the area of the separated quick-release coupling.


Note

The refrigerant lines adhere to the O-ring while the air conditioner is operating. If lubricant is sprayed onto the refrigerant line, the line can then be detached from the connection by pulling and pushing the refrigerant line. Be careful not to twist the refrigerant lines when doing so.

- Pull the refrigerant line -E- and -F- out of the connection.
- Seal open lines and the connections at the refrigerant line with internal heat exchanger using suitable caps (to prevent the ingress of dirt and moisture).



2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger


Caution

Risk of damaging vehicle components on unfastening quick-release couplings.

- ◆ *The wing or refrigerant line with internal heat exchanger could be damaged on unfastening the refrigerant lines.*
- ◆ *Start by detaching the refrigerant line from the O-ring and then remove carefully from the connection.*

Detaching

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

Note

- ◆ *The procedure for detaching the refrigerant lines -C- and -D- differs depending on vehicle equipment.*
- ◆ *On vehicles with a rear air conditioning unit and on vehicles with a high-voltage system (hybrid vehicles), the refrigerant lines to the rear air conditioning unit/battery cooling module -F- and -G- are additionally bolted to the refrigerant lines to the front air conditioning unit -C- and -D-. These additional refrigerant lines further constrict the space available for detaching the refrigerant lines -C- and -D- from the refrigerant line with internal heat exchanger -E-.*
- ◆ *The procedure thus differs depending on vehicle equipment and the component to be removed.*

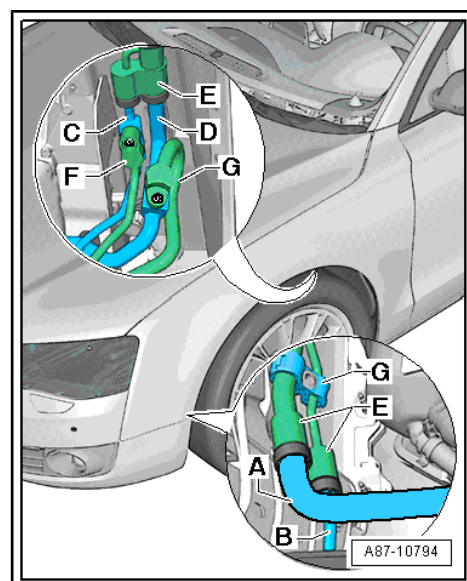
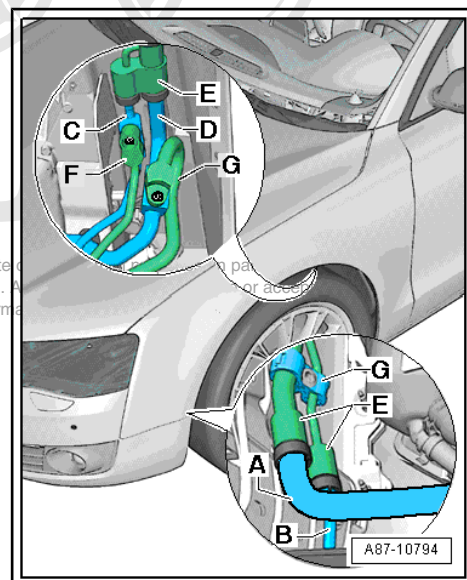
Further procedure for removing refrigerant line with internal heat exchanger (on vehicles with or without rear air conditioning unit/ battery cooling module)

- ⇒ [“2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger”, page 184](#)
- Unfasten the refrigerant line with internal heat exchanger from the holders
⇒ [“2.8 Removing and installing refrigerant line with internal heat exchanger”, page 208](#) .
- Clean the refrigerant lines -C- and -D- to be unfastened from the quick-release couplings at the internal heat exchanger -E- in the area of the quick-release couplings.

Note

*For vehicles with no rear air conditioning unit/battery cooling module, refrigerant lines -C- and -D- can then be unfastened from the connections using removal tool -T40232- (or release tool -T40149-)
⇒ [“2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger”, page 184](#) .
However, due to the limited space, it is advisable to use removal tool -T40232- in this case as well.*

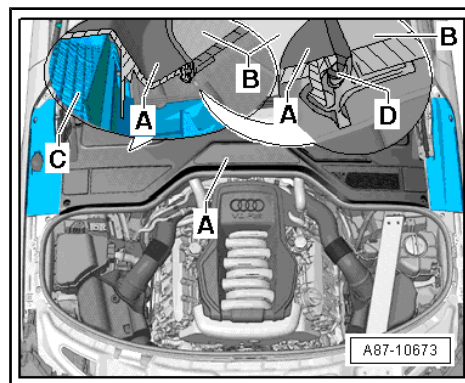
Further procedure for removing refrigerant line to front air conditioning unit (on vehicles with or without rear air conditioning unit/ battery cooling module)



- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .


Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.

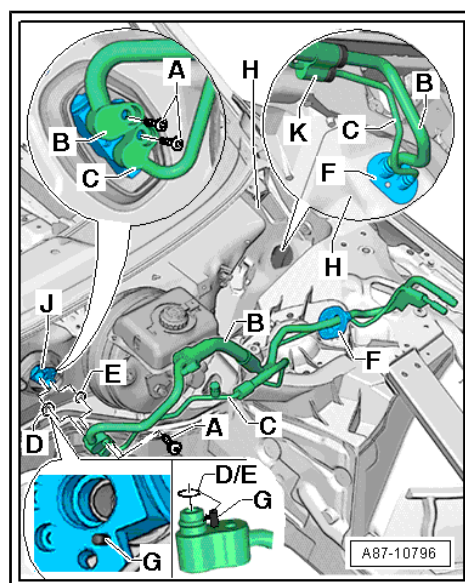


- Unfasten the socket -F- from the left side wall of the plenum chamber -H-.

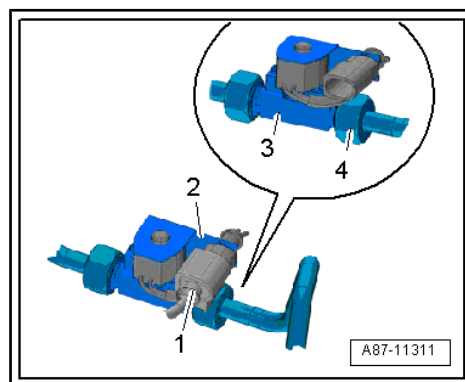
Vehicles with high-voltage system only

Note

On vehicles with a high-voltage system (hybrid vehicles with battery cooling module), the refrigerant line -C- is fitted with the shut-off valve 1 for refrigerant of hybrid battery - N516- ⇒ [page 670](#) .



- Unplug electrical connector -1- and remove from bracket -2-.
- Counterhold shut-off valve 1 -item 3- and unscrew union nut -4-.
- Detach the refrigerant line.



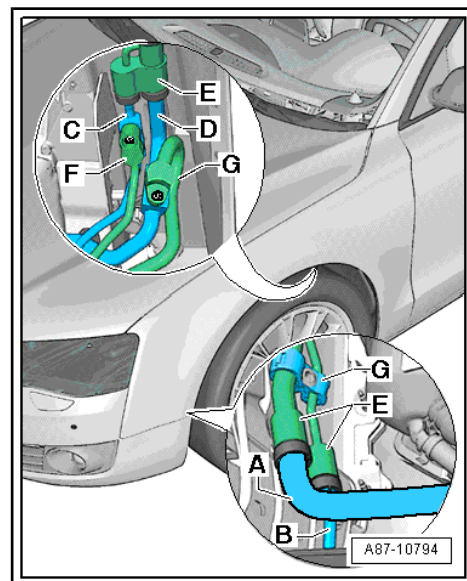
All vehicles

- Detach the refrigerant lines -F- and -G- from the refrigerant lines -C- and -D-
 ⇒ [“2.7.2 Unfastening and assembling connection points in refrigerant lines”, page 181](#) (vehicles with rear air conditioning unit only).
- Clean the refrigerant lines -C- and -D- to be unfastened from the quick-release couplings at the internal heat exchanger -E- in the area of the quick-release couplings.



Note

For vehicles with no rear air conditioning unit/battery cooling module, refrigerant lines -C- and -D- can then be unfastened from the connections using release tool -T40149-
 ⇒ [“2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger”, page 184](#).
 However, due to the limited space, it is advisable to use removal tool -T40232- in this case as well.



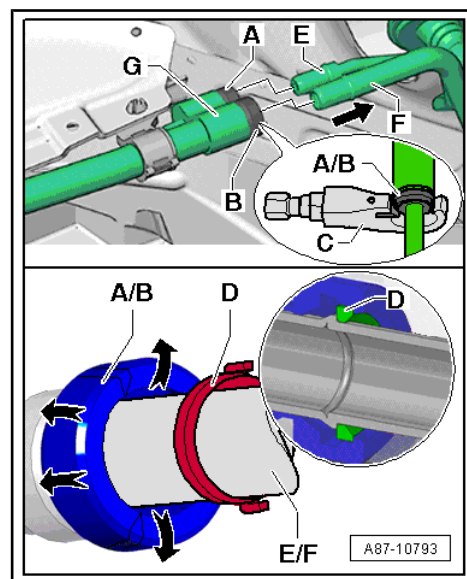
Unfasten the connection at the quick-release couplings with removal tool -T40232- .

- Apply removal tool -C- to quick-release coupling -A- or -B- and cut through quick-release coupling at three points on outside.



Note

- ◆ When separating the quick-release coupling -A- and -B-, take care not to damage the connection area at the internal heat exchanger -G- and the refrigerant lines -E- and -F-.
- ◆ Only insert blade of removal tool -C- in quick-release coupling until you can hear and feel it break at cutting point.
- Carefully bend open the separated quick-release coupling -A- or -B- (taking care not to damage the refrigerant line) and remove the retaining ring -D-.
- Spray silicone-free lubricant onto the refrigerant lines in the area of the separated quick-release coupling.



Note

The refrigerant lines adhere to the O-ring while the air conditioner is operating. If lubricant is sprayed onto the refrigerant line, the line can then be detached from the connection by pulling and pushing the refrigerant line. Be careful not to twist the refrigerant lines when doing so.

- Pull the refrigerant line -E- and -F- out of the connection.
- Seal open lines and the connections at the refrigerant line with internal heat exchanger using suitable caps (to prevent the ingress of dirt and moisture).

2.7.6 Attaching refrigerant lines to quick-release couplings

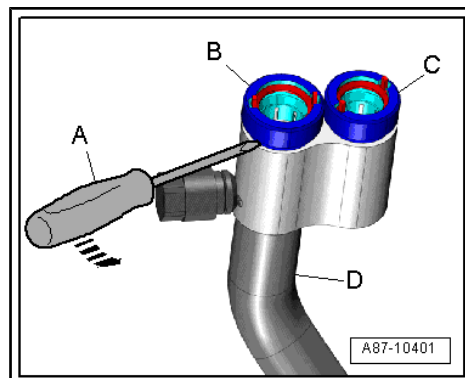
- Use a screwdriver -C- to prise the couplings -B- and -C- out of the refrigerant line -D- with internal heat exchanger -arrow-.



Caution

Risk of leakage

- ♦ *The couplings -B- and -C- at the refrigerant line -D- with internal heat exchanger are always to be replaced after opening up the connection with the refrigerant lines.*



- Thoroughly clean all parts of the refrigerant line connections (e.g. with cleaning solution - D 009 401 04-).
- Check connecting piece -A- of refrigerant line with internal heat exchanger for damage.
- Renew O-rings -B-, G-, support rings -C-, F- and couplings -D-, E-; for correct version, refer to ⇒ Electronic parts catalogue .

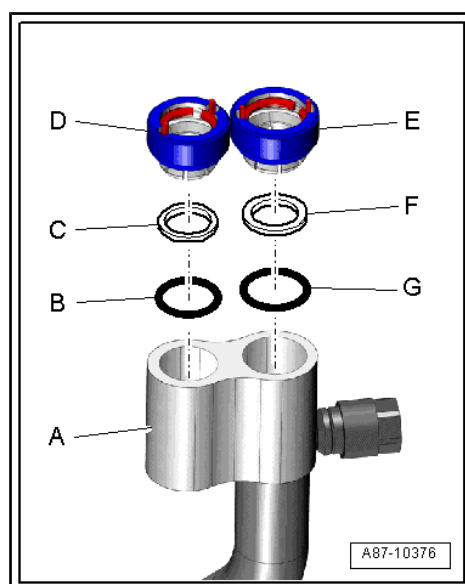


Note

Observe fitting instructions for O-rings

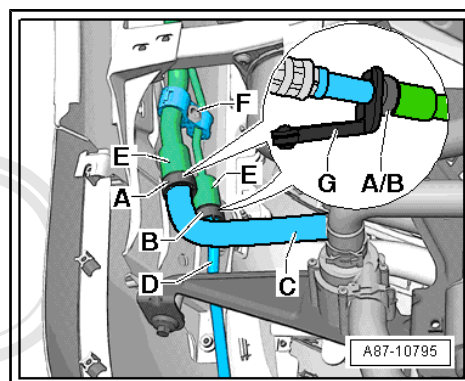
⇒ ["3.13 Refrigerant circuit seals", page 116](#) .

- Lubricate O-rings lightly with refrigerant oil before installing
⇒ ["3.13 Refrigerant circuit seals", page 116](#) .
- Press couplings -D- and -E- into connecting piece -A- of refrigerant line with internal heat exchanger until they engage audibly.
- Thoroughly clean the connection area of the refrigerant lines -C- and -D- and check for damage.
- Press home the refrigerant lines -C- and -D- in the quick-release couplings -A- and -B-, taking care to avoid strain.



Note

This description relates to connection of the refrigerant lines in the area beneath the left headlight. The same procedure applies when connecting the refrigerant lines fitted in the area of the A-pillar beneath the left wing.



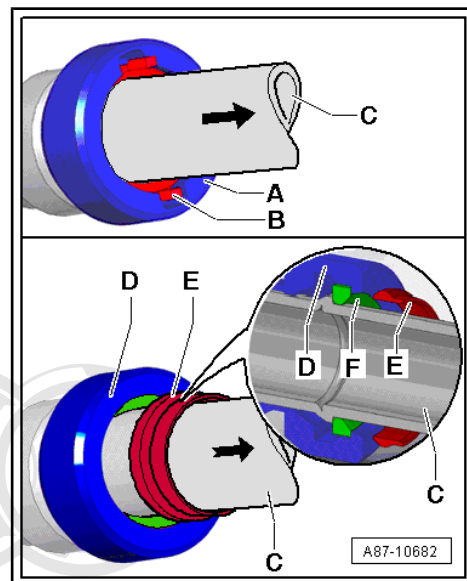
Check that refrigerant lines are installed correctly.

- Resistance must be felt on attempting to detach the refrigerant lines -C- and -D-.
- With version -A- of the quick-release coupling (installed at the start of production), the pins -B- on the retaining rings must become visible when the locked refrigerant line -C- is pulled in the direction of the arrow.
- With the gradually introduced quick-release coupling -D-, the snap ring -E- must emerge from the quick-release coupling -D- if the locked refrigerant line -C- is pulled in arrow direction following assembly. Subsequently the snap ring -E- must be detached from the refrigerant line -C-.



Note

- ◆ *Install refrigerant lines so that they are free of stress.*
- ◆ *Check the installation position of the refrigerant pipes to the quick-release couplings (they must not make contact with other components).*



- Re-install remaining components (removed earlier).
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit J255 and erase any faults displayed ⇒ Vehicle diagnostic tester in Guided Fault Finding mode.
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

2.7.7 Removing and installing refrigerant lines to battery cooling module on vehicle floor at front

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

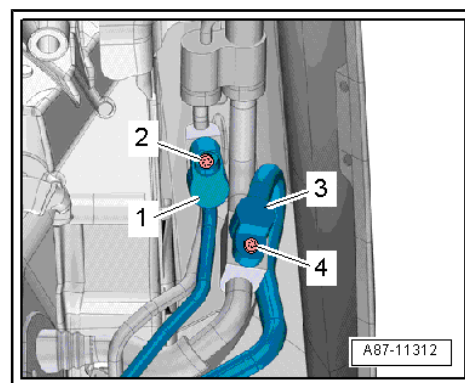
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Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove rear section of front wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove centre cover for left underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .
- Remove bolts -2 and 4- and disconnect and remove refrigerant lines -1 and 3-.
- Unscrew nut -1- and bolts -3 and 5- and disconnect refrigerant lines -4 and 6-.

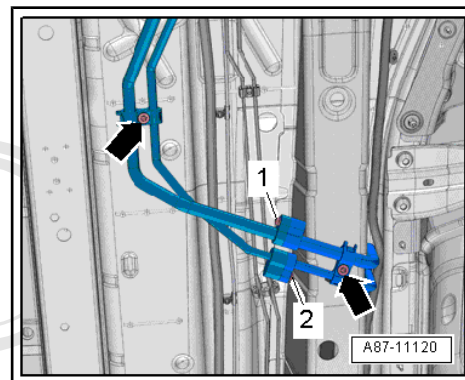


- Unscrew nuts -arrows- and bolts -1 and 2- and disconnect refrigerant lines.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).



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- Unscrew bolt -2- and pivot the mounting plate -4- to one side.
- Separate the refrigerant lines -1, 3-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Unscrew nut -6- from brackets -7- for refrigerant lines.
- Detach refrigerant lines (front) -5- downwards.

Installing

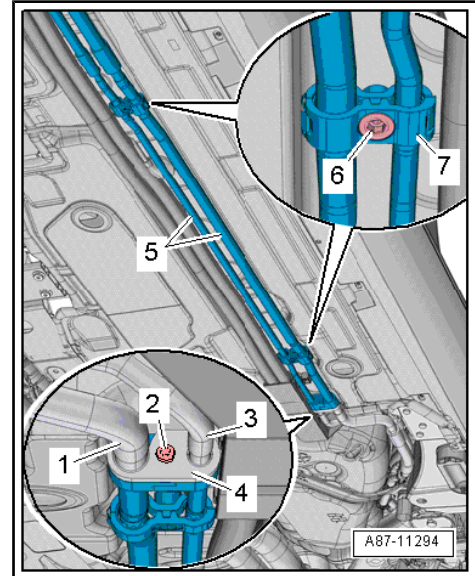
Install in reverse order of removal; note the following.

- Tightening torque
⇒ [“2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system”, page 161](#)

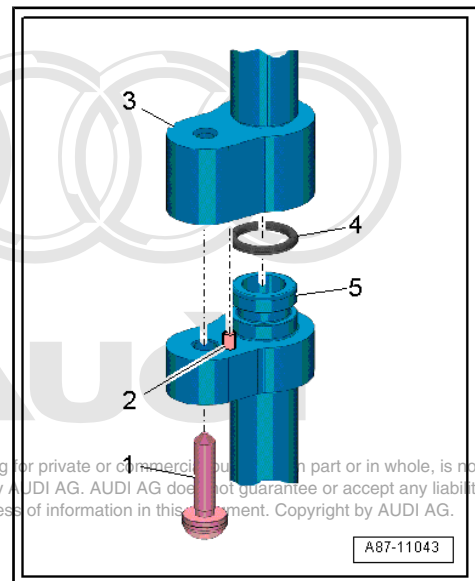


Note

- ◆ *Observe fitting instructions for O-rings ⇒ [page 116](#) .*
- ◆ *After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.*



- Renew O-rings -4-; for correct version refer to ⇒ Electronic parts catalogue .
- Clean refrigerant line connections -3 and 5- and check for damage.
- Make sure that O-rings -4- are correctly seated in grooves of corresponding mounting.
- Check that dowel pin -2- (not fitted on all connections) is not damaged and is seated correctly.
- Tighten bolts -1-.
- Re-install remaining components (removed earlier).
- For electrical connections and routing, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Evacuating and charging refrigerant circuit ⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit](#)
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner](#) .*

2.7.8 Removing and installing refrigerant lines to battery cooling module on vehicle floor at rear

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

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DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

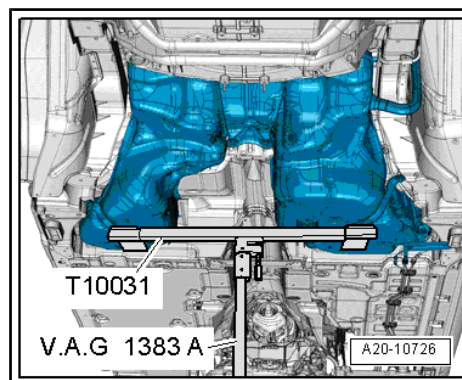
Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

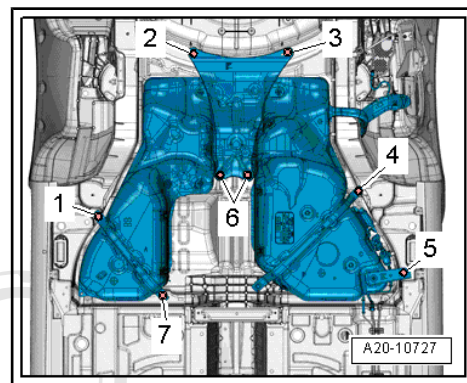
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Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove rear section of front wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Position the engine and gearbox jack - V.A.G 1383 A- with support - T10031- under the vehicle to support the tank, as shown in the illustration (do not use the threaded rods of the support).



- Remove bolts -1, 7- and detach tensioning strap.



- Unscrew bolt -6- and pivot the mounting plate -8- to one side.
- Separate the refrigerant lines -9, 7-.
- Lay bare the refrigerant lines at the holders -1-.
- Remove bolts -3 and 5- and disconnect and remove refrigerant lines -2 and 4-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

- Take out refrigerant lines between rear axle and underbody (vehicle floor) towards front.

Installing

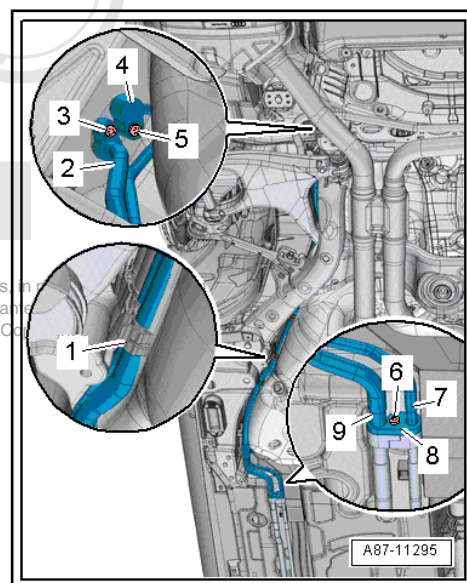
Install in reverse order of removal; note the following.

- Tightening torque
 ⇒ ["2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system", page 161](#)



Note

- ◆ *Observe fitting instructions for O-rings ⇒ [page 116](#) .*
- ◆ *After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.*



- Renew O-rings -4-; for correct version refer to ⇒ Electronic parts catalogue .
- Clean refrigerant line connections -3 and 5- and check for damage.
- Make sure that O-rings -4- are correctly seated in grooves of corresponding mounting.
- Check that dowel pin -2- (not fitted on all connections) is not damaged and is seated correctly.
- Tighten bolts -1-.
- Re-install remaining components (removed earlier).
- For electrical connections and routing, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Start up air conditioner after charging refrigerant circuit

⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

2.7.9 Removing and installing leadthrough for refrigerant lines into luggage compartment

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

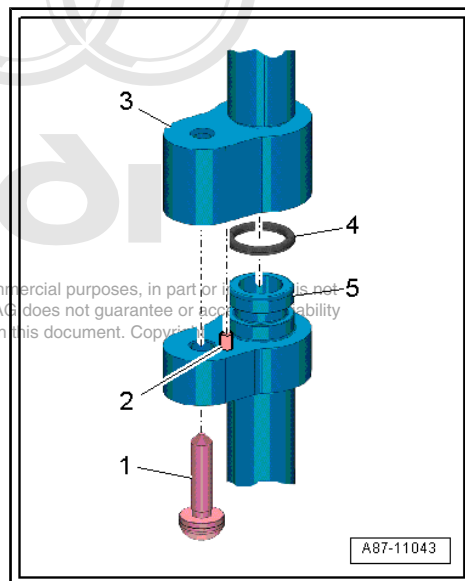
For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage"
⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.





WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

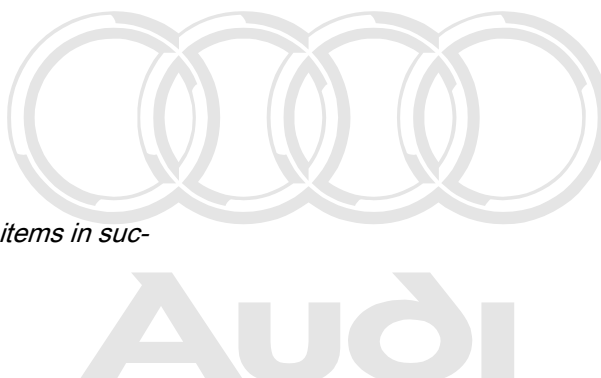


Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ *Function/component selection*
- ◆ *Body*
- ◆ *Electrical system*
- ◆ *Self-diagnosis compatible systems*
- ◆ *8C - Hybrid battery management - J840*
- ◆ *8C - Hybrid battery management, functions*
- ◆ *51 - De-energise high-voltage system (Rep. gr. 93)*
- ◆ *Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .*
- ◆ *The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .*

Removing

- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .



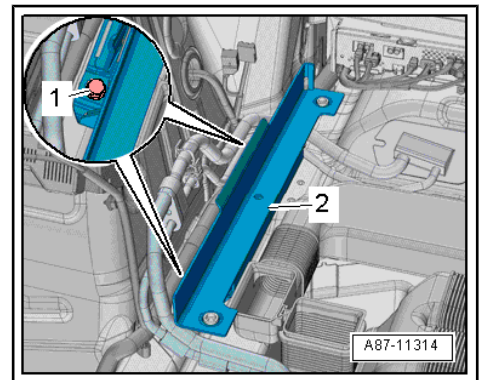
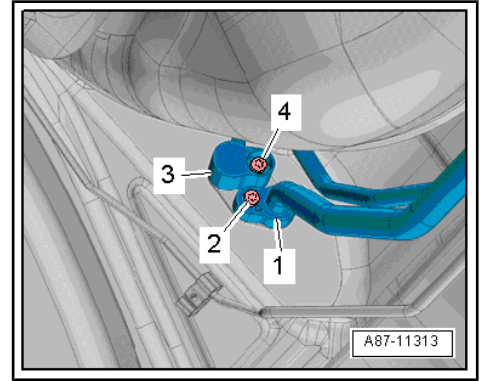
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- Remove bolts -2, 4- and detach refrigerant lines -1, 3-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

 Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove bolts -1- and detach drive battery mounting -2-.



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- Unscrew bolt -1- and pivot the mounting plate -3- to one side.
- Separate the refrigerant lines -2-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .


Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

- Unscrew nuts -arrows- and detach leadthrough for refrigerant lines -1-.
- Lay bare the refrigerant lines at the mount -4-.
- Detach the leadthrough for the refrigerant lines -5-.

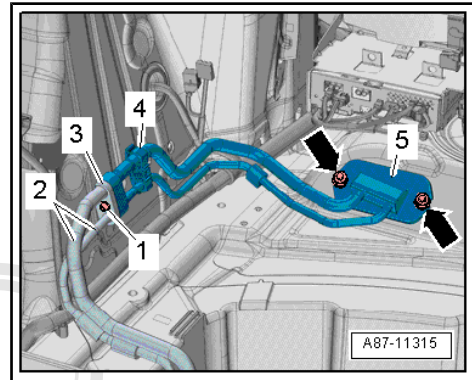
Installing

Install in reverse order of removal; note the following.


Note

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- ◆ **If seal in leadthrough is damaged, apply silicone adhesive sealant - D 176 001 A3- or similar at this location ⇒ Electronic parts catalogue .**
- ◆ **The bonding surface must be clean and free from grease when applying the silicone adhesive sealant.**
- ◆ **Observe fitting instructions for O-rings ⇒ [page 116](#) .**
- ◆ **After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.**
- Re-install remaining components (removed earlier).
- Tightening torque
⇒ [“2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system”, page 161](#)
- For electrical connections and routing, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .



Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ *Function/component selection*
- ◆ *Body*
- ◆ *Electrical system*
- ◆ *Self-diagnosis compatible systems*
- ◆ *8C - Hybrid battery management -J840*
- ◆ *8C - Hybrid battery management, functions*
- ◆ *51 - Re-energise high-voltage system (Rep. gr. 93)*
- *Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .*
- *Switch on ignition.*
- *Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and control unit for air conditioning compressor - J842- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

Start up air conditioner after charging refrigerant circuit

⇒ [page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

2.7.10 Removing and installing refrigerant lines to battery cooling module in luggage compartment

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles

⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage"

⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid ; Rep. gr. 93 ;

General warning instructions for work on the high-voltage system .

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WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

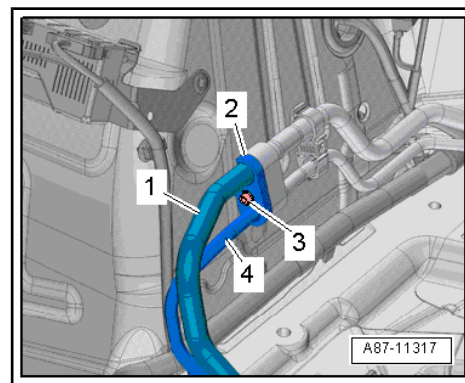
**Note**

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - De-energise high-voltage system (Rep. gr. 93)
- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

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Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove the battery cooling module ⇒ [page 691](#) .
- Unscrew bolt -3- and pivot the mounting plate -2- to one side.
- Separate the refrigerant lines -1, 4-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Installing

Install in reverse order of removal; note the following.



Note

- ◆ Observe fitting instructions for O-rings ⇒ [page 116](#) .
- ◆ After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.
- Re-install remaining components (removed earlier).
- Tightening torque
⇒ ["2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system" page 161](#) and
⇒ ["2.4.4 Exploded view - refrigerant lines, rear refrigerant lines on vehicles with high-voltage system", page 169](#)
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .

Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

**Note**

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - Re-energise high-voltage system (Rep. gr. 93)
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and control unit for air conditioning compressor - J842- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Start up air conditioner after charging refrigerant circuit

⇒ [page 241](#) .

**Note**

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

2.8 Removing and installing refrigerant line with internal heat exchanger

Special tools and workshop equipment required

- ◆ Release tools for refrigerant lines -T40149-
- ◆ Removal tool -T40232-

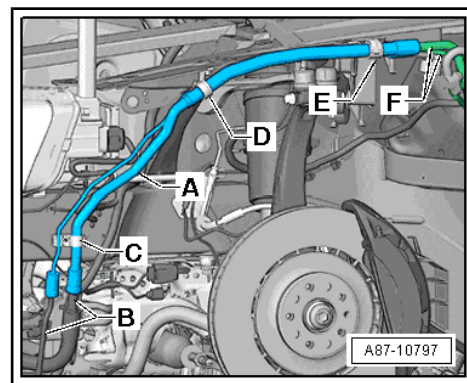
Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

 Note

The following illustration shows the refrigerant line with internal heat exchanger -A- on a vehicle with the front left wing detached.

- Detach the refrigerant lines -B- (in the area beneath the left headlight) from the refrigerant line with internal heat exchanger -A-
⇒ [“2.7.4 Detaching refrigerant lines in area beneath left headlight from refrigerant line with internal heat exchanger”, page 184](#) .
- Unfasten the holders -C-, -D- and -E- for the refrigerant line with internal heat exchanger -A- from the vehicle.
- Detach the refrigerant lines -F- (in the area of the A-pillar) from the refrigerant line with internal heat exchanger -A-
⇒ [“2.7.5 Detaching refrigerant lines in area of A-pillar from refrigerant line with internal heat exchanger”, page 186](#) .



Installing

Install in reverse order of removal; note the following:

- Thoroughly clean connection area of refrigerant lines and check for damage.
- Attach the refrigerant lines -F- (in the area of the A-pillar) to the refrigerant line with internal heat exchanger -A-
⇒ [“2.7.6 Attaching refrigerant lines to quick-release couplings”, page 190](#) .
- Attach the holders -C-, -D- and -E- for the refrigerant line with internal heat exchanger -A- to the vehicle.
- Attach the refrigerant lines -B- (in the area beneath the left headlight) to the refrigerant line with internal heat exchanger -A-
⇒ [“2.7.6 Attaching refrigerant lines to quick-release couplings”, page 190](#) .

 Note

- ◆ *Install refrigerant lines so that they are free of stress.*
- ◆ *Check the installation position of the refrigerant pipes to the quick-release couplings (they must not make contact with other components).*

- Re-install remaining components (removed earlier).
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Switch on ignition.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

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Note

Also observe notes on starting up air conditioner after charging
 ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

2.9 Removing and installing expansion valve

⇒ "2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210

⇒ "2.9.2 Removing and installing refrigerant lines to front expansion valve", page 213

⇒ "2.9.3 Removing and installing expansion valve (front)", page 216

⇒ "2.9.4 Detaching and attaching refrigerant lines at expansion valve (rear)", page 219

⇒ "2.9.5 Removing and installing rear expansion valve ", page 221

⇒ "2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223

⇒ "2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225

⇒ "2.9.8 Removing and installing expansion valve with refrigerant shut-off valve 2 for hybrid battery N517 ", page 227

2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

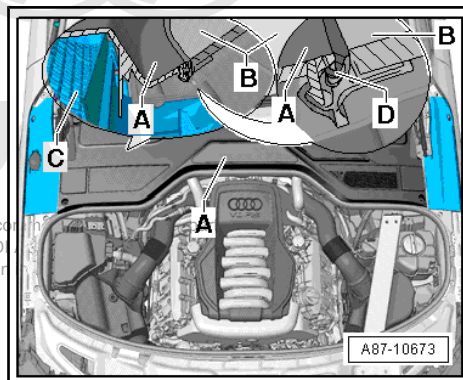

Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

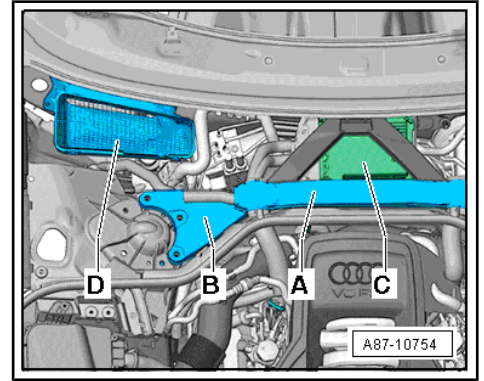
- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .


Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.



- Detach wiring harness -A- and move to side.
- If fitted, remove strut bar -B- ⇒ Running gear, axles, steering; Rep. gr. 40 ; Spring strut, axle strut (top); Removing and installing strut bar
- Detach or remove engine control unit -C- and remove corresponding brackets ⇒ Rep. gr. 23 ; Engine control unit or ⇒ Rep. gr. 24 ; Engine control unit .

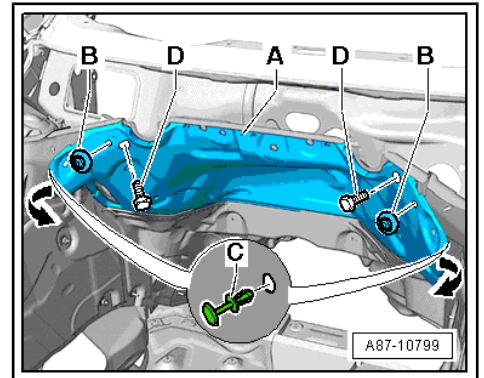


- Remove plenum chamber partition panel -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .

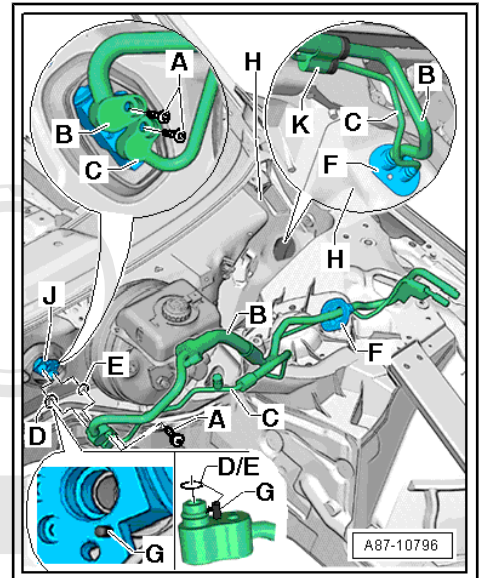


Note

The front wall of the plenum chamber -A- is attached using plastic nuts -B-, expanding rivets -C- and bolts -D-.



- Remove bolts -A-.
- Detach the refrigerant lines -B- and -C- from the expansion valve -J-.

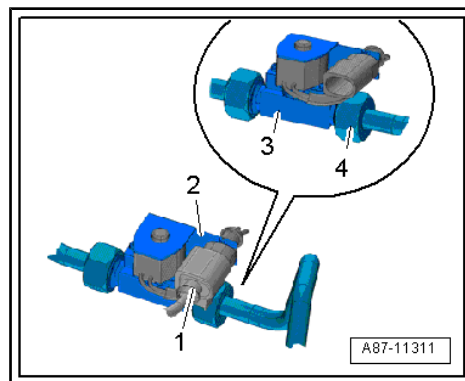


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Note

- ◆ Seal open connections at refrigerant line and expansion valve with suitable caps (to prevent ingress of dirt and moisture).
- ◆ On vehicles with a high-voltage system, remove the refrigerant line from the shut-off valve 1 for refrigerant of hybrid battery if necessary ⇒ [page 670](#).
- ◆ To remove the refrigerant line, unscrew the union nut -4- whilst providing support at the shut-off valve 1 -Item 3- ⇒ [page 670](#).



Installing

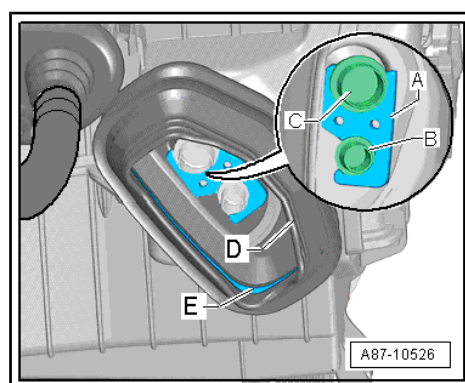
Install in reverse order of removal; note the following:

- Make sure that the support ring -E- is correctly positioned and check the socket in the back wall of the plenum chamber for damage and proper installation.



Note

This illustration shows the connections to the evaporator with the expansion valve removed.



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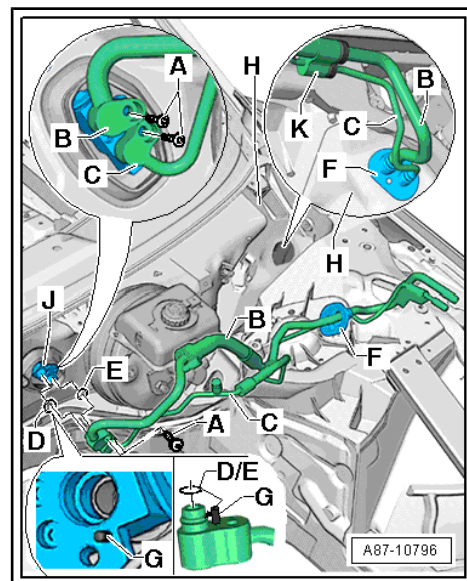
- Thoroughly clean all the connections in the expansion valve -J- and at the refrigerant lines -B- and -C- and check for damage.
- Renew O-rings -D- and -E-; for correct version, refer to ⇒ Electronic parts catalogue .

 Note

- ◆ *Observe fitting instructions for O-rings*
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- ◆ *On vehicles with high-voltage system (hybrid vehicles with battery cooling module), the refrigerant line -C- is fitted with the refrigerant shut-off valve 1 for hybrid battery - N516-
⇒ [page 670](#) .*
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Make sure the O-rings are correctly positioned in the grooves of the refrigerant line connections at the refrigerant lines -B- and -C-.
- Fit the bolts -A- for the refrigerant lines -B- and -C-.
- Tightening torque for bolts -A-: 10 Nm
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#) .

 Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

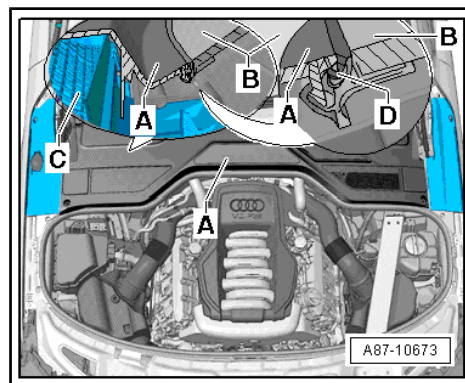


2.9.2 Removing and installing refrigerant lines to front expansion valve

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

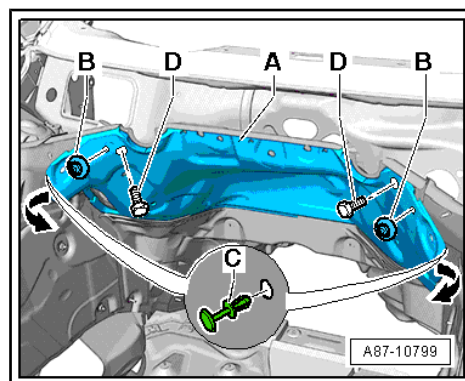
- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .



- Remove plenum chamber partition panel -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .


Note

The front wall of the plenum chamber -A- is attached using plastic nuts -B-, expanding rivets -C- and bolts -D-.



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- Unfasten the socket -F- from the left side wall of the plenum chamber -H-.
- On vehicles with a rear air conditioning unit/battery cooling module, detach the refrigerant lines leading to the evaporator in the rear air conditioning unit/battery cooling module from refrigerant lines -B- and -C-
⇒ [“2.7.2 Unfastening and assembling connection points in refrigerant lines”, page 181](#) .

Note

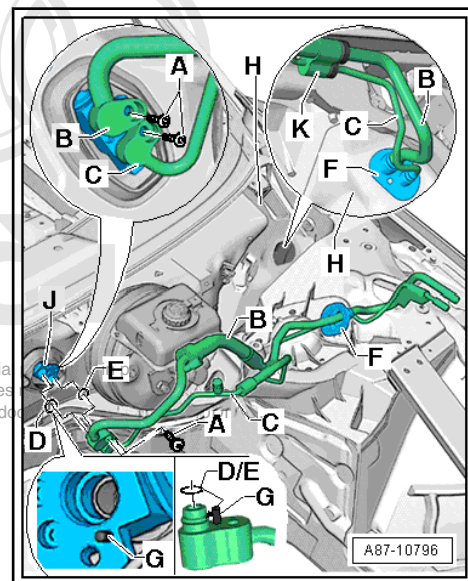
On vehicles with a high-voltage system (hybrid vehicles with battery cooling module), the refrigerant line -C- is fitted with the shut-off valve 1 for refrigerant of hybrid battery - N516- ⇒ [page 670](#) .

- Detach the refrigerant lines -B- and -C- from the quick-release couplings at the refrigerant line with internal heat exchanger -K-
⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183](#) .
- Detach the refrigerant lines -B- and -C- from the front expansion valve -J-
⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210](#) .

Installing

Install in reverse order of removal; note the following:

- Check the fitted pins -G- (installed in the connection of the refrigerant line or in the expansion valve -J-, not provided at all connections) for damage and proper attachment.
- Clean the refrigerant line connections at the expansion valve -J- and at the refrigerant lines -B- and -C- and check for damage.
- Renew O-rings -D- and -E-; for correct version, refer to ⇒ Electronic parts catalogue .
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Attach the refrigerant lines -B- and -C- to the quick-release couplings at the refrigerant line with internal heat exchanger -K-
⇒ [“2.7.3 Detaching and attaching refrigerant lines at quick-release couplings”, page 183](#) .
- On vehicles with a rear air conditioning unit/battery cooling module, attach the refrigerant lines leading to the evaporator in the rear air conditioning unit/battery cooling module to the refrigerant lines -B- and -C-
⇒ [“2.7.2 Unfastening and assembling connection points in refrigerant lines”, page 181](#) .
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



- Start up air conditioner after charging refrigerant circuit
⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#) .


Note

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

2.9.3 Removing and installing expansion valve (front)


Note

After the air conditioner compressor is switched off, it might take a relatively long period on this vehicle before the pressure in the high-pressure side drops (the expansion valve is cold and the pressure in the low-pressure side increases rapidly after the compressor is switched off, the expansion valve is closed and the refrigerant can flow to the low-pressure side only slowly). If the air conditioner compressor is switched on, the pressure in the low-pressure side drops, the expansion valve is opened and the refrigerant can flow to the low-pressure side.

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Removing

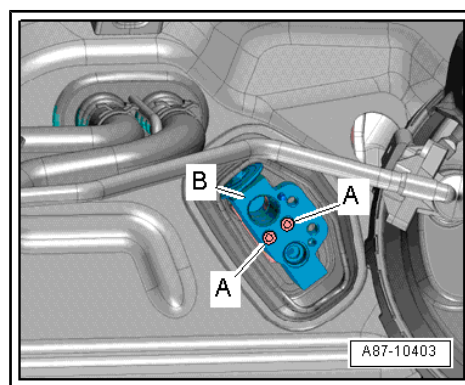
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .
- Detach the refrigerant line from the front expansion valve and lay aside (do not remove)
⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210](#) .
- Remove bolts -A-.
- Detach expansion valve -B- from refrigerant lines to evaporator.


Note

Seal open pipes and connections at evaporator with suitable caps (to prevent ingress of dirt and moisture).

Installing

Install in reverse order of removal; note the following:

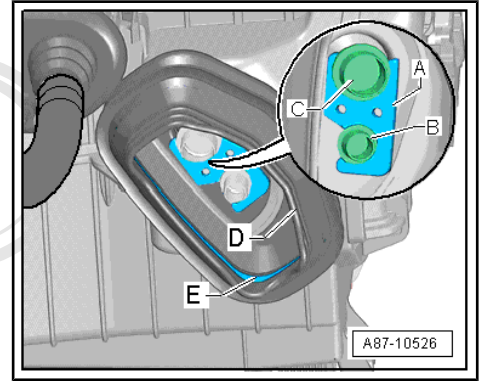


- Make sure that the support ring -E- is correctly positioned and check the socket in the back wall of the plenum chamber for damage and proper installation.



Note

This illustration shows the connections to the evaporator with the expansion valve removed.



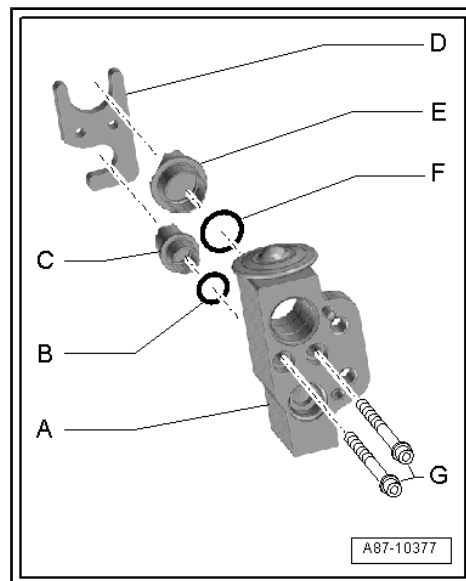
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- Clean the connecting pipes -C- and -E- to the evaporator as well as the connections at the expansion valve and check for damage.



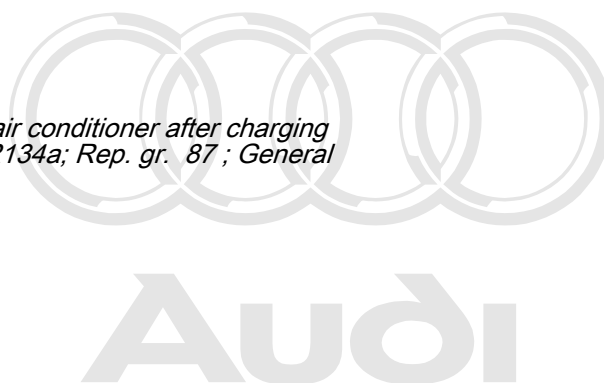
Note

- ◆ *There are different versions of the expansion valve (identical housing but different characteristic control curve); therefore it is important to observe the correct assignment ⇒ Electronic parts catalogue .*
- ◆ *Observe fitting instructions for O-rings
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .*
- Clean the refrigerant line connections at the expansion valve -A- and at the refrigerant lines -C- and -E- and check for damage.
- Renew O-rings -B- and -F-; for correct version refer to ⇒ Electronic parts catalogue .
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Pay attention to correct positioning of the mounting plate -D- on the connecting pipes -C- and -E- to the evaporator.
- Tighten bolts -G-.
- Tightening torque: 10 Nm
- Attach the refrigerant line to the expansion valve
⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210](#) .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*



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2.9.4 Detaching and attaching refrigerant lines at expansion valve (rear)



Note

- ◆ *After the air conditioner compressor is switched off, it might take a relatively long time with this vehicle before the pressure in the high-pressure side drops (the expansion valve(s) is/are cold and the pressure in the low-pressure side increases rapidly after the compressor is switched off, the expansion valve(s) is/are closed and the refrigerant can flow only slowly to the low-pressure side).*
- ◆ *There are different versions of expansion valve (and therefore also different refrigerant lines leading to expansion valve), depending on production period; therefore please ensure correct allocation ⇒ Electronic parts catalogue .*

Detaching

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove left aerodynamic fairing of underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .

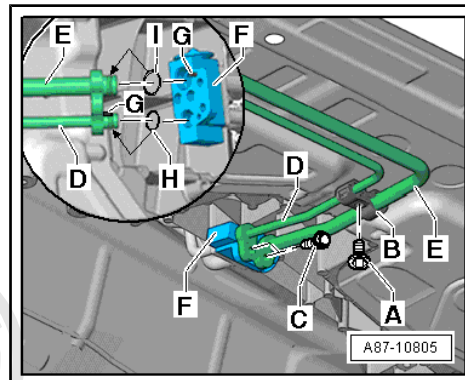


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- Remove the bolt -A- and unfasten the holder -B- from the vehicle.
- Remove bolts -C-.
- Detach the refrigerant lines -D- and -E- from the expansion valve -F-.


Note

Seal open pipes and the connections at the expansion valve with suitable caps (to prevent the ingress of dirt and moisture).


Attaching

Attach in reverse order; note the following:

- Clean the refrigerant line connections at the expansion valve -F- and at the refrigerant lines -D- and -E- and check for damage.
- Replace the O-rings -H- and -J-; for version refer to ⇒ Electronic parts catalogue .
- Check the fitted pins -G- (installed in the connection of the refrigerant line or in the expansion valve -F-; not provided at all connections) for damage and proper attachment.


Note

- ♦ *Observe fitting instructions for O-rings ⇒ [page 116](#) .*
- ♦ *Install refrigerant lines so that they are free of stress.*
- ♦ *Following attachment to the expansion valve -F-, check the routing of the refrigerant lines. They must be inserted in the holders provided and not make contact with other components.*
- Lightly lubricate O-rings -H- and -J- with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#) .
- Pay attention to correct positioning of the O-rings in the grooves of the connections -arrows-.
- Insert the refrigerant lines -D- and -E- at the expansion valve.
- Insert and tighten bolts -C-.
- ♦ Tightening torque for bolts -C- with "M6" thread: 10 Nm
- ♦ Tightening torque for bolts -C- with "M8" thread: 20 Nm
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit ⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#) .

 Note

*Also observe notes on starting up air conditioner after charging
 ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General
 information on air conditioner .*

2.9.5 Removing and installing rear expansion valve

 Note

- ◆ *After the air conditioner compressor is switched off, it might take a relatively long time with this vehicle before the pressure in the high-pressure side drops (the expansion valve(s) is/are cold and the pressure in the low-pressure side increases rapidly after the compressor is switched off, the expansion valve(s) is/are closed and the refrigerant can flow only slowly to the low-pressure side).*
- ◆ *There are different versions of expansion valve (and therefore also different refrigerant lines leading to expansion valve), depending on production period; therefore please ensure correct allocation ⇒ Electronic parts catalogue .*

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Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove left aerodynamic fairing of underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .
- Detach the refrigerant lines from the rear expansion valve
 ⇒ “2.9.4 Detaching and attaching refrigerant lines at expansion valve (rear)”, page 219 .

- Remove bolts -A-.
- Detach the expansion valve -B- from the refrigerant lines -C- and -D- (to the evaporator in the rear air conditioning unit).



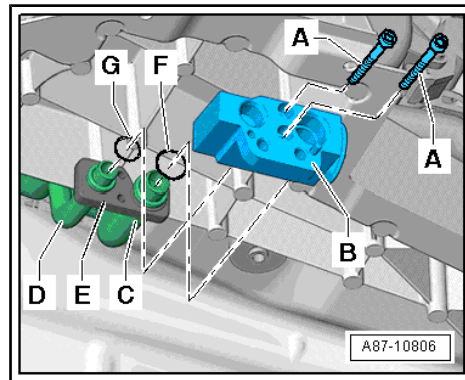
Note

Seal open lines and the connections at the expansion valve with suitable caps (to prevent damage and the ingress of dirt and moisture).

Installing

Install in reverse order of removal; note the following:

- Clean the refrigerant line connections at the expansion valve -B- and at the refrigerant lines -C- and -D- and check for damage.
- Replace the O-rings -F- and -G-; for version refer to ⇒ Electronic parts catalogue .
- Lightly lubricate O-rings -F- and -G- with refrigerant oil before fitting ⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Pay attention to correct positioning of the O-rings -F- and -G- on the connections of the refrigerant lines -C- and -D- to the evaporator.
- Pay attention to correct positioning of the retaining plate -E- on the refrigerant lines -C- and -D-.



Note

- ◆ There are different expansion valve versions (identical housing but different characteristic control curve); therefore please ensure correct allocation ⇒ Electronic parts catalogue .
- ◆ Lubricate O-rings lightly with refrigerant oil before fitting ⇒ [page 116](#) .
- ◆ The retaining plate -G- is attached to the refrigerant lines -C- and -D-. Pay attention to correct positioning when fitting the expansion valve -B-.
- Fit the expansion valve -B- on the connections of the refrigerant lines -C- and -D-.
- Insert and tighten bolts -A-.
- ◆ Tightening torque for bolts -A- with “M6” thread: 10 Nm
- Attach the refrigerant lines to the rear expansion valve ⇒ [“2.9.4 Detaching and attaching refrigerant lines at expansion valve \(rear\)”, page 219](#) .
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

- Start up air conditioner after charging refrigerant circuit
⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#).



Note

- ◆ Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.
- ◆ Check function of air conditioning ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit



Note

Removal of the evaporator and rear air conditioning unit does not involve taking out these refrigerant lines
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

Removing

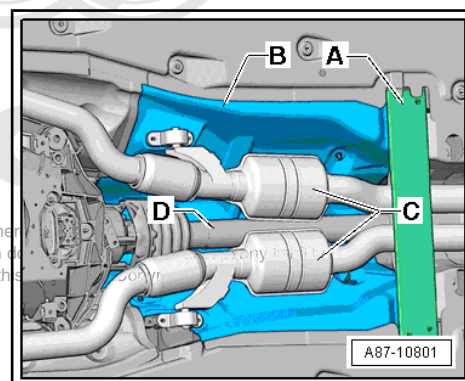
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Refrigerant circuit.
- Remove left aerodynamic fairing of underbody ⇒ General body repairs, exterior; Rep. gr. 66; Underbody trim panels; Removing and installing underbody trim panels.
- Unfasten cross-piece -A-, exhaust system -C-, propshaft -D- and heat shield -B- from the vehicle and remove ⇒ General body repairs, exterior; Rep. gr. 66; Underbody trim panels; Removing and installing tubular bridge.



Note

Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield -B- ⇒ Axle drive; Rep. gr. 39; Propshaft; Removing and installing propshaft.

- Detach the refrigerant lines from the rear expansion valve
⇒ [page 219](#).
- Remove the rear expansion valve ⇒ [page 221](#).

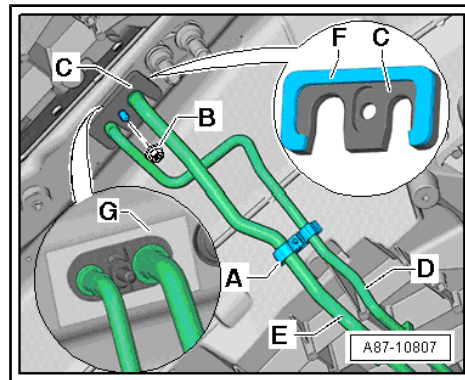


- Unfasten the retainer -A- for the refrigerant lines -D- and -E- from the vehicle.
- Remove the hexagon nut -B-.
- Carefully unfasten the retainer -C- from the vehicle.



Note

The retainer -C- is bonded to the bottom of the centre tunnel in area -G- with two-sided adhesive tape -F-. As a result, the retainer -C- can be left in position when removing the rear air conditioning unit, and the heat shield of the centre tunnel does not need to be removed in order to install the rear air conditioning unit.

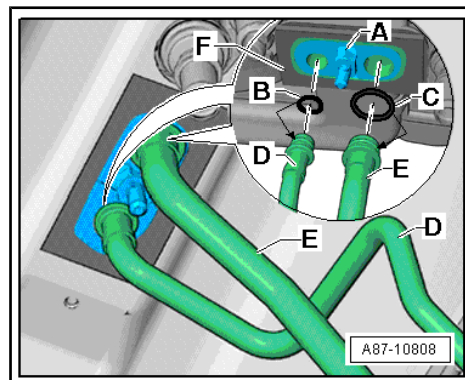


- Remove the refrigerant lines -D- and -E- from the connection of the refrigerant pipes -A- to the evaporator in the rear air conditioning unit.



Note

The connection for the refrigerant pipes -A- to the evaporator in the rear air conditioning unit is fitted in the passenger compartment.



Installing

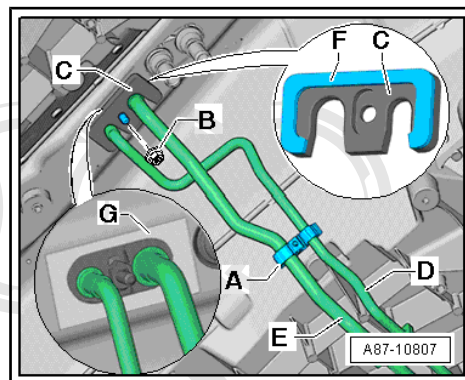
Install in reverse order of removal; note the following:

- Clean the bottom of the centre tunnel in area -G-.

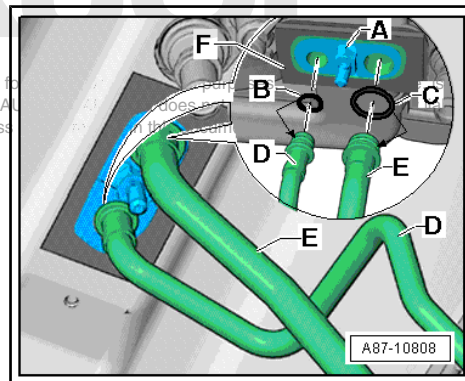


Note

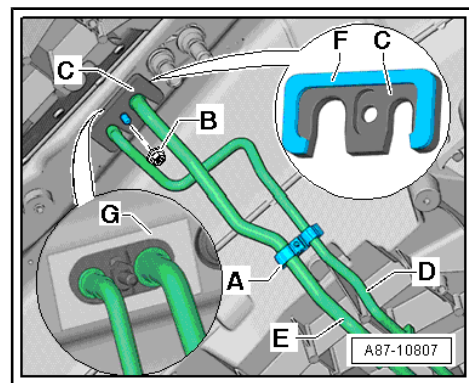
- ◆ The retainer -C- is bonded to the bottom of the centre tunnel in area -G- with two-sided adhesive tape -F-. As a result, the retainer -C- can be left in position when removing the rear air conditioning unit, and the heat shield of the centre tunnel does not need to be removed in order to install the rear air conditioning unit (if this has been removed).
- ◆ The adhesive tape is already affixed to replacement holders -C- → *Electronic parts catalogue*.



- Clean the refrigerant line connections at the connection for the refrigerant pipes -A- to the evaporator in the rear air conditioning unit and at the refrigerant lines -D- and -E- and check for damage.
- Replace the O-rings -B- and -C-; for version refer to ⇒ *Electronic parts catalogue*.
- Lightly lubricate O-rings -B- and -C- with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#).
- Pay attention to correct positioning of the O-rings -B- and -C- on the connections of the refrigerant lines -D- and -E- to the evaporator.
- Insert the refrigerant lines -D- and -E- in the connections for the evaporator pipes -A-.



- Fit the retainer -C- for the refrigerant lines -D- and -E- and affix to the bottom of the centre tunnel.
- Insert and tighten the hexagon nut -B-.
- ◆ Tightening torque for hexagon nut -B- with "M8" thread: 10 Nm
- Fit the rear expansion valve
⇒ ["2.9.5 Removing and installing rear expansion valve", page 221](#).
- Attach the refrigerant lines to the rear expansion valve
⇒ ["2.9.4 Detaching and attaching refrigerant lines at expansion valve \(rear\)", page 219](#).
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit.
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#).



Note

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- ◆ *Also observe notes on starting up air conditioner after charging*
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner.
- ◆ *Check function of air conditioning* ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve

Removing

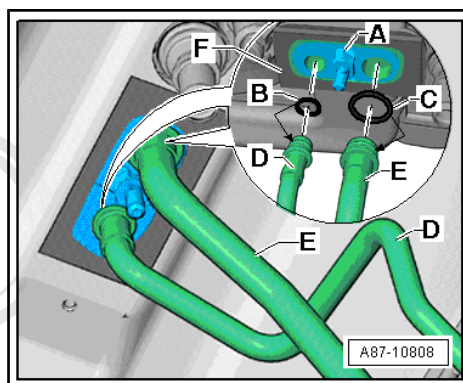
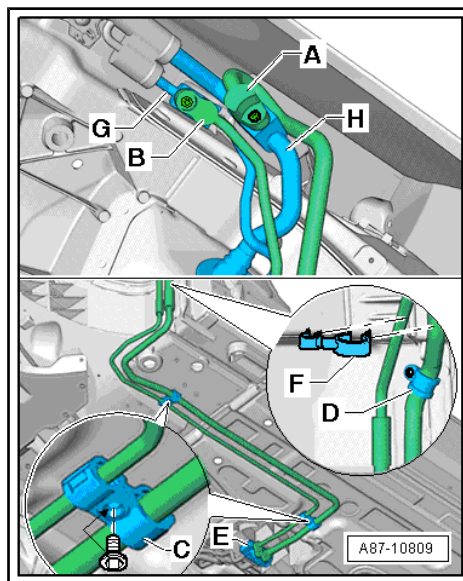
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit.
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front).
- Remove left aerodynamic fairing of underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels.

- Detach the refrigerant lines to the rear expansion valve -A- and -B- (to the evaporator in the rear air conditioning unit) from the refrigerant lines to the expansion valve in the front air conditioning unit -G- and -H-
⇒ ["2.7.2 Unfastening and assembling connection points in refrigerant lines", page 181](#) .
- Detach the holder -F-.
- Unfasten the holder -D- from the vehicle.
- Unfasten the holder -C- from the vehicle.
- Detach the refrigerant lines from the rear expansion valve -E-
⇒ ["2.9.4 Detaching and attaching refrigerant lines at expansion valve \(rear\)", page 219](#) .

Installing

Install in reverse order of removal; note the following:

- Clean the refrigerant line connections at the connection for the refrigerant pipes -A- to the evaporator in the rear air conditioning unit and at the refrigerant lines -D- and -E- and check for damage.
- Replace the O-rings -B- and -C- at the connections of the refrigerant lines -D- and -E-; for version, refer to ⇒ Electronic parts catalogue .
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ ["3.13 Refrigerant circuit seals", page 116](#) .
- Pay attention to correct positioning of the O-rings on the connections of the refrigerant lines -D- and -E-.
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Evacuating and charging refrigerant circuit ⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87; Refrigerant circuit](#).
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#) .



Note

Also observe notes on starting up air conditioner after charging
⇒ [Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner](#) .

2.9.8 Removing and installing expansion valve with refrigerant shut-off valve 2 for hybrid battery - N517-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

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WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

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- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

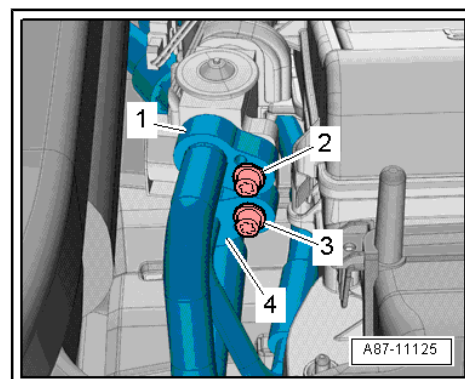
 Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ *Function/component selection*
- ◆ *Body*
- ◆ *Electrical system*
- ◆ *Self-diagnosis compatible systems*
- ◆ *8C - Hybrid battery management - J840*
- ◆ *8C - Hybrid battery management, functions*
- ◆ *51 - De-energise high-voltage system (Rep. gr. 93)*
- ◆ *Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .*
- ◆ *The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .*

Removing

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- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove air outlet duct (rear) for drive battery ⇒ [page 676](#) .
- Remove air inlet duct for drive battery ⇒ [page 681](#) .
- Remove air outlet duct (front) for drive battery ⇒ [page 679](#) .
- Remove bolts -2, 3- and detach refrigerant lines -1, 4-.



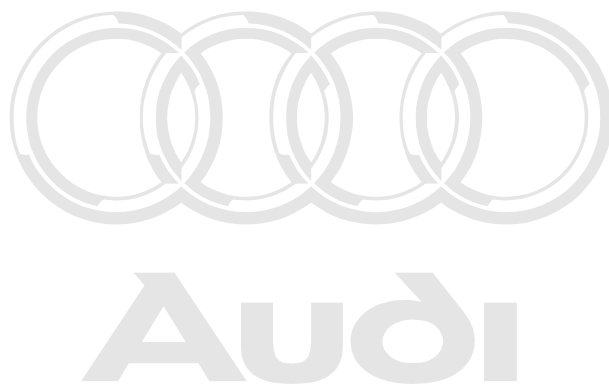
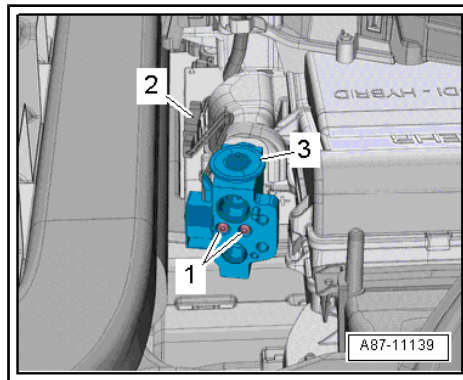


- Take electrical connector -2- out of bracket and unplug.
- Remove bolts -1-.
- Remove refrigerant shut-off valve 2 for hybrid battery - N517-
-item 3- from refrigerant lines to evaporator.



Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).



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Installing

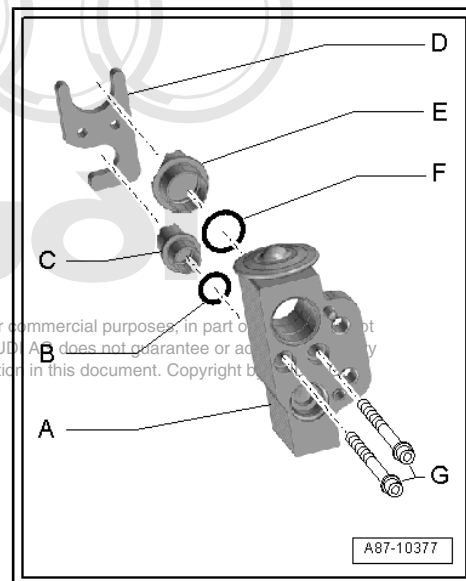
Install in reverse order of removal; note the following:

- Clean connecting pipes -C- and -E- to evaporator as well as connections at expansion valve and check for damage.



Note

- ◆ *There are different versions of the expansion valve (identical housing but different characteristic control curve); therefore it is important to observe the correct assignment ⇒ **Electronic parts catalogue**.*
- ◆ *Observe fitting instructions for O-rings ⇒ **page 116**.*
- Renew O-rings -B- and -F-; for correct version refer to ⇒ **Electronic parts catalogue**.
- Lubricate O-rings lightly with refrigerant oil before installing ⇒ **page 116**.
- Pay attention to correct positioning of retaining plate -D- on connecting pipes -C- and -E- to evaporator.
- Tighten bolts -G-.
- Tightening torque: 10 Nm
- Install refrigerant lines to battery cooling module in luggage compartment ⇒ **page 204**.
- Re-install remaining components (removed earlier).
- Tightening torque
⇒ **“2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system”, page 161** and
⇒ **“2.4.4 Exploded view - refrigerant lines, rear refrigerant lines on vehicles with high-voltage system”, page 169**
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system.



Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via “Guided Fault Finding”.*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - Re-energise high-voltage system (Rep. gr. 93)
- *Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Refrigerant circuit*
- *Switch on ignition.*
- *Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

Start up air conditioner after charging refrigerant circuit

⇒ [page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

2.10 Removing and installing condenser

⇒ [“2.10.1 Separating refrigerant lines from condenser/connecting”, page 232](#)

⇒ [“2.10.2 Removing and installing condenser”, page 235](#)

2.10.1 Separating refrigerant lines from condenser/connecting



Note

There are different condenser versions depending on the vehicle model. ⇒ [Electronic parts catalogue](#)

Detaching

- *Switch off ignition.*
- *Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .*

- Remove cover at the lock carrier ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing attachments .
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Vehicles with 8-cyl. TFSI engine: Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover



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- Unscrew bolts -A- and -B-.
- Unfasten the holder -F- for the refrigerant lines -C- and -D- from the front end module -G-.
- Detach the refrigerant lines -C- and -D- from the condenser -E-.
- Seal open connections at the lines and the connections at the condenser.


Note

Seal the open pipes and connections at the condenser with suitable caps (to prevent the ingress of dirt and moisture).

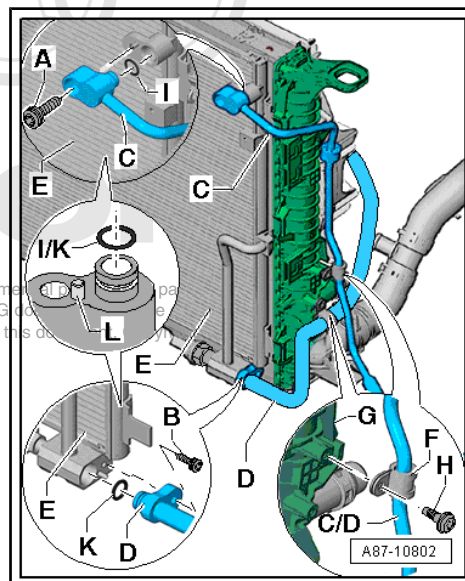
Attaching

Attach in reverse order; note the following:

- Clean the refrigerant line connections at the condenser -E- and at the refrigerant lines -C- and -D- and check for damage.
- Replace the O-rings -J- and -K-; for version refer to ⇒ Electronic parts catalogue .
- Check the fitted pin -L- (installed in the connection at the condenser or refrigerant line, not provided at all connections) for damage and proper attachment.


Note

- ◆ *Observe fitting instructions for O-rings
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .*
- ◆ *After attachment the refrigerant lines to the condenser, check the routing of the refrigerant lines; they must be inserted in the brackets provided and should not make contact with other components.*
- Lightly lubricate O-rings -J- and -K- with refrigerant oil before fitting ⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Pay attention to correct positioning of the O-rings -J- and -K- in the grooves of the corresponding mount.
- Fit and tighten the bolts -A-, -B- and -H-.
- ◆ Tightening torque for bolts -A- and -B- with “M6” thread: 10 Nm
- ◆ Tightening torque for bolts -A- and -B- with “M8” thread: 20 Nm
- ◆ Tightening torque for bolt -H- 5 Nm
- Following attachment, check the routing of the refrigerant lines. Ensure strain-free insertion in the holders provided and make sure the lines do not come into contact with other components.
- Fit the front bumper cover and the cover at the lock carrier ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Exploded view - bumper cover .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).



- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
 ⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
 ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

2.10.2 Removing and installing condenser



Note

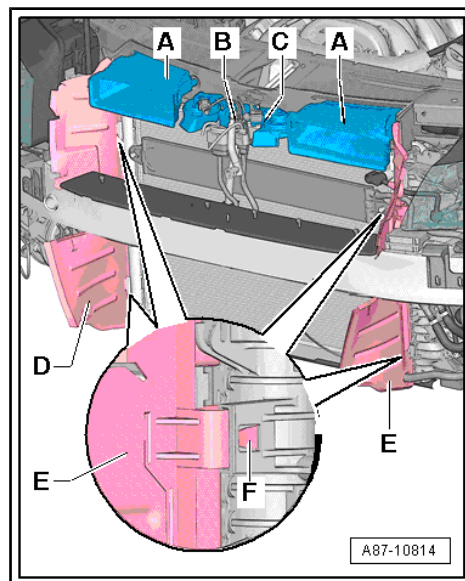
- ◆ *Even if fitted correctly, there may be slight pressure marks on the radiator and condenser fins. This is not to be viewed as damage. Neither radiator nor condensers are to be replaced on account of such minor pressure marks.*
- ◆ *If the condenser and radiator are no longer parallel as a result of slight deformation at the securing lugs on the sides of the condenser (e.g. following an accident), this can be remedied by bending the lugs back into position, provided that the condenser (refrigerant circuit) is still functioning properly and that there is no leakage. If the lugs are slightly deformed, the condenser need not be renewed.*
- ◆ *Slight bending of the condenser (up to 4 mm) is not a problem as long as there is enough of a gap (at least 4 mm) between the condenser and the radiator, the condenser (refrigerant circuit) is still functioning properly and there is no leakage. Slight deformation does not necessitate replacement of the condenser.*
- ◆ *There are different condenser versions depending on the vehicle model. ⇒ Electronic parts catalogue*

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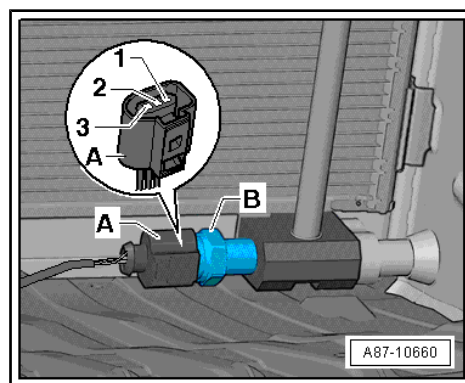
Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove cover at lock carrier and front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Exploded view - bumper cover .
- If fitted, (e.g. vehicles with 8-cyl. TFSI engine), remove front impact absorber ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing impact absorber .

- Remove both air ducts -A- for the engine air intake.
- Detach the holder for the horn - H1- -B- from the lock carrier.
- Detach the air duct -C-.
- Remove bolts -B-.
- Release the retainer tabs -F- and remove the air ducts -D- and -E-.



- Unplug the connector -A- at the refrigerant pressure and temperature sender - G395- .



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- If fitted, detach the cooling pipe of the power steering fluid cooler -A- from the condenser and press aside (set down at bumper mount -B- if applicable) ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - hydraulic pipes, storage tank .

Note

There are different versions of power steering fluid cooler -A- → Electronic parts catalogue .

- Detach refrigerant lines from condenser
⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting", page 232](#) .
- Release the mounts -D- for the holders -C- of the condenser -E- and lift off the condenser -E- in -arrow direction-.

Installing

Install in reverse order of removal; note the following:

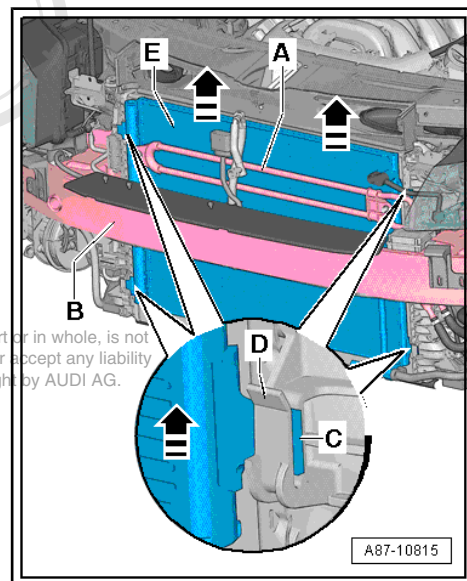
Note

When it has been removed, the condenser contains refrigerant oil which must be returned to the refrigerant circuit (together with the new condenser) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

- Attach refrigerant lines to condenser
⇒ ["2.10.1 Separating refrigerant lines from condenser/connecting", page 232](#) .
- Install cooling pipe of power steering fluid cooler ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - hydraulic pipes, storage tank .
- Install cover at lock carrier ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing attachments .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#) .

Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*



2.11 Removing and installing desiccant bag/dryer cartridge

⇒ "2.11.1 Removing and installing dryer cartridge from receiver at condenser", page 238

2.11.1 Removing and installing dryer cartridge from receiver at condenser

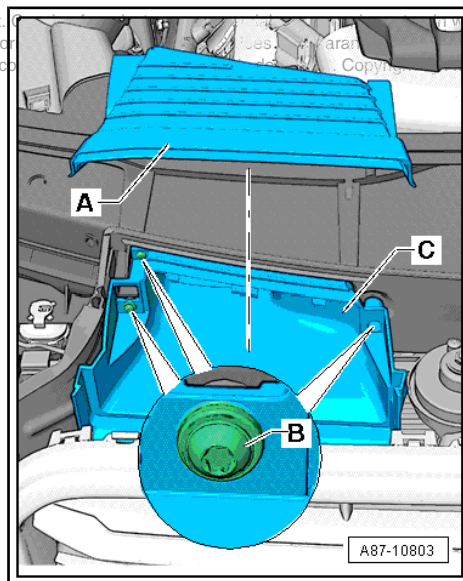


Note

There are different versions of the condenser and the integrated dryer cartridge. Pay attention to correct assignment ⇒ *Electronic parts catalogue*.

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove cover at the lock carrier ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing attachments .
- Detach top section of air duct (right-side) -A- for engine air intake.
- Remove bolts -B-.
- Detach bottom section of air duct (right-side) -C- for engine air intake.



- Unscrew plastic bolt -A- (tightening torque 2 Nm).
- Pull the filter element -C- with the dryer cartridge -F- upwards out of the receiver -G- of the condenser.
- Seal the open connection at the receiver -B- of the condenser.

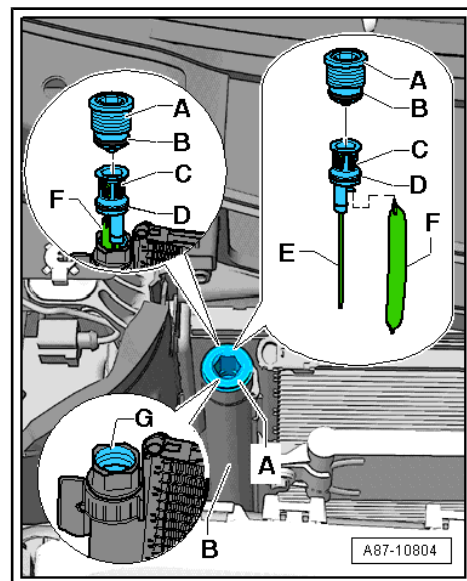
i Note

Seal the open connection at the receiver -B- of the condenser with the plastic screw plug -A- (to prevent the ingress of dirt and moisture).

Installing

i Note

There are different versions of the condenser and the integrated dryer cartridge -F-. Pay attention to correct assignment ⇒ *Electronic parts catalogue*.



Install in reverse order of removal; note the following:

- ◆ Check the receiver at the condenser for contamination by way of the opening -G-.
- ◆ Check the thread in the connection -G- in the receiver at the condenser for contamination or damage.
- ◆ Replace the plastic screw plug -A-, the filter element -C- (with the riser -E-) and the two O-rings -B- and -D- (included in the scope of delivery of the dryer ⇒ *Electronic parts catalogue*).
- ◆ Lightly lubricate O-rings -B- and -D- with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#).
- ◆ Pay attention to correct positioning of the O-rings -B- and -D- in the grooves of the corresponding components.
- ◆ Keep the bag with the air-tight seal containing the dryer cartridge -F- closed as long as possible. Only open the bag immediately prior to insertion of the dryer cartridge in the receiver of the condenser. After opening bag dryer cartridge soon becomes saturated with moisture from ambient air and becomes unusable.
- Take the dryer cartridge -F- out of the bag and suspend it from the hook of the filter element -C-.
- Insert the dryer cartridge -F- together with the filter element -C- (and the riser -E-) in the receiver of the condenser.
- Screw in the plastic screw plug -A- (tightening torque 2 Nm).
- Evacuating and charging refrigerant circuit ⇒ *Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit*.
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode*.
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#).

**Note**

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

2.12 Removing and installing purge valve and filling valve at high-pressure and low-pressure side

**WARNING**

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ***Extract the refrigerant and then immediately open up the refrigerant circuit.***
- ***Extract the refrigerant again if more than 10 minutes have elapsed since extraction and the refrigerant circuit has not been opened up. Renewed evaporation leads to the build-up of pressure in the refrigerant circuit.***

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**Note**

Draining of the refrigerant circuit requires the use of specific tools and such work is only to be performed by qualified personnel ⇒ Air conditioner with refrigerant R134a .

Special tools and workshop equipment required

- ◆ Socket - T10364-

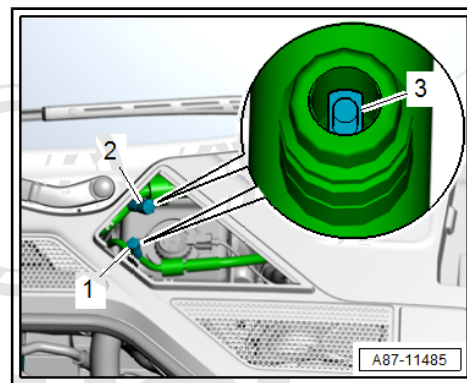
Removing

- Unscrew caps (with seal) -1- or -2-.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Screw out the service connection -3- using the socket - T10364- and a suitable adapter.



Note

For further notes on service connection, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .



Installing

Installation is carried out in the reverse order; **note the following:**

- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .
- As a final step, interrogate event memory and erase any entries displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

2.13 Starting up air conditioner after charging refrigerant circuit

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*



Caution

- ◆ *After installing the electrically driven air conditioner compressor and then charging the refrigerant circuit, first start up the compressor by way of the "Compressor run-in" function of the basic setting routine. Otherwise, the air conditioner compressor may be damaged if refrigerant oil has accumulated in the compression chamber of the air conditioner compressor due to inappropriate storage prior to installation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *An electrically driven air conditioner compressor may only be activated when the refrigerant circuit is charged. Running the air conditioner compressor with the refrigerant circuit empty could lead to compressor damage ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*

- ◆ All components removed have been re-installed.
- ◆ Refrigerant circuit has been charged ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- By way of the "compressor run-in" function, start up the electrical air conditioner compressor - V470- ⇒ Vehicle diagnostic tester in "Guided fault-finding" mode for air conditioner and battery regulation.



Note

*Also observe notes on starting up air conditioner after charging
 ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

Vehicles without high-voltage system**Note**

- ◆ *Do not start the engine until the refrigerant circuit has been assembled.*
- ◆ *If possible, only start the engine with the refrigerant circuit full.*
- ◆ *Do not start the engine during evacuation or after evacuating the refrigerant circuit, as this could cause damage to the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*
- ◆ *The air conditioner compressor is always driven by the pulley or the drive shaft (there is no magnetic clutch). To prevent damage to the compressor while it runs at idle, the compressor lubrication is maintained via an internal oil circuit.*
- ◆ *The air conditioner compressor is equipped with an internal oil circuit to prevent damage if the refrigerant circuit is empty. This internal lubrication is only possible if there is still a residual quantity of refrigerant oil in the air conditioner compressor and there is no vacuum in the refrigerant circuit.*
- ◆ *Do not start the engine unless the refrigerant circuit has been properly assembled. If, for example, the refrigerant lines are not connected to the air conditioner compressor when the engine is running, the compressor might heat up (internal heat generation) so much that this can lead to irreparable damage to the compressor.*
- ◆ *The air conditioner compressor regulating valve - N280- is not activated if the refrigerant circuit is empty and the air conditioner compressor runs at idle with the engine. However, as there is no refrigerant in the circuit, the oil required for the lubrication of the air conditioner compressor is not transported to the compressor.*
- ◆ *Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*
- ◆ All components removed have been re-installed.
- ◆ Refrigerant circuit has been charged ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

Should it be necessary to start the engine with an empty refrigerant circuit, please observe the following:

- ◆ The refrigerant circuit must have been assembled completely.
- ◆ There must not be any vacuum in the refrigerant circuit.
- ◆ There must be at least a quarter of the amount of refrigerant oil specified for this refrigerant circuit in the air conditioner compressor.
- ◆ Engine speed must not exceed 2500 rpm.
- ◆ The engine should only run as long as absolutely necessary.

Proceed as follows when starting the engine for the first time after charging the refrigerant circuit:

- Switch on ignition.
- Set “OFF” mode on the air conditioner front operating and display unit, Climatronic control unit - J255- (and if fitted also on the rear Climatronic operating and display unit - E265-). The lamps in the **[OFF]** button of -J255- (and if applicable -E265-)

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light. The air conditioner and activation of the air conditioner compressor by way of the air conditioner compressor regulating valve - N280- are deactivated.

- Start the engine with the air conditioner compressor switched off ("OFF" mode set) and allow the engine to idle for at least 5 minutes (with the air conditioner compressor not activated).
- Open all dash panel vents, as well as the vents in the centre console and B-pillars.
- Activate the air conditioner and air conditioner compressor by pressing the **AUTO** button on -J255- ("Auto" mode selected and lamps in **AUTO** buttons and **AC** or **A/C** button of -J255- light).
- On -J255- press the **SYNC** button.

 Note

- ◆ *Pressing the **SYNC** button stores the settings for the front driver's side at the front passenger's side as well and if applicable also at -E265- .*
- ◆ *If the lamp in the **AC** or **A/C** button of -J255- does not light, press the **AC** or **A/C** button of -J255- .*
- On -E265- (if fitted), check the lamps in the **AUTO** buttons. If these do not light, press the **AUTO** buttons of -E265- .
- Set the temperature for the driver's side at -J255- to "cold".

 Note

- ◆ *If you press the **SYNC** button beforehand, the settings for the driver's side are also applied for the front passenger's side and for -E265- (if fitted).*
- ◆
- Check the temperature selected for the passenger's side at -J255- (and if fitted also at -E265-) and also set to "cold" if applicable.
- Allow the engine to idle for at least 5 minutes with the air conditioner compressor switched on.

 Note

After starting up the air conditioner compressor as described, the cooling output of the air conditioner can then be checked if necessary ⇒ [page 74](#) .

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3 Air conditioner compressor

⇒ ["3.1 Exploded view - air conditioner compressor drive unit", page 246](#)

⇒ ["3.2 Exploded view - pulley", page 253](#)

⇒ ["3.3 Detaching and attaching air conditioner compressor at bracket", page 257](#)

⇒ ["3.4 Detaching and attaching refrigerant lines at air conditioner compressor", page 277](#)

⇒ ["3.5 Removing and installing air conditioner compressor", page 288](#)

⇒ ["3.6 Preparations for renewing pulley", page 319](#)

⇒ ["3.7 Removing and installing pulley", page 320](#)

⇒ ["3.8 Unfastening and securing drive shaft of air conditioner compressor", page 324](#)

⇒ ["3.9 Removing and installing air conditioner compressor drive shaft", page 325](#)

⇒ ["3.10 Removing and installing drive plate with overload protection", page 326](#)

⇒ ["3.11 Checking and adjusting concentricity of drive plate with overload protection", page 326](#)

⇒ ["3.12 Removing and installing drive plate at air conditioner compressor", page 326](#)

⇒ ["3.13 Removing and installing drive plate with roller bearing", page 327](#)

3.1 Exploded view - air conditioner compressor drive unit

⇒ ["3.1.1 General information on air conditioner - electrically driven air conditioner compressor", page 246](#)

⇒ ["3.1.2 Exploded view - air conditioner compressor drive unit, vehicles with 6-cyl. and 12-cyl. engine", page 248](#)

⇒ ["3.1.3 Exploded view - air conditioner compressor drive unit, vehicles with 8-cyl. petrol engine", page 250](#)

⇒ ["3.1.4 Exploded view - air conditioner compressor drive unit, vehicles with 8-cyl. TDI engine", page 252](#)

3.1.1 General information on air conditioner - electrically driven air conditioner compressor

1 - Electrically driven air conditioner compressor

- ☐ With control unit for air conditioning compressor - J842- and electrical air conditioner compressor - V470-
- ☐ ⇒ ["3.3.1 Detaching and attaching electrically driven air conditioner compressor at bracket - vehicles with high-voltage system", page 257](#)
- ☐ ⇒ ["3.4.1 Detaching and attaching refrigerant lines on electrically driven air conditioner compressor", page 277](#)
- ☐ Removing and installing ⇒ ["3.5.3 Removing and installing electrically driven air conditioner compressor", page 290](#)

2 - O-ring

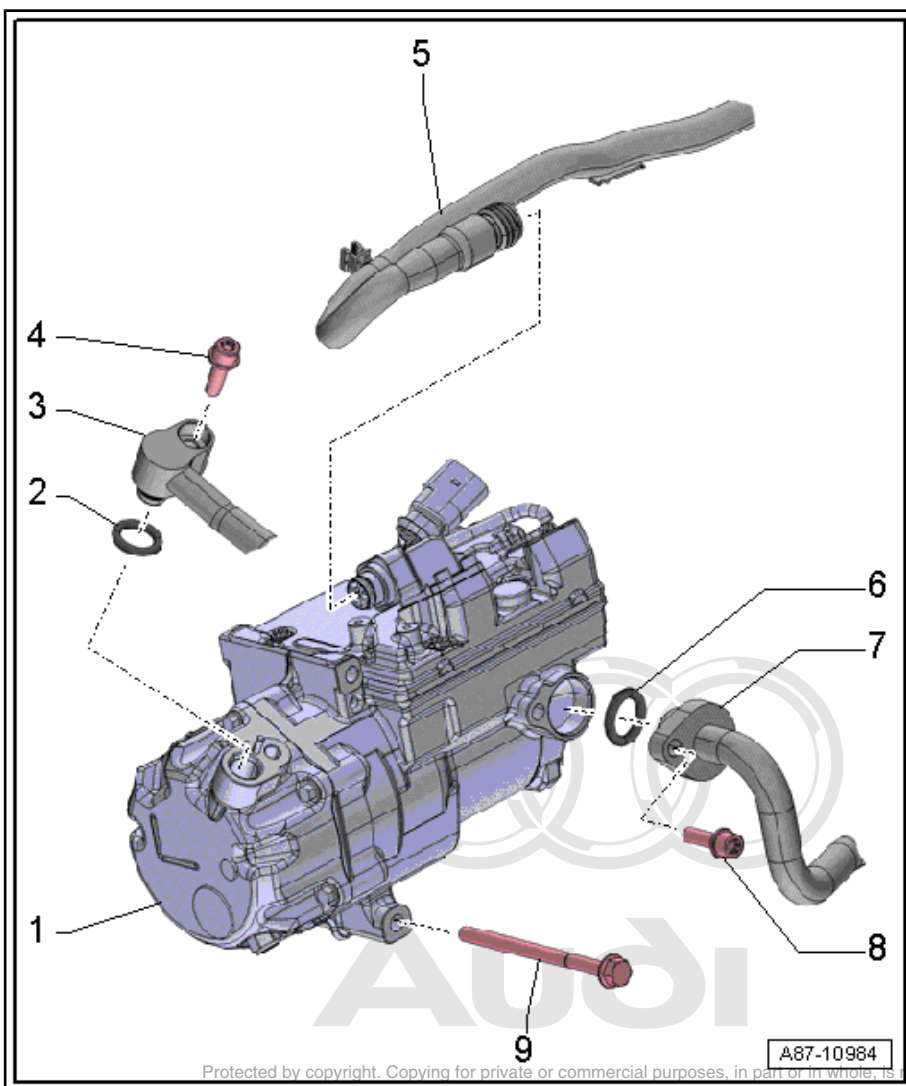
- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

3 - Refrigerant line

- ☐ High-pressure side

4 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).



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5 - High-voltage cable to power and control electronics for electric drive - JX1-

6 - O-ring

- ☐ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Before installing, lubricate lightly with refrigerant oil

7 - Refrigerant line

- ☐ Low-pressure side

8 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).

9 - Bolt/threaded pin with nut



Note

Depending on the version, a threaded pin may also be fitted instead of the bolt ⇒ [page 290](#) .

- ☐ Tightening torque for steel bolt: 25 Nm
- ☐ Screw in the threaded pin hand-tight, nut tightening torque 25 Nm



Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ *Electronic parts catalogue*), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm + 180°.

3.1.2 Exmploded view - air conditioner compressor drive unit, vehicles with 6-cyl. and 12-cyl. engine

1 - Pulley with overload safeguard

- ☐ Different versions ⇒ *Electronic parts catalogue*
- ☐ Exploded view ⇒ [page 253](#)

2 - Poly V-belt

- ☐ Check for wear
- ☐ Removing and installing ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt
- ☐ Mark the direction and ensure correct fitting ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt

3 - Dowel sleeve

4 - Dowel sleeve

5 - Bracket for ancillaries

- ☐ Different versions ⇒ *Electronic parts catalogue*
- ☐ for vehicles with 6-cyl. engine
- ☐ Removing and installing ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing holder for ancillaries

6 - O-ring

- ☐ Renew; for correct version refer to ⇒ *Electronic parts catalogue*
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

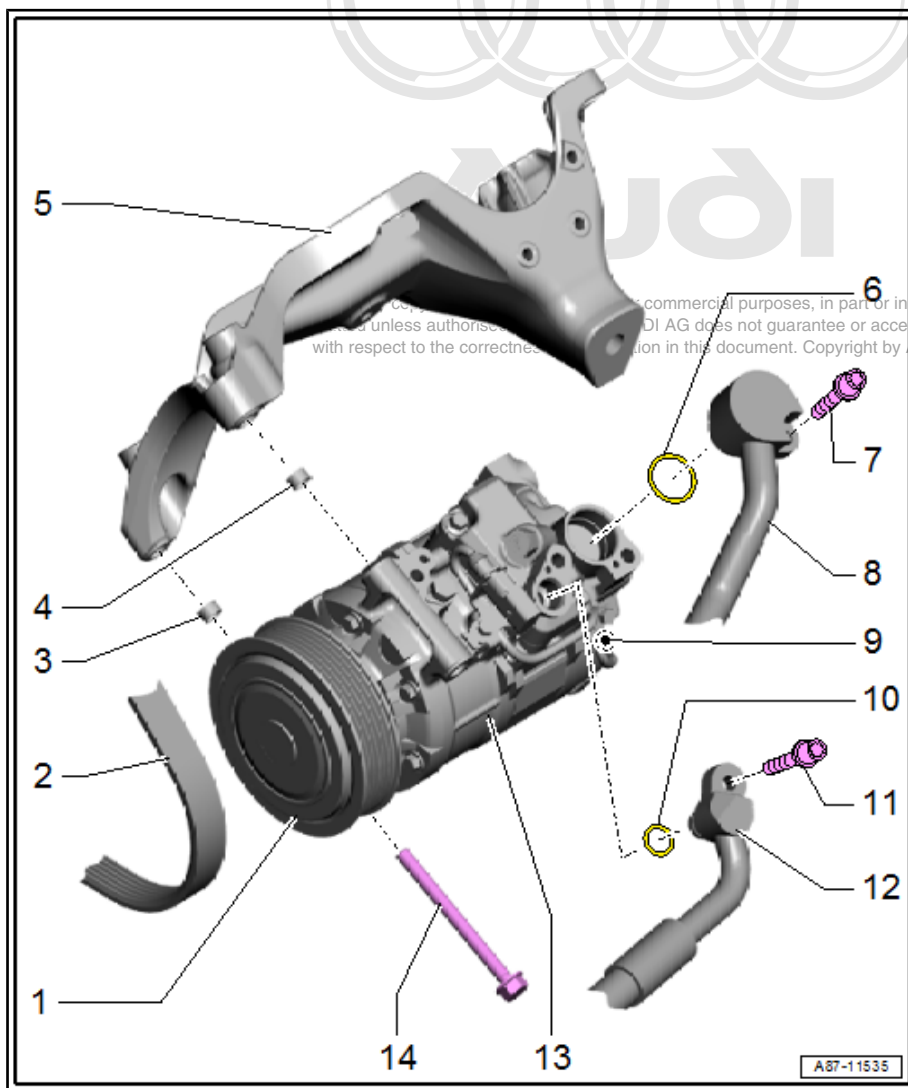
7 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).

8 - Refrigerant line (low-pressure side)

9 - Air conditioner compressor regulating valve - N280-

- ☐ Checking ⇒ Vehicle diagnostic tester "Guided fault-finding" function and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations



10 - O-ring

- ☐ Renew; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

11 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).

12 - Refrigerant line (high-pressure side)

13 - Air conditioner compressor

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching refrigerant line ⇒ [page 277](#)
- ☐ Detaching and attaching at bracket ⇒ [page 257](#)
- ☐ Removing and installing ⇒ [page 288](#)

14 - Bolt

- ☐ 3x
- ☐ Different bolt length ⇒ Electronic parts catalogue
- ☐ Tightening torque for steel bolt: 25 Nm



Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.



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3.1.3 Exploded view - air conditioner compressor drive unit, vehicles with 8-cyl. petrol engine

1 - Drive shaft for air conditioner compressor

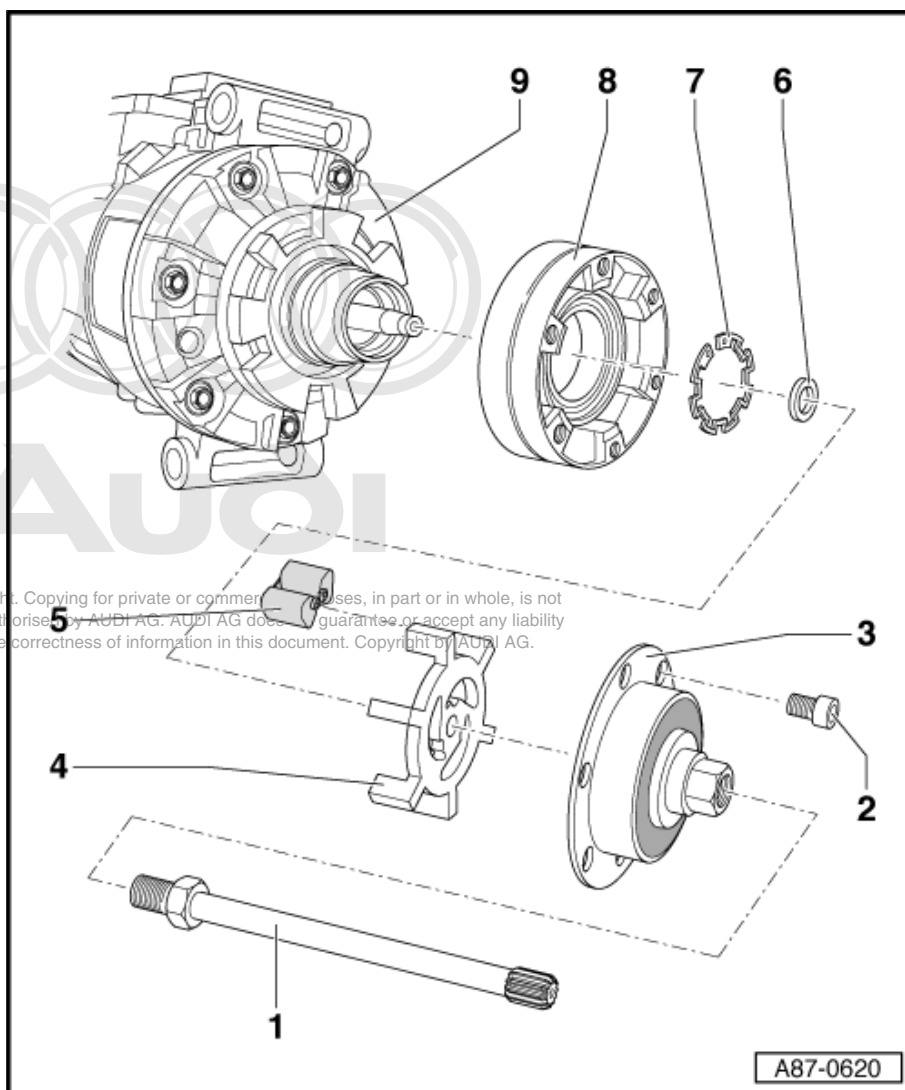
- ❑ Check; after tightening the screw connection, the drive shaft must engage snugly in the splines of the drive gear
⇒ [“3.9 Removing and installing air conditioner compressor drive shaft”](#), page 325 .
- ❑ Tightening torque: 60 Nm
- ❑ ⇒ [“3.8 Unfastening and securing drive shaft of air conditioner compressor”](#), page 324
- ❑ ⇒ [“3.9 Removing and installing air conditioner compressor drive shaft”](#), page 325
- ❑ Lubricate splines for drive gear e.g. with grease - G 000 100- ⇒ Electronic parts catalogue

2 - Hexagon socket head bolt

- ❑ Tightening torque: 10 Nm

3 - Drive plate

- ❑ ⇒ [“3.11 Checking and adjusting concentricity of drive plate with overload protection”](#), page 326
- ❑ ⇒ [“3.10 Removing and](#)



[installing drive plate with overload protection", page 326](#)

4 - Drive plate

- ☐ Screwed to the air conditioner compressor drive shaft
- ☐ With overload protection device; triggered if torque is too great (e.g. if air conditioner compressor cannot rotate freely) causing drive shaft to free-wheel without driving air conditioner compressor
- ☐ Tightening torque: 30 Nm
- ☐ ⇒ ["3.12 Removing and installing drive plate at air conditioner compressor", page 326](#)

5 - Rubber element

- ☐ Isolates drive unit, damping vibration and noise
- ☐ When installing, coat rubber elements slightly with soap solution or similar to provide lubrication
- ☐ Detaching and attaching
⇒ ["3.12 Removing and installing drive plate at air conditioner compressor", page 326](#)

6 - Spacer

- ☐ Original spacer must be fitted
- ☐ Dimensions: 17.5 x 10 x 3 mm

7 - Circlip

- ☐ Renew
- ☐ Ensure correct installation position (flat side facing air conditioner compressor)
- ☐ Removing and installing ⇒ ["3.13 Removing and installing drive plate with roller bearing", page 327](#)

8 - Drive plate

- ☐ With roller bearing
- ☐ Detaching and attaching ⇒ ["3.13 Removing and installing drive plate with roller bearing", page 327](#)
- ☐ Clean air conditioner compressor flange before fitting drive plate.

9 - Air conditioner compressor

- ☐ Different models may be fitted depending on engine and country version ⇒ Electronic parts catalogue

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3.1.4 Exploded view - air conditioner compressor drive unit, vehicles with 8-cyl. TDI engine

1 - Mounting plate

- ☐ for engine oil cooler, pressure regulating valve on crankcase breather and oil filter housing

2 - Dowel sleeve

3 - Poly V-belt

- ☐ Check for wear
- ☐ Removing and installing ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt
- ☐ Mark the direction and ensure correct fitting ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt

4 - Pulley with overload safeguard

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Exploded view ⇒ [page 253](#)

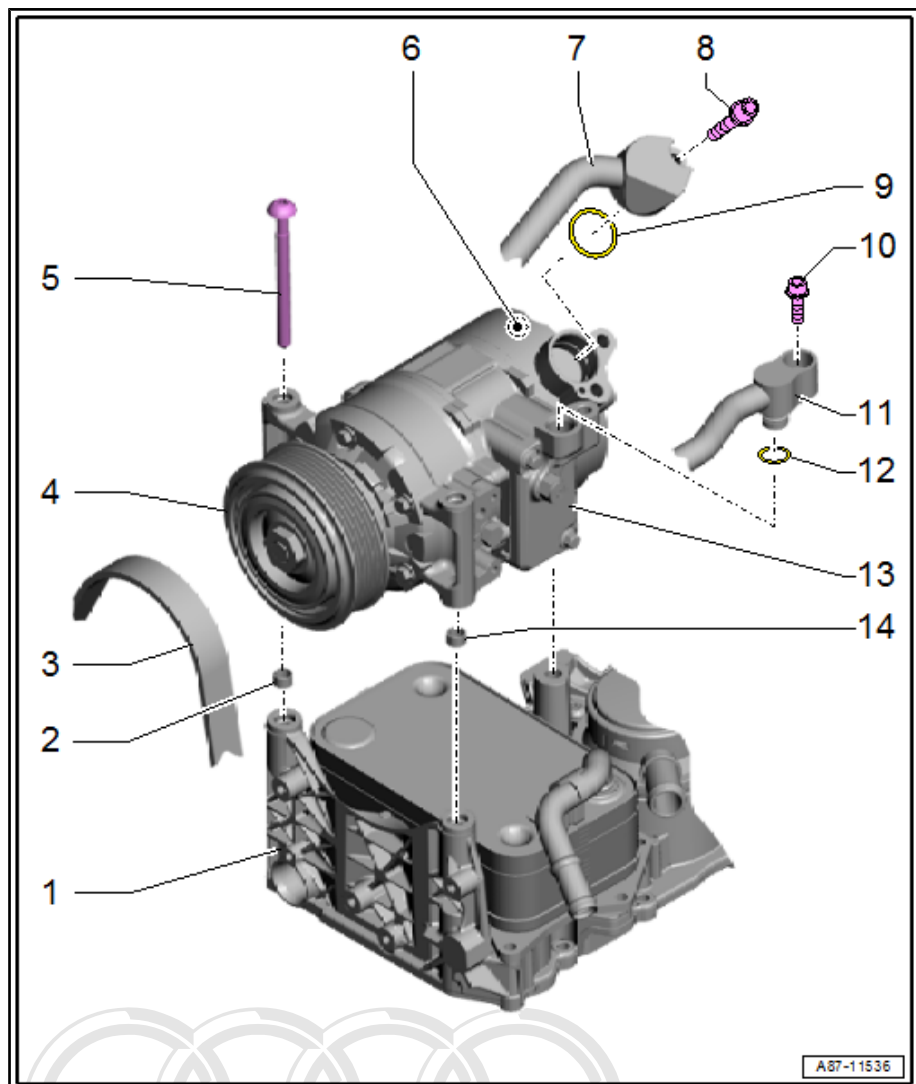
5 - Bolt

- ☐ 3x
- ☐ Tightening torque for steel bolt: 25 Nm



Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.



6 - Air conditioner compressor regulating valve - N280-

- ☐ Checking ⇒ Vehicle diagnostic tester "Guided fault-finding" function and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

7 - Refrigerant line (low-pressure side)

8 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).

9 - O-ring

- ☐ Renew; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

10 - Bolt

- ☐ Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).

11 - Refrigerant line (high-pressure side)

12 - O-ring

- ☐ Renew; for correct version refer to ⇒ Electronic parts catalogue
- ☐ Coat with refrigeration oil before fitting ⇒ [page 116](#)

13 - Air conditioner compressor

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching refrigerant line ⇒ [page 286](#)
- ☐ Detaching and attaching at bracket ⇒ [page 274](#)
- ☐ Removing and installing ⇒ [page 317](#)

14 - Dowel sleeve

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3.2 Exploded view - pulley

⇒ ["3.2.1 Renewing pulley, version 1", page 253](#)

⇒ ["3.2.2 Renewing pulley, version 2", page 255](#)

3.2.1 Renewing pulley, version "1"



Note

- ◆ *If the pulley overload protection device has been triggered, check that the air conditioner compressor can rotate freely before renewing the pulley. If the air conditioner compressor does not rotate freely, renew the complete unit.*
- ◆ *It is not always necessary to unfasten the air conditioner compressor from the engine to detach the pulley*
⇒ ["3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine", page 271](#) (Detaching and attaching air conditioner compressor at bracket - vehicles with 6-cyl. TDI engine),
⇒ ["3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine", page 274](#),
⇒ ["3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine", page 297](#) and
⇒ ["3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine", page 265](#). Depending on the engine version, however, it may be necessary to unfasten the lock carrier from the vehicle and pull it forwards slightly (to create some space) ⇒ General body repairs, exterior; Rep. gr. 50; Lock carrier; Implementing and resetting service position.
- ◆ *Various pulley versions with differing diameters may be fitted depending on the type of air conditioner compressor and the engine version ⇒ Electronic parts catalogue.*
- ◆ *The pulley with drive plate and cap is available as a replacement part (single part number). The pulley and the drive plate are held together by a bolt (bolt is not required; can be disposed of). This bolt is used during manufacturing to insert a pre-determined amount of a specific grease into the thread of the drive plate (sufficient for fitting the drive plate onto the compressor shaft once; do not re-use a drive plate that has been unscrewed) ⇒ Electronic parts catalogue.*
- ◆ *Pulley version "1" is currently installed on vehicles e.g. with compressor type "6 SEU 14" in conjunction with the 8-cyl. TDI engine.*
- ◆ *Detaching and attaching pulley at air conditioner compressor (version "1") ⇒ [page 320](#)*

1 - Cap

2 - Drive plate

- ☐ Renew
- ☐ Bolted to drive shaft of air conditioner compressor; clean thread of compressor shaft before fitting drive plate



Note

Thread of new drive plate has been lubricated at factory with a pre-determined amount of a specific grease.

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ With overload protection device; triggered if torque is too great (e.g. if air conditioner compressor cannot rotate freely) causing pulley to free-wheel without driving air conditioner compressor
- ☐ With rubber elements for decoupling pulley from drive shaft of air conditioner compressor and for dampening vibrations and noise
- ☐ Before installation, coat rubber elements slightly with lubricant (e.g. tyre fitting paste or soap solution)
- ☐ Detaching and attaching ⇒ [page 320](#)
- ☐ Tightening torque: 30 Nm

3 - Circlip

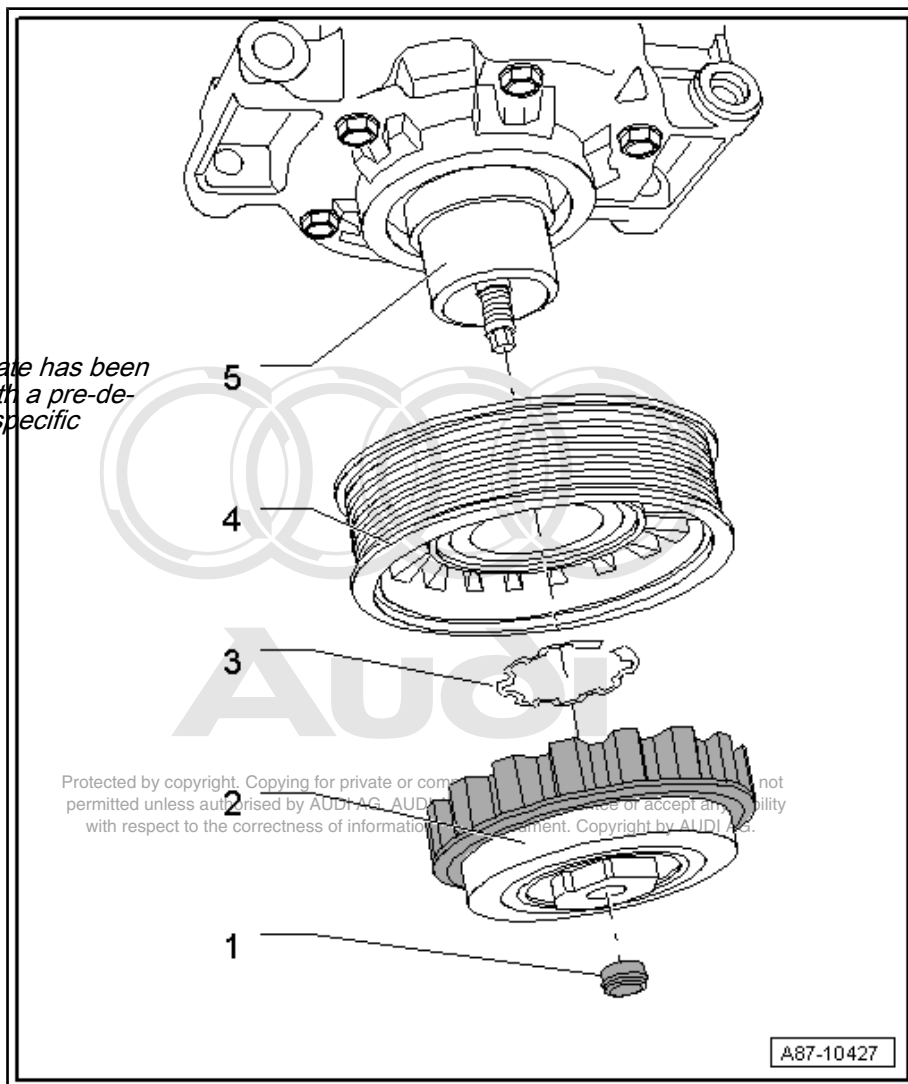
- ☐ Renew
- ☐ Ensure correct installation position (flat side facing air conditioner compressor)
- ☐ Removing and installing ⇒ [page 320](#)

4 - Pulley

- ☐ Pulley is made of plastic, is sensitive to impact and should be treated with special care.
- ☐ Different versions (depending e.g. on type of engine) ⇒ Electronic parts catalogue
- ☐ Detaching and attaching ⇒ [page 320](#)

5 - Air conditioner compressor

- ☐ Different versions may be fitted, depending on type of engine and country-specific version of vehicle ⇒ Electronic parts catalogue .
- ☐ Clean air conditioner compressor flange before fitting pulley.
- ☐ Clean thread of compressor shaft and apply a small quantity of grease to thread.



3.2.2 Renewing pulley, version "2"



Note

- ◆ *If the pulley overload protection device has been triggered, check that the air conditioner compressor can rotate freely before renewing the pulley. If the air conditioner compressor does not rotate freely, renew the complete unit.*
- ◆ *It is not always necessary to unfasten the air conditioner compressor from the engine to detach the pulley*
 ⇒ *"3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine", page 271* ,
 ⇒ *"3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine", page 274* ,
 ⇒ *"3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine", page 297* and
 ⇒ *"3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine", page 265* . Depending on the engine version, however, it may be necessary to unfasten the lock carrier from the vehicle and pull it forwards slightly (to create some space) ⇒ *General body repairs, exterior; Rep. gr. 50* ; Lock carrier; Implementing and resetting service position .
- ◆ *Various pulley versions with differing diameters may be fitted depending on the type of air conditioner compressor and the engine version* ⇒ *Electronic parts catalogue* .
- ◆ *The pulley with drive plate and cap is available as a replacement part (single part number). The pulley and the drive plate are held together by a bolt (bolt is not required; can be disposed of). This bolt is used during manufacturing to insert a pre-determined amount of a specific grease into the thread of the drive plate (sufficient for fitting the drive plate onto the compressor shaft once; do not re-use a drive plate that has been unscrewed) ⇒ Electronic parts catalogue .*
- ◆ *Pulley version "2" is currently installed on vehicles e.g. with compressor type "6 SEU 14" in conjunction with the 12-cyl. engine.*
- ◆ *Detaching and attaching pulley at air conditioner compressor*
 ⇒ *"3.7.2 Removing and installing pulley, version 2", page 322*

1 - Bolt

- ☐ Renew
- ☐ Tightening torque: 20 Nm
- ☐ Loosening and tightening ⇒ [page 322](#)

2 - Drive plate

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching ⇒ [page 322](#)
- ☐ Triggered if torque is too great (e.g. if air conditioner compressor cannot rotate freely)

3 - Circlip

- ☐ Renew
- ☐ Ensure correct installation position (flat side facing air conditioner compressor)
- ☐ Removing and installing ⇒ [page 322](#)

4 - Pulley

- ☐ Rubber element of pulley is triggered if torque is too great (e.g. if air conditioner compressor cannot rotate freely) causing pulley to free-wheel without driving air conditioner compressor
- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Detaching and attaching ⇒ [page 322](#)

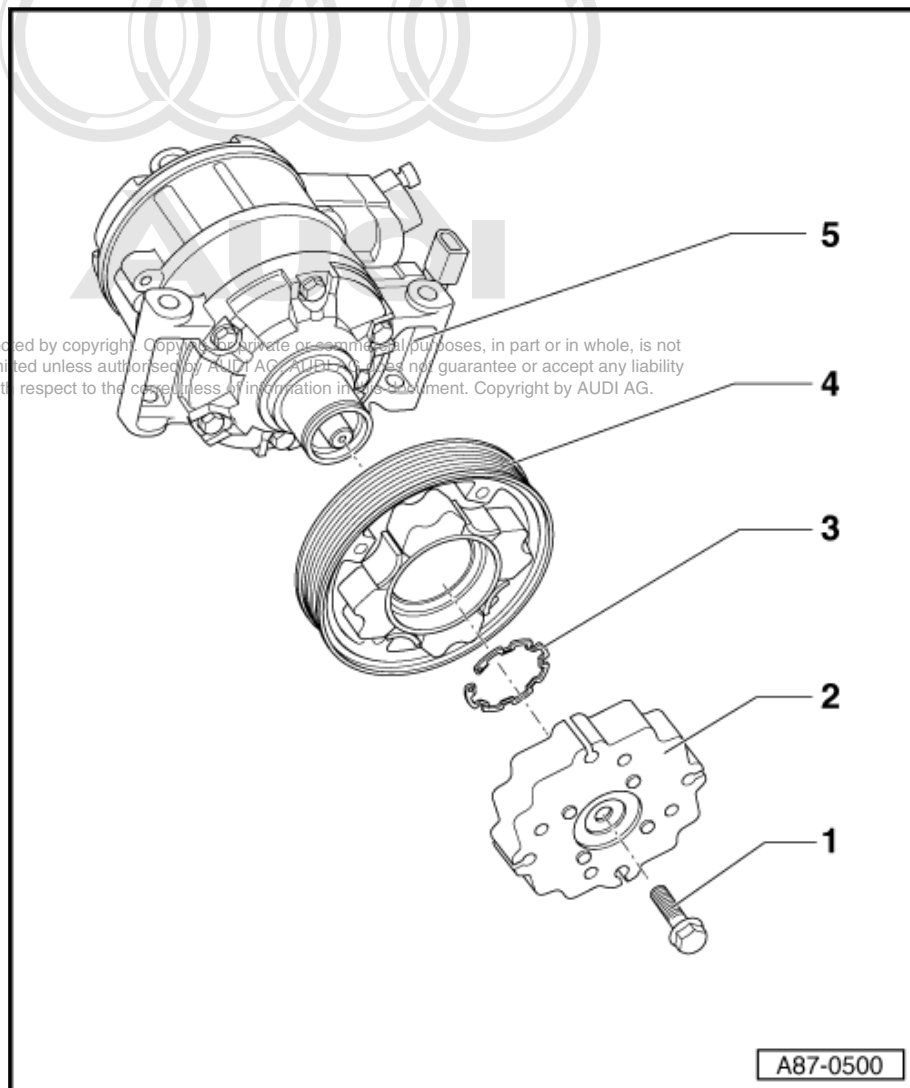


Note

Under certain conditions (e.g. engine running roughly), rubber element of pulley may be triggered when there is no fault in the air conditioner compressor or refrigerant circuit.

5 - Air conditioner compressor

- ☐ Different models are fitted depending on engine and country version of vehicle ⇒ Electronic parts catalogue
- ☐ Clean air conditioner compressor flange before fitting pulley.



3.3 Detaching and attaching air conditioner compressor at bracket

⇒ [“3.3.1 Detaching and attaching electrically driven air conditioner compressor at bracket - vehicles with high-voltage system”, page 257](#)

⇒ [“3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine”, page 265](#)

⇒ [“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271](#)

⇒ [“3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine”, page 274](#)

3.3.1 Detaching and attaching electrically driven air conditioner compressor at bracket - vehicles with high-voltage system

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

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 Note

- ◆ *With control unit for air conditioning compressor - J842- and electrical air conditioner compressor - V470-*
- ◆ *The electric motor of the air conditioner compressor is supplied with power by the power and control electronics for electric drive - JX1- .*
- ◆ *The control unit for air conditioning compressor - J842- integrated into the air conditioner compressor regulates the speed and thus the output of the air conditioner compressor (electrical air conditioner compressor - V470-) on the basis of the request received via the data bus ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *The electrically driven air conditioner compressor is not fitted with an air conditioner compressor regulating valve - N280- . The output of the air conditioner compressor is regulated externally by way of the air conditioner compressor speed ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *At present, the electrically driven air conditioner compressor operates on the principle of a scroll-type supercharger (similar to the "G-Lader" supercharger).*
- ◆ *The control unit for air conditioning compressor - J842- and the electrical air conditioner compressor - V470- form one component and cannot be separated at present.*

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As work on the high-voltage system is required for the following sequence of operations, de-energise the high-voltage system ⇒ [page 36](#) , ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system . Pay particular attention to the "General warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

 Note

- ◆ *You can detach and reattach the air conditioner compressor from the bracket of vehicles with 4-cyl. engine without opening the refrigerant lines.*
- ◆ *Do not discharge the refrigerant circuit when detaching the air conditioner compressor from the bracket. Do not detach refrigerant hoses and refrigerant lines from the compressor.*
- ◆ *Do not unfasten the refrigerant lines and corresponding clamps.*
- ◆ *Leave the high-voltage system wire connected to the air conditioner compressor. Do not release the high-voltage system connector at the air conditioner compressor.*
- ◆ *After detaching the air conditioner compressor, secure it to the vehicle, e.g. with a piece of wire. Do not leave it hanging from the refrigerant lines.*
- ◆ *Different air conditioner compressors may be fitted depending on the engine and country version. ⇒ Electronic parts catalogue*

Removing

- Switch off ignition.

- De-energise high voltage system ⇒ Electrical system, hybrid;
Rep. gr. 93 ; De-energising high-voltage system .

De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

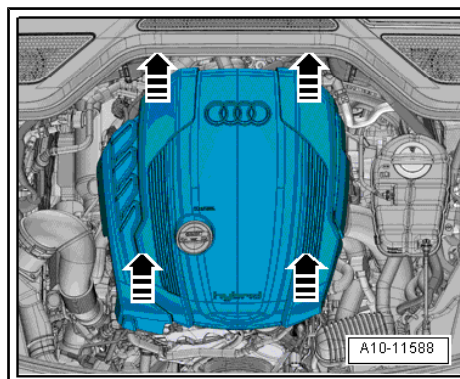


Note

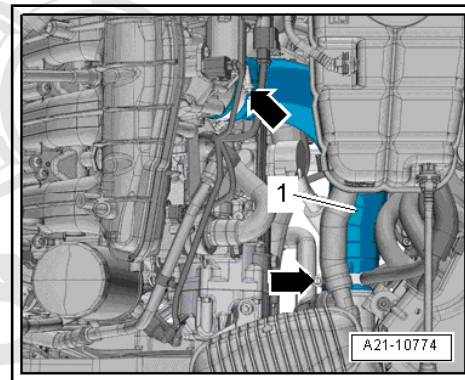
- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ *Function/component selection*
- ◆ *Body*
- ◆ *Electrical system*
- ◆ *Self-diagnosis compatible systems*
- ◆ *8C - Hybrid battery management - J840*
- ◆ *8C - Hybrid battery management, functions*
- ◆ *51 - De-energise high-voltage system (Rep. gr. 93)*

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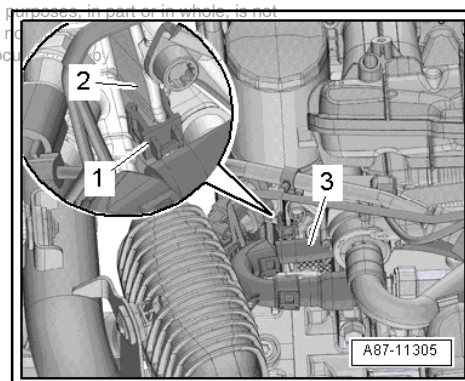
- Remove engine cover panel - arrows.



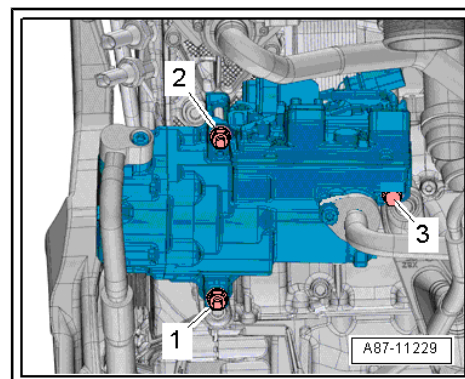
- Unfasten hose clips -arrows- and detach the air hose -1-.



- Expose attachment point -1- of high-voltage system wire -3- on engine.



- Remove nuts -1 and 2- and bolt -3-.



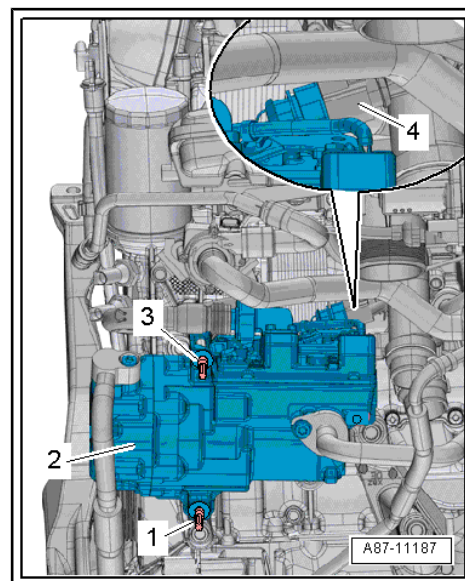
- Remove threaded pins -1 and 3-.



Note

Bolts may also be fitted instead of threaded pins -1 and 3- → Electronic parts catalogue .

- Move air conditioner compressor -2- slightly to the side and unplug electrical connector -4- (for low voltage on air conditioner compressor).

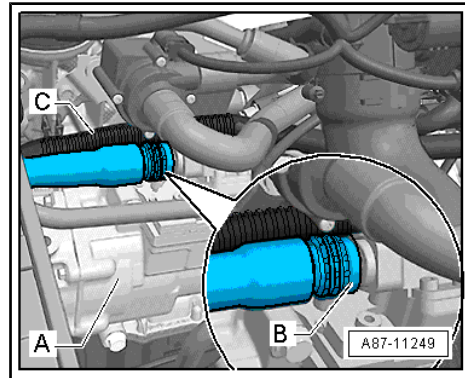


- Detach air conditioner compressor -A- and swivel it to the left away from the engine as far as possible without kinking or straining the cable of the high-voltage system -C- or the refrigerant hoses.


Caution

Risk of damaging cable or connector of high-voltage system

- ◆ **Take care not to twist or bend the connector of the high-voltage system -B-.**
- ◆ **Take care not to twist, strain, kink or bend the cable of the high-voltage system -C-.**



- Attach the air conditioner compressor to the vehicle (e.g. with a piece of wire) in such a way that neither the high-voltage system wire nor the refrigerant hoses are kinked or strained.


Caution

Risk of damage to high-voltage system wire or refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**


Note

If the air conditioner compressor cannot be swivelled far enough away from the engine, the compressor must be removed completely

⇒ "3.1.1 General information on air conditioner - electrically driven air conditioner compressor", page 246

Attaching

Install in reverse order of removal; note the following:

- Tightening torque
⇒ "3.1.1 General information on air conditioner - electrically driven air conditioner compressor", page 246 and
⇒ "2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger", page 163

- ◆ **Prior to installation, check the air conditioner compressor and bracket attachment points. The contact surfaces must be clean and free from rust and grease. If this is not the case, treat the contact surfaces accordingly with the contact surface cleaning set - VAS 6410- ⇒ Electrical system general information; Rep. gr. 97 .**

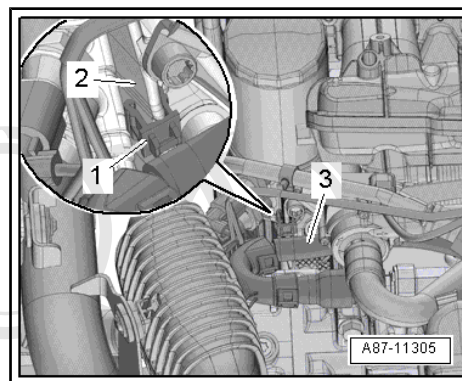


Note

- ◆ *After re-installing the electrically driven air conditioner compressor (if removed) and then charging the refrigerant circuit, first start up the compressor by way of the "Compressor run-in" function of the basic setting routine. Otherwise, the air conditioner compressor may be damaged if refrigerant oil has accumulated in the compression chamber of the air conditioner compressor due to inappropriate storage prior to installation ⇒ [page 241](#) and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *An electrically driven air conditioner compressor may only be activated when the refrigerant circuit is charged. Running the air conditioner compressor with the refrigerant circuit empty could lead to compressor damage ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *After attaching air conditioner compressor, check routing of refrigerant lines. They must be inserted in the brackets provided (if fitted, depends on engine).*
- ◆ *Check that refrigerant lines and corresponding brackets have adequate clearance to other components, ensuring sufficient distance between belt, bracket and pulley.*

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- Attach the high-voltage system wire at the specified positions on the engine.
- Secure clip -1- to engine -2-, as shown in illustration.
- Fit the air hose ⇒ Rep. gr. 21 ; Charge air system; Exploded view - charge air system .
- Re-install remaining components (removed earlier).
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .



Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ ***The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).***
- ◆ ***The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".***
- ◆ ***The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).***
- ◆ ***The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.***



Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management -J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - Re-energise high-voltage system (Rep. gr. 93)***
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and control unit for air conditioning compressor - J842- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine

Compressor drive via poly V-belt



Electromechanical power steering (power steering pump is no longer required) was introduced from model year 2014 onwards. This involved changes to the air conditioner compressor (different direction of rotation), poly V-belt and belt routing as well ➔ Electronic parts catalogue .



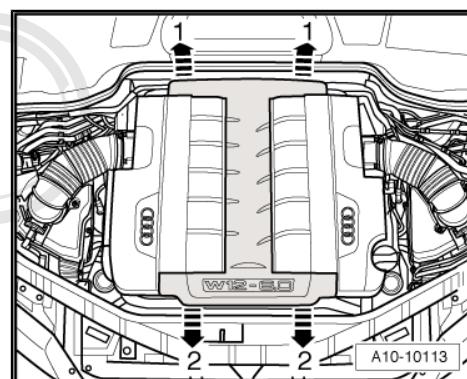
Caution

Risk of damage to air conditioner compressor if it is turned in the wrong direction

- ◆ *The air conditioner compressor rotates to the left or to the right depending on whether the vehicle is equipped with a power steering pump (rotation to the left on vehicles with a power steering pump, and rotation to the right on vehicles with electromechanical power steering and without a power steering pump).*
- ◆ *It is important to only install an conditioner compressor with the correct part number index ➔ Electronic parts catalogue .*

Removing

- Switch off ignition.
- Discharge refrigerant circuit ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove noise insulation at front ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Mark direction of poly V-belt -A-.
- Carefully lift off the engine cover starting at the rear and in the centre -arrows 1-.
- Then pull the engine cover forwards off the intake manifold -arrows 2-.



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- To slacken off the poly V-belt, swivel the tensioner in -arrow direction-.


Note

- ◆ *This and the following illustrations show the layout of the components on a vehicle with power steering pump. The illustrations for vehicles with electromechanical power steering (without power steering pump) are different ⇒ Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - poly V-belt drive .*
- ◆ *Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .*
- Slacken off tensioner and detach poly V-belt from pulley of air conditioner compressor (and, if fitted, from the pulley of the power steering pump).

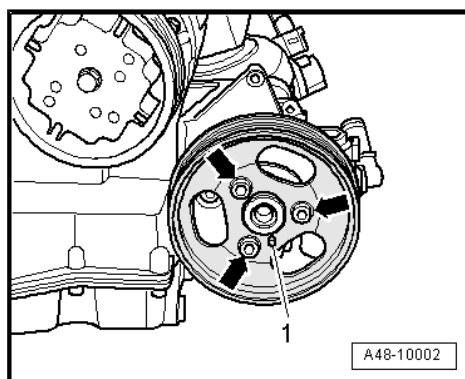
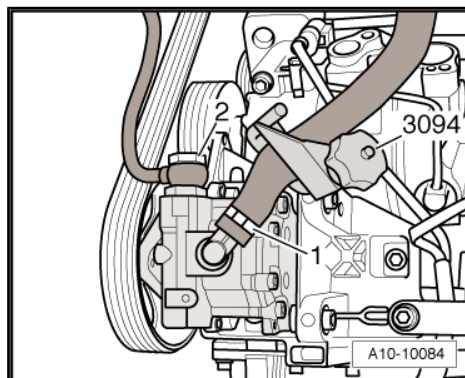
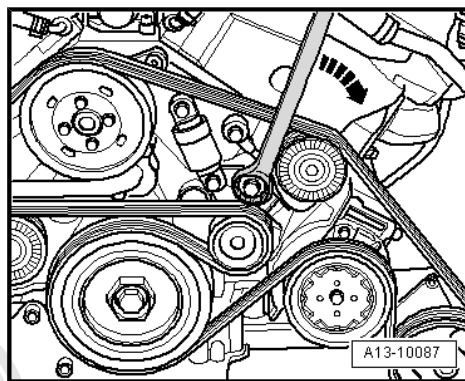

Note

Leave poly V-belt in position on other pulleys.

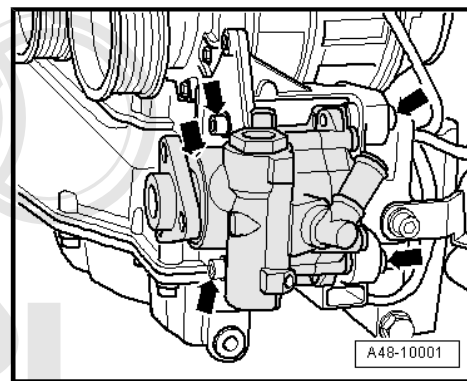
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Vehicles with power steering pump

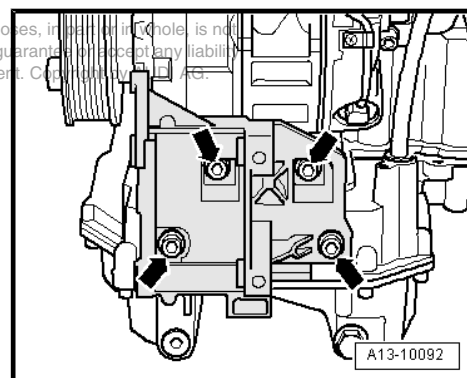
- Clamp off return hose for power steering pump with a hose clamp - 3094- .
- Remove return hose -1- from power steering pump ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .
- Place a cloth under the hydraulic pipe -Item 2- to catch any hydraulic fluid emerging.
- Unscrew the hydraulic pressure pipe -2- from the power steering pump and place it on top of the longitudinal member ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .
- Unscrew power steering pump pulley -arrows- ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .



- Remove bolts -arrows- and detach power steering pump.



- Remove power steering pump bracket from -arrows- → Running gear, axles, steering Rep. gr. 48: Hydraulic power steering; Exploded view - power steering pump.



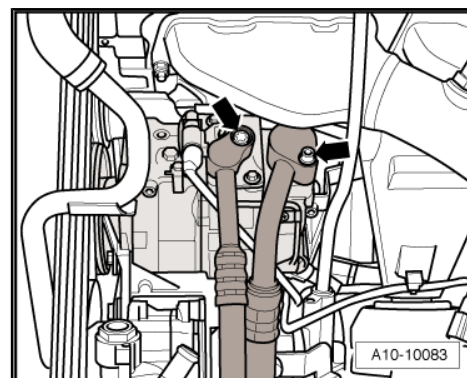
All types



Note

To avoid damaging air conditioner compressor and refrigerant pipes/hoses, make sure pipes and hoses are not strained, kinked or bent.

- Detach the refrigerant lines from the air conditioner compressor -arrows-
 ⇒ [“3.4 Detaching and attaching refrigerant lines at air conditioner compressor”, page 277](#).



Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**



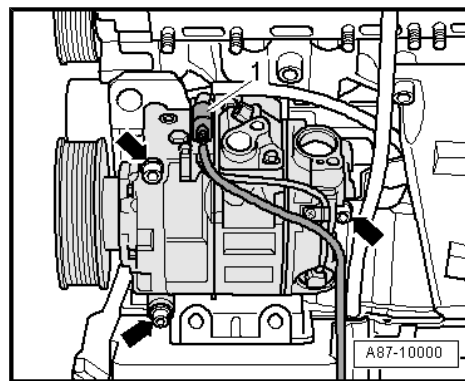
Note

- ◆ Depending on the version of the engine and the refrigerant lines, it may be necessary to detach the air conditioner compressor from the bracket first in order to be able to detach the refrigerant lines.
- ◆ Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach air conditioner compressor.

Installing

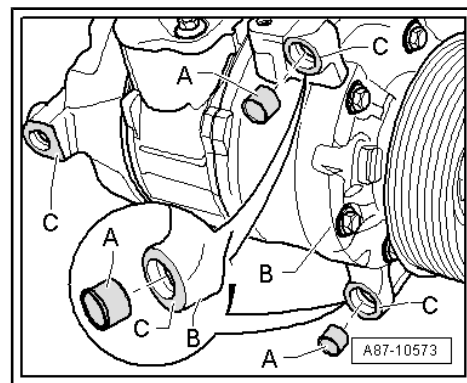
Install in reverse order of removal; note the following:



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Note

- ◆ When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Renewing components of refrigerant circuit.
 - ◆ Heed the notes on removal and installation as well as commissioning of the air conditioner compressor ⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#).
 - ◆ There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ *Electronic parts catalogue*.
 - ◆ Make sure that bushes -A- are correctly positioned and contact surfaces are clean. If the bushes are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment can cause damage to the poly V-belt or the air conditioner compressor.
 - ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue*.
- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.
 - Attaching air conditioner compressor to bracket



Tightening torques

Component	Nm
Air conditioner compressor to bracket (steel bolts)	25
Refrigerant lines to air conditioner compressor	9 Nm (for bolts with M 6 thread) and 25 Nm (for bolts with M 8 thread)

Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ *Electronic parts catalogue*), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Attach refrigerant lines to air conditioner compressor ⇒ ["3.4 Detaching and attaching refrigerant lines at air conditioner compressor", page 277](#).

Note

Lubricate O-rings lightly with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#).

- Install power steering pump ⇒ Running gear, axles, steering; Rep. gr. 48; Hydraulic power steering; Exploded view - power steering pump.

- Fit poly V-belt ⇒ Rep. gr. 13 ; Cylinder block, pulley end;
Removing and installing poly V-belt .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner
with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Interrogate the event recorder of the front air conditioner op-
erating and display unit, Climatronic control unit - J255- and
erase any faults displayed ⇒ Vehicle diagnostic tester in "Gui-
ded Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ ["2.13 Starting up air conditioner after charging refrigerant
circuit", page 241](#) .

**Note**

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R; Rep. gr. 87 ; General infor-
mation on air conditioner .*



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3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine

Compressor drive via poly V-belt

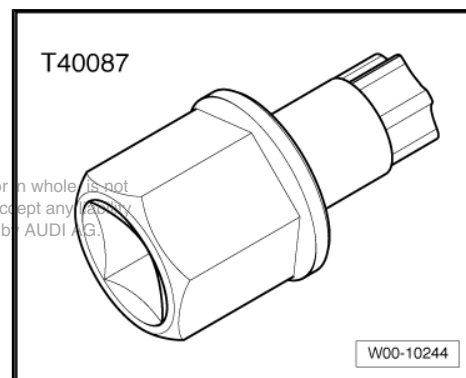


Note

- ◆ You can detach and reattach the air conditioner compressor from the bracket of vehicles with 6-cyl. TDI engine without opening the refrigerant lines.
- ◆ On vehicles with a 6-cyl. FSI or 8-cyl. FSI / TFSI engine and with 12-cyl. engine, the air conditioner compressor can only be detached from the holder and removed after opening up the refrigerant circuit ⇒ [page 297](#) (Removing and installing air conditioner compressor, vehicles with 6-cyl. FSI engine), ⇒ [page 302](#) ⇒ [page 310](#) (Removing and installing air conditioner compressor, vehicles with 8-cyl. FSI engine) or ⇒ [page 265](#) (Detaching, removing and installing air conditioner compressor on bracket, vehicles with 12-cyl. engine).
- ◆ Do not discharge the refrigerant circuit when detaching the air conditioner compressor from the bracket. Do not detach refrigerant hoses and refrigerant lines from the compressor.
- ◆ Do not unfasten the refrigerant lines and corresponding clamps.
- ◆ After detaching the air conditioner compressor, secure it to the vehicle, e.g. with a piece of wire. Do not leave it hanging from the refrigerant lines.
- ◆ Before removal, mark direction of rotation of poly V-belt with chalk or felt-tipped pen. Running a used pulley in the opposite direction could damage it irreparably.
- ◆ Electromechanical power steering (power steering pump is no longer required) was introduced from model year 2014 onwards. This involved changes to the poly V-belt and belt routing as well ⇒ *Electronic parts catalogue*.
- ◆ Depending on the engine and the country-specific version, different air conditioner compressors may be installed ⇒ *Electronic parts catalogue*.

Special tools and workshop equipment required

- ◆ Socket Torx T 60 - T40087-



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Detaching

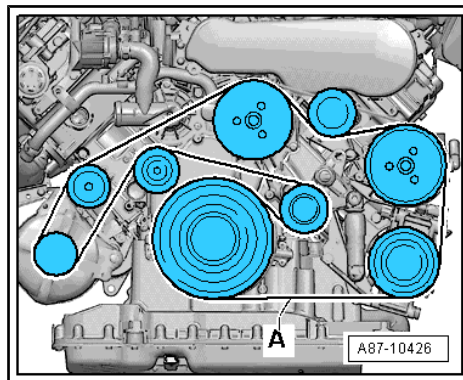
Proceed as follows:

- Switch off ignition.

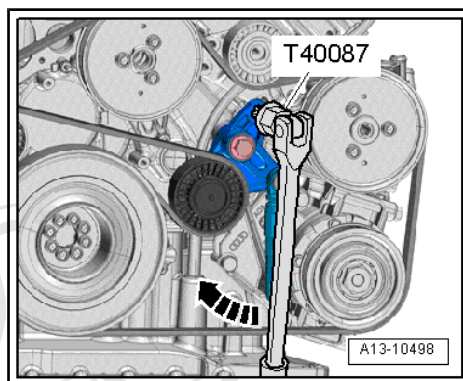
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .


Note

- ◆ *This and the following illustrations show the layout of the components on a vehicle with power steering pump. The illustrations for vehicles with electromechanical power steering (without power steering pump) are different ⇒ Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - poly V-belt drive .*
 - ◆ *Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards. This involved changes to the poly V-belt and belt routing as well ⇒ Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - poly V-belt drive and ⇒ Electronic parts catalogue .*
- Mark direction of poly V-belt -A-.



- To slacken off poly V-belt, swivel tensioner with socket Torx T 60 - T40087- in direction of -arrow-.
- Detach poly V-belt from poly V-belt pulley of air conditioner compressor and slacken off tensioner.
- If fitted, detach power steering pump from bracket (not always necessary on vehicles with a flexible pressure pipe to power steering pump) ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump , swivel to side and attach to engine, e.g. with a piece of wire.


Note

- ◆ *When doing so, take care not to bend, kink or strain the pipes leading to the power steering pump.*
- ◆ *There are different versions of the pressure pipe to the power steering pump (rigid or flexible).*

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- Unplug electrical connector -A-.
- Unscrew bolts -B- for air conditioner compressor.



Note

There is an opening -C- in the subframe -A- for loosening the rear bolt -B-.

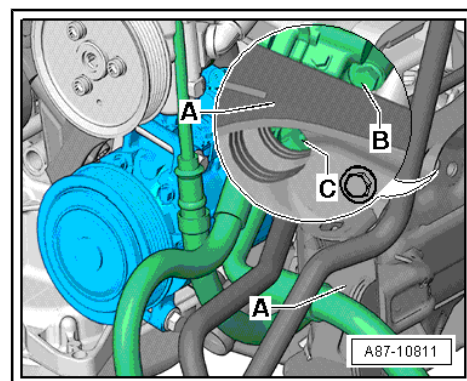
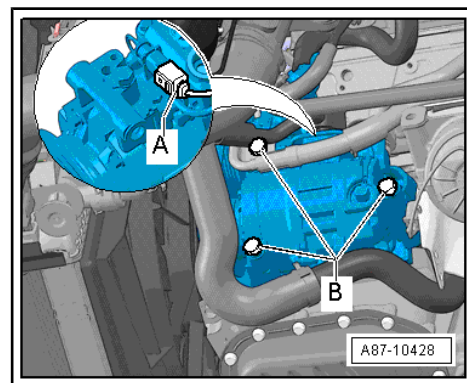
- Detach air conditioner compressor and swivel it as far as possible away from engine without kinking or straining refrigerant hoses.
- Attach air conditioner compressor to vehicle (e.g. with a piece of wire) so that refrigerant hoses are not kinked or strained.



Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**



Note

If the air conditioner compressor cannot be swivelled far enough away from the engine, the compressor must be removed completely ⇒ [page 316](#).

Attaching

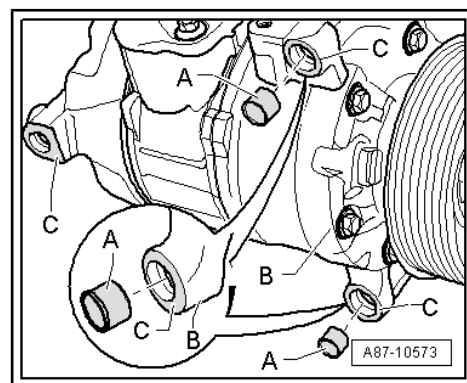
Install in reverse order of removal; note the following:

- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.



Note

- ◆ There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ *Electronic parts catalogue*.
- ◆ Make sure that bushes -A- are correctly positioned and contact surfaces are clean. If the bushes are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment can cause damage to the poly V-belt or the air conditioner compressor.

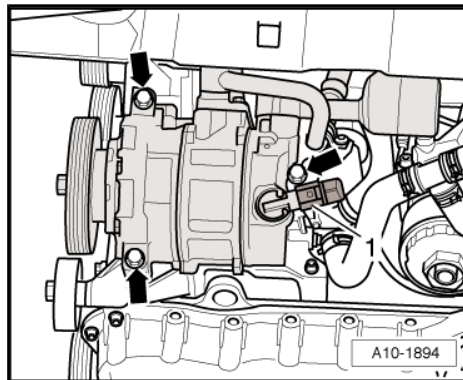


- Tighten bolts -arrows-.
- Tightening torque: 25 Nm (steel bolts)


Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Plug in electrical connector -1- at air conditioner compressor regulating valve - N280- .
- Place poly V-belt on poly V-belt pulley ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .


Note

- ◆ *After attaching air conditioner compressor, check routing of refrigerant lines. They must be inserted in the brackets provided (if fitted, depends on engine).*
- ◆ *Check that refrigerant lines and corresponding brackets have adequate clearance to other components, ensuring sufficient distance between belt, bracket and pulley.*
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine

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Compressor drive via poly V-belt


Note

- ◆ *On vehicles with a 8-cyl. TDI engine, the air conditioner compressor is installed on top of the engine between the two cylinder heads.*
- ◆ *The air conditioner compressor can be detached from the bracket and re-attached without opening up the refrigerant lines.*
- ◆ *Do not discharge the refrigerant circuit, and do not detach the refrigerant hoses and pipes at the air conditioner compressor.*
- ◆ *After detaching the air conditioner compressor, secure it to the engine, e.g. with a wire. Never leave it hanging from refrigerant lines.*
- ◆ *Before removal, mark direction of rotation of poly V-belt with chalk or felt-tipped pen. Running a used pulley in the opposite direction could damage it irreparably.*



Caution

Different refrigerant and refrigerant oil capacity for vehicles with an 8-cyl. TDI engine

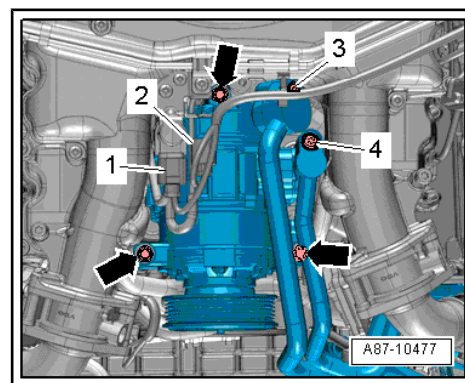
- ◆ On account of the installation position of the air conditioner compressor (at the top of the engine), the quantity of refrigerant oil differs on vehicles with an 8-cyl. TDI engine from the quantity indicated on the rating plate of the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .

Detaching



Note

- ◆ Do not unfasten the refrigerant lines and corresponding clamps.
 - ◆ Depending on the vehicle model, it may be necessary to detach and press aside certain hoses and retainers for electrical connectors in the area of the air conditioner compressor.
 - ◆ This illustration shows the air conditioner compressor for a 8-cyl. diesel engine with the air conditioner compressor secured using hexagon bolts -arrows-.
 - ◆ Depending on the version of the bolts -A- and the routing of the refrigerant lines, the refrigerant lines must be detached from the compressor (discharge refrigerant circuit) so that the bolts -A- can be loosened and removed
⇒ "3.4 Detaching and attaching refrigerant lines at air conditioner compressor", page 277 .
- Remove top engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
 - Detach retainers for electrical connectors.
 - Slacken off and detach poly V-belt ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt
 - Mark electrical connector -2- for air conditioner compressor regulating valve N280 to avoid possible interchange with other connectors.



Note

If electrical connectors to -N280- and, for example, electric engine mounting are interchanged, no entry is made in event memory, but evaporator could ice up as air conditioner compressor is constantly activated.

- Unplug -N280- at electrical connector.
- Unscrew bolts -arrows- (tightening torque 25 Nm).



Note

The bolts -arrows- have different lengths (the rear bolt may be longer). For this reason, mark the bolts when removing them to prevent interchange.



- Attach air conditioner compressor -A- to vehicle (e.g. with transportation shackle - T40016- -C- and a cable tie to front end module -B-) so that refrigerant hoses -D- are not kinked or strained.

**Caution**

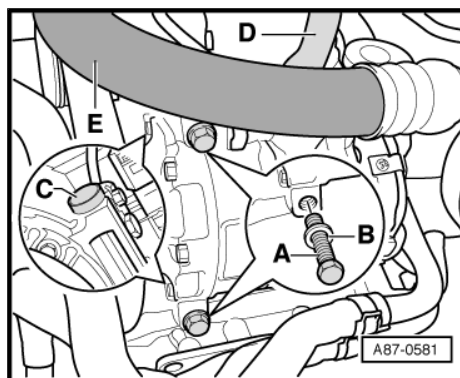
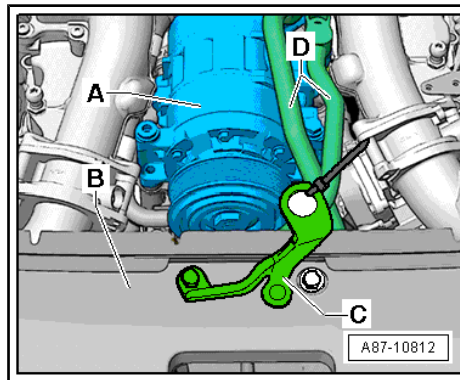
Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**

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Install in reverse order of removal; note the following:

**Note**

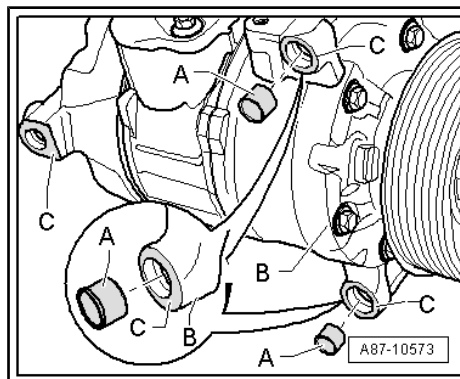
Fit a washer -B- on each of the bolts -A- (different types of bolts; this illustration shows a hexagon bolt).



- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.

**Note**

- ◆ There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ *Electronic parts catalogue*.
- ◆ Make sure that dowel sleeves -A- are correctly positioned and that contact surfaces are clean. If the dowel sleeves are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment can cause damage to the poly V-belt or the air conditioner compressor.

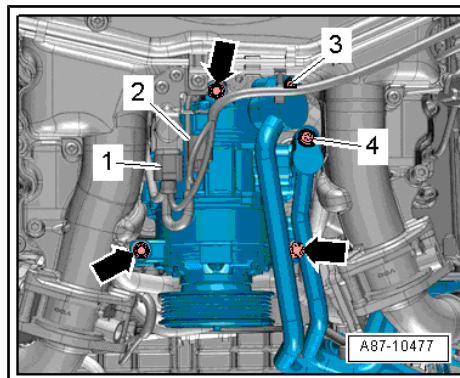


- Tighten bolts -arrows-.
- Tightening torque: 25 Nm (steel bolts)

**Note**

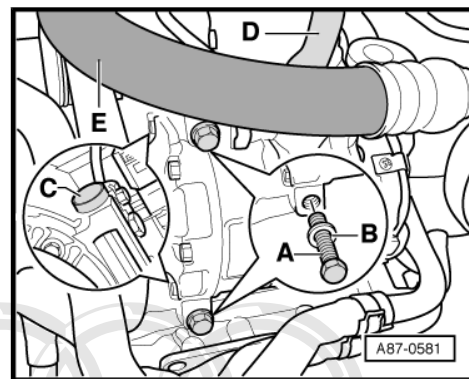
If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ *Electronic parts catalogue*), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Plug in electrical connector -2- at air conditioner compressor regulating valve - N280- .



 Note

- ◆ *The bolts -arrows- have different lengths (the rear bolt may be longer). For this reason, it is important to ensure the correct allocation when installing.*
 - ◆ *After securing air conditioner compressor, check routing of refrigerant lines -D- and -E-. They must be inserted in brackets provided (if fitted, depending on engine).*
 - ◆ *After securing air conditioner compressor, also check that refrigerant lines and corresponding brackets have adequate clearance to other components, ensuring sufficient distance between belt, bracket and pulley.*
- Place poly V-belt on poly V-belt pulley ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .
 - Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



3.4 Detaching and attaching refrigerant lines at air conditioner compressor

⇒ **"3.4.1 Detaching and attaching refrigerant lines on electrically driven air conditioner compressor", page 277**

⇒ **"3.4.2 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 6-cyl. engine", page 280**

⇒ **"3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TFSI engine", page 283**

⇒ **"3.4.4 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. TDI engine", page 286**

3.4.1 Detaching and attaching refrigerant lines on electrically driven air conditioner compressor

Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ **page 36** and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ **page 41** and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Detach coolant expansion tank and place to one side with coolant hose connected.



Caution

Risk of damage to refrigerant lines and hoses.

◆ **Do not stretch, kink or bend refrigerant lines and hoses.**

- Remove bolts -2, 3- and detach refrigerant lines -1, 4-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

Installing

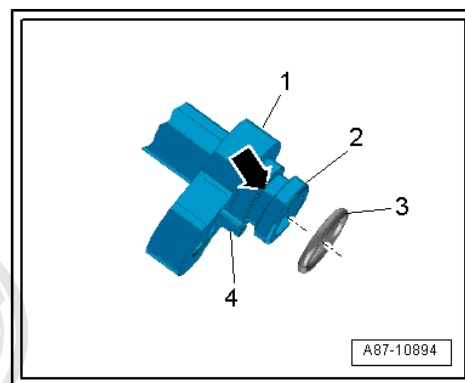
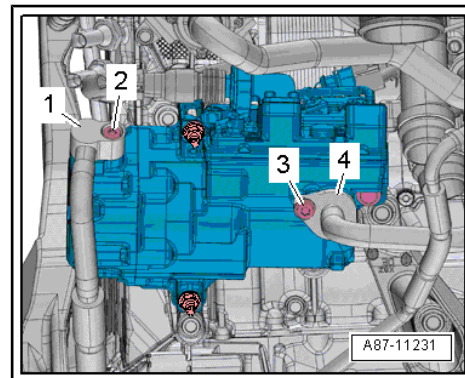
Install in reverse order of removal; note the following:

- Renew O-rings; for correct version, refer to ⇒ Electronic parts catalogue .
- If fitted, check that dowel pin -4- is not damaged and is seated correctly.
- Check guide ring -2- at refrigerant line connection for damage.
- Insert O-ring -3- in groove -arrow- in connection for refrigerant line -1-.



Note

- ◆ **Lubricate O-rings lightly with refrigerant oil before fitting ⇒ [page 116](#) .**
- ◆ **Make sure O-rings are seated correctly in groove -arrow- of corresponding refrigerant line.**
- ◆ **After attaching the refrigerant lines to the air conditioner compressor (and after installing the air conditioner compressor) check the routing of the lines. They must be inserted in the brackets provided and must not make contact with other components.**
- ◆ **An electrically driven air conditioner compressor may only be activated when the refrigerant circuit is charged. Running the air conditioner compressor with the refrigerant circuit empty could lead to compressor damage ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.**



- Insert refrigerant lines -1 and 4- in corresponding connections on air conditioner compressor.
- Tighten bolts -2 and 3-.
- Tightening torque
⇒ ["3.1.1 General information on air conditioner - electrically driven air conditioner compressor", page 246](#)
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

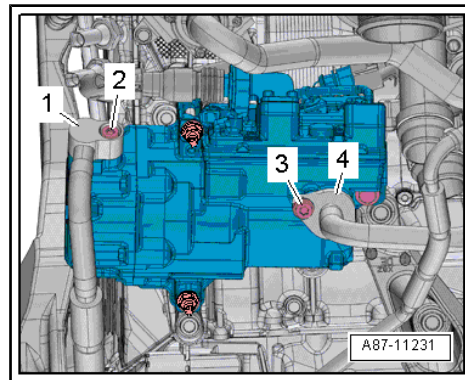
On completion of repair work, perform the following operations on the operating and display unit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- Switch on ignition.
- Interrogate the event memory of the operating and display unit, Climatronic control unit - J255- and erase any faults displayed.

Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

**Note**

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .



3.4.2 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 6-cyl. engine

**Note**

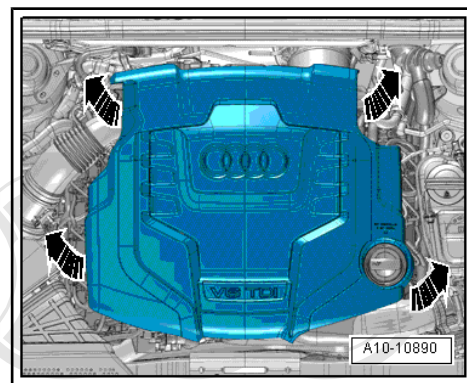
The following operations describe detaching and attaching the refrigerant lines on a vehicle with a 6-cyl. TDI engine. Vehicles with a 6-cyl. FSI engine there may be slight differences, but the refrigerant lines are to be detached and attached in the same manner.

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

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- Detach the engine cover (this illustration shows the engine cover on a TDI engine) -arrows-.
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



- Unscrew bolts -2- and -3- and detach refrigerant lines from air conditioner compressor.

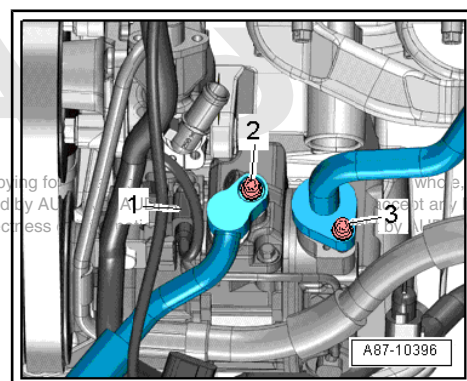


Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**

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Note

- ◆ On vehicles with a 6-cyl. TDI engine the bolts -2- and -3- are accessible from underneath and from above.
- ◆ On vehicles with a power steering pump: If the bolts -2- are not accessible with the supply pipe to the power steering pump connected, pinch off the supply pipe with hose clamps up to 25 mm - 3094- and detach it ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .
- ◆ Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .
- ◆ On vehicles with a 6-cyl. FSI engine, bolts -2- and -3- are accessible from above (between left longitudinal member and engine).
- ◆ Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

Attaching

Install in reverse order of removal; note the following:

- Renew O-rings -D- and -E-; for correct version, refer to ⇒ Electronic parts catalogue .
- Check guide ring -F- at connections of both refrigerant lines -B- and -C- for damage.
- Clean connections of refrigerant lines and connections at air conditioner compressor and check them for damage.


Note

- ◆ *Do not use the O-rings from the caps of the replacement air conditioner compressor connections.*
- ◆ *Observe fitting instructions for O-rings*
⇒ ***“3.13 Refrigerant circuit seals”, page 116*** .
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ ***“3.13 Refrigerant circuit seals”, page 116*** .
- Insert appropriate O-ring -D- and -E- in groove -G- at connections of both refrigerant lines -B- and -C-.
- Insert both refrigerant lines in corresponding connection at air conditioner compressor.
- Tighten bolts -2- and -3-.
- Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).


Note

After attaching the refrigerant lines to the air conditioner compressor (and after installing the air conditioner compressor) check the routing of the lines. They must be inserted in the brackets provided and must not make contact with other components.

- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).

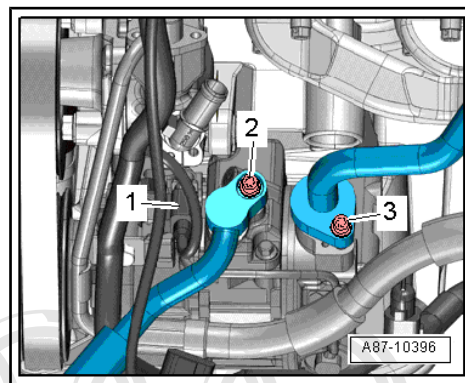
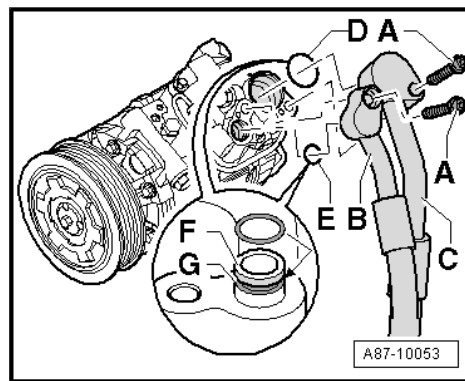
On completion of repair work, perform the following operations on the operating and display unit ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode:

- Switch on ignition.
- Interrogate the event memory of the operating and display unit, Climatronic control unit - J255- and erase any faults displayed.

Start up air conditioner after charging refrigerant circuit
⇒ **page 241** .


Note

Also observe notes on starting up air conditioner after charging
⇒ *Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner* .



3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TFSI engine

Removing

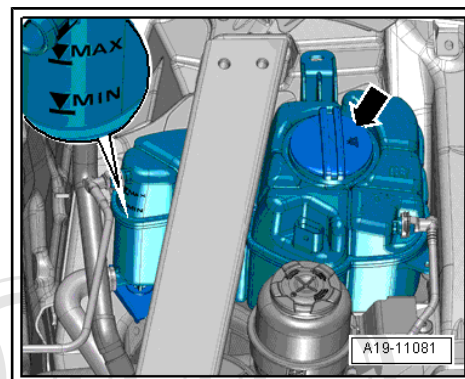
- Switch off ignition.



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

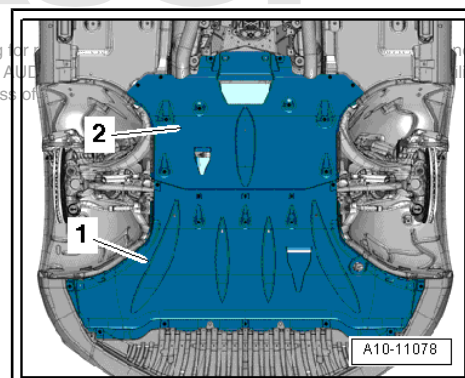


- Open cap -arrow- on coolant expansion tank.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

Vehicles with 8-cyl. FSI engine: Remove left air cleaner completely ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

Vehicles with 8-cyl. TFSI engine: Remove the front noise insulation -1-.

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Note

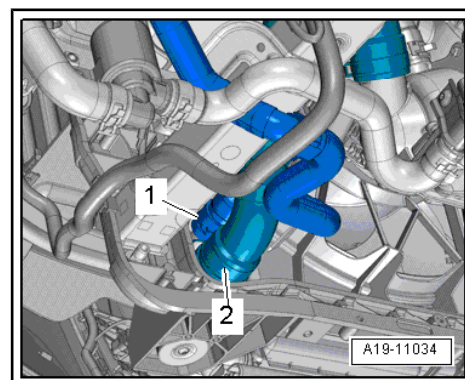
Catch escaping coolant in a clean container for disposal or re-use.

- Place drip tray for workshop hoist - VAS 6208- underneath.
- Lift the clip -2- and detach the coolant hose from the radiator.



Note

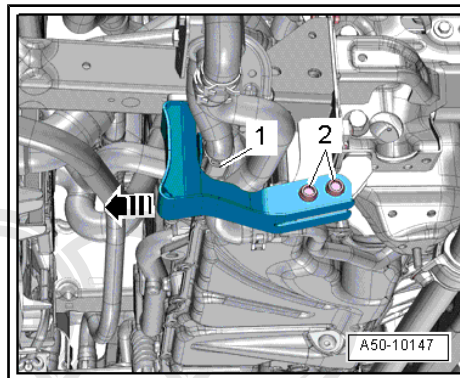
-Item 1- can be disregarded.



- Remove bolts -2- and detach deflector plate towards front -arrow-.


Note

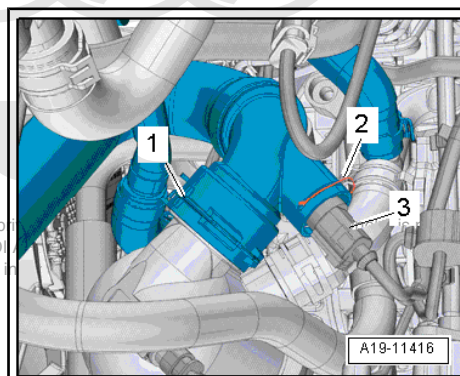
-Item 1- can be disregarded.



- Unplug electrical connector -3-.
- Lift retaining clip -1- and disconnect coolant hose.


Note

-Item 2- can be disregarded.



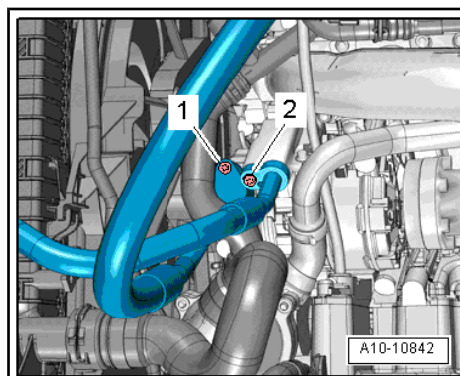
All vehicles (continued):

- Working from above (between longitudinal member (left-side) and engine), remove bolts -1- and -2-.


Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**


Note

- ◆ *In order to remove the two bolts -1- and -2-, carefully press aside the coolant hoses fitted in this area.*
- ◆ *If the refrigerant lines are to be completely removed, mark the routing of the refrigerant lines to the other hoses and lines prior to removal (to ensure proper routing on re-installation).*

- Detach refrigerant lines from air conditioner compressor.


Note

Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

Attaching

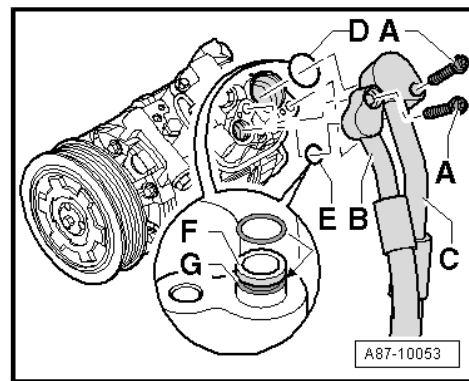
Install in reverse order of removal; note the following:

- Renew O-rings -D- and -E-; for correct version, refer to ⇒ Electronic parts catalogue .



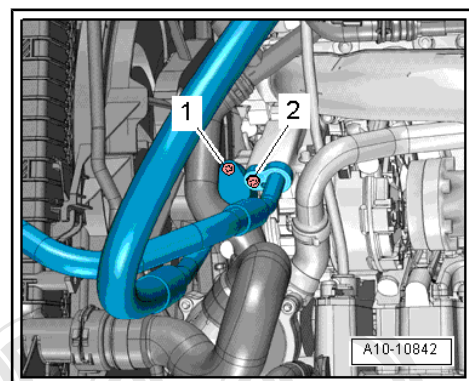
Note

- ◆ Do not use the O-rings from the caps of the replacement air conditioner compressor connections.
- ◆ Observe fitting instructions for O-rings
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Check guide ring -F- at connections of both refrigerant lines -B- and -C- for damage.
- Clean connections of refrigerant lines and connections at air conditioner compressor and check them for damage.
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Insert appropriate O-ring -D- and -E- in groove -G- at connections of both refrigerant lines -B- and -C-.
- Insert both refrigerant lines in corresponding connection at air conditioner compressor.
- Tighten bolts -1- and -2-.
- Tightening torque: 9 Nm (for bolts with M6 thread) / 25 Nm (for bolts with M8 thread).



Note

After attaching the refrigerant lines to the air conditioner compressor (and after installing the air conditioner compressor) check the routing of the lines. They must be inserted in the brackets provided and must not make contact with other components.



- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).

On completion of repair work, perform the following operations on the operating and display unit ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode:

- Switch on ignition.
- Interrogate the event memory of the operating and display unit, Climatronic control unit - J255- and erase any faults displayed.

Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.4.4 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. TDI engine



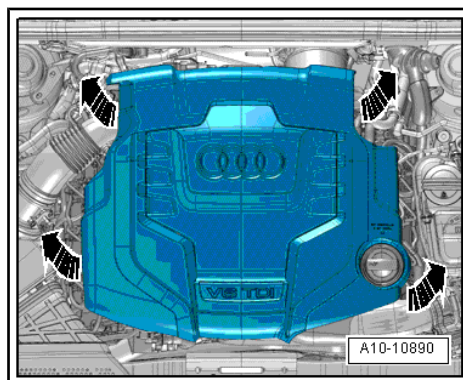
Caution

Different refrigerant and refrigerant oil capacity for vehicles with an 8-cyl. TDI engine

- ◆ **On account of the installation position of the air conditioner compressor (at the top of the engine), the quantity of refrigerant oil differs on vehicles with an 8-cyl. TDI engine from the quantity indicated on the rating plate of the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .**

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Detach engine cover panel -arrows-.



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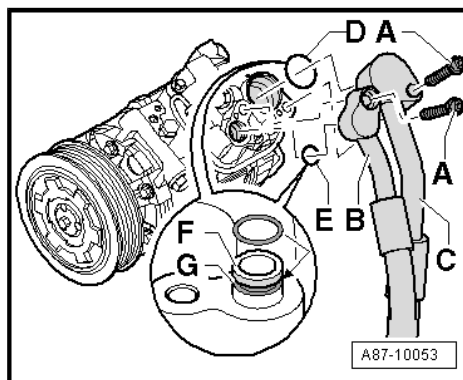
- Remove bolts -A-.
- Detach refrigerant lines -B- and -C-.



Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**



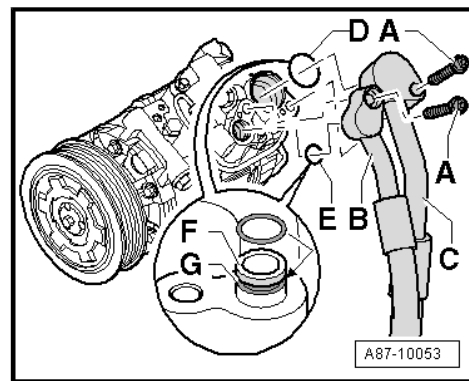
Note

Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

Attaching

Install in reverse order of removal; note the following:

- Replace the O-rings -D- and -E-; for version refer to ⇒ Electronic parts catalogue
- Check guide ring -F- at connections of both refrigerant lines -B- and -C- for damage.
- Clean connections of refrigerant lines and connections at air conditioner compressor and check them for damage.
- Lubricate O-rings lightly with refrigerant oil before installing ⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Insert appropriate O-ring (-D- and -E-) in groove -G- at connections of both refrigerant lines -B- and -C-.



i Note

- ◆ *Do not use O-rings from caps of replacement compressor connections.*
- ◆ *Make sure O-rings are positioned correctly in groove -G- of corresponding refrigerant line.*
- Insert both refrigerant lines -B- and -C- in corresponding connections at air conditioner compressor.
- Tighten bolts -A- to 9 Nm (bolts with M6 thread) / 25 Nm (bolts with M8 thread).

i Note

After attaching the refrigerant lines to the air conditioner compressor (and after installing the compressor) check the routing of the lines. They must be inserted in the brackets provided and must not make contact with other components.

- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).

On completion of repair work, perform the following operations on the operating and display unit ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode:

- Switch on ignition.
- Interrogate the event memory of the operating and display unit, Climatronic control unit - J255- and erase any faults displayed.

Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .

i Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.5 Removing and installing air conditioner compressor

⇒ [“3.5.1 Notes on mechanically driven air conditioner compressors”, page 288](#)

⇒ [“3.5.2 Notes on electrically driven air conditioner compressors”, page 290](#)

⇒ [“3.5.3 Removing and installing electrically driven air conditioner compressor”, page 290](#)

⇒ [“3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine”, page 297](#)

⇒ [“3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine”, page 302](#)

⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#)

⇒ [“3.5.7 Removing and installing air conditioner compressor - vehicles with 6-cyl. TDI engine”, page 316](#)

⇒ [“3.5.8 Removing and installing air conditioner compressor - vehicles with 8-cyl. TDI engine”, page 317](#)

3.5.1 Notes on mechanically driven air conditioner compressors



Note

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- ◆ *The air conditioner compressors fitted at the start of production are manufactured by “Denso” (type “6 SEU 14”). Different makes or different types of air conditioner compressor may also be fitted at a later date ⇒ Electronic parts catalogue and ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner .*
- ◆ *The compressor version may differ depending on the production period and engine ⇒ Electronic parts catalogue .*
- ◆ *On vehicles with a 6-cyl. FSI and 8-cyl. FSI / TFSI engine, the air conditioner compressor can only be detached from the holder and removed after discharging the refrigerant circuit
⇒ [“3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine”, page 302](#) or
⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#) .*
- ◆ *On vehicles with a 8-cyl. FSI / TFSI engine, the air conditioner compressor is driven via a drive shaft that can only be removed and renewed if the compressor has been removed first
⇒ [“3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine”, page 302](#) ,
⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#) and
⇒ [“3.1.3 Exploded view - air conditioner compressor drive unit, vehicles with 8-cyl. petrol engine”, page 250](#) .*
- ◆ *The air conditioner compressor is always driven when the engine is running (there is no magnetic clutch). Therefore do not start the engine unless the refrigerant circuit has been properly assembled. If, for example, the refrigerant lines are not connected to the air conditioner compressor when the engine is running, the compressor might heat up (internal heat generation) so much that this can lead to irreparable damage to the compressor. The internal heat generation is caused by the air conditioner compressor operating against a fixed resistance even at approximately 0 % delivery rate (sealed circuit).*

- ◆ *To prevent the air conditioner compressor from being damaged irreparably when the refrigerant circuit is empty, it is designed so that delivery is reduced to roughly 0 % and lubrication is maintained via an internal oil circuit with the residual oil left in the air conditioner compressor.*
- ◆ *These air conditioner compressors are available as replacement parts with different oil capacities; please observe the oil quantity in the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils and exact part number ⇒ Electronic parts catalogue .*
- ◆ *There are different refrigerant oil capacities for the refrigerant circuit depending on the type of air conditioner compressor. The reason for the different oil quantities in the air conditioner compressor for an otherwise identical refrigerant circuit is the design of the actual compressor; please note the different oil quantities. Too much oil in the circuit results in higher pressures and reduced system cooling output. Too little oil may lead to lubrication problems in the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .*
- ◆ *Following installation of a new air conditioner compressor or after pouring in fresh refrigeration oil (e.g. after flushing the refrigerant circuit), give the air conditioner compressor 10 turns by hand prior to initial start-up to prevent compressor damage ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .*

3.5.2 Notes on electrically driven air conditioner compressors



Note

- ◆ *With control unit for air conditioning compressor - J842- and electrical air conditioner compressor - V470-*
- ◆ *If the control unit for air conditioning compressor - J842- is defective, the amount of refrigerant oil in the new air conditioner compressor must be adjusted. For this, the refrigerant circuit does not have to be flushed with refrigerant R134a ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*
- ◆ *The electric motor of the air conditioner compressor is supplied with power by the power and control electronics for electric drive - JX1- .*
- ◆ *The control unit for air conditioning compressor - J842- integrated into the air conditioner compressor regulates the speed and thus the output of the air conditioner compressor (electrical air conditioner compressor - V470-) on the basis of the request received via the data bus ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *The electrically driven air conditioner compressor is not fitted with an air conditioner compressor regulating valve - N280- . The output of the air conditioner compressor is regulated externally by way of the air conditioner compressor speed ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *At present, the electrically driven air conditioner compressor operates on the principle of a scroll-type supercharger (similar to the "G-Lader" supercharger).*
- ◆ *The control unit for air conditioning compressor - J842- and the electrical air conditioner compressor - V470- form one component and cannot be separated at present.*
- ◆ *For further notes on air conditioner, refer to ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

3.5.3 Removing and installing electrically driven air conditioner compressor

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

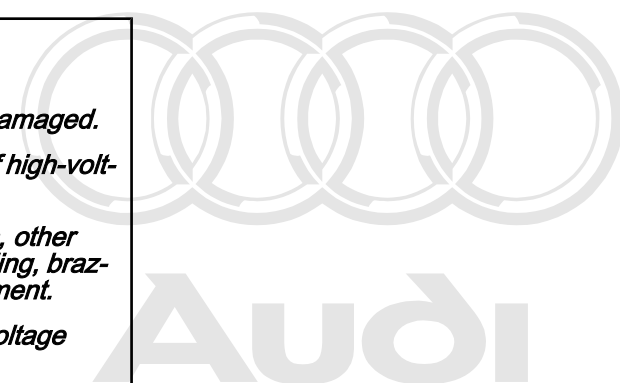
Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*



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As work on the high-voltage system is required for the following sequence of operations, de-energise the high-voltage system ⇒ [page 36](#) , ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system . Pay particular attention to the "General warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- Switch off ignition.
- De-energise high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .

De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

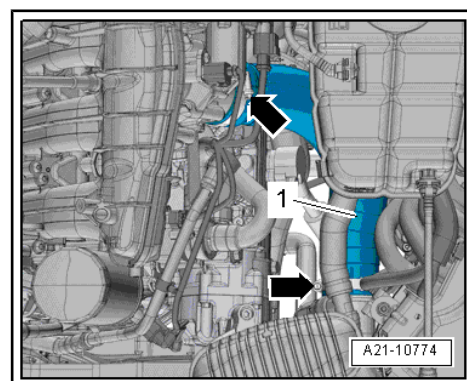
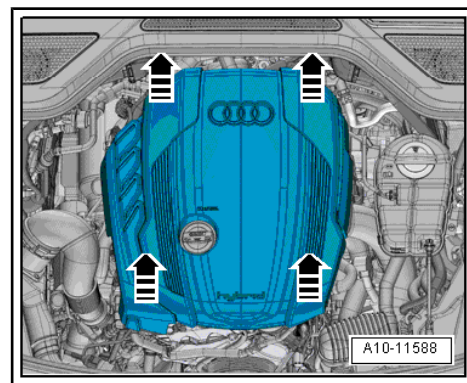


Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ **Function/component selection**
- ◆ **Body**
- ◆ **Electrical system**
- ◆ **Self-diagnosis compatible systems**
- ◆ **8C - Hybrid battery management - J840**
- ◆ **8C - Hybrid battery management, functions**
- ◆ **51 - De-energise high-voltage system (Rep. gr. 93)**

Removing

- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Detach engine cover panel -arrows-.
- Unfasten coolant expansion tank from bracket and swivel to one side.
- Detach refrigerant lines from air conditioner compressor ⇒ [page 277](#) .
- Unfasten hose clips -arrows- and detach the air hose -1-.



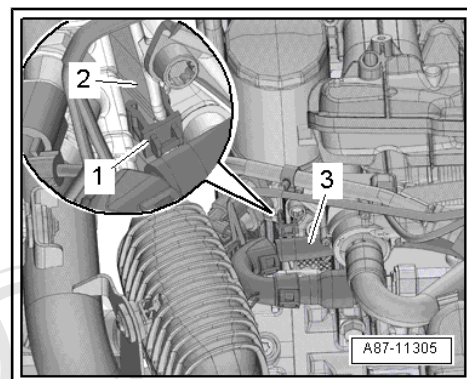
- Lay bare the fastening points -1- of the high-voltage system wiring -3- at the engine.



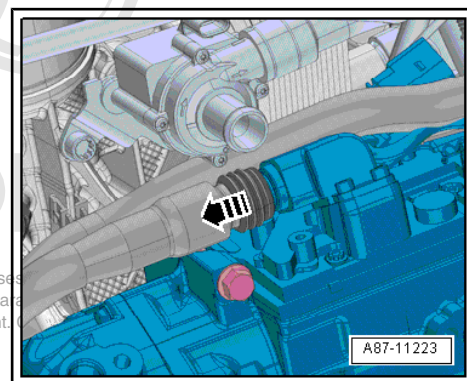
Caution

Risk of damaging cable or connector of high-voltage system

- ◆ Take care not to bend high-voltage cables.
- ◆ After releasing the connector, make sure it is horizontal when unplugging it. Do NOT turn the connector.

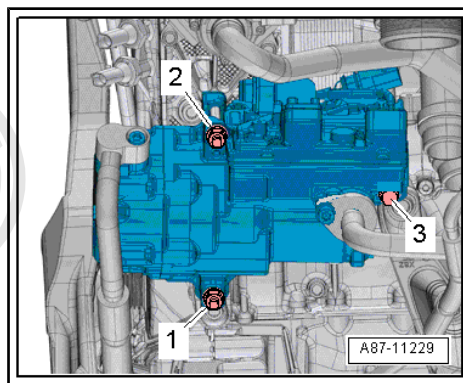


- Pull locking element in direction of -arrow-.
- Unplug connector from air conditioner compressor; connector must be horizontal and must not be turned.
- Cover high-voltage cable connector and mating plug at air conditioner compressor to prevent damage and contamination (e.g. with clean plugs from engine bung set - VAS 6122-).



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- Remove nuts -1 and 2- and bolt -3-.



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- Remove threaded pins -1 and 3-

 Note

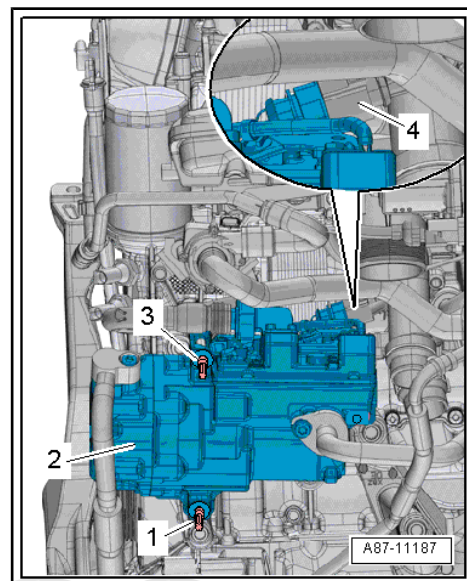
Bolts may also be fitted instead of threaded pins -1 and 3- ➔ Electronic parts catalogue .

- Move air conditioner compressor -2- slightly to the side and unplug electrical connector -4- (for low voltage on air conditioner compressor).
- Lift out air conditioner compressor upwards and towards front.

Installing

Install in reverse order of removal; note the following:

Before fitting the air conditioner compressor ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .



 Note

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

- Attach air conditioner compressor to bracket ➔ [page 257](#) .
- Attach refrigerant lines to air conditioner compressor ➔ [page 277](#) .

 Note

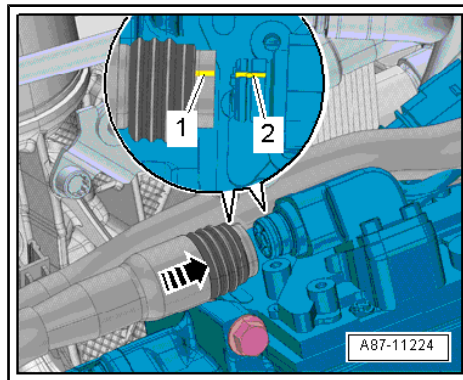
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- ◆ *After installing the electrically driven air conditioner compressor and then charging the refrigerant circuit, first start up the compressor by way of the "Compressor run-in" function of the basic setting routine. Otherwise, the air conditioner compressor may be damaged if refrigerant oil has accumulated in the compression chamber of the air conditioner compressor due to inappropriate storage prior to installation ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- ◆ *An electrically driven air conditioner compressor may only be activated when the refrigerant circuit is charged. Running the air conditioner compressor with the refrigerant circuit empty could lead to compressor damage ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode for air conditioner and battery regulation.*
- Evacuating and charging refrigerant circuit ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

- Plug in and lock the high-voltage system connector at the air conditioner compressor.

**Caution*****Risk of damaging cable or connector of high-voltage system***

- ◆ *Take care not to bend high-voltage cables.*
- ◆ *Always plug the connector in at the air conditioner compressor in the specified position (connector coding). Do NOT turn the connector.*



- Check connector for dirt and damage.
- Plug in connector at air conditioner compressor.
- Marks -1- and -2- on connector and air conditioner compressor must align.
- Fasten locking element in direction of -arrow-.
- Re-install remaining components removed in reverse order.
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .

Re-energising high-voltage system**DANGER!*****High voltage can cause fatal injury.******Danger of severe or fatal injuries from electric shock.***

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ **Function/component selection**
- ◆ **Body**
- ◆ **Electrical system**
- ◆ **Self-diagnosis compatible systems**
- ◆ **8C - Hybrid battery management - J840**
- ◆ **8C - Hybrid battery management, functions**
- ◆ **51 - Re-energise high-voltage system (Rep. gr. 93)**
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- By way of the “compressor run-in” function, start up the electrical air conditioner compressor - V470- ⇒ Vehicle diagnostic tester in “Guided fault-finding” mode for air conditioner and battery regulation.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

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3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine

Note

*Electromechanical power steering (power steering pump is no longer required) was introduced from model year 2014 onwards. This involved changes to the poly V-belt and belt routing as well
⇒ Electronic parts catalogue .*

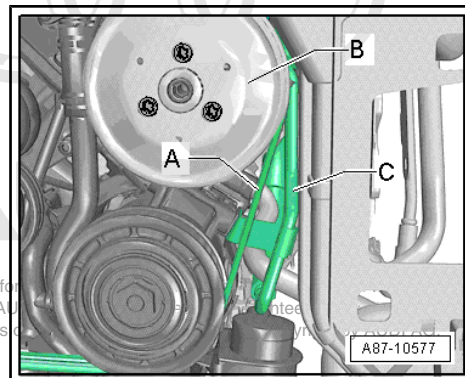
Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

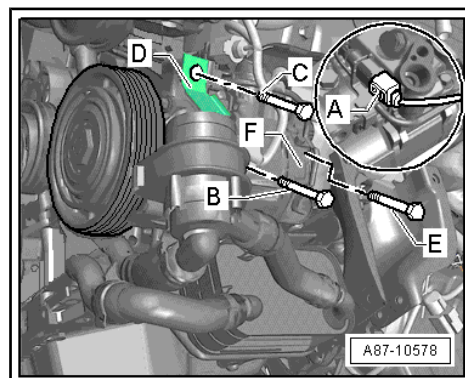
- Remove noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Mark direction of poly V-belt -A-.
- Detach poly V-belt -A-.
- If fitted, clamp off supply line for power steering pump -B- using hose clamps up to 25 mm - 3094- and disconnect ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .


Note

- ◆ *This and the following illustrations show the layout of the components on a vehicle with power steering pump. The illustrations for vehicles with electromechanical power steering (without power steering pump) are different.*
- ◆ *Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .*
- If fitted, detach pressure line -C- for power steering pump -B- ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .

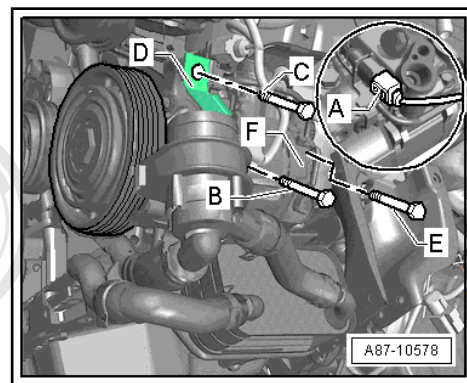

Note

- ◆ *When swivelling the pressure pipe to the side, take care not to bend, kink or strain the pipe to the power steering pump.*
- ◆ *Do not detach the power steering pump -B- from the bracket to remove the air conditioner compressor.*
- ◆ *If fitted, the pressure line to the power steering pump -C- (see illustration above) is attached to the air conditioner compressor via the bracket with the securing bolt -C- (see illustration below).*
- Detach refrigerant lines from air conditioner compressor ⇒ ["3.4.2 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 6-cyl. engine", page 280](#) .


Note

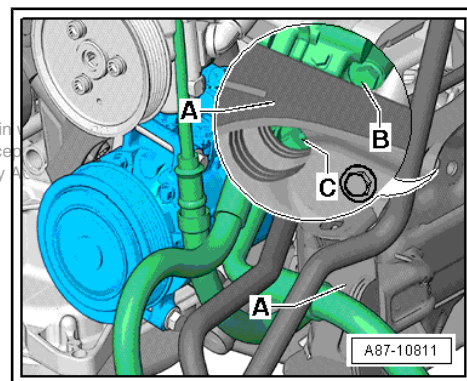
The refrigerant lines are detached from above.

- Unplug electrical connector -A-.
- Remove bolt -B- (Tightening torque for steel bolts: 25 Nm).



Note

- ◆ Bolt -C- (tightening torque of steel bolts: 25 Nm) was already removed when the pressure pipe to the power steering pump was detached.
- ◆ This illustration shows the air conditioner compressor in a vehicle with a continued coolant circulation pump - V51- (not fitted with all versions). Depending on the rest of the vehicle equipment, it may be necessary to discharge the coolant and remove the -V51- before removing the air conditioner compressor (for description of discharging coolant and removing -V51-, refer to ⇒ Rep. gr. 19; Coolant pump/coolant regulator unit; Exploded view - electrical coolant pump).
- ◆ If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.
- ◆ There is an opening -C- in the subframe -A- for loosening the rear bolt -B-.



- Detach bracket -D-.
- Remove bolt -E- (tightening torque of steel bolts: 25 Nm).

**Note**

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Unfasten the air conditioner compressor -F- from the holder, pull forwards and swivel out upwards.

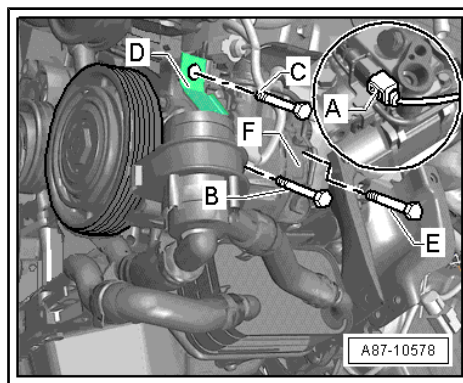
Installing

Install in reverse order of removal; note the following:

**Note**

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

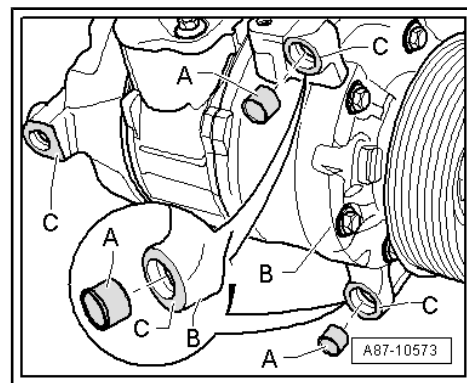
Before fitting the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .



- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.

 Note

- ◆ *There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ [Electronic parts catalogue](#) .*
- ◆ *Make sure that bushes -A- are correctly positioned and contact surfaces are clean. If the bushes are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment can cause damage to the poly V-belt or the air conditioner compressor.*



- Before fitting poly V-belt, turn air conditioner compressor 10 times via pulley in direction of rotation (to prevent damage to compressor on initial activation).
- Install pressure pipe to power steering pump ⇒ Running gear, axles, steering; Rep. gr. 48 ; Hydraulic power steering; Exploded view - power steering pump .
- Place poly V-belt -A- in position ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .
- Attach refrigerant lines to air conditioner compressor
 ⇒ [“3.4.2 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 6-cyl. engine”, page 280](#) .

 Note

- ◆ *Lubricate O-rings lightly with refrigerant oil before fitting
 ⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .*
 - ◆ *Cranking prevents damage to the air conditioner compressor, which could be caused by refrigerant oil in the compression chamber on initial start-up of the engine.*
 - ◆ *After attaching the air conditioner compressor and the refrigerant line, check the routing of the refrigerant lines. They must be inserted in the brackets provided (if fitted, depends on engine).*
 - ◆ *Check that refrigerant lines and corresponding brackets have adequate clearance to other components, ensuring sufficient distance between belt, bracket and pulley.*
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- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
 - Re-install remaining components (removed earlier).
 - Switch on ignition.
 - Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed
 ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
 - Start up air conditioner after charging refrigerant circuit
 ⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine

Special tools and workshop equipment required

- ◆ Support bracket - 10- 222 A- with corresponding supplement set
- ◆ Engine and gearbox jack - V.A.G 1383 A-

Removing

- Move front wheels to straight-ahead position.
- Switch off ignition.

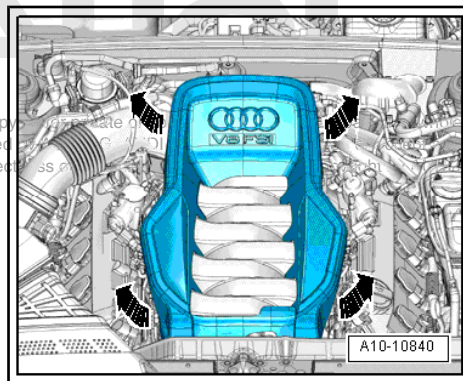


Caution

Danger of irreparable damage to electronic components

- ◆ ***Observe measures to be taken when disconnecting the battery.***

- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Detach engine cover panel -arrows-.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove combination valve from right secondary air system ⇒ Rep. gr. 26 ; Secondary air system; Exploded view - secondary air system .
- Detach the air hose from the left secondary air system combination valve ⇒ Rep. gr. 26 ; Secondary air system; Exploded view - secondary air system .
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove noise insulation at front completely ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove both air cleaners completely ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .
- Remove the fan guard (with radiator fans) ⇒ Rep. gr. 19 ; Radiator/radiator fan; Exploded view - radiator/radiator fan .

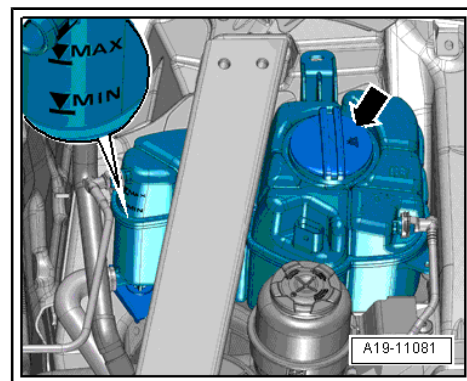




WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ ***The cooling system is pressurised when the engine is warm.***
- ◆ ***To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.***



- Open cap -arrow- on coolant expansion tank.
- Remove complete subframe together with steering rack and lower supporting and radius arms ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe , ⇒ Running gear, axles, steering; Rep. gr. 40 ; Spring strut, axle strut (top); Exploded view - spring strut, axle strut (top) and ⇒ Running gear, axles, steering; Rep. gr. 40 ; Axle strut (bottom), axle joint; Exploded view - Axle strut (bottom), axle joint
- Remove left engine mount ⇒ Rep. gr. 10 ; Engine mounting; Removing and installing engine mounts .
- Detach the heat shield of the left drive shaft from the gearbox.
- Remove bolts -A- and -B-.
- Unfasten the clamp -D- and carefully slide back the coolant hose -E- just so far (approx. 1 cm) that it can still be firmly attached to the coolant pipe -C- with the clamp -D-.



Caution

Do not completely detach the coolant hose -E- from the coolant pipe -C-.

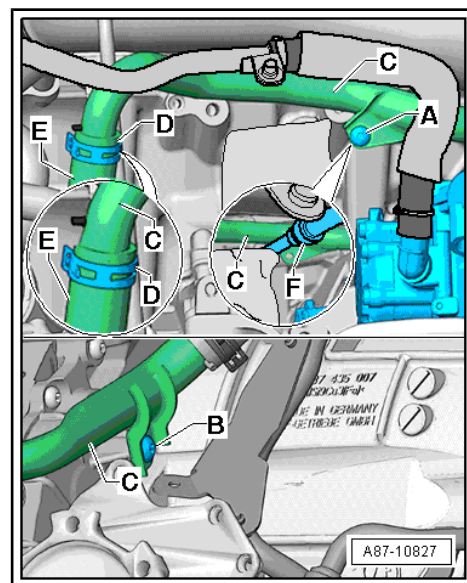
- ◆ ***All the coolant will escape if the coolant hose -E- is detached from the coolant pipe -C-.***
- ◆ ***Only slide back the coolant hose -E- to such an extent that it can still be reliably attached with the clamp -D- to the coolant pipe -C-.***

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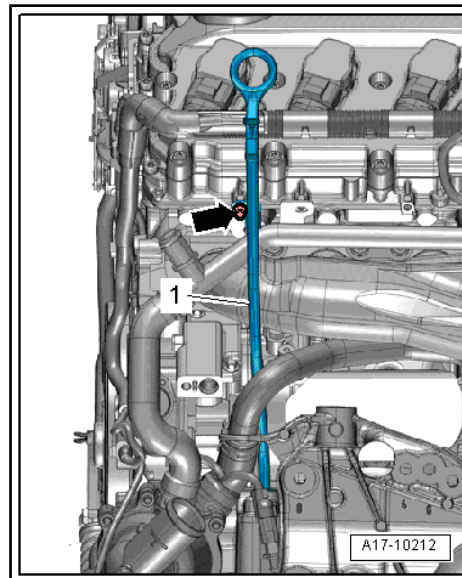


Note

The coolant pipe -C- must be unfastened to enable the top right bolt at the engine support to be slackened off (e.g. using the socket XZN 10 - T10154-) -F-.



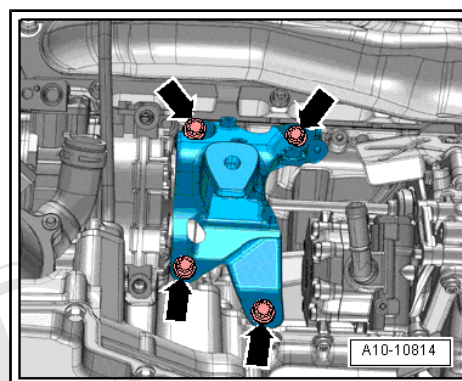
- Remove bolt -arrow-.
- Pull dipstick guide tube -1- out of sump (top section).



- Remove bolts -arrows- and detach engine support (left-side).


Note

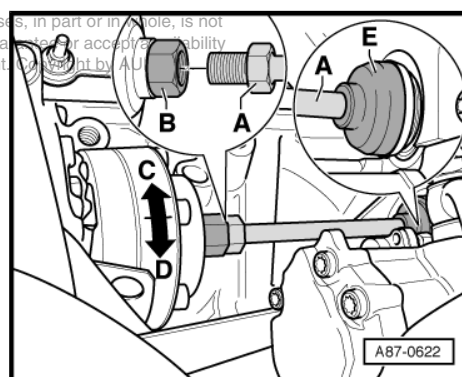
- ◆ For greater clarity, this illustration shows the engine support with the coolant pipe removed; however, the coolant pipe must be left in position.
- ◆ This and the following illustration shows the layout of the components on a vehicle with power steering pump. The illustrations for vehicles with electromechanical power steering (without power steering pump) are different.
- ◆ Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .
- ◆ For the tightening torques of the engine support bolts, refer to ⇒ Rep. gr. 10 ; Engine mounting; Exploded view - engine mounting .



- Using two open-end spanners, hold air conditioner compressor drive shaft -A- and turn air conditioner compressor drive unit -B- in direction of -arrow C-.


Note

- ◆ Do not turn air conditioner compressor drive shaft -A-.
- ◆ After unfastening the thread, the air conditioner compressor drive shaft -A- can be pushed into the drive gear through boot -E-.

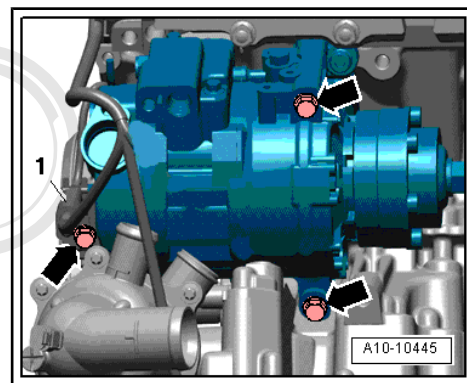


- Mark electrical connector -1- for air conditioner compressor regulating valve - N280- (to avoid possible interchange with other identical connectors).

i Note

The connectors for air conditioner compressor regulating valve - N280- and the electrical engine mounting are identical. If the connectors are interchanged, no entry is made in the event memory, but the air conditioner compressor is constantly activated and the evaporator may ice up.

- Remove electrical connector -1- for air conditioner compressor regulating valve - N280- from bracket and unplug it.
- Unscrew bolts -arrows- and detach air conditioner compressor.



Caution

Risk of damage to refrigerant lines and hoses.

- ◆ ***Do not stretch, kink or bend refrigerant lines and hoses.***

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- Remove bolts -1- and -2-
⇒ “3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TFSI engine”, page 283 (removing and installing refrigerant lines at air conditioner compressor).
- Mark the routing of the refrigerant lines to the other hoses and lines before detaching (to ensure correct routing on re-installation).
- Detach refrigerant lines from air conditioner compressor.


Note

Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

- Carefully slide the air conditioner compressor forwards.
- Carefully remove the air conditioner compressor downwards.


Note

Depending on the version, the air conditioner compressor is removed to the front, between the engine and front end module, or to the rear between the engine and longitudinal member.

Installing

Install in reverse order of removal; note the following:

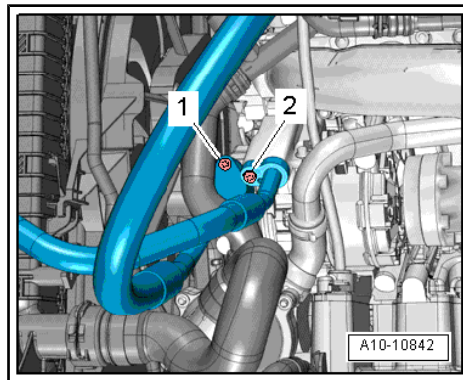

Note

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

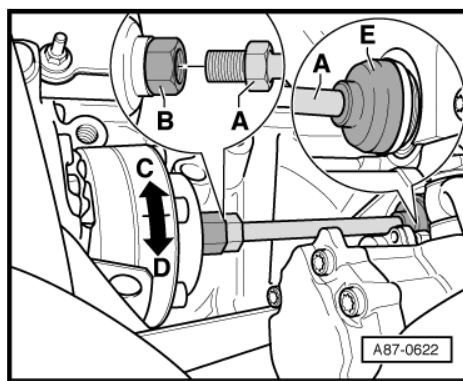
- If necessary, install air conditioner compressor drive shaft -A- (in drive gear on engine) and check that it is attached properly and check corresponding boot -E-.


Note

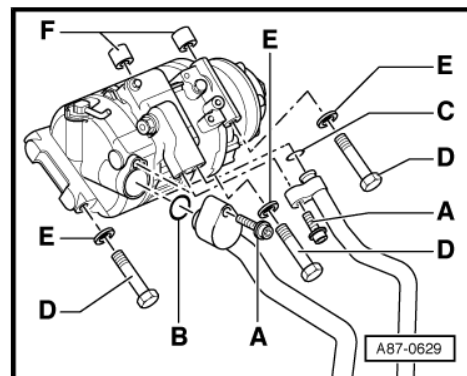
- ◆ *The grommet -E- is secured in position with a clamp on the auxiliary drive flange (for the air conditioner compressor and power steering pump) to prevent it from slipping ⇒ Electronic parts catalogue .*
- ◆ *Renew boot -E- if damaged.*
- ◆ *To secure clip with power steering pump fitted, use locking pliers for Phaeton steering rack - VAS 6199- or similar.*



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- If necessary, remove dowel sleeves -F- from air conditioner compressor.
- Thoroughly clean contact surfaces on air conditioner compressor and bracket.
- Fit dowel sleeves -F- in bracket or air conditioner compressor.

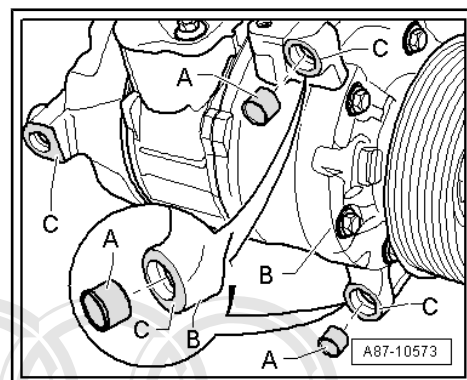


- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.



Note

- ◆ There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ *Electronic parts catalogue*.
- ◆ Make sure that bushes -A- are correctly positioned and contact surfaces are clean. If the bushes are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment may cause damage to the drive unit or the air conditioner compressor.

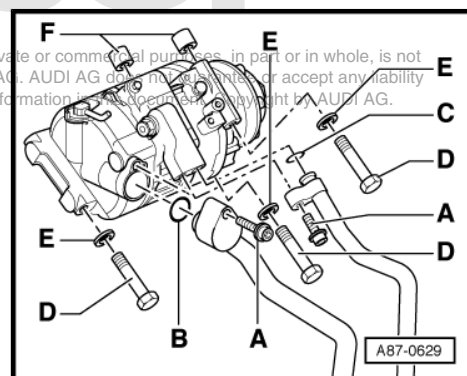


- Check connections of air conditioner compressor and refrigerant lines for damage or dirt ⇒ [page 283](#).
- Carefully insert the air conditioner compressor forwards.
- Attach refrigerant lines to air conditioner compressor. For tightening torque of bolts -A-, dimensions of O-rings -B- and -C- and additional information, refer to ⇒ ["3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TF SI engine"](#), [page 283](#) and ⇒ *Electronic parts catalogue*.



Note

- ◆ Check the refrigerant lines for correct routing to the other components.
- ◆ Lubricate O-rings lightly with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals"](#), [page 116](#).

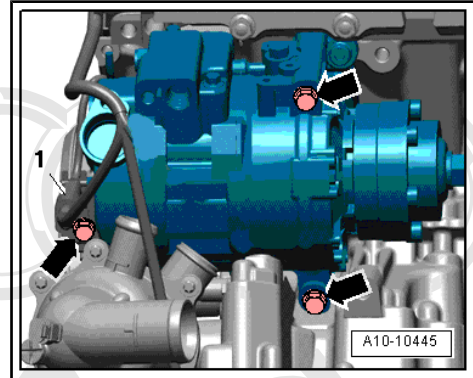


- Position the air conditioner compressor at the holder and fit and tighten the bolts -arrows-.
- Tightening torque of bolts on air conditioner compressor -arrows-: 25 Nm (steel bolts).


Note

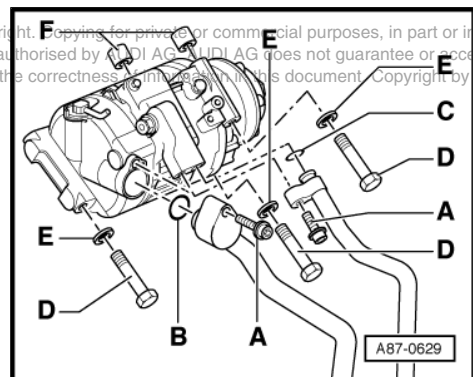
If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Plug in electrical connector -1- at air conditioner compressor regulating valve - N280- .


Note

Check that there is sufficient clearance between the refrigerant lines and the corresponding brackets and the other components.

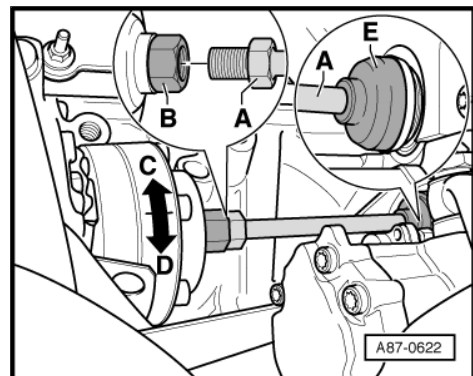
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- To avoid damaging the compressor when activating it for the first time, turn the air conditioner compressor drive unit -B- 10 turns by hand in direction of -arrow C- at the air conditioner compressor before screwing in the air conditioner compressor drive shaft -A-.


Note

Any refrigerant oil which may have collected in the compression chamber of the air conditioner compressor after removing the compressor or after pouring in fresh refrigerant oil (e.g. after blowing out refrigerant circuit) will be forced out of the compression chamber by cranking the compressor.



- Hold air conditioner compressor drive shaft -A- with an open-end spanner and turn air conditioner compressor drive unit -B- in direction of -arrow D-.
- Tightening torque: 60 Nm.


Note

- ◆ *Do not turn air conditioner compressor drive shaft -A- when tightening.*
- ◆ *After installation, check position of boot -E- on drive gear.*
- ◆ *After fitting drive shaft -A-, check installation position of boot -E-.*
- Install engine support with engine mounting (left-side) ⇒ Rep. gr. 10 ; Engine mounting; Exploded view - engine mounting .

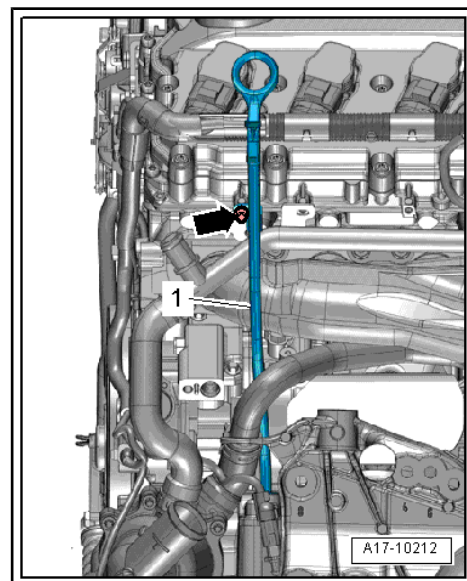
- Fit the guide tube -1- for the dipstick.



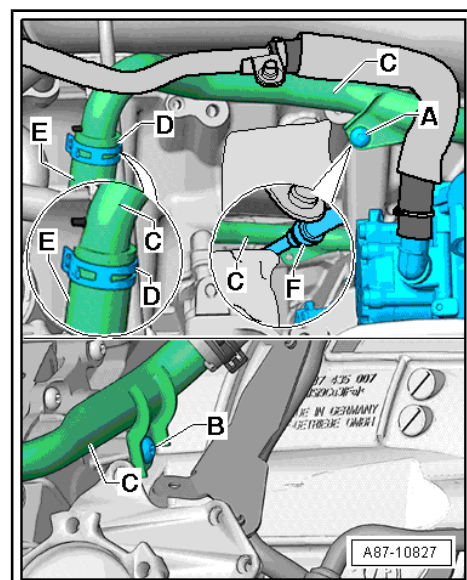
Note

Renew seal, self-locking nuts and O-ring for dipstick guide tube.

- Detach the heat shield of the left drive shaft from the gearbox.



- Unfasten the clamp -D-, carefully slide the coolant hose -E- completely back onto the coolant pipe -C- and secure with the clamp -D-.
- Fit the bolts -A- and -B-.
- Fit the heat shield of the left drive shaft at the gearbox.
- Install engine mounting (left-side) ⇒ Rep. gr. 10 ; Engine mounting; Exploded view - engine mounting .
- Install complete subframe together with steering rack and lower supporting and radius arms ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe , ⇒ Running gear, axles, steering; Rep. gr. 40 ; Spring strut, axle strut (top); Exploded view - spring strut, axle strut (top) and ⇒ Running gear, axles, steering; Rep. gr. 40 ; Axle strut (bottom), axle joint; Exploded view - Axle strut (bottom), axle joint
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Switch on ignition.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

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3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine

Removing

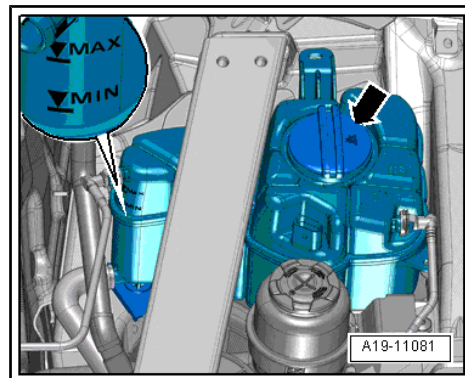
- Move front wheels to straight-ahead position.
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

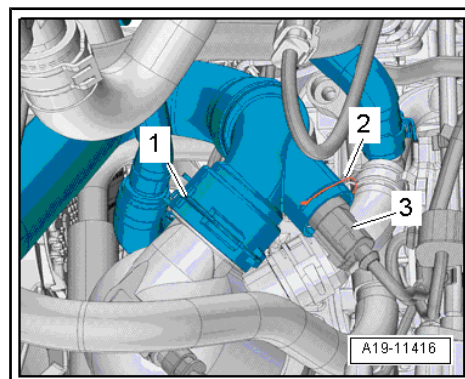


- Open cap -arrow- on coolant expansion tank.
- Remove noise insulation at front completely ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Drain off coolant ⇒ Rep. gr. 19 : Cooling system/coolant; Draining and filling coolant .
- Remove top left coolant pipe ⇒ Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes .
- Unplug electrical connector -3-.
- Lift retaining clip -1- and disconnect coolant hose.

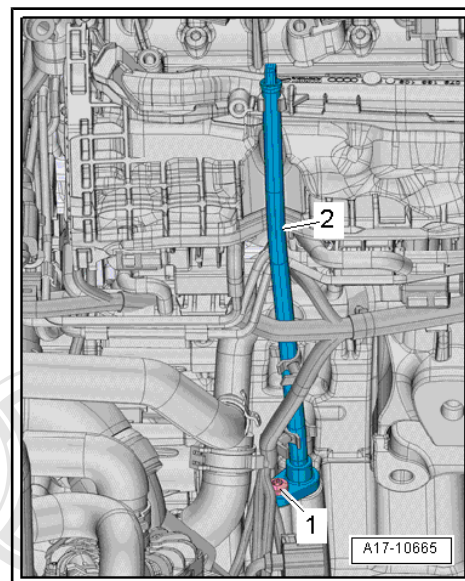


Note

-Item 2- can be disregarded.



- If fitted, remove bolt -1-, unclip guide tube -2- for oil dipstick from intake manifold and detach.
- Remove left engine mount ⇒ Rep. gr. 10 ; Engine mounting; Removing and installing engine mounts .



- Remove bolts -arrows- and detach engine support (left-side).

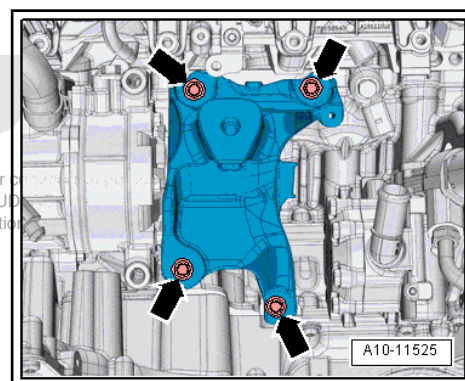


Caution

Risk of damage to refrigerant lines and hoses.

- ◆ **Do not stretch, kink or bend refrigerant lines and hoses.**

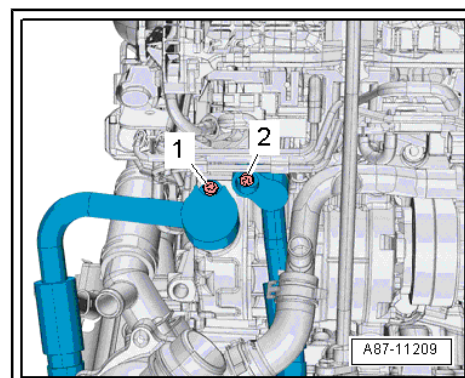
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Note

- ◆ *This and the following illustration shows the layout of the components on a vehicle with power steering pump. The illustration for vehicles with electromechanical power steering (without power steering pump) is different.*
- ◆ *Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .*

- Remove bolts -1- and -2-
⇒ [“3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TF SI engine”, page 283](#) (removing and installing refrigerant lines at air conditioner compressor).
- Mark the routing of the refrigerant lines to the other hoses and lines before detaching (to ensure correct routing on re-installation).
- Detach refrigerant lines from air conditioner compressor.



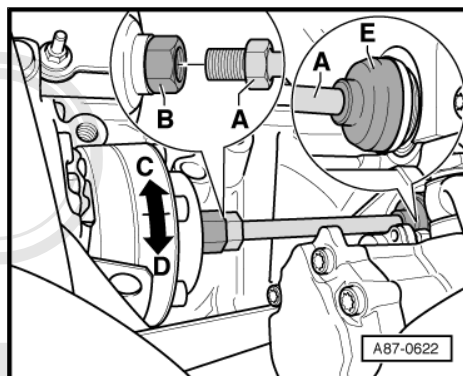
Note

Seal the open pipes and connections at the air conditioner compressor with suitable caps (to prevent the ingress of dirt and moisture).

- Using two open-end spanners, hold air conditioner compressor drive shaft -A- and turn air conditioner compressor drive unit -B- in direction of -arrow C-.


Note

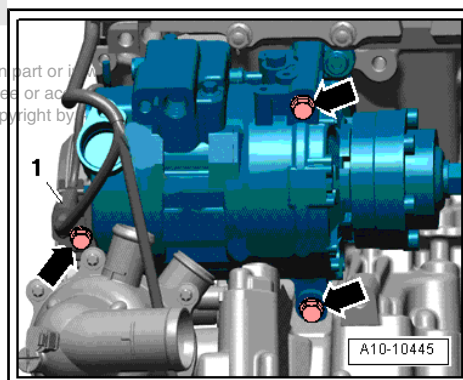
- ♦ Do not turn air conditioner compressor drive shaft -A-.
- ♦ After unfastening the thread, the air conditioner compressor drive shaft -A- can be pushed into the drive gear through boot -E-.



- Mark electrical connector -1- for air conditioner compressor regulating valve - N280- (to avoid possible interchange with other identical connectors).


Note

The connectors for air conditioner compressor regulating valve - N280- and the electrical engine mounting are identical. If the connectors are interchanged, no entry is made in the event memory, but the air conditioner compressor is constantly activated and the evaporator may ice up.



- Remove electrical connector -1- for air conditioner compressor regulating valve - N280- from bracket and unplug it.
- Unscrew bolts -arrows- and detach air conditioner compressor.
- Carefully slide the air conditioner compressor forwards.
- Carefully remove the air conditioner compressor downwards.


Note

Depending on the version, the air conditioner compressor is removed to the front, between the engine and front end module, or to the rear between the engine and longitudinal member.

Installing

Install in reverse order of removal; note the following:

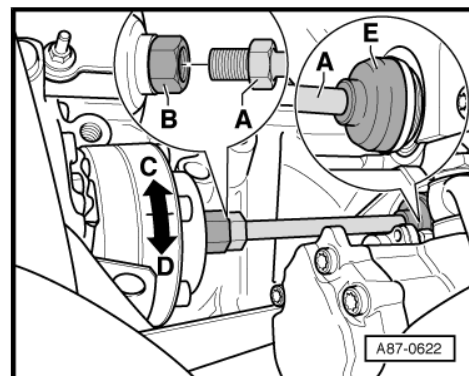

Note

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

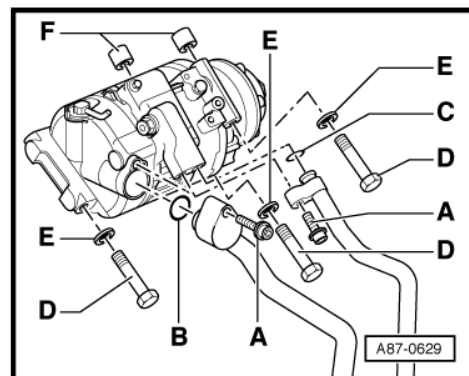
- If necessary, install air conditioner compressor drive shaft -A- (in drive gear on engine) and check that it is attached properly and check corresponding boot -E-.

 Note

- ◆ *The grommet -E- is secured in position with a clamp on the auxiliary drive flange (for the air conditioner compressor and power steering pump) to prevent it from slipping ⇒ Electronic parts catalogue .*
- ◆ *Renew boot -E- if damaged.*
- ◆ *To secure clip with power steering pump fitted, use locking pliers for Phaeton steering rack - VAS 6199- or similar.*
- ◆ *This illustration shows the layout of the components on a vehicle with power steering pump. The illustration for vehicles with electromechanical power steering (without power steering pump) is different.*
- ◆ *Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ Electronic parts catalogue .*



- If necessary, remove dowel sleeves -F- from air conditioner compressor.
- Thoroughly clean contact surfaces on air conditioner compressor and bracket.
- Fit dowel sleeves -F- in bracket or air conditioner compressor.

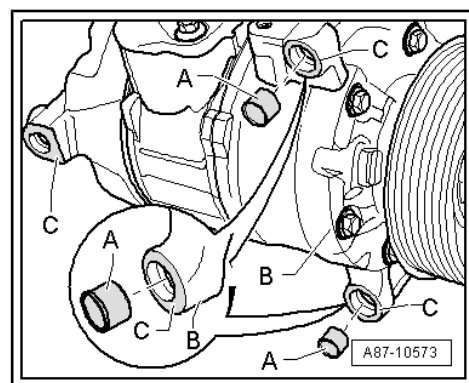


- Before securing the air conditioner compressor, check the position of both dowel sleeves -A- in the bracket or the compressor -B-.

 Note

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- ◆ *There are different versions of the dowel sleeves -A- (different length); for correct version refer to ⇒ Electronic parts catalogue .*
- ◆ *Make sure that bushes -A- are correctly positioned and contact surfaces are clean. If the bushes are not installed correctly or the contact surfaces -C- at the bracket or air conditioner compressor are dirty or damaged, this could lead to misalignment between the air conditioner compressor and the engine. After a period of operation, misalignment may cause damage to the drive unit of the auxiliary drive or to the air conditioner compressor.*
- Check connections of air conditioner compressor and refrigerant lines for damage or dirt ⇒ [page 283](#) .
- Carefully insert the air conditioner compressor forwards.



- Attach refrigerant lines to air conditioner compressor. For tightening torque of bolts -A-, dimensions of O-rings -B- and -C- and additional information, refer to
⇒ ["3.4.3 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 8-cyl. FSI/TFSI engine", page 283](#) and ⇒ Electronic parts catalogue .


Note

- ◆ Check the refrigerant lines for correct routing to the other components.
- ◆ Lubricate O-rings lightly with refrigerant oil before fitting
⇒ ["3.13 Refrigerant circuit seals", page 116](#) .

- Position the air conditioner compressor at the holder and fit and tighten the bolts -arrows-.
- Tightening torque of bolts on air conditioner compressor -arrows-: 25 Nm (steel bolts).

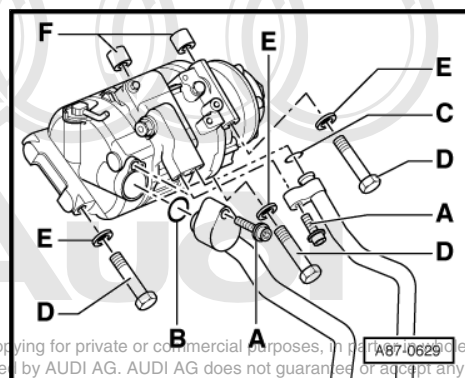
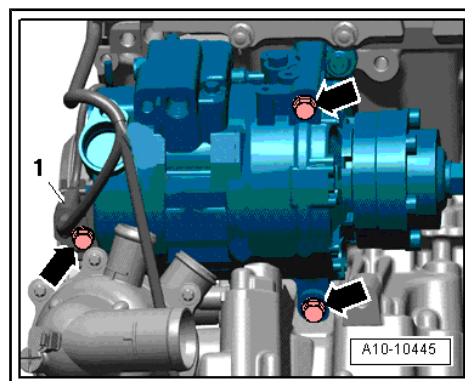
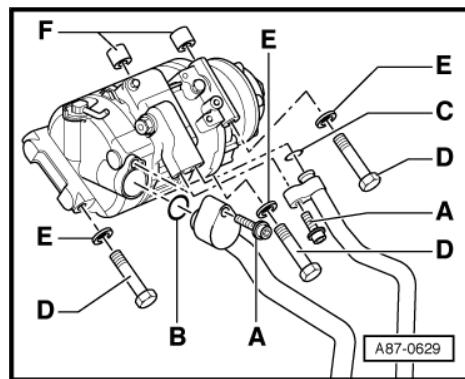

Note

If aluminium bolts have been used to secure the air conditioner compressor, (different versions ⇒ Electronic parts catalogue), renew the aluminium bolts (do not re-use). Tightening torque for aluminium bolts 8 Nm +180°.

- Plug in electrical connector -1- at air conditioner compressor regulating valve - N280- .


Note

Check that there is sufficient clearance between the refrigerant lines and the corresponding brackets and the other components.



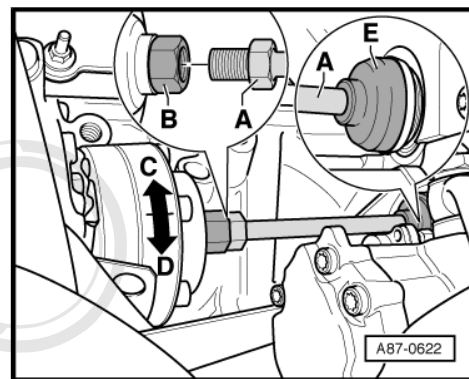
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- To avoid damaging the compressor when activating it for the first time, turn the air conditioner compressor drive unit -B- 10 turns by hand in direction of -arrow C- at the air conditioner compressor before screwing in the air conditioner compressor drive shaft -A-.



Note

Any refrigerant oil which may have collected in the compression chamber of the air conditioner compressor after removing the compressor or after pouring in fresh refrigerant oil (e.g. after blowing out refrigerant circuit) will be forced out of the compression chamber by cranking the compressor.



- Hold air conditioner compressor drive shaft -A- with an open-end spanner and turn air conditioner compressor drive unit -B- in direction of -arrow D-.
- Tightening torque: 60 Nm

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Note

- ◆ *Do not turn air conditioner compressor drive shaft -A- when tightening.*
- ◆ *After installation, check position of boot -E- on drive gear.*
- ◆ *After fitting drive shaft -A-, check installation position of boot -E-.*
- Install engine support with engine mounting (left-side) ⇒ Rep. gr. 10 ; Engine mounting; Exploded view - engine mounting .
- Install top left coolant pipe ⇒ Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes .
- Re-install the other components removed in reverse order (except lock carrier and plenum chamber cover).
- Add coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Fit the lock carrier cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Exploded view - bumper cover .
- Fit the plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Switch on ignition.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit ⇒ [page 241](#) .



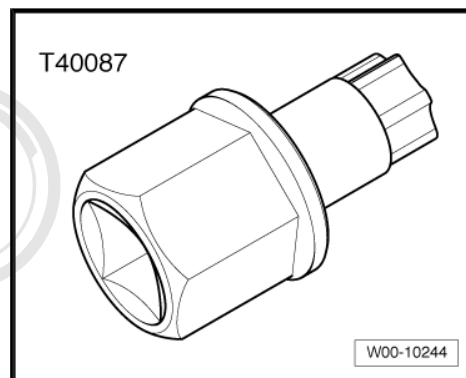
Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.5.7 Removing and installing air conditioner compressor - vehicles with 6-cyl. TDI engine

Special tools and workshop equipment required

- ◆ Socket Torx T 60 - T40087-



Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ **Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .**
- Detach the refrigerant lines from the air conditioner compressor
⇒ **“3.4.2 Detaching and attaching refrigerant lines on air conditioner compressor - vehicles with 6-cyl. engine”, page 280 .**
- Detach the air conditioner compressor from the holder
⇒ **“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271 .**

Installing

Install in reverse order of removal; note the following:



Note

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

Before fitting the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

- Before fitting poly V-belt, turn air conditioner compressor 10 times via pulley in direction of rotation (to prevent damage to compressor on initial activation).
- Attach air conditioner compressor to bracket
⇒ **“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271 .**
- Attach refrigerant lines to air conditioner compressor
⇒ **“3.4 Detaching and attaching refrigerant lines at air conditioner compressor”, page 277 .**



Note

- ◆ *Lubricate O-rings lightly with refrigerant oil before fitting
 ⇒ ["3.13 Refrigerant circuit seals", page 116](#) .*
- ◆ *Cranking prevents damage to the air conditioner compressor,
 which could be caused by refrigerant oil in the compression
 chamber on initial start-up of the engine.*
- Evacuating and charging refrigerant circuit ⇒ Air conditioner
 with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Interrogate the event recorder of the front air conditioner op-
 erating and display unit, Climatronic control unit - J255- and
 erase any faults displayed ⇒ Vehicle diagnostic tester in "Gui-
 ded Fault Finding" mode.
- Re-install remaining components (removed earlier).
- Start up air conditioner after charging refrigerant circuit
 ⇒ [page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
 ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General
 information on air conditioner .*

3.5.8 Removing and installing air conditioner compressor - vehicles with 8-cyl. TDI engine



Caution

***Different refrigerant and refrigerant oil capacity for vehicles
 with an 8-cyl. TDI engine***

- ◆ *On account of the installation position of the air conditioner
 compressor (at the top of the engine), the quantity of re-
 frigerant oil differs on vehicles with an 8-cyl. TDI engine
 from the quantity indicated on the rating plate of the air
 conditioner compressor ⇒ Air conditioner with refrigerant
 R134a; Rep. gr. 87 ; Capacities for refrigerant R134a,
 refrigeration oil and approved refrigeration oils .*

Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant
 R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove top engine cover panel ⇒ Rep. gr. 10 ; Engine cover
 panel; Removing and installing engine cover panel .
- Detach the refrigerant lines from the air conditioner compres-
 sor
 ⇒ ["3.4.4 Detaching and attaching refrigerant lines on air con-
 ditioner compressor - vehicles with 8-cyl. TDI engine",
 page 286](#) .
- Detach the air conditioner compressor from the holder
 ⇒ ["3.3.4 Detaching air conditioner compressor from holder/at-
 taching - vehicles with 8-cyl. TDI engine", page 274](#) .



Installing

Install in reverse order of removal; note the following:



Note

When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .

Before fitting the air conditioner compressor ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

- Before fitting poly V-belt, turn air conditioner compressor 10 times via pulley in direction of rotation (to prevent damage to compressor on initial activation).
- Attach air conditioner compressor to bracket
⇒ [“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271](#) .
- Attach refrigerant lines to air conditioner compressor
⇒ [“3.4 Detaching and attaching refrigerant lines at air conditioner compressor”, page 277](#) .



Note

- ◆ *Lubricate O-rings lightly with refrigerant oil before fitting*
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- ◆ *Cranking prevents damage to the air conditioner compressor, which could be caused by refrigerant oil in the compression chamber on initial start-up of the engine.*
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Re-install remaining components (removed earlier).
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .



Note

Also observe notes on starting up air conditioner after charging ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

3.6 Preparations for renewing pulley



Note

- ◆ You can detach and reattach the air conditioner compressor from the bracket of vehicles with 6-cyl. or 8-cyl. TDI engine without opening the refrigerant lines
 ⇒ [“3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine”, page 271](#) and
 ⇒ [“3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine”, page 274](#) .
- ◆ Vehicles with a 6-cyl. FSI engine or 12-cyl. engine, the air conditioner compressor can only be detached from the holder and removed after opening up the refrigerant circuit
 ⇒ [“3.5 Removing and installing air conditioner compressor”, page 288](#) .
- Switch off ignition.
- Remove the noise insulation at front (not on 8-cyl. TDI engine)
 ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove top engine cover panel (only on 8-cyl. TDI engine) ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Removing and installing poly V-belt (vehicles with 6-cyl. engine, 8-cyl. TDI engine and 12-cyl. engine) ⇒ Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .



Note

Electromechanical power steering (power steering pump is no longer required) was introduced from model year 2014 onwards. On engines where the power steering was driven by a poly V-belt, this involved changes to the poly V-belt and belt routing ⇒ [Electronic parts catalogue](#) .

Air conditioner compressor drive unit replacement (vehicles with an 8-cyl. FSI / TFSI engine) ⇒ [page 250](#) (checking, replacing air conditioner compressor drive unit),
 ⇒ [“3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine”, page 302](#) or
 ⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#) .


Note

- ◆ *An overload protection device is fitted between the pulley/drive unit and the drive shaft of the air conditioner compressor to protect the belt/drive unit if the air conditioner compressor becomes jammed or stiff.*
- ◆ *If the air conditioner compressor is not operating smoothly, the overload protection device interrupts the power transmission to the air conditioner compressor.*
- ◆ *Rubber damper elements are fitted between the pulley/drive unit and the air conditioner compressor drive shaft to absorb any vibration occurring during compressor operation (damper function in the event of torque fluctuations).*
- ◆ *The air conditioner compressor is fitted with different pulleys depending on the type of compressor and engine → [Electronic parts catalogue](#) and → [page 253](#).*

3.7 Removing and installing pulley

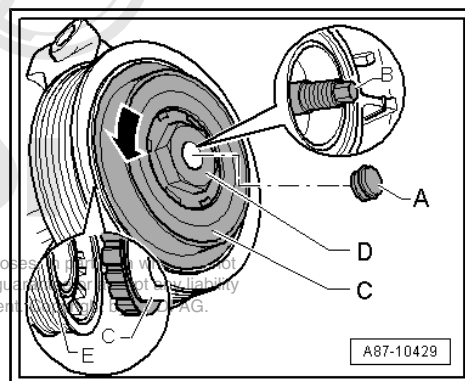
⇒ ["3.7.1 Removing and installing pulley, version 1", page 320](#)

⇒ ["3.7.2 Removing and installing pulley, version 2", page 322](#)

3.7.1 Removing and installing pulley, version "1"


Note

- ◆ *Observe notes on renewing pulley -E- → [page 253](#).*
- ◆ *Perform same preliminary work as when removing pulley → [page 319](#).*
- ◆ *Pulley is made of plastic, is sensitive to impact and should be treated with special care.*
- ◆ *If the overload protection device of the drive plate -C- has been triggered, the pulley -E- can rotate together with the outer section of the drive plate -C- without the compressor shaft -B- and the hexagonal bolt -D- attached to the drive plate (inner section of drive plate -C-) rotating simultaneously.*



– Perform preparations

⇒ ["3.6 Preparations for renewing pulley", page 319](#).

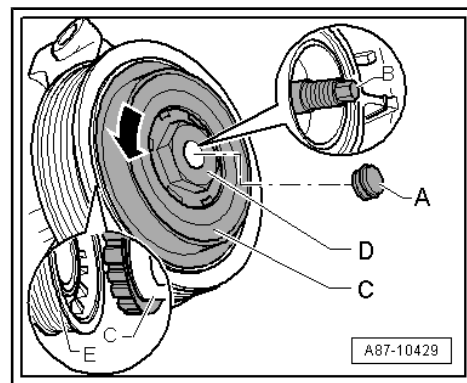
Detaching

- Remove cap -A-.
- Hold air conditioner compressor drive shaft -B- e.g. with a commercially available hexagon socket wrench (7 mm) and turn drive plate -C- with pulley -E- in direction of -arrow-.



Note

The torque for driving the air conditioner compressor is applied to the compressor shaft via the threaded connection between the drive plate -C- and the compressor shaft. If the drive plate -C- has become so firmly attached to the air conditioner compressor shaft that it can no longer be loosened (the 7 mm hexagon socket wrench -B- can no longer transmit the necessary torque), the compressor must be renewed.



- Detach drive plate -C-.
- Remove circlip -A-.
- Detach pulley -B-.

Attaching



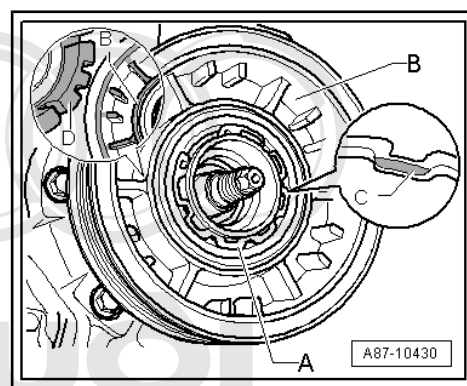
Note

Renew circlip -A-.

Clean flange of air conditioner compressor before fitting pulley -B-.

When fitting circlip -A-, take care not to bend it open more than necessary.

- Install pulley -B-.
- Ensure that circlip -A- is fitted correctly (bevelled side -C- faces away from air conditioner compressor; flat side faces compressor).
- Clean thread of compressor shaft.



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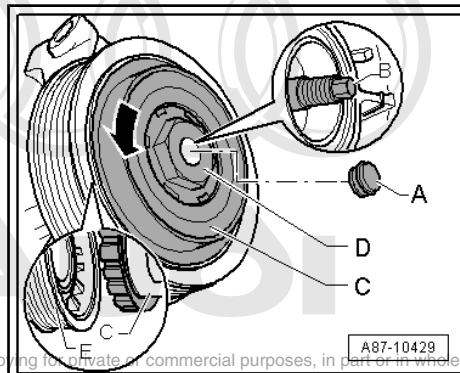


Note

Thread of new drive plate has been lubricated at factory with a pre-determined amount of a specific grease.

- Before installing drive plate, coat rubber elements -D- slightly with lubricant (e.g. tyre fitting paste or soap solution).
- Insert rubber elements -D- in pulley -B- as shown.

- Press rubber element of drive plate -C- into pulley -E- until drive plate -C- makes contact with thread of air conditioner compressor shaft -B-.
- Secure drive plate -C- to compressor shaft -B- by turning in direction opposite to -arrow-.
- Hold air conditioner compressor drive shaft -B- e.g. with a commercially available hexagon socket wrench (7 mm) and turn drive plate -C- with pulley -E- in direction opposite to that of -arrow- (tightening torque: 30 Nm).



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3.7.2 Removing and installing pulley, version "2"



Note

- ◆ If pulley overload protection device has been tripped, check freedom of movement of air conditioner compressor before renewing pulley. Renew entire air conditioner compressor if stiff.
- ◆ The pulley overload protection function is described e.g. in ⇒ *Self-study programme No. 240 ; Audi A2 - Technology* .
- ◆ It is not always necessary to unfasten the air conditioner compressor from the engine to detach the pulley
 ⇒ *"3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine", page 271* ,
 ⇒ *"3.3.4 Detaching air conditioner compressor from holder/attaching - vehicles with 8-cyl. TDI engine", page 274* ,
 ⇒ *"3.5.4 Removing and installing air conditioner compressor - vehicles with 6-cyl. FSI engine", page 297* and
 ⇒ *"3.3.2 Detaching and attaching air conditioner compressor at bracket - vehicles with 12-cyl. engine", page 265* . Depending on the engine version, however, it may be necessary to unfasten the lock carrier from the vehicle and pull it forwards slightly (to create some space) ⇒ *General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Implementing and resetting service position* .
- ◆ Before removal, mark the direction of rotation of the poly V-belt with chalk or a felt-tipped pen. Running a used pulley in the opposite direction could damage it irreparably.
- ◆ Different air conditioner compressors are fitted depending on engine and country version (6, 8 or 12-cyl. engine, petrol or diesel engine). ⇒ *Electronic parts catalogue*

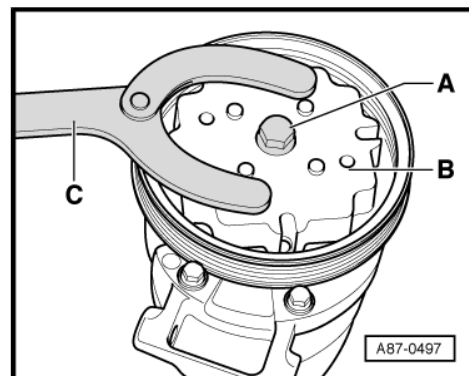
Detaching

- Perform preparations
 ⇒ *"3.6 Preparations for renewing pulley", page 319* .

- Unscrew bolt -A- (tightening torque: 20 Nm).

 Note

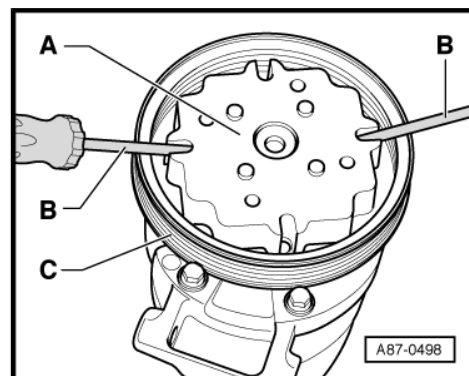
- ◆ When loosening and tightening bolt -A-, counterhold drive plate -B- with commercially available pin wrench -C- (pin diameter 5.0 mm).
- ◆ Bolt -A- must be renewed (due to locking fluid).
- ◆ Clean thread in shaft of air conditioner compressor before inserting new bolt.
- ◆ Should it not be possible to detach the pulley with the air conditioner compressor in position, detach the compressor from the engine
⇒ ["3.3.3 Detaching air conditioner compressor from holder/attaching - vehicles with 6-cyl. TDI engine", page 271](#).



- Carefully and evenly prise off drive plate -A- using 2 screwdrivers -B-.

 Note

- ◆ When prising off drive plate -A-, take care not to damage collar of pulley -C-.
- ◆ There are different types of pulley -C- and drive plate -A-. Attention must therefore be paid to precise assignment. ⇒ *Electronic parts catalogue*



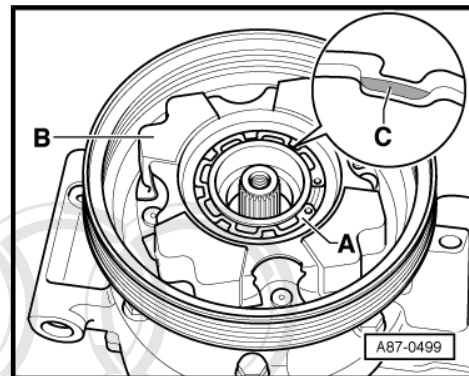
- Remove circlip -A-.
- Detach pulley -B-.

Attaching

Attach in reverse order of removal; note the following:

 Note

- ◆ Renew circlip -A-.
- ◆ When fitting circlip -A-, take care not to bend it open more than necessary.
- ◆ Ensure that circlip -A- is fitted correctly. Bevelled side -C- faces away from air conditioner compressor (flat side faces compressor).
- ◆ Make sure circlip is properly positioned in groove at compressor flange.
- ◆ Clean compressor flange before installing pulley; it should be easy to attach pulley. It should be possible to attach the component without having to exert force.



3.8 Unfastening and securing drive shaft of air conditioner compressor



Note

- ◆ Extensive preparation is required before the air conditioner compressor drive shaft can be unfastened (removing air conditioner compressor)
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#).
- ◆ The drive shaft can also be checked and tightened without opening the refrigerant circuit
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#).

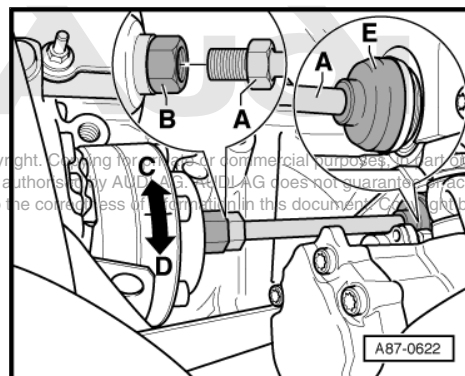
Slackening drive shaft

- Remove the components impeding access to the drive shaft
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#).
- Use an open-ended spanner to hold the air conditioner compressor drive shaft -A- in position and turn the air conditioner compressor drive unit -B- in the direction of arrow -C-.



Note

- ◆ Drive shaft -A- must not be turned.
- ◆ After unfastening bolt connection, drive shaft -A- can be pushed through grommet -E- into drive gear.
- ◆ After fitting drive shaft -A-, check installation position of boot -E-.
- ◆ This illustration shows the layout of the components on a vehicle with power steering pump. The illustration for vehicles with electromechanical power steering (without power steering pump) is different.
- ◆ Depending on the production period, the vehicle may be equipped with a power steering pump or with electromechanical power steering. Electromechanical power steering was introduced gradually from model year 2014 onwards ⇒ [Electronic parts catalogue](#).



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Tightening drive shaft

- Use an open-ended spanner to hold the air conditioner compressor drive shaft -A- in position and turn the air conditioner compressor drive unit -B- in the direction of arrow -D- (tightening torque 60 Nm).
- After tightening drive shaft of air conditioner compressor, check installation position of grommet -E-.

3.9 Removing and installing air conditioner compressor drive shaft

Note

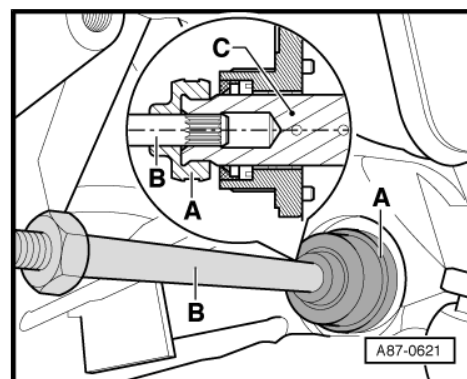
- ◆ Due to the installation position of the air conditioner compressor, the drive unit can only be checked after e.g. the subframe and engine mounting (left-side) have been removed.
- ◆ If the overload protection of the drive plate has been triggered, check that the air conditioner compressor can rotate freely before renewing the drive unit. If the air conditioner compressor does not rotate freely, renew the complete unit.

Removing drive shaft

- Remove the air conditioner compressor
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#).
- Detach boot -A-.
- Pull drive shaft -B- out of splines of drive gear -C-.

Note

- ◆ The boot -A- is secured in position at the flange of the drive gear -C- with a clamp to stop it slipping.
- ◆ Renew boot -E- if damaged.
- ◆ To secure clip with power steering pump fitted, use locking pliers for Phaeton steering rack - VAS 6199- or similar.



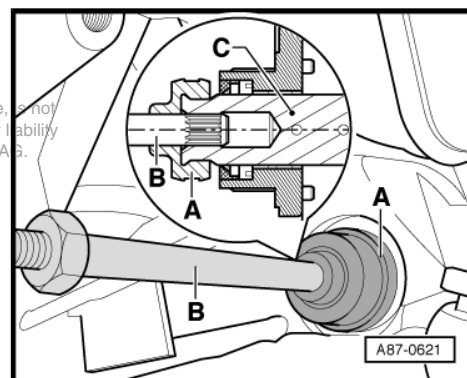
Installing drive shaft

Install in reverse order of removal; note the following:

- Check drive shaft -B-; splines must not show signs of wear and must engage snugly in splines of drive gear -C-.
- Prior to insertion, coat the splines of the drive shaft -B- e.g. with grease - G 000 100- ⇒ Electronic parts catalogue .
- Before installing air conditioner compressor, insert drive shaft -B- and slide it into drive gear -C- as far as stop.
- The boot -A- is secured in position with a clamp on the auxiliary drive flange (for the air conditioner compressor and power steering pump) to prevent it from slipping.
- After fitting air conditioner compressor, check installation position of boot -A-.

Note

The clamp is available together with the boot -A- as replacement part ⇒ Electronic parts catalogue .



3.10 Removing and installing drive plate with overload protection

- Remove the air conditioner compressor
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#) .

Detaching drive plate

- Remove bolts -A-.

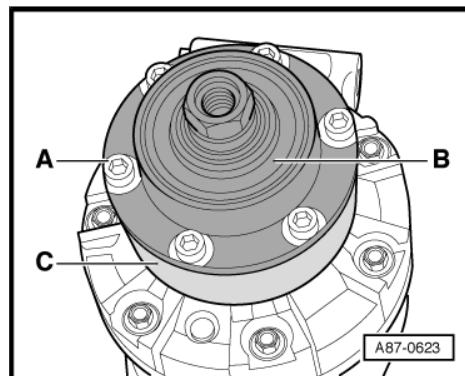


Note

Use commercially available strap wrench (with fabric strap) to counterhold drive plate -C-.

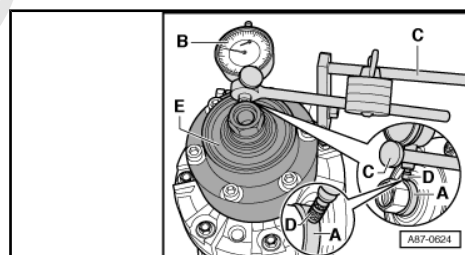
Attaching drive plate

- Attach drive plate with overload protection -B- to drive plate -C-.
- Insert and hand-tighten bolts -A-.
- Check concentricity of drive plate -B-
⇒ ["3.11 Checking and adjusting concentricity of drive plate with overload protection", page 326](#) .
- Tighten bolts -A- (tightening torque: 10 Nm).
- Check concentricity of drive plate -B- again
⇒ ["3.11 Checking and adjusting concentricity of drive plate with overload protection", page 326](#) .



3.11 Checking and adjusting concentricity of drive plate with overload protection

- Remove the air conditioner compressor
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or
⇒ ["3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine", page 310](#) .
- Clean flange at drive plate -A-.
- Attach a dial gauge -B- to air conditioner compressor with dial gauge bracket -C- (e.g. universal dial gauge bracket - VW 387-).
- Apply probe of dial gauge -D- to flange of drive plate -A- with a preload of approx. 1.0 mm.
- Turn drive unit -E- of air conditioner compressor several times.



Specification:

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Eccentricity less than 0.21 mm (dial gauge deflection, difference between lowest and highest measured value max. 0.2 mm)

- If eccentricity exceeds 0.2 mm, slacken off bolts at drive plate
⇒ ["3.10 Removing and installing drive plate with overload protection", page 326](#) and re-adjust drive plate.

3.12 Removing and installing drive plate at air conditioner compressor

- Remove the air conditioner compressor
⇒ ["3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine", page 302](#) or

⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#) .

- Detach drive plate with overload protection
⇒ [“3.10 Removing and installing drive plate with overload protection”, page 326](#) .

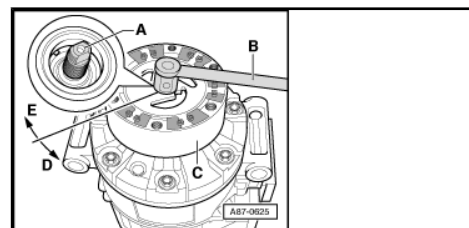
Unbolting drive plate

- Unscrew drive plate -C- by turning it with a commercially available strap wrench (with fabric strap) in direction of -arrow D-. When doing so, provide support for compressor shaft -A- by applying a counterhold -B- to compressor shaft -A-.



Note

Depending on the type of air conditioner compressor (the compressor shaft differs), use either a ring spanner, a socket wrench - T10001/10- from shock absorber set - T10001- or counterhold tool - 3079- to counterhold the compressor shaft.



Bolting on drive plate

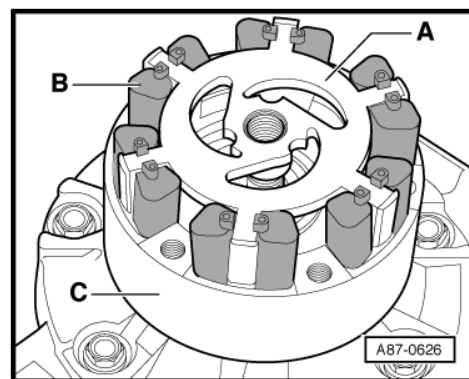
- When installing, coat rubber elements -B- with e.g. a small quantity of soap solution to provide lubrication
- Insert rubber elements -B- in drive plate -A- as shown.

Insert drive plate -A- with rubber elements -B- in drive plate -C- (as shown) until it makes contact with air conditioner compressor shaft.



Note

This illustration shows rubber elements -B-, version “1”. Rubber elements -B-, version “2”, are connected at the top.

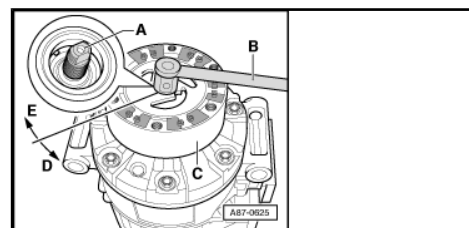


- Attach drive plate -C- to compressor shaft -A- by turning it in direction of -arrow E-.
- Tighten drive plate -C- to 30 Nm by turning it with a commercially available strap wrench (with fabric strap) in direction of -arrow E-. Provide support for compressor shaft -A- by applying a counterhold -B- to compressor shaft -A-.



Note

Depending on the type of air conditioner compressor (the compressor shaft differs), use either a ring spanner, a socket wrench - T10001/10- from shock absorber set - T10001- or counterhold tool - 3079- to counterhold the compressor shaft.



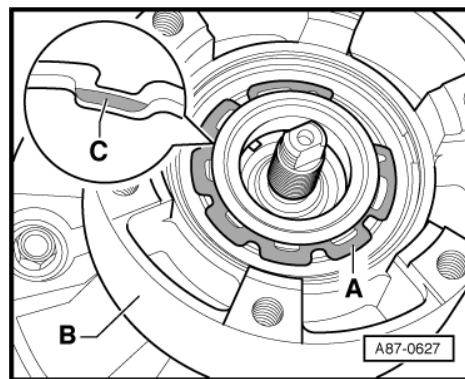
3.13 Removing and installing drive plate with roller bearing

- Remove the air conditioner compressor
⇒ [“3.5.5 Removing and installing air conditioner compressor - vehicles with 8-cyl. FSI engine”, page 302](#) or
⇒ [“3.5.6 Removing and installing air conditioner compressor - vehicles with 8-cyl. TFSI engine”, page 310](#) .
- Detach drive plate from compressor shaft
⇒ [“3.12 Removing and installing drive plate at air conditioner compressor”, page 326](#) .

- Remove circlip -A-.
- Detach drive plate -B-.

**Note**

- ◆ *Renew circlip -A-.*
- ◆ *Clean air conditioner compressor flange before attaching drive plate.*
- ◆ *When fitting circlip -A-, take care not to bend it open more than necessary.*
- ◆ *Ensure that circlip -A- is fitted correctly. Bevelled side -C- faces away from air conditioner compressor (flat side faces compressor).*



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4 Control motors

⇒ [“4.1 Overview of fitting locations - control motors at front”, page 331](#)

⇒ [“4.2 Exploded view - control motors at front”, page 335](#)

⇒ [“4.3 Overview of fitting locations - control motors at rear”, page 337](#)

⇒ [“4.4 Exploded view - control motors at rear”, page 343](#)

⇒ [“4.5 Removing and installing air flow flap control motor V71 ”, page 345](#)

⇒ [“4.6 Removing and installing defroster flap control motor V107 ”, page 349](#)

⇒ [“4.7 Removing and installing left footwell flap control motor V108 ”, page 352](#)

⇒ [“4.8 Removing and installing right footwell flap control motor V109 ”, page 355](#)

⇒ [“4.9 Removing and installing left centre vent control motor V110 ”, page 358](#)

⇒ [“4.10 Removing and installing right centre vent control motor V111 ”, page 361](#)

⇒ [“4.11 Removing and installing air recirculation flap control motor V113 ”, page 364](#)

⇒ [“4.12 Removing and installing rear temperature flap control motor V137 ”, page 367](#)

⇒ [“4.13 Removing and installing left temperature flap control motor V158 ”, page 370](#)

⇒ [“4.14 Removing and installing right temperature flap control motor V159 ”, page 373](#)

⇒ [“4.15 Removing and installing right B-pillar and footwell shut-off flap control motor V211 ”, page 377](#)

⇒ [“4.16 Removing and installing left B-pillar and footwell shut-off flap control motor V212 ”, page 381](#)

⇒ [“4.17 Removing and installing indirect ventilation flap control motor V213 ”, page 384](#)

⇒ [“4.18 Removing and installing left side vent control motor V299 ”, page 387](#)

⇒ [“4.19 Removing and installing right side vent control motor V300 ”, page 390](#)

⇒ [“4.20 Removing and installing rear left temperature flap control motor V313 ”, page 394](#)

⇒ [“4.21 Removing and installing rear right temperature flap control motor V314 ”, page 398](#)

⇒ [“4.22 Rear left chest vent control motor V315 ”, page 402](#)

⇒ [“4.23 Rear right chest vent control motor V316 ”, page 405](#)

⇒ [“4.24 Removing and installing control motor for left side window defroster flap V409 ”, page 407](#)

⇒ [“4.25 Removing and installing control motor for right side window defroster flap V410 ”, page 409](#)

⇒ [“4.26 Removing and installing control motor for left footwell temperature flap V411 ”, page 411](#)

⇒ ["4.27 Removing and installing control motor for right footwell temperature flap V412", page 414](#)

⇒ ["4.28 Removing and installing rear air recirculation flap control motor V421", page 417](#)

⇒ ["4.29 Removing and installing rear air quantity control motor V443", page 420](#)

⇒ ["4.30 Removing and installing air recirculation flap 1 control motor for hybrid battery V479", page 423](#)

⇒ ["4.31 Removing and installing air recirculation flap 2 control motor for hybrid battery V480", page 426](#)

⇒ ["4.32 Removing and installing bracket for control motors", page 430](#)

4.1 Overview of fitting locations - control motors at front



Note

- ◆ *Different versions of the levers and connecting elements may be fitted at the air conditioning unit depending on the production period ⇒ Electronic parts catalogue .*
- ◆ *Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease ⇒ Electronic parts catalogue .*



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ *Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255- .*
- ◆ *Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.*

1 - Air-intake box

- ❑ ⇒ [“5.11 Removing and installing air intake box of front air conditioning unit”, page 495](#)
- ❑ ⇒ [“5.3 Exploded over-view - air intake box of heater and air conditioning unit”, page 450](#)
- ❑ Different versions ⇒ Electronic parts catalogue

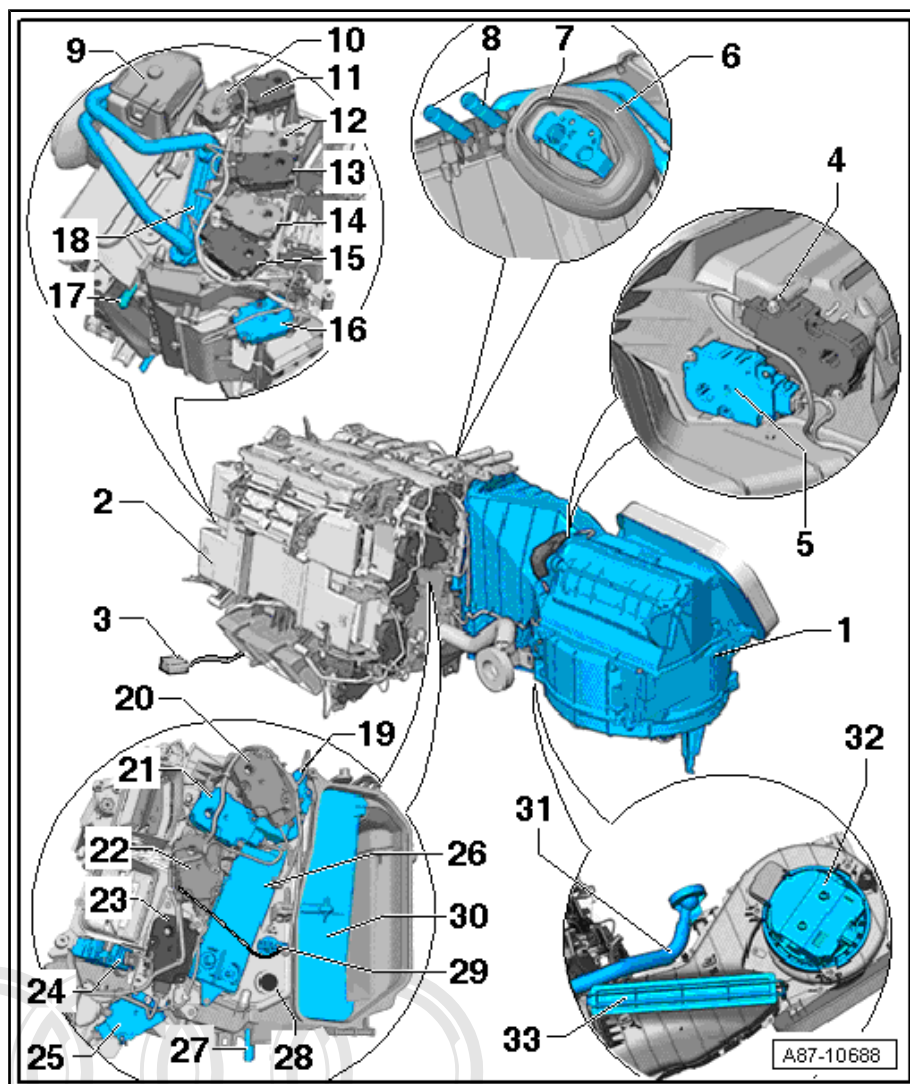
2 - Air conditioning unit with evaporator

- ❑ Can only be removed after refrigerant circuit has been discharged; take vehicle to a workshop equipped with the necessary tools where work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .
- ❑ ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)
- ❑ ⇒ [“5.5.1 Removing and installing evaporator housing”, page 453](#)
- ❑ Removing and installing air conditioning unit with evaporator
⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ❑ ⇒ [“5.4 Exploded view - evaporator housing”, page 452](#)
- ❑ ⇒ [“5.6.1 Cleaning evaporator”, page 468](#)
- ❑ ⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)



Note

At present, replacement units are not available for all evaporator versions. Please therefore check in advance whether the type of replacement evaporator concerned is available ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed ⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#) and the entire evaporator housing and standard evaporator must be renewed ⇒ [“5.5.1 Removing and installing evaporator housing”, page 453](#) .



3 - Connection to air conditioner front operating and display unit, Climatronic control unit - J255- at air conditioning unit wiring harness

4 - Air recirculation flap control motor - V113-

- ❑ ⇒ [“4.11 Removing and installing air recirculation flap control motor V113 ”, page 364](#)

5 - Air flow flap control motor - V71-

- ❑ ⇒ [“4.5 Removing and installing air flow flap control motor V71 ”, page 345](#)

6 - Expansion valve

- ❑ Can only be removed after refrigerant circuit has been discharged; take vehicle to a workshop equipped with the necessary tools where work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .
- ❑ ⇒ [“2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching”, page 210 .](#)
- ❑ ⇒ [“2.9.3 Removing and installing expansion valve \(front\)”, page 216 .](#)

7 - Grommet

- ❑ For sealing opening for refrigerant lines through plenum chamber back wall

8 - Coolant pipes to heat exchanger

9 - Cover for refrigerant pipes to evaporator

- ❑ Removing and installing ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)

10 - Left temperature flap control motor - V158-

- ❑ ⇒ [“4.13 Removing and installing left temperature flap control motor V158 ”, page 370](#)

11 - Defroster flap control motor - V107-

- ❑ ⇒ [“4.6 Removing and installing defroster flap control motor V107 ”, page 349](#)

12 - Left centre vent control motor - V110-

- ❑ ⇒ [“4.9 Removing and installing left centre vent control motor V110 ”, page 358](#)
- ❑ ⇒ [“4.32.1 Removing and installing holder for control motor V110 and V299 ”, page 430](#)

13 - Left side vent control motor - V299-

- ❑ ⇒ [“4.18 Removing and installing left side vent control motor V299 ”, page 387](#)
- ❑ ⇒ [“4.32.1 Removing and installing holder for control motor V110 and V299 ”, page 430](#)

14 - Control motor for left footwell temperature flap - V411-

- ❑ ⇒ [“4.26 Removing and installing control motor for left footwell temperature flap V411 ”, page 411](#)
- ❑ ⇒ [“4.32.2 Removing and installing holder for control motor V108 and V411 ”, page 432](#)

15 - Left footwell flap control motor - V108-

- ❑ ⇒ [“4.7 Removing and installing left footwell flap control motor V108 ”, page 352](#)
- ❑ ⇒ [“4.32.2 Removing and installing holder for control motor V108 and V411 ”, page 432](#)

16 - Rear air quantity control motor - V443-

- ❑ ⇒ [“4.29 Removing and installing rear air quantity control motor V443 ”, page 420](#)

17 - Connection for left condensation drain (driver's side)

- ❑ ⇒ [“5.16 Removing and installing condensation drain”, page 518](#)

18 - Heat exchanger for heater

- ❑ ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

19 - Right temperature flap control motor - V159-

- ❑ ⇒ [“4.14 Removing and installing right temperature flap control motor V159 ”, page 373](#)

20 - Indirect ventilation flap control motor - V213-

- ❑ ⇒ [“4.17 Removing and installing indirect ventilation flap control motor V213 ”, page 384](#)
- ❑ ⇒ [“4.32.4 Removing and installing holder for control motor V111 and V213 ”, page 437](#)

21 - Right centre vent control motor - V111-

- ❑ ⇒ [“4.10 Removing and installing right centre vent control motor V111 ”, page 361](#)
- ❑ ⇒ [“4.32.4 Removing and installing holder for control motor V111 and V213 ”, page 437](#)

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22 - Right side vent control motor - V300-

- ⇒ ["4.19 Removing and installing right side vent control motor V300", page 390](#)

23 - Control motor for right footwell temperature flap - V412-

- ⇒ ["4.27 Removing and installing control motor for right footwell temperature flap V412", page 414](#)
- ⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)

24 - Right footwell flap control motor - V109-

- ⇒ ["4.8 Removing and installing right footwell flap control motor V109", page 355](#)
- ⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)

25 - Rear temperature flap control motor - V137-

- ⇒ ["4.12 Removing and installing rear temperature flap control motor V137", page 367](#)

26 - Auxiliary air heater control unit - J604- with auxiliary air heater element - Z35-

- -J604- with -Z35- is only fitted on vehicles with a diesel engine and vehicles with a high-voltage system (hybrid vehicles with petrol engine) ⇒ ["5.7.1 Checking electric supplementary heater", page 470](#) .
- Vehicles with diesel engine on which an auxiliary heater fitted as optional extra is activated as supplementary heater have no -J604- and thus also no -Z35- AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. ⇒ ["5.7.1 Checking electric supplementary heater", page 470](#) .
- Different versions of air conditioning unit with and without opening for -J604- with -Z35- depending on vehicle model ⇒ Electronic parts catalogue and ⇒ ["5.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 440](#) .
- Checking operation of -J604- and -Z35- ⇒ ["5.7.1 Checking electric supplementary heater", page 470](#) .
- ⇒ ["5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604", page 474](#)

27 - Connection for right condensation drain (passenger's side)

- ⇒ ["5.16 Removing and installing condensation drain", page 518](#)

28 - Connection for hose to air duct for glove box cooling

- Air duct for glove box cooling ⇒ [Item 31 \(page 335\)](#)

29 - Evaporator output temperature sender - G263-

- ⇒ ["10.11 Removing and installing evaporator output temperature sender G263", page 651](#)

30 - Evaporator

- Can only be removed after refrigerant circuit has been discharged; take vehicle to a workshop equipped with the necessary tools where work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .
- Removing and installing air conditioning unit with evaporator ⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)
- ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

**Note**

At present, replacement units are not available for all evaporator models. Please therefore check in advance whether the type of replacement evaporator concerned is available ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed ⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#) and the entire evaporator housing and series evaporator must be renewed ⇒ ["5.5.1 Removing and installing evaporator housing", page 453](#) .

31 - Hose to air duct for glove box cooling

- ❑ Checking, removing and installing
⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)

32 - Fresh air blower - V2- with control unit for fresh air blower - J126-

- ❑ ⇒ [“5.14.1 Removing and installing fresh air blower V2 with fresh air blower control unit J126”, page 504](#)
- ❑ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode
- ❑ Different versions ⇒ Electronic parts catalogue

33 - Dust and pollen filter

- ❑ Removing and installing ⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)
- ❑ Observe replacement intervals ⇒ Maintenance tables
- ❑ Different versions available as replacement parts (with and without activated charcoal filter element) ⇒
Electronic parts catalogue and
⇒ [“3.11.5 Notes on dust and pollen filter with activated charcoal element”, page 115](#)

4.2 Exploded view - control motors at front



Note

- ◆ *Different versions of the levers and connecting elements may be fitted at the air conditioning unit depending on the production period ⇒ Electronic parts catalogue .*
- ◆ *Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease ⇒ Electronic parts catalogue .*



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ ***Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255- .***
- ◆ ***Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.***

1 - Air conditioning unit with evaporator

- ❑ Removing and installing air conditioning unit with evaporator
⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ❑ Removing and installing evaporator
⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)
- ❑ ⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#)

2 - Bolt

3 - Left temperature flap control motor - V158-

- ❑ ⇒ [“4.13 Removing and installing left temperature flap control motor V158”, page 370](#)

4 - Defroster flap control motor - V107-

- ❑ ⇒ [“4.6 Removing and installing defroster flap control motor V107”, page 349](#)

5 - Holder for control motors - V110- and -V299-

- ❑ ⇒ [“4.32.1 Removing and installing holder for control motor V110 and V299”, page 430](#)

6 - Left centre vent control motor - V110-

- ❑ ⇒ [“4.9 Removing and installing left centre vent control motor V110”, page 358](#)

7 - Actuating arm with connecting link

8 - Left side vent control motor - V299-

- ❑ ⇒ [“4.18 Removing and installing left side vent control motor V299”, page 387](#)

9 - Actuating arm with connecting link

10 - Control motor for left footwell temperature flap - V411-

- ❑ ⇒ [“4.26 Removing and installing control motor for left footwell temperature flap V411”, page 411](#)

11 - Left footwell flap control motor - V108-

- ❑ ⇒ [“4.7 Removing and installing left footwell flap control motor V108”, page 352](#)

12 - Holder for control motors -V108- and -V411-

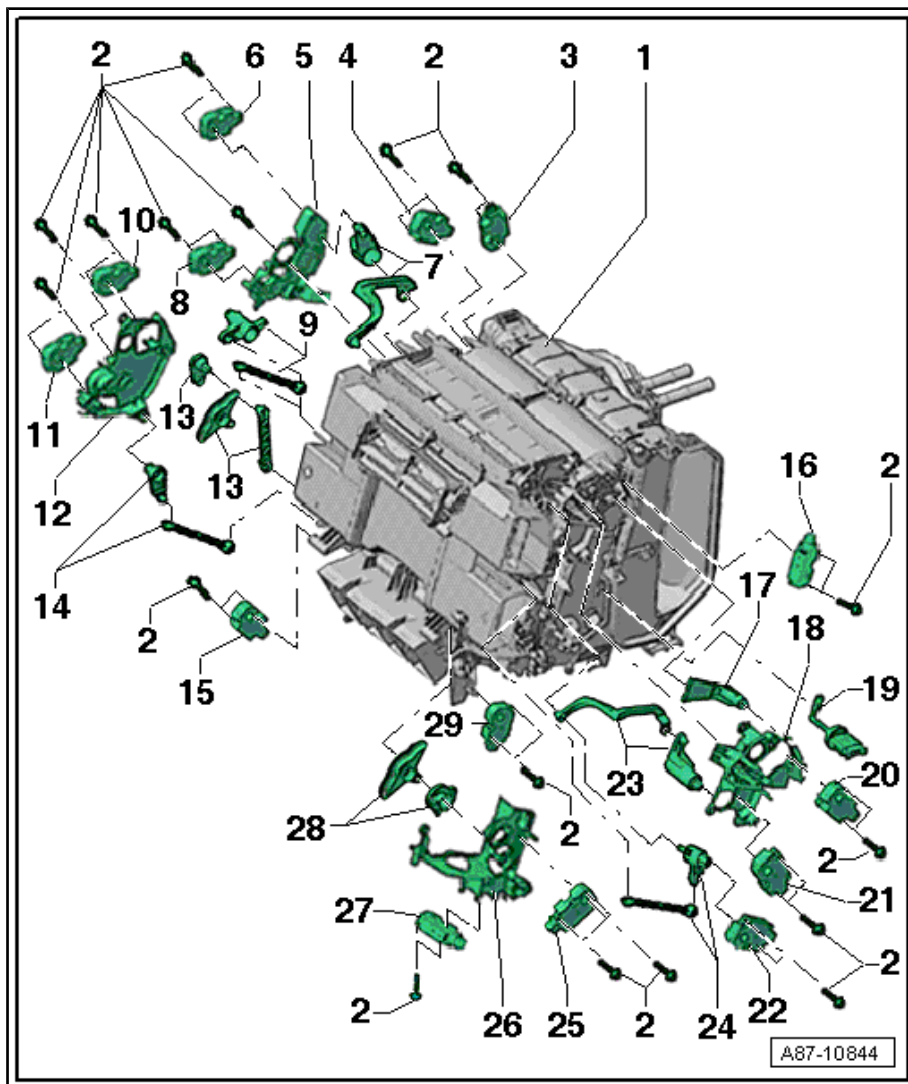
- ❑ ⇒ [“4.32.2 Removing and installing holder for control motor V108 and V411”, page 432](#)

13 - Actuating arm with cam plate

14 - Actuating arm with connecting link

15 - Rear air quantity control motor - V443-

- ❑ ⇒ [“4.29 Removing and installing rear air quantity control motor V443”, page 420](#)



16 - Right temperature flap control motor - V159-

- ⇒ ["4.14 Removing and installing right temperature flap control motor V159", page 373](#)

17 - Actuating lever

18 - Holder for control motors -V111- and -V213-

- ⇒ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#)

19 - Evaporator output temperature sender - G263-

- ⇒ ["10.11 Removing and installing evaporator output temperature sender G263", page 651](#)

20 - Indirect ventilation flap control motor - V213-

- ⇒ ["4.17 Removing and installing indirect ventilation flap control motor V213", page 384](#)

21 - Right centre vent control motor - V111-

- ⇒ ["4.10 Removing and installing right centre vent control motor V111", page 361](#)

22 - Right side vent control motor - V300-

- ⇒ ["4.19 Removing and installing right side vent control motor V300", page 390](#)

23 - Actuating arm with connecting link

24 - Actuating arm with connecting link

25 - Control motor for right footwell temperature flap - V412-

- ⇒ ["4.27 Removing and installing control motor for right footwell temperature flap V412", page 414](#)

26 - Holder for control motors -V109- and -V412-

- ⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)

27 - Right footwell flap control motor - V109-

- ⇒ ["4.8 Removing and installing right footwell flap control motor V109", page 355](#)

28 - Actuating arm with cam plate

29 - Rear temperature flap control motor - V137-

- ⇒ ["4.12 Removing and installing rear temperature flap control motor V137", page 367](#)

4.3 Overview of fitting locations - control motors at rear

⇒ ["4.3.1 Rear air distribution housing components, excluding air distribution housing", page 337](#)

⇒ ["4.3.2 Overview of fitting locations - control motors at rear, including air distribution housing", page 339](#)

4.3.1 Rear air distribution housing components, excluding air distribution housing



Note

- ◆ *Different versions of the levers and connecting elements may be fitted at the air conditioning unit depending on the production period ⇒ Electronic parts catalogue .*
- ◆ *Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease ⇒ Electronic parts catalogue .*



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ *Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255-.*
- ◆ *Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.*

1 - Rear air distribution housing

- ⇒ ["6.5 Removing and installing air intake box of heater and air conditioning unit", page 544](#)
- ⇒ ["4.4 Exploded view - control motors at rear", page 343](#)

2 - Rear fresh air blower - V80-

- Removing and installing ⇒ ["4.4 Exploded view - control motors at rear", page 343](#)



Note

For vehicles with a rear air distribution housing, -V80- is supplied together with the rear air distribution housing as replacement part ⇒ ["4.4 Exploded view - control motors at rear", page 343](#) and ⇒ [Electronic parts catalogue](#).

- Ensure correct allocation ⇒ [Electronic parts catalogue](#)
- Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

3 - Rear fresh air blower control unit - J391-

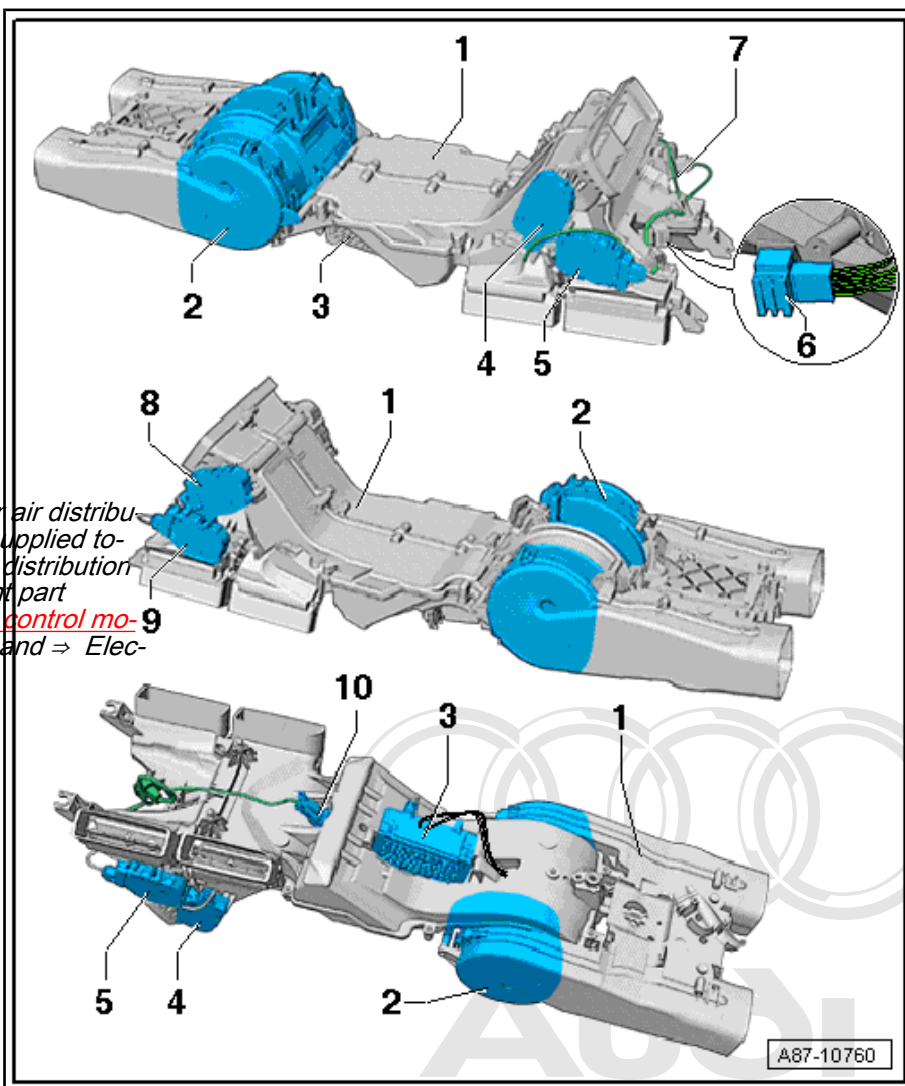
- ⇒ ["6.7 Removing and installing rear fresh air blower control unit J391", page 552](#)
- Ensure correct allocation ⇒ [Electronic parts catalogue](#)
- Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

4 - Rear left chest vent control motor - V315-

- ⇒ ["4.22 Rear left chest vent control motor V315", page 402](#)

5 - Left B-pillar and footwell shut-off flap control motor - V212-

- ⇒ ["4.16 Removing and installing left B-pillar and footwell shut-off flap control motor V212", page 381](#)



6 - 10-pin connector

- ☐ Connection between wiring harness at rear air distribution housing and vehicle wiring harness ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

7 - Wiring harness at rear air distribution housing

8 - Rear right chest vent control motor - V316-

- ☐ ⇒ [“4.23 Rear right chest vent control motor V316”, page 405](#)

9 - Right B-pillar and footwell shut-off flap control motor - V211-

- ☐ ⇒ [“4.15 Removing and installing right B-pillar and footwell shut-off flap control motor V211”, page 377](#)

10 - Temperature sensor for rear intake air temperature - G639-

- ☐ ⇒ [“6.9 Removing and installing temperature sensor for rear intake air temperature G639”, page 565](#)
- ☐ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode



Note

Can only be replaced after removing rear air distribution housing.

4.3.2 Overview of fitting locations - control motors at rear, including air distribution housing



Note

- ◆ *Different versions of the levers and connecting elements may be fitted at the air conditioning unit depending on the production period ⇒ Electronic parts catalogue .*
- ◆ *Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease ⇒ Electronic parts catalogue .*



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ ***Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255- .***

- ◆ ***Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.***

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1 - Air conditioning unit (rear)

- ❑ ⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)
- ❑ ⇒ [“6.2 Exploded view - flaps and partitions in air distribution housing”, page 527](#)

2 - Rear air recirculation flap control motor - V421-

- ❑ ⇒ [“4.28 Removing and installing rear air recirculation flap control motor V421”, page 417](#)

3 - Rear fresh air blower - V80-

- ❑ ⇒ [“6.6 Removing and installing rear fresh air blower V80”, page 547](#)

- ❑ Ensure correct allocation ⇒ Electronic parts catalogue

- ❑ Checking function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

4 - Evaporator

- ❑ Removing and installing (only possible with rear air conditioning unit removed)
⇒ [“6.3 Removing and installing evaporator”, page 530](#)

- ❑ Check bonded-on foam seal (must be properly bonded and not damaged).

5 - Rear left temperature flap control motor - V313-

- ❑ ⇒ [“4.20 Removing and installing rear left temperature flap control motor V313”, page 394](#)

6 - Rear left chest vent control motor - V315-

- ❑ ⇒ [“4.22 Rear left chest vent control motor V315”, page 402](#)

7 - Left B-pillar and footwell shut-off flap control motor - V212-

- ❑ ⇒ [“4.16 Removing and installing left B-pillar and footwell shut-off flap control motor V212”, page 381](#)

8 - Wiring harness at rear air conditioning unit

9 - Wiring to temperature sensors in rear left footwell

- ❑ ⇒ [“10.12 Removing and installing rear left chest vent temperature sender G635”, page 652](#)
- ❑ ⇒ [“10.14 Removing and installing vent temperature sender for rear left footwell G637”, page 653](#)

10 - 10-pin connector

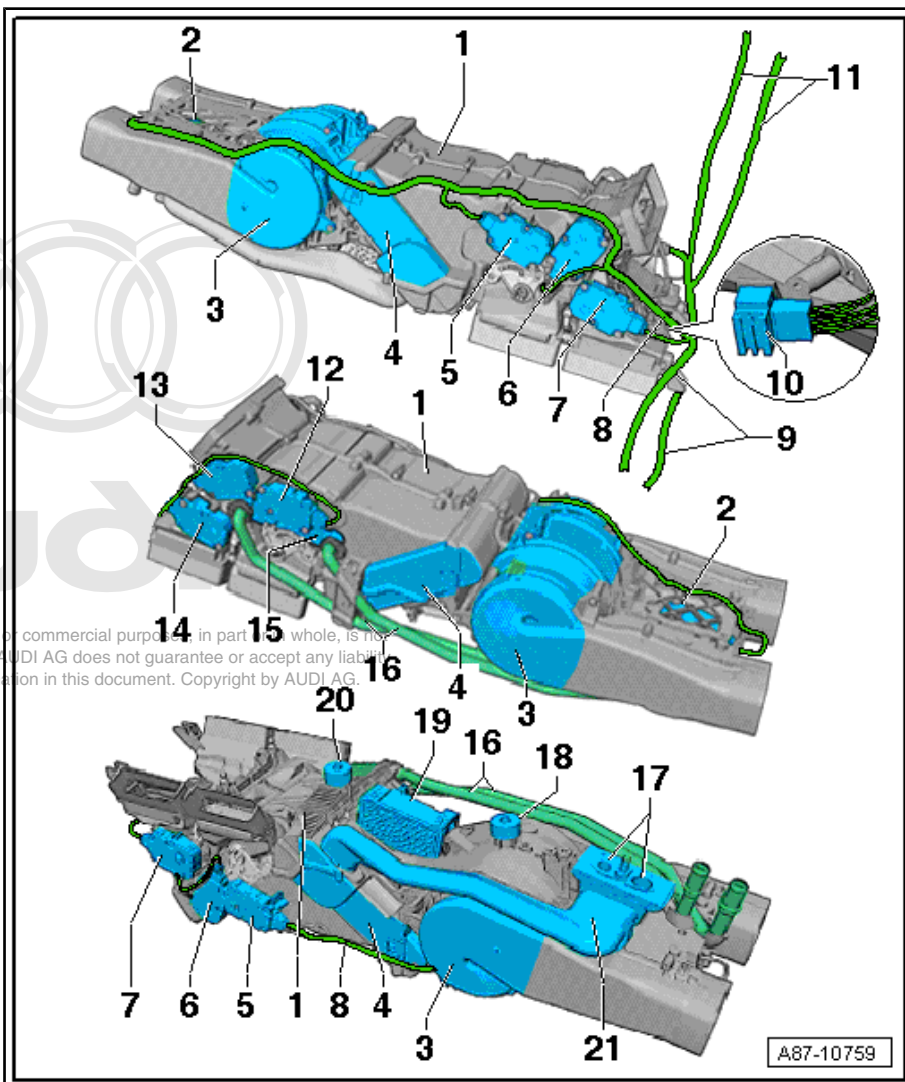
- ❑ Connection between wiring harness at rear air conditioning unit and vehicle wiring harness ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

11 - Wiring to temperature sensors in rear right footwell

- ❑ ⇒ [“10.13 Removing and installing rear right chest vent temperature sender G636”, page 653](#)
- ❑ ⇒ [“10.15 Removing and installing vent temperature sender for rear right footwell G638”, page 654](#)

12 - Rear right temperature flap control motor - V314-

- ❑ ⇒ [“4.21 Removing and installing rear right temperature flap control motor V314”, page 398](#)



13 - Rear right chest vent control motor - V316-

- ☐ ⇒ [“4.23 Rear right chest vent control motor V316”, page 405](#)

14 - Right B-pillar and footwell shut-off flap control motor - V211-

- ☐ ⇒ [“4.15 Removing and installing right B-pillar and footwell shut-off flap control motor V211”, page 377](#)

15 - Rear heat exchanger

- ☐ ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)



Note

*Leave the rear heat exchanger in the vehicle when removing the rear air conditioning unit to avoid having to open the coolant circuit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)*

- ☐ Checking bonded-on foam seal before fitting
⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)
- ☐ Bleeding rear coolant circuit ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)

16 - Coolant lines

- ☐ To heat exchanger in air conditioning unit (rear)
- ☐ These coolant lines are connected to the coolant circuit by coolant hoses routed along the bottom of the centre tunnel.



Note

- ◆ *Air duct of rear fresh air blower - V80-
⇒ [“6.6 Removing and installing rear fresh air blower V80”, page 547](#) and heat shield in centre tunnel must be removed in order to remove these coolant lines ⇒
General body repairs, exterior;
Rep. gr. 66; Strips / panels / width extensions / trim; Removing and installing heat shield for floor.*
- ◆ *Coolant lines are connected to coolant circuit by coolant hoses routed through centre tunnel.*
- ◆ *Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive;
Rep. gr. 39; Propshaft; Removing and installing propshaft.*

17 - Lead-through for refrigerant lines

- ☐ Sometimes left in the vehicle on removing the rear air conditioning unit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)
- ☐ Evaporator is connected to refrigerant circuit by refrigerant lines routed along bottom of the centre tunnel.

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**Note**

- ◆ *Rear expansion valve and heat shield in centre tunnel must be removed in order to remove refrigerant lines between this lead-through and rear expansion valve*
⇒ ["2.9.5 Removing and installing rear expansion valve", page 221](#),
⇒ ["2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223](#)
and ⇒ *General body repairs, exterior; Rep. gr. 66; Strips / panels / width extensions / trim; Removing and installing heat shield for floor.*
- ◆ *Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield* ⇒ *Axle drive; Rep. gr. 39; Propshaft; Removing and installing propshaft.*

18 - Condensation drain with foam seal

- ☐ Condensation drain beneath rear fresh air blower - V80-
- ☐ Rear fresh air blower - V80- or heat shield in centre tunnel must be removed in order to check condensation drain

**Note**

Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ *Axle drive; Rep. gr. 39; Propshaft; Removing and installing propshaft.*

- ☐ Checking with heat shield in centre tunnel removed
⇒ ["6.10 Checking condensation drain hose", page 566](#)

19 - Rear fresh air blower control unit - J391-

- ☐ ⇒ ["6.7 Removing and installing rear fresh air blower control unit J391", page 552](#)
- ☐ Ensure correct allocation ⇒ Electronic parts catalogue
- ☐ Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

20 - Condensation drain with foam seal

- ☐ Condensation drain beneath evaporator in rear air conditioning unit
- ☐ For version of heat shield in centre tunnel fitted at start of production, this condensation drain can be checked from below with exhaust system and propshaft installed (heat shield in centre tunnel does not reach as far as condensation drain). If a longer heat shield is introduced at a later date, the rear air conditioning unit or the heat shield in the centre tunnel will have to be removed in order to check the condensation drain



Note

Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive; Rep. gr. 39; Propshaft; Removing and installing propshaft.

- ❑ Checking with heat shield in centre tunnel installed or removed
 ⇒ [“6.10 Checking condensation drain hose”, page 566](#)

21 - Refrigerant lines to evaporator in air conditioning unit (rear)

4.4 Exploded view - control motors at rear

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Note

- ◆ *Different versions of the levers and connecting elements may be fitted at the air conditioning unit depending on the production period ⇒ Electronic parts catalogue.*
- ◆ *Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease ⇒ Electronic parts catalogue.*



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ ***Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255-.***
- ◆ ***Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.***

1 - Rear air distribution housing with rear fresh air blower - V80-

- ❑ Removing and installing rear air distribution housing
⇒ ["6.5 Removing and installing air intake box of heater and air conditioning unit", page 544](#)
- ❑ Not to be further dismantled (-V80- is part of the air distribution housing) ⇒ Electronic parts catalogue
- ❑ Check operation of -V80- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

Retainers are fitted in bottom of rear air distribution housing to attach rear air distribution housing to centre tunnel (do not remove retainers)
⇒ ["6.5 Removing and installing air intake box of heater and air conditioning unit", page 544](#)

2 - Rear left chest vent control motor - V315-

- ❑ ⇒ ["4.22 Rear left chest vent control motor V315", page 402](#)

3 - Left B-pillar and footwell shut-off flap control motor - V212-

- ❑ ⇒ ["4.16 Removing and installing left B-pillar and footwell shut-off flap control motor V212", page 381](#)

4 - Bolt

5 - Connecting element

6 - Actuating arm

7 - Connecting element

8 - Temperature sensor for rear intake air temperature - G639-

- ❑ ⇒ ["6.9 Removing and installing temperature sensor for rear intake air temperature G639", page 565](#)
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

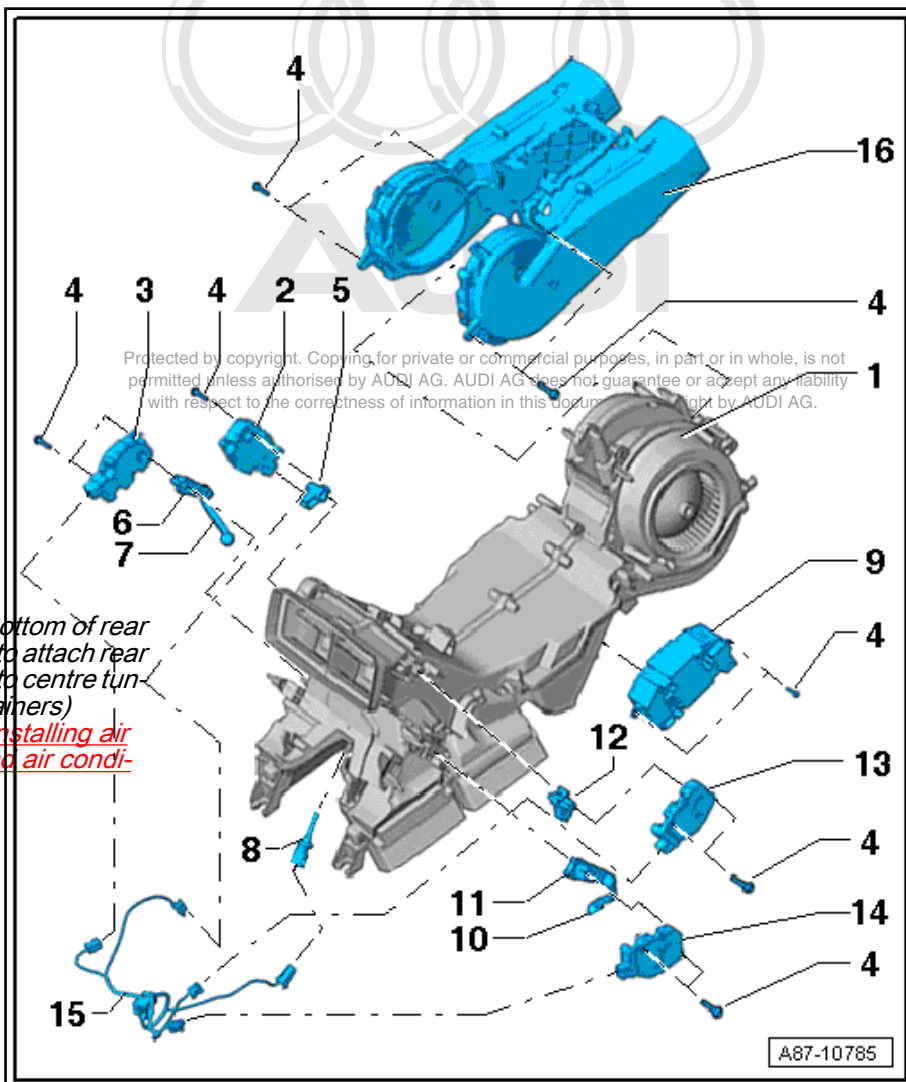


Note

Can only be replaced after removing rear air distribution housing

9 - Rear fresh air blower control unit - J391-

- ❑ ⇒ ["6.7 Removing and installing rear fresh air blower control unit J391", page 552](#)
- ❑ Ensure correct allocation ⇒ Electronic parts catalogue
- ❑ Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode



10 - Connecting element

11 - Actuating arm

12 - Connecting element

13 - Rear right chest vent control motor - V316-

❑ ⇒ ["4.23 Rear right chest vent control motor V316", page 405](#)

14 - Right B-pillar and footwell shut-off flap control motor - V211-

❑ ⇒ ["4.15 Removing and installing right B-pillar and footwell shut-off flap control motor V211", page 377](#)

15 - Wiring harness at rear air distribution housing

16 - Air duct

❑ Not to be further dismantled ⇒ Electronic parts catalogue

4.5 Removing and installing air flow flap control motor - V71-

⇒ ["4.5.1 Removing and installing air flow flap control motor V71", page 345](#)

⇒ ["4.5.2 Operation of air flow flap control motor V71", page 348](#)

4.5.1 Removing and installing air flow flap control motor - V71-

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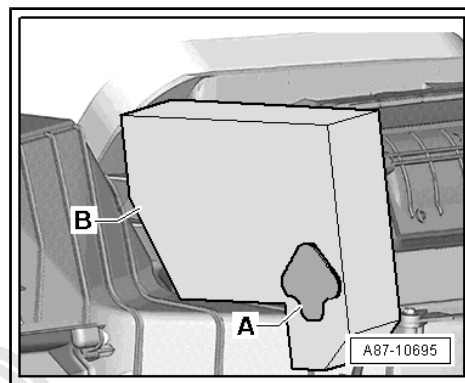
Note

- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
 ⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor (correct position of air recirculation flap and air flow/fresh-air flap)*
 ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ *Operation of air flow flap control motor - V71- ⇒ [page 348](#).*

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

- Release bracket -A- and detach noise insulation cover -B-.



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- Mark the connector -A- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

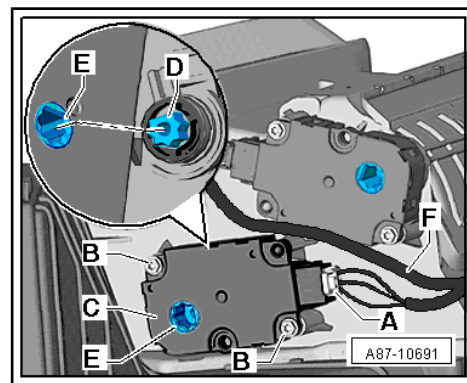
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- plugged in may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the flap -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.5.2 Operation of air flow flap control motor - V71-

- ◆ With air-recirculation flap closed, the position of the fresh-air and the air flow flap can be seen via the air-intake opening in the plenum chamber (if necessary, remove cowl panel trim and cover over fresh-air intake
⇒ ["7.9 Removing and installing fresh air intake", page 594](#)).
- ◆ For regulation of the air flow, the fresh air intake duct is partially closed via the air flow flap at higher vehicle speeds (as of approx. 80 km/h) by the air conditioner front operating and display unit, Climatronic control unit - J255- (the position of the air recirculation flap is specified by -J255-).
- ◆ To reduce the change in the noise level of the fresh air blower - V2- caused by differences in the air intake when switching from fresh air mode to air recirculation mode or vice versa, the air flow flap control motor - V71- and the air recirculation flap control motor - V113- are activated as follows:
- On switching from fresh air mode to air recirculation mode, the air recirculation flap is opened first and the fresh air intake duct then closed by way of the air flow/fresh-air flap.
- When switching from air-recirculation mode to fresh-air mode, the fresh-air intake duct is opened first via the air-flow/fresh-air flap and the air-recirculation flap is then closed.
- In partial air recirculation mode, the air recirculation flap is opened and the air flow/fresh-air flap moved to a central position by -J255- (the fresh-air and air recirculation intake ducts are both opened slightly). This ensures improved cooling in certain temperature ranges and at the same time the intake of a certain proportion of fresh air.

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4.6 Removing and installing defroster flap control motor - V107-



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ ["1. 10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

Removing

- Move driver's seat to rearmost position.
- By way of the **FRONT** (defrost button) of the air conditioner front operating and display unit, Climatronic control unit - J255- , set the air distribution to the windscreen and wait until air emerges from the dash panel vents to the windscreen.

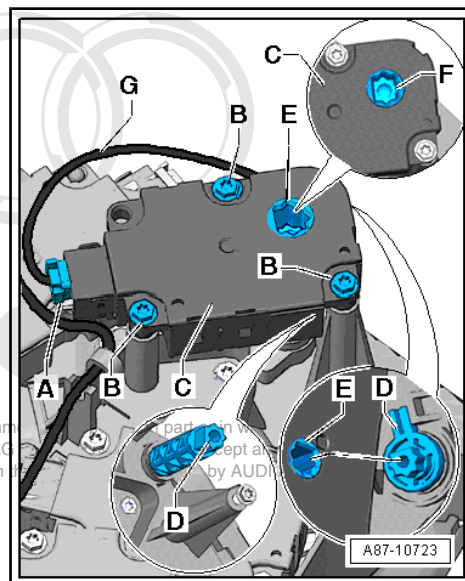
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Note

- ◆ On detaching the control motor -C-, the defrost flap in the air conditioning unit opens automatically due to gravity. The mount -E- must be in this position to enable the shaft of the defrost flap -D- to be inserted in the mount -E- on installing the control motor -C-.
- ◆ Heed the notes on installation if the control motor cannot be activated on account of a fault.

- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior, Rep. gr. 68; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .
- Remove accelerator pedal module ⇒ Rep. gr. 20 ; Throttle control; Exploded view - accelerator pedal module .



Caution

- ◆ The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- ◆ The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.
- ◆ Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.

- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

Installing

Install in reverse order of removal; note the following.

Note

- ◆ *On detaching the control motor -C-, the defrost flap in the air conditioning unit opens automatically due to gravity. The shaft of this flap -D- is thus always in a certain position.*
- ◆ *The mount -E- of the control motor -C- can only be attached to the shaft of the flap -D- in one position. As the mount -E- of the control motor -C- may be in a different position, it may be necessary to move it to a position in which it can be fitted to the shaft of the flap -D-.*
- ◆ *The air conditioning unit is supplied with different shafts -D-. In the case of the version with a short shaft -D-, the control motor -C- can only be attached to the shaft -D- in the specified installation position. On the version with a longer shaft -D- (the difference in length is roughly 10 mm), the control motor -C- can be turned into the specified installation position together with the shaft following attachment to the shaft -D-.*



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*

- Check the mount -E- of the control motor -C- if this is not in the position -F- shown.
- ◆ Plug in the connector -A- at the control motor removed.
- ◆ Use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until it is in position -F-.

Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the flap -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Check the connection between the control motor -E- and the shaft -D-. There must not be any play.

- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -G- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.7 Removing and installing left footwell flap control motor - V108-

**Note**

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.2 Removing and installing holder for control motor V108 and V411", page 432](#)*

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
 ⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

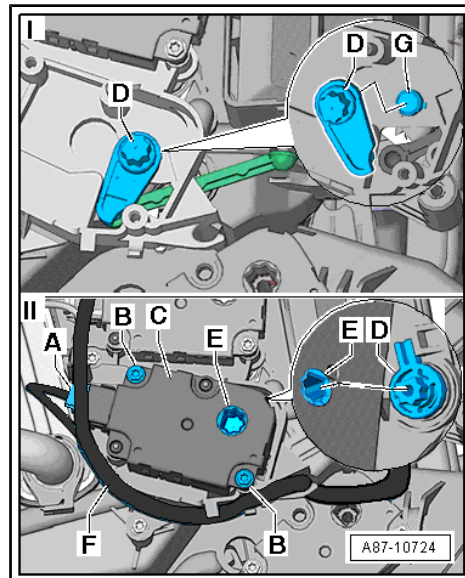
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- for correct positioning on the mount -G-.
 - Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the actuating arm -D-.
 - Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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 Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ ["1. 10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.8 Removing and installing right footwell flap control motor - V109-

 Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ ["1. 10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)*

Removing

- Switch off ignition.
- Remove front right seat (front passenger seat) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove the centre console upper and right trim ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .

- Remove glove compartment and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

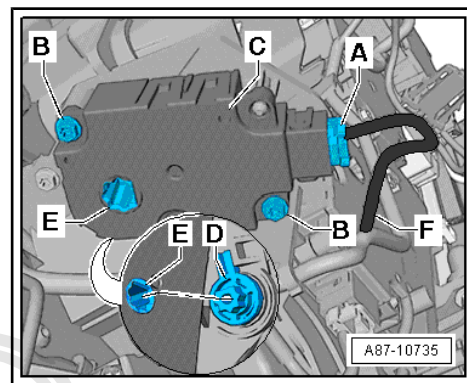
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the flap -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner → Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.9 Removing and installing left centre vent control motor - V110-

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**Note**

- ◆ *The same instructions and precautions apply to -V110- as to the left side vent control motor - V299- and must be observed
⇒ ["4.18 Removing and installing left side vent control motor V299", page 387](#).*
- ◆ *⇒ ["4.32.1 Removing and installing holder for control motor V110 and V299", page 430](#)*

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .
- Remove the left side vent control motor - V299-
⇒ ["4.18 Removing and installing left side vent control motor V299", page 387](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

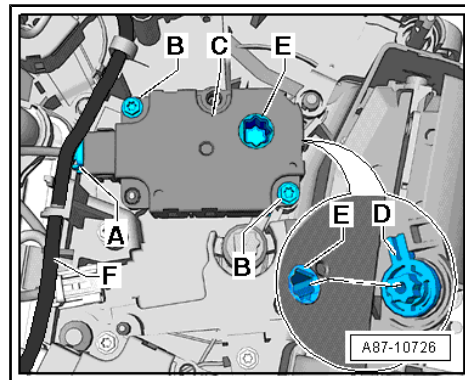
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*

- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Fit the left side vent control motor - V299-
⇒ [“4.18 Removing and installing left side vent control motor V299”, page 387](#) .
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

 Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.10 Removing and installing right centre vent control motor - V111-

 Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#)*

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly **before** detaching or removing to prevent incorrect installation.*

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- Mark the connector -A- and the control motor -C- (to prevent interchange as several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C-.

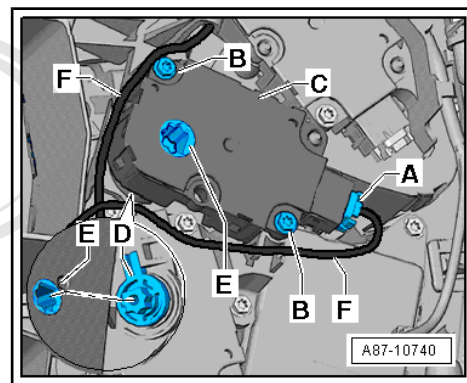
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.


Note

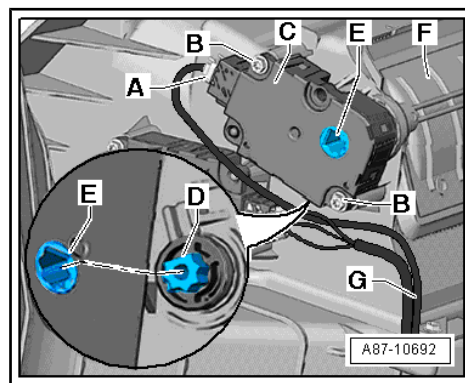
- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.11 Removing and installing air recirculation flap control motor - V113-


Note

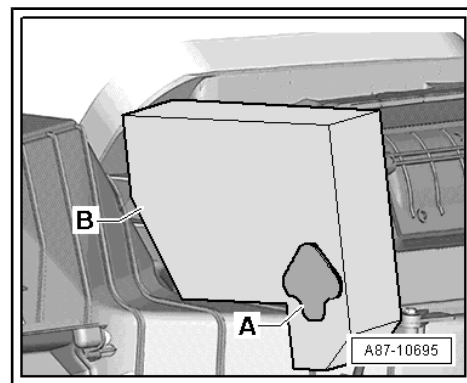
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor (correct position of air recirculation flap and air flow/fresh-air flap) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *In the event of problems with moisture in the passenger compartment, additionally check the air recirculation flap -F- (must close completely).*



Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

- Release bracket -A- and detach noise insulation cover -B-.



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- Mark the connector -A- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

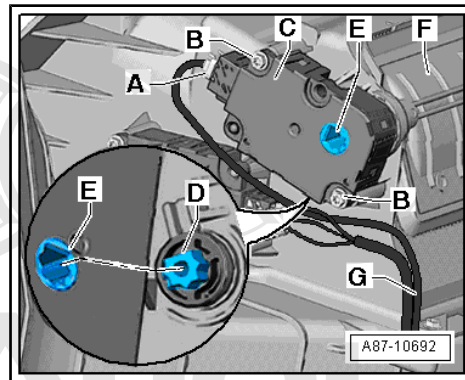
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- plugged in may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



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Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the flap -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the flap -D-.
- Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -G- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1. 10. 1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.12 Removing and installing rear temperature flap control motor - V137-



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1. 10. 1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

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Removing

- Switch off ignition.
- Remove front right seat (front passenger seat) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove the centre console upper and right trim ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Remove glove compartment and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment and ⇒ General body repairs,

interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .

- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

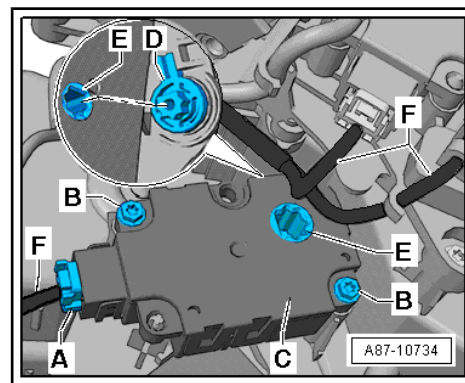
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the flap -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the flap -D-.
- Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

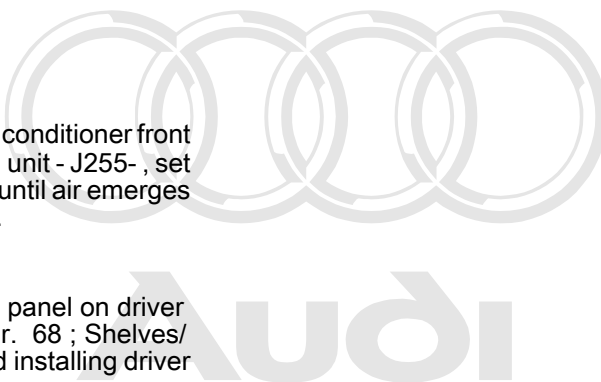
4.13 Removing and installing left temperature flap control motor - V158-

**Note**

*The same instructions and precautions apply to -V158- as to the defroster flap control motor - V107- and must be observed
⇒ ["4.6 Removing and installing defroster flap control motor V107", page 349](#).*

Removing

- Move driver's seat to rearmost position.
- By way of the **FRONT** (defrost button) of the air conditioner front operating and display unit, Climatronic control unit - J255- , set the air distribution to the windscreen and wait until air emerges from the dash panel vents to the windscreen.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ [page 584](#)
- Remove accelerator pedal module ⇒ Rep. gr. 20 ; Throttle control; Exploded view - accelerator pedal module .
- Remove the defroster flap control motor - V107-
⇒ ["4.6 Removing and installing defroster flap control motor V107", page 349](#) .



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Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.
- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.

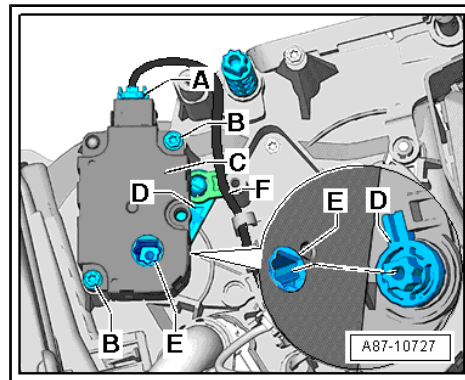
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*

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- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Plug in connector -A-.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Fit the defroster flap control motor - V107-
⇒ ["4.6 Removing and installing defroster flap control motor V107", page 349](#).
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

 Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.14 Removing and installing right temperature flap control motor - V159-

 Note

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Removal of this control motor involves taking out -V111- and -V213- as well as the corresponding holder and the air intake box.

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Remove air-intake box
⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#) .



- Remove the right centre vent control motor - V111-
⇒ ["4.10 Removing and installing right centre vent control motor V111", page 361](#) .
- Remove the indirect ventilation flap control motor - V213-
⇒ ["4.17 Removing and installing indirect ventilation flap control motor V213", page 384](#) .
- Remove the holder for the control motors -V111- and -V213-
⇒ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#) .



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- Mark the connector -A- and the control motor -C- (to prevent interchange as several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C-.

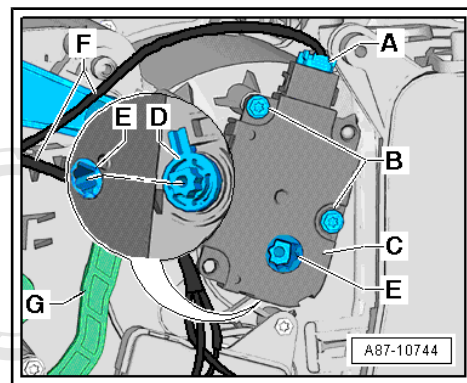
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is actuated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the actuating arm -D- and the connecting element -G- for proper operation and correct installation position.
- Check the shaft of the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Fit the holder for the control motors -V111- and -V213-
 ➔ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#).

- Fit the right centre vent control motor - V111-
⇒ ["4.10 Removing and installing right centre vent control motor V111", page 361](#) .
- Fit the indirect ventilation flap control motor - V213-
⇒ ["4.17 Removing and installing indirect ventilation flap control motor V213", page 384](#) .
- Install air-intake box
⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#) .
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

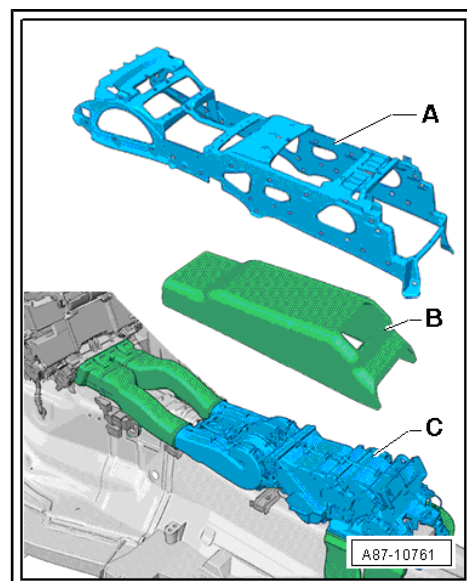
- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.15 Removing and installing right B-pillar and footwell shut-off flap control motor - V211-

Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After fitting a new control motor, check activation by the rear Climatronic operating and display unit - E265- (on vehicles with a rear air conditioner) or by the air conditioner front operating and display unit, Climatronic control unit - J255- (on vehicles with a rear air distribution housing) and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit/rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

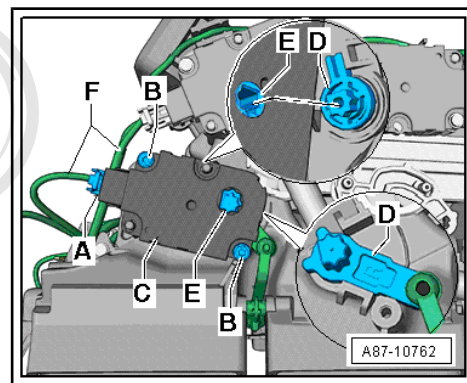
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is actuated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Check that the actuating arm -D- has been installed in the correct position.
 - Attach the mount of the control motor -E- to the actuating arm -D-.
 - Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

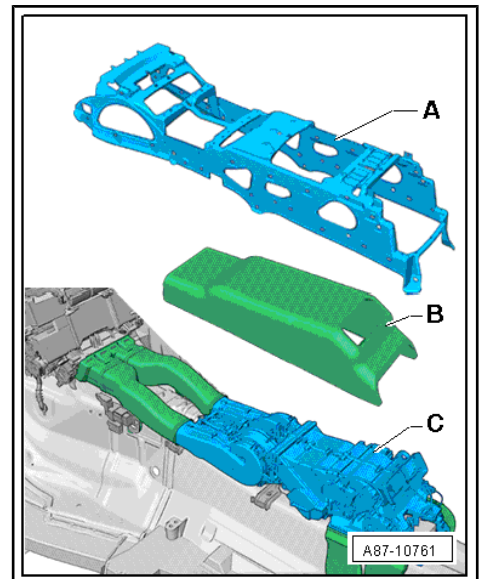


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4.16 Removing and installing left B-pillar and footwell shut-off flap control motor - V212-

Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ *"1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After fitting a new control motor, check activation by the rear Climatronic operating and display unit - E265- (on vehicles with a rear air conditioner) or by the air conditioner front operating and display unit, Climatronic control unit - J255- (on vehicles with a rear air distribution housing) and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit/rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; **Front seats; Removing and installing front seat** .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

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**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

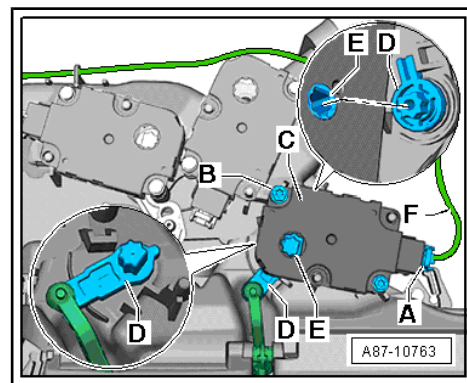
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Check that the actuating arm -D- has been installed in the correct position.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.17 Removing and installing indirect ventilation flap control motor - V213-

**Note**

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- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#)*

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C-.

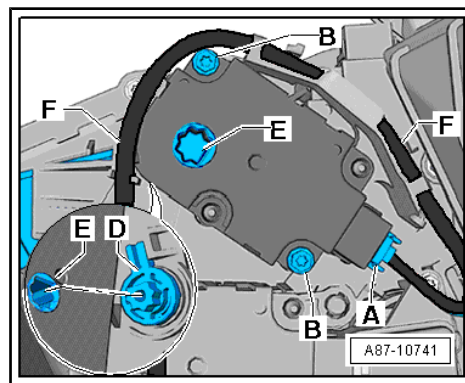
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is actuated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the actuating arm -D-.
- Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.18 Removing and installing left side vent control motor - V299-

Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.1 Removing and installing holder for control motor V110 and V299", page 430](#)*

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ [page 584](#).

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

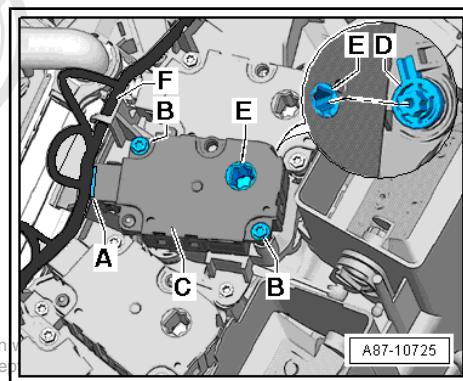
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.19 Removing and installing right side vent control motor - V300-

**Note**

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

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Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Remove the right centre vent control motor - V111-
⇒ "4.10 Removing and installing right centre vent control motor V111", page 361.

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- Mark the connector -A- and the control motor -C- (to prevent interchange as several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C-.
- Separate the control motor -C- from the actuating arm -D-.

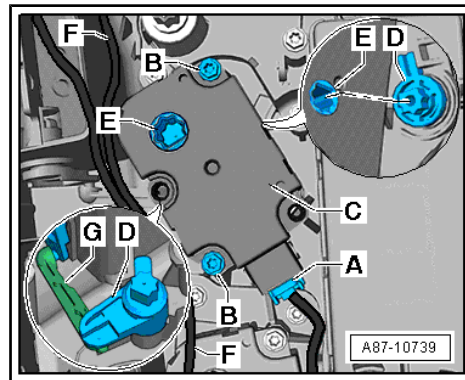
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*

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- Check the connecting elements -G- (to the flap) and the actuating arm -D- for proper operation and correct installation position.
- Check the shaft of the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit the control motor -C- with the actuating arm -D-.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.

- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ [“1. 10.1 Overview of control motors of air conditioner”, page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

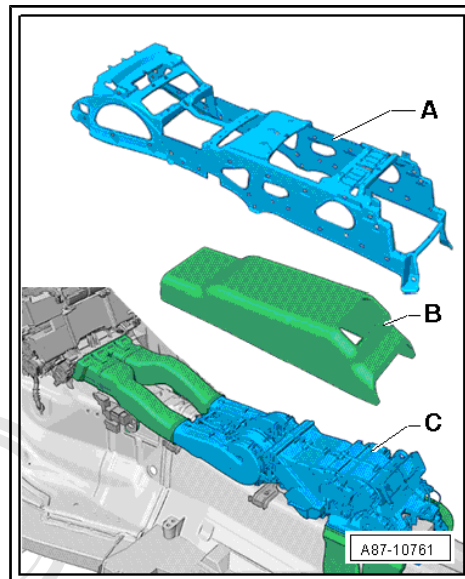
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4.20 Removing and installing rear left temperature flap control motor - V313-



Note

- ◆ This control motor is only fitted on vehicles with a rear air conditioning unit (not fitted on vehicles with a rear air distribution housing).
- ◆ Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ After installing a new control motor, check activation by the rear Climatronic operating and display unit - E265- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

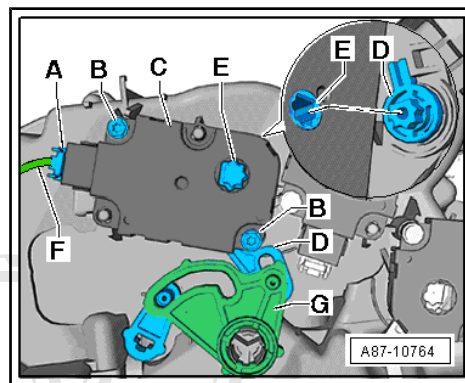
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

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- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Check that the actuating arm -D- and cam plate -D- have been installed in the correct position.
 - Attach the mount of the control motor -E- to the actuating arm -D-.
 - Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1. 10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



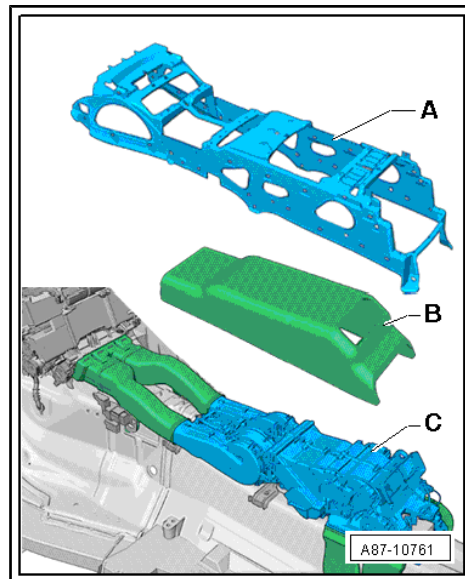
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4.21 Removing and installing rear right temperature flap control motor - V314-



Note

- ◆ This control motor is only fitted on vehicles with a rear air conditioning unit (not fitted on vehicles with a rear air distribution housing).
- ◆ Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ After installing a new control motor, check activation by the rear Climatronic operating and display unit - E265- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

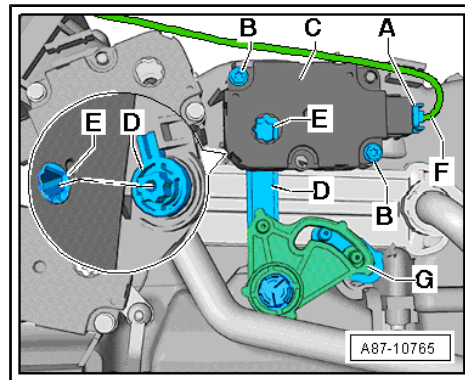
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*

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- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Check that the actuating arm -D- and cam plate -G- have been installed in the correct position.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1. 10.1 Overview of control motors of air conditioner", page 33.*
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

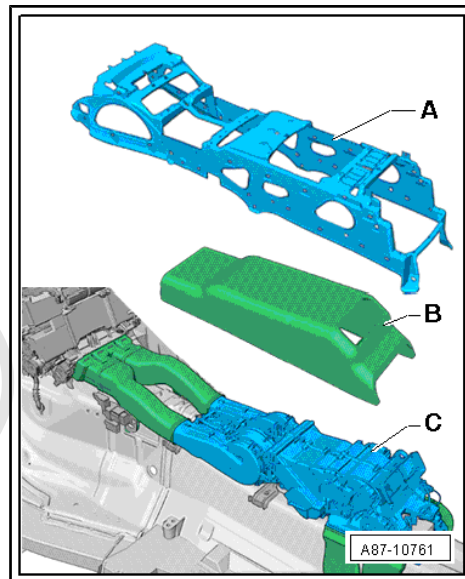
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4.22 Rear left chest vent control motor - V315-



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After fitting a new control motor, check activation by the rear Climatronic operating and display unit - E265- (on vehicles with a rear air conditioner) or by the air conditioner front operating and display unit, Climatronic control unit - J255- (on vehicles with a rear air distribution housing) and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit/rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



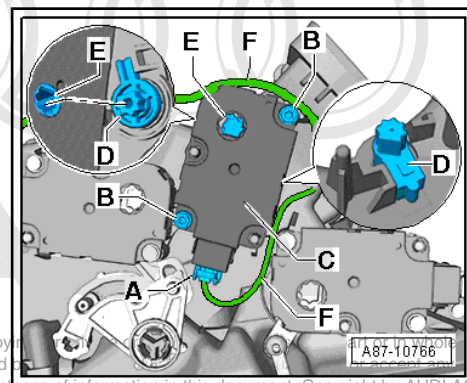
Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the connecting element -D-.

Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*

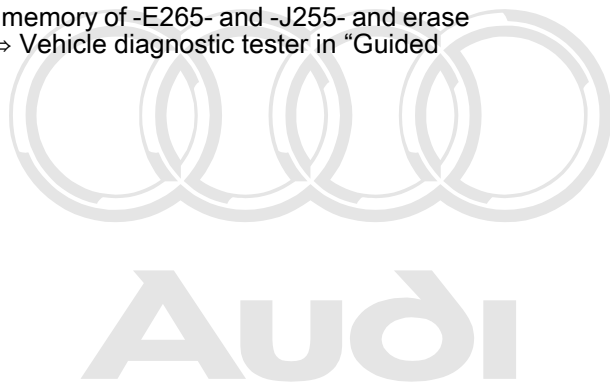


Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the connecting element -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Check that the connecting element -D- has been installed in the correct position.
- Attach the mount of the control motor -E- to the connecting element -D-.
- Check the connection between the control motor -E- and the connecting element -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



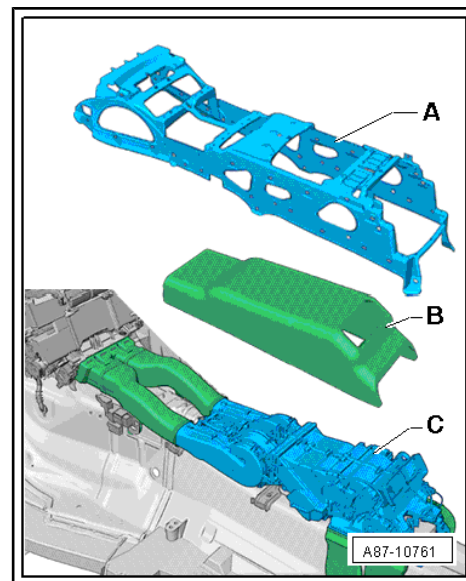
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4.23 Rear right chest vent control motor - V316-



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After fitting a new control motor, check activation by the rear Climatronic operating and display unit - E265- (on vehicles with a rear air conditioner) or by the air conditioner front operating and display unit, Climatronic control unit - J255- (on vehicles with a rear air distribution housing) and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit/rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the connecting element -D-.

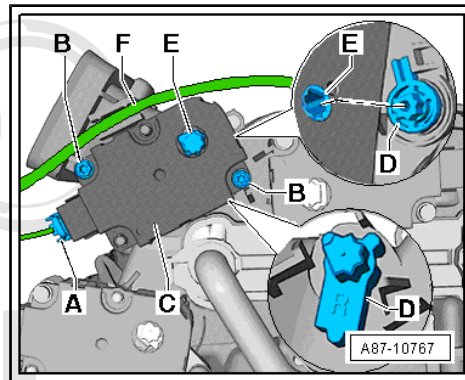
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ **Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.**
- ◆ **Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.**



Note

- ◆ *The mount of the control motor -E- can only be attached to the connecting element -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the connecting element -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the connecting element -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Check that the connecting element -D- has been installed in the correct position.
 - Attach the mount of the control motor -E- to the connecting element -D-.
 - Check the connection between the control motor -E- and the connecting element -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.* Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly* AUDI AG.
 ⇒ "1.10.1 Overview of control motors of air conditioner", page 33.
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.24 Removing and installing control motor for left side window defroster flap - V409-

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim

- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

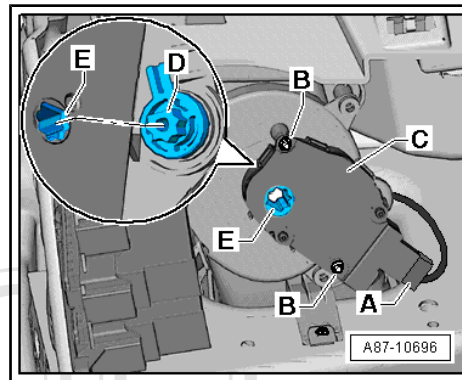
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the flap -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -G- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ ["1. 10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.25 Removing and installing control motor for right side window defroster flap - V410-

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ [General body repairs, interior; Rep. gr. 68; Shelves/storage compartments/covers; Removing and installing glove compartment](#).

- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

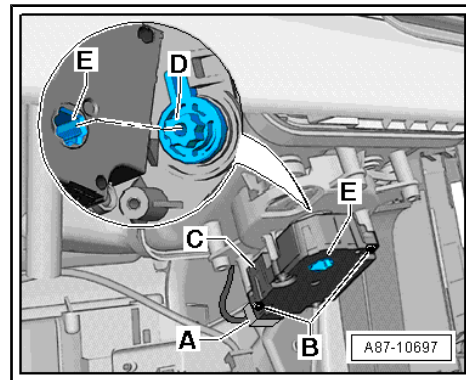
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the shaft of the flap -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*

- Check the shaft -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the shaft of the flap -D-.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.26 Removing and installing control motor for left footwell temperature flap - V411-

Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.2 Removing and installing holder for control motor V108 and V411", page 432](#)*

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior, Rep. gr. 68, Shelves/storage compartments/covers, Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ [page 584](#).

**Caution**

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

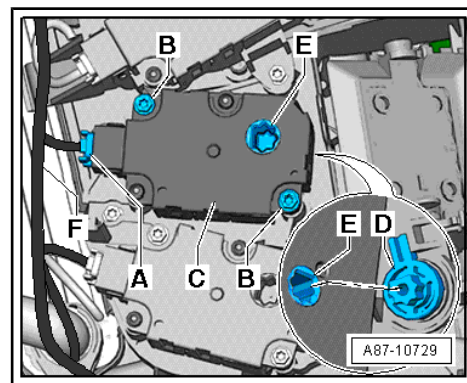
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is actuated. A control motor should therefore not be activated after it has been detached.*

- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

**Note**

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.27 Removing and installing control motor for right footwell temperature flap - V412-

**Note**

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)*

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove glove compartment and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment and ⇒ General body repairs,

interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .

- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the gear wheel -D-.

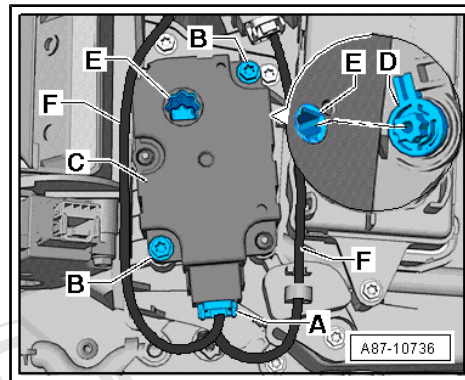
Installing

Install in reverse order of removal; note the following.



Caution

- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

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- ◆ *The mount of the control motor -E- can only be attached to the shaft of the gear wheel -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the shaft -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the gear wheel -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

 Note

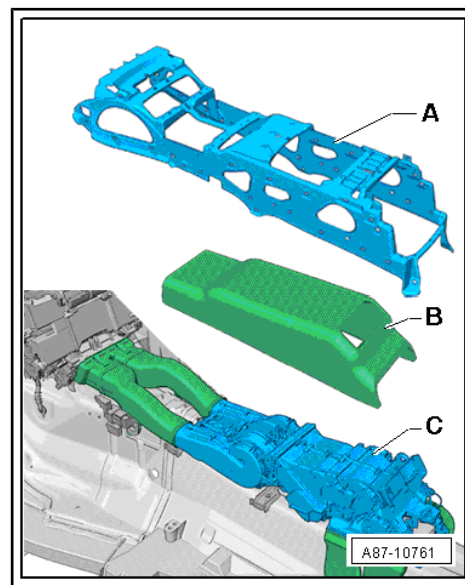
- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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4.28 Removing and installing rear air recirculation flap control motor - V421-

 Note

- ◆ *This control motor is only fitted on vehicles with a rear air conditioning unit (not fitted on vehicles with a rear air distribution housing).*
- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *After installing the control motor, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the rear Climatronic operating and display unit - E265- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of this control motor involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .*



Special tools and workshop equipment required

- ◆ Strong carpet knife with blade firmly and securely attached in handle

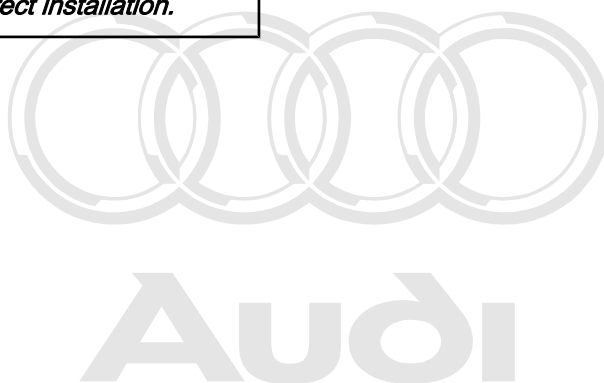
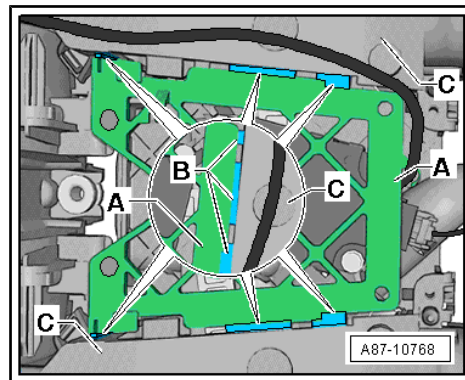
Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .
- Use a sharp knife (e.g. a strong carpet knife with the blade firmly and securely attached in the handle) to separate the cover grille -A- from the air ducts -C- at the marked joints -B-.



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the actuating arm -D-.

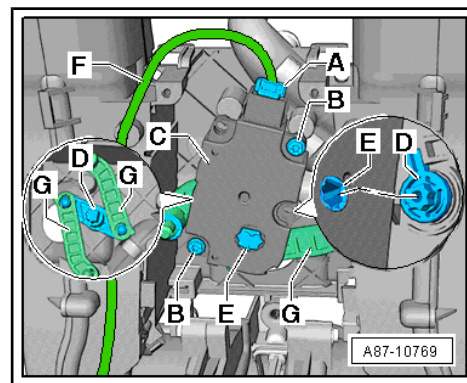
Installing

Install in reverse order of removal; note the following.



Caution

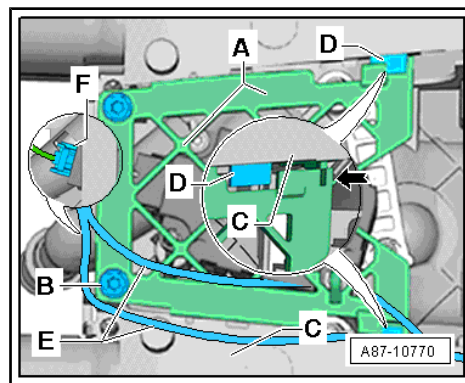
- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*



Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
- ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
- ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the actuating arm -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
- Check that the actuating arm -D- and connecting elements -G- have been installed in the correct position.
- Attach the mount of the control motor -E- to the actuating arm -D-.
- Check the connection between the control motor -E- and the actuating arm -D-. There must not be any play.
- Fit bolts -B-.
- Plug in connector -A-.
- Lay the wiring harness -F- such that it cannot come into contact with moving components.

- Engage -arrow- the cover grille -A- at the mounts -D- of the air ducts -C- and secure with the bolts -B- → Electronic parts catalogue .
- Check the routing of the wiring harness -E- to the connector -F-. It must not come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner → Vehicle diagnostic tester in "Guided Fault Finding" mode.


Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- (all control motors are identical at present) → Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
→ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed → Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.29 Removing and installing rear air quantity control motor - V443-


Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
→ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ *After installing the control motor, perform air conditioner basic setting → Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) → Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor → Vehicle diagnostic tester in "Guided Fault Finding" mode.*

Removing

- Switch off ignition.

- Remove front left seat (driver seat) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove storage compartment beneath dash panel on driver side and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove the centre console upper and left trim ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

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- Mark the connector -A- and the control motor -C- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Detach the control motor -C- from the shaft of the flap -D-.

Installing

Install in reverse order of removal; note the following.



Caution

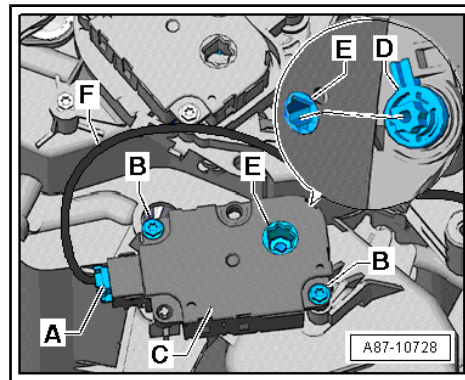
- ◆ *Turning the mount of the control motor -E- by hand with the connector -A- unplugged may damage the electronics in the control motor.*
- ◆ *Only turn the mount of the control motor -E- carefully and slowly with the connector -A- plugged in and only to the extent required for installation.*

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Note

- ◆ *The mount of the control motor -E- can only be attached to the actuating arm -D- in one position. If the mount of the control motor -E- is positioned such that it cannot be fitted to the actuating arm -D-, it may be necessary to use a suitable screwdriver for example to carefully turn the mount in the control motor -E- until the two components can be joined without applying force.*
 - ◆ *If the mount of the control motor -E- is not in the position shown (the only position in which the connection piece can be attached), plug in the connector -A- at the control motor and carefully turn the mount of the control motor -E- into the position in which the two components can be joined without tensioning.*
 - ◆ *The mount of the control motor -E- has no stop. It rotates permanently if the control motor is activated. A control motor should therefore not be activated after it has been detached.*
- Check the shaft of the flap -D- and the mount of the control motor -E-. They must be properly aligned for assembly.
 - Attach the mount of the control motor -E- to the shaft of the flap -D-.
 - Check the connection between the control motor -E- and the shaft -D-. There must not be any play.
 - Fit bolts -B-.
 - Plug in connector -A-.
 - Lay the wiring harness -F- such that it cannot come into contact with moving components.
 - Re-install all parts removed in reverse order.
 - Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



 Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
 ⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.30 Removing and installing air recirculation flap 1 control motor for hybrid battery - V479-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
 ⇒ [page 36](#) and ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

- Switch off ignition.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93; De-energising high-voltage system.
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93; De-energising high-voltage system.

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**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

**Note**

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management - J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - De-energise high-voltage system (Rep. gr. 93)***

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 Note

- ◆ *On this vehicle, the two control motors (-V479- and -V480-) at the battery cooling module are activated by the battery regulation control unit - J840- via a data line. The two control motors are connected by way of this data line (LIN bus) to - J840- . If an incorrect control motor has been fitted, if the control motors at the battery cooling module have been interchanged or if there is a fault at one of the control motors or in the wiring, this can result in different entries in the event memory with different types of fault ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *The control motors at the battery cooling module are identical to those at the air conditioning unit. However, since -J840- cannot perform addressing for the control motors, it is important to fit only control motors on the battery cooling module that already have the correct address. For this reason, take care to select the correct version (part number) on replacement and note the correct fitting location when installing ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Electronic parts catalogue .*
- ◆ *Please note that different designations may be used for the control motors -V479- and -V480- in vehicle diagnosis.*

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Caution

Pay attention to correct assignment of the control motors.

- ◆ *The two control motors (-V479- and -V480-) are identical. The only difference is the assignment stored in the electronics (address).*
- ◆ *If the control motors are interchanged on installation, activation of the flaps in the battery cooling module will be incorrect and problems with the drive battery - A2- will be encountered due to incorrect air routing.*
- ◆ *Prior to removal, mark the control motor and the fitting location at the battery cooling module.*
- ◆ *On installation, pay attention to the marking and check the part number of the control motor if necessary ⇒ Electronic parts catalogue .*

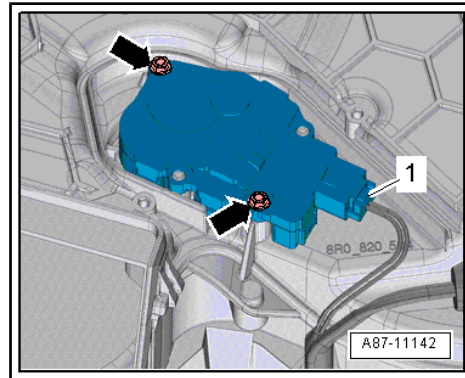
 Note

At the start of production, the part number of -V479- for example is "8R0 820 504" and that of -V480- is "8R0 820 510". Take care to select the correct version ⇒ Electronic parts catalogue .

Removing

Air recirculation flap 1 control motor for hybrid battery - V479- :

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove air inlet duct for drive battery ⇒ [page 681](#) .
- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach air recirculation flap 1 control motor for hybrid battery - V479- .



Installing

Install in reverse order of removal; note the following.

- Re-install remaining components (removed earlier).

Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- To check function after installation (if necessary) perform final diagnosis of both control motors on battery cooling module via battery regulation control unit - J840- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

4.31 Removing and installing air recirculation flap 2 control motor for hybrid battery - V480-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring"](#)

for damage", page 41 and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

**Note**

- ◆ ***On this vehicle, the two control motors (-V479- and -V480-) at the battery cooling module are activated by the battery regulation control unit - J840- via a data line. The two control motors are connected by way of this data line (LIN bus) to - J840- . If an incorrect control motor has been fitted, if the control motors at the battery cooling module have been interchanged or if there is a fault at one of the control motors or in the wiring, this can result in different entries in the event memory with different types of fault ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.***
- ◆ ***The control motors at the battery cooling module are identical to those at the air conditioning unit. However, since -J840- cannot perform addressing for the control motors, it is important to fit only control motors on the battery cooling module that already have the correct address. For this reason, take care to select the correct version (part number) on replacement and note the correct fitting location when installing ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Electronic parts catalogue .***
- ◆ ***Please note that different designations may be used for the control motors -V479- and -V480- in vehicle diagnosis.***



Caution

Pay attention to correct assignment of the control motors.

- ◆ *The two control motors (-V479- and -V480-) are identical. The only difference is the assignment stored in the electronics (address).*
- ◆ *If the control motors are interchanged on installation, activation of the flaps in the battery cooling module will be incorrect and problems with the drive battery - A2- will be encountered due to incorrect air routing.*
- ◆ *Prior to removal, mark the control motor and the fitting location at the battery cooling module.*
- ◆ *On installation, pay attention to the marking and check the part number of the control motor if necessary → Electronic parts catalogue .*



Note

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At the start of production, the part number of -V479- for example is "8R0 820 504" and that of -V480- is "8R0 820 510". Take care to select the correct version → Electronic parts catalogue .

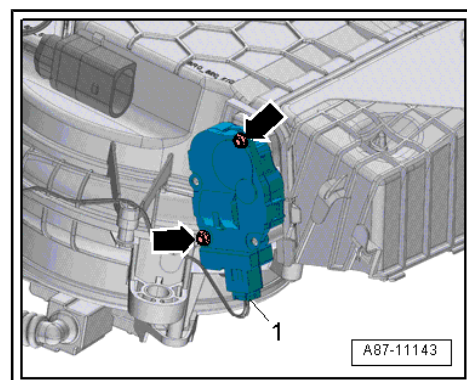
Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove bolts -arrows-.
- Detach air recirculation flap 2 control motor for hybrid battery - V480- and unplug electrical connector -1-.

Installing

Install in reverse order of removal; note the following.

- Re-install remaining components (removed earlier).
- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- To check function after installation (if necessary) perform final control diagnosis of both control motors on battery cooling module via battery regulation control unit - J840- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



4.32 Removing and installing bracket for control motors

⇒ ["4.32.1 Removing and installing holder for control motor V110 and V299", page 430](#)

⇒ ["4.32.2 Removing and installing holder for control motor V108 and V411", page 432](#)

⇒ ["4.32.3 Removing and installing holder for control motor V109 and V412", page 435](#)

⇒ ["4.32.4 Removing and installing holder for control motor V111 and V213", page 437](#)

4.32.1 Removing and installing holder for control motor -V110- and -V299-



Note

Removal of this holder involves taking out the control motors - V107-, -V110- and -V299-.

Removing

- Move driver's seat to rearmost position.
- By way of the **FRONT** (defrost button) of the air conditioner front operating and display unit, Climatronic control unit - J255-, set the air distribution to the windscreen and wait until air emerges from the dash panel vents to the windscreen.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .
- Remove accelerator pedal module ⇒ Rep. gr. 20 ; Throttle control; Exploded view - accelerator pedal module .



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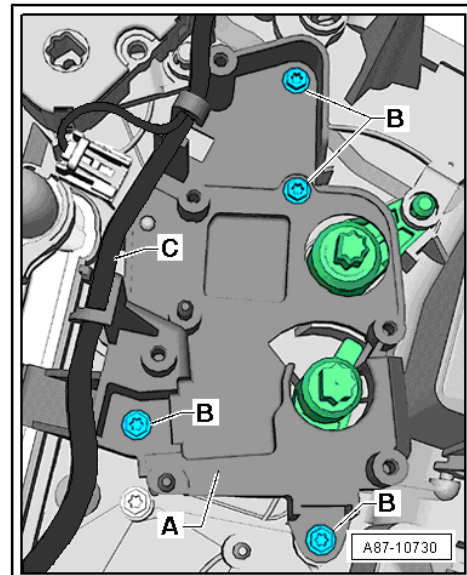
- ◆ ***The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged***
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- ◆ ***The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.***
- ◆ ***Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.***

- Remove the defroster flap control motor - V107-
⇒ ["4.6 Removing and installing defroster flap control motor V107", page 349](#) .

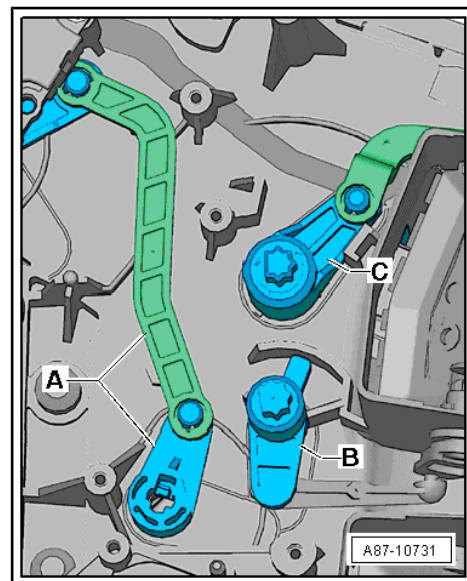
- Remove the left side vent control motor - V299-
⇒ ["4.18 Removing and installing left side vent control motor V299", page 387](#).
- Remove the left centre vent control motor - V110-
⇒ ["4.9 Removing and installing left centre vent control motor V110", page 358](#).
- Remove bolts -B-.
- Unfasten the wiring harness -C- from the holder -A-.
- Detach bracket -A-.

Installing

Install in reverse order of removal; note the following.



- Check the connecting elements and actuating arms to the various flaps -A-, -B- and -C- for proper operation and correct installation position.

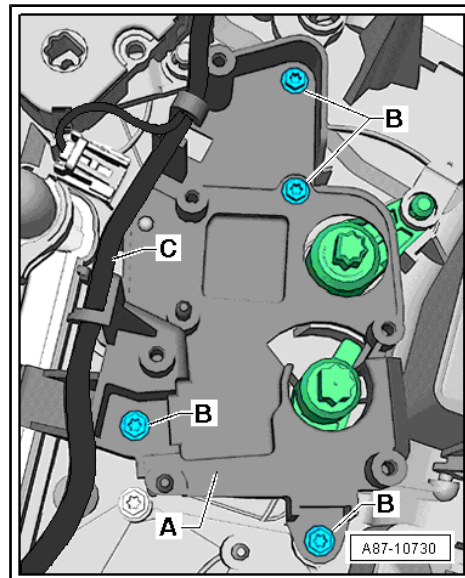


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- Fit the holder -A-.
- Insert the wiring harness -C- in the holder -A- such that it cannot come into contact with moving components.
- Fit bolts -B-.
- Re-install the control motors removed in reverse order.
- Lay the wiring to the various control motors such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.


Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



4.32.2 Removing and installing holder for control motor -V108- and -V411-


Note

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Removal of this holder involves taking out the control motors -V107-, -V110-, -V299-, -V108- and -V411- as well as the holder for the control motors -V110- and -V299-.

Removing

- Move driver's seat to rearmost position.
- By way of the **FRONT** (defrost button) of the air conditioner front operating and display unit, Climatronic control unit - J255- , set the air distribution to the windscreen and wait until air emerges from the dash panel vents to the windscreen.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .

- Remove accelerator pedal module ⇒ Rep. gr. 20 ; Throttle control; Exploded view - accelerator pedal module .



Caution

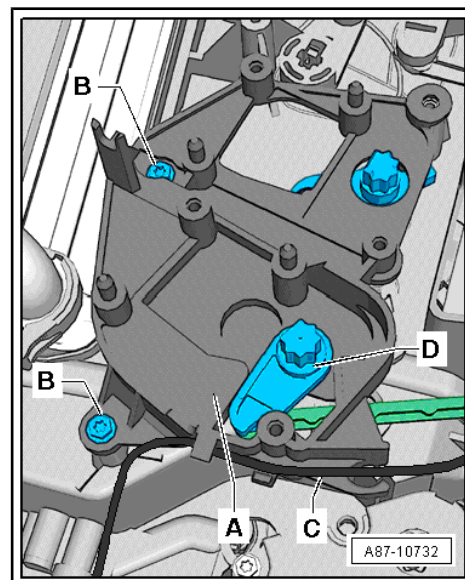
- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33** .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

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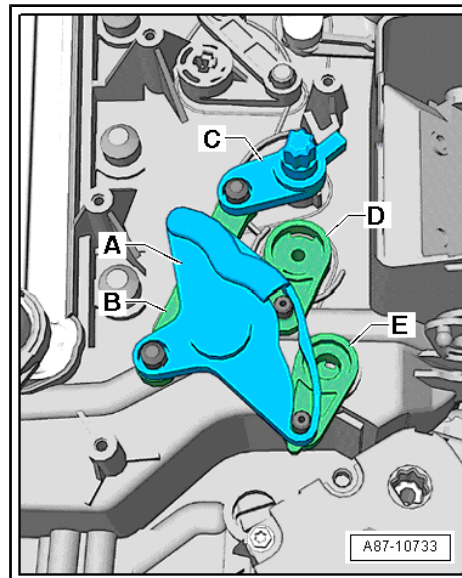
- Remove the left footwell flap control motor - V108-
⇒ **"4.7 Removing and installing left footwell flap control motor V108", page 352** .
- Remove the control motor for left footwell temperature flap - V411-
⇒ **"4.26 Removing and installing control motor for left footwell temperature flap V411", page 411** .
- Remove the holder for the control motors -V110- and -V299-
⇒ **"4.32.1 Removing and installing holder for control motor V110 and V299", page 430** .
- Remove bolts -B-.
- Unfasten the wiring harness -C- from the holder -A-.
- Unfasten the actuating arm -D- from the holder -A- and detach the holder.

Installing

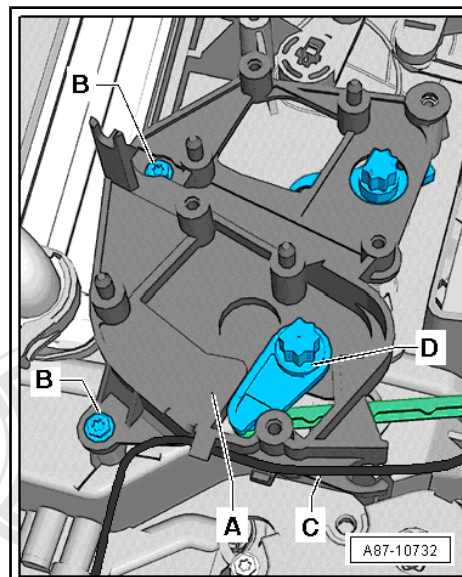
Install in reverse order of removal; note the following.



- Check the cam plate -A-, the connecting element -B- and the actuating arms to the various flaps -C-, -D- and -E- for proper operation and correct installation position.



- Insert the actuating arm -D- in the holder -A-.
- Fit the holder -A-.
- Fit bolts -B-.
- Insert the wiring harness -C- in the holder -A- such that it cannot come into contact with moving components.
- Fit the holder for the control motors -V110- and -V299-
⇒ [“4.32.1 Removing and installing holder for control motor V110 and V299”](#), page 430 .
- Re-install the control motors removed in reverse order.
- Lay the wiring to the various control motors such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit -J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ [“1.10.1 Overview of control motors of air conditioner”](#), page 33 .*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

4.32.3 Removing and installing holder for control motor -V109- and -V412-



Removal of this holder involves taking out the control motors - V109- and -V412-.

Removing

- Switch off ignition.
- Remove front right seat (front passenger seat) ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove the centre console upper and right trim ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Remove glove compartment and corresponding brackets in area of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment and ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Remove right footwell vent (front passenger's side) ⇒ [page 584](#) .



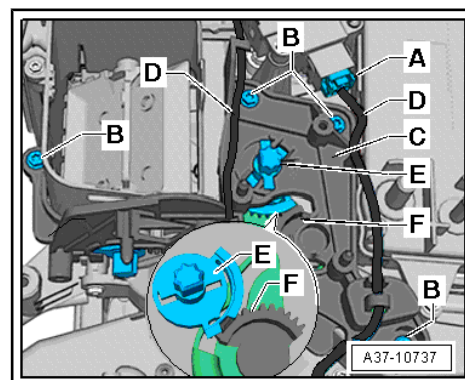
Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged ⇒ [page 33](#) .*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

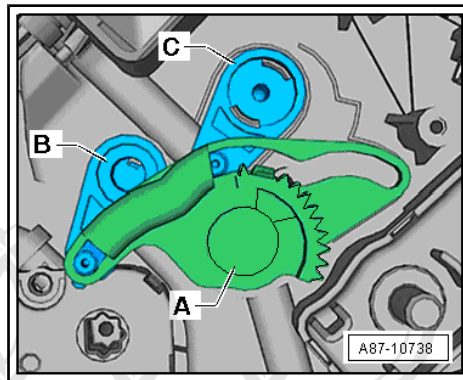
- Remove the right footwell flap control motor - V109- ⇒ ["4.8 Removing and installing right footwell flap control motor V109", page 355](#) .
- Remove the control motor for right footwell temperature flap - V412- ⇒ ["4.27 Removing and installing control motor for right footwell temperature flap V412", page 414](#) .
- Mark the connector -A- to the right side vent control motor - V300- (to prevent interchange if several connectors are simultaneously unplugged).
- Unplug connector -A-.
- Remove bolts -B-.
- Unfasten the wiring harness -D- from the holder -C-.
- Detach the toothed segment -E- together with the holder -C-.

Installing

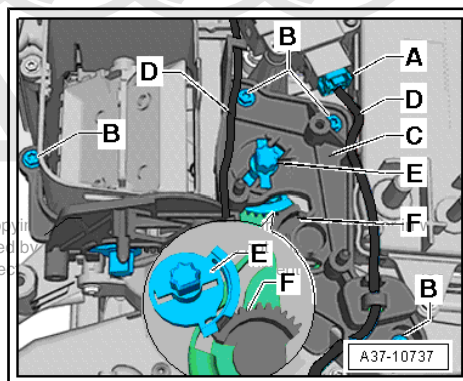
Install in reverse order of removal; note the following.



- Check the cam plate -A- and the actuating arms -B- and -C- to the various flaps for proper operation and correct installation position.



- Insert the toothed segment -E- in the correct position in the holder -C-.
- Fit the toothed segment -E- together with the holder -C-.
- When fitting the holder, pay attention to correct positioning of the toothed segment -E- (broad tooth) with respect to the actuating arm -F- (large tooth gap).
- Fit bolts -B-.
- Insert the wiring harness -D- in the holder -C- such that it cannot come into contact with moving components.
- Plug in the connector -A- at -V300- (heed the mark).
- Fit the right footwell flap control motor - V109-
⇒ [“4.8 Removing and installing right footwell flap control motor V109”, page 355](#) .
- Fit the control motor for right footwell temperature flap - V412-
⇒ [“4.27 Removing and installing control motor for right footwell temperature flap V412”, page 414](#) .
- Lay the wiring to the various control motors such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#) .*
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

4.32.4 Removing and installing holder for control motor -V111- and -V213-



Removal of this holder involves taking out the control motors - V111- and -V213-.

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment → General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side) ⇒ [page 584](#) .



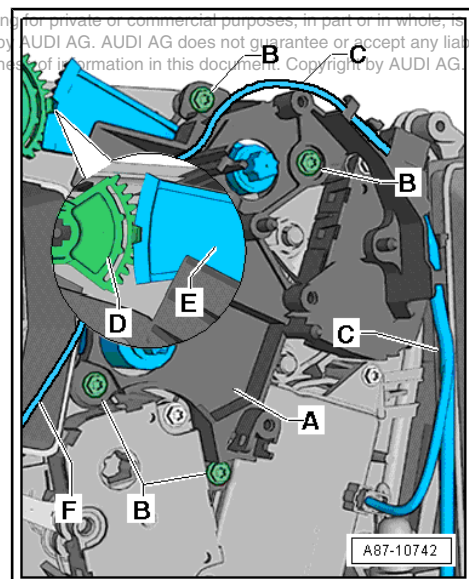
Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)* .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

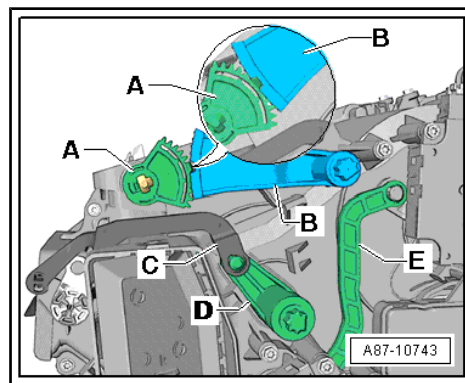
- Remove the right centre vent control motor - V111-
⇒ ["4.10 Removing and installing right centre vent control motor V111", page 361](#) .
- Remove the indirect ventilation flap control motor - V213-
⇒ ["4.17 Removing and installing indirect ventilation flap control motor V213", page 384](#) .
- Remove bolts -B-.
- Unfasten the wiring harness -C- from the holder -A-.
- Remove bracket -A-.

Installing

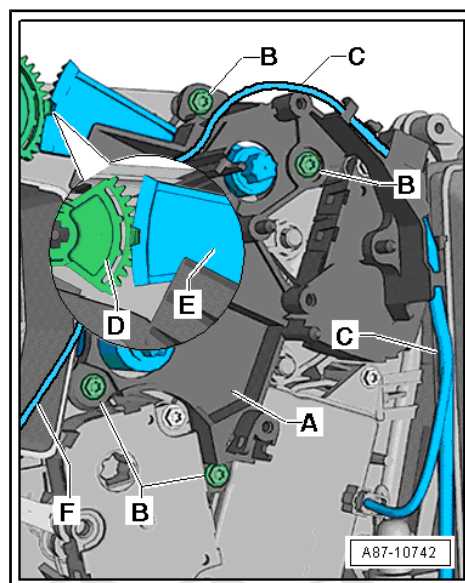
Install in reverse order of removal; note the following.



- Check that the toothed segment of the arm -A- (broad tooth) is correctly positioned with respect to the toothed segment of the actuating arm -B- (large tooth gap).
- Check the arm with toothed segment -A-, the actuating arm with toothed segment -B-, the actuating arm -D- and the connecting elements -C- and -E- to the various flaps for proper operation and correct installation position.



- Fit the holder -A-.
- Fit bolts -B-.
- Insert the wiring harness -C- in the holder -A- such that it cannot come into contact with moving components.
- Fit the indirect ventilation flap control motor - V213-
⇒ [“4.17 Removing and installing indirect ventilation flap control motor V213”, page 384](#) .
- Fit the right centre vent control motor - V111-
⇒ [“4.10 Removing and installing right centre vent control motor V111”, page 361](#) .
- Lay the wiring to the various control motors such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.


Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#) .

- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



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5 Front heater and air conditioning unit

⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#)

⇒ [“5.2 Exploded view - flaps and partitions in air distribution housing”, page 448](#)

⇒ [“5.3 Exploded overview - air intake box of heater and air conditioning unit”, page 450](#)

⇒ [“5.4 Exploded view - evaporator housing”, page 452](#)

⇒ [“5.5 Removing and installing evaporator”, page 453](#)

⇒ [“5.6 Cleaning evaporator”, page 468](#)

⇒ [“5.7 Checking auxiliary air heater element Z35”, page 470](#)

⇒ [“5.8 Removing and installing auxiliary air heater element Z35”, page 474](#)

⇒ [“5.9 Checking heating output of activation of air conditioner temperature flap”, page 478](#)

⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)

⇒ [“5.11 Removing and installing air intake box of front air conditioning unit”, page 495](#)

⇒ [“5.12 Removing and installing air-intake channel on air-intake box”, page 500](#)

⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)

⇒ [“5.14 Removing and installing fresh air blower V2”, page 504](#)

⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

⇒ [“5.16 Removing and installing condensation drain”, page 518](#)

⇒ [“5.17 Checking condensation drain”, page 520](#)

5.1 Exploded view - heater/air conditioning unit and air intake box add-on components

⇒ [“5.1.1 Exploded view - heater/air conditioning unit and air intake box add-on components, heat exchanger, supplementary air heater element”, page 440](#)

⇒ [“5.1.2 Exploded view - heater/air conditioning unit and air intake box add-on components, right side, evaporator, rear air conditioning unit vents”, page 443](#)

⇒ [“5.1.3 Exploded view - heater/air conditioning unit and air intake box add-on components, right side”, page 446](#)

5.1.1 Exploded view - heater/air conditioning unit and air intake box add-on components, heat exchanger, supplementary air heater element



Note

There are different versions of the front air conditioning unit (for left and right-hand drive vehicles, with and without mounting slot

for electric supplementary heater etc.) ⇒ *Electronic parts catalogue*.

1 - Air conditioning unit with evaporator

- ☐ Removing and installing air conditioning unit with evaporator
⇒ ["5.10 Removing and installing heater and air conditioning unit"](#), page 484
- ☐ Removing and installing evaporator
⇒ ["5.5.2 Removing and installing evaporator"](#), page 455
- ☐ ⇒ ["5.1 Exploded view - heater/air conditioning unit and air intake box add-on components"](#), page 440

2 - Coolant pipe to heat exchanger

- ☐ Coolant return
- ☐ Detaching and attaching at heat exchanger
⇒ ["5.15 Removing and installing heat exchanger"](#), page 507



Note

The coolant pipe can only be replaced after removing the air conditioning unit.

3 - Coolant pipe to heat exchanger

- ☐ Coolant supply
- ☐ Detaching and attaching at heat exchanger
⇒ ["5.15 Removing and installing heat exchanger"](#), page 507



Note

The coolant pipe can only be replaced after removing the air conditioning unit.

4 - Plastic clamp

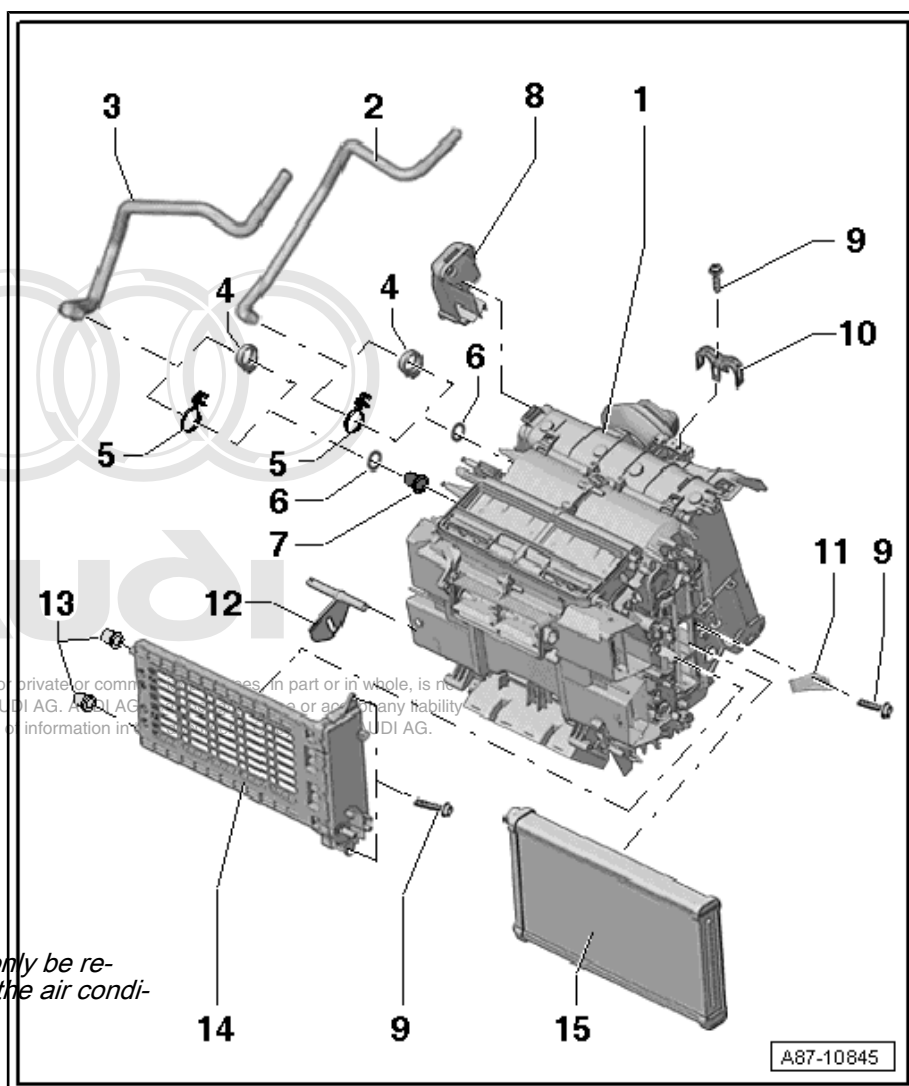
- ☐ Currently not fitted (introduction not yet finalised, screw-type clamp always fitted at present)
⇒ [Item 5 \(page 441\)](#), ⇒ ["5.15 Removing and installing heat exchanger"](#), page 507 and ⇒ *Electronic parts catalogue*

5 - Screw-type clamp (metal clamp)

- ☐ Fitted at present ⇒ *Electronic parts catalogue*
- ☐ Bolt tightening torque 2 Nm

6 - O-ring

- ☐ Renew



- ☐ Coat slightly with coolant before fitting ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

7 - Restrictor

- ☐ Plastic disc inserted to reduce coolant flow in coolant pipe to heat exchanger ⇒ [Item 3 \(page 441\)](#)

8 - Cover for refrigerant pipes to evaporator

- ☐ Removing and installing ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)
- ☐ Different versions (on account of different method of attaching refrigerant pipes to series and replacement evaporators) ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#) .

9 - Bolt

10 - Bracket for coolant pipes

11 - Bracket

- ☐ Fitted for the webs taken out on removal when replacing the heat exchanger ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)
- ☐ Included in scope of delivery of replacement heat exchanger ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

12 - Bracket

- ☐ For air conditioning unit at centre tunnel ⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)

13 - Rubber bush

- ☐ Fitted on lugs of -Z35- .
⇒ [“5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604”, page 474](#)

14 - Auxiliary air heater control unit - J604- with auxiliary air heater element - Z35-

- ☐ -J604- with -Z35- is fitted on vehicles with a diesel engine and vehicles with a high-voltage system (hybrid vehicles with petrol engine) ⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#) .
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- ☐ If, on vehicles with diesel engine, an auxiliary heater fitted as optional extra is activated as a supplementary heater, no auxiliary air heater control unit - J604- is fitted, and therefore no auxiliary air heater element - Z35- ⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#) .
- ☐ Different versions of air conditioning unit with and without opening for -J604- with -Z35- depending on vehicle model ⇒ Electronic parts catalogue .
- ☐ Checking operation of -J604- and -Z35- ⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#) .
- ☐ Removing and installing auxiliary air heater control unit - J604- with auxiliary air heater element - Z35- ⇒ [“5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604”, page 474](#)

15 - Heat exchanger for heater

- ☐ Removing and installing ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)
- ☐ With bonded-on foam seals, check for damage and proper attachment
⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

5.1.2 Exploded view - heater/air conditioning unit and air intake box add-on components, right side, evaporator, rear air conditioning unit vents

1 - Air distribution housing of front air conditioner

- ☐ Do not dismantle any further
- ☐ Different versions for vehicles with and without auxiliary air heater control unit - J604- (with auxiliary air heater element - Z35-) ⇒ Electronic parts catalogue
- ☐ -J604- with -Z35- is only installed on vehicles with diesel engine
⇒ ["5.7.1 Checking electric supplementary heater"](#), page 470 .
- ☐ Coat guides of cam plate, shaft bearings, toothed segments and pins on flap levers with a small quantity of grease (e.g. grease - G 000 150- ⇒ Electronic parts catalogue).

2 - Actuating element

3 - Temperature flaps in air duct to vents to rear air conditioning unit / rear air distribution housing

- ☐ These flaps act as a cold and warm air flap for the air to the rear air distribution housing / rear air conditioning unit
- ☐ The right and left temperature flaps are connected by way of the shaft

4 - Air flaps in vents to rear air conditioning unit / rear air distribution housing

- ☐ The right and left flaps are connected by way of the shaft

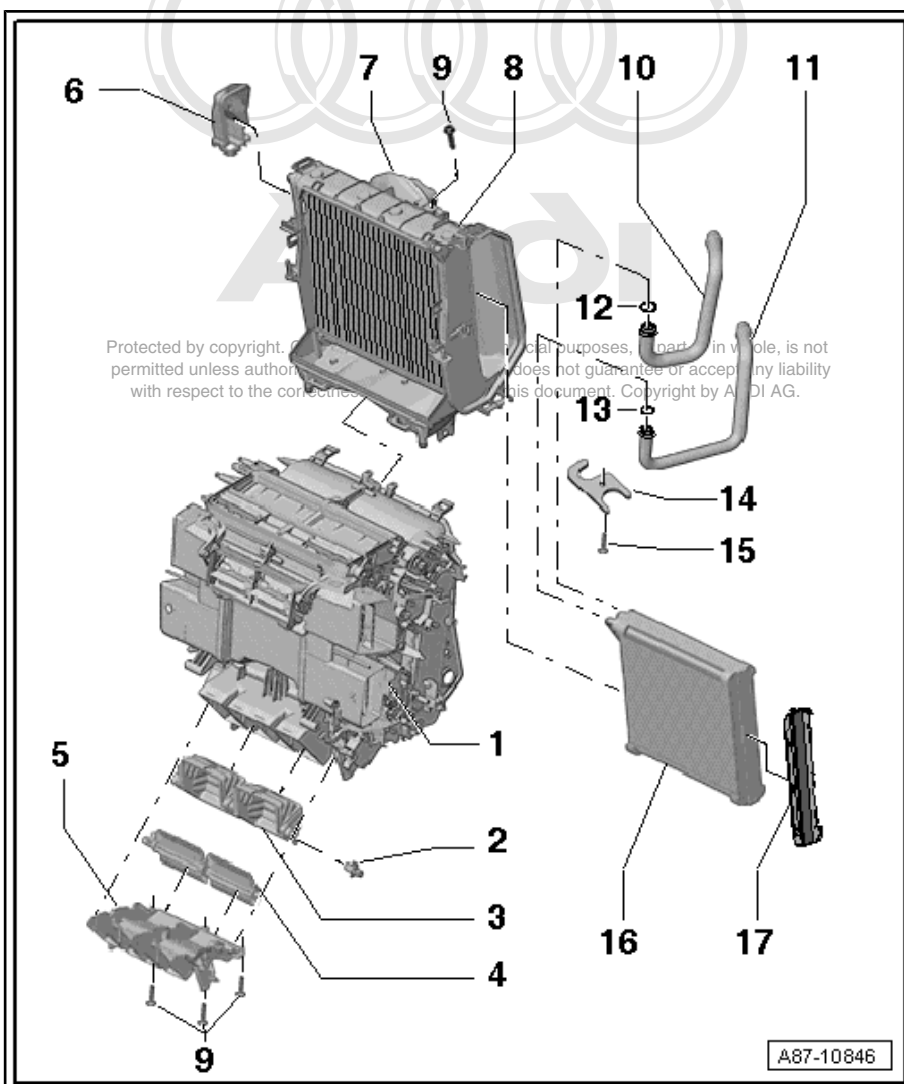
5 - Vent to rear air conditioning unit / rear air distribution housing

6 - Cover for refrigerant pipes to evaporator

- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator"](#), page 455
- ☐ Different versions (on account of different method of attaching refrigerant pipes to series and replacement evaporators) ⇒ ["5.5.2 Removing and installing evaporator"](#), page 455 .
- ☐ The cover fitted with the replacement evaporator is currently not included in the scope of delivery of the replacement evaporator ⇒ Electronic parts catalogue (reworking series cover
⇒ ["5.5.2 Removing and installing evaporator"](#), page 455)
- ☐ Pay attention to correct attachment to evaporator housing
⇒ ["5.5.2 Removing and installing evaporator"](#), page 455

7 - Grommet

- ☐ For sealing opening for refrigerant lines through plenum chamber back wall
- ☐ With support ring to provide a seal in back wall of plenum chamber
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching"](#), page 210
- ☐ Removing and installing ⇒ ["5.4 Exploded view - evaporator housing"](#), page 452



8 - Evaporator housing

- ☐ With factory-fitted evaporator



Note

*Different versions of evaporator (ex works and as replacement)
⇒ ["5.5.2 Removing and installing evaporator", page 455](#)*

- ☐ Not to be further dismantled ⇒ ["5.4 Exploded view - evaporator housing", page 452](#)
- ☐ Removing and installing evaporator ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)
- ☐ ⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)

9 - Bolt

10 - Refrigerant pipe to replacement evaporator

- ☐ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)



Note

*At present, replacement units are not available for all evaporator models ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed and the entire evaporator housing and series evaporator must be renewed
⇒ ["5.4 Exploded view - evaporator housing", page 452](#)*

11 - Refrigerant pipe to replacement evaporator

- ☐ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)



Note

*At present, replacement units are not available for all evaporator models ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed and the entire evaporator housing and series evaporator must be renewed
⇒ ["5.4 Exploded view - evaporator housing", page 452](#)*

12 - O-ring

- ☐ Renew
- ☐ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ☐ Lightly lubricate with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#)

13 - O-ring

- ☐ Renew
- ☐ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ☐ Lightly lubricate with refrigerant oil before fitting ⇒ ["3.13 Refrigerant circuit seals", page 116](#)

14 - Holder for refrigerant pipes to replacement evaporator

- ☐ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

15 - Bolt

- ❑ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ❑ Removing and installing ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)

16 - Replacement evaporator

- ❑ Supplied as replacement part with various components required for fitting (refrigerant pipes, O-rings etc.)
⇒ Electronic parts catalogue
- ❑ With bonded-on foam seals, check for damage and proper attachment
⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)
- ❑ Removing and installing ⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)



Note

*At present, replacement units are not available for all evaporator models ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed and the entire evaporator housing and series evaporator must be renewed
⇒ [“5.4 Exploded view - evaporator housing”, page 452](#)*

17 - Covers for replacement evaporator

- ❑ Supplied with replacement evaporator ⇒ Electronic parts catalogue
- ❑ Bonded into evaporator housing during installation of replacement evaporator
⇒ [“5.5.2 Removing and installing evaporator”, page 455](#)



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5.1.3 Exploded view - heater/air conditioning unit and air intake box add-on components, right side

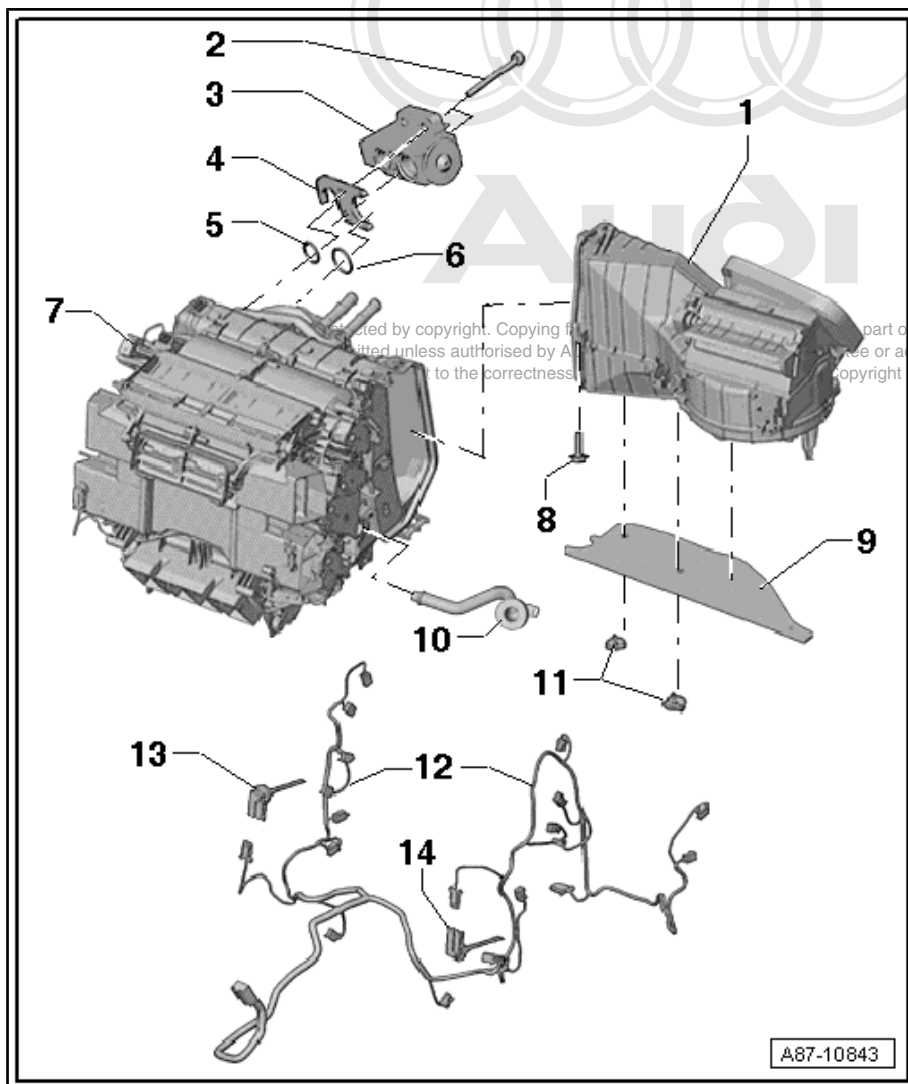
1 - Air-intake box

- ☐ The air intake box is already detached for removal of the front air conditioning unit
⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)
- ☐ ⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#)
- ☐ ⇒ ["5.3 Exploded overview - air intake box of heater and air conditioning unit", page 450](#)

2 - Bolt

3 - Expansion valve

- ☐ Already detached for removal of the front air conditioning unit
⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)
- ☐ Detaching refrigerant line from expansion valve/attaching
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ ⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#)



4 - Retaining plate

- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

5 - O-ring

- ☐ Renewing ⇒ ["3.13 Refrigerant circuit seals", page 116](#)
- ☐ For correct version refer to ⇒ Electronic parts catalogue

6 - O-ring

- ☐ Renewing ⇒ ["3.13 Refrigerant circuit seals", page 116](#)
- ☐ For correct version refer to ⇒ Electronic parts catalogue

7 - Air conditioning unit with evaporator

- ☐ Can only be removed after refrigerant circuit has been discharged; take vehicle to a workshop equipped with the necessary tools where work can be performed by appropriately qualified personnel ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .
- ☐ ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)
- ☐ Removing and installing air conditioning unit with evaporator
⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)

- ☐ ⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#)
- ☐ ⇒ [“5.6.1 Cleaning evaporator”, page 468](#)
- ☐ ⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)

8 - Bolt

- ☐ If the catch between the air conditioning unit with evaporator and the air intake box no longer provides sufficient retention on installation, fit a second bolt
⇒ [“5.11 Removing and installing air intake box of front air conditioning unit”, page 495](#)

9 - Insulating mat

- ☐ The insulating mat is already detached for removal of the front air conditioning unit
⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ☐ Removing and installing ⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)

10 - Air duct for glove box cooling

- ☐ ⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)

11 - Threaded fasteners

12 - Air conditioner wiring harness



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control. Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the air conditioner front operating and display unit, Climatronic control unit - J255-.

Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.

- ☐ Different versions (e.g. for vehicles with and without auxiliary air heater control unit - J604-) ⇒ Electronic parts catalogue
- ☐ Mark assignment before unplugging connectors (identical connectors for different control motors and temperature sensors, danger of interchanging)
- ☐ Attach the wiring harness at the locations provided on the housing. Secure with cable ties or at the mounts such that it cannot come into contact with moving components.
- ☐ With connection to air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

13 - Left footwell vent temperature sender - G261-

- ☐ Already detached for removal of the front air conditioning unit
⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ☐ ⇒ [“10.9 Removing and installing left footwell vent temperature sender G261 ”, page 650](#)
- ☐ Checking left vent temperature sender - G150- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

14 - Right footwell vent temperature sender - G262-

- ☐ Already detached for removal of the front air conditioning unit
⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ☐ ⇒ [“10.10 Removing and installing right footwell vent temperature sender G262 ”, page 651](#)

- ☐ Checking right footwell vent temperature sender - G262- ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode

5.2 Exploded view - flaps and partitions in air distribution housing



Note

- ◆ The air distribution housing of the front air conditioning unit is not to be dismantled ➔ Electronic parts catalogue . It is only shown dismantled in the following illustration so as to demonstrate the integral flaps.
- ◆ For all components shown in the following illustration but not described, refer to
➔ "5.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 440
- ◆ Various temperature flap shafts are interconnected by way of a connecting rod, actuating arm and cam plates. These are then jointly actuated by one control motor.

1 - Actuating elements for temperature flaps to front left footwell vent

2 - Actuating elements for temperature flaps to left dash panel vents

3 - Air flap in vent of air conditioning unit to left dash panel vents

4 - Left section of air distribution housing

5 - Air flap in vent of air conditioning unit to left dash panel indirect ventilation vent

6 - Cold air flap for top left dash panel vents

- ☐ For left dash panel vents, indirect ventilation vent and to windscreen (defrost)

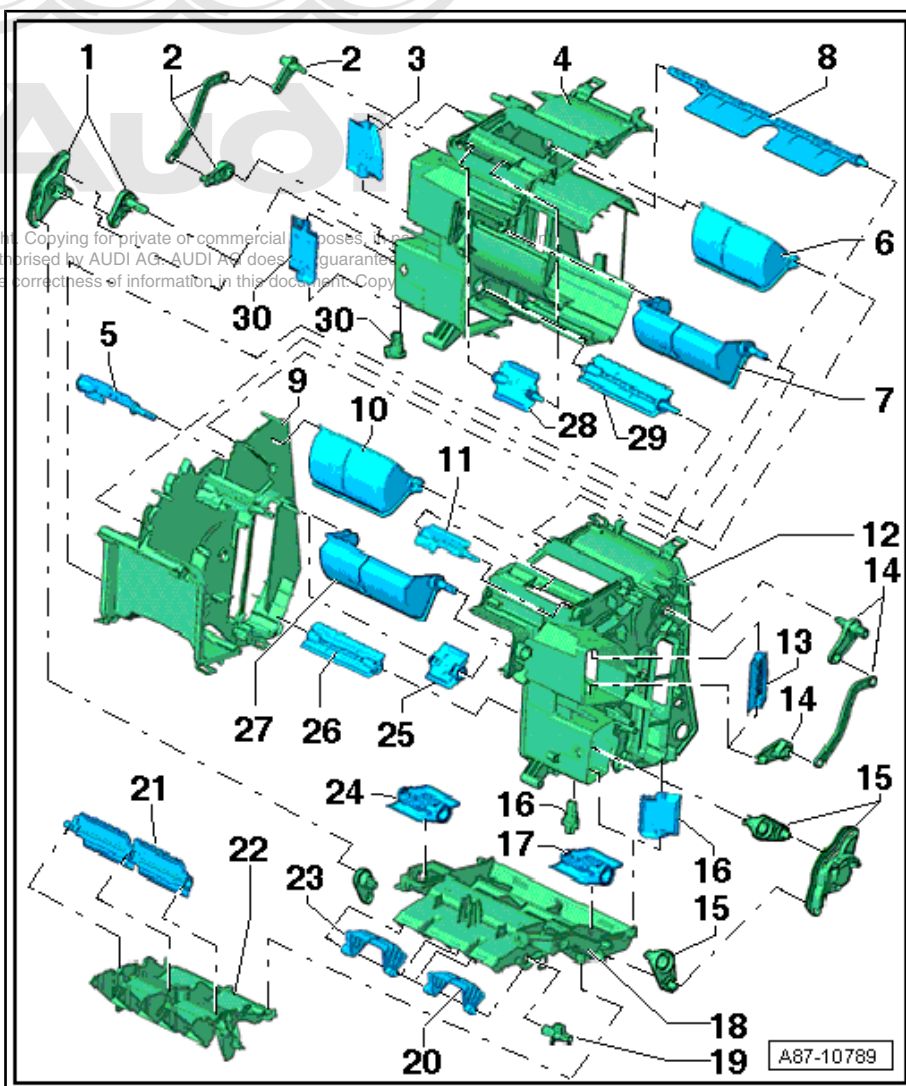
7 - Warm air flap for top left dash panel vents

- ☐ For left dash panel vents, indirect ventilation vent and to windscreen (defrost)

8 - Air flap in vent of air conditioning unit to dash panel vent for windscreen (defrost)

9 - Partition

- ☐ Separates the flow of air to the left and right vents; prerequisite for different air outlet temperatures depending on the position of the corresponding temperature flaps.



- 10 - Cold air flap for top right dash panel vents
 - ☐ For right dash panel vents, indirect ventilation vent and to windscreen (defrost)
- 11 - Air flap in vent of air conditioning unit to right dash panel indirect ventilation vent
- 12 - Right section of air distribution housing
- 13 - Air flap in vent of air conditioning unit to front right dash panel vents
- 14 - Actuating elements for temperature flaps to right dash panel vents
- 15 - Actuating elements for temperature flaps to front right footwell vent
- 16 - Air flap in footwell vent of front right air conditioning unit with actuating element
- 17 - Cold air flap for front right footwell vent
- 18 - Bottom section of air distribution housing
- 19 - Actuating element for temperature flaps to right and left vents to rear air conditioning unit / rear air distribution housing
- 20 - Right temperature flap in air duct to vents to rear air conditioning unit / rear air distribution housing
 - ☐ This flap acts as a cold and warm air flap
 - ☐ The right and left temperature flaps are connected by way of the shaft
- 21 - Air flaps in vents to rear air conditioning unit / rear air distribution housing
 - ☐ The right and left flaps are connected by way of the shaft
- 22 - Vents to rear air conditioning unit / rear air distribution housing
- 23 - Left temperature flap in air duct to vents to rear air conditioning unit / rear air distribution housing
 - ☐ This flap acts as a cold and warm air flap
 - ☐ The right and left temperature flaps are connected by way of the shaft
- 24 - Cold air flap for front left footwell vent
- 25 - Air flap in vent of air conditioning unit to centre vent of right dash panel vents
- 26 - Warm air flap for front right footwell vent
- 27 - Warm air flap for top right dash panel vents
 - ☐ For right dash panel vents, indirect ventilation vent and to windscreen (defrost)
- 28 - Air flap in vent of air conditioning unit to centre vent of left dash panel vents
- 29 - Warm air flap for front left footwell vent
- 30 - Air flap in footwell vent of front left air conditioning unit with actuating element



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5.3 Exploded overview - air intake box of heater and air conditioning unit

1 - Foam seal

- ❑ To seal off fresh-air intake duct at vehicle, bonded to air-intake duct

2 - Air intake duct

- ❑ With air flow/fresh-air and air recirculation flap
- ❑ Do not dismantle any further
- ❑ ⇒ ["5.12 Removing and installing air-intake channel on air-intake box", page 500](#)

3 - Connecting element

- ❑ Connection between air recirculation flap control motor - V113- and air recirculation flap
- ❑ Do not remove
- ❑ If applicable, moisten the mounting points with a small quantity of grease (e.g. lubricating paste - G 000 150- ⇒ Electronic parts catalogue).

4 - Air recirculation flap control motor - V113-

- ❑ ⇒ ["4.11 Removing and installing air recirculation flap control motor V113", page 364](#)

5 - Connecting element

- ❑ Connection between air flow flap control motor - V71- and air flow/fresh-air flap
- ❑ Do not remove
- ❑ If applicable, moisten the mounting points with a small quantity of grease (e.g. lubricating paste - G 000 150- ⇒ Electronic parts catalogue).

6 - Air flow flap control motor - V71-

- ❑ ⇒ ["4.5 Removing and installing air flow flap control motor V71", page 345](#)

7 - Bolt

8 - Noise insulation cover

9 - Bracket

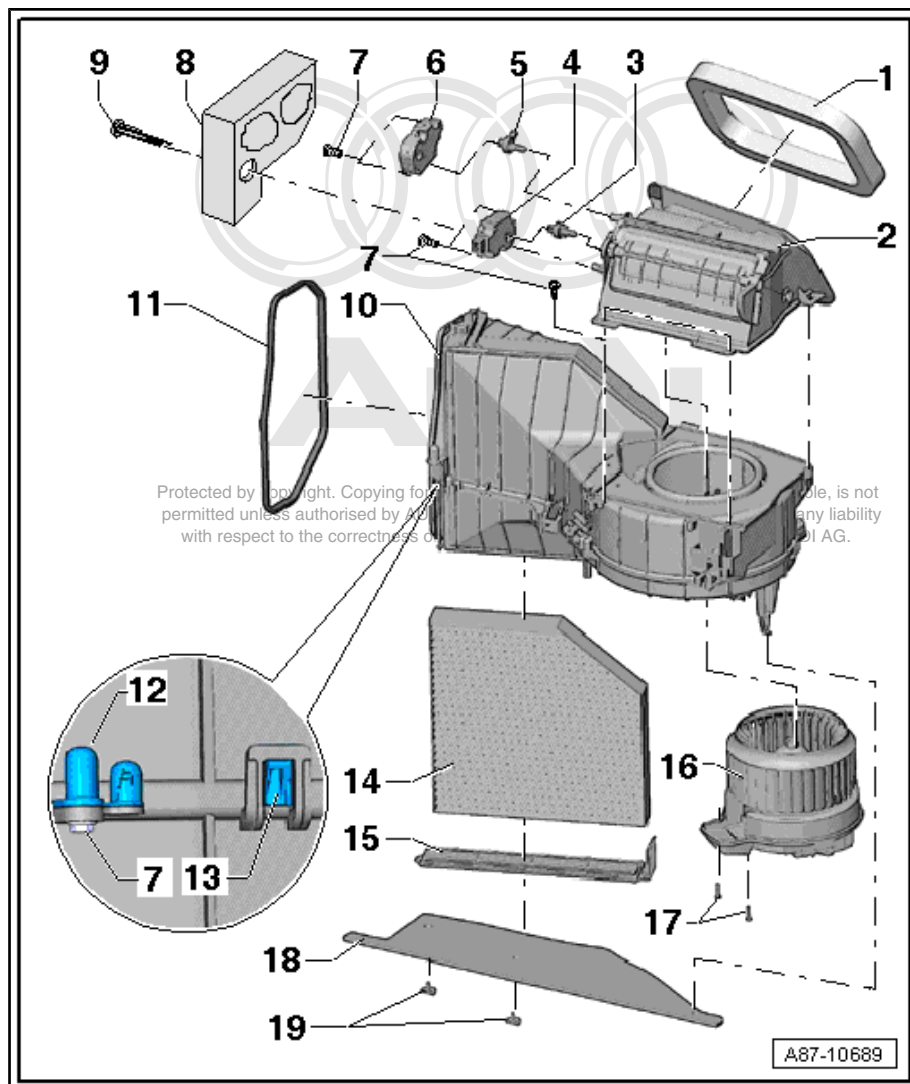
10 - Air-intake box

- ❑ ⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#)
- ❑ Do not dismantle



Note

- ◆ The upper and lower parts are bolted together at various attachment points.



- ◆ *The upper and lower parts of the air intake box may be available as separate replacement parts. Assemble the two parts and then attach them to each other with the bolts ⇒ [Item 7 \(page 450\)](#) at the attachment points ⇒ [Item 12 \(page 451\)](#) ⇒ Electronic parts catalogue.*

11 - Foam seal

- ☐ For sealing the joint between the air intake duct and the air conditioning unit (bonded onto air intake duct)

12 - Attachment point

13 - Catches between upper and lower parts of air intake box



Note

If the catch no longer provides sufficient retention, bolt the upper and lower parts of the air intake box together at the attachment points ⇒ [Item 12 \(page 451\)](#).

14 - Dust and pollen filter

- ☐ ⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)
- ☐ Observe replacement intervals ⇒ Maintenance tables
- ☐ Different versions as replacement parts (with and without activated charcoal filter element); at present the Audi A8 is only fitted with a dust and pollen filter with activated charcoal filter element ⇒ Electronic parts catalogue and ⇒ [“3.11.5 Notes on dust and pollen filter with activated charcoal element”, page 115](#)

15 - Cover for dust and pollen filter

- ☐ Removing and installing ⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)



Note

Depending on the version, a foam strip (for insulating the gap ⇒ [Item 18 \(page 451\)](#)) may have been affixed to the cover ⇒ [page 501](#).

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16 - Fresh air blower - V2 - with control unit for fresh air blower - J126

- ☐ ⇒ [“5.14.1 Removing and installing fresh air blower V2 with fresh air blower control unit J126”, page 504](#)
- ☐ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

17 - Bolt

18 - Insulating mat

- ☐ Removing and installing ⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)

19 - Threaded fasteners

5.4 Exploded view - evaporator housing



Note

- ◆ *There is no provision for service disassembly of the evaporator housing. The following illustration shows a dismantled evaporator housing for clearer representation of the design.*
- ◆ *The evaporator housing with evaporator as fitted at the factory is supplied fully pre-assembled as replacement part ⇒ Electronic parts catalogue*
- ◆ *At present, replacement units are not available for all evaporator models ⇒ Electronic parts catalogue .*
- ◆ *If no replacement unit is available for the evaporator, the air conditioning unit must be removed and the entire evaporator housing and series evaporator must be replaced.*

1 - Bolt

- ❑ Removing and installing
⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#)

2 - Expansion valve

- ❑ Already detached for removal of the front air conditioning unit
⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#)
- ❑ Detaching refrigerant line from expansion valve/attaching
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#) .
- ❑ ⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#) .

3 - Retaining plate

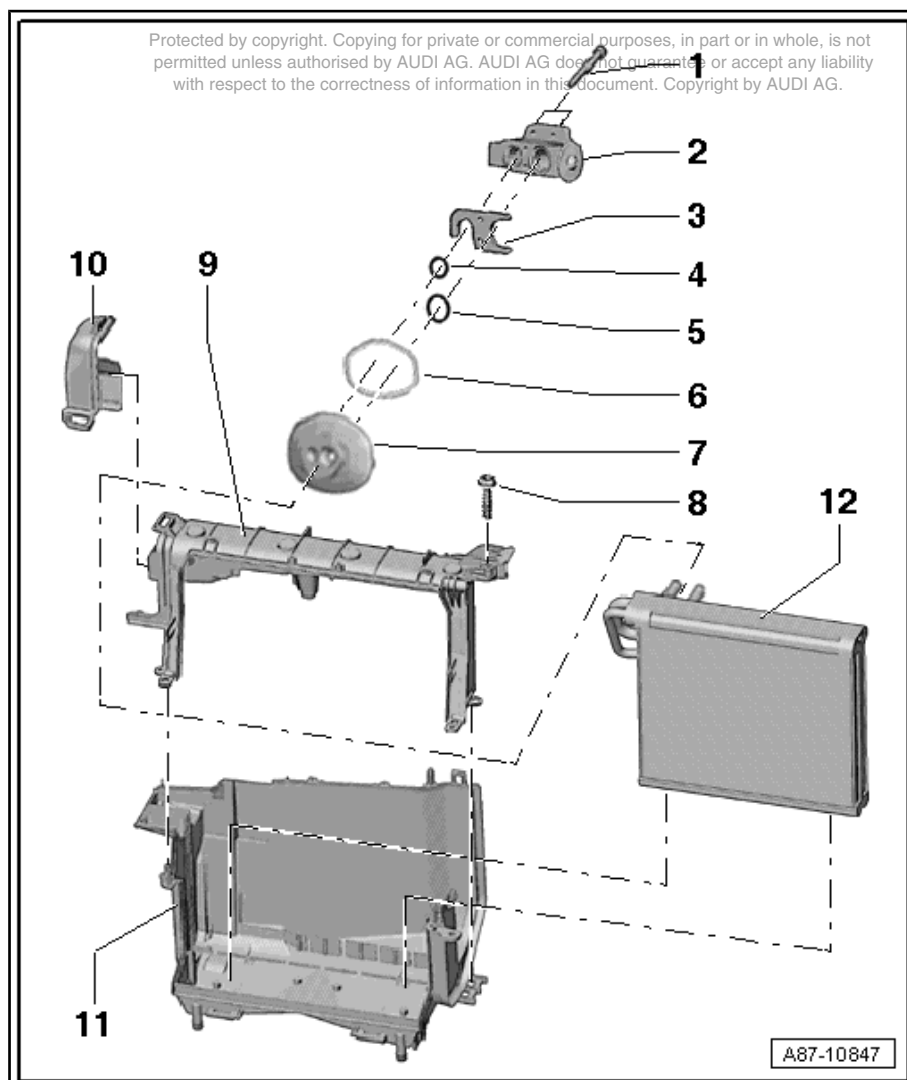
- ❑ Removing and installing
⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

4 - O-ring

- ❑ Renewing
⇒ ["3.13 Refrigerant circuit seals", page 116](#)
- ❑ For correct version refer to ⇒ Electronic parts catalogue

5 - O-ring

- ❑ Renewing ⇒ ["3.13 Refrigerant circuit seals", page 116](#)
- ❑ For correct version refer to ⇒ Electronic parts catalogue



6 - Support ring

- ☐ The support ring is designed to press the grommet more firmly against the back wall of the plenum chamber ⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ Checking positioning of support ring in grommet
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)

7 - Grommet

- ☐ For sealing opening for refrigerant lines through plenum chamber back wall
- ☐ With support ring to provide a seal in back wall of plenum chamber
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#)
- ☐ Currently forms part of replacement "evaporator housing" ⇒ Electronic parts catalogue

8 - Bolt

9 - Evaporator housing (top section)

10 - Cover for refrigerant pipes to evaporator

- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)
- ☐ The cover fitted with the replacement evaporator is currently not included in the scope of delivery of the replacement evaporator ⇒ Electronic parts catalogue (reworking series cover
⇒ ["5.5.2 Removing and installing evaporator", page 455](#))
- ☐ Pay attention to correct attachment to evaporator housing
⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

11 - Evaporator housing (bottom section)

12 - Evaporator

- ☐ This is the factory-fitted version.
- ☐ Removing with air conditioning unit installed ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)
- ☐ Supplied as replacement part (not available for all versions) with various components required for fitting (refrigerant pipes, O-rings etc.) ⇒ Electronic parts catalogue
- ☐ With bonded-on foam seals, check for damage and proper attachment
⇒ ["5.5.2 Removing and installing evaporator", page 455](#)
- ☐ Removing and installing ⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

5.5 Removing and installing evaporator

⇒ ["5.5.1 Removing and installing evaporator housing", page 453](#)

⇒ ["5.5.2 Removing and installing evaporator", page 455](#)

5.5.1 Removing and installing evaporator housing



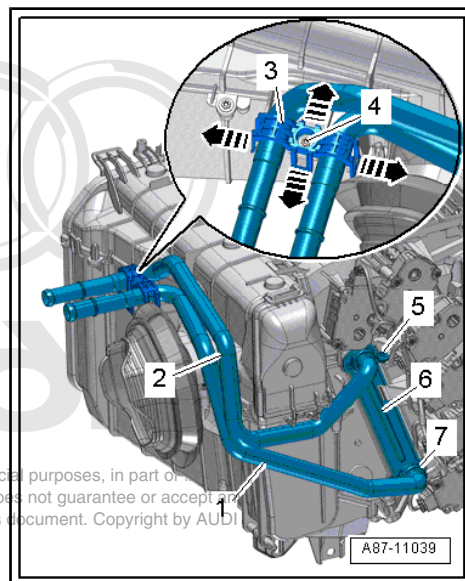
Note

- ◆ *At present, replacement units are not available for all evaporator models. Please therefore check in advance whether the type of replacement evaporator concerned is available ⇒ Electronic parts catalogue . If no replacement unit is available for the evaporator, the air conditioning unit must be removed ⇒ ["5.10 Removing and installing heater and air conditioning unit", page 484](#) and the entire evaporator housing and series evaporator must be replaced.*
- ◆ *Otherwise, the evaporator should not be renewed together with the evaporator housing since the evaporator is available as a separate replacement part ⇒ ["5.5.2 Removing and installing evaporator", page 455](#) and ⇒ Electronic parts catalogue .*

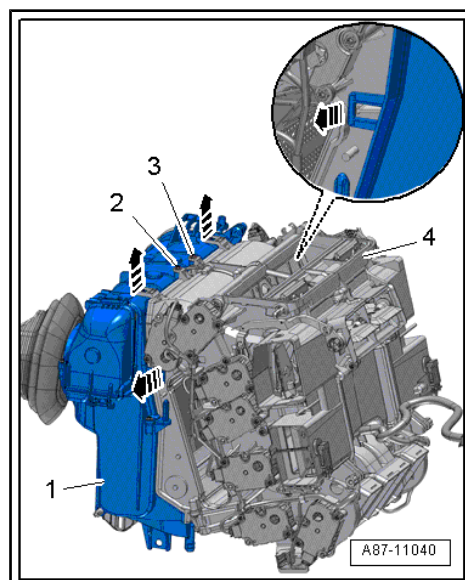
Removing

- Remove the front air conditioning unit ⇒ [page 484](#) .
- Remove bolt -4-.
- Release retaining tabs -arrows- and detach bracket -3- for coolant pipes.
- Unscrew bolts and detach clamps -5 and 7-.
- If fitted, open plastic clamps
⇒ [“5.15.2 Removing and installing heat exchanger”](#),
[page 508](#) .
- Pull coolant pipes -1 and 2- out of heat exchanger -6- and detach.

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- Remove bolts -2 and 3-.
- Release retaining tabs -arrows- and detach evaporator housing -1- from air distribution housing -4-.



Installing

Install in reverse order of removal; note the following:

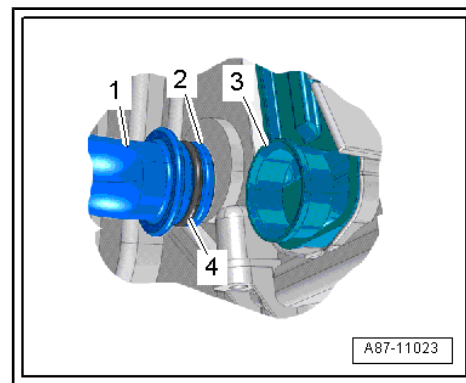
- Check connection -3- of heat exchanger and coolant pipes -2- for damage or dirt.
- Clean and smooth sealing surface for O-ring.
- Coat new O-ring -4- lightly with coolant (or lubricate lightly with silicone grease) and attach to coolant pipe -1-.
- Slide coolant pipes into heat exchanger as far as stop.



Caution

Risk of leaks at heat exchanger.

- ◆ **Crushed O-rings and coolant pipes that are not fitted straight or are not attached fully will lead to leaks.**



- Fit new screw-type clamps -B- at the coolant pipe/heat exchanger connection and tighten the bolt
⇒ [“5.15.2 Removing and installing heat exchanger”, page 508](#).
- Check that screw-type clips are seated correctly on connections of heat exchanger and coolant pipes. They must not make contact with air distribution housing or other components.
- Install the front air conditioning unit ⇒ [page 484](#).

5.5.2 Removing and installing evaporator



Note

- ◆ *When it has been removed, the evaporator contains refrigerant oil which must be returned to the refrigerant circuit (together with the new evaporator) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Renewing components of refrigerant circuit.*
- ◆ *At present, replacement units are not available for all evaporator versions. Please therefore check in advance whether the type of replacement evaporator concerned is available ⇒ Electronic parts catalogue. If no replacement unit is available for the evaporator, the air conditioning unit must be removed ⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#) and the entire evaporator housing and series evaporator must be replaced ⇒ [“5.5.1 Removing and installing evaporator housing”, page 453](#) (as well as ⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#) and ⇒ [“5.4 Exploded view - evaporator housing”, page 452](#)).*

Special tools and workshop equipment required

- ◆ Pliers T40147
- ◆ Strong carpet knife with blade firmly and securely attached in handle

Removing

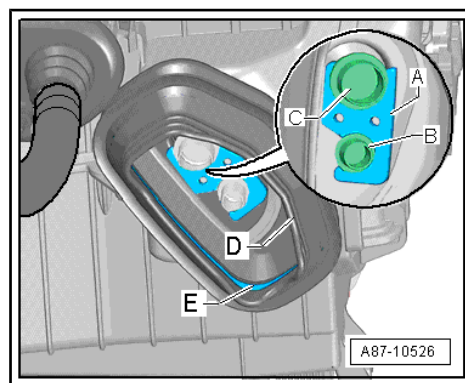
- Move the driver's and front passenger's seat to the rearmost position.

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .
- Remove the expansion valve to the evaporator in the front air conditioning unit
⇒ **"2.9.3 Removing and installing expansion valve (front)"**, **page 216** .


Note

Seal open pipe connections.

- Detach retaining plate for expansion valve -A- from refrigerant lines -B- and -C-.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ⇒ **page 584** .
- Remove steering column and foot controls ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing steering column and ⇒ Brake system; Rep. gr. 46 ; Brake pedal; Exploded view - brake pedal .

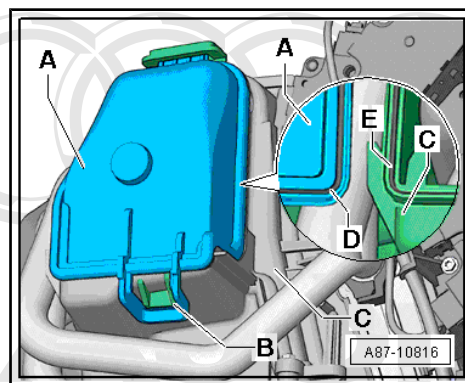

Note

On account of the restricted space, the pedal cluster has to be removed to perform the following operations (separation of refrigerant lines at evaporator, removal of these from the air conditioning unit and fitting of new refrigerant lines). Even if the evaporator has already been replaced (and consequently the refrigerant lines to the evaporator no longer have to be separated and removed), it is nevertheless appropriate to remove the pedal cluster due to the lack of space.

- Release the catch -B- and detach the cover for the refrigerant lines to the evaporator -A- from the air conditioning unit -C-.


Note

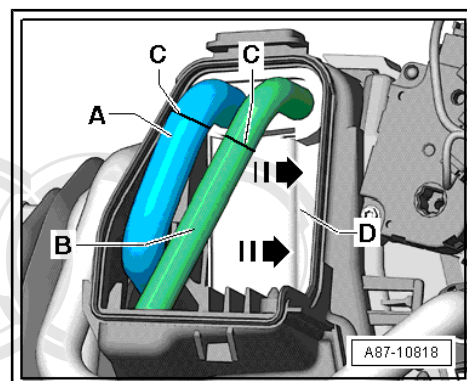
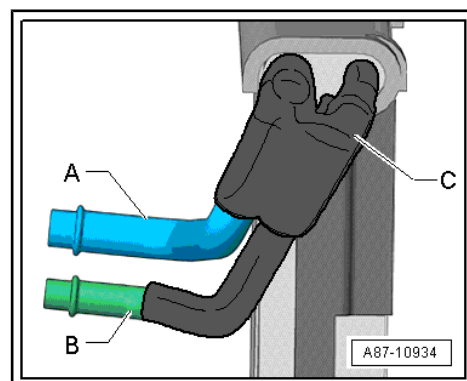
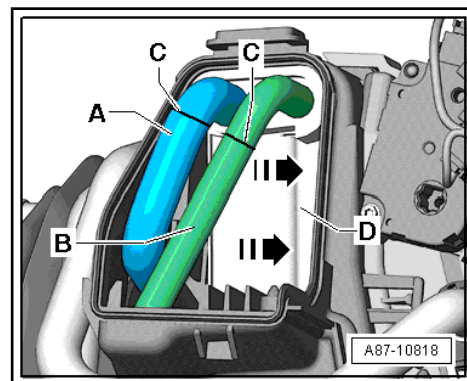
- ◆ *Take care not to damage the sealing lip at the air conditioning unit -E- in the course of further work.*
- ◆ *Shortly after the start of production of this vehicle, a butyl mat was wrapped around the refrigerant lines to the evaporator -A- and -B-. The purpose of this is to reduce noise at the refrigerant lines to the evaporator.*



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 Note

- ◆ This illustration shows the refrigerant lines to the evaporator -A- and -B- without this wrapping (start of production status).
- ◆ Shortly after the start of production of this vehicle, a butyl mat -C- was wrapped around the refrigerant lines to the evaporator -A- and -B-. The purpose of this is to reduce noise at the refrigerant lines to the evaporator. The procedure for separation of the refrigerant lines without and with wrapping is identical.
- Remove the butyl mat -C- to the necessary extent from the refrigerant lines to the evaporator -A- and -B-.
- Disconnect the two refrigerant lines to the evaporator -A- and -B- at the locations marked -C- using pliers - T40147- .
- Bend section of refrigerant line -A- still attached to evaporator to the right (towards evaporator) until it does not impede removal of evaporator.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .



Caution

- ◆ **The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged**
⇒ **["1.10.1 Overview of control motors of air conditioner", page 33](#)** .
- ◆ **The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.**
- ◆ **Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.**

- Remove air-intake box
⇒ **["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#)** .

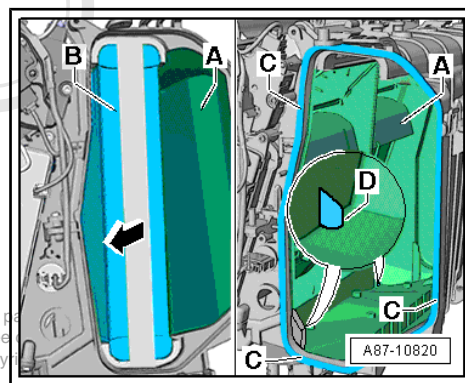
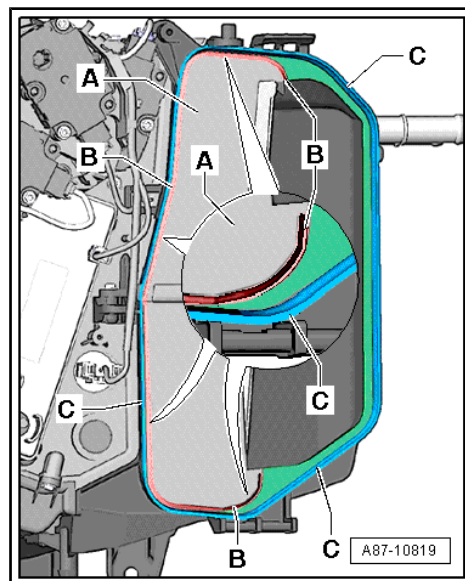
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- Use a sharp knife (e.g. a strong carpet knife with the blade firmly and securely attached in the handle) to cut the housing wall -A- (on the right of the air conditioning unit) out of the air conditioning unit at the cutting line marked -B-.



Note

- ◆ Take care not to damage the sealing lip on the air conditioning unit -C- when cutting out the housing wall -A- in the course of further work.
 - ◆ If the connection between the housing wall -A- and the air conditioning unit cannot be separated with a carpet knife at the cutting line -B- because the material is too thick, the connection can be carefully separated at the cutting line -B- with an electric cutter - V.A.G 1561A- and an offset blade, 25 mm - V.A.G 1561/4- or a saw blade, dia. 63 mm - V.A.G 1561/25- for example. While doing so, make sure the sealing lip on the air conditioning unit -C- is not damaged.
 - ◆ If the evaporator has already been replaced (partition bonded in place of housing wall -A-), again cut out this partition at the bonding line (marked cutting line -B-) using the electric cutter - V.A.G 1561A-. After taking out the evaporator carefully remove the residual adhesive from the air conditioning unit.
- Pull the evaporator -B- in arrow direction -arrow- out of the air conditioning unit -A-.



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- Attach a thin cord -F- to both the separated refrigerant lines -B- and -C-.

i Note

The cord -F- is intended as a help when inserting the new refrigerant lines.

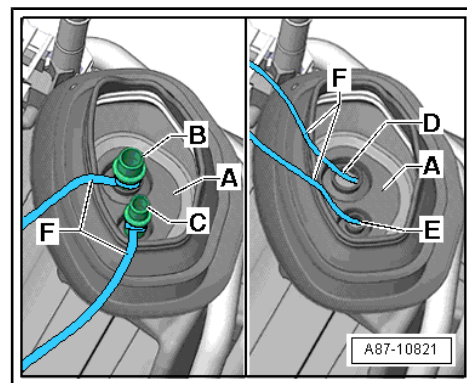
- Apply lubricant to the two separated refrigerant lines -B- and -C- and to both the penetrations -D- and -E- of the socket -A-.



Caution

Take care not to damage the socket -A- when removing and installing the refrigerant lines -B- and -C-.

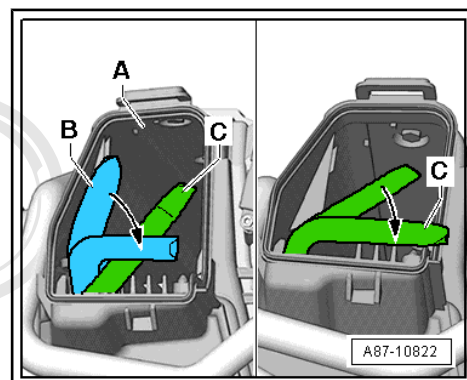
- ◆ **A damaged socket -A- can only be replaced after removing the air conditioning unit.**
- ◆ **Apply lubricant to the socket -A- and the refrigerant lines -B- and -C- when removing and installing the refrigerant lines -B- and -C- and work carefully.**



- Have a second person assist with unfastening the refrigerant lines -B- and -C- from the socket -F-.
- Turn the separated refrigerant line -B- in arrow direction, unfasten from the socket and remove from the air conditioning unit -A-.
- Turn the separated refrigerant line -C- in arrow direction, unfasten from the socket and remove from the air conditioning unit -A-.

Installing

Before fitting evaporator ⇒ Air conditioner with refrigerant R134a;
Rep. gr. 87 ; Renewing components of refrigerant circuit .

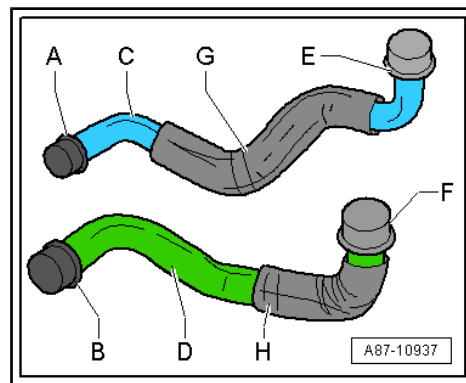


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Note

- ◆ *When it has been removed, the evaporator contains refrigerant oil which must be returned to the refrigerant circuit (together with the new evaporator) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Renewing components of refrigerant circuit.*
- ◆ *The new refrigerant lines -C- and -D- are provided with protective caps to prevent damage to the connections and the ingress of dirt when fitting.*
- ◆ *The refrigerant lines -C- and -D- are fitted with the protective caps -A- and -B- through the air conditioning unit into the socket to the plenum chamber.*
- ◆ *To reduce noise, a butyl mat -G- and -H- is wrapped around each of the refrigerant lines -C- and -D-. Take care not to damage this wrapping or trap it at the holder on installation.*



Install in reverse order of removal; note the following.

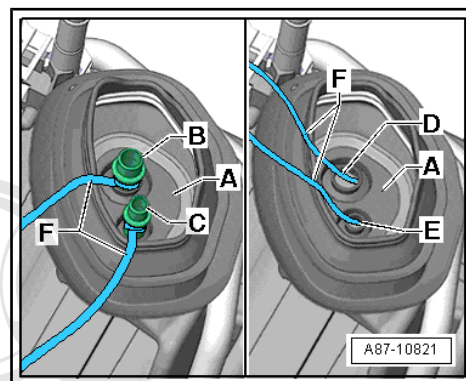
- Apply lubricant to the two protective caps -A- and -B- as well as the new refrigerant lines -C- and -D- in the area of the protective caps.
- Attach the new refrigerant lines to the cord -F- drawn in on removing the separated refrigerant lines -C- and -D-



Note

Make sure the two cords -F- do not become twisted in the mounting slot of the air conditioning unit

- Apply lubricant to the two penetrations -D- and -E- of the socket -A-.



Caution

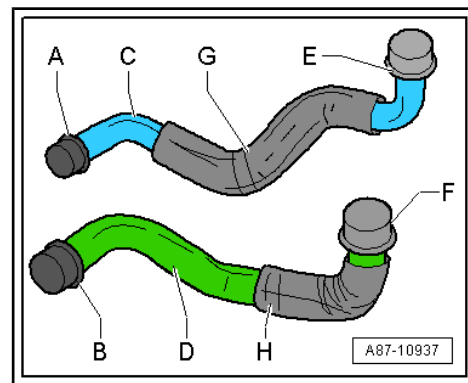
Take care not to damage the socket -A- when removing and installing the refrigerant lines -B- and -C-.

- ◆ *A damaged socket -A- can only be replaced after removing the air conditioning unit.*
- ◆ *Apply lubricant to the socket -A- and the refrigerant lines -B- and -C- when removing and installing the refrigerant lines -B- and -C- and work carefully.*

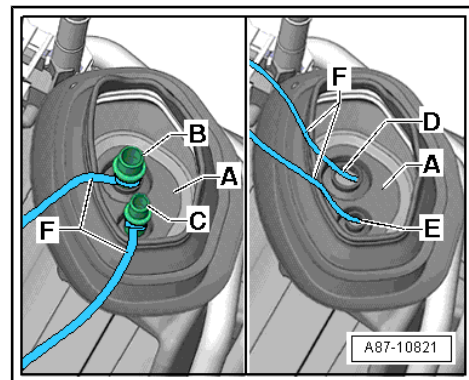
- Have a second person assist with fitting the refrigerant lines -B- and -C- in the socket -A-.

 Note

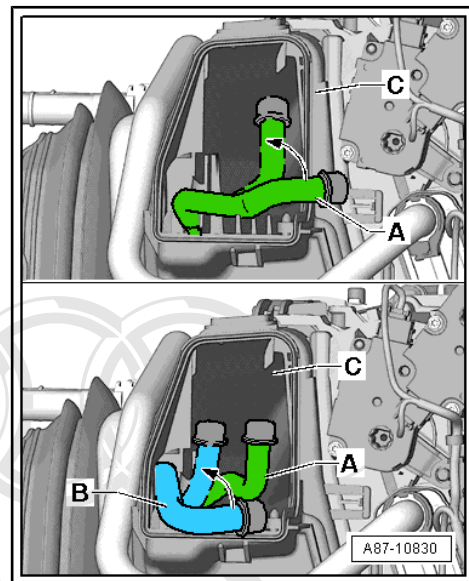
- ◆ The new refrigerant lines -C- and -D- are provided with protective caps to prevent damage to the connections and the ingress of dirt when fitting.
- ◆ To reduce noise, a butyl mat -G- and -H- is wrapped around each of the refrigerant lines -C- and -D-. Take care not to damage this wrapping or trap it at the holder on installation.
- ◆ The refrigerant lines -C- and -D- are fitted with the protective caps -A- and -B- through the air conditioning unit into the socket to the plenum chamber.



- Attach the section of the cord -F- drawn through the socket with the separated refrigerant lines to the new refrigerant lines in the area of the protective cap in each case. When doing so pay attention to correct assignment and make sure the cords are not twisted in the air conditioning unit.

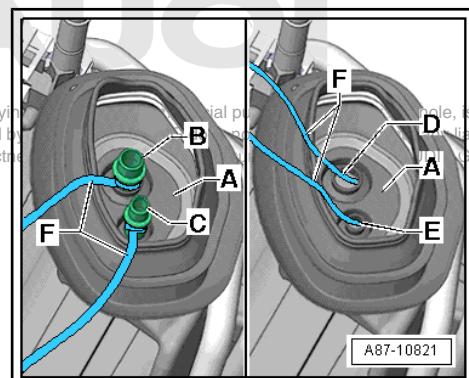


- Insert the refrigerant line -A- (thinner pipe) in the air conditioning unit -C-, turn it anti-clockwise and guide it through the lower smaller opening into the socket to the plenum chamber.

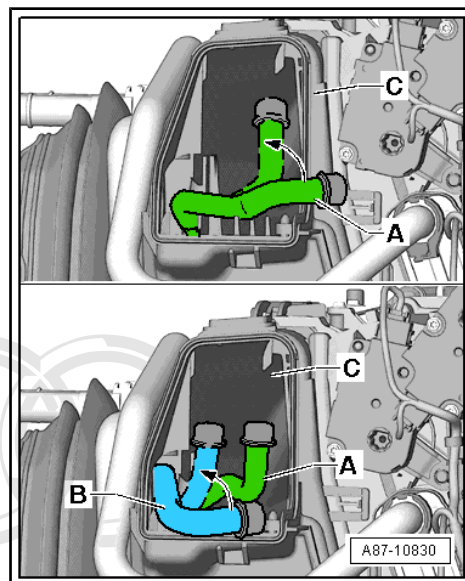


 Note

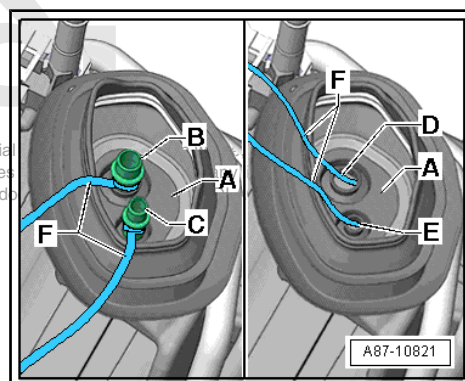
- ◆ To reduce noise, a butyl mat is wrapped around each of the refrigerant lines -A- and -B-. Take care not to damage this wrapping on installation.
- ◆ Have a second person pull carefully on the cord -F- to facilitate insertion in the correct opening -E- of the socket.



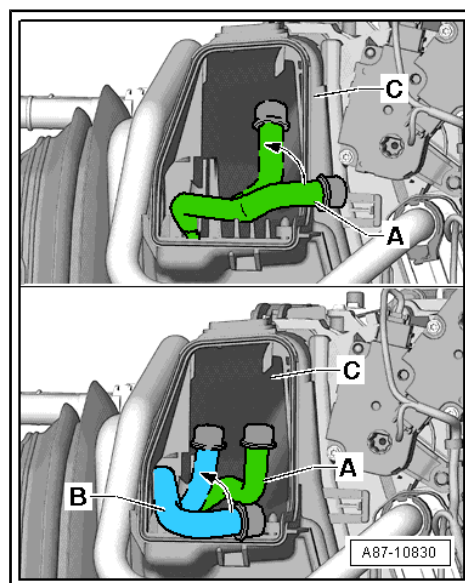
- Insert the refrigerant line -B- (thicker pipe) in the air conditioning unit -C-, turn it anti-clockwise and guide it through the upper larger opening into the socket to the plenum chamber.


Note

Have a second person pull carefully on the cord -F- to facilitate insertion in the correct opening -D- of the socket.



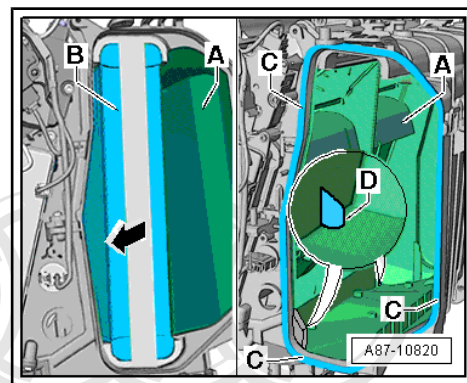
- Position the two refrigerant pipes -A- and -B- such that they are not an obstruction and cannot be damaged when fitting the evaporator.



- Check the air conditioning unit for contamination by way of the mounting slot for the evaporator -A- and clean the air conditioning unit if necessary.

i Note

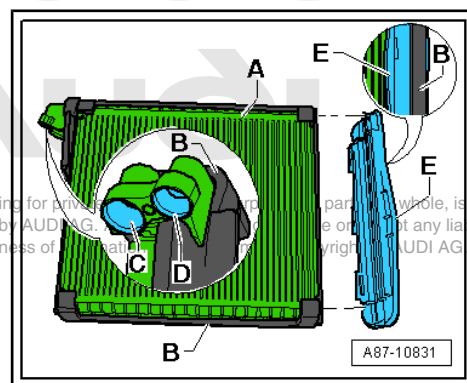
When doing so pay attention to the two condensation drains -B- on the left and right in the air conditioning unit.



- Check the foam strips -B- attached to the replacement evaporator -A- and to the covers -E- for damage and proper attachment.
- Check the two connections -C- and -D- at the replacement evaporator -A- for contamination and damage.
- Attach the cover -E- to the replacement evaporator -A- in the correct position.

i Note

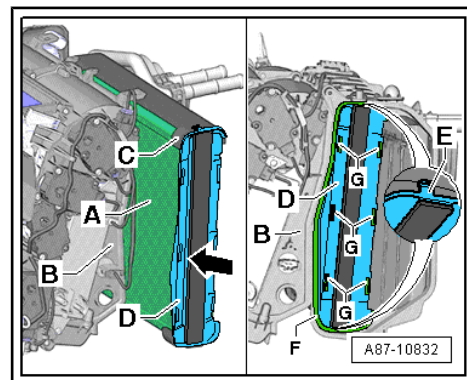
The cover -E- is included in the scope of delivery of the replacement evaporator ⇒ Electronic parts catalogue .



- Slide home the replacement evaporator -A- with the cover -D- in the slot of the air conditioning unit -B-, taking care to ensure that the cover -D- and the attached foam strips -C- do not become separated from the evaporator on insertion.

i Note

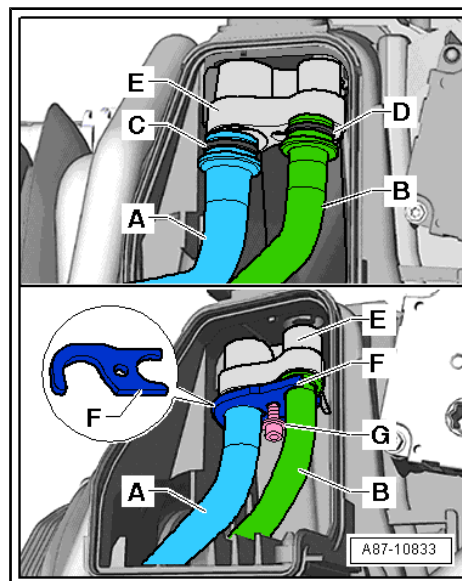
The two retainer tabs -E- of the cover -D- must engage at the air conditioning unit.



- Detach the protective caps from the two refrigerant pipes -A- and -B-.
- Check the refrigerant lines -A- and -B- as well as the connections at the evaporator -E- for damage and contamination.

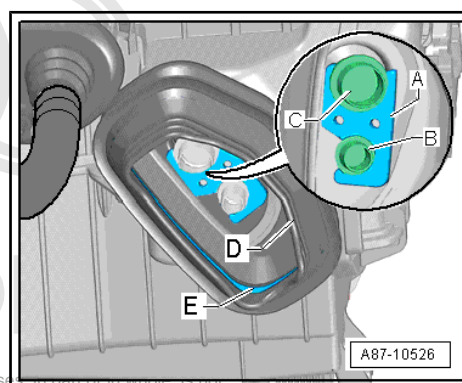

Note

- ◆ *Even minor damage (scratches) or slight contamination (a hair) in the connection area may be enough to cause leaks.*
- ◆ *The O-rings -C- and -D- are already fitted to the refrigerant lines -A- and -B- at the factory.*
- ◆ *The refrigerant lines -A- and -B-, the O-rings -C- and -D-, the holder -F- and the bolt -G- are included in the scope of delivery of the replacement evaporator ⇒ [Electronic parts catalogue](#) .*
- Lightly lubricate both O-rings -C- and -D- with refrigerant oil
⇒ [“3.13 Refrigerant circuit seals”, page 116](#) .
- Insert the refrigerant lines -A- and -B- as far as they will go in the connections of the evaporator -E-.
- Pre-assemble the holder -F- with the bolt -G- at the evaporator -E- as shown.


Note

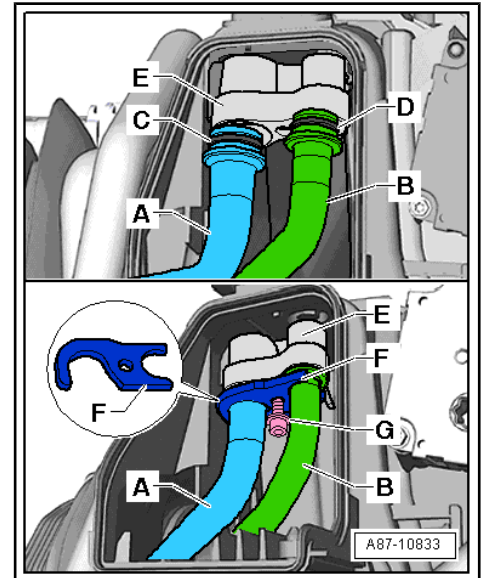
- ◆ *Only screw in the bolt -G- such that the two refrigerant lines -C- and -D- can still be turned without tensioning.*
- ◆ *When screwing in the bolt -G-, take care not to strain the holder -F- with the refrigerant lines.*
- ◆ *To reduce noise, a butyl mat is wrapped around each of the refrigerant lines -A- and -B-. Take care not to trap this wrapping at the holder -F- on installation.*

- Attach retaining plate for expansion valve -A- to refrigerant lines -B- and -C-.
- Fit (pre-assemble) the expansion valve to align the two refrigerant lines
⇒ [“2.9.3 Removing and installing expansion valve \(front\)”, page 216](#) .
- Make sure the support ring -E- is correctly positioned and check the socket -D- for damage.



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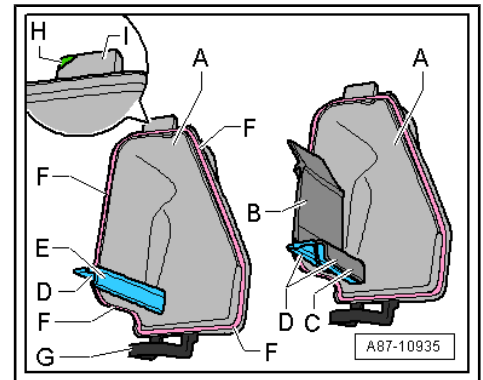
- Tighten the bolt -G- at the evaporator connection (tightening torque 5 Nm).
- Install expansion valve
⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#).
- Attach the two refrigerant lines to the expansion valve
⇒ ["2.9.1 Detaching refrigerant lines from front expansion valve/re-attaching", page 210](#).



- Check the cover -A-. The fastener -G- must not have been strained (e.g. on removal) and the all-round tongue and groove -F- required for sealing must not be damaged.
- Completely remove the partition -B- and section -C- of the guide -D- from the cover -A-.

Note

- ◆ Section -E- of the guide -D- must be retained to facilitate insertion.
- ◆ A modified cover as would be required for installation at the refrigerant lines to the replacement evaporator is currently not included in the scope of the delivery of the replacement evaporator (introduction not yet finalised). The cover -A- as provided for the factory-fitted evaporator must therefore be reworked.
- Rework the corner -H- of the lug -J- as shown (round off or bevel the corner).



Note

- ◆ The corner -H- is reworked to permit better fitting of the -A-.
- ◆ To avoid problems with air conditioner operation, the all round tongue and groove -F- of the cover -A- which provides the seal must not be damaged. The fastener -G- must also not be strained to ensure that it engages properly again on installation.

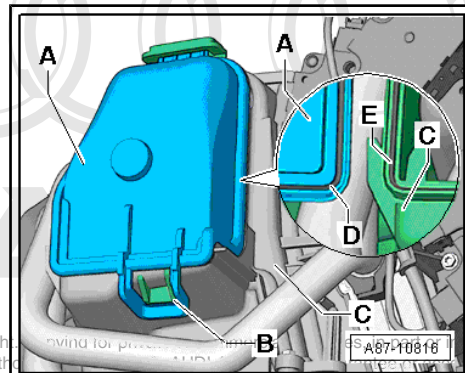
- Check the cover -A- and the air conditioning unit at the joints.



Note

Even minute leakage at the tongue-and-groove joint -D- and -E- between the cover -A- and the air conditioning unit can lead to whistling noise as a result of escaping air. To completely seal the connection points, coat them lightly e.g. with silicone grease (replacement part number G 000 405 A2) ⇒ Electronic parts catalogue.

- Fit the reworked cover -A- for the refrigerant lines to the evaporator.



Note

When fitting the cover -A-, take care not to trap any sections of foam and make sure the floor covering is not in contact with the cover -A- to avoid squashing.

- Check for correct positioning of the cover -A- and the catch -B-.



Note

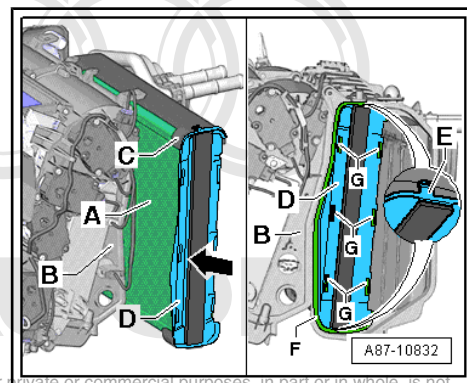
If the tongue-and-groove joint -D- and -E- between the cover -A- and the air conditioning unit is not properly fitted all round, noise will occur as a result of air escaping during air conditioner operation.

- Protect floor covering beneath installation slot for evaporator to prevent soiling floor covering with adhesive sealant.

- Clean the air conditioning unit -B- and the cover -D- at the locations marked -F- and -G- (and dry if necessary).
- Carefully fill (seal) the area marked -F- and -G- (joints between air conditioning unit -B- and inserted partition -D-) as well as between the evaporator and the partition -D- with silicone adhesive sealant - D 176 001 A3- for example ⇒ Electronic parts catalogue .

Note

If the connection points between the air conditioning unit -B-, the evaporator and the partition -D- are not properly sealed, condensate may run out of the air conditioning unit into the footwell when cornering for example.



- Remove any surplus adhesive sealant (adhesive sealant may only be applied in area -D-). Remove any excess adhesive sealant from groove -G-.
- Install air-intake box
⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#) .
- Re-install remaining components removed in reverse order.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

5.6 Cleaning evaporator

⇒ [“5.6.1 Cleaning evaporator”, page 468](#)

⇒ [“5.6.2 Cleaning evaporator in front and rear air conditioning unit with ultrasonic A/C cleaner VAS 6189A”, page 468](#)

5.6.1 Cleaning evaporator



Note

- ◆ *At present the evaporator in the rear air conditioning unit can only be cleaned in situ using the ultrasonic A/C cleaner - VAS 6189-. The evaporator is installed beneath the centre console and is only accessible after removing certain components*
⇒ [“6.6 Removing and installing rear fresh air blower V80”, page 547](#). *On this vehicle, the air emerging from the rear air conditioning unit is drawn in either by the front air conditioning unit or under the centre console depending on the setting on the air conditioner front operating and display unit, Climatronic control unit - J255- / the rear Climatronic operating and display unit - E265- and the ambient conditions. The air emerging from the front air conditioning unit is first routed through the dust and pollen filter and the evaporator in the front air conditioning unit. As the dust particles contained in the air are already separated in this process, they cannot be transported to the evaporator in the rear air conditioning unit.*
- ◆ *To clean the evaporator in the rear air conditioning unit with the ultrasonic A/C cleaner - VAS 6189-, set the air distribution at the front air conditioning unit such that the majority of the air is conveyed to the rear air conditioning unit and then clean the evaporator in the manner described for the front evaporator (in air recirculation mode, the air and vaporised cleaning agent are drawn in at the front and routed to the rear air conditioning unit).*
- ◆ *In air recirculation mode, the rear fresh air blower - V80- installed in the rear air conditioning unit draws in the air beneath the centre console in the area of the front seats. In the event of an odour nuisance in the rear air conditioning unit, the centre console and the area beneath the front seats should therefore be checked for moisture and contamination, as well as checking the condensation drains in the rear air conditioning unit for blockage and the heat exchanger fitted in the rear air conditioning unit for leaks*
⇒ [“6.10 Checking condensation drain hose”, page 566](#) and
⇒ [“4.3 Overview of fitting locations - control motors at rear”, page 337](#).

5.6.2 Cleaning evaporator in front and rear air conditioning unit with ultrasonic A/C cleaner - VAS 6189A-

Special tools and workshop equipment required

- ◆ Ultrasonic A/C cleaner - VAS 6189A- (currently available cleaners ⇒ tool catalogue).
- ◆ Cleaning fluid - VAS 6189/1-

Preparation

- By switching from fresh air to air recirculation mode, check whether the front air conditioning unit evaporator is really the source of the odour.

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Note

The odour can only be eliminated by cleaning with the ultrasonic A/C cleaner - VAS 6189A- if it actually occurs in the evaporator.

- Check plenum chamber and water drain valves installed in plenum chamber for dirt; clean if necessary
 ⇒ ["7.10 Checking plenum chamber water drain", page 596](#) .
 - Remove dust and pollen filter and check for odour and dirt
 ⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#) .
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Note

On this vehicle, the dust and pollen filter is installed between the fresh air blower - V2- and the evaporator and must therefore be removed for cleaning.

- Clean (remove leaves, dust and other dirt) from installation slot for dust and pollen filter of air conditioning unit
 ⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#) .
- Re-seal opening in air conditioning unit through which dust and pollen filter was removed.
- Start engine.
- Set the air conditioner front operating and display unit, Climatronic control unit - J255- to "air recirculation mode" and switch off the air conditioner compressor (lamp in [\[AC\]](#) or [\[A/C\]](#) button not lit).
- Open the dash panel vents and the vents in the rear centre console.
- Set the air conditioner front operating and display unit, Climatronic control unit - J255- (and if fitted also the rear Climatronic operating and display unit - E265-) to the lowest possible temperature ("cold" temperature setting).
- Close windows and sun roof of vehicle.
- Set the air conditioner front operating and display unit, Climatronic control unit - J255- (and if fitted also the rear Climatronic operating and display unit - E265-) to the lowest fresh air blower speed and select "dash panel vents" (vents in rear centre console) as the air outflow direction.
- On -J255- select "dash panel vents" as the air outflow direction.
- If fitted, set the air outflow direction on -E265- to the vents in the rear centre console.

Cleaning

- Shake container of cleaning fluid - VAS 6189/1- and pour contents into ultrasonic A/C cleaner - VAS 6189A- (when doing so, observe operating instructions for ultrasonic A/C cleaner - VAS 6189A-).
- Position ultrasonic A/C cleaner - VAS 6189A- in passenger's footwell.
- Start up the ultrasonic A/C cleaner - VAS 6189A- (in accordance with the appropriate operating instructions) and position the outlet hose such that the vapour emerging is drawn in by the fresh air blower - V2- via the air recirculation opening of

the front air conditioning unit (in the passenger's footwell behind the glove box).

**Note**

Some of the cleaning fluid is also drawn in by the rear fresh air blower - V80- via the air ducts between the front air conditioning unit and the air distribution housing/rear air conditioning unit and routed through the components in the air distribution housing/rear air conditioning unit.

- Close vehicle's doors.

**Note**

The cleaning process takes roughly 15 to 20 minutes and is completed when no further vapour emerges from the outlet hose.

Concluding steps

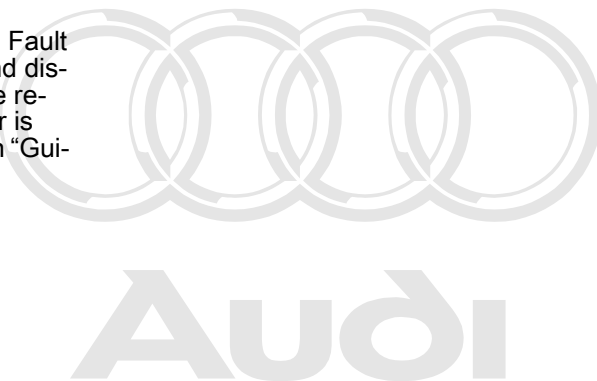
- Switch off ultrasonic A/C cleaner - VAS 6189A- .
- Open doors and vent passenger compartment for at least 10 minutes.
- Remove ultrasonic A/C cleaner - VAS 6189A- from vehicle and clean it in accordance with its operating instructions.
- Switch off ignition.
- Install dust and pollen filter
⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#) .

5.7 Checking auxiliary air heater element - Z35-

⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#)

5.7.1 Checking electric supplementary heater

- ◆ The design of -J604- currently does not permit checking of the resistance value of -Z35- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ◆ The heat output of -Z35- is infinitely regulated by -J604- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ◆ The “Reading measured values” function of the Guided Fault Finding routine for the air conditioner front operating and display unit, Climatronic control unit - J255- shows that the request for activation of the electric supplementary heater is being transmitted to -J604- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



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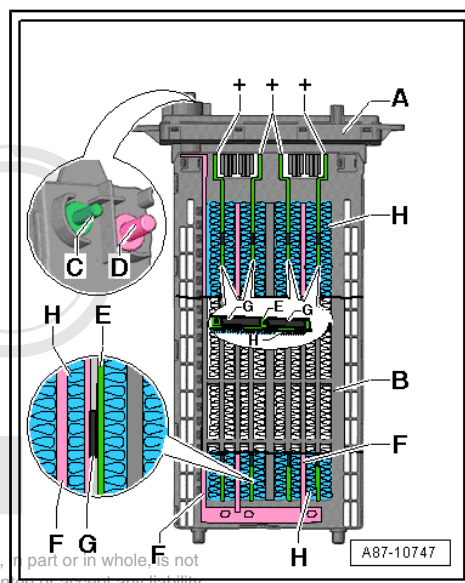


Note

- ◆ *Checking of -Z35- activation by way of -J604- is described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *A start/stop system is offered as an optional extra for this vehicle in combination with certain engines. On vehicles with a start/stop system, -Z35- is deactivated whilst the stop function is active (to protect the battery - A-). -Z35- is activated again by way of -J604- after the engine has been re-started by way of the start function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *For further information on the auxiliary air heater element - Z35- and the auxiliary air heater control unit - J604- , refer to ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *In the case of vehicles with a high-voltage system (hybrid vehicles and petrol engine), pay attention to the correct version of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Electronic parts catalogue .*
- ◆ *For further information, refer to ⇒ [page 474](#) and ⇒ ["3.11.4 Checking supplementary heating system", page 114](#)*

Design and operation of -J604- and -Z35-

- ◆ -J604- -A- is activated by -J255- by way of a local data bus
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ By way of -J604- -A-, the current flowing to -Z35- -B- is not only energised and de-energised but also regulated to avoid overloading the vehicle electrical system ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ The design of -Z35- is such that, when the supplementary heater is switched on by -J604- , only a maximum current of less than 125 A can flow via connection -C- at -J604- even at very low temperatures (and even if sufficient power is being provided by the vehicle electrical system). Immediately after switch-on, the resistance of the resistor elements -G- increases as they warm up and the current decreases.
- ◆ -Z35- -B- consists of several resistor elements -G- located at the busbars -E-.
- ◆ The current from the busbars -E- is conveyed via the busbars -F- to the earth connection -D- by way of the resistor elements -G- and the adjacent fin-type heat sinks -H-.
- ◆ The fin-type heat sinks -H- not only serve to convey the current to the busbars -F-, but also to dissipate the electrical energy (converted by the resistor elements -G- into heat energy) to the air flowing through.
- ◆ The auxiliary air heater element -Z35- consists of several rows of resistor elements -G- which together can attain a heat output of approx. 1500 W.
- ◆ The resistor elements -G- have a positive temperature coefficient (the resistance increases with temperature and the current input and thus the heat output decrease).
- ◆ To attain the maximum heat output of approx. 1500 W, the temperature of the resistor-type heater elements -G- must be low and sufficient current must be supplied by the alternator -C- . In addition, there must be an adequate flow of cold air through the fin-type heat sinks -H- to permit dissipation of the heat generated and to stop the resistor elements -G- heating up excessively and too quickly.



Cut-in criteria for activation of electric supplementary heater



Note

- ◆ *Certain air conditioner functions (e.g. activation of the supplementary heater) can be activated and deactivated by way of the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be influenced by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual .*
- ◆ *These cut-in criteria in the air conditioner front operating and display unit, Climatronic control unit - J255- must be satisfied for a request to be transmitted to the corresponding engine control unit.*
- The following prerequisites must be satisfied for -J255- to transmit a request for supplementary heater activation via the local data bus to -J604- :
- ◆ Engine running for at least 8 seconds and engine speed higher than 500 rpm (vehicles with diesel engine).

- ◆ READY activated (vehicles with high-voltage system / hybrid vehicles).
- ◆ Engine temperature below 75 °C
- ◆ Calculated ambient temperature below 8 °C
- ◆ Electrical system voltage above 12.2 V and onboard supply control unit - J519- not transmitting any request preventing activation
- ◆ No faults stored in -J255- .
- ◆ No faults stored in engine control unit and capacity utilisation of alternator - C- below 30 ... 77 % (depending on engine speed)
- ◆ On the basis of the setting and the measured temperatures, - J255- has calculated that additional heat output is required to attain the specified passenger compartment temperature.
- ◆ -J255- has calculated that more than 90 % of the air is being routed through the heat exchanger of the air conditioning unit.
- ◆ -J604- has not detected any faults in -J604- or at -Z35- and is not transmitting any corresponding information to -J255- by way of the local data bus.

Shut-off criteria for activation of electric supplementary heater



Note

Deactivation takes place as soon as a cut-in criterion is no longer satisfied in the air conditioner front operating and display unit, Climatronic control unit - J255- or in the corresponding engine control unit or if one of the shut-off criteria is detected.

- -J255- deactivates the request for activation of the electric supplementary heater to -J604- .
- ◆ One of the cut-in criteria no longer met
- ◆ The calculated ambient temperature is greater than or rises above 11 °C.
- ◆ Capacity utilisation of alternator - C- above 95 %
- ◆ -J255- has calculated that less than 60 % of the air is being routed through the heat exchanger of the air conditioning unit (position of temperature flaps).

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5.8 Removing and installing auxiliary air heater element - Z35-

⇒ [“5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604”](#), page 474

5.8.1 Removing, installing and checking auxiliary air heater element - Z35- with auxiliary air heater control unit - J604-

Installed on vehicles with a diesel engine and vehicles with a high-voltage system (hybrid vehicles with petrol engine)



Note

- ◆ Vehicles with a diesel engine and no “auxiliary heater” optional extra are fitted with an electric supplementary heater as supplementary air heater ⇒ Audi sales range. Heat energy is supplied to the air after leaving the heat exchanger of the air conditioning unit in the event of a request from the air conditioner front operating and display unit, Climatronic control unit - J255-.
- ◆ Vehicles with a diesel engine and “auxiliary heater” optional extra are currently also fitted with an electric supplementary heater. At a later date, the electric supplementary heater is to be discontinued on vehicles with a diesel engine and an “auxiliary heater” and the auxiliary heater will then assume the function of a supplementary heater (conversion date not yet finalised) ⇒ Audi sales range.
- ◆ The electric supplementary heater (-Z35-) is activated by way of -J604-. The control units -J255- and -J604- exchange the relevant information by way of a local data bus ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ Checking operation of -Z35- and -J604-
⇒ [“5.7.1 Checking electric supplementary heater”](#), page 470.
- ◆ With the exception of vehicles with a high-voltage system (hybrid vehicles), vehicles with petrol engine are currently not fitted with a supplementary heater (or an “auxiliary heater” fitted as optional extra is not activated as supplementary heater).
- ◆ Vehicles with a high-voltage system (hybrid vehicles) and petrol engine are currently also fitted with a auxiliary air heater element - Z35-.
- ◆ Vehicles with a petrol engine and vehicles with a diesel engine not fitted with an auxiliary air heater element - Z35- have an air conditioning unit with no opening for fitting -Z35-
⇒ [“7.2 Air intake and air outlet openings”](#), page 575 and ⇒ Electronic parts catalogue.
- ◆ ⇒ [“5.7.1 Checking electric supplementary heater”](#), page 470

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove right footwell vent (front passenger's side)
⇒ [“7.4 Removing and installing passenger side footwell vent”](#), page 584.



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
 ⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Remove air-intake box
 ⇒ "5.11 Removing and installing air intake box of front air conditioning unit", page 495.
- Remove the right centre vent control motor - V111-
 ⇒ "4.10 Removing and installing right centre vent control motor V111", page 361.



Caution

- ◆ *Risk of short circuit when disconnecting the power supply to the auxiliary air heater element - Z35-*
- ◆ *Remove the fuse in the power supply to the auxiliary air heater element - Z35-.*

- Interrupt the power supply to the auxiliary air heater element - Z35- by removing the corresponding fuse (currently 150 A).

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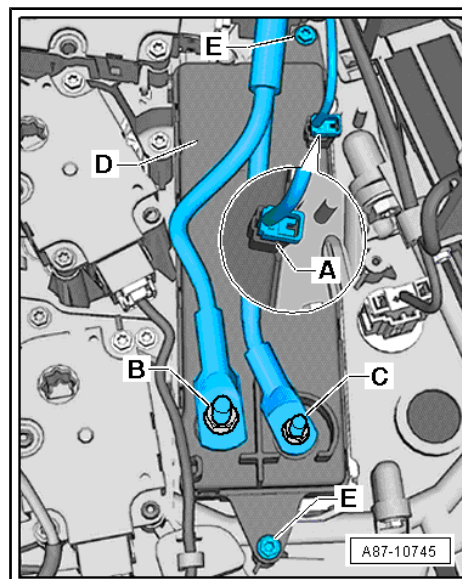
Note

The fitting location of the fuse can be found in the relevant current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

- Unplug the connector -A- from the supplementary air heater control unit -J604- -D-.
- Check again using a voltage tester. There must not be any voltage between the connections -C- (positive) and -B- (negative) (danger of short circuit).


Note

- ◆ *To prevent interchange of the connections -C- (positive) and -B- (negative), the diameters are different (M6 thread and M8 thread on -J604-).*
- ◆ *If the connections (-C- and -B-) are incorrectly assigned, -J604- can no longer regulate the current and there will be a constant flow of current through -Z35- (unregulated with maximum heat output).*
- Detach the two wires -B- and -C- to -J604- .
- After detaching, insulate the two wires -B- and -C- separately (risk of short circuit).
- Remove bolts -E-.


WARNING

The auxiliary air heater element -Z35- may be hot.

- ◆ *If -Z35- has been activated prior to removal, do not touch -Z35- .*

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- Pull -J604- -A- (with -Z35- -B-, cannot be checked and re-placed separately) out of the mounting slot -C- of the air conditioning unit.

Installing

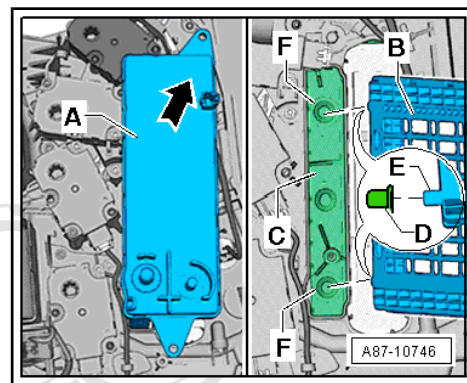
Install in reverse order of removal; note the following:

- Check the mounting slot -C- of the air conditioning unit for contamination with -Z35- -B- removed and clean if necessary.
- Check the partition between the left and right side in the air conditioning unit by way of the mounting slot -C- for -Z35- .
- Slide -Z35- -B- with -J604- -A- into the mounting slot -C- of the air conditioning unit.
- Only install -Z35- -B- in the mounts -F- of the air conditioning unit with the rubber bushes -D- at the lugs -E-.
- Fit bolts -E-.
- Attach the two wires -B- and -C- to -J604- .

- ◆ Tightening torque of hexagon nut (M8 thread) at connection -B- 20 Nm

- ◆ Tightening torque of hexagon nut (M6 thread) at connection -C- 9 Nm

- Re-install all components removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
 ⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- After installation, check the activation and operation of -Z35- by way of -J604- if applicable ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and
 ⇒ ["5.7.1 Checking electric supplementary heater", page 470](#).

5.9 Checking heating output of activation of air conditioner temperature flap



Note

- ◆ *This test is the same for vehicles with mechanical and electrically driven air conditioner compressor (vehicles with and without high-voltage system / hybrid vehicles).*
- ◆ *An air conditioner with a rear air conditioning unit is currently not available for vehicles with a high-voltage system.*
- ◆ *At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-. On this type of -E265-, it is only possible to set one temperature and there is only one **AUTO** button
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).*

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles

⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

Working with ignition switched on or high-voltage system active

**DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*

- To minimise the number of automatic engine starts when the vehicle's drive system is active during test and measurement work, charge the vehicle batteries e.g. with the battery charger 60A - VAS 5904- in battery standby mode ⇒ Electrical system; General information; Rep. gr. 27 ; Battery; Load battery and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system
- For test and measurement work that requires the vehicle's drive system to be active (READY) or the ignition to be switched on, move the selector lever to position "P", activate the parking brake and take care to keep well clear of the engine when it is running. Set up any tools needed so that they cannot come into contact with moving parts.

**Note**

- ◆ *Also move the selector lever to position "P" and activate the parking brake before performing test and measurement work for which the ignition must be switched on but where the vehicle's drive system does not need to be active (READY).*
- ◆ *The status of the drive system (READY) is shown by the control unit in dash panel insert - J285- via the "power meter" ⇒ Owner's Manual .*
- ◆ *Activating and deactivating drive system ⇒ Owner's Manual (note display of control unit in dash panel insert - J285-).*

Special tools and workshop equipment required

- ◆ Battery charger, 60A - VAS 5904-



DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*



Note

- ◆ *If the ignition is on and the drive system is active (READY), the engine will only start or run if warmer coolant is required to attain the set temperature in the passenger compartment or, for instance, if the drive battery - A2- (hybrid battery) is not sufficiently charged.*
 - ◆ *With the ignition on and the drive system active/READY (engine not running), the flow of coolant through the heat exchanger of the air conditioning unit is maintained by way of the coolant circulation pump - V50- ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses . Depending on the vehicle model, -V50- is activated directly by the air conditioner operating and display unit, Climatronic control unit - J255- or by the relevant engine control unit when requested by -J255- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- Activate drive system/READY (observe display in control unit in dash panel insert - J285-) ⇒ Owner's Manual .

All vehicles



Note

- ◆ *On vehicles with no rear air conditioning unit (with rear air distribution housing), the temperature of the air flowing out of the front air conditioning unit to the rear air distribution housing is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- such that a medium temperature is set for the air from the vents in the rear area. For this purpose the specified temperature for the air from the vents in the rear area is calculated by -J255- by way of the setting for the left and right side on -J255-. If however the setting on -J255- is such that the temperature is no longer regulated (e.g. "HI" for maximum heating or "LO" for maximum cooling), the temperature of the air from the vents in the rear area is no longer regulated. If for example, the settings on -J255- are maximum heating "HI" for one side and maximum cooling "LO" for the other side, the air for the vents in the rear area is heated to the maximum level.*
- ◆ *On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265-
⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).*
- ◆ *Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. In addition, the operation of the air conditioner can also be affected by the settings on the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Therefore, if there are problems with these components, first check the settings on the MMI ⇒ Infotainment/MMI Operating Manual.*

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester with "Guided Fault Finding" function and the corresponding connecting leads ⇒ Workshop equipment.
- ◆ Commercially available thermometer (for measuring temperature; if applicable use thermometer with 2 probes for simultaneous measurement of temperature e.g. on right and left)

If the coolant circuit is not completely bled after filling, air may accumulate in the heat exchanger of the front air conditioning unit (and if fitted in the rear air conditioning unit) and thus reduce the heat output of the air conditioner. In addition, noise may occur or complaints may be received about differences in the temperature of the air from the driver's and front passenger's vents despite an identical setting (front and rear, rear left and right).

Remedy:

- Check the coolant circuit and bleed again if necessary
⇒ [page 625](#).
- If residual air is still suspected in the cooling system after bleeding: Perform a lengthy test drive at high engine speed (at least 10 minutes, engine speed above 2500 rpm). When doing so, select a low gear to prevent excessive vehicle speed.

In the event of customer complaints about poor heat output at certain engine speeds:

- Check incorporation of the heat exchanger in the front air conditioning unit (and if fitted in the rear air conditioning unit) into the coolant circuit. If the two coolant hoses (supply and return) from the engine have been interchanged for example, coolant will flow in the wrong direction through the heat exchanger. The coolant circulation pump - V50- may also operate in opposition to the engine coolant pump
 ⇒ [“8.1 Incorporation of air conditioner into coolant circuit”, page 599](#) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .

If there are differences in the temperature of the air flowing out of the vents (air conditioner in control mode), there are several possible causes:

- ◆ One or more temperature flap(s) in the front air conditioning unit (or if fitted in the rear air conditioning unit) not closing completely or not reaching the end position.
- ◆ Air in the heat exchanger of the front air conditioning unit (or the rear air conditioning unit). The flow through the heat exchanger concerned thus fluctuates and the heat is not evenly distributed.
- ◆ Detachment of a foam seal on heat exchanger installation, allowing air to flow past the heat exchanger
 ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#) and
 ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#) .
- ◆ Air conditioner refrigerant circuit not filled with the correct amount of refrigerant (perform cooling output test)
 ⇒ [“3.8.3 Checking vehicles without high-voltage system”, page 74](#) or ⇒ [“3.8 Checking cooling output”, page 70](#) .



Note

- ◆ *A start/stop system is available as optional extra for this vehicle with certain engines. Depending on the setting on the air conditioner front operating and display unit, Climatronic control unit - J255- (or if applicable on the rear Climatronic operating and display unit - E265-) the stop function may be inhibited by this unit. If -J255- has been set to “Defrost” mode for example, no stop function is possible or the stop function is terminated and the engine started as soon as this mode is selected. This also applies if the difference between the set specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *On vehicles with the start/stop system, the coolant circulation pump - V50- (auxiliary heater circulation pump - V55-) is also actuated with the stop function active to maintain the flow of coolant through the heat exchanger
 ⇒ [“1.1.3 Exploded view of fitting locations - components not located in passenger compartment, rear”, page 128](#) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

Notes for vehicles with auxiliary heater

In the event of problems with poor or insufficient heat output on vehicles with an “auxiliary heater” as optional extra, check activation and operation of the heater coolant shut-off valve - N279- and the circulation pump - V55- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode (for auxiliary heater).

**Note**

Certain air conditioner functions can be switched on and off via the MMI system (Multi Media Interface) using the "A/C" function on the "Car" / "Car systems" menu. For example, the supplementary heater fitted on vehicles with diesel engine may also be deactivated. The default setting in the MMI should therefore be checked first in the event of problems with poor heat output ⇒ Infotainment / MMI operating instructions .

- ◆ Check activation of the electric supplementary air heater (on vehicles with TDI engine with no "auxiliary heater" as optional extra and on vehicles with a high-voltage system / hybrid vehicles with petrol engine)

⇒ ["3.11.4 Checking supplementary heating system", page 114](#) .

- ◆ Checking activation of auxiliary heater as supplementary heater ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

5.10 Removing and installing heater and air conditioning unit

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm - 3094- and hose clamps up to 40 mm - 3093-
- ◆ Commercially available compressed-air gun with rubber mouthpiece
- ◆ Cooling system tester - V.A.G 1274- (and appropriate adapters)

**Note**

- ◆ *When removing, note down bolt lengths and assignment for re-installation.*
- ◆ *All cable ties and other wiring harness fasteners released or severed on removing the air conditioning unit are to be re-attached in the same position on installation.*

Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Detach earth connection from battery - A- ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

**Note**

The earth connection of the battery - A- is disconnected to avoid short circuits when removing the air conditioning unit.

- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

- Open cap -arrow- on coolant expansion tank.
- Mark the layout of the coolant hoses at the connections to the heat exchanger -A- (supply from coolant circulation pump - V50-) and -B- (return to engine).



Note

- ◆ *This illustration shows the arrangement of the coolant hoses on a vehicle with a rear air conditioning unit and an auxiliary heater. Vehicles with no "rear air conditioning unit" optional extra are not fitted with the coolant hoses -D- and -F- for example*

⇒ *"8.1 Incorporation of air conditioner into coolant circuit", page 599* .

- ◆ *The heat exchanger(s) is/are installed in the air conditioning units such that a certain coolant flow direction is required for proper bleeding of the heat exchanger. The coolant hoses must therefore be connected in the correct positions*

⇒ *"8.1 Incorporation of air conditioner into coolant circuit", page 599* .

- ◆ *Bleed coolant circuit ⇒ page 625 and ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system* .

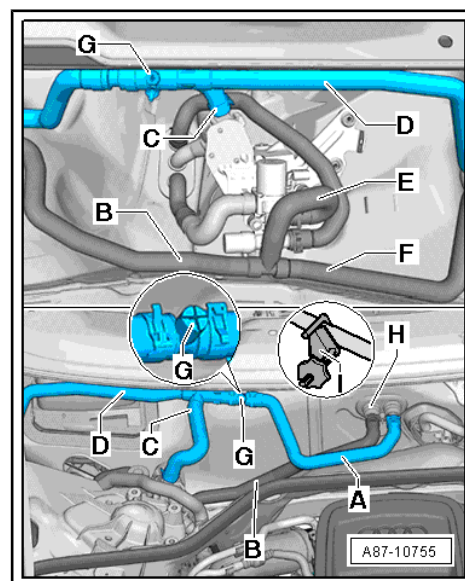
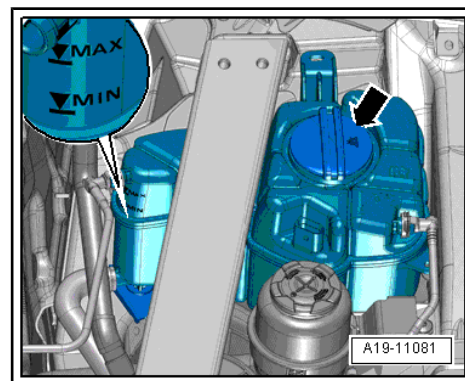
- Detach the two coolant hoses from the coolant pipes to the heat exchanger in the front air conditioning unit

⇒ *"5.15 Removing and installing heat exchanger" page 507*

and

⇒ *"5.15.2 Removing and installing heat exchanger", page 508*

- Blow out the coolant in the heat exchanger
⇒ *"5.15.2 Removing and installing heat exchanger", page 508* .



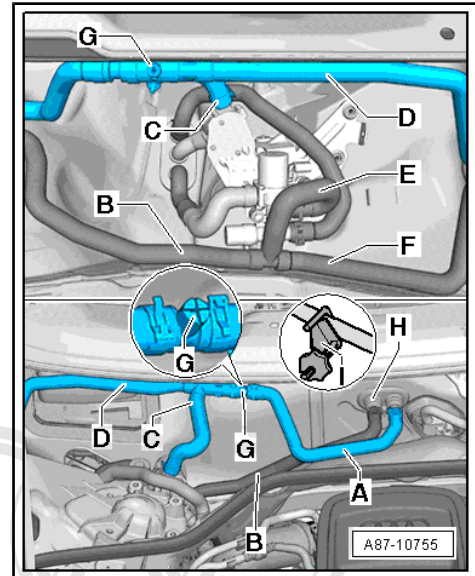
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- Unfasten grommet -H- from plenum chamber back wall and detach from coolant pipes leading to heat exchanger.
- Remove expansion valve
⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#).

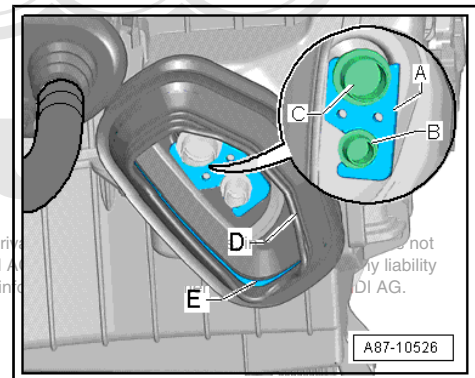


Note

- ◆ Seal open pipe connections.
- ◆ To seal the open connections at the evaporator, use e.g. the caps of a replacement expansion valve.



- Detach retaining plate for expansion valve -A- from refrigerant lines -B- and -C- (to avoid losing it during removal).
- Coat inside of grommet -D- with lubricant and remove support ring -E-.
- Detach grommet -D- towards passenger compartment from plenum chamber back wall (removed and installed together with air conditioning unit).

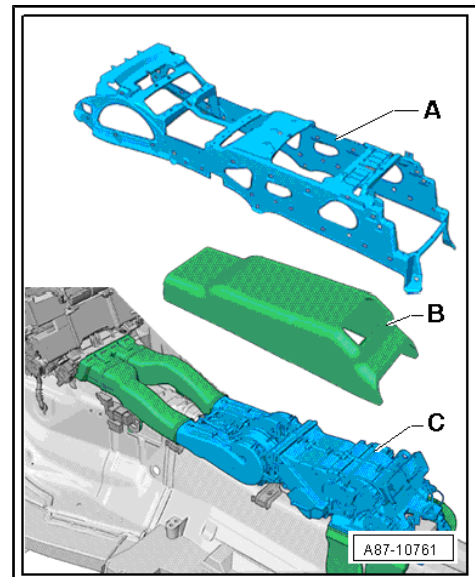


- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

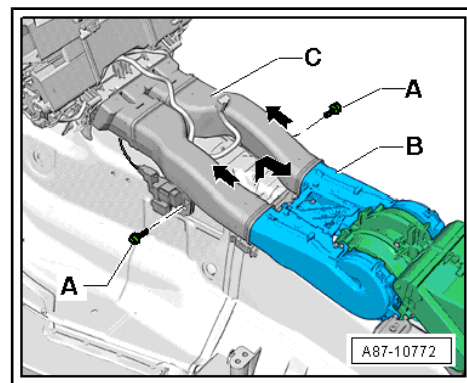


Caution

- ◆ The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.
- ◆ Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.

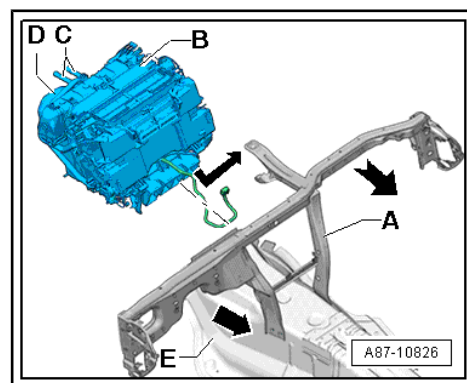


- Remove the bolts -A-.
- Slide the air duct -C- forwards (towards the front air conditioning unit), then lift at the rear and remove in -arrow direction-.



Note

- ◆ In the following, removal of the air conditioning unit -B- is described leaving the dash panel cross-member -A- in the vehicle. The air conditioning unit can also be removed together with the air intake box and the dash panel cross-member, however particular care must be taken to avoid damaging any other components (e.g. pipes/wiring, door trim, door sill panel trim).
- ◆ Removal of the air conditioning unit together with the dash panel cross-member does not involve taking out the air intake box beforehand. The air conditioning unit is also not to be separated from the dash panel cross-member. Perform all other operations as described below. When removing this assembly, particular care must however also be taken to ensure that all the lines (including concealed ones) between the air conditioning unit and the dash panel cross-member to the vehicle have really been disconnected.



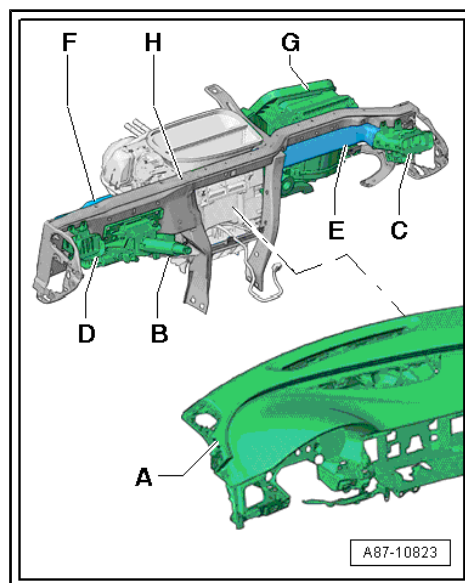
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- Remove dash panel -A- ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .



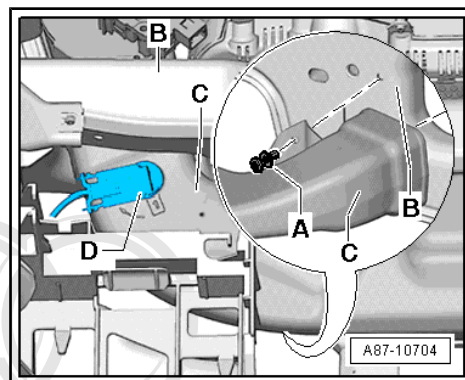
Note

- ◆ *So as not to damage the dash panel fascia, the dash panel -A- is only to be placed on a clean workbench covered, for example, with clean cardboard.*
- ◆ *When removing the dash panel -A-, take care not to damage any wiring (e.g. the wire to the sunlight penetration photosensor - G107- which is routed through the dash panel -A- and the defroster vent).*
- Remove the air intake box -G-
⇒ [“5.11 Removing and installing air intake box of front air conditioning”, page 495](#) .
- Remove the steering column -B- (or just unfasten from the dash panel cross-member -H- and set down such that it is not damaged) ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing steering column .
- Remove the air duct with the defrost flap for dash panel vents/ side window on the left and right -C- and -D-
⇒ [“7.6.2 Removing and installing air duct to left dash panel vent and side window”, page 587](#) and
⇒ [“7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window”, page 588](#) .
- Remove the air ducts to the dash panel vents on the left and right -E- and -F-
⇒ [“7.6.2 Removing and installing air duct to left dash panel vent and side window”, page 587](#) and
⇒ [“7.6.4 Removing and installing air duct to right dash panel vent and side window”, page 589](#) .



Note

- ◆ *The air duct to the left dash panel vent -C- is attached to the dash panel cross-member -B- using an expanding rivet -A-.*
- ◆ *The expanding rivet -A- of the left air duct can only be removed and installed after taking out the dash panel.*

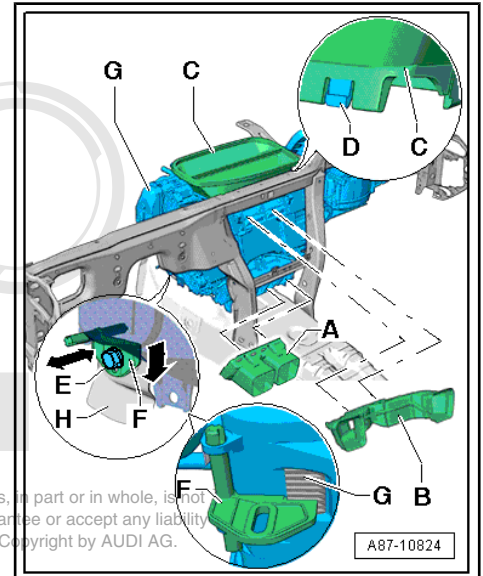


- Unfasten the air ducts to the rear air distribution housing / air conditioning unit -A-, to the centre dash panel vent -B- and to the defrost vent -C- from the air conditioning unit (by releasing the catches -D- at the air ducts) and remove.
- Remove the bolt -E- and detach the lug -F- from the air conditioning unit or turn it such that it does not impede removal of the air conditioning unit.

i Note

The air conditioning unit -G- is secured in position at the centre tunnel -H- by bolt -E-, ribs -G- and lug -F-.

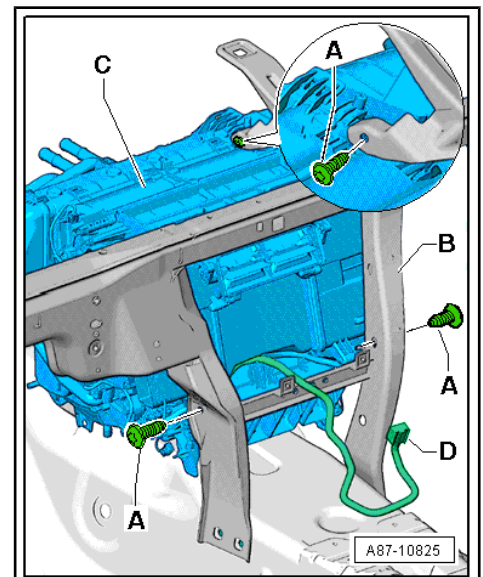
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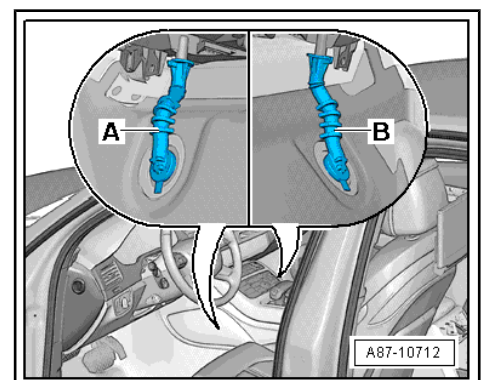
- Remove bolts -A-.
- Unfasten the line to the air conditioning unit -D- from the other lines at the centre tunnel and attach to the air conditioning unit -D-.

i Note

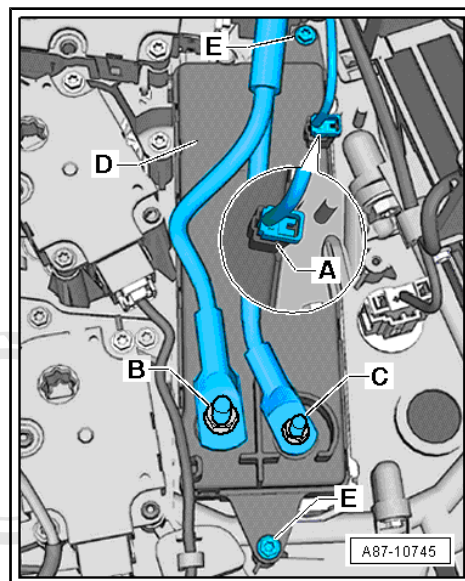
Wiring harness for air conditioner is removed together with air conditioning unit.



- Detach the two condensation drains -A- and -B- from the connections at the air conditioning unit.



- On vehicles with an auxiliary air heater control unit - J604- with auxiliary air heater element - Z35- , detach the connections -C- (positive) and -B-
⇒ ["5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604"](#), page [474](#) .

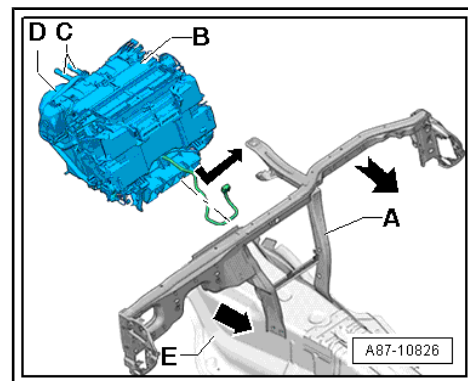


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- Unfasten all other connections between the air conditioning unit -B-, the dash panel cross-member -A- and the vehicle.
- Detach fuse holder from left and right side of dash panel cross-member -A- ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes .

i Note

As the dash panel cross-member -A- is only unfastened from the vehicle but not completely removed, the other relay/fuse carriers and connector points do not have to be detached from the dash panel cross-member -A-.



- Protect the floor covering in the area of the centre tunnel with a sturdy mat -E-.
- Detach dash panel cross-member -A- from vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Removing and installing central tube for dash panel .

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i Note

The dash panel cross member -A- does not have to be completely removed in order to take out the air conditioning unit. It is sufficient to detach it from the vehicle and the air conditioning unit, to swivel it to the rear on the right side and then to set it down on the centre tunnel.

- Carefully unfasten the dash panel cross-member -A- from the vehicle and, making sure that no components are damaged by any connections which have not yet been unfastened, swivel it carefully to the rear -arrow- such that the air conditioning unit -B- can be removed to the right -arrow-.



Caution

Components and wires could be damaged when swivelling back the dash panel cross-member -A-.

- ◆ ***Take care when working.***
- ◆ ***When swivelling back the dash panel cross-member -A-, keep checking to ensure that wires are not being stretched or otherwise damaged.***

- Unfasten the coolant pipes to the heat exchanger -C- and the socket -D- from the openings in the back wall of the plenum chamber, carefully pull the air conditioning unit -B- away from the vehicle somewhat (making sure that no components are damaged by any connections not yet unfastened) and remove in the direction of the passenger's footwell -arrow-.

Installing

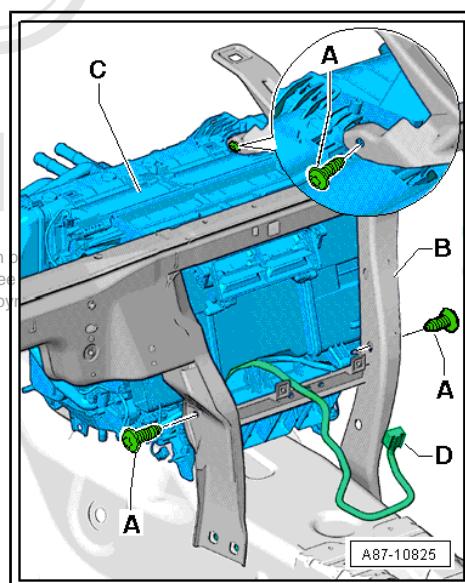
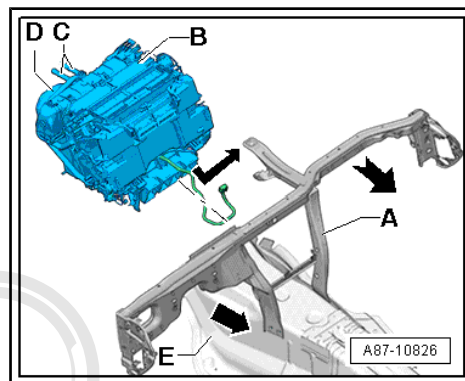
Install in reverse order of removal; note the following:



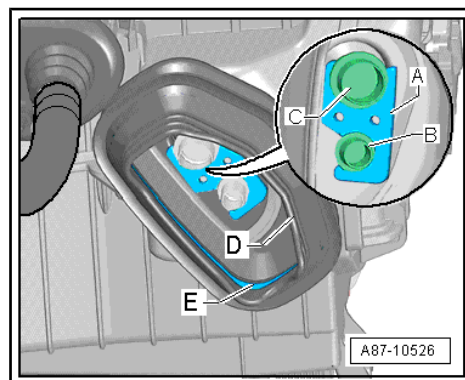
Note

Check all seals and sockets at the air conditioning unit -B- for damage prior to installation and replace damaged components.

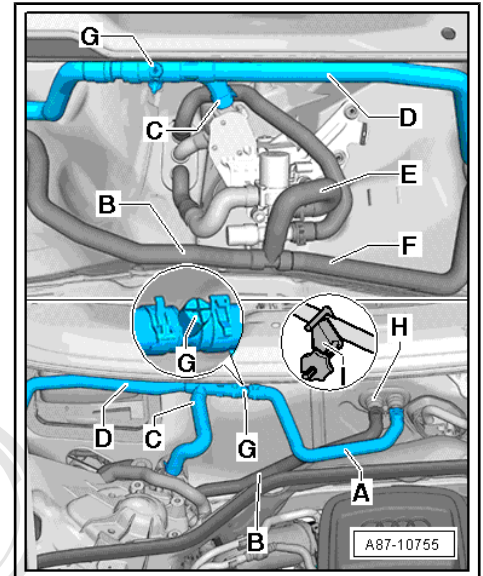
- Insert the air conditioning unit -B- with the components removed together with the air conditioning unit ("air conditioner" wiring harness, socket at refrigerant lines to evaporator -D- etc.) in the vehicle.
- Install dash panel cross-member -A- → General body repairs, interior; Rep. gr. 70 ; Central tube for dash panel; Removing and installing central tube for dash panel .
- Use the bolts -A- to attach the air conditioning unit to the dash panel cross-member -B-.



- Coat grommet -D- with lubricant and insert it in plenum chamber back wall.
- Insert support ring -E- in grommet -D-.
- Install retaining plate for expansion valve -A- at refrigerant lines -B- and -C-.



- Fit the socket -H- for the coolant pipes to the heat exchanger in the back wall of the plenum chamber.
- Check the position of the coolant and refrigerant lines in the two sockets in the back wall of the plenum chamber and if necessary align the air conditioning unit such that the lines in the sockets are not strained.
- Fit the air intake box
⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#).



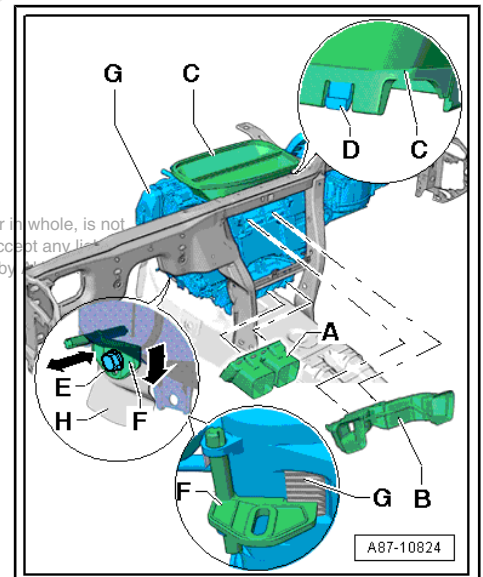
- Insert the lug -F- and slide it as far as it will go towards the holder and then turn it downwards (this fixes the air conditioning unit in position at the lug by way of the mount -G-).
- Fit the bolts -E-.
- Fit the air ducts to the rear air distribution housing / air conditioning unit -A-, to the centre dash panel vent -B- and to the defrost vent -C-.



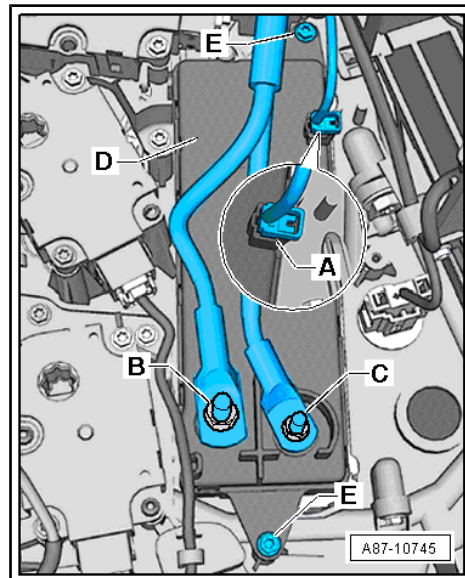
Note

When fitting the air ducts -A-, -B- and -C-, pay attention to proper positioning and tight component connections. If the connection points are not tight, noise may occur as a result of escaping air or the warm/cold air emerging may influence air conditioner control.

- Install steering column ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing steering column .
- Install expansion valve
⇒ ["2.9.3 Removing and installing expansion valve \(front\)", page 216](#) .
- Attach the two condensation drain hoses to air conditioning unit
⇒ ["5.16 Removing and installing condensation drain", page 518](#) .



- On vehicles with an auxiliary air heater control unit - J604- with auxiliary air heater element - Z35- , attach the connections -C- (positive) and -B-
⇒ [“5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604”](#), page 474 .
- Attach the two coolant hoses to the coolant pipes to the heat exchanger in the front air conditioning unit, bleed the coolant circuit as described with the engine stopped and check for leaks
⇒ [“5.15 Removing and installing heat exchanger”](#), page 507 and
⇒ [“5.15.2 Removing and installing heat exchanger”](#), page 508 .
- Re-attach wiring harness at appropriate locations and re-install various air ducts in reverse order.
- Fit the dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .


Note

When installing the dash panel, make sure that the intermediate piece for “defrost” is properly seated on the air conditioning unit when it is inserted and that the defroster vent does not squeeze the intermediate piece when it is installed

⇒ [“7.1.1 Exploded view of air routing and air distribution in passenger compartment”](#), page 569 .

- Re-install remaining components removed in reverse order.
- Re-connect earth connection of battery - A- , paying attention to notes on connecting the battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.


Note

♦ The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

♦ While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly

⇒ [“1.10.1 Overview of control motors of air conditioner”](#), page 33 .

- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

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- Start up air conditioner after charging refrigerant circuit
⇒ [“2.13 Starting up air conditioner after charging refrigerant circuit”, page 241](#).



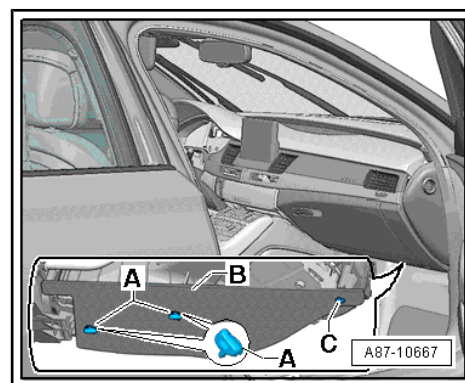
Note

Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner.

5.11 Removing and installing air intake box of front air conditioning unit

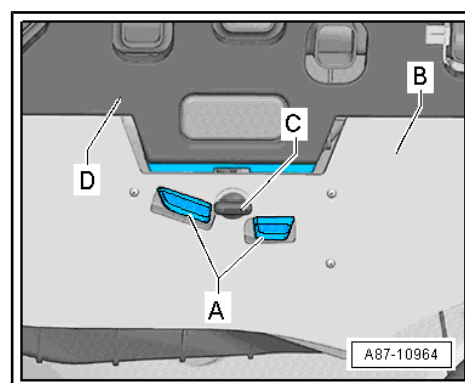
Removing

- Switch on ignition.
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68; Shelves/storage compartments/covers; Removing and installing glove compartment.
- Remove right footwell vent (front passenger's side)
⇒ [“7.4 Removing and installing passenger side footwell vent”, page 584](#).
- Remove the air duct for glove box cooling
⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#).
- Remove the screw-type clip -A-.
- Unfasten the insulating mat -B- from the holder -C- and detach.



Note

To facilitate installation, the glove compartment -D- is provided with lugs with hooks -A- which are engaged as shown in the insulating mat -B- openings on fitting. If the glove compartment -D- has not been correctly installed (lugs with hooks -A- pressing against insulating mat -B- from underneath), the insulating mat -B- can only be removed after taking out the glove compartment
⇒ General body repairs, interior; Rep. gr. 68; Shelves/storage compartments/covers; Removing and installing glove compartment.

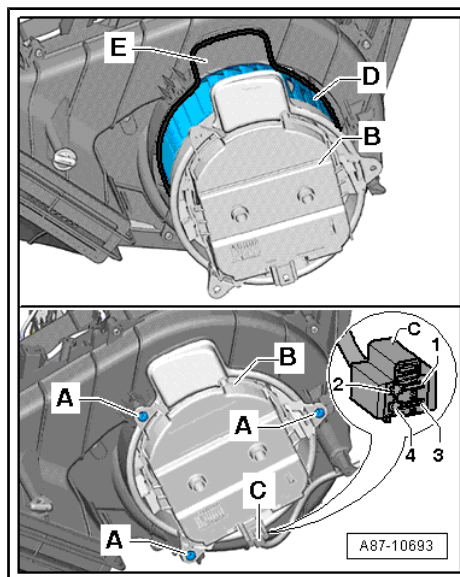


- Release and unplug the connector -C- at the fresh air blower -V2- (with fresh air blower control unit -J126-)
⇒ ["5.14.1 Removing and installing fresh air blower V2 with fresh air blower control unit J126"](#), page 504 .



Note

To release the connector press down the catch using a small screwdriver for example.



- Unfasten the holder -A- and detach the noise insulation cover -B- (from the control motors -V71- and -V113-).

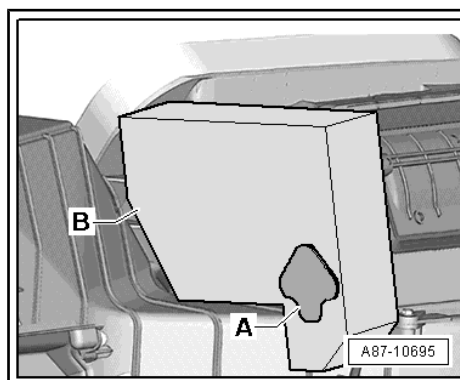


Caution

- ◆ The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner"](#), page 33 .

- ◆ The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.

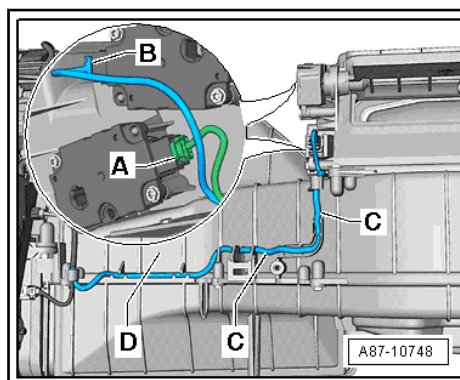
- ◆ Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.



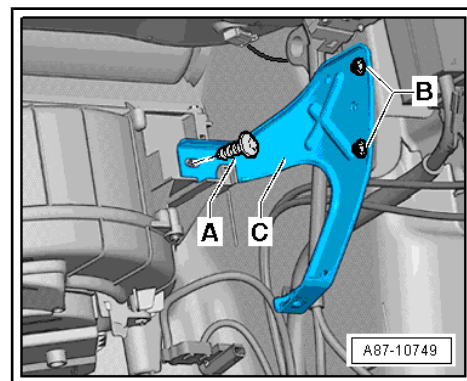
- Mark and unplug the connectors -A- to -V71- and -B- to -V113- (to prevent interchange as several connectors are simultaneously unplugged)

⇒ ["4.5 Removing and installing air flow flap control motor V71"](#), page 345 .

- Unfasten the wiring harness -C- to the control motors -V71- and -V113- from the attachment points at the air intake box -D-.



- Remove the bolts -A- and -B-.
- Remove the holder -C-.

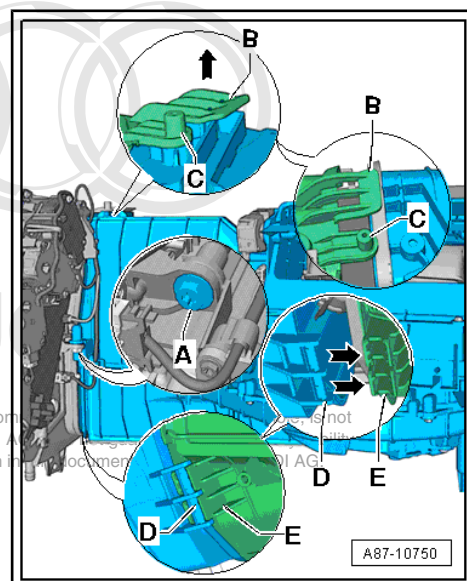


- Remove bolts -A-.
- Release the catch -B- (between the air conditioning unit and air intake box -E-) with a screwdriver for example (lift slightly).

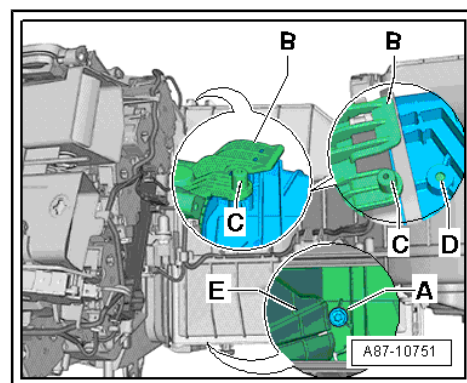
i Note

If the catch -B- between the air conditioning unit and the air intake box -E- no longer provided sufficient retention during a previous assembly operation, use may also have been made of an additional bolt to fasten the two components together at attachment point -C-.

Additional operations for a vehicle on which the air conditioning unit and air intake box -E- are connected with an extra bolt



- ◆ Remove dust and pollen filter
⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#).
- ◆ Remove the bolt -A- at the attachment point -C- by way of the mounting slot for the dust and pollen filter -E-.



Further operations for all vehicles

- After releasing the catch -B-, pull the air intake box -E- downwards on the right (in arrow direction).
- Unfasten the lower lugs of the air intake box -E- from the mount of the air conditioning unit -D-.
- Remove air-intake box.

Installing

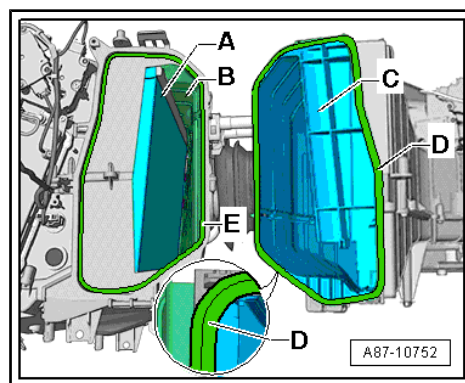
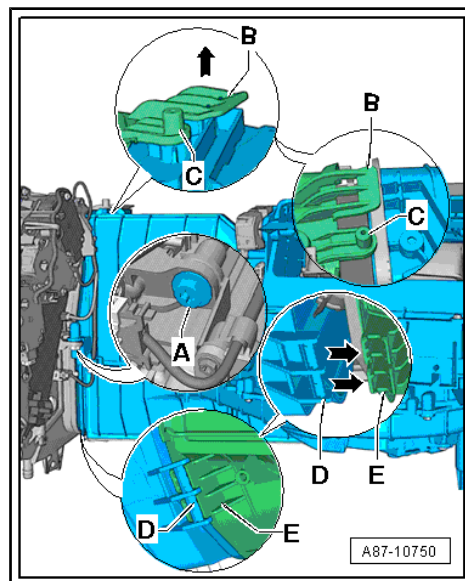
Install in reverse order of removal; note the following.

- Check evaporator -A- and air duct in air conditioning unit to evaporator -B- for dirt and clean if necessary.
- Check dust and pollen filter and air duct in air-intake box to air conditioning unit -C- for dirt and clean if necessary.
- Check the all-round foam seal -D- at the air intake box and the contact surface / all-round chamfer -E- at the air conditioning unit for damage.



Note

- ◆ *If the foam seal -D- or the contact surface / chamfer -E- is damaged, air may escape at this point and cause noise when the air conditioner is in operation.*
- ◆ *If the air conditioning unit and air intake box have not been properly assembled, air may escape at the joint and cause noise when the air conditioner is in operation.*
- ◆ *If the contact surface / chamfer -E- is damaged, fill the damaged area with silicone adhesive sealant D176 001 A3 for example ⇒ Electronic parts catalogue .*
- ◆ *If damaged, replace the foam seal -D- ⇒ Electronic parts catalogue .*



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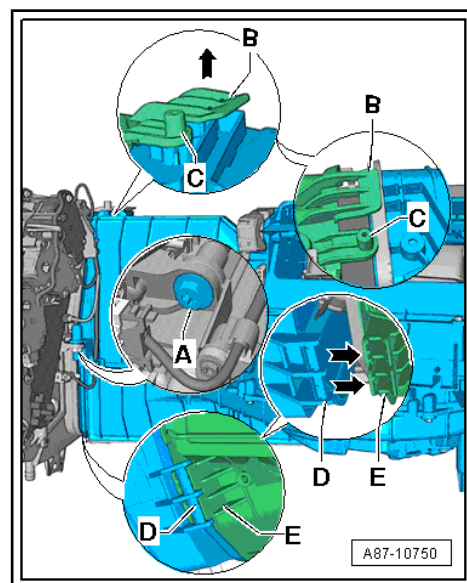
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- Insert the lower lugs of the air intake box -E- in the mount of the air conditioning unit -D-.
- Assemble the air intake box -E- and the air conditioning unit such that the catch -B- of the air conditioning unit engages firmly at the air intake box.



Caution

- ◆ *When assembling the air-intake box and the air conditioning unit, proceed carefully and do not exert much pressure.*
- ◆ *If force is applied on assembling the air intake box and air conditioning unit, the lower lugs of the air intake box -E- may be permanently deformed.*
- ◆ *If the lugs of the air intake box -E- are deformed, slight leakage at the joints may cause a whistling noise when the air conditioner is in operation.*

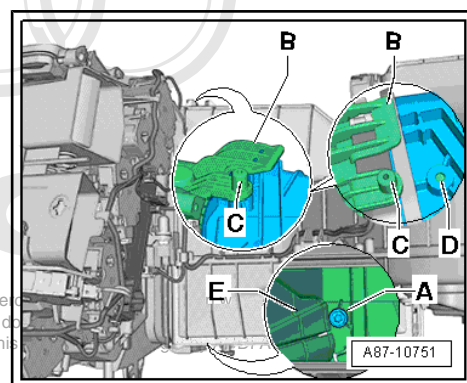


Note

- ◆ *Insertion aids are provided in the area of the catch -B- to facilitate proper assembly of the air conditioning unit and the air intake box.*
- ◆ *If the catch -B- does not engage instantly on assembly, pull the air intake box to the rear in the area of the upper catch and at the same time press the right side forwards and upwards.*
- Check the catch -B- (between the air conditioning unit and the air intake box -F-). Join the two components with an extra bolt in the event of inadequate retention.

Additional operations for a vehicle on which the catch -B- no longer provides proper retention at the air conditioning unit

- ◆ Remove the air intake box again.
- ◆ Remove dust and pollen filter
⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#).
- ◆ Make a hole (4 mm diameter) at the attachment point -D-.
- ◆ Re-install the air intake box.
- ◆ Fit the bolt -A- at the attachment point -C- by way of the mounting slot for the dust and pollen filter -E-.



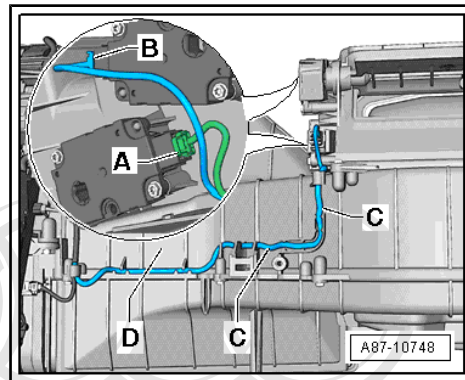
Note

Pay attention to the correct version of the bolt -A- on account of the risk of damage to the attachment point -C- if the bolt is too large ⇒ Electronic parts catalogue.

Install dust and pollen filter
⇒ ["5.13 Removing and installing dust and pollen filter", page 501](#).

Further operations for all vehicles

- In line with the markings, plug in the connectors to the air flow flap control motor - V71- -A- and the air recirculation flap control motor - V113- -B-.
- Route the wiring harness -C- to the control motors - V71- and -V113- in the attachment points at the air intake box -D- such that it cannot come into contact with moving components.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.


Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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5.12 Removing and installing air-intake channel on air-intake box

Removing

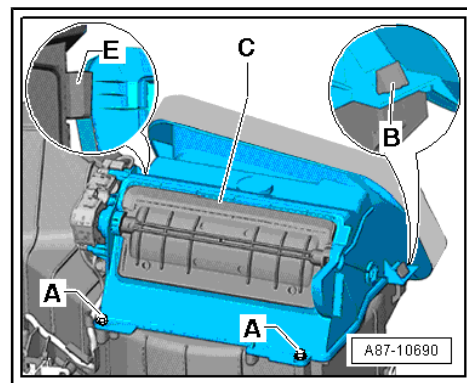
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove air-intake box
⇒ "5.11 Removing and installing air intake box of front air conditioning unit", page 495.

- Remove bolts -A-.
- Release the catch -B- and detach the air intake duct -C- from the air intake box -D-.

Installing

Install in reverse order of removal; note the following.

- Insert the lug -E- of the air intake box in the mounts of the air intake duct -C- and assemble the two components.
- Check the catch -B- between the air intake duct -C- and the air intake box -D-.



Note

If the catch -A- does not provide adequate retention, noise may occur at the joint between the air intake duct -C- and the air intake box -D-.

- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

5.13 Removing and installing dust and pollen filter

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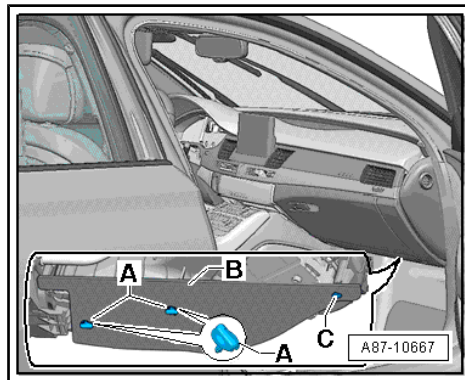


Note

- ◆ *For replacement interval for dust and pollen filter, refer to ⇒ Maintenance tables .*
- ◆ *Different versions of the dust and pollen filter (without and with activated charcoal filter element) are available as replacement parts ⇒ Electronic parts catalogue . The Audi A8 is currently fitted with a dust and pollen filter with an activated charcoal filter element.*
- ◆ *Clean area around dust and pollen filter in slot for air conditioning unit before installing a new filter.*
- ◆ *It may be necessary to remove the driving instructor's pedals on driving school vehicles (depending on version, the driving instructor's pedals may be provided with service disconnection points). Appropriate information can be found in the fitting instructions for driving school equipment (different manufacturers and versions) ⇒ Fitting instructions for driving school equipment .*
- ◆ *Depending on the version, an additional dust filter may be fitted instead of the intake grille at the fresh-air intake in vehicles for certain countries with a high dust level in the ambient air (e.g. for China); check the dust filter and renew if necessary ⇒ "7.9 Removing and installing fresh air intake", page 594 .*

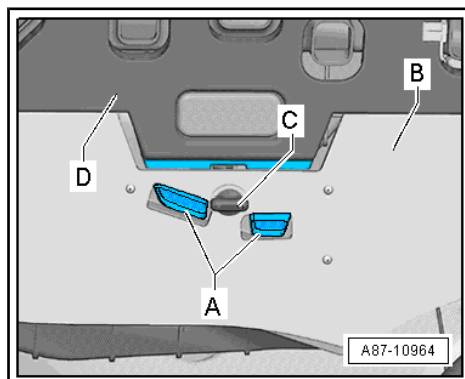
Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the screw-type clip -A-.
- Unfasten the insulating mat -B- from the bracket -C- and detach.



Note

To facilitate installation, the glove compartment -D- is provided with lugs with hooks -A- which are engaged as shown in the insulating mat -B- openings on fitting. If the glove compartment -D- has not been correctly installed (lugs with hooks -A- pressing against insulating mat -B- from underneath), the insulating mat -B- can only be removed after taking out the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

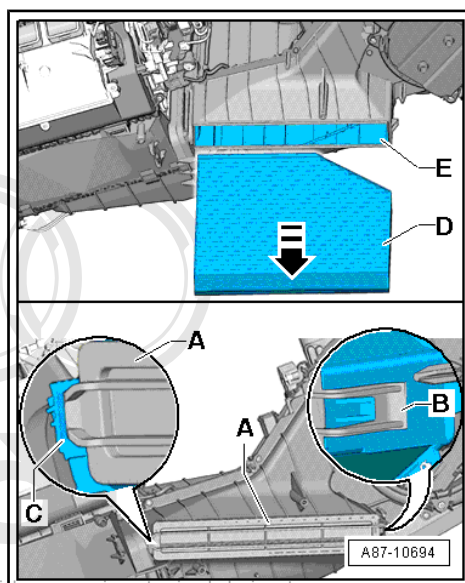


- Protect floor covering with paper in area beneath dust and pollen filter.
- Unfasten the catches -B- and detach the slot cover -A-.
- Pull the dust and pollen filter -D- out of the slot -E- of the air intake box.

Installing

Install in reverse order of removal; note the following.

- Clean the air intake box by way of the slot -E- (e.g. with a vacuum cleaner) after removing the dust and pollen filter -C-.
- Insert the dust and pollen filter -D- correctly with the bevel on the side facing the fresh air blower.

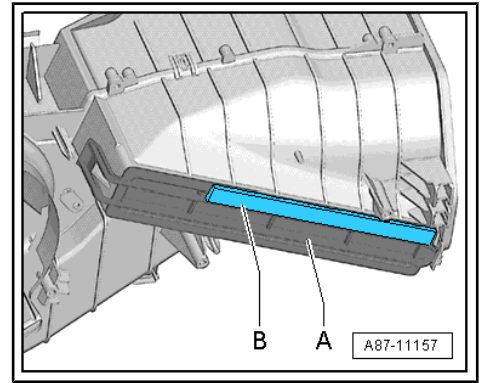


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Note

- ◆ The through-flow direction is not specified for the dust and pollen filter -D- available for this vehicle (left and right-hand drive vehicles are fitted with the same filter).
- ◆ Different versions of the dust and pollen filter (without and with activated charcoal filter element) are available as replacement parts. Pay attention to the correct version ⇒ Electronic parts catalogue .
- ◆ Depending on the version, a foam strip -B- (for insulating the gap) may have been affixed to the slot cover -A-.



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5.14 Removing and installing fresh air blower - V2-

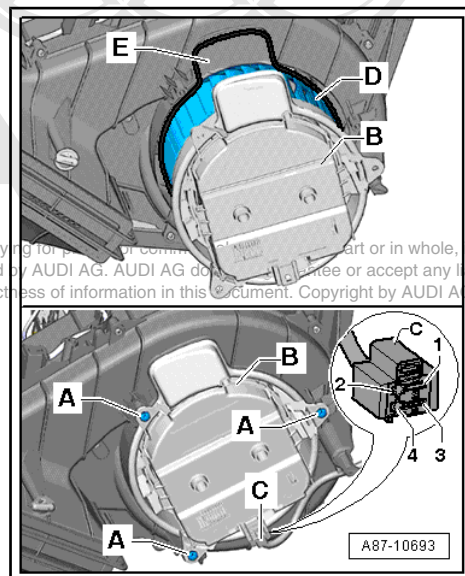
⇒ **"5.14.1 Removing and installing fresh air blower V2 with fresh air blower control unit J126", page 504**

5.14.1 Removing and installing fresh air blower - V2- with fresh air blower control unit - J126-



Note

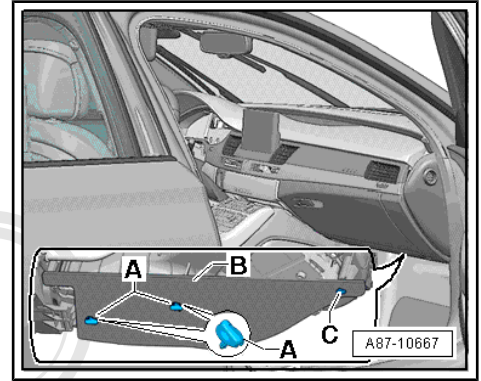
- ◆ -V2- and -J126- form one component and are not to be dismantled ⇒ *Electronic parts catalogue*.
- ◆ Different versions of -V2- with -J126- are available as replacement parts. Pay attention to correct assignment ⇒ *Electronic parts catalogue*.
- ◆ -J126- switches (with the ignition on and -V2- activated) "Positive" from contact "3" of the connector -C- to -V2-. The speed of -V2- is regulated by -J126- by way of the earth connection of the connector -C- contact "1" ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations*.
- ◆ -V2- is activated via -J126- by the air conditioner front operating and display unit, Climatronic control unit - J255- by way of a local data bus to contact "1" in the connector -C- ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations*.
- ◆ On vehicles with a sun roof with solar cells - C20- (optional extra) with the ignition switched off and an adequate voltage at contact "2" in the connector -C-, -V2- is activated by way of -J126-. The voltage at contact "2" in the connector -C- is governed by the sunlight penetration acting on the solar cells - C20- ⇒ **"1.7 Solar panel for sun roof", page 17** and ⇒ *Owner's Manual*.



Removing

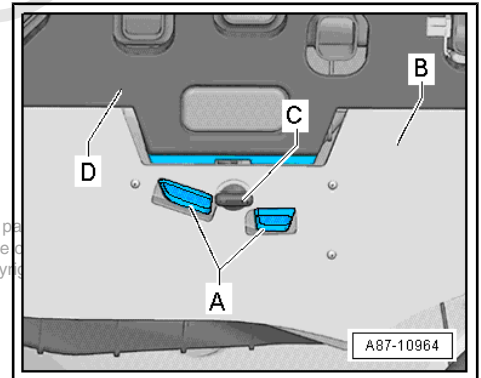
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ *General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment*.
- Remove the right footwell vent (front passenger's side)
⇒ **page 584**.

- Remove the screw-type clip -A-.
- Unfasten the insulating mat -B- from the bracket -C- and detach.



Note

To facilitate installation, the glove compartment -D- is provided with lugs with hooks -A- which are engaged as shown in the insulating mat -B- openings on fitting. If the glove compartment -D- has not been correctly installed (lugs with hooks -A- pressing against insulating mat -B- from underneath), the insulating mat -B- can only be removed after taking out the glove compartment ⇒ General body repairs; interior; Rep. gr. 68; Shelves/storage compartments/covers; Removing and installing glove compartment.



- Release und unplug the connector -C-.



Note

To release the connector press down the catch using a small screwdriver for example.

- Remove bolts -A-.



WARNING

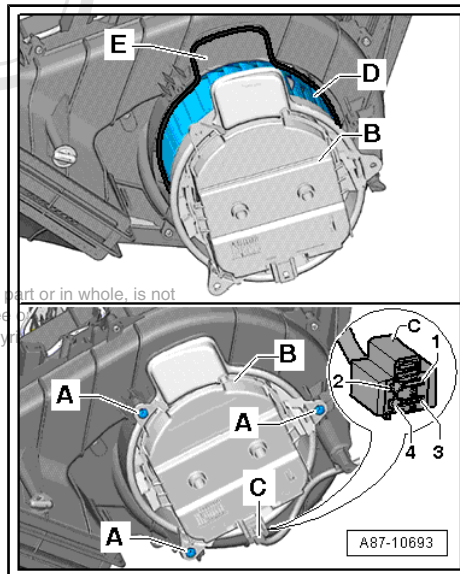
The heat sink at the fresh air blower control unit - J126- may be hot.



Caution

Do not grasp hold of the impeller of the fresh air blower - V2-D-. Applying force to the impeller or moving the balancing weights attached to the impeller could cause imbalance and thus operating problems.

- ◆ If -V2- cannot be removed from the air intake box without applying force, take out the air intake box together with -V2-
⇒ **"5.11 Removing and installing air intake box of front air conditioning unit", page 495** .



Note

Depending on the vehicle model (thickness and type of foam beneath the floor covering in the area of -V2-), it may not always be possible to remove -V2- from the air intake box and re-install it without squashing the impeller. Even brief application of force can however be sufficient to damage -V2- .

- Remove the fresh air blower - V2- (with the fresh air blower control unit - J126-) -B- from the air intake box -E-.

Installing

Install in reverse order of removal; note the following.

- Check the air intake box -E- for contamination by way of the slot for -V2- -B- and clean if necessary.
- On installation, pay attention to correct positioning of the fresh air blower - V2- -B- in the air intake box -E-.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- To check operation, perform air conditioner final control diagnosis ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

5.15 Removing and installing heat exchanger

⇒ ["5.15.1 Preparations for removing heat exchanger", page 507](#)

⇒ ["5.15.2 Removing and installing heat exchanger", page 508](#)

5.15.1 Preparations for removing heat exchanger

- Switch on ignition.
- Set the air outflow direction on the air conditioner front operating and display unit, Climatronic control unit - J255- to "DEF" (to windscreen).
- Move the driver's and front passenger's seats to the rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim .
- Remove left footwell vent (driver's side) ⇒ [page 584](#) .
- Remove accelerator pedal module ⇒ Rep. gr. 20 ; Throttle control; Exploded view - accelerator pedal module .
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove the right footwell vent (front passenger's side) ⇒ [page 584](#) .
- Remove the air intake box of the front air conditioning unit ⇒ ["5.11 Removing and installing air intake box of front air conditioning unit", page 495](#) .



Caution

- ◆ ***The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged***

⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .

- ◆ ***The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.***

- ◆ ***Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.***

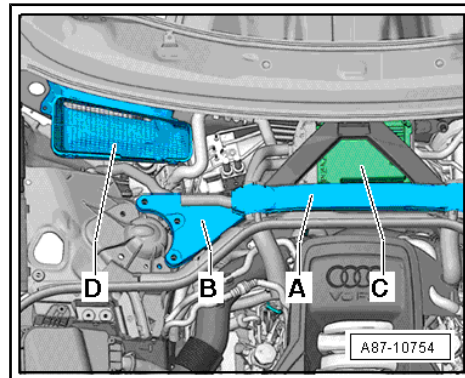
- Remove the right centre vent control motor - V111- (only on vehicles with auxiliary air heater control unit - J604- with auxiliary air heater element - Z35-)
⇒ ["4.10 Removing and installing right centre vent control motor V111", page 361](#) .



Note

-J604- with -Z35- is currently installed on vehicles with diesel engine.

- Remove -J604- with -Z35-
⇒ [“5.8.1 Removing, installing and checking auxiliary air heater element Z35 with auxiliary air heater control unit J604”, page 474](#) .
 - Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover
 - Detach wiring harness -A- and move to side.
 - Remove strut bar -B- ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe
 - Detach or remove engine control unit -C- and remove corresponding brackets ⇒ Rep. gr. 23 ; Engine control unit or ⇒ Rep. gr. 24 ; Engine control unit .
 - Remove the fresh-air intake -D- (vehicles with rear air conditioning unit only)
⇒ [“7.9 Removing and installing fresh air intake”, page 594](#) .
- ⇒ [“5.15.2 Removing and installing heat exchanger”, page 508](#)



5.15.2 Removing and installing heat exchanger

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094- or hose clamps up to Ø 40 mm - 3093-
- ◆ Commercially available compressed-air gun with rubber mouthpiece
- ◆ Cooling system tester - V.A.G 1274- (and appropriate adapters)

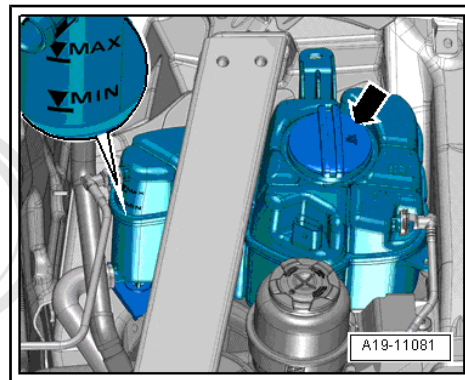
Removing



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*



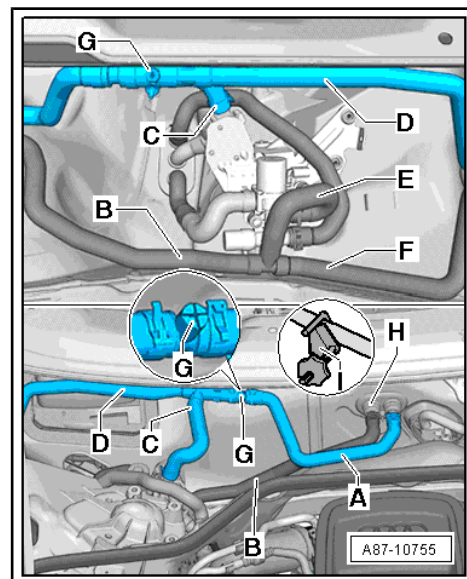
- Open cap -arrow- on coolant expansion tank.
- Perform preparations for removing heat exchanger
⇒ [page 507](#) .

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- Mark the layout of the coolant hoses at the connections to the heat exchanger -A- (supply from coolant circulation pump - V50-) and -B- (return to engine).

i Note

- ◆ This illustration shows the arrangement of the coolant hoses on a vehicle with a rear air conditioning unit and an auxiliary heater. Vehicles with no "rear air conditioning unit" optional extra are not fitted with the coolant hoses -D- and -F- for example
⇒ "8.1 Incorporation of air conditioner into coolant circuit", page 599.
- ◆ The heat exchanger(s) is/are installed in the air conditioning units such that a certain coolant flow direction is required for proper bleeding of the heat exchanger. The coolant hoses must therefore be connected in the correct positions
⇒ "8.1 Incorporation of air conditioner into coolant circuit", page 599.
- ◆ Bleed coolant circuit ⇒ page 625 and ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.

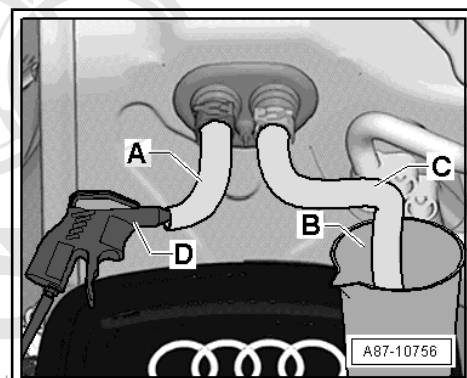


- Use hose clamps -J- to pinch off the coolant hoses -C- and -B-.
- If fitted, pinch off the coolant hose -D- with a hose clamp -J- (vehicles with rear air conditioning unit).
- Cover area beneath connections for coolant hoses -A- and -B- in plenum chamber e.g. with absorbent paper.
- Place a small container under the connections for the coolant hoses -A- and -B- (to the heat exchanger).

i Note

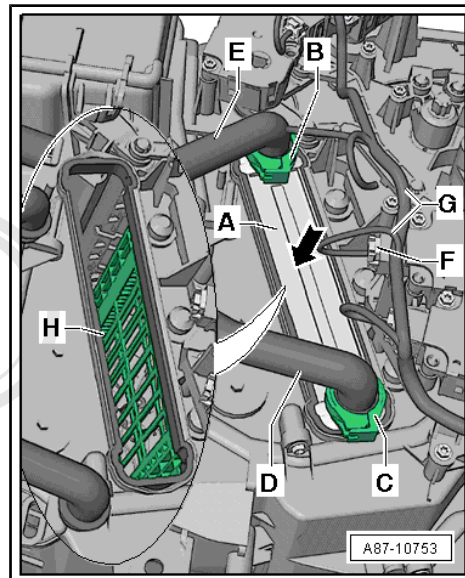
To stop coolant running into the plenum chamber on detaching the coolant hoses -A- and -B-.

- Detach coolant hoses -A- and -B- from connections to heat exchanger of air conditioning unit.
- Attach a section of tubing (-A- and -C-) to each of the two connections to the heat exchanger.
- Place a vessel -B- beneath the other end of the hose -C-.
- Use a compressed air gun -D- to carefully blow the coolant via the hose -A- out of the heat exchanger (in the direction opposite to normal coolant flow) into the vessel -B-.



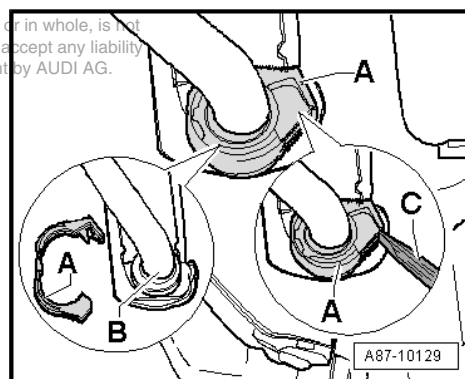
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- Protect floor covering and centre tunnel beneath heat exchanger -A- with impermeable sheeting and absorbent paper.
- Mark the connector -F- (risk of interchange) and unplug from the left footwell flap control motor - V108- (if this control motor has not been removed).
- Fix the wiring harness -G- in position at the air conditioning unit such that it does not impede removal of the heat exchanger -A-.
- Detach the clamps -B- and -C- from the connections at the heat exchanger -A-.

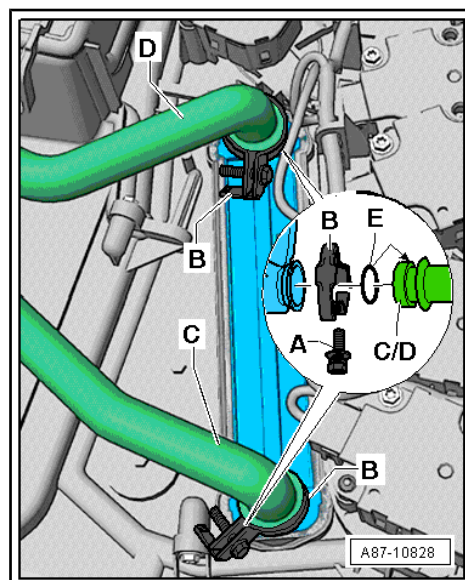

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- ◆ At the start of production, screw-type clamps were fitted at the connections at the heat exchanger -A-. This illustration shows a version with plastic clamps -B- and -C-, introduction of which has not yet been finalised.
- ◆ At the start of production, the coolant pipes -B- to the heat exchanger were not fitted with plastic clamps -A-, but rather with screw-type clamps (metal clamps).

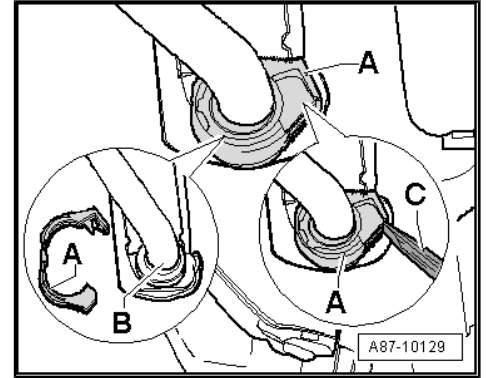

Detaching screw-type clamps (metal clamps)

- Remove the bolt -A- at the clamps -B- for the coolant pipes -C- and -D-.
- Detach the clamps -B-.



Detaching plastic clamps

- Use a screwdriver -C- for example to unfasten and detach the plastic clamps -A-.



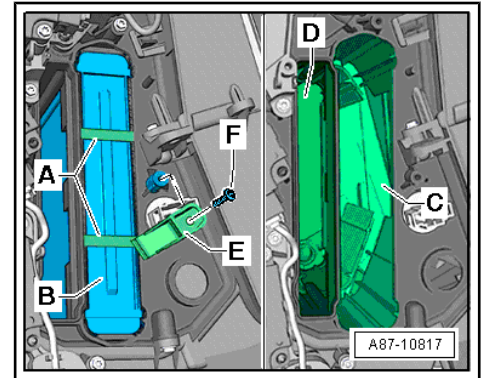
All types

- Completely remove the two webs -A- (on the right of the air conditioning unit).



Note

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If the heat exchanger has already been replaced, a holder -E- and the bolt -F- will have been fitted in place of the webs -A-.



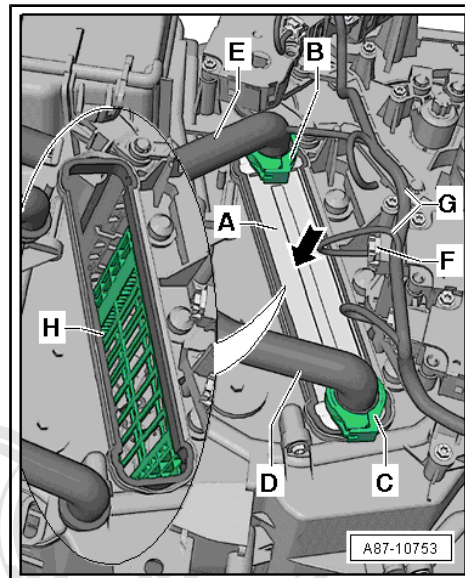
- Place a vessel beneath the connection for the coolant pipe -D- at the heat exchanger -A-.
- Unfasten the two coolant pipes -D- and -E- from the connections of the heat exchanger -A- and carefully swivel aside.
- Remove the heat exchanger -A- in arrow direction -arrow- from the air conditioning unit into the passenger's footwell.


Note

Depending on the version, it may not be possible to remove the heat exchanger -A- in the direction of -arrow- on vehicles manufactured at the start of production (model year 2010). If this is the case, the heat exchanger must be removed in the direction of the driver's footwell.

Further procedure (only if heat exchanger cannot be removed from air conditioning unit into passenger's footwell):

- Remove steering column and foot controls ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing steering column and ⇒ Brake system; Rep. gr. 46 ; Brake pedal; Exploded view - brake pedal .


Caution

- ◆ **The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged**

⇒ **"1.10.1 Overview of control motors of air conditioner", page 33 .**

- ◆ **The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.**
- ◆ **Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.**

- Remove the holder for the control motors -V110- and -V299- ⇒ **"4.32.1 Removing and installing holder for control motor V110 and V299", page 430 .**


Note

Removal of this holder involves taking out the control motors -V107-, -V110- and -V299- .

- Remove the holder for the control motors -V108- and -V411- ⇒ **"4.32.2 Removing and installing holder for control motor V108 and V411", page 432 .**

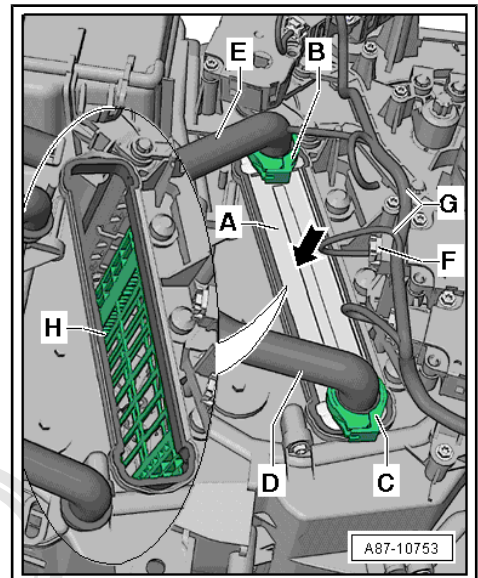

Note

- ◆ **To remove the heat exchanger it is not absolutely essential to take out the holder for the control motors -V108- and -V411- . Removal of this holder is however advisable in the interests of greater accessibility and to provide more room.**
- ◆ **Removal of this holder involves taking out the control motors -V108- and -V411- .**

- Remove the heat exchanger -A- in the direction opposite to that of the arrow -arrow- into the driver's footwell.

Installing

Install in reverse order of removal; note the following:

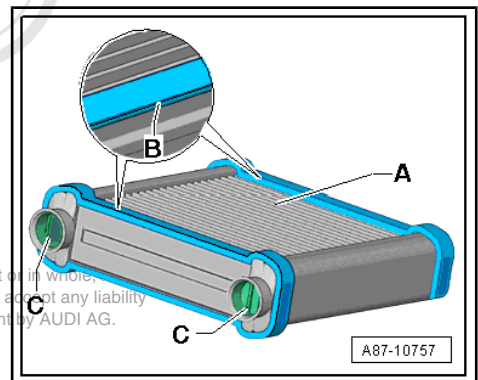


- Check the seals -B- attached to the heat exchanger -A-. Only install a heat exchanger if the seals are in perfect condition and firmly affixed.

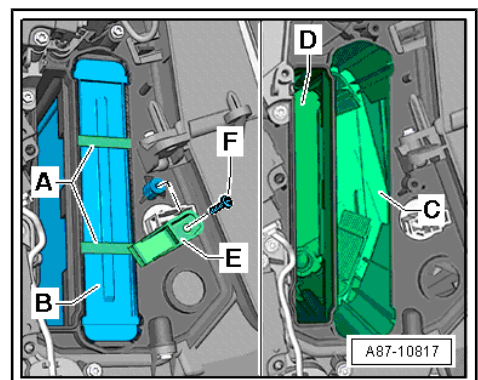


Note

- ◆ A seal -B- may curl up on insertion if not correctly bonded on.
- ◆ If a seal -B- is damaged or not correctly fitted, cold air may flow past the heat exchanger and lead to problems with cold air emerging from the air conditioning unit or noise.



- Check the two connections -C- of the heat exchanger -A- for damage or contamination.
- Check the air conditioning unit for contamination by way of the mounting slot -C- (slot for heat exchanger) and, if applicable, the mounting slot -D- for the auxiliary air heater element - Z35- (vehicles with diesel engine only).
- Remove any dirt or remnants of escaped coolant from the air conditioning unit (e.g. after removing a leaking heat exchanger).
- Check for any edges or projecting material at the mounting slot -C- at the top and bottom on either side of the air conditioning unit.
- Remove any residual material left at the separation points during manufacture of the air conditioning unit and smooth off any edges.



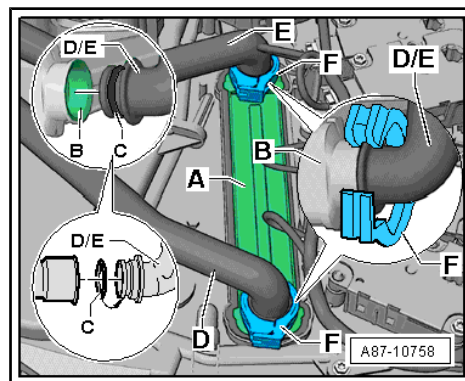
Note

Edges may be produced at the separation points when manufacturing the air conditioning unit or projecting material may be left in the air conditioning unit. The connections for the coolant pipes at the heat exchanger could be damaged at these locations on installation.

- Carefully slide home the heat exchanger -B- in the air conditioning unit.

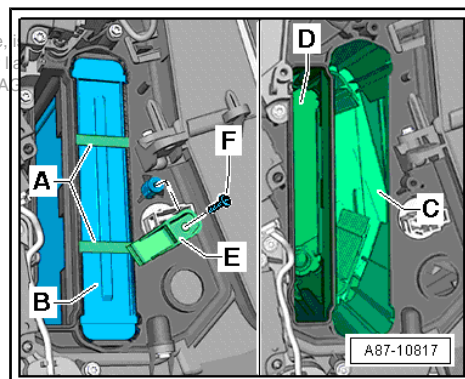
 Note

On inserting the heat exchanger -A-, take care not to damage the two connections -B- and the two coolant pipes -D- and -E-.



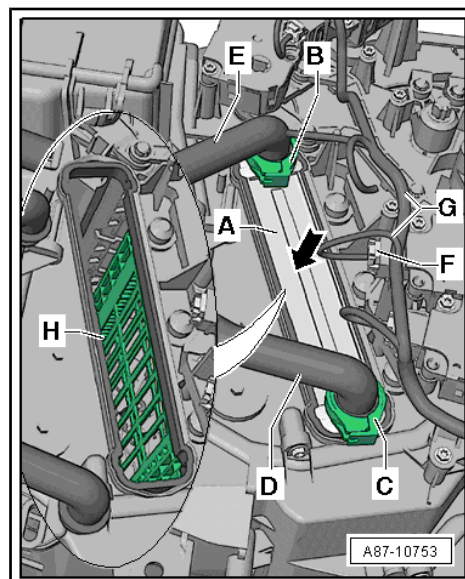
- Fit the holder -E- and the bolt -F-.

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 Note

- ◆ *The holder -E- and the bolt -F- are available as replacement parts ⇒ Electronic parts catalogue .*
- ◆ *On vehicles on which the heat exchanger -A- was removed into the driver's footwell, slide home the heat exchanger -A- in arrow direction -arrow- in the air conditioning unit.*

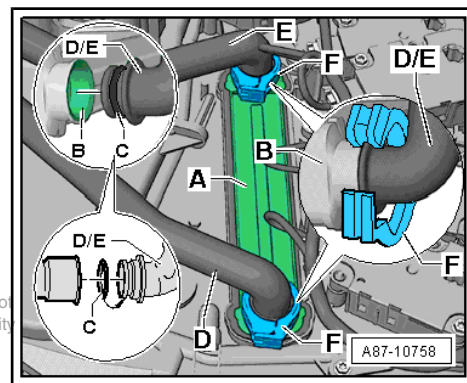


- Moisten the two connections -B- of the heat exchanger -A- with a small quantity of coolant or lubricate with silicone grease.

i Note

Silicone grease is available as a replacement part: part number G 000 405 A2 ➔ Electronic parts catalogue .

- Check the connection area for the two coolant pipes -D- and -E- to the heat exchanger for damage or contamination.
- Moisten the new seals -C- (included in the scope of delivery of the heat exchanger) with a small quantity of coolant (or lubricate slightly with silicone grease).
- Attach the new seals -C- to the two coolant pipes -D- and -E-.
- Insert the two coolant pipes -D- and -E- with the corresponding seal -C- in the connections of the heat exchanger -B- and press home.



i Note

Do not cant coolant pipes -D- and -E- when pressing them into the heat exchanger connections.

- Check the position of the seals -C- between the coolant pipes -D- and -E- in the connections -B- of the heat exchanger -A-.



Caution

Seals -C- that are not fitted correctly or are crushed can cause leaks.

- ◆ **The seals -C- must be inserted completely in the connections in the connecting flange -B- with the coolant pipes -D- and -E-**

Fitting screw-type clamps (metal clamps)

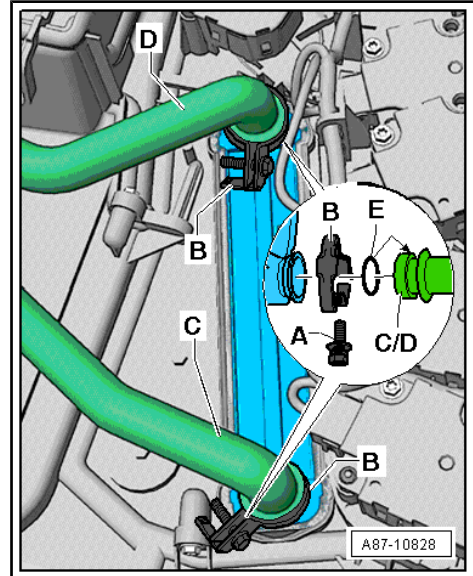
- Remove the bolt -B- from the new clamps -A-.
- Remove the bolt -A- at the clamps -B- for the coolant pipes -C- and -D-.
- Attach the new clamps -B- to the coolant pipes -C- and -D- and turn the clamps -B- such that the bolt -A- can be fitted.
- Consecutively press the coolant pipes -C- and -D- into the heat exchanger and attach one clamp -B- each at the joint to the heat exchanger as shown.



Note

The clip -B- engages on being pressed together.

- Screw one bolt -A- into each of the clamps and secure the clamp -B- by tightening the bolt -A- (bolt tightening torque 2 Nm).
- Check that the clamps -B- are properly positioned on the connections of the heat exchanger and coolant pipes.
- Check the installation position of the clamps -B- and the bolts -A-. They must not make contact with the air conditioning unit or other components.



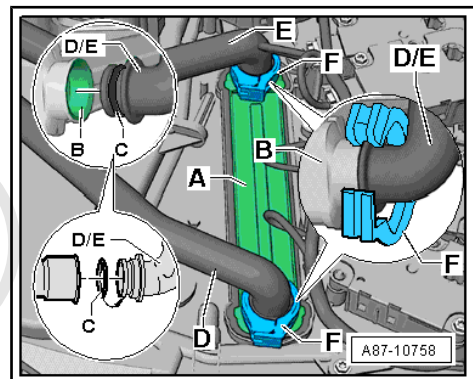
Fitting plastic clamps



Note

Not available at present (introduction not yet finalised). Until further notice, screw-type clamps (metal clamps) will be supplied as replacements ⇒ *Electronic parts catalogue*.

- Attach the new plastic clamps -F- (if contained in the scope of delivery of the heat exchanger) to the coolant pipes -D- and -E-.



Caution

Plastic clamps -F- are not to be re-used.

◆ Always fit new clamps -F- ⇒ *Electronic parts catalogue*.

- Attach the plastic clamps -F- as shown at the joints between the heat exchanger and the coolant pipes -D- and -E- and press together.



Note

The clamp -F- engages on being pressed together.

- Check for correct positioning and proper engagement of the clamps -F- at the coolant pipes -D- and -E-.

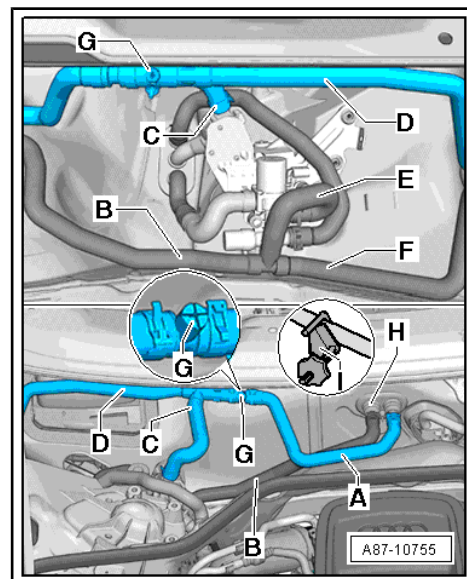
All types

- Check that grommet -H- is correctly positioned in back wall of plenum chamber.
- Properly connect coolant hoses to heat exchanger, paying attention to markings.

A - Supply from coolant circulation pump - V50-

B - Return to engine

- Attach the coolant hose -A- to the coolant pipe to the heat exchanger (heed the marking) and secure it with a clamp.
- Fit the coolant hose to the heat exchanger -B- onto the coolant pipe such that air can still escape on bleeding the coolant circuit (do not press fully on).
- Detach the hose clamp -J- from the coolant hose -C-.
- Add coolant to coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .
- Screw the hand pump of the cooling system tester - V.A.G 1274/- to the filler neck of the coolant expansion tank.
- Using e.g. hand pump of cooling system tester - V.A.G 1274/- , carefully press coolant out of coolant expansion tank into heat exchanger.
- As soon as coolant emerges from the joint between the coolant hose -B- and the coolant pipe from the heat exchanger, press the coolant hose -B- fully onto the coolant pipe.
- Secure the coolant hose -B- with a clamp.
- Detach the hose clamp -J- from the coolant hose -B- (and -D-).
- Open the bleed screw -G- and continue bleeding the coolant circuit by way of the bleed screw -G-.
- If necessary, add more coolant to coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .



Note

This procedure completely bleeds the cooling system. If there is still air in the cooling system for other reasons, it may be necessary to bleed the cooling system again after installing all the components removed earlier ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .

Check connections at heat exchanger for leaks as follows:

- Use e.g. hand pump of cooling system tester - V.A.G 1274/- to carefully increase pressure in coolant circuit.

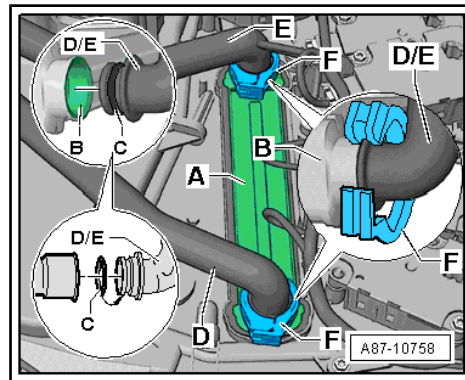
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- Check the coolant circuit for leaks, paying particular attention to the connection between the coolant pipes -D- and -E- and the heat exchanger -A-.



Note

- ◆ *When bleeding the coolant circuit, take particular care to ensure that the heat exchanger is bled completely. If there are still air bubbles in the heat exchanger, there may be complaints about a lack of heating output in winter or about differences in the temperature of the air flowing out of the vents with the same setting in control mode*
⇒ [“5.9 Checking heating output of activation of air conditioner temperature flap”, page 478](#).
- ◆ *Depending on the vehicle equipment and engine, there is heat insulation on the coolant hoses; the insulation must not be damaged and must be re-attached after installation.*
- Re-install all the components removed in reverse order
⇒ [“5.15.1 Preparations for removing heat exchanger”, page 507](#).
- Perform basic setting and final control diagnosis for the air conditioner (to check operation) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- By making different settings on the air conditioner front operating and display unit, Climatronic control unit - J255-, direct the air to the various vents and check whether the flow of air out of the vent actually changes in line with the setting.

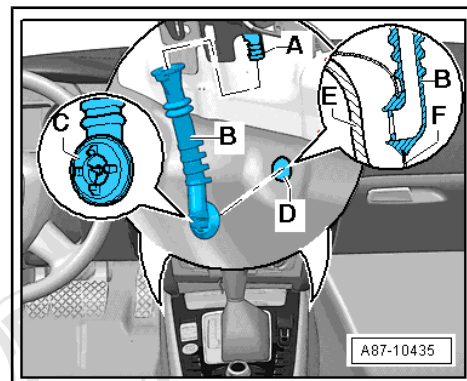
5.16 Removing and installing condensation drain

Removing

- Switch off ignition.
- Remove the glove compartment (for condensation drain, right-side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing glove compartment

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- Remove storage compartment beneath dash panel on driver side (for condensation drain, left-side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim
- Carefully fold back the floor covering in the area of the condensation drain hose (front left or front right at centre tunnel) until the condensation drain is visible.
- Check that both condensation drain hoses -B- are correctly routed and not dirty. For example, eliminate any cross-sectional constrictions.
- Cover area beneath the two openings -D- (for drain holes of condensation drain -C-) with absorbent paper to prevent any water from running beneath floor covering.
- Remove the two condensation drain hoses -B-.
- Use e.g. a piece of wire to check for dirt in the two condensation drains of the air conditioning unit -A-.
- Check distance between insulating mat -E- in centre tunnel and end of condensation drain hose -C- via openings -D- in floor panel -F-. There must be enough of a gap for condensate to drain out of condensation drain hose -B-.



Installing

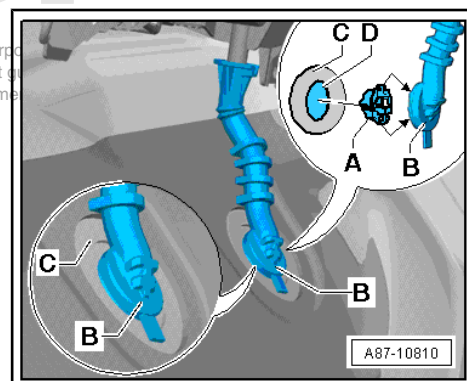
Install in reverse order of removal; note the following.

- Fit the two condensation drain hoses -B- such that they are neither twisted nor crushed (different versions for left and right side) ⇒ Electronic parts catalogue .
- With version "2", insert the holder -A- in the condensation drain -B- and press the holder -A- firmly into the floor panel -C-.

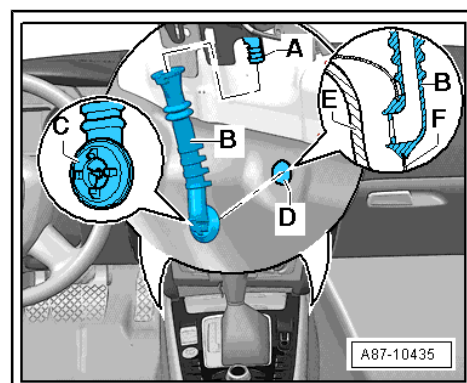


Note

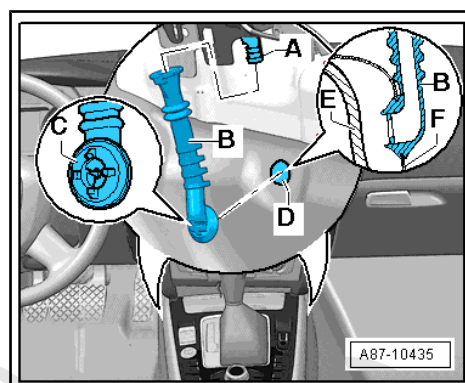
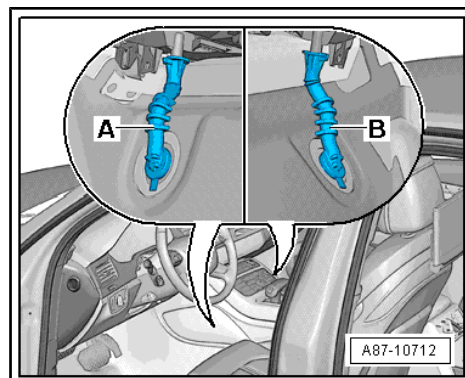
On version "2", retainer -A- is inserted in condensation drain -B-. The retainer -A- is held in position in the opening -D- in the floor panel -C- via the retaining tabs on the retainer -A-. To stop condensation escaping from the condensation drain -B- into the passenger compartment, the condensation drain -B- must be pressed firmly against the floor panel -C- after fitting the bracket -A-. If not sufficiently tensioned, seal the joint between the two components with silicone adhesive sealant D176 001 A3 for example ⇒ Electronic parts catalogue .



- When fitting floor covering, take particular care to ensure that it does not squash the condensation drain hose -B-.
- If a condensation drain hose -B- is not fitted securely enough to the condensation drain of the air conditioning unit -A-, secure it e.g. with a clip if necessary to prevent it from slipping off.



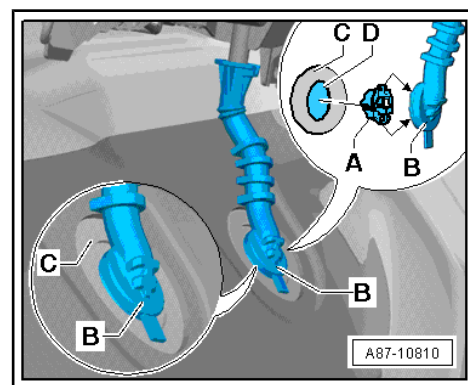
5.17 Checking condensation drain



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Note

- ◆ This vehicle is fitted with two condensation drains -A- and -B- (on right and left of air conditioning unit/centre tunnel).
- ◆ There is no valve and no flap at the outlet opening -C- of the condensation drain hose -B-; the condensation drains off via the rubber lips.
- ◆ There are different versions of the condensation drain hoses -B-. On version "1" (refer to illustration above), the condensation drain -B- is inserted directly in the opening -D-.
- ◆ On version "2", retainer -A- is inserted in condensation drain -B-. The retainer -A- is held in position in the opening -D- in the floor panel -C- via the retaining tabs on the retainer -A-. To stop condensation escaping from the condensation drain -B- into the passenger compartment, the condensation drain -B- must be pressed firmly against the floor panel -C- after fitting the bracket -A-. If not sufficiently tensioned, seal the joint between the two components with silicone adhesive sealant D176 001 A3 for example ⇒ *Electronic parts catalogue*.



If there are problems with moisture in the passenger compartment, check the following in addition to the condensation drain:

- Water drains for plenum chamber
⇒ [“7.10 Checking plenum chamber water drain”, page 596](#)
- Cowl panel trim and cover for fresh-air intake duct for correct installation and damage
⇒ [“7.9 Removing and installing fresh air intake”, page 594](#)
- Dust and pollen filter for dirt and correct installation
⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#)
- Forced air extraction via luggage compartment
⇒ [“7.7 Removing and installing passenger compartment forced air extractor”, page 592](#)
- Activation and operation of the air flow/fresh-air flaps
⇒ [“4.5 Removing and installing air flow flap control motor V71”, page 345](#) and the air recirculation flap
⇒ [“4.11 Removing and installing air recirculation flap control motor V113”, page 364](#) e.g. by way of the Guided Fault Finding “Final control diagnosis” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ◆ In the event of problems with moisture in the passenger compartment which only occur with the air conditioner compressor switched on under certain ambient conditions, additionally check the outlet temperature of the air from the evaporator of the front air conditioning unit as follows
⇒ [“3.8.5 Fault isolation following ice formation on evaporator - vehicles without high-voltage system”, page 83](#) :
 - Select the measured value of the evaporator output temperature sender - G263- in the Guided Fault Finding routine ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
 - Check the air outlet temperature at the evaporator under the usage conditions described by the customer or with the following settings on the air conditioner operating and display unit, Climatronic control unit - J255- , “Auto” mode, air conditioner compressor switched on (lamp in [\[AC\]](#) or [\[A/C\]](#) button lit), “cold” temperature setting, medium fresh air blower speed with a voltage of approx. 7 V at the fresh air blower - V2- , fresh air mode (lamp in “air recirculation button” not lit) and dash panel vents open.



- If the sender measured value is too low (less than 0 °C over a lengthy period with an ambient temperature above 0 °C) or too high (greater than 10 °C for example although the air conditioner is functioning properly), eliminate the cause of the deviation, paying attention to the information on checking the cooling output
⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#) .



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6 Rear heater and air conditioning unit

⇒ [“6.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 523](#)

⇒ [“6.2 Exploded view - flaps and partitions in air distribution housing”, page 527](#)

⇒ [“6.3 Removing and installing evaporator”, page 530](#)

⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

⇒ [“6.5 Removing and installing air intake box of heater and air conditioning unit”, page 544](#)

⇒ [“6.6 Removing and installing rear fresh air blower V80 ”, page 547](#)

⇒ [“6.7 Removing and installing rear fresh air blower control unit J391 ”, page 552](#)

⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)

⇒ [“6.9 Removing and installing temperature sensor for rear intake air temperature G639 ”, page 565](#)

⇒ [“6.10 Checking condensation drain hose”, page 566](#)

6.1 Exploded view - heater/air conditioning unit and air intake box add-on components



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#) .
- ◆ *Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the rear Climatronic operating and display unit - E265- .*
- ◆ *Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.*

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Note

- ◆ Vehicles are fitted with either a rear air conditioning unit or a rear air distribution housing depending on equipment.
- ◆ The rear air conditioning unit and the rear Climatronic operating and display unit - E265- are optional extras.
- ◆ At the start of production, -E265- was only fitted on vehicles with a rear air conditioning unit. The Audi A8 Hybrid with no rear air conditioning unit (with rear air distribution housing) is fitted with a different version of -E265-. This version of -E265- may also be fitted in other vehicles with no rear air conditioning unit as of Model Year 2013 depending on the vehicle model and country version.

1 - Wiring harness for air conditioning unit (rear)

- ❑ To prevent interchange, clearly mark the assignment to the fitting location of the corresponding electrical component before unplugging connectors.
- ❑ Mark the routing before detaching the wiring harness from the air conditioning unit.

2 - Vent temperature sender for rear left footwell - G637-

- ❑ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location before unplugging the connector or removing a temperature sender.

- ❑ ⇒ ["10.14 Removing and installing vent temperature sender for rear left footwell G637", page 653](#)

- ❑ Checking vent temperature sender for rear left footwell - G637- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

3 - Rear left chest vent temperature sender - G635-

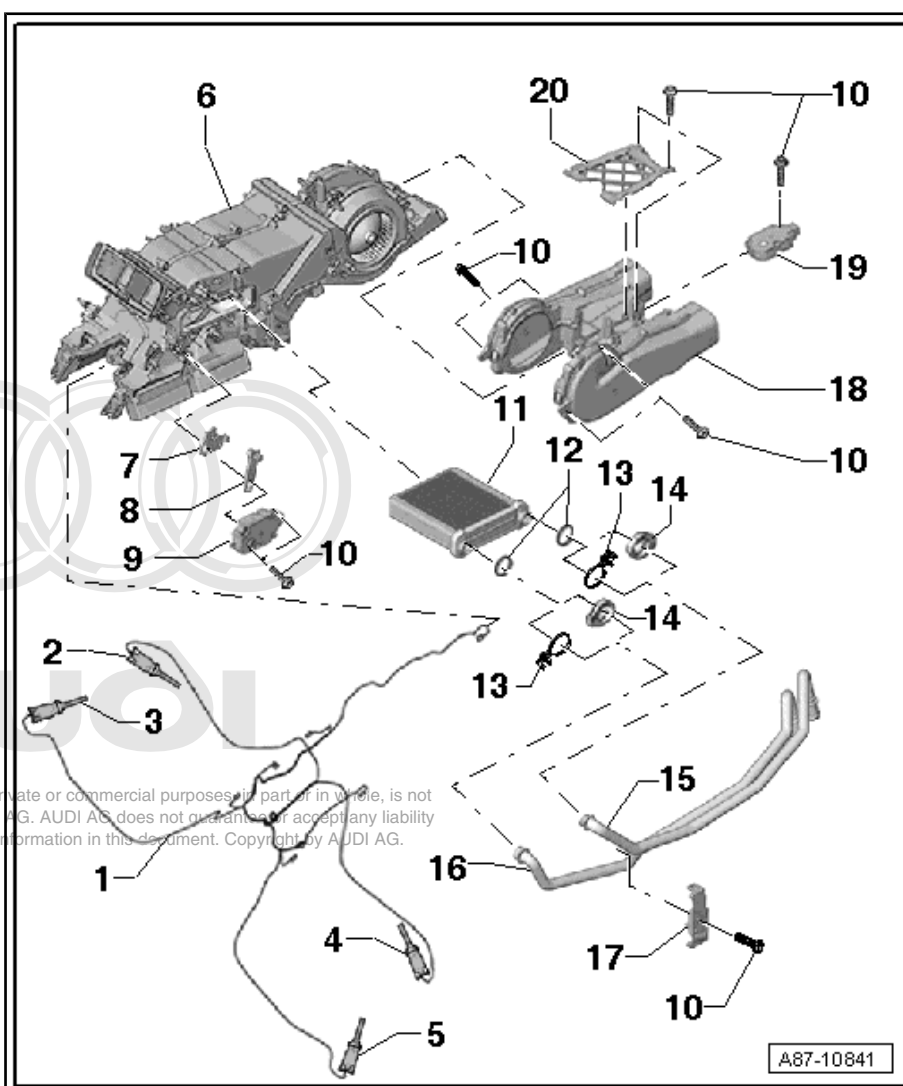
- ❑ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location before unplugging the connector or removing a temperature sender.

- ❑ ⇒ ["10.12 Removing and installing rear left chest vent temperature sender G635", page 652](#)

- ❑ Checking rear left chest vent temperature sender - G635- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

4 - Vent temperature sender for rear right footwell - G638-

- ❑ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location before unplugging the connector or removing a temperature sender.



- ☐ ⇒ [“10.15 Removing and installing vent temperature sender for rear right footwell G638”, page 654](#)
- ☐ Checking vent temperature sender for rear right footwell - G638- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

5 - Rear right chest vent temperature sender - G636-

- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location before unplugging the connector or removing a temperature sender.
- ☐ ⇒ [“10.13 Removing and installing rear right chest vent temperature sender G636”, page 653](#)
- ☐ Checking rear right chest vent temperature sender - G636- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

6 - Air conditioning unit (rear)

- ☐ ⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)
- ☐ ⇒ [“6.2 Exploded view - flaps and partitions in air distribution housing”, page 527](#)

7 - Cam plate

- ☐ Part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- ☐ **Mark before detaching (danger of interchange)**
- ☐ **Already detached on removing the air conditioning unit (to permit removal of the heat exchanger)**
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

8 - Connecting rod

- ☐ Mark before detaching (danger of interchange)
- ☐ Already detached on removing the air conditioning unit (to permit removal of the heat exchanger)
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

9 - Rear right temperature flap control motor - V314-

- ☐ ⇒ [“4.21 Removing and installing rear right temperature flap control motor V314”, page 398](#)
- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

10 - Bolt

11 - Rear heat exchanger

- ☐ Removing/installing and replacing (with air conditioning unit fitted)
⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)



Note

Leave the rear heat exchanger in the vehicle when removing the rear air conditioning unit to avoid having to open the coolant circuit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

- ☐ Checking bonded-on foam seal before fitting
⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)

12 - O-ring

- ☐ Renew ⇒ Electronic parts catalogue
- ☐ Moisten slightly with coolant before fitting

13 - Screw-type clamp (metal clamp)

- ☐ Fitted at present ⇒ Electronic parts catalogue
- ☐ Bolt tightening torque 2 Nm

14 - Plastic clamp

- ☐ Currently not fitted (introduction not yet finalised, screw-type clamp ⇒ [Item 13 \(page 525\)](#) always fitted at present) ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#) and ⇒ Electronic parts catalogue

15 - Refrigerant return line

- ☐ Incorporation of air conditioner into coolant circuit ⇒ [page 599](#)

**Note**

- ◆ *Leave the coolant lines and the rear heat exchanger in the vehicle when removing the rear air conditioning unit to avoid having to open the coolant circuit*
⇒ *["6.4 Removing and installing heater and air conditioning unit", page 535](#)*
- ◆ *The coolant lines are connected to the coolant circuit by coolant hoses routed through the centre tunnel*
⇒ *["8.1.4 Incorporation of air conditioner \(rear\) into refrigerant and coolant circuit", page 605](#)*
- ◆ *With the rear air conditioning unit removed, the heat shield in centre tunnel must be removed in order to remove these coolant lines* ⇒ *General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor .*
- ◆ *The air duct to the rear fresh air blower - V80-*
⇒ *["6.6 Removing and installing rear fresh air blower V80", page 547](#) and the heat shield in the centre tunnel must be removed in order to remove the coolant lines with the rear air conditioning unit installed* ⇒ *General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor .*
- ◆ *Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield* ⇒ *[Axle drive Rep. gr. 39; Propshaft: Removing and installing propshaft](#)*

16 - Refrigerant supply line

- Incorporation of the air conditioner into the coolant circuit ⇒ [page 599](#) and
⇒ *["8.1.4 Incorporation of air conditioner \(rear\) into refrigerant and coolant circuit", page 605](#)*

**Note**

- ◆ *Leave the coolant lines and the rear heat exchanger in the vehicle when removing the rear air conditioning unit to avoid having to open the coolant circuit*
⇒ *["6.4 Removing and installing heater and air conditioning unit", page 535](#)*

- ◆ *Certain preparatory work is required before this coolant line can be removed*
 ⇒ *Item 15 (page 525)* .

17 - Bracket for coolant pipes

- ❑ Already detached on removing the air conditioning unit (to permit removal of the heat exchanger)
 ⇒ *“6.4 Removing and installing heater and air conditioning unit”, page 535*

18 - Air duct

- ❑ With air recirculation flaps and various levers
- ❑ Do not dismantle any further
- ❑ Removing and installing ⇒ *“6.6 Removing and installing rear fresh air blower V80”, page 547*

19 - Rear air recirculation flap control motor - V421-

- ❑ ⇒ *“4.28 Removing and installing rear air recirculation flap control motor V421”, page 417*
- ❑ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

20 - Cover for rear air recirculation flap control motor - V421-

- ❑ Separated from the air duct to remove -V421- and re-attached to the air duct with 2 bolts after fitting - V421- ⇒ *“4.28 Removing and installing rear air recirculation flap control motor V421”, page 417*

6.2 Exploded view - flaps and partitions in air distribution housing



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*

⇒ *“1.10.1 Overview of control motors of air conditioner”, page 33*

- ◆ *Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the rear Climatronic operating and display unit - E265- .*

- ◆ *Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.*

1 - Rear fresh air blower - V80-

- ☐ Do not dismantle any further
- ☐ The version is different for vehicles with a rear air distribution housing and a rear air conditioning unit.
- ☐ Ensure correct allocation ⇒ Electronic parts catalogue
- ☐ Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- ☐ ⇒ ["6.6 Removing and installing rear fresh air blower V80", page 547](#)

2 - Evaporator (with refrigerant lines)

- ☐ Removing and installing (only possible with rear air conditioning unit removed)
⇒ ["6.3 Removing and installing evaporator", page 530](#)
- ☐ Check bonded-on foam seal (must be properly bonded and not damaged).

3 - Air distribution housing of rear air conditioning unit

- ☐ Do not dismantle any further
- ☐ With various flaps for controlling air outflow direction to rear left and right vents
⇒ ["7.1.2 Air ducts and vents at rear of passenger compartment", page 572](#)

4 - Connecting rod

- ☐ Mark before detaching (danger of interchange)

5 - Cam plate

- ☐ Mark before detaching (danger of interchange)

6 - Rear left temperature flap control motor - V313-

- ☐ ⇒ ["4.20 Removing and installing rear left temperature flap control motor V313", page 394](#)
- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

7 - Bolt

8 - Rear left chest vent control motor - V315-

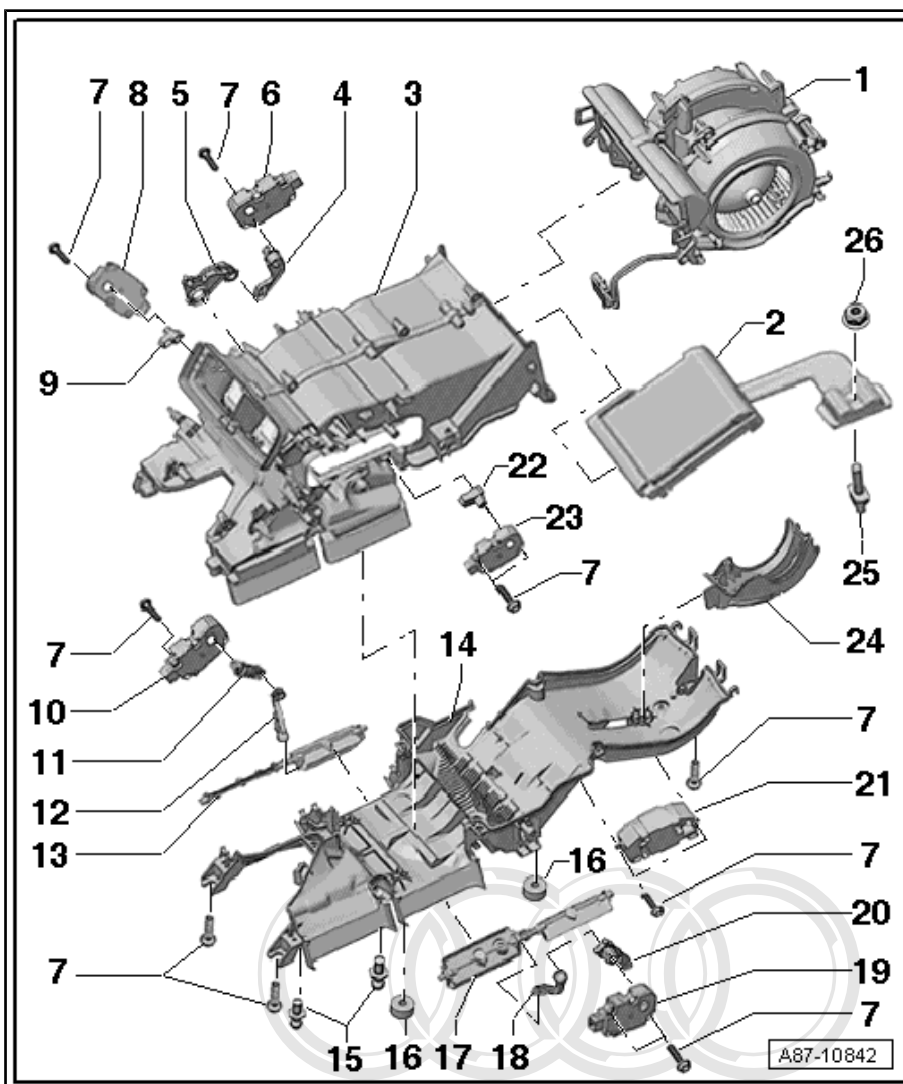
- ☐ ⇒ ["4.22 Rear left chest vent control motor V315", page 402](#)
- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

9 - Actuating arm

- ☐ Mark before detaching (danger of interchange)

10 - Left B-pillar and footwell shut-off flap control motor - V212-

- ☐ ⇒ ["4.16 Removing and installing left B-pillar and footwell shut-off flap control motor V212", page 381](#)



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- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

11 - Actuating arm

- ☐ Not to be unfastened from connecting rod

12 - Connecting rod

- ☐ Not to be unfastened from actuating arm and flaps

13 - Shut-off flaps in vents to left B-pillar and left footwell

- ☐ Not to be unfastened from connecting rod

14 - Bottom section of rear air distribution housing

- ☐ Detaching from air distribution housing of rear air conditioning unit
⇒ [“6.3 Removing and installing evaporator”, page 530](#)

15 - Bracket

- ☐ For attaching rear air conditioning unit to centre tunnel
- ☐ Engaged in bottom section of rear air distribution housing (not to be removed).

16 - Foam ring

- ☐ Fitted on condensation drains to seal off air conditioning unit from centre tunnel.
- ☐ Checking rear condensation drains ⇒ [“6.10 Checking condensation drain hose”, page 566](#)

17 - Shut-off flaps in vents to right B-pillar and right footwell

- ☐ Not to be unfastened from connecting rod

18 - Connecting rod

- ☐ Not to be unfastened from actuating arm and flaps

19 - Right B-pillar and footwell shut-off flap control motor - V211-

- ☐ ⇒ [“4.15 Removing and installing right B-pillar and footwell shut-off flap control motor V211”, page 377](#)
- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

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20 - Actuating arm

- ☐ Not to be unfastened from connecting rod

21 - Rear fresh air blower control unit - J391-

- ☐ ⇒ [“6.7 Removing and installing rear fresh air blower control unit J391”, page 552](#)
- ☐ Ensure correct allocation ⇒ Electronic parts catalogue
- ☐ Checking function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

22 - Actuating arm

- ☐ Mark before detaching (danger of interchange)

23 - Rear right chest vent control motor - V316-

- ☐ ⇒ [“4.23 Rear right chest vent control motor V316”, page 405](#)
- ☐ To prevent interchange, clearly mark the routing of the wires to the corresponding fitting location as well as the control motor before unplugging the connector or removing a control motor.

24 - Air duct at rear fresh air blower - V80-

25 - Stud

- ☐ Not to be removed from vehicle when taking out air conditioning unit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)

26 - Hexagon nut

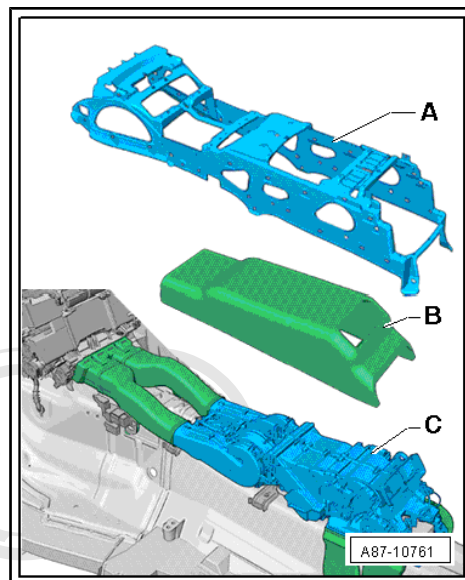
- ☐ Already removed for removal of air conditioning unit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)
- ☐ Fit at connection point of refrigerant lines (tightening torque
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#)).

6.3 Removing and installing evaporator



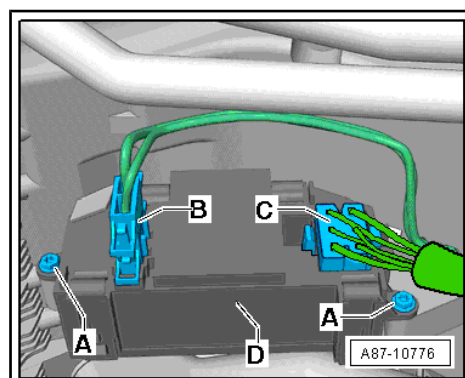
Note

- ◆ Evaporator replacement involves taking out the rear air conditioning unit.
- ◆ When it has been removed, the evaporator contains refrigerant oil which must be returned to the refrigerant circuit (together with the new evaporator) ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Renewing components of refrigerant circuit.
- ◆ Taking out the rear air conditioning unit -C- involves prior removal of the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Removing and installing centre console bracket.

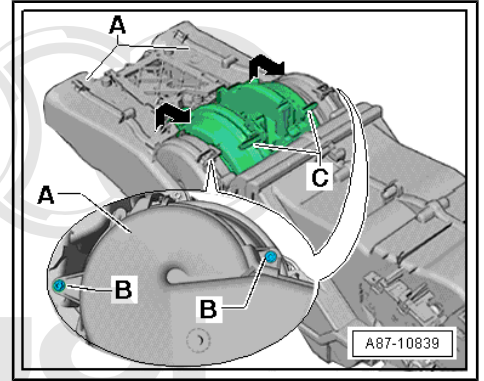


Removing

- Switch off ignition.
- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72; Front seats; Removing and installing front seat.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Removing and installing centre console bracket.
- Remove rear seats or rear seat bench and rear floor covering ⇒ General body repairs, interior; Rep. gr. 72; Rear seats; Removing and installing seat bench / individual seats and ⇒ General body repairs, interior; Rep. gr. 70; Passenger compartment trim panels; Removing and installing floor covering
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Refrigerant circuit.
- Removing rear air conditioning unit
⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#).
- Detach the rear fresh air blower control unit - J391- -D- from the rear air conditioning unit
⇒ [“6.7 Removing and installing rear fresh air blower control unit J391”, page 552](#).



- Remove the bolts -B-.
- Lift the air duct -A- in the area of -V80- -C- and remove in -arrow direction-.



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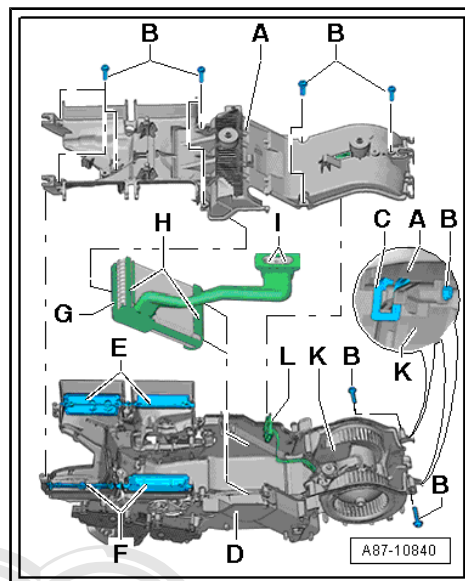
- Remove the bolts -B-.
- Disengage the retainer tabs -C- between -V80- -K- and the bottom section of the rear air distribution housing -A- on the left and right.


Note

Removal and installation of the evaporator do not involve taking the rear fresh air blower - V80- -K- out of the rear air conditioning unit.


Caution

Do not grasp hold of the impeller of the rear fresh air blower - V80- . Applying force to the impeller or moving the balancing weights attached to the impeller could cause imbalance and thus operating problems.



- Unfasten the bottom section of the air distribution housing -A- from the rear air conditioning unit -D-.
- Remove the evaporator -G- from the rear air conditioning unit -D-.

Installing

Note

- ◆ **When it has been removed, the evaporator contains refrigerant oil which must be returned to the refrigerant circuit (together with the new evaporator) = Air conditioner with refrigerant R134a; Rep. gr. 87 ; Renewing components of refrigerant circuit .**
- ◆ **The rear fresh air blower - V80- -K- does not have to be removed from the rear air conditioning unit -D- to fit the evaporator -G-.**
- ◆ **The new evaporator -G- is fitted with foam seals which have still to adjust to the sealing surfaces of the rear air conditioning unit -D-. Slightly more force must therefore be applied to press these seals into the rear air conditioning unit -D-.**
- ◆ **If -V80- -K- and the evaporator -G- are replaced at the same time, first fit -V80- -K- in the rear air conditioning unit -D- and then insert the evaporator -G-.**

Install in reverse order of removal; note the following:

- Check the foam seals -H- attached to the replacement evaporator -G- and to the refrigerant lines for damage and proper attachment.
- Check all foam seals and the contact surface / all-round chamfer at the bottom section of the rear air conditioning unit -A-, the evaporator -G- and the rear air conditioning unit -D- for damage.

 Note

- ◆ *If a foam seal or a contact surface / chamfer is damaged, air may escape at this point and cause noise when the air conditioner is in operation.*
- ◆ *If the bottom section of the air distribution housing -A-, -V80-K- and the rear air conditioning unit -D- have not been properly assembled, air may escape at the connection point and cause noise when the air conditioner is in operation.*
- ◆ *If a contact surface / chamfer is damaged, fill the damaged area with silicone adhesive sealant D176 001 A3 for example ⇒ Electronic parts catalogue .*
- ◆ *Replace any damaged foam seals ⇒ Electronic parts catalogue .*
- Check the two connections -J- at the refrigerant lines to the replacement evaporator -G- for contamination and damage.

 Note

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Even minor damage (scratches) or slight contamination (a hair) in the connection area may be enough to cause leaks.

- Fit the evaporator -G- in the rear air conditioning unit -D-.
- Check that the flaps -E- and -F- are correctly positioned in the rear air conditioning unit -D-.
- Fit the bottom section of the air distribution housing -A- to the rear air conditioning unit -D-.

 Note

- ◆ *The bottom section of the air distribution housing -A- is provided with lugs which are used to facilitate assembly at the factory. Pay attention to these lugs when fitting together to avoid bending or breaking them.*
- ◆ *When fitting the bottom section of the air distribution housing -A- to the rear air conditioning unit -D-, ensure correct routing of the wiring -L- to -V80-K-.*
- Fit the bolts -B- and re-attach all the other components detached to the rear air conditioning unit -D-.
- Fit the rear air conditioning unit
 ⇒ [“6.4 Removing and installing heater and air conditioning unit”, page 535](#) .
- Re-install all parts removed in reverse order.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

**Note**

◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*

⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).

- Re-install remaining components (removed earlier).
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ ["2.13 Starting up air conditioner after charging refrigerant circuit", page 241](#).

**Note**

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

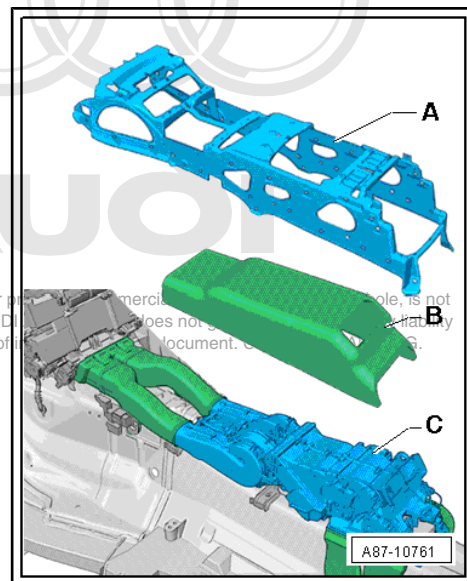
- Check function of air conditioning ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

6.4 Removing and installing heater and air conditioning unit



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ *["1.10.1 Overview of control motors of air conditioner", page 33](#)*.
- ◆ *After installing the rear air conditioning unit, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the rear Climatronic operating and display unit - E265- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Taking out the rear air conditioning unit -C- involves prior removal of the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .*



Removing

- Switch off ignition.
- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .
- Remove rear seats or rear seat bench and rear floor covering ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench / individual seats and ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering .
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

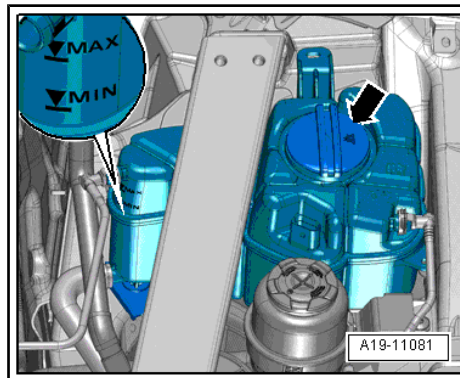


WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ The cooling system is pressurised when the engine is warm.
- ◆ To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.

– Open cap -arrow- on coolant expansion tank.



Note

- ◆ The heat exchanger in the rear air conditioning unit is not taken out of the vehicle on removing the air conditioning unit. It is merely to be removed from the air conditioning unit and swivelled aside
⇒ ["6.8.2 Removing heat exchanger of rear air conditioning unit from air conditioning unit and re-installing", page 554](#).
- ◆ In the event of the unintentional escape of coolant from the coolant circuit with the heat exchanger removed, the coolant will not be pressurised if the cap at the coolant expansion tank is open.



Caution

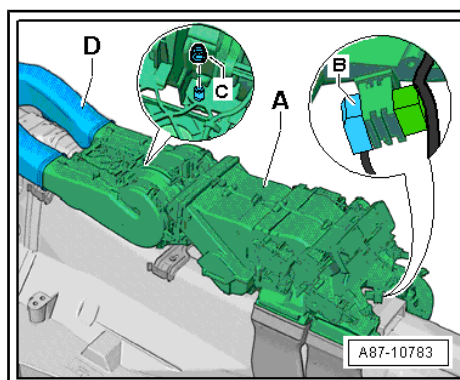
- ◆ The air conditioner will not function properly if temperature sensors, control motors and/or the corresponding connectors are interchanged
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.
- ◆ Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.

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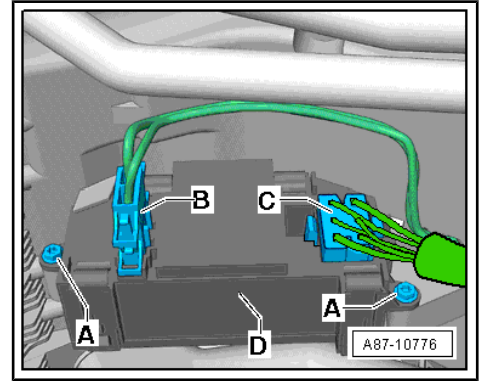


Note

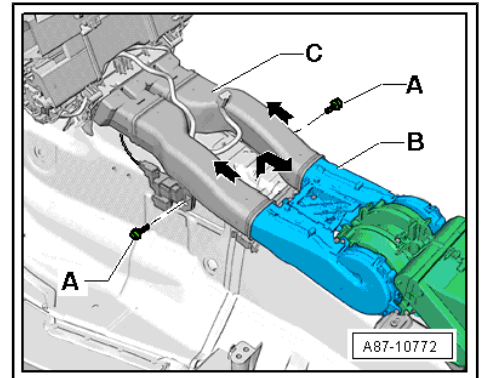
- ◆ The rear air conditioning unit -A- can also be removed with the air duct -D- (from the front air conditioning unit to the rear air conditioning unit) in position. The removal procedure is however easier with the air duct -D- taken out as described here.
 - ◆ Depending on the version, the rear air conditioning unit -A- may be additionally secured to the centre tunnel (remove the hexagon nut -C- if applicable).
- Unplug the connector -B-.



- Unplug the connectors -C- from the rear fresh air blower control unit - J391- .



- Remove bolts -A-.
- Slide the air duct -C- forwards (towards the front air conditioning unit), then lift the air duct -C- at the rear and remove in -arrow direction-.



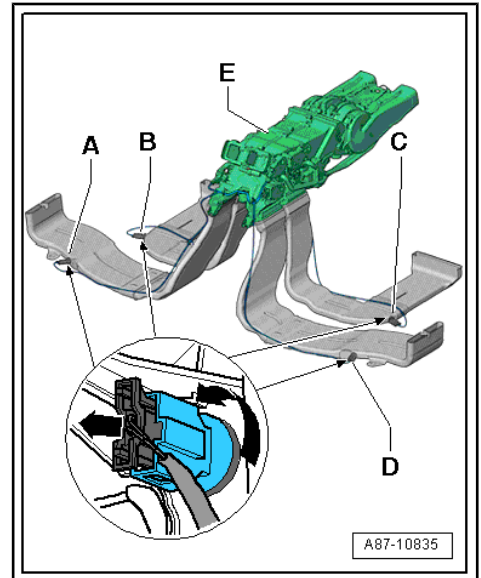
- Clearly mark the wire routing to the 4 temperature sensors -A- to -D- at the air ducts.



Caution

Interchanged wires to the temperature sensors or interchanged connectors at the control motors will lead to problems with air conditioner control.

- ◆ *Interchanged connectors at the control motors or temperature sensors are not recognised as faults by the rear Climatronic operating and display unit - E265- .*
- ◆ *Before unplugging connectors or removing electrical components, these should be clearly marked to prevent possible interchange.*



- Remove the 4 temperature sensors -A- to -D- from the air ducts (-A- ➔ ["10.12 Removing and installing rear left chest vent temperature sender G635", page 652](#) , -D- ➔ ["10.13 Removing and installing rear right chest vent temperature sender G636", page 653](#) , -B- ➔ ["10.14 Removing and installing vent temperature sender for rear left footwell G637", page 653](#) , -C- ➔ ["10.15 Removing and installing vent temperature sender for rear right footwell G638", page 654](#)) and attach together with the corresponding wire to the rear air conditioning unit such that they do not impede removal of the air conditioning unit -E- and cannot be damaged.

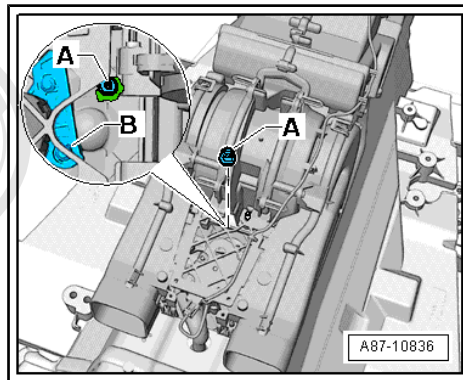
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Cover the air ducts at the rear of the passenger compartment to stop them being squashed or damaged in the course of further work.

- Remove the hexagon nut -A- at the connection point of the refrigerant lines.

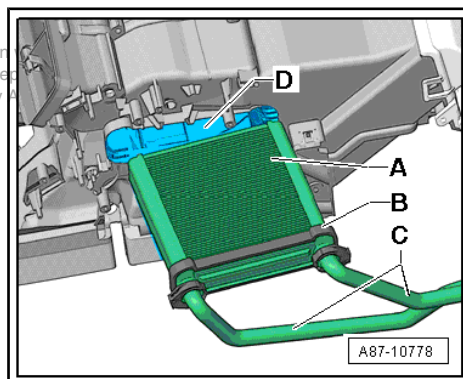

Note

If the actuating arm -B- is positioned such that the hexagon nut -A- is not accessible, remove the rear air recirculation flap control motor - V421-

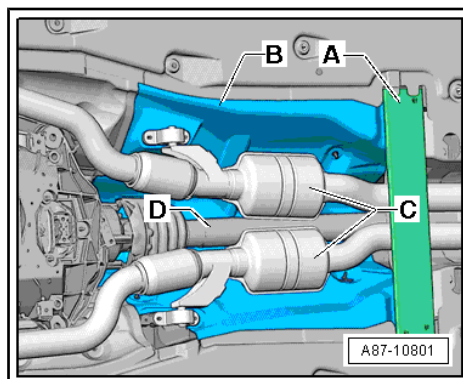
⇒ ["4.28 Removing and installing rear air recirculation flap control motor V421", page 417](#).



- Remove the heat exchanger -A- from the rear air conditioning unit and set it down in the area of the rear right footwell such that the heat exchanger and coolant lines are not a hindrance in the course of further work and cannot be bent or damaged
⇒ ["6.8 Removing and installing heat exchanger", page 553](#).


Note

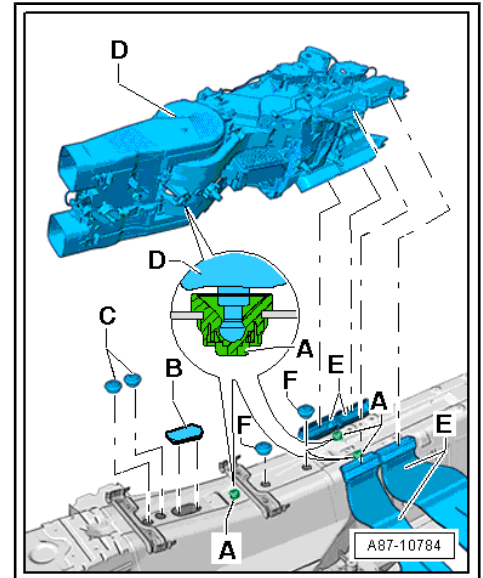
- ◆ The heat exchanger can be removed from the air conditioning unit with the rear air conditioning unit in position. The coolant circuit does not have to be opened (e.g. to remove and install the rear air conditioning unit).
- ◆ Leave the rear heat exchanger the vehicle when removing the rear air conditioning unit to avoid having to open the coolant circuit.
- ◆ The heat shield in the centre tunnel -B- must be removed in order to remove the coolant lines -C- leading to the heat exchanger -A- (see above illustration) together with the rear air conditioning unit ⇒ [General body repairs, exterior; Rep. gr. 66](#); [Strips / panels / width extensions / trim; Removing and installing heat shield for floor](#).
- ◆ The coolant lines leading to the heat exchanger are connected to the coolant circuit by coolant hoses routed through the centre tunnel above the propshaft -D- behind the heat shield -A-.
- ◆ Depending on the vehicle, the exhaust system -C- together with the centre silencer and propshaft -D- must be removed in order to remove the heat shield -A- in the centre tunnel ⇒ [Axle drive; Rep. gr. 39](#); [Propshaft; Removing and installing propshaft](#).



- Unfasten the rear air conditioning unit -D- from the mounting points -A- and the air ducts -E-.

i Note

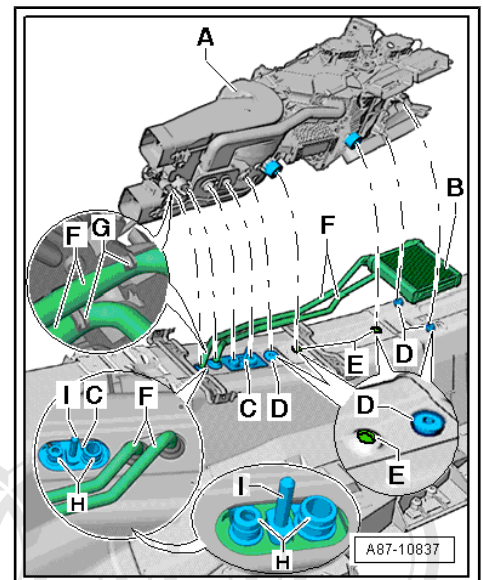
The sockets -B-, -C- and -F- shown in this illustration are only fitted with vehicles with a rear air distribution housing. They are not to be fitted on vehicles with a rear air conditioning unit.



- Unfasten the refrigerant lines leading to the evaporator from the refrigerant lines -H- in the centre tunnel at the junction -C-.
- Unfasten the coolant lines to the heat exchanger -F- from the holders -G- at the air conditioning unit -A- and remove the rear air conditioning unit -A-.

i Note

- ◆ *Do not remove the refrigerant lines -H- (through the centre tunnel from the rear expansion valve) and the stud bolt -J-.*
- ◆ *When the air conditioning unit is removed, the refrigerant lines -H- and stud -J- are held in place by a retainer bonded from below in the centre tunnel*
⇒ *"2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223*.



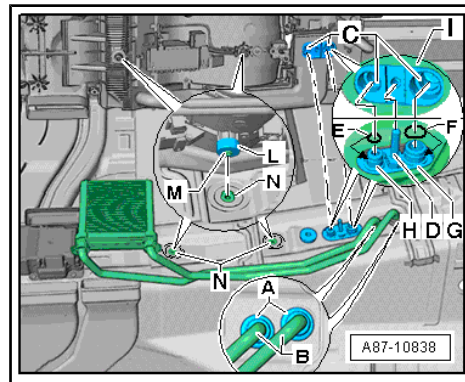
- Plug the open connections at the refrigerant lines in the centre tunnel and at the air conditioning unit with suitable caps (to dirt and moisture from entering).

Installing

Install in reverse order of removal; note the following.

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- Check the sockets -A- at the coolant lines -B- for proper attachment and damage.
- Check the foam seals -L- at the two condensation drains -M- for damage and proper attachment.
- Check the two condensation drains -M- at the rear air conditioning unit for damage and contamination.
- Check the two openings in the centre tunnel -N- for the condensation drains -M-. They must not be sealed off (the condensation must be able to flow freely out of the condensation drains -M- when the rear air conditioning unit is installed). The heat shield fitted below the two openings in the centre tunnel -N- must have a sufficient clearance from the floor panel and must not prevent the condensation from draining.
- Check the foam seal -J- at the rear air conditioning unit for damage and proper attachment.
- Check the connection of the refrigerant lines -C- (to the evaporator in the rear air conditioning unit) as well as the refrigerant lines -G- and -H- for contamination and damage.



Note

Even minor damage (scratches) or slight contamination (a hair) in the connection area may be enough to cause leaks.

- Replace the O-rings -E- and -F-; for version refer to ⇒ Electronic parts catalogue .
- Lubricate O-rings lightly with refrigerant oil before installing
⇒ ["3.13 Refrigerant circuit seals", page 116](#) .
- Make sure the retaining plate which holds the refrigerant lines -G- and -H- and the stud bolt -D- in position is firmly attached.



Caution

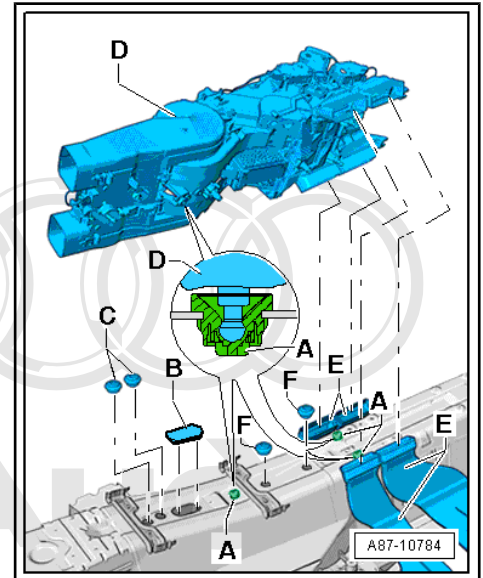
If the rear air conditioning unit is not inserted carefully, the retaining plate which holds the refrigerant lines -G- and -H- and the stud bolt -D- in position may become separated from the vehicle.

- ◆ ***This retaining plate is bonded to the floor panel. Should it be pressed aside on installation, considerable additional work may be required to attach the refrigerant lines***
⇒ ["2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223](#) .
- ◆ ***Pay particular attention to this connection and work carefully when fitting the rear air conditioning unit.***

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i Note

- ◆ The sockets -B-, -C- and -F- are only fitted on vehicles with an air distribution housing. They are not to be fitted on vehicles with a rear air conditioning unit.
- ◆ If a socket -F- has been fitted in one of the two openings for the condensation drains on a vehicle with a rear air conditioning unit or if these openings are gummed up from underneath by underseal for example, no condensate can drain out of the vehicle
⇒ *"6.10 Checking condensation drain hose", page 566*.
- Check mounting points -A- to ensure that they are fitted properly in the centre tunnel and are undamaged.
- Check for damage to the ball ends at the rear air conditioning unit -D- which are inserted in the mounting points -A-.
- Check for damage to and contamination of the outlets at the rear air conditioning unit -D- which are inserted in the air ducts -E-, as well as checking the air ducts -E-.

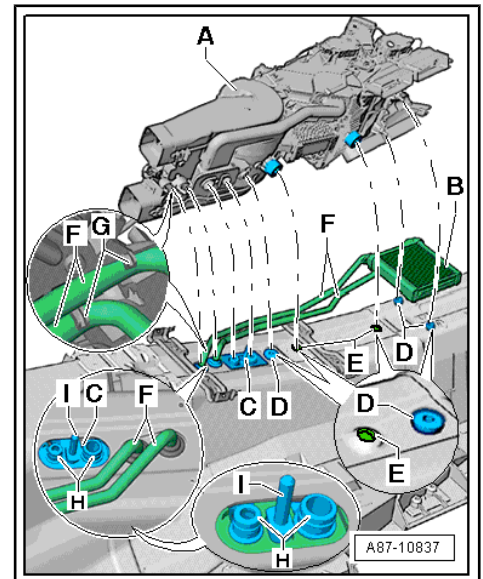


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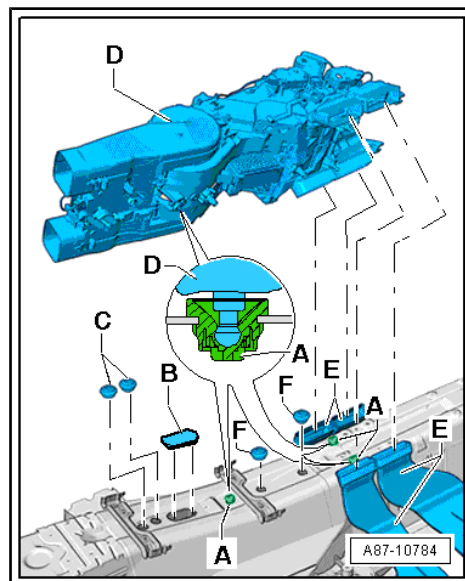
i Note

Noise may occur when the air conditioner is in operation if components are damaged or not properly assembled.

- Carefully attach the rear air conditioning unit -A- to the refrigerant lines leading to the evaporator at the junction -C- to the refrigerant lines -H- in the centre tunnel.
- Check the two openings -E- in the centre tunnel for the condensation drains; they must not be sealed off.
- Check the mounting points -D- for proper installation in the centre tunnel and for damage.
- Insert the coolant lines to the heat exchanger -F- in the holders -G- at the air conditioning unit -A-.



- Insert the rear air conditioning unit -D- in the mounting points -A- and the air ducts -E-.



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- Fit the hexagon nut -A- at the connection point of the refrigerant lines (tightening torque 20 Nm).
- Re-install the components removed from the passenger compartment in reverse order.
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- / air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ *"1. 10.1 Overview of control motors of air conditioner", page 33.*

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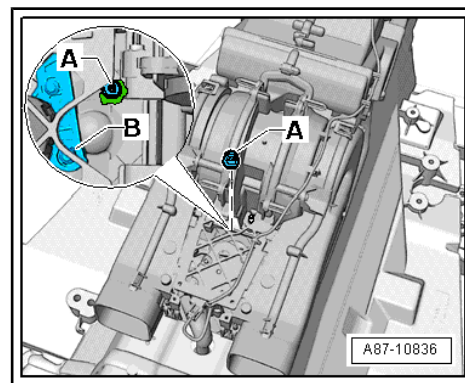
- **Re-install remaining components (removed earlier).**
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .



Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

- Check function of air conditioning ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

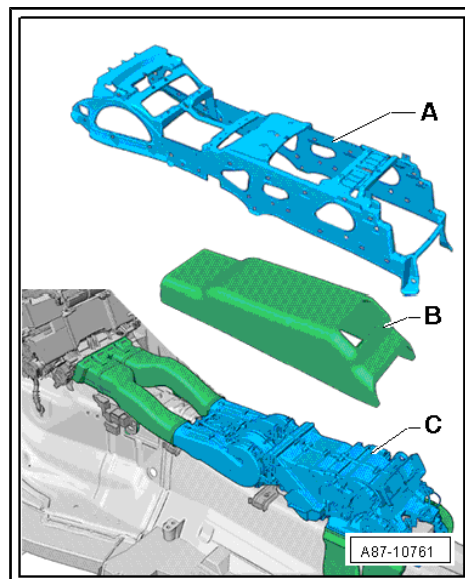


6.5 Removing and installing air intake box of heater and air conditioning unit



Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.
- ◆ *After installing the rear air distribution housing, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for interchange) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Taking out the rear air distribution housing -C- involves prior removal of the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



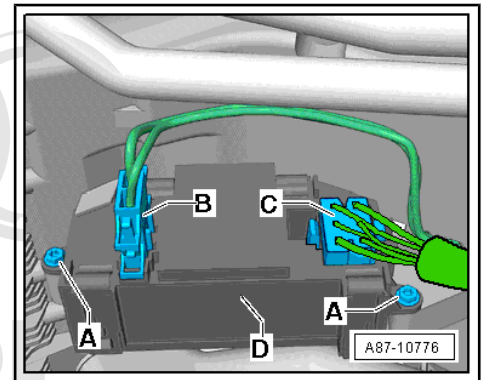
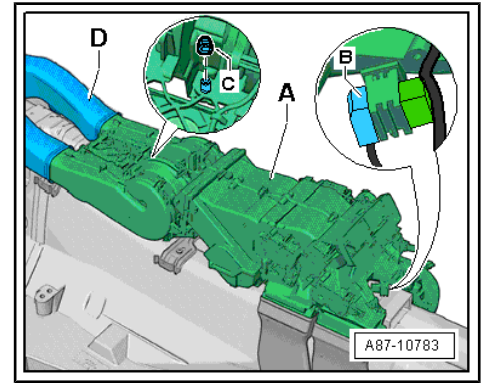
Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ **"1.10.1 Overview of control motors of air conditioner", page 33**.
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

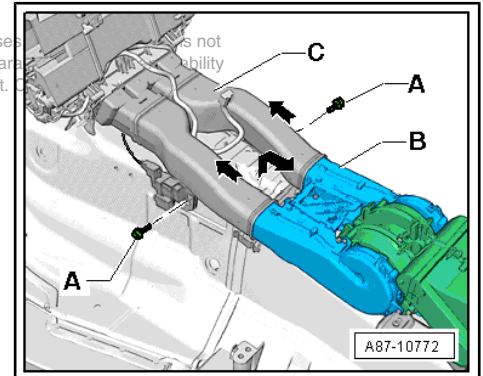
Note

- ◆ The rear air distribution housing -A- can also be removed with the air duct -D- (from the front air conditioning unit to the rear air distribution housing) in position. The removal procedure is however easier with the air duct -D- taken out as described here.
- ◆ Depending on the version, the rear air distribution housing -A- may be secured at an additional mounting point on the centre tunnel (remove the hexagon nut -C- if applicable).

- Unplug the connector -B-.
- Unplug the connectors -C- from the rear fresh air blower control unit - J391- .



- Remove bolts -A-.
- Slide the air duct -C- forwards (towards the front air conditioning unit), then lift the air duct -C- at the rear and remove in -arrow direction-.



- Unfasten the rear air distribution housing -D- from the mounting points -A- and the air ducts -E- and remove.

Installing

Install in reverse order of removal; note the following.

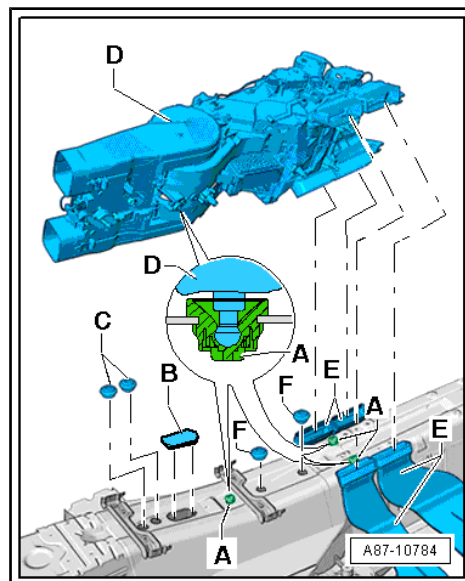
- Check the grommets -B-, -C- and -F- for damage and proper attachment.



Note

The grommets -B-, -C- and -F- are only fitted on vehicles with an air distribution housing.

- Check mounting points -A- to ensure that they are fitted properly in the centre tunnel and are undamaged.
- Check for damage to the ball ends at the air distribution housing -D- which are inserted in the mounting points -A-.
- Check for damage to and contamination of the outlets at the rear air distribution housing -D- which are inserted in the air ducts -E-, as well as checking the air ducts -E-.



Note

Noise may occur when the air conditioner is in operation if components are damaged or not properly assembled.

- Insert the rear air distribution housing -D- in the mounting points -A- and the air ducts -E-.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ “1.10.1 Overview of control motors of air conditioner”, page 33.*

- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

6.6 Removing and installing rear fresh air blower - V80-

⇒ [“6.6.1 Removing and installing rear fresh air blower V80 - vehicles with rear air distribution housing”, page 547](#)

⇒ [“6.6.2 Removing and installing rear fresh air blower V80 - vehicles with rear air conditioning unit”, page 548](#)

6.6.1 Removing and installing rear fresh air blower - V80- - vehicles with rear air distribution housing



Note

- ◆ *For vehicles with a rear air distribution housing, -V80- is supplied together with the rear air distribution housing as replacement part.*
- ◆ *For vehicles with a rear air conditioning unit, -V80- is supplied as a separate part.*



Caution

Do not grasp hold of the impeller of the rear fresh air blower - V80- . Applying force to the impeller or moving the balancing weights attached to the impeller could cause imbalance and thus operating problems.

- ◆ Removing rear air distributor housing
⇒ [“6.5 Removing and installing air intake box of heater and air conditioning unit”, page 544](#)
- ◆ Detaching add-on components from rear air distribution housing ⇒ [“4.4 Exploded view - control motors at rear”, page 343](#)
- ◆ Remove rear fresh-air blower - V80-
⇒ [“4.3.1 Rear air distribution housing components, excluding air distribution housing”, page 337](#) .

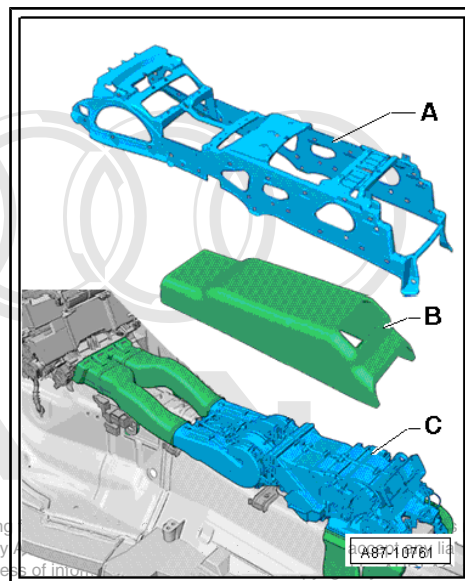
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6.6.2 Removing and installing rear fresh air blower - V80- - vehicles with rear air conditioning unit



Note

- ◆ For vehicles with a rear air distribution housing, -V80- is supplied together with the rear air distribution housing as replacement part.
- ◆ For vehicles with a rear air conditioning unit, -V80- is supplied as a separate part.
- ◆ Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- ◆ If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for inter-change) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ After installing a new control motor, check activation by the rear Climatronic operating and display unit - E265- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Removal of -V80- involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Removing

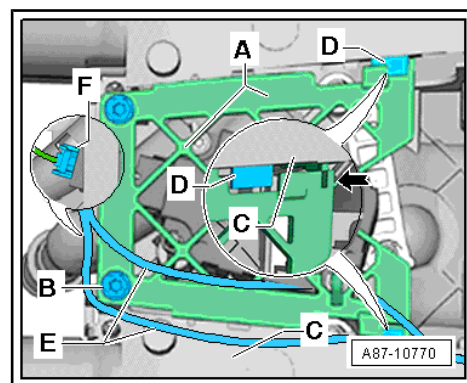
- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.*
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

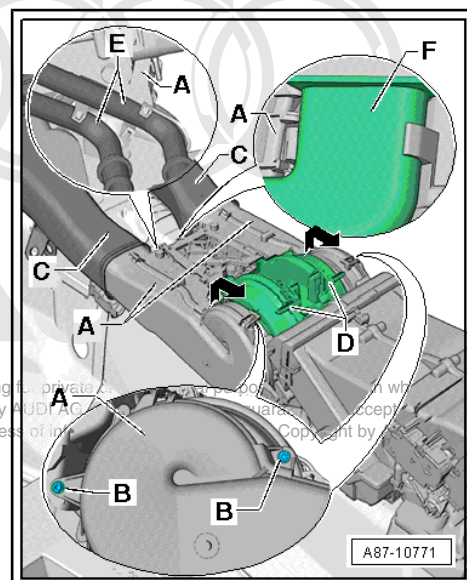
- Mark the connector -F- (to the rear air recirculation flap control motor - V421-) to prevent interchange if several connectors are simultaneously unplugged.
- Unplug the connector -F-.
- Unfasten the wiring harness -E- from the cover grille -A- and from the air duct -C-.



Caution

Do not grasp hold of the impeller of the rear fresh air blower - V80- . Applying force to the impeller or moving the balancing weights attached to the impeller could cause imbalance and thus operating problems.

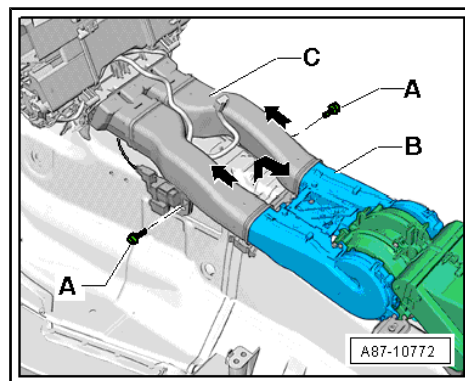
- Remove bolts -B-.
- Lift the air duct -A- in the area of -V80- -D- and pull it to the rear out of the air duct -C- -arrow direction-.



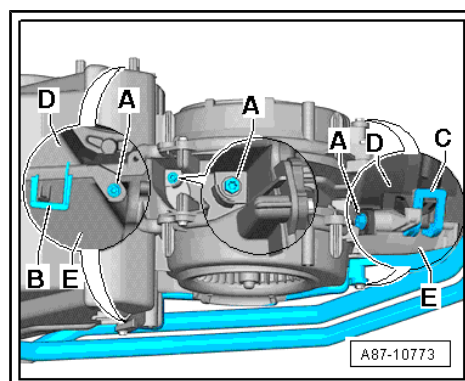
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 Note

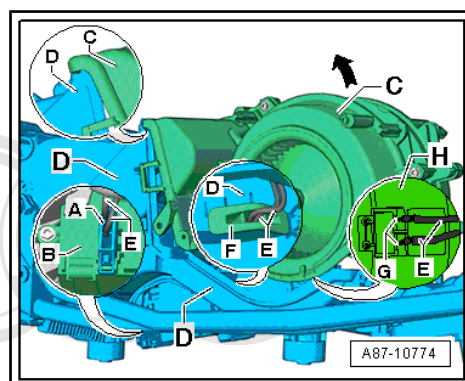
- ◆ On vehicles with a rear air conditioning unit, the front section of the air duct -A- is additionally engaged at the coolant lines -E- and the refrigerant lines -F- (unfasten these catches to remove).
- ◆ The air duct -C- (from the front to the rear air conditioning unit) can also be removed with the air duct to -V80- -B- fitted. To do so, remove the bolts -A-, then slide the air duct -C- forwards (towards the front air conditioning unit), lift the air duct -C- at the rear and remove it -arrow direction-.



- Remove bolts -A-.
- By raising the tabs -C-, unfasten the catches at the front at -V80- -D- in the direction of travel and lift -V80- slightly.
- By raising the tabs -B-, unfasten the catches on the left and right between -V80- -D- and the rear air conditioning unit -E-.



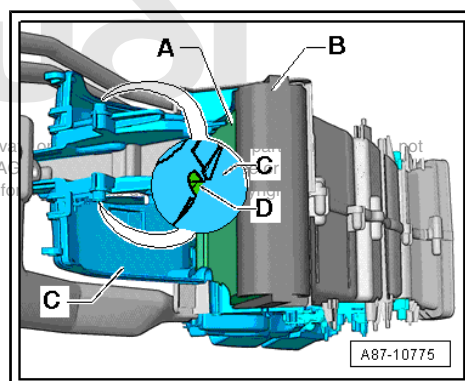
- Unplug the connector -A- at the rear fresh air blower control unit -J391- -B-.
- Raise the rear fresh air blower -V80- -C- at the front in the direction of travel -arrow direction-.
- Unfasten the grommet -F- with the lines -E- from the rear air conditioning unit -D-.
- Remove -V80- -C- from the rear air conditioning unit -D-.



Installing

Install in reverse order of removal; note the following.

- Check the evaporator -A- for contamination and the corresponding seals -B- for damage.
- Check the condensation drains -D- (beneath -V80-) and the rear air conditioning unit -C- for contamination.
- Check the foam seal at the evaporator -B- for damage and proper attachment.



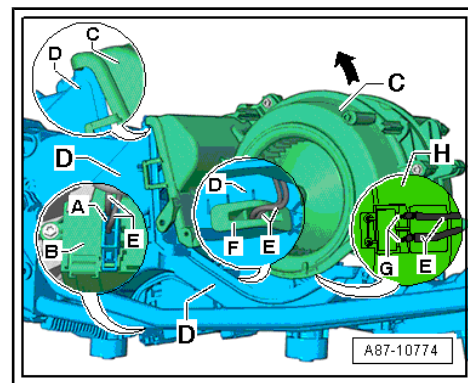
 Note

- ◆ If -V80- and the evaporator are replaced at the same time, fit -V80- first and then the new evaporator. The foam seal at the new evaporator -B- is not pre-formed and must first be pressed together. This is not so easy with -V80- .
- ◆ Pressure marks at the foam seal at the evaporator -B- of -V80- are not an indication of damage but are intended to facilitate assembly.

- Check the joints between -V80- -C- and the rear air conditioning unit -D- (tongue-and-groove) for damage.

i Note

Noise may occur when the air conditioner is in operation if components are damaged or not properly assembled.

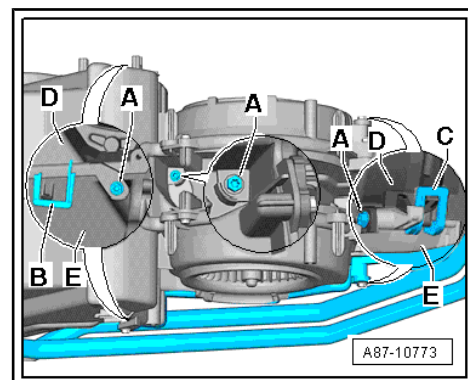


- Check the lines -E- at the motor of -V80- -H-. The contacts **G must not be bent and must not touch**.
- Insert the grommet -F- with the lines -E- in the mount in the rear air conditioning unit -D-.
- Insert -V80- -C- in the tongue-and-groove joint and install in the air conditioning unit in the direction opposite to the -arrow direction-.

i Note

When fitting the evaporator and -V80- together, a certain amount of force must be applied on account of the foam seal at the evaporator.

- On inserting -V80- , pull the lines -E- evenly through the grommet -F- out of the air conditioning unit -D-.
- Plug in the connector -A- at -J391- -B-.
- Engage the locking tabs -C- between -V80- -D- and the air conditioning unit.
- Engage the locking tabs -B- between -V80- -D- and the rear air conditioning unit -E- on the left and right.
- Fit bolts -A-.

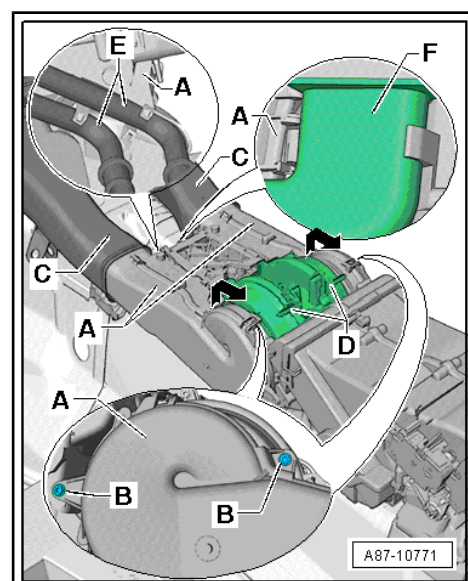


- Check the contact surfaces between the air duct -A- and -V80- -D- for damage.

i Note

Noise may occur when the air conditioner is in operation if components are damaged or not properly assembled.

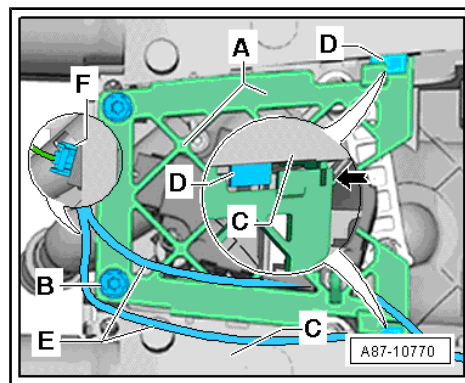
- With a rear air conditioning unit, engage the holder of the air duct -A- at the coolant lines -E- and the refrigerant lines -F-.
- Insert the air duct -A- forwards in the air duct -C- and swivel downwards in the area of -V80- -D- (in the direction opposite to the -arrow direction-).
- Fit bolts -B-.



- Plug in the connector -F- at the rear air recirculation flap control motor - V421- .
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.


Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the rear Climatronic operating and display unit - E265- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ "1.10.1 Overview of control motors of air conditioner", page 33.
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



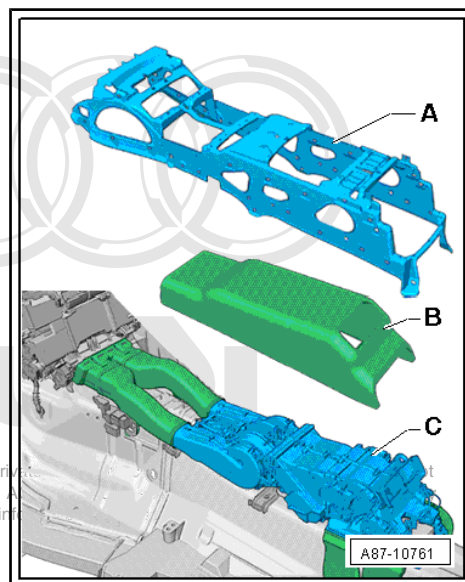
6.7 Removing and installing rear fresh air blower control unit - J391-


Note

Removal of -J391- involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

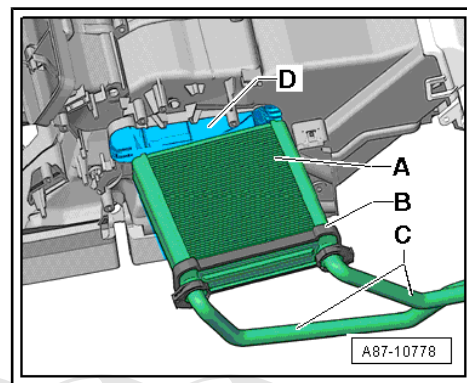
Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .


WARNING

The heat sink at the rear fresh air blower control unit - J391- may be hot.

- On vehicles with a rear air conditioning unit, pull the heat exchanger -A- slightly out of the air conditioning unit on account of the coolant lines -C- (to create space for removing -J391-)
⇒ [“6.8.2 Removing heat exchanger of rear air conditioning unit from air conditioning unit and re-installing”, page 554](#) .

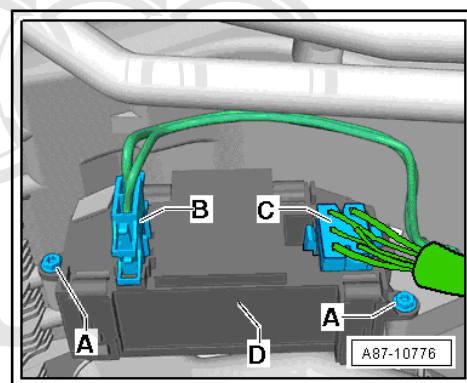


- Unplug the connectors -B- and -C- from -J391- .
- Remove bolts -A- .
- Detach -J391- -D- .

Installing

Install in reverse order of removal; note the following.

- Different versions of -J391- are available as replacement parts. Pay attention to correct assignment ⇒ Electronic parts catalogue .
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



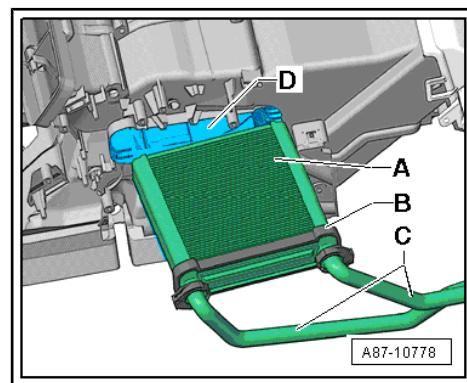
6.8 Removing and installing heat exchanger

⇒ [“6.8.1 Removing, installing and replacing heat exchanger with rear air conditioning unit fitted”, page 553](#)

⇒ [“6.8.2 Removing heat exchanger of rear air conditioning unit from air conditioning unit and re-installing”, page 554](#)

⇒ [“6.8.3 Replacing heat exchanger of rear air conditioning unit”, page 556](#)

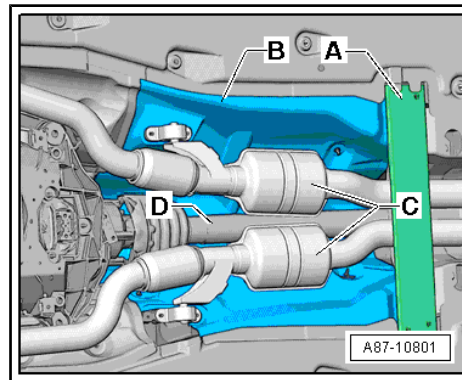
6.8.1 Removing, installing and replacing heat exchanger with rear air conditioning unit fitted





Note

- ◆ The coolant lines -C- leading to the heat exchanger -A- are connected to the coolant lines in the centre tunnel by coolant pipes which are a component of the rear air conditioning unit ⇒ "8.1.4 Incorporation of air conditioner (rear) into refrigerant and coolant circuit", page 605.
- ◆ The heat exchanger -A- can be removed from the air conditioning unit with the rear air conditioning unit in position. The coolant circuit does not have to be opened (e.g. to remove and install the rear air conditioning unit).
- ◆ Air duct leading to rear fresh air blower - V80- ⇒ "6.6 Removing and installing rear fresh air blower V80", page 547 and heat shield in centre tunnel -B- must be removed in order to remove coolant lines -C- leading to heat exchanger -A- (see above illustration) ⇒ General body repairs, exterior; Rep. gr. 66; Strips / panels / width extensions / trim; Removing and installing heat shield for floor.
- ◆ The coolant lines leading to the heat exchanger are connected to the coolant circuit by coolant hoses routed through the centre tunnel above the propshaft -D- behind the heat shield -A-.
- ◆ Depending on the vehicle, the exhaust system -C- together with the centre silencer and propshaft -D- must be removed in order to remove the heat shield -A- in the centre tunnel ⇒ Axle drive; Rep. gr. 39; Propshaft; Removing and installing propshaft.

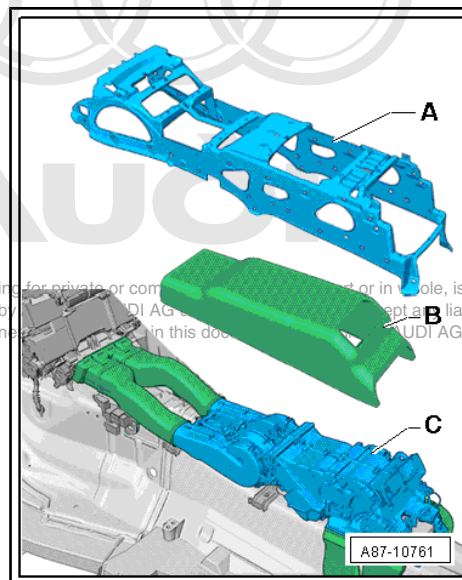


6.8.2 Removing heat exchanger of rear air conditioning unit from air conditioning unit and re-installing



Note

- ◆ Removal of the heat exchanger from the rear air conditioning unit does not involve opening the coolant circuit.
- ◆ Removal of the heat exchanger from the air conditioning unit involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Removing and installing centre console bracket



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72; Front seats; Removing and installing front seat.
- Switch off ignition.



WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

- Open cap -arrow- on coolant expansion tank.



Note

In the event of the unintentional escape of coolant from the coolant circuit with the heat exchanger removed, the coolant will not be pressurised if the cap is open.

- Remove the base plate of the centre console -A- and the insulating mat -B- ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .
- Remove the rear right temperature flap control motor - V314 -C-
➔ ["4.21 Removing and installing rear right temperature flap control motor V314", page 398](#)



Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
➔ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

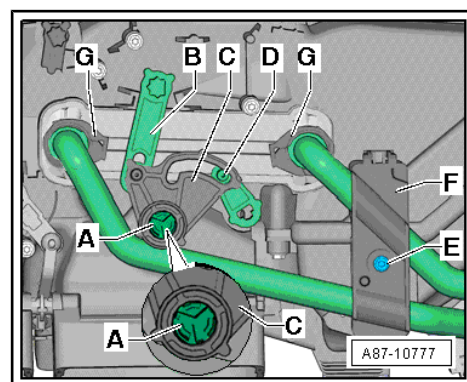
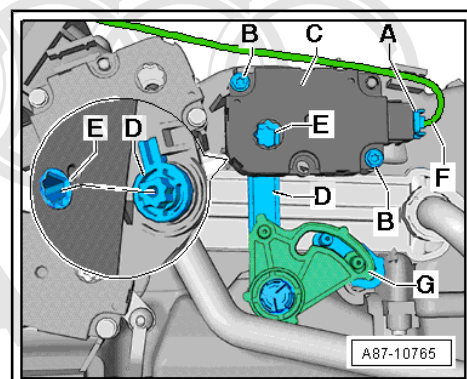
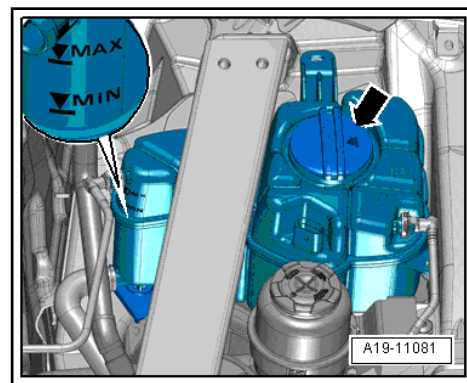
- Remove bolts -E-.



Caution

- ◆ *Do not unfasten the clamps -G-.*
- ◆ *If the clamps -G- are unfastened, the coolant lines could work loose from the heat exchanger and result in the escape of coolant.*

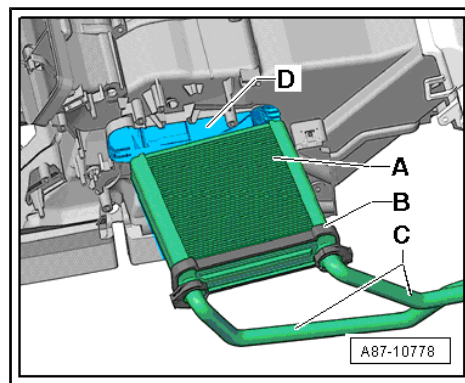
- Unfasten the holder -F- from the catches and detach.
- Carefully press together (release) the fastener at the support bracket -A- and detach the cam plate -C- and the actuating arm -B-.
- Turn the arm -D- downwards.



- As a precautionary measure, use impermeable sheeting and absorbent paper to protect floor covering and centre tunnel beneath heat exchanger -A- from escaping coolant.
- If applicable, remove the air duct to the rear fresh air blower -V80-
⇒ [“6.6 Removing and installing rear fresh air blower V80”, page 547](#).
- Pull the heat exchanger -A- with the coolant pipes -C- attached carefully out of the mounting slot -D- of the air conditioning unit.


Caution

- ◆ **Take care not to bend or twist the coolant pipes -C- on removing the heat exchanger -A-.**



- Set down the heat exchanger -A- on a suitable surface next to the air conditioning unit such that the coolant pipes -C- are neither bent nor twisted.
- Perform the remaining operations (e.g. removal of the rear air conditioning unit).

Installing

Install in reverse order of removal; note the following:

- Check for contamination by way of the mounting slot -D- of the air conditioning unit.
- Check the heat exchanger -A- for contamination or damage.
- Check the seals -B- attached to the heat exchanger -A-. Only install a heat exchanger if the seals are in perfect condition and firmly affixed.


Note

If a seal -B- is damaged or not correctly fitted, cold air may flow past the heat exchanger and lead to problems with cold air emerging from the air conditioning unit or noise.

- Slide home the heat exchanger -A- in the mounting slot -D- of the air conditioning unit.
- Check that the clamps -G- are correctly positioned.
- Check that the coolant pipes -C- are correctly positioned at the attachment points and check for damage.
- Re-install all parts removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Interrogate the event memory of -E265- and -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

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6.8.3 Replacing heat exchanger of rear air conditioning unit

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094- or hose clamps up to Ø 40 mm - 3093-
- ◆ Commercially available compressed-air gun with rubber mouthpiece
- ◆ Cooling system tester - V.A.G 1274- (and appropriate adapt-ers)

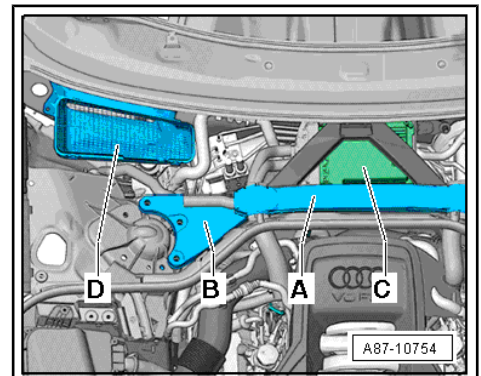
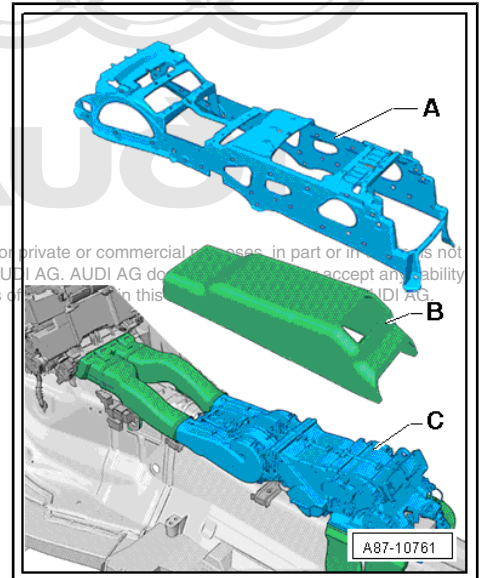
Note

Removal of the heat exchanger involves taking out the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air conditioning unit -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

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Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover
- Remove the fresh air intake -D-
⇒ ["7.9 Removing and installing fresh air intake", page 594](#) .

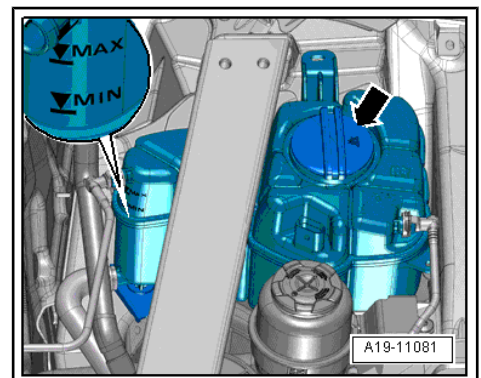


WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

- Open cap -arrow- on coolant expansion tank.

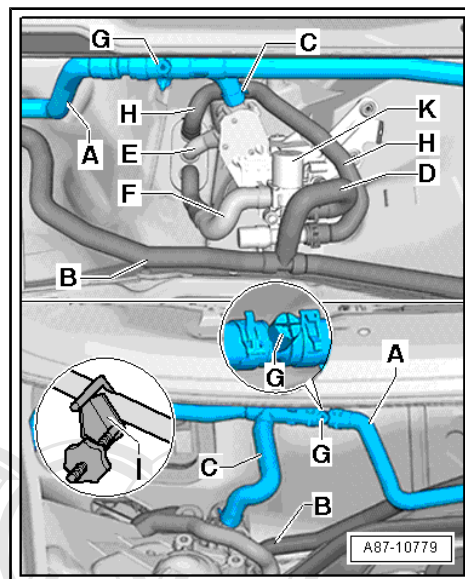


- Mark the arrangement of the coolant hoses at the connections to the coolant shut-off valve - N82- / heater coolant shut-off valve - N279- -K- and to the coolant circulation pump - V50- : Coolant hose -C- (supply from coolant circulation pump - V50- to heat exchangers), -H- (return from heat exchangers to auxiliary heater) and -F- (return from heat exchangers to engine).



Note

- ◆ This illustration shows the arrangement of the coolant hoses on a vehicle with a rear air conditioning unit and an auxiliary heater. Vehicles not fitted with an "auxiliary heater" as optional extra have no -N279- -K- and no coolant hose -H-. The -N82- fitted on such vehicles only has 2 connections
⇒ "8.1 Incorporation of air conditioner into coolant circuit", page 599.
- ◆ The heat exchanger(s) is/are installed in the air conditioning units such that a certain coolant flow direction is required for complete bleeding of the heat exchanger. The coolant hoses must therefore be connected in the correct positions
⇒ "8.1 Incorporation of air conditioner into coolant circuit", page 599.
- ◆ Bleed coolant circuit ⇒ page 625 and ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Use hose clamps -J- to pinch off the coolant hoses -A-, -B-, -E- and -F-.
- If fitted, pinch off the coolant hoses -H- with a hose clamp -J- (vehicles with auxiliary heater).
- Cover the area beneath the connections for the coolant hoses -C- and -D- in the plenum chamber with absorbent paper, for example.
- Place a small container under the connection for the coolant hoses -C- and -D-.



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Note

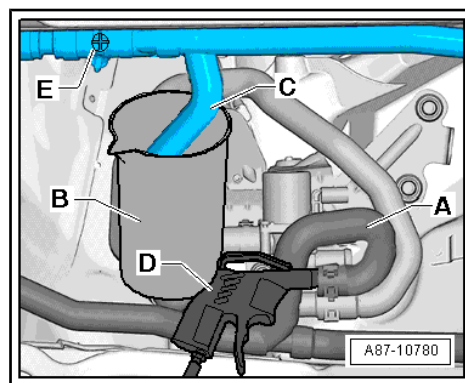
To stop coolant running into the plenum chamber on detaching the coolant hoses -C- and -D-.

- Detach the coolant hoses -C- (from -V50-) and -D- (from -N82- / -N279-).
- Use a compressed air gun -D- to carefully blow the coolant via the hose -A- and the hose -C- out of the heat exchanger in the rear air conditioning unit into the vessel -B-.

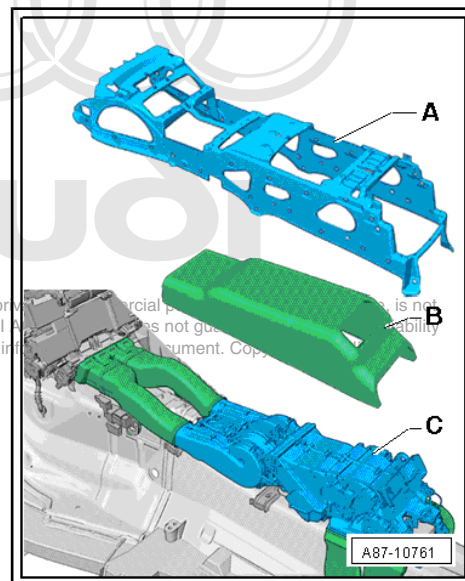


Note

- ◆ Extend the coolant hose -C- with a piece of tubing if necessary.
- ◆ On account of the arrangement of the heat exchanger in the rear air conditioning unit, attention does not have to be paid in this case to the direction of flow when blowing out the coolant.
- ◆ A larger quantity of coolant must be blown out in this case (approx. 0.8 l) due to the long coolant lines to the heat exchanger in the rear air conditioning unit.



- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .

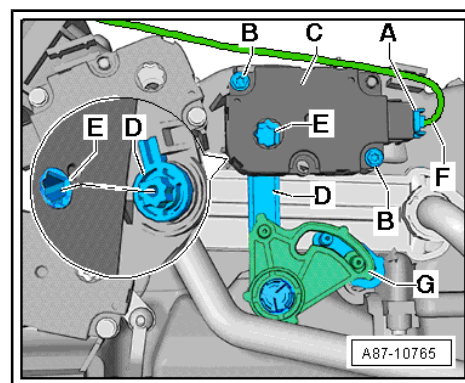


- Remove the rear right temperature flap control motor - V314-C-
⇒ ["4.21 Removing and installing rear right temperature flap control motor V314", page 398](#)

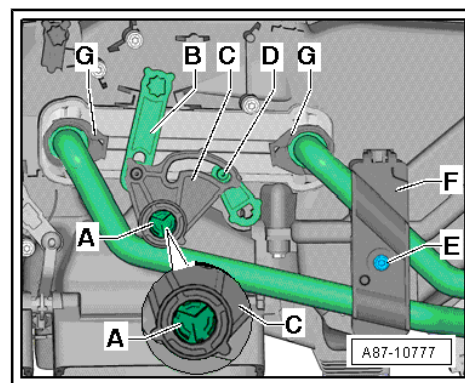


Caution

- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#) .
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*



- Remove bolts -E-.
- Unfasten the holder -F- from the catches and detach.
- Carefully press together (release) the fastener at the support bracket -A- and detach the cam plate -C- and the actuating arm -B-.
- Turn the arm -D- downwards.
- Protect floor covering and centre tunnel beneath heat exchanger with impermeable sheeting and absorbent paper.
- Detach the clamps -G- from the connections at the heat exchanger.

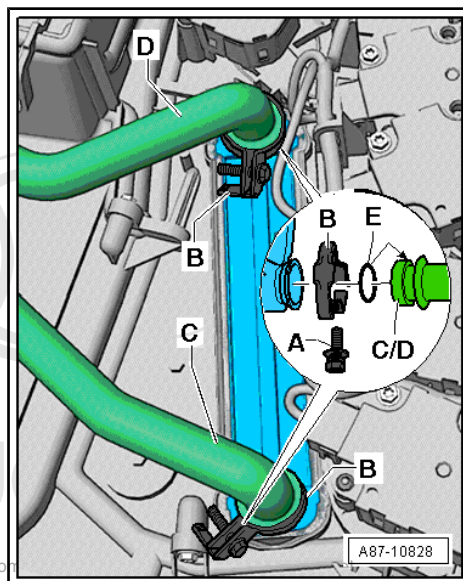


Note

Screw-type metal clamps were fitted at the heat exchanger connections at the start of production. This illustrations shows a version with plastic clamps -G-. Introduction of these clamps has not yet been finalised.

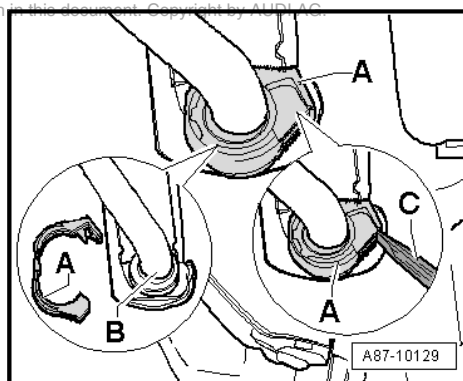
Detaching screw-type clamps (metal clamps)

- Remove the bolt -A- at the clamps -B- for the coolant pipes -C- and -D-.
- Detach the clamps -B-.



Detaching plastic clamps

- Use a screwdriver -C- for example to unfasten and detach the plastic clamps -A-.

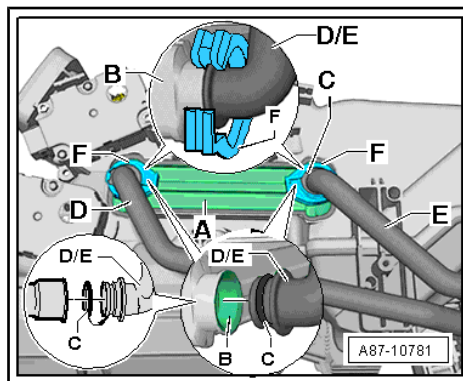


All types

- Unfasten the two coolant pipes -D- and -E- from the connections of the heat exchanger -A- and carefully swivel aside.
- Pull the heat exchanger -A- out of the mounting slot of the rear air conditioning unit.

Installing

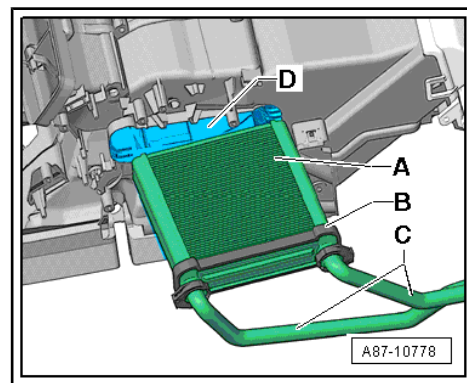
Install in reverse order of removal; note the following:



- Check the air conditioning unit for contamination by way of the mounting slot -D- and clean if necessary.
- Check the heat exchanger -A- for contamination or damage.
- Check the seals -B- attached to the heat exchanger -A-. Only install a heat exchanger if the seals are in perfect condition and firmly affixed.

i Note

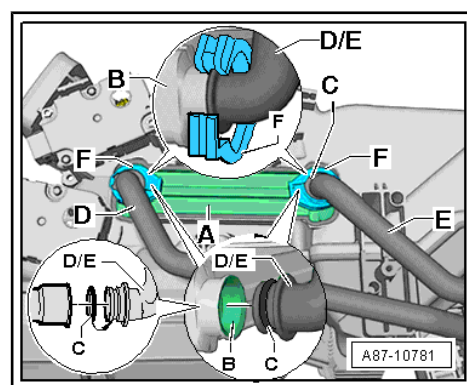
If a seal -B- is damaged or not correctly fitted, cold air may flow past the heat exchanger and lead to problems with cold air emerging from the air conditioning unit or noise.



- Slide home the heat exchanger -A- in the mounting slot -D- of the air conditioning unit.
- Check the two connections -B- of the heat exchanger -A- for contamination and damage.
- Moisten the two connections -B- of the heat exchanger -A- with a small quantity of coolant or lubricate with silicone grease.

i Note

Silicone grease is available as a replacement part: part number G 000 405 A2 ➔ Electronic parts catalogue .



- Check the connection area for the two coolant pipes -D- and -E- to the heat exchanger for damage or contamination.
- Moisten the new seals -C- (included in the scope of delivery of the heat exchanger) with a small quantity of coolant (or lubricate slightly with silicone grease).
- Attach the new seals -C- to the two coolant pipes -D- and -E-.
- Insert the two coolant pipes -D- and -E- with the corresponding seal -C- in the connections of the heat exchanger -B- and press home.

i Note

Do not cant coolant pipes -D- and -E- when pressing them into the heat exchanger connections.

- Check the position of the seals -C- between the coolant pipes -D- and -E- and the connections -B- of the heat exchanger -A-.



Caution

Seals -C- that are not fitted correctly or are crushed can cause leaks.

The seals -C- must be inserted completely in the connections in the connecting flange -B- with the coolant pipes -D- and -E-

Fitting screw-type clamps (metal clamps)

- Remove the bolt -B- from the new clamps -A-.
- Attach the new clamps -B- (included in the scope of delivery of the heat exchanger) to the coolant pipes -C- and -D- and turn the clamps -B- such that the bolt -A- can be fitted.
- Consecutively press the coolant pipes -C- and -D- into the heat exchanger and attach one clamp -B- each at the joint to the heat exchanger as shown.

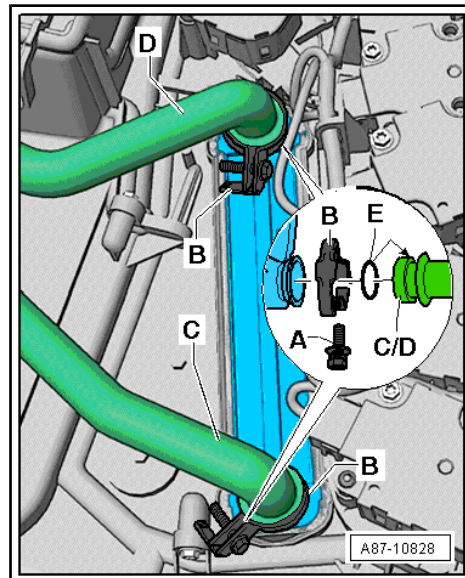


Note

The clip -B- engages on being pressed together.

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- Screw one bolt -A- into each of the clamps and secure the clamp -B- by tightening the bolt -A-.
- Check that the clamps -B- are properly positioned on the connections of the heat exchanger and coolant pipes.
- Check the installation position of the clamps -B- and the bolts -A-. They must not make contact with the air conditioning unit or other components.



Fitting plastic clamps



Note

Not available at present (introduction not yet finalised). Until further notice, screw-type clamps (metal clamps) will be supplied as replacements ⇒ Electronic parts catalogue .

- Attach the new plastic clamps -F- (if contained in the scope of delivery of the heat exchanger) to the coolant pipes -D- and -E-.



Caution

Plastic clamps -F- are not to be re-used.

◆ **Always fit new clamps -F- ⇒ Electronic parts catalogue .**

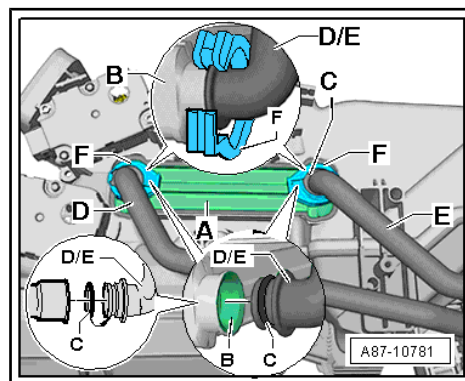
- Attach the plastic clamps -F- as shown at the joints between the heat exchanger and the coolant pipes -D- and -E- and press together.



Note

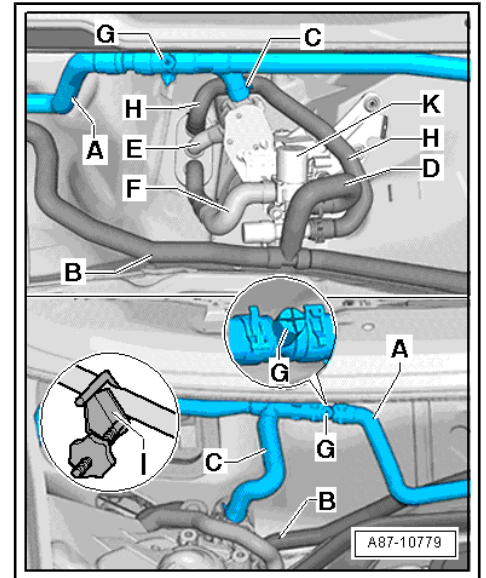
The clamp -F- engages on being pressed together.

- Check for correct positioning and proper engagement of the clamps -F- at the coolant pipes -D- and -E-.



All types

- Ensure correct connection of the coolant hoses -C- and -D- (to the coolant circulation pump - V50- and the coolant shut-off valve - N82- / heater coolant shut-off valve - N279-) for bleeding the rear heat exchanger. Pay attention to the marks made on detaching and secure with clamps.
- Detach the hose clamp -J- from the coolant hose -F-.
- Open the bleed screw -G-.
- Add coolant to coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .
- Screw the hand pump of the cooling system tester - V.A.G 1274/- to the filler neck of the coolant expansion tank.
- Using the hand pump of the cooling system tester - V.A.G 1274/- for example, carefully force coolant out of the coolant expansion tank into the heat exchanger in the rear air conditioning unit.
- As soon as there are no bubbles in the coolant emerging, close the bleed screw -G-.
- Detach the hose clamps -J- from the other coolant hoses.
- If necessary, add more coolant to coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .



Note

This procedure completely bleeds the cooling system. If there is still air in the cooling system for other reasons, it may be necessary to bleed the cooling system after installing all the components removed earlier again.

Check connections at heat exchanger for leaks as follows:

- Use e.g. hand pump of cooling system tester - V.A.G 1274/- to carefully increase pressure in coolant circuit.

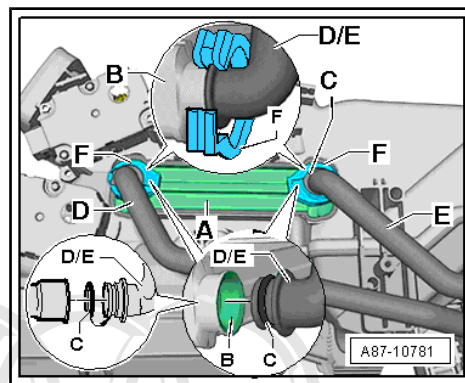
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- Check the coolant circuit for leaks, paying particular attention to the connection between the coolant pipes -D- and -E- and the heat exchanger -A-.



Note

- ◆ *When bleeding the coolant circuit, take particular care to ensure that the heat exchanger is bled completely. If there are still air bubbles in the heat exchanger, there may be complaints about a lack of heating output in winter or about differences in the temperature of the air flowing out of the vents with the same setting in control mode*
⇒ *[“5.9 Checking heating output of activation of air conditioner temperature flap”, page 478](#).*
- ◆ *Depending on the vehicle equipment and engine, there is heat insulation on the coolant hoses; the insulation must not be damaged and must be re-attached after installation.*
- Re-install all components removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner (to check operation) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

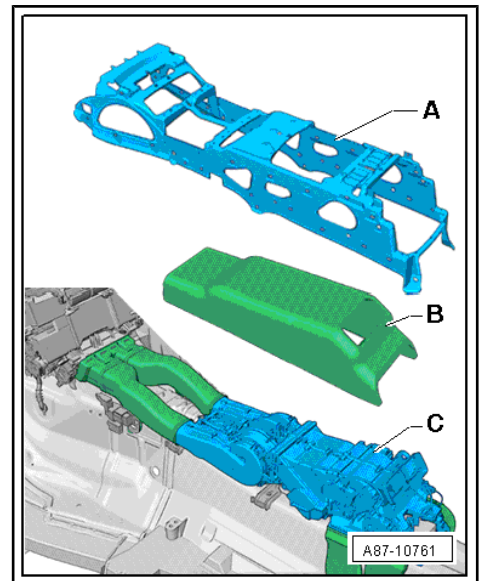
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- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ *[“1.10.1 Overview of control motors of air conditioner”, page 33](#).*
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

6.9 Removing and installing temperature sensor for rear intake air temperature - G639-

Note

- ◆ *Currently all the control motors on this vehicle are identical. While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ *"1.10.1 Overview of control motors of air conditioner", page 33*.
- ◆ *After installing the rear air distribution housing, perform air conditioner basic setting ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *If necessary, activation of the electrical components of the air conditioner can be checked by way of the "Final control diagnosis" and "Basic setting" functions (e.g. to check for inter-change) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *After installing a new control motor, check activation by the air conditioner front operating and display unit, Climatronic control unit - J255- and operation of the control motor ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Removal of the temperature sensor for rear intake air temperature - G639- involves taking out the rear air distribution housing -C-. Taking out the rear air distribution housing -C- involves prior removal of the entire centre console including the base plate of the centre console -A- and the insulating mat -B- fitted between the base plate and the rear air distribution housing -C- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .*



Removing

- Remove driver and front passenger seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Switch off ignition.
- Remove the base plate of the centre console -A- and the insulating mat -B- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console bracket .



Caution

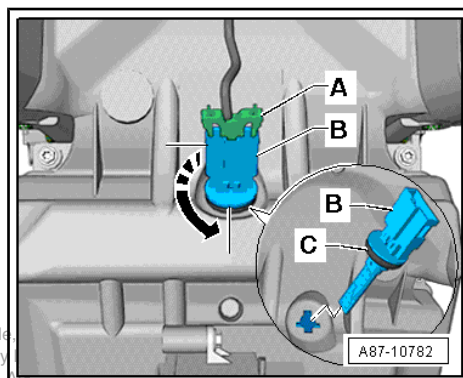
- ◆ *The air conditioner will not function properly if control motors and/or the corresponding connectors are interchanged*
⇒ *"1.10.1 Overview of control motors of air conditioner", page 33*.
- ◆ *The control motors and connectors are identical. If these are incorrectly installed or connected, the corresponding flaps can no longer be properly matched and/or activated.*
- ◆ *Mark control motors and connectors clearly before detaching or removing to prevent incorrect installation.*

- Remove the rear air distribution housing -C-
⇒ [“6.5 Removing and installing air intake box of heater and air conditioning unit”, page 544](#).
- Unplug connector -A-.
- Turn the sender -B- through 90° -arrow- and remove.

Installing

Install in reverse order of removal; note the following.

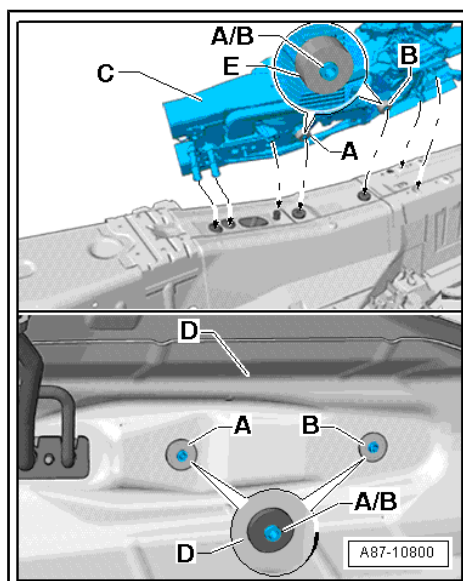
- Check that seal -C- is not damaged and is seated correctly.
- Re-install all components removed in reverse order.
- Perform basic setting and final control diagnosis for the air conditioner (to check operation) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
⇒ [“1.10.1 Overview of control motors of air conditioner”, page 33](#).
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

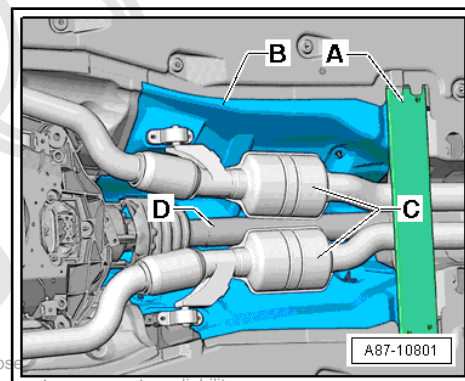
6.10 Checking condensation drain hose





Note

- ◆ The front condensation drain of the rear air conditioning unit -A- can be checked from below with the rear air conditioning unit -C- installed and the heat shield below the centre tunnel removed.
- ◆ The rear condensation drain of the rear air conditioning unit -B- can currently be checked from below with the rear air conditioning unit -C- and the heat shield below the centre tunnel installed.
- ◆ On the version of the heat shield fitted in the centre tunnel at the start of production, the condensation drain -B- can be checked from below with the exhaust system and propshaft installed (the heat shield in the centre tunnel does not extend as far as the drain). If a longer heat shield is introduced at a later date, the rear air conditioning unit or the heat shield in the centre tunnel will have to be removed in order to check the condensation drain
- ◆ This illustration shows the bottom of the centre tunnel -D- and the condensation drains of the air conditioning unit -A- and -B- from below with the exhaust system and the propshaft removed.
- ◆ Unfasten the cross-piece -A-, exhaust system -C-, propshaft -D- and heat shield -B- from the vehicle and remove ⇒ Axle drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft and ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor .



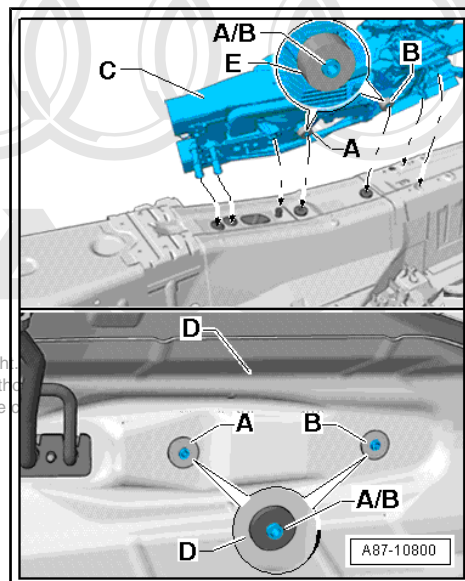
Checking

- Unfasten the heat shield -B- in the centre tunnel from the vehicle or remove it (only if the front condensation drains is to be checked) ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor .

- Use a piece of wire for example to clean the condensation drain -B- from underneath (with the vehicle raised and the heat shield fitted).
- Use a piece of wire for example to clean the condensation drain -A- from underneath (with the vehicle raised and the heat shield removed).


Note

- ◆ *The condensation drains -A- and -B- must not be gummed up with wax or underseal.*
- ◆ *There is no valve at the two condensation drains -A- and -B-.*
- ◆ *When fitting the heat shield below the centre tunnel, ensure that it does not make contact with the condensation drains -A- (and -B-).*
- ◆ *The two condensation drains -A- and -B- are sealed off internally from the bottom of the centre console -D- by the foam seal -E-.*
- ◆ *To enable the condensation to drain out of the vehicle, the condensation drains -A- and -B- must project slightly out of the bottom of the centre console -D-.*
- ◆ *The front drain of the two condensation drains -A- (fitted in the area beneath the rear fresh air blower - V80-) can also be checked from above with -V80- removed*
 ⇒ *"6.6.2 Removing and installing rear fresh air blower V80 - vehicles with rear air conditioning unit", page 548 .*



7 Air duct

⇒ [“7.1 Exploded view of air routing and air distribution in passenger compartment”, page 569](#)

⇒ [“7.2 Air intake and air outlet openings”, page 575](#)

⇒ [“7.3 Removing and installing driver side footwell vent”, page 584](#)

⇒ [“7.4 Removing and installing passenger side footwell vent”, page 584](#)

⇒ [“7.5 Removing and installing rear footwell vent”, page 585](#)

⇒ [“7.6 Removing and installing air ducts”, page 586](#)

⇒ [“7.7 Removing and installing passenger compartment forced air extractor”, page 592](#)

⇒ [“7.8 Checking passenger compartment forced air extraction”, page 592](#)

⇒ [“7.9 Removing and installing fresh air intake”, page 594](#)

⇒ [“7.10 Checking plenum chamber water drain”, page 596](#)

⇒ [“7.11 Cleaning plenum chamber water drain”, page 597](#)

7.1 Exploded view of air routing and air distribution in passenger compartment

⇒ [“7.1.1 Exploded view of air routing and air distribution in passenger compartment”, page 569](#)

⇒ [“7.1.2 Air ducts and vents at rear of passenger compartment”, page 572](#)

7.1.1 Exploded view of air routing and air distribution in passenger compartment

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1 - Dash panel

- ❑ With air ducts to the defroster vents and the various dash panel vents
- ❑ Different versions ⇒ Electronic parts catalogue .
- ❑ Removing and installing ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel

2 - Indirect ventilation vent

3 - Defroster vent / windscreen

- ❑ Air duct to windscreen
- ❑ Remove and install ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing front centre defroster vent
- ❑ Crushing or squashing of the air duct / defrost intermediate piece ⇒ **Item 14 (page 572)** on installing the dash panel will result in uneven or inadequate air routing to the windscreen.

4 - Vent to front right door (front passenger's door)

- ❑ Removing and installing ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel side cover

5 - Right side vent with potentiometer in right side vent - G629-

- ❑ Remove and install left side vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents
- ❑ Checking -G629- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

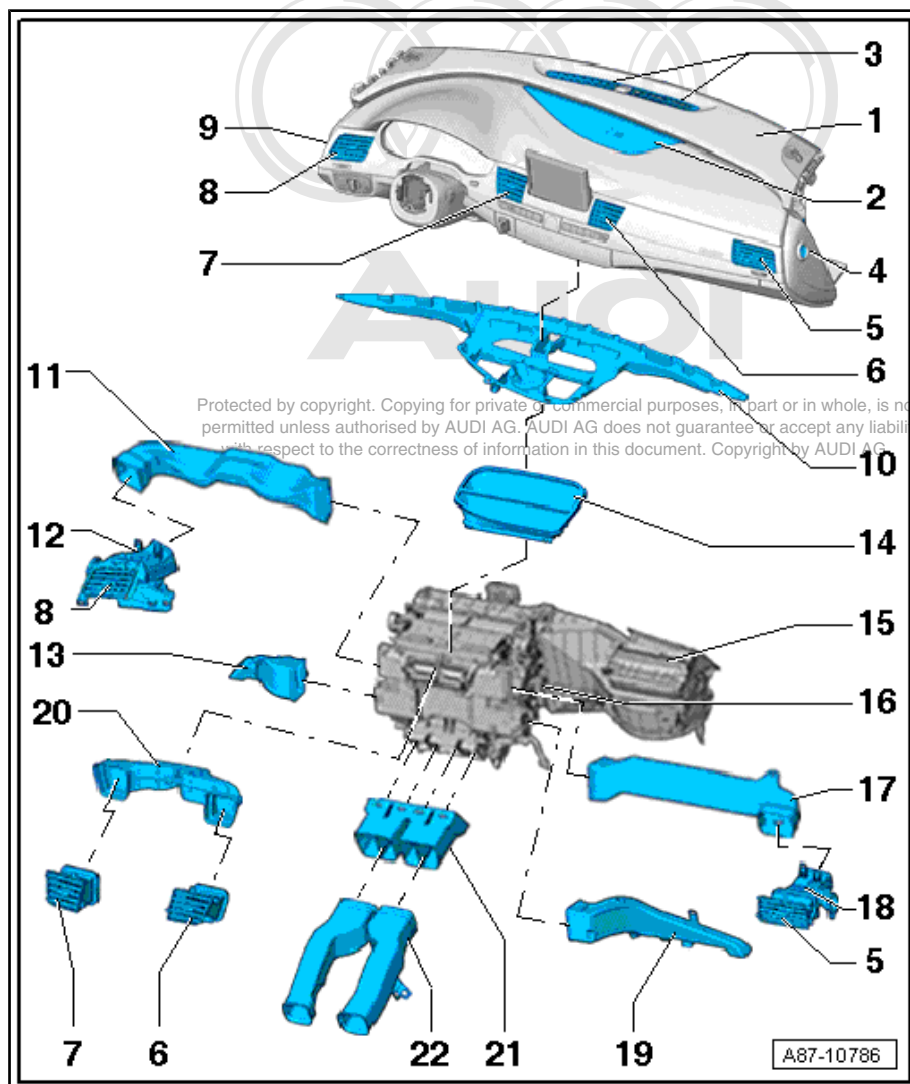


Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

6 - Right centre vent with potentiometer in right centre dash panel vent - G627-

- ❑ Remove and install centre dash panel vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents
- ❑ Checking -G627- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode





Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode.

7 - Left centre vent with potentiometer in left centre dash panel vent - G626-

- ☐ Remove and install centre dash panel vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents
- ☐ Checking -G626- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode.

8 - Left side vent with potentiometer in left side vent - G628-

- ☐ Remove and install left side vents ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vents
- ☐ Checking -G628- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the air conditioner front operating and display unit, Climatronic control unit - J255- → Vehicle diagnostic tester in "Guided Fault Finding" mode.

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9 - Vent to front left door (driver's door)

- ☐ Removing and installing ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel side cover

10 - Air duct / dash panel

- ☐ With air ducts to the defroster vents and the various dash panel vents to the windscreen
- ☐ Different versions ⇒ Electronic parts catalogue .
- ☐ Air duct forms part of dash panel ⇒ [Item 1 \(page 570\)](#) and cannot be renewed separately
- ☐ Removing and installing dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel

11 - Air duct to left dash panel vent and side window

- ☐ ⇒ ["7.6.2 Removing and installing air duct to left dash panel vent and side window", page 587](#)

12 - Air duct with defrost flap and control motor for left side window defroster flap - V409-

- ☐ ⇒ ["4.24 Removing and installing control motor for left side window defroster flap V409", page 407](#)
- ☐ ⇒ ["7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window", page 586](#)

13 - Front left footwell vent

- ☐ ⇒ ["7.3 Removing and installing driver side footwell vent", page 584 .](#)

14 - Intermediate piece for air duct / defrost

- ☐ Different versions ⇒ Electronic parts catalogue
- ☐ Crushing or squashing of the air duct / defrost intermediate piece on installing the dash panel will result in uneven or inadequate air routing to the windscreen

15 - Air conditioning unit with air-intake box

- ☐ Different versions
⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#)
and ⇒ Electronic parts catalogue
- ☐ ⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)
- ☐ ⇒ [“5.11 Removing and installing air intake box of front air conditioning unit”, page 495](#)
- ☐ Air intake, air outlet and routing of air flow in air conditioning unit
⇒ [“7.2.2 Air routing in air intake box and front air conditioning unit”, page 577](#)

16 - Air duct for glove box cooling

- ☐ Check foam seal for glove box for damage
- ☐ ⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)

17 - Air duct to right dash panel vent and side window

- ☐ ⇒ [“7.6.4 Removing and installing air duct to right dash panel vent and side window”, page 589](#)

18 - Air duct with defrost flap and control motor for right side window defroster flap - V410-

- ☐ ⇒ [“4.25 Removing and installing control motor for right side window defroster flap V410”, page 409](#)
- ☐ ⇒ [“7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window”, page 588](#)

19 - Front right footwell vent

- ☐ ⇒ [“7.4 Removing and installing passenger side footwell vent”, page 584](#)

20 - Air duct to dash panel centre vents**21 - Air duct****22 - Air duct**

- ☐ From front air conditioning unit to rear air conditioning unit / rear air distribution housing
- ☐ Removing and installing
⇒ [“6.5 Removing and installing air intake box of heater and air conditioning unit”, page 544](#)

7.1.2 Air ducts and vents at rear of passenger compartment

**Note**

- ◆ *The B-pillar trim, floor covering and front seats and / or rear seat bench must be removed irrespective of the fitting location of the air duct and the vents in order to remove the rear air ducts ⇒ General body repairs, interior; Rep. gr. 70; Passenger compartment trim; Removing and installing B-pillar trim, ⇒ General body repairs, interior; Rep. gr. 70; Passenger compartment trim panels; Removing and installing floor covering, ⇒ General body repairs, interior; Rep. gr. 72; Front seats; Removing and installing front seat, ⇒ General body repairs, interior; Rep. gr. 72; Rear seats; Removing and installing seat bench / individual seats.*
- ◆ *Remove and install vents and air ducts in “B” pillars ⇒ General body repairs, interior; Rep. gr. 70; Passenger compartment trim; Removing and installing B-pillar trim*

1 - Air duct

2 - Air duct

- ☐ From front air conditioning unit to rear air conditioning unit / rear air distribution housing
- ☐ Removing and installing
⇒ ["6.5 Removing and installing air intake box of heater and air conditioning unit", page 544](#)

3 - Rear air conditioning unit / rear air distribution housing

- ☐ ⇒ ["7.2.4 Routing of air flow in air conditioning unit \(rear\)", page 582](#)
- ☐ ⇒ ["7.2.3 Air routing in rear air distribution housing", page 580](#)

4 - Footwell vent beneath right seat (front passenger's seat)

- ☐ Removing and installing
⇒ [page 585](#)

5 - Floor covering

- ☐ Lift, remove and install
⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering .

6 - Air duct to footwell vent beneath right seat (front passenger's seat)

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering

7 - Air duct to footwell vent beneath right seat (front passenger's seat)

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering

8 - Air duct to footwell vent beneath right seat (front passenger's seat)

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering
- ☐ Different versions for vehicles with rear air conditioning unit (with installation opening for temperature sensor) / rear air distribution housing (no opening)
⇒ ["10.15 Removing and installing vent temperature sender for rear right footwell G638 ", page 654](#) and
⇒ Electronic parts catalogue

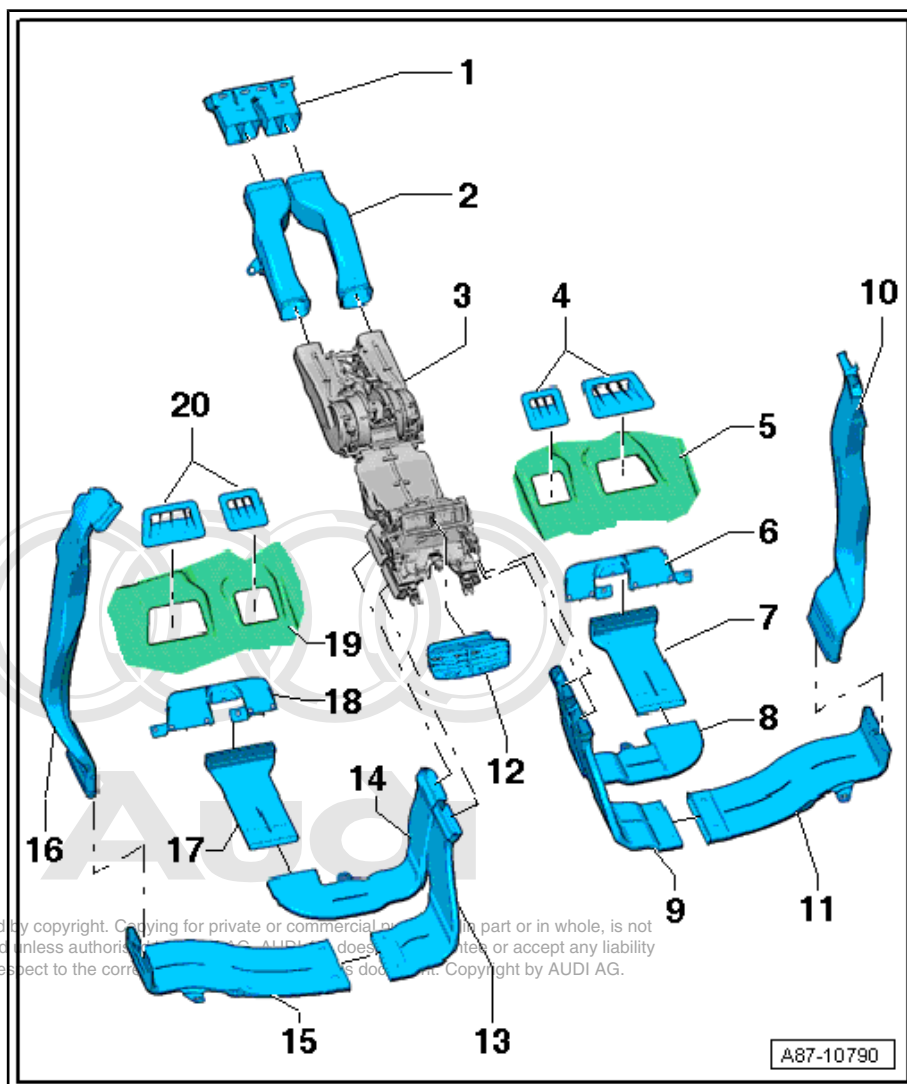


Note

On vehicles with no temperature sensor, use adhesive tape for example to provide an airtight seal for the installation opening in the air duct if applicable.

9 - Air duct to vent in right B-pillar

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering



10 - Air duct in right B-pillar

- ❑ Remove and install ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim
- ❑ Different versions for vehicles with and without control unit for air ionisation system - J897- ⇒ ["10.6 Removing and installing control unit for air ionisation system J897", page 649](#) and ⇒ Electronic parts catalogue



Note

On vehicles with no control unit for air ionisation system J897, use adhesive tape for example to provide an airtight seal for the installation opening in the air duct if applicable.

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11 - Air duct to vent in right B-pillar

- ❑ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering
- ❑ Different versions for vehicles with rear air conditioning unit (with installation opening for temperature sensor) / rear air distribution housing (no opening) ⇒ ["10.13 Removing and installing rear right chest vent temperature sender G636", page 653](#) and ⇒ Electronic parts catalogue



Note

On vehicles with no temperature sensor, use adhesive tape for example to provide an airtight seal for the installation opening in the air duct if applicable.

12 - Vent in centre console (rear)

- ❑ Remove and install vents ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console
- ❑ Different versions ⇒ Electronic parts catalogue
- ❑ With potentiometer in rear left chest vent - G630- and potentiometer for rear right chest vent - G631- ⇒ Electronic parts catalogue



Note

After replacing the potentiometer (for learning the end stops), perform adaption of the rear Climatronic operating and display unit - E265- and the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

13 - Air duct to vent in left B-pillar

- ❑ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering

14 - Air duct to footwell vent beneath left seat (driver's seat)

- ❑ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering
- ❑ Different versions for vehicles with rear air conditioning unit (with installation opening for temperature sensor) / rear air distribution housing (no opening) ⇒ ["10.14 Removing and installing vent temperature sender for rear left footwell G637", page 653](#) and ⇒ Electronic parts catalogue



Note

On vehicles with no temperature sensor, use adhesive tape for example to provide an airtight seal for the installation opening in the air duct if applicable.

15 - Air duct to vent in left B-pillar

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering
- ☐ Different versions for vehicles with rear air conditioning unit (with installation opening for temperature sensor) / rear air distribution housing (no opening)
 ⇒ ["10.12 Removing and installing rear left chest vent temperature sender G635", page 652](#) and ⇒ Electronic parts catalogue



Note

On vehicles with no temperature sensor, use adhesive tape for example to provide an airtight seal for the installation opening in the air duct if applicable.

16 - Air duct in right B-pillar

- ☐ Remove and install ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim

17 - Air duct to footwell vent beneath left seat (driver's seat)

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering

18 - Air duct to footwell vent beneath left seat (driver's seat)

- ☐ Removal involves unfastening the floor covering from the vehicle ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering

19 - Floor covering

- ☐ Lift, remove and install ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing floor covering .

20 - Footwell vent beneath left seat (driver's seat)

- ☐ Removing and installing ⇒ [page 585](#)

7.2 Air intake and air outlet openings

⇒ ["7.2.1 Air intake and air outlet openings in front air conditioning unit", page 575](#)

⇒ ["7.2.2 Air routing in air intake box and front air conditioning unit", page 577](#)

⇒ ["7.2.3 Air routing in rear air distribution housing", page 580](#)

⇒ ["7.2.4 Routing of air flow in air conditioning unit \(rear\)", page 582](#)

7.2.1 Air intake and air outlet openings in front air conditioning unit

The passenger compartment is ventilated via two ventilation frames (on left and right of luggage compartment in area of bumper)

⇒ ["7.7 Removing and installing passenger compartment forced air extractor", page 592](#) .

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1 - Air-intake box

- ❑ ⇒ [“5.11 Removing and installing air intake box of front air conditioning unit”, page 495](#)
- ❑ ⇒ [“5.3 Exploded over-view - air intake box of heater and air conditioning unit”, page 450](#)

2 - Air conditioning unit

- ❑ Different versions
⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#) and ⇒ Electronic parts catalogue
- ❑ ⇒ [“5.10 Removing and installing heater and air conditioning unit”, page 484](#)

3 - Fresh air blower - V2- with control unit for fresh air blower - J126-

- ❑ ⇒ [“5.14.1 Removing and installing fresh air blower V2 with fresh air blower control unit J126”, page 504](#)
- ❑ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

4 - Air duct for glove box cooling

- ❑ Check foam seal for glove box for damage
- ❑ ⇒ [“7.6.5 Removing and installing air duct for glove box cooling”, page 590](#)

5 - Condensation drains

- ❑ One condensation drain each on left and right (driver's and front passenger's side)
- ❑ ⇒ [“5.16 Removing and installing condensation drain”, page 518](#)

6 - Fresh air intake

- ❑ Air is drawn in from plenum chamber ⇒ [“7.9 Removing and installing fresh air intake”, page 594](#) .

7 - Air intake from passenger compartment (air recirculation mode)

- ❑ The air is drawn in underneath the glove box from the passenger's footwell.

8 - Air outlet to dash panel defroster vent

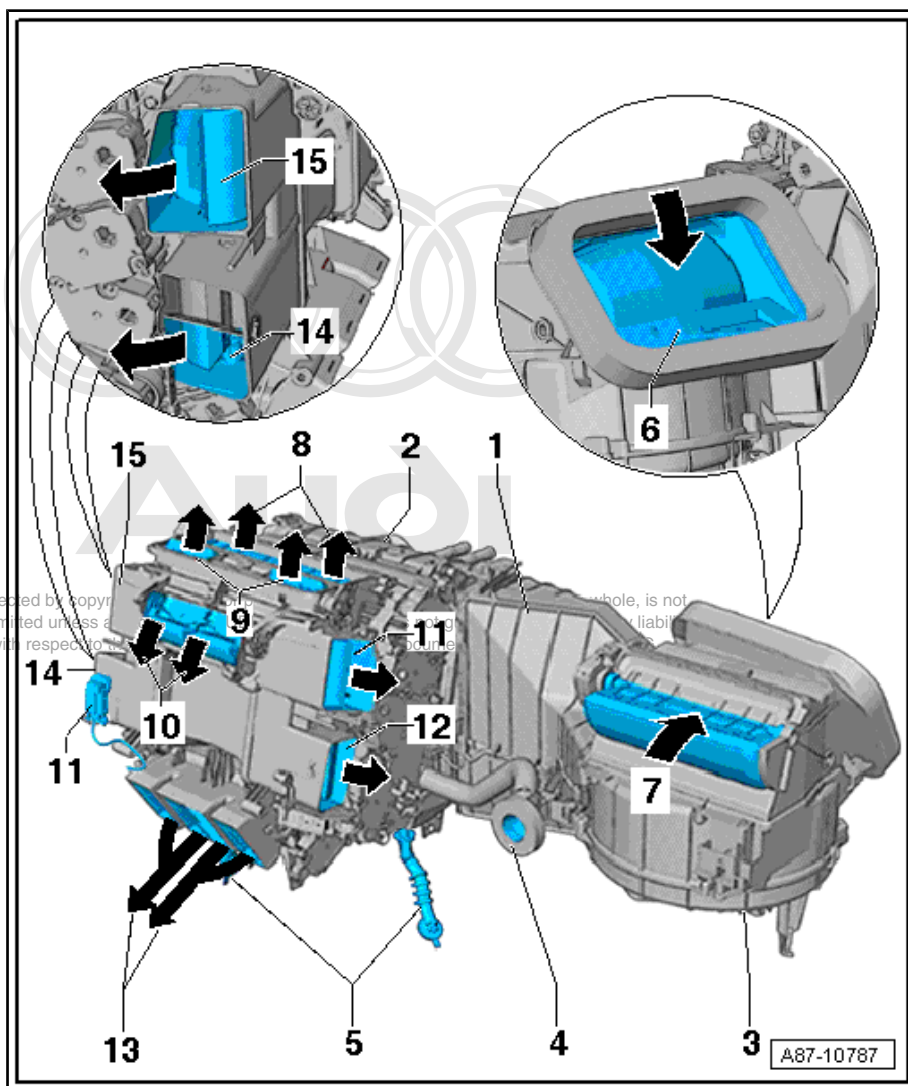
- ❑ Different air temperatures are possible for the left and right side depending on the setting
⇒ [“7.2.2 Air routing in air intake box and front air conditioning unit”, page 577](#) .

9 - Air outlet to indirect ventilation vent (left-side)

- ❑ Different air temperatures are possible for the left and right side depending on the setting
⇒ [“7.2.2 Air routing in air intake box and front air conditioning unit”, page 577](#) .

10 - Air outlet to dash panel centre vent

- ❑ Different air temperatures are possible for the left and right side depending on the setting
⇒ [“7.2.2 Air routing in air intake box and front air conditioning unit”, page 577](#) .



- 11 - Air outlet to right dash panel vents
- 12 - Air outlet to footwell vent (front right)
- 13 - Air outlet to rear air conditioning unit / rear air distribution housing
- 14 - Air outlet to footwell vent (front left)
- 15 - Air outlet to left dash panel vents

7.2.2 Air routing in air intake box and front air conditioning unit



Note

- ◆ *To permit illustration of the air routing in the air intake box and air conditioning unit, the two components are shown in the form of sectional views "A - A", "B - B" and "C - C".*
- ◆ *On vehicles with glove box cooling, the cooled air routed into the glove box is tapped directly downstream of the evaporator
⇒ [Item 8 \(page 578\)](#).*
- ◆ *The front air conditioning unit is fitted with partitions (not shown in detail here) to permit separate regulation of the temperature of the air from the front vents.*
- ◆ *The passenger compartment is vented by way of two ventilation frames (on the left and right of the luggage compartment in the area of the bumper)
⇒ ["7.7 Removing and installing passenger compartment forced air extractor", page 592](#).*

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1 - Front air conditioning unit

- ❑ Different versions depending on vehicle model
⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#) and ⇒ Electronic parts catalogue

2 - Air-intake box

3 - Air intake from passenger compartment (air recirculation mode)

- ❑ When air recirculation flap is open, air is drawn in beneath glove box from passenger's foot-well
- ❑ Illustration shows the air-recirculation flap in “closed” position.

4 - Fresh air intake

- ❑ Air is drawn in from plenum chamber
⇒ [“7.9 Removing and installing fresh air intake”, page 594](#).

5 - Fresh air blower - V2- with control unit for fresh air blower - J126-

6 - Dust and pollen filter

- ❑ There are different versions of the dust and pollen filter

⇒ [“3.11.5 Notes on dust and pollen filter with activated charcoal element”, page 115](#) and ⇒ Electronic parts catalogue .

7 - Air-intake box, bottom section (with fitted components)

- ❑ This illustration shows an “A - A” sectional view of the air intake box.

8 - Evaporator

9 - Air conditioning unit, bottom section (with fitted components)

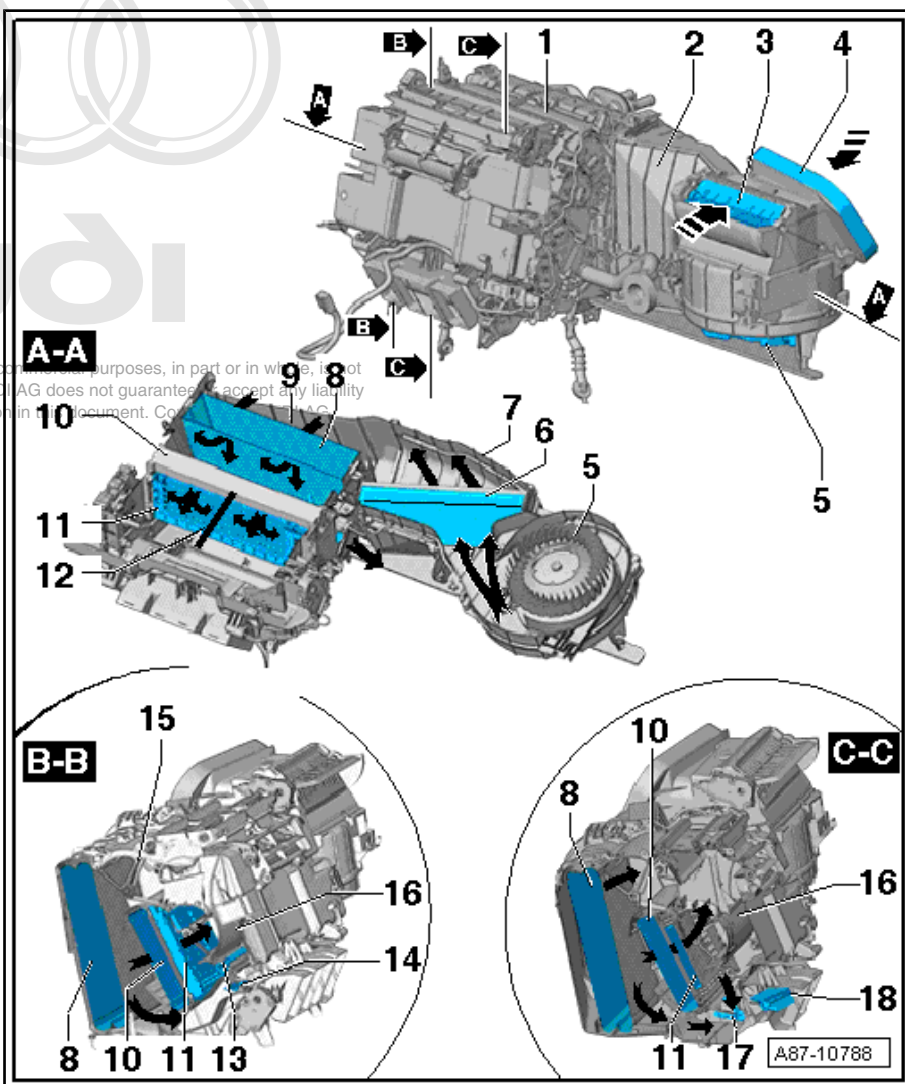
- ❑ This illustration shows an “A - A” sectional view of the air conditioning unit.

10 - Heat exchanger for heater

- ❑ ⇒ [“5.15 Removing and installing heat exchanger”, page 507](#)

11 - Auxiliary air heater element - Z35- (with auxiliary air heater control unit - J604-)

- ❑ -Z35- with -J604- is currently fitted on vehicles with a diesel engine and vehicles with a high-voltage system (hybrid vehicles with petrol engine)
⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#) .
- ❑ Vehicles with petrol engine and no high-voltage system are currently not fitted with a -Z35-
- ❑ Vehicles with diesel engine on which an auxiliary heater fitted as optional extra is activated as supplementary heater have no -Z35- (introduction not yet finalised)
⇒ [“5.7.1 Checking electric supplementary heater”, page 470](#) .
- ❑ Different versions of air conditioning unit (with and without mounting slot for -Z35-)
⇒ [“5.1 Exploded view - heater/air conditioning unit and air intake box add-on components”, page 440](#) and ⇒ Electronic parts catalogue .



12 - Partition

- ☐ Separates the flow of air to the left and right vents; prerequisite for different air outlet temperatures depending on the position of the corresponding temperature flaps.

13 - Temperature flap for warm air to front left footwell vent

- ☐ This illustration shows the temperature flap in the "centre" position.
- ☐ The front right and left temperature flaps are actuated by one control motor each.
- ☐ The temperature flaps for cold and warm air for one side are actuated by a control motor by way of an arm and a cam plate.

14 - Temperature flap for cold air to front left footwell vent

- ☐ This illustration shows the temperature flap in the "centre" position.
- ☐ The front right and left temperature flaps are actuated by one control motor each.
- ☐ The temperature flaps for cold and warm air for one side are actuated by a control motor by way of an arm and a cam plate.

15 - Temperature flap for cold air to right dash panel vents

- ☐ This illustration shows the temperature flap in the "centre" position.
- ☐ The front right and left temperature flaps are actuated by one control motor each.
- ☐ The temperature flaps for cold and warm air for one side are actuated by a control motor by way of an arm and a cam plate.

16 - Temperature flap for warm air to right dash panel vents

- ☐ This illustration shows temperature flap in "heating" position.
- ☐ The front right and left temperature flaps are actuated by one control motor each.
- ☐ The temperature flaps for cold and warm air for one side are actuated by a control motor by way of an arm and a cam plate.

17 - Temperature flap for air to rear air conditioning unit / rear air distribution housing

- ☐ This illustration shows the temperature flap in the "centre" position.
- ☐ There is only one air flap for the 4 vents to the rear air conditioning unit / rear air distribution housing.
- ☐ On vehicles with a rear air distribution housing, the temperature of the air emerging from the rear vents is regulated via this flap by the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ☐ On vehicles with a rear air conditioning unit, the temperature of the air drawn in by the rear air conditioning unit from the front air conditioning unit, is regulated via this flap by -J255- . The temperature of the air emerging from the rear vents is regulated by the rear Climatronic operating and display unit - E265- by way of components fitted in the rear air conditioning unit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

18 - Air flap for air to rear air conditioning unit / rear air distribution housing

- ☐ This illustration shows the air flap in the "centre" position.
- ☐ There is only one air flap for the 4 vents to the rear air conditioning unit / rear air distribution housing.
- ☐ On vehicles with a rear air distribution housing, the air flow from the rear vents is regulated via this flap and the speed of the rear fresh air blower - V80- by the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ☐ On vehicles with a rear air conditioning unit, the flow of air drawn in by the rear air conditioning unit from the front air conditioning unit is regulated via this flap and the speed of -V80- by -J255- and the rear Climatronic operating and display unit - E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ☐ The rear air conditioning unit is additionally fitted with 2 air recirculation flaps. Depending on the setting of -E265- , the air recirculation flaps are actuated such that the air for the rear vents is drawn in either from the front air conditioning unit or beneath the centre console.

7.2.3 Air routing in rear air distribution housing



Note

- ◆ *The temperature of the air from the rear vents is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- by way of the setting for the front vents, the measured value of the temperature sensor for rear intake air temperature - G639- and the settings at the potentiometer in rear left chest vent - G630- and potentiometer for rear right chest vent - G631- → Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *No flaps are fitted inside the rear air distribution housing. Flaps are only installed in the vents for regulation of the air flow to the individual vents.*
- ◆ *The various flaps in the vents of the rear air distribution housing are operated by control motors actuated by the air conditioner front operating and display unit, Climatronic control unit - J255-
⇒ "4.3.1 Rear air distribution housing components, excluding air distribution housing", page 337 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Air routing and air distribution in the passenger compartment are identical for vehicles with a rear air conditioner and a rear air distribution housing.*

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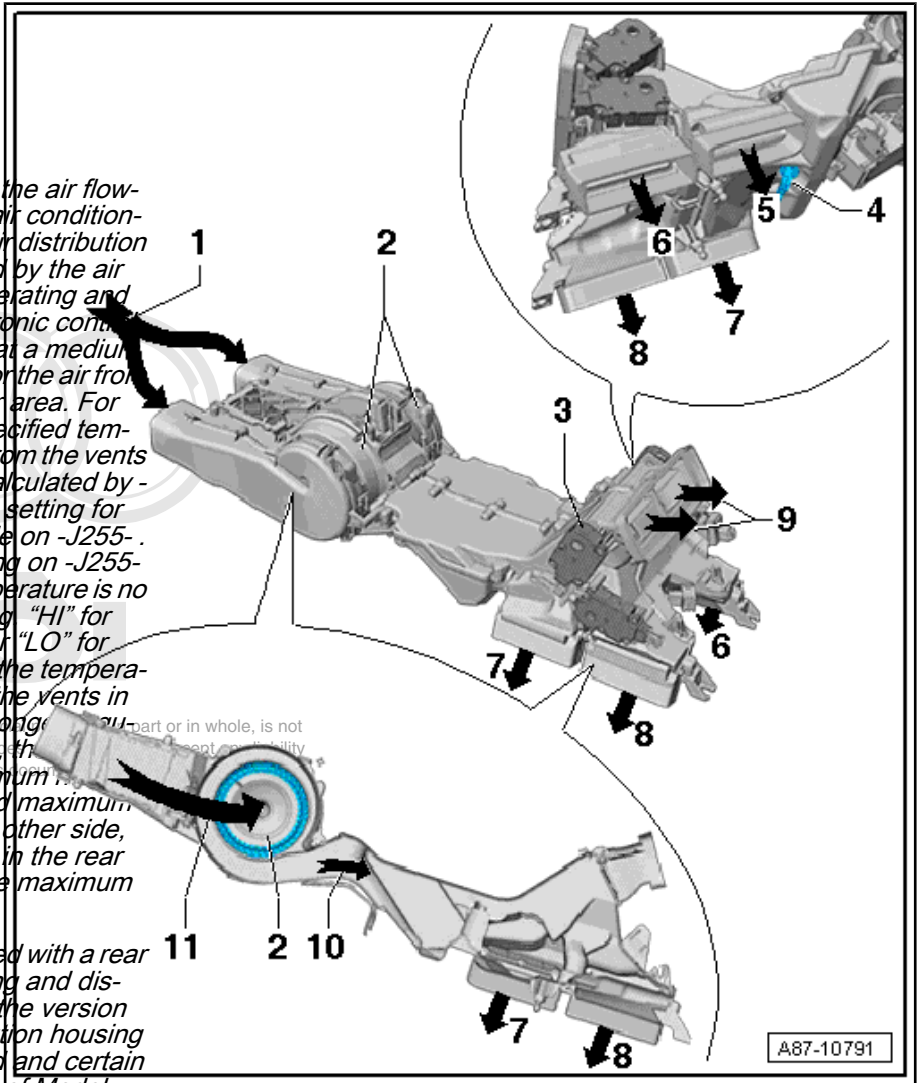
1 - Air inlet from front air conditioning unit into rear air distribution housing



Note

- ◆ The temperature of the air flowing out of the front air conditioning unit to the rear air distribution housing is regulated by the air conditioner front operating and display unit, Climatronic control unit - J255- such that a medium temperature is set for the air from the vents in the rear area. For this purpose the specified temperature for the air from the vents in the rear area is calculated by -J255- by way of the setting for the left and right side on -J255-. If however the setting on -J255- is such that the temperature is no longer regulated (e.g. "HI" for maximum heating or "LO" for maximum cooling), the temperature of the air from the vents in the rear area is no longer regulated. If for example, the setting on -J255- are maximum heating "HI" for one side and maximum cooling "LO" for the other side, the air for the vents in the rear area is heated to the maximum level.

- ◆ On vehicles also fitted with a rear Climatronic operating and display unit - E265- in the version with rear air distribution housing (e.g. Audi A8 Hybrid and certain country versions as of Model Year 2013). The rear air temperature and air flow calculated and regulated by -J255- are also influenced by the setting on -E265- ⇒ ["9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632](#).



2 - Rear fresh air blower - V80-

- ⇒ ["6.6 Removing and installing rear fresh air blower V80", page 547](#)
- Checking function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

3 - Rear air distribution housing

- ⇒ ["4.3.1 Rear air distribution housing components, excluding air distribution housing", page 337](#)

- 4 - Temperature sensor for rear intake air temperature - G639-
- 5 - Air outlet to footwell vent beneath right seat (front passenger's seat)
- 6 - Air outlet to vent in right B-pillar
- 7 - Air outlet to footwell vent beneath left seat (driver's seat)
- 8 - Air outlet to vent in left B-pillar
- 9 - Air outlet to vent in centre console
- 10 - Air outlet from rear fresh air blower - V80- to distribution housing
- 11 - Air inlet into rear fresh air blower - V80-

7.2.4 Routing of air flow in air conditioning unit (rear)



Note

- ◆ *The rear air conditioning unit and the rear Climatronic operating and display unit - E265- are optional extras.*
- ◆ *The temperature of the air from the rear vents is regulated by the rear Climatronic operating and display unit - E265- by way of various settings and measured values ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *The various flaps in the vents of the rear air conditioning unit are actuated by control motors operated by -E265- ⇒ "4.3 Overview of fitting locations - control motors at rear", page 337 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *Incorporation of air conditioner (rear) into coolant and refrigerant circuit ⇒ "8.1.4 Incorporation of air conditioner (rear) into refrigerant and coolant circuit", page 605*

1 - Air inlet from front air conditioning unit into rear air conditioning unit (fresh air mode)

2 - Air inlet from area beneath centre console (air recirculation mode)

3 - Rear fresh air blower - V80-

❑ ⇒ [“6.6 Removing and installing rear fresh air blower V80”, page 547](#)

❑ Checking function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

4 - Air conditioning unit (rear)

❑ ⇒ [“4.3 Overview of fitting locations - control motors at rear”, page 337](#)

5 - Air outlet to footwell vent beneath right seat (front passenger's seat)

6 - Air outlet to vent in right B-pillar

7 - Air outlet to footwell vent beneath left seat (driver's seat)

8 - Air outlet to vent in left B-pillar

9 - Air outlet to vent in centre console (right)

10 - Air outlet to vent in centre console (left)

11 - Heat exchanger in air conditioning unit (rear)

❑ ⇒ [“6.8 Removing and installing heat exchanger”, page 553](#)

12 - Evaporator in air conditioning unit (rear)

❑ Removing and installing (only possible with rear air conditioning unit removed)
⇒ [“6.3 Removing and installing evaporator”, page 530](#)

13 - Upper temperature flap

❑ The temperature flap is shown in the “heating” position

❑ One temperature flap each for the left and right side is provided for separate regulation of the temperature from the left and right vents

❑ The upper and lower temperature flap on one side are actuated by one control motor in each case. They are connected by way of a cam plate and an actuating arm

⇒ [“4.3 Overview of fitting locations - control motors at rear”, page 337](#) .

14 - Lower temperature flap

❑ The temperature flap is shown in the “heating” position

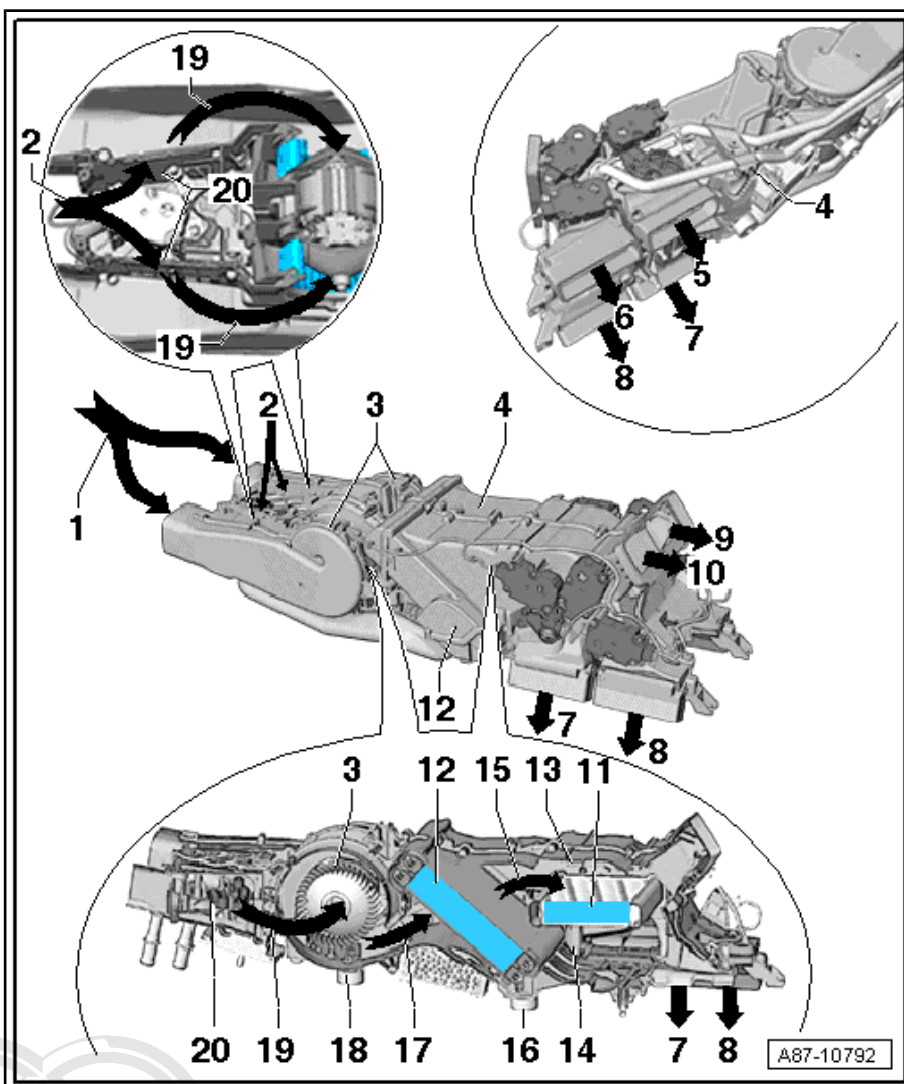
❑ Two temperature flaps each for the left and right side are provided for separate regulation of the temperature from the left and right vents

❑ The upper and lower temperature flap on one side are actuated by one control motor in each case. They are connected by way of a cam plate and an actuating arm

⇒ [“4.3 Overview of fitting locations - control motors at rear”, page 337](#) .

15 - Air outlet from evaporator

❑ In this case to the heat exchanger, as the temperature flaps are shown in “heating” position



16 - Condensation drain beneath evaporator**17 - Air outlet from rear fresh air blower - V80- into evaporator****18 - Condensation drain beneath rear fresh air blower - V80-****19 - Air inlet into rear fresh air blower - V80-**

- ❑ From the front air conditioning unit or the area beneath the centre console depending on the position of the air recirculation flaps

20 - Air recirculation flaps in rear air conditioning unit

- ❑ This illustration shows the two air recirculation flaps in the "air intake from front air conditioning unit" position.
- ❑ The two air recirculation flaps are operated by the rear air recirculation flap control motor - V421- which is actuated by the rear Climatronic operating and display unit - E265- .
- ❑ When the air recirculation flaps are open, the air is not drawn in by the rear fresh air blower - V80- from the front air conditioning unit, but rather beneath the centre console.

7.3 Removing and installing driver side footwell vent

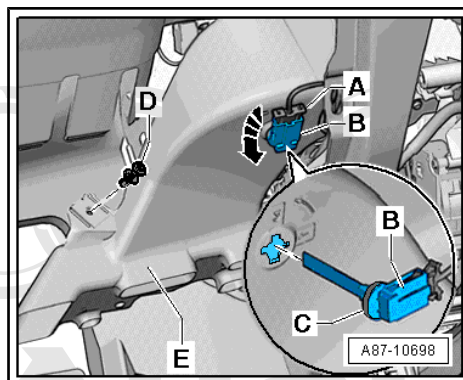
Removing

- Move driver seat to rearmost position.
- Switch off ignition.
- Remove the storage compartment beneath the dash panel on the driver side. ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim
- Unplug the connector -A- from the left footwell vent temperature sender - G261- -B-.
- Remove bolts -D-.
- Remove the left footwell vent -E-.

Installing

Install in reverse order of removal; note the following.

- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



7.4 Removing and installing passenger side footwell vent

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .

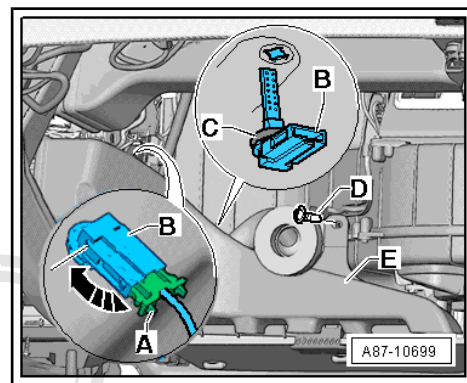
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- Unplug the connector -A- from the right footwell vent temperature sender - G262- -B-.
- Remove bolts -D-.
- Remove the right footwell vent -E-.

Installing

Install in reverse order of removal; note the following.

- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



7.5 Removing and installing rear footwell vent

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

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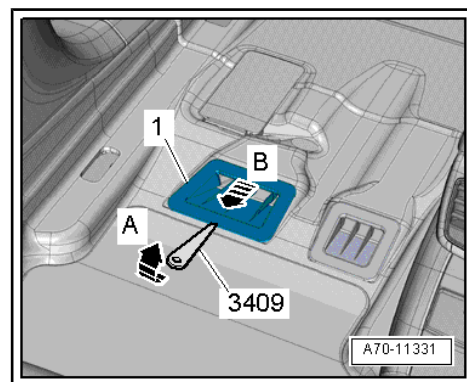


Removing

- Move the front seat as far forwards and upwards as it will go.
- Release footwell vent -1- using removal wedge - 3409- -arrow A- and pull back to remove from air duct -arrow B-.

Installing

Install in reverse order.



7.6 Removing and installing air ducts

⇒ ["7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window", page 586](#)

⇒ ["7.6.2 Removing and installing air duct to left dash panel vent and side window", page 587](#)

⇒ ["7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window", page 588](#)

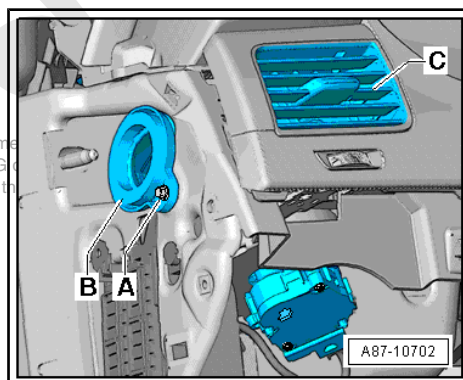
⇒ ["7.6.4 Removing and installing air duct to right dash panel vent and side window", page 589](#)

⇒ ["7.6.5 Removing and installing air duct for glove box cooling", page 590](#)

7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left dash panel vent -C- ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vent .
- Remove the bolt -A-.
- Remove the air duct to the left side window -B-.



- Unplug the connector -B- from the control motor for left side window defroster flap - V409- -C-.
- Remove the expanding rivet -A-.
- Remove the expanding rivet -E- by way of the opening in which the air duct for the left side window was fitted.
- Remove the expanding rivet -F- by way of the opening in which the air duct for the left side window was fitted or from underneath.
- Remove the air duct with the defrost flap for the left dash panel vent/side window -D-.

Installing

Install in reverse order of removal; note the following.

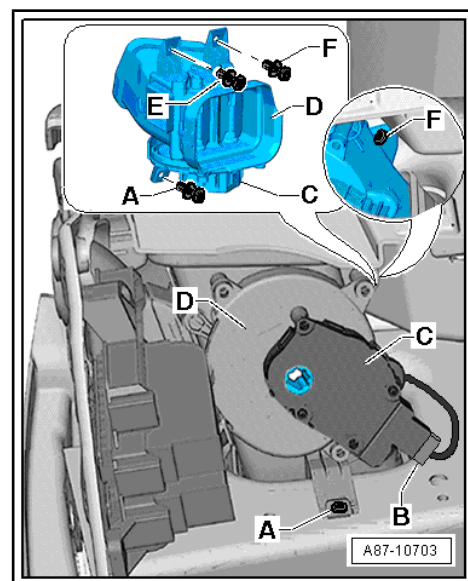
- Perform basic setting and final control diagnosis for the air conditioner ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
➔ **"1.10.1 Overview of control motors of air conditioner", page 33**.

– Interrogate the event memory of -J255- and erase any faults displayed ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.



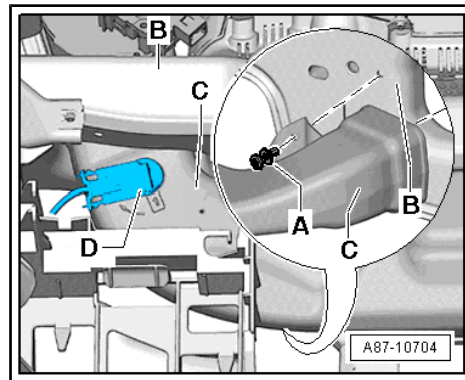
7.6.2 Removing and installing air duct to left dash panel vent and side window

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ➔ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim
- Remove left footwell vent (driver's side) ➔ **page 584**.



Note

- ◆ *The air duct to the left dash panel vent -C- is attached to the dash panel cross-member -B- using an expanding rivet -A-.*
- ◆ *The spreader rivet -A- can only be removed and installed after taking out the dash panel.*
- Remove the left vent temperature sender - G150- -D-
⇒ [“10.7 Removing and installing left vent temperature sender G150”, page 649](#) .
- Remove the dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove the air duct with the defrost flap for the left dash panel vent/side window
⇒ [“7.6.1 Removing and installing air duct with defrost flap for left dash panel vent/side window”, page 586](#) .
- Unfasten the steering column from the dash panel cross-member and lower carefully ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing steering column .
- Reach behind the air duct to the left dash panel vent -C- and remove the spreader rivet -A-.
- Carefully unfasten and remove the air duct to the left dash panel vent -C-.



Installing

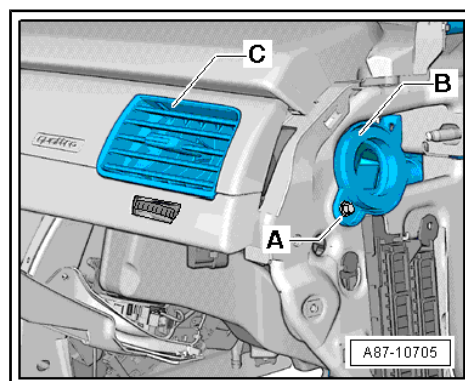
Install in reverse order of removal; note the following

- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

7.6.3 Removing and installing air duct with defrost flap for right dash panel vent/side window

Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right dash panel vent -C- ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel vent .
- Remove the bolt -A-.
- Remove the air duct to the right side window -B-.

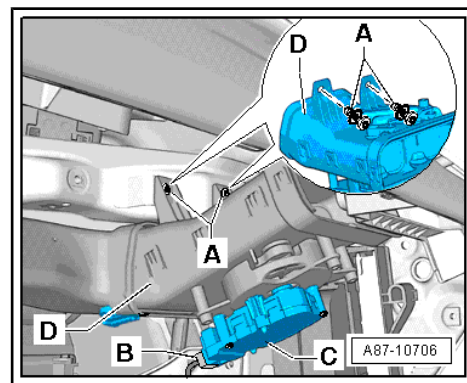


- Unplug the connector -B- from the control motor for right side window defroster flap - V410- -C-.
- Remove the expanding rivets -A-.
- Remove the air duct with the defrost flap for the right dash panel vent/side window -D-.

Installing

Install in reverse order of removal; note the following.

- Perform basic setting and final control diagnosis for the air conditioner ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



Note

- ◆ *The control motors on this vehicle are equipped with electronics. A new control motor only learns its position at the air conditioning unit in the course of basic setting and can then be activated by the air conditioner front operating and display unit, Climatronic control unit - J255- (all control motors are identical at present) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- ◆ *While you are performing the basic setting, the control motors are assigned and adapted in accordance with the series connection of the wiring. If the sequence is not as specified, the control motors will not be adapted properly and the flaps will not be controlled correctly*
 ⇒ ["1.10.1 Overview of control motors of air conditioner", page 33](#).
- Interrogate the event memory of -J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

7.6.4 Removing and installing air duct to right dash panel vent and side window

Removing

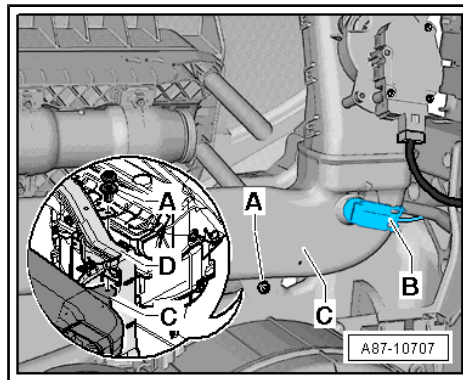
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ [General body repairs, interior; Rep. gr. 68; Shelves/storage compartments/covers; Removing and installing glove compartment](#)
- Remove the right footwell vent (front passenger's side)
 ⇒ [page 584](#).

- Remove the right vent temperature sender - G151- -B-
⇒ [page 650](#) .
- Reach behind the dash panel cross-member -D- and remove the expanding rivet -A-.
- Carefully unfasten and remove the air duct to the right dash panel vent -C-.

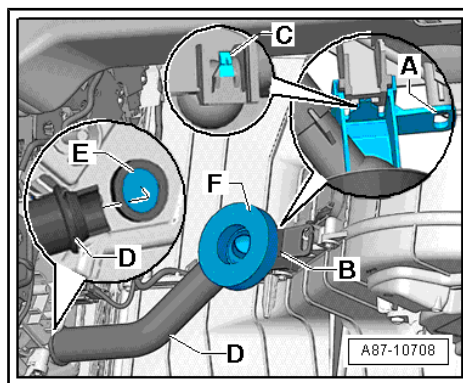
Installing

Install in reverse order of removal; note the following.

- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



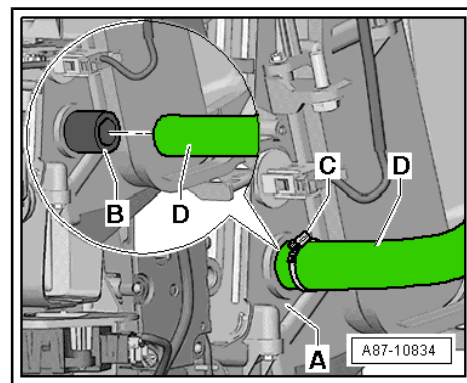
7.6.5 Removing and installing air duct for glove box cooling



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Note

- ◆ For glove box cooling, the cooled air from the air conditioning unit is routed into the glove box via the connection for glove box cooling -E- and the air duct -B- attached to the air intake box. The air duct to the glove box is sealed by the foam seal -F-.
- ◆ Noise may occur at the joint if the foam seal -F- is damaged or not making proper contact with the glove box.
- ◆ Noise may occur at the joint if the hose of the air duct -D- is not fitted properly in the opening in the air conditioning unit -E-.
- ◆ There are different versions of the air conditioning unit and the hose of the air duct -D-. With version "1" the hose of the air duct -D- is inserted in the opening -E- at the air conditioning unit (refer to illustration above). On version "2" the air conditioning unit is provided with a pipe connection -B-, to which the hose of the air duct -D- is attached. With version "2", secure the hose of the air duct -D- using a clip -C- for example to stop it slipping off the pipe connection -B- at the air conditioning unit -A-.



Removing

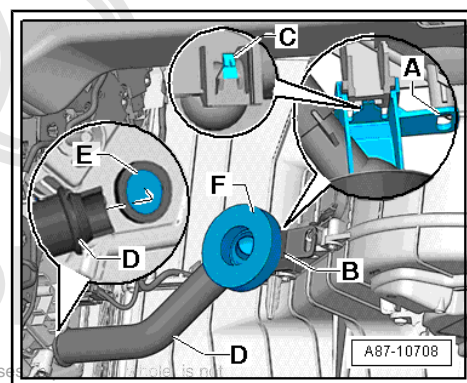
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side)
⇒ [page 584](#) .
- Release the fastener -C- and unfasten the air duct for glove box cooling -B- downwards from the mount at the air intake box.
- Release the hose of the air duct -D- from the opening in the air conditioning unit -E- (or detach from pipe connection).

Installing

Install in reverse order of removal; note the following.

Note

If the fastener -C- of the air duct for glove box cooling -B- does not properly engage in the mount at the air intake box, additionally secure the air duct -B- by way of the bolt for the footwell vent at the bracket -A-.



- On installing the glove box, pay attention to correct positioning of the foam seal -F- at the glove box opening.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

7.7 Removing and installing passenger compartment forced air extractor

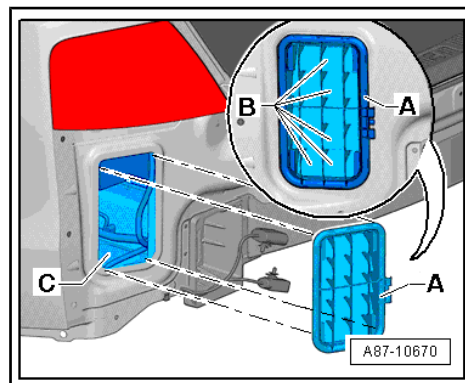
Checking, removing and installing ventilation frame for forced ventilation from outside:

- Remove the rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper; Removing and installing bumper cover .
- Check that ventilation frame (left and right) -A- is not blocked and that sealing lips -B- operate properly.

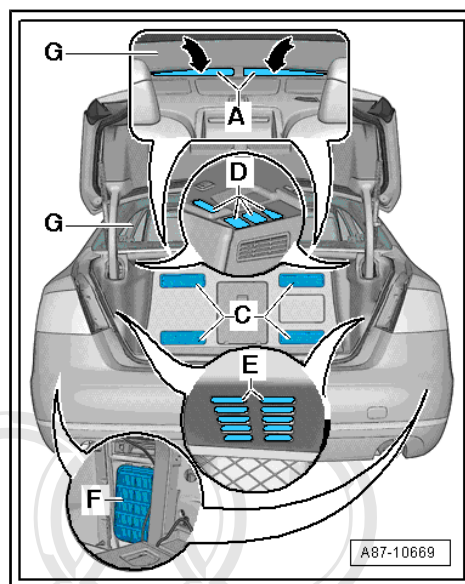


Note

- ◆ If the sealing lips -B- are stuck together, the windscreen, rear window and door windows can mist up.
- ◆ The sealing lips -B- only close properly if the ventilation frame -A- has been installed in the correct position.
- ◆ This illustration shows the ventilation frame -A- with the bumper cover (rear) removed.
- ◆ When installing, press ventilation frame -A- into opening at rear cross panel until all retaining tabs of the ventilation frame are properly engaged in the body.

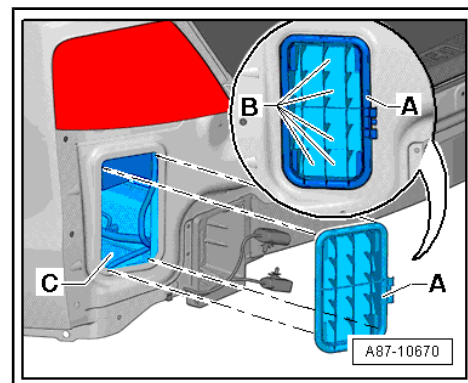


7.8 Checking passenger compartment forced air extraction



 Note

- ◆ On the Audi A8 Saloon, the passenger compartment is vented to the luggage compartment via the ventilation grilles -B- fitted in the area beneath the rear window -G- in the rear shelf -A-.
- ◆ The passenger compartment forced ventilation air is then routed into the luggage compartment via openings in the body leading to the ventilation openings -D- in the upper luggage compartment lining.
- ◆ The ventilation grilles -C- in the front wall of the luggage compartment also help cool the control units fitted in front of them.
- ◆ From the luggage compartment, the air is routed through ventilation openings in the luggage compartment lining on the left and right -E- into the area between the body and the luggage compartment lining to the ventilation frames on the left and right -F-.
- ◆ One ventilation frame -A- each is fitted on the left and right in the body ventilation opening -C- for forced ventilation.
- ◆ The ventilation frames of the forced ventilation -A- are removed and installed from the outside (with the bumper cover removed).



Checking ventilation openings in luggage compartment lining

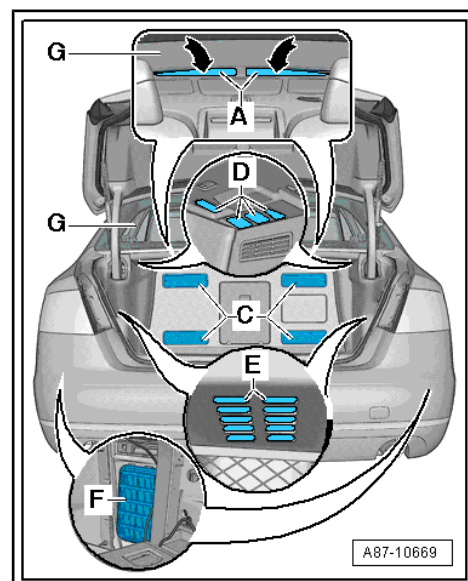
- Check for blockage of air duct through ventilation openings in luggage compartment lining at top -D-, on left and right -E- and behind luggage compartment lining to two ventilation frames -F- in luggage compartment (on left and right).

 Note

- ◆ To ensure that passenger compartment is ventilated properly, the ventilation frames -D- and -E- in the luggage compartment lining must never be blocked off.
- ◆ Sealed ventilation frames in the luggage compartment lining -D- and -E- or clogged air ducts to the ventilation frames -F- can lead to misting-up of the windscreen, rear window and door windows.

Checking forced ventilation frame from inside:

- Remove luggage compartment side trim covers (left and right)
⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing luggage compartment side trim .
- Check for blockage of the left and right ventilation frame -F-.



 Note

- ◆ The sealing lips in ventilation frame -F- must move freely and close automatically. If the sealing lips stick together, the windscreen, rear window and door windows may mist up. The same also applies in the case of sealed or clogged air ducts to the ventilation frames -F-.
- ◆ The sealing lips only close properly if the ventilation frame -F- has been installed correctly.

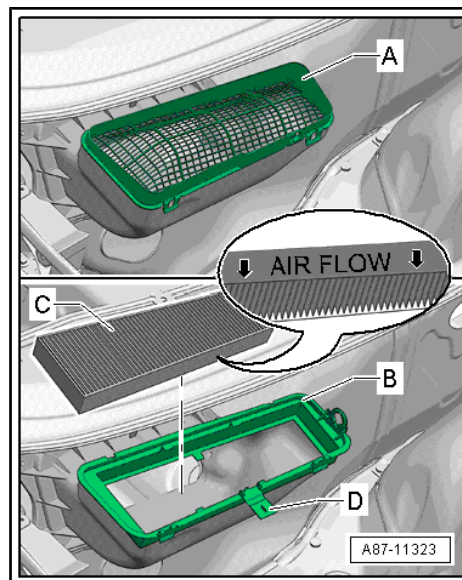
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7.9 Removing and installing fresh air intake



Note

- Depending on the version, a dust filter -C- may be fitted in the filter mounting -B- instead of the intake grille -A- in vehicles for certain countries with a high dust level in the ambient air (e.g. for China). The dust filter -C- is designed to stop the fresh air blower - V2- from drawing in dust and sand ⇒ Electronic parts catalogue .
- Make sure that no dirt falls into the intake duct of the air conditioning unit when removing the dust filter -C-.
- The dust filter -C- is held in position in the filter mounting -B- by tab -D-.
- Observe replacement interval for dust filter -C- ⇒ Maintenance tables .
- Clean the intake duct and the area surrounding the dust filter -C- in the plenum chamber before installing a new filter.
- When installing the dust filter -C-, observe the direction of air flow -arrows-.



Checking

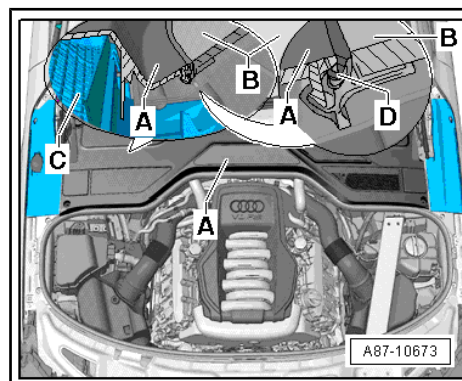
- Switch off ignition.
- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .



Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.

- Check plenum chamber cover -A- for damage.
- Check for damage on retainers attaching plenum chamber cover -A- to frame -D- of windscreen -B-.



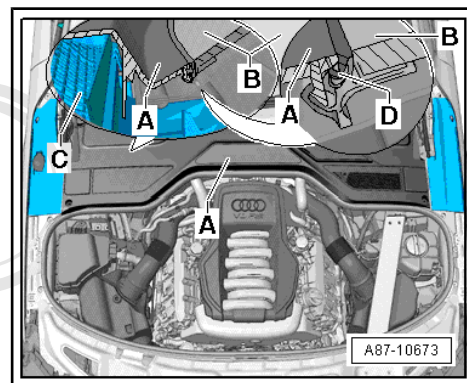
Note

The retainers for the plenum chamber cover -A- in the frame -D- of the windscreen -B- prevent water from running between the frame and the plenum chamber cover into the intake duct -C- of the air conditioning unit ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

Removing and installing

- Switch off ignition.

- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Detach air quality sensor - G238- (with humidity sender in fresh air intake duct - G657-) ⇒ [page 646](#) .



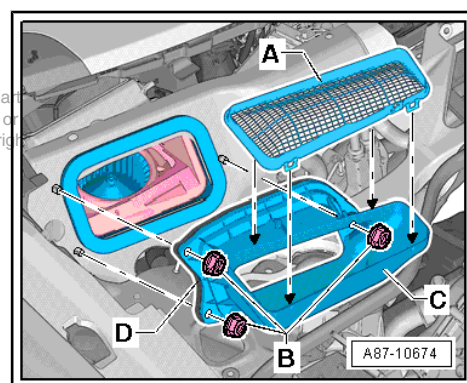
- Detach intake grille -A-.



Note

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Depending on the version, a dust filter -A- designed to stop the fresh-air blower from drawing in dust and sand may be fitted instead of the intake grille in vehicles for certain countries with a high dust level in the ambient air (e.g. for China) ⇒ Electronic parts catalogue .



- Remove nuts -B-.
- Detach fresh-air intake -C-.

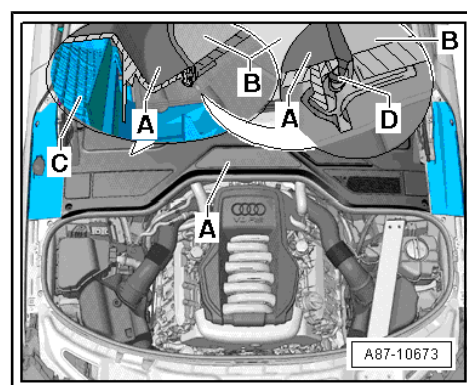
Install in reverse order of removal; note the following:

- When installing, pay attention to tightening sequence of nuts -B-.
- Hand-tighten nuts -B- loosely in the following sequence:
 - ◆ Initially tighten inside nut -B- (on right side in illustration).
 - ◆ Initially tighten outside nut -B- (top left in illustration).
 - ◆ Initially tighten outside nut -B- (bottom left in illustration).
- Tighten nuts -B- to final torque (3.5 Nm) in the same sequence.



Note

- ◆ *Before installing fresh air intake -C-, check fresh air intake and bonded seal -D- for damage. Renew seal or fresh air intake if damaged ⇒ Electronic parts catalogue .*
- ◆ *It is important to observe the specified tightening sequence; otherwise, water may enter the intake duct of the air conditioning unit via the sealing surface.*
- ◆ *When installing, make sure that the fresh air intake -C- and the corresponding seal are correctly positioned. If the fresh air intake -C- is not installed properly, water could run via the sealing surface -D- into the intake duct of the air conditioning unit.*
- ◆ *Check for damage before installing the plenum chamber cover -A- and the frame -D- of the windscreen -B-. If the cover is not properly fitted or if it is damaged, water may run into the intake duct -C- for the fresh air intake and then into the air conditioning unit.*



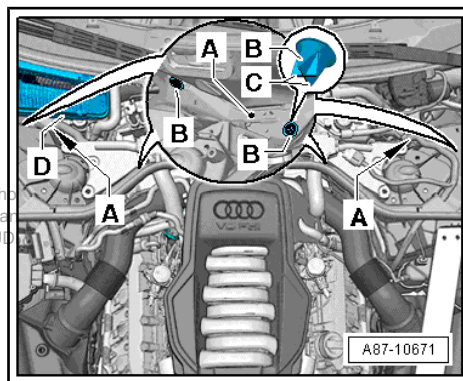
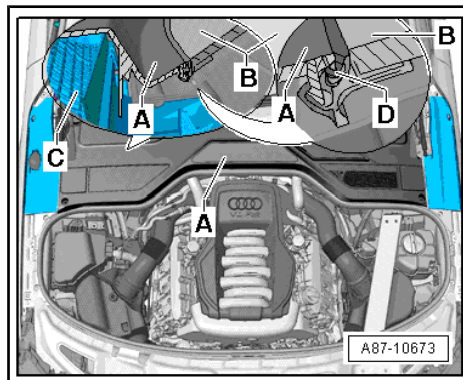
7.10 Checking plenum chamber water drain

- Switch off ignition.
- Remove plenum chamber cover -A- and plenum chamber bulkhead ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover , ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead (or remove front wheel housing liners ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front)).



Note

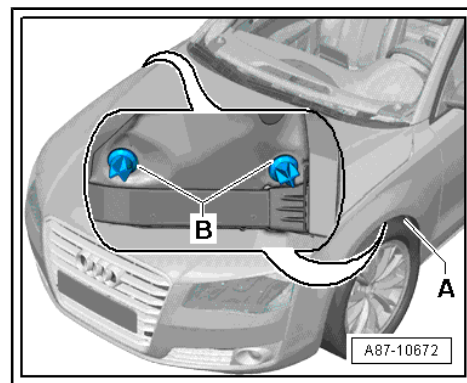
The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.



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Note

- ◆ *Water may not drain properly from the plenum chamber -A- if leaves, pine needles or other debris accumulate in the water drains -B-. The water level in the plenum chamber -A- then rises if the vehicle is taken to a car wash or in the event of heavy rain; water enters the air conditioning unit -D- by way of the intake duct and is blown onto the evaporator by the fresh air blower - V2- together with the air delivered.*
- ◆ *If the valves -C- of the grommets for the water drains -B- (two each on the right and left in the plenum chamber) are clogged with leaves or pine needles, the drains may freeze up in winter and prevent water drainage. After a short journey, the heat emitted by engine and exhaust system melts the ice in the drains again. By the time the vehicle arrives at the workshop, the water may have already drained out of the plenum chamber.*
- ◆ *The grommets -A- of the water drains are clipped into the openings in the bottom of the plenum chamber from above.*
- ◆ *Depending on vehicle equipment and model, the grommets -B- may not be accessible from above, or only after removing the plenum chamber partition panel. On vehicles on which the grommets -B- are not accessible from above or only after removing the plenum chamber partition panel, it is also possible to clean, remove and install the grommets from below after removing the wheel housing liners (removing and installing front wheel housing liner (left-side) -A- and/or front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front)).*



7.11 Cleaning plenum chamber water drain

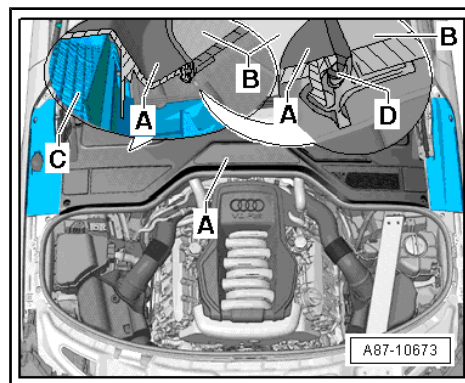
Checking and cleaning

- Switch off ignition.

- Remove plenum chamber cover -A- and plenum chamber bulkhead ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover , ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead (or remove front wheel housing liners ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front)).


Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.


Note

- ◆ *Use a commercially available illuminated endoscope or similar to check inaccessible water drains. A version with a flexible, waterproof swan neck is most practical.*
- ◆ *Use a commercially available flexible gripper tool or similar to loosen and remove coarse dirt when cleaning inaccessible water drains. Then rinse out the remaining dirt.*

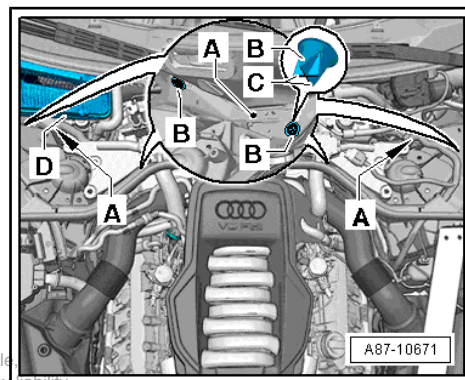
- Clean the water drains on the left and right -B- (two each on left and right).
- Remove any deposits (leaves, pine needles) or other dirt from plenum chamber -A-.
- Check that grommets -B- operate correctly (valves -C- must not be gummed up or sealed off by dirt).

Removing

- Unfasten grommets -B- from above (or below, if necessary) from openings for water drains in bottom of plenum chamber -A-.

Installing

- Engage grommets -B- from above (or below, if necessary) in openings for water drains in bottom of plenum chamber -A-.
- Following installation, check that grommets -A- operate correctly (valves -B- must not be gummed up and must close).



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8 Coolant circuit

⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#)

⇒ ["8.2 Removing and installing coolant circulation pump V50", page 611](#)

⇒ ["8.3 Removing and installing coolant shut-off valve N82", page 616](#)

⇒ ["8.4 Removing and installing heater coolant shut-off valve N279", page 620](#)

⇒ ["8.5 Removing and installing bracket for shut-off valves", page 623](#)

⇒ ["8.6 Bleeding coolant circuit", page 625](#)

8.1 Incorporation of air conditioner into coolant circuit

⇒ ["8.1.1 Notes on incorporating the front air conditioner into the coolant circuit", page 599](#)

⇒ ["8.1.2 Incorporation of front air conditioner into coolant circuit - vehicles with no auxiliary heater", page 599](#)

⇒ ["8.1.3 Incorporation of front air conditioner into coolant circuit - vehicles with auxiliary heater", page 603](#)

⇒ ["8.1.4 Incorporation of air conditioner \(rear\) into refrigerant and coolant circuit", page 605](#)

8.1.1 Notes on incorporating the front air conditioner into the coolant circuit

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Note

- ◆ *Vehicles with diesel engine and no auxiliary heater as optional equipment currently have an electrical air heater element (designation "auxiliary air heater control unit - Z35-") and auxiliary air heater element - Z35- which provide a supplementary heating function*
⇒ ["3.11.4 Checking supplementary heating system", page 114](#),
⇒ ["5.7.1 Checking electric supplementary heater", page 470](#)
and ⇒ *Audi sales literature*.
- ◆ *On vehicles with diesel engine and "auxiliary heater" as optional extra (these vehicles currently have no auxiliary air heater element - Z35-), the auxiliary heater assumes the function of the supplementary heater and operates as a fuel-driven supplementary heater (the auxiliary heater adds heat energy to the coolant) ⇒ Audi sales range.*
- ◆ *Vehicles with petrol engine are currently not provided with a supplementary heating function, and an auxiliary heater fitted as optional equipment is not activated as a supplementary heater ⇒ Audi sales literature.*

8.1.2 Incorporation of front air conditioner into coolant circuit - vehicles with no auxiliary heater

1 - Heat exchanger in air conditioning unit (rear)

- ❑ The air conditioning unit (rear) is an optional extra.
- ❑ Removing and installing with air conditioning unit installed
⇒ ["6.8 Removing and installing heat exchanger", page 553](#)
- ❑ Removing and installing with air conditioning unit removed ⇒ [page 523](#)

2 - Heat exchanger in air conditioning unit (front)

- ❑ Removing and installing with air conditioning unit installed
⇒ ["5.15 Removing and installing heat exchanger", page 507](#)
- ❑ Removing and installing with air conditioning unit removed
⇒ ["5.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 440](#)

3 - Bleeder screw

- ❑ ⇒ ["8.6 Bleeding coolant circuit", page 625](#)

4 - Outlet in coolant supply to heat exchanger in air conditioning unit (rear)

- ❑ The air conditioning unit (rear) is an optional extra.

5 - Outlet in coolant return from heat exchanger in air conditioning unit (rear)

- ❑ The air conditioning unit (rear) is an optional extra.

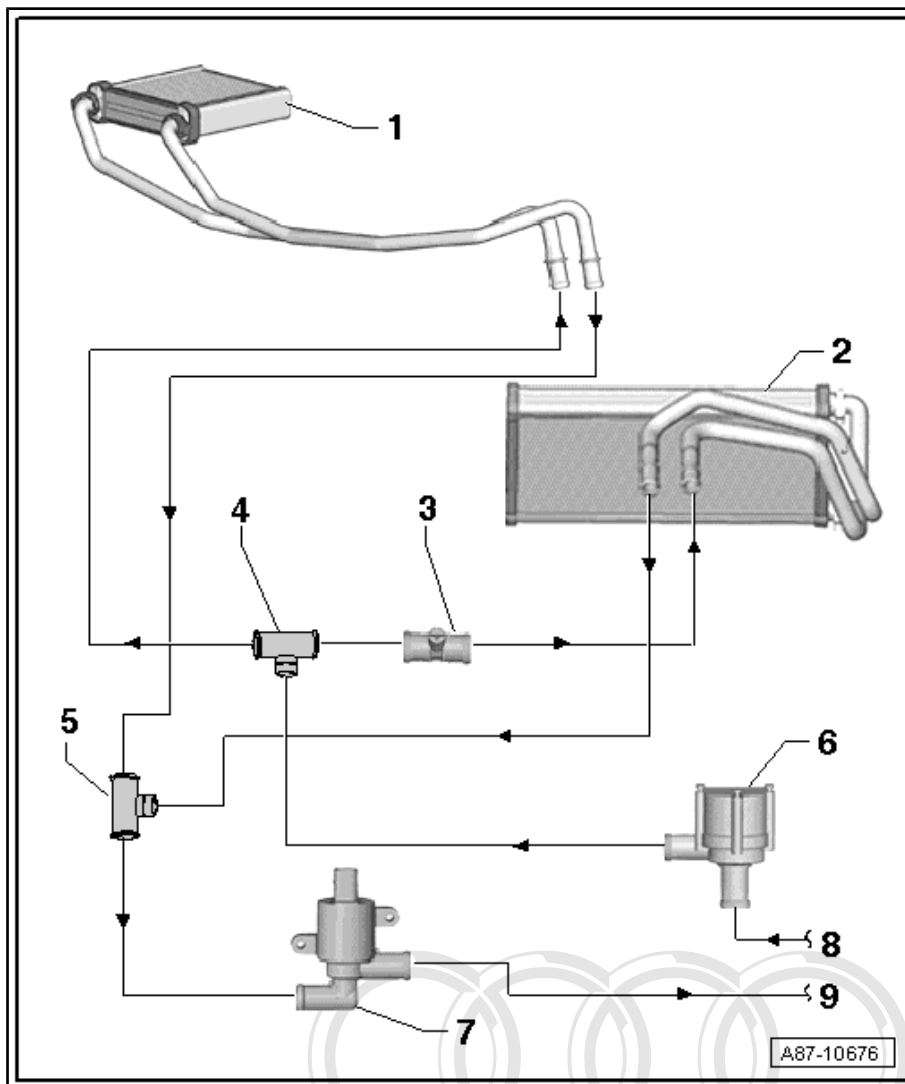
6 - Coolant circulation pump - V50-

- ❑ -V50- is not currently fitted on all vehicles. Vehicles fitted with an auxiliary heater as optional extra may not have a -V50-. This function is then assumed by the circulation pump - V55- fitted on vehicles with an auxiliary heater. Discontinuation of -V50- has however not yet been finalised ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode)
- ❑ Checking operation of coolant circulation pump - V50-
⇒ ["8.2.1 Coolant circulation pump V50 function", page 611](#)



Note

- ◆ *The coolant circulation pump - V50- assists the engine coolant pump to ensure an adequate, uniform flow of coolant through the heat exchanger(s) of the air conditioning unit.*



- ◆ *-V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber as shown in the illustration. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.*
- ◆ *The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

□ Removing and installing ⇒ [page 612](#)

7 - Coolant shut-off valve - N82-

- At present, the -N82- is only fitted on vehicles with certain engines (currently not fitted for example on vehicles with an 8-cyl. TDI engine) ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses . If an auxiliary heater is installed as an optional extra in a vehicle with an engine usually fitted with -N82- , the -N279- is fitted (different shut-off valve version) ⇒ Electronic parts catalogue and ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses).
- Check operation ⇒ [“8.3.1 Coolant shutoff valve N82 function”, page 616](#) and ⇒ Vehicle diagnostic tester in “Guided fault-finding” mode.
- Removing and installing ⇒ [page 617](#)



Note

- ◆ *Vehicles with auxiliary heater are fitted with a heater coolant shut-off valve - N279- . For vehicles without auxiliary heating, coolant shut-off valve - N82- (different version) is fitted on appropriate engines, and the designation is therefore also different ⇒ [“8.1.3 Incorporation of front air conditioner into coolant circuit - vehicles with auxiliary heater”, page 603](#) , ⇒ Electronic parts catalogue and ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses .*
- ◆ *The heat exchanger for heater can be excluded from the engine coolant circuit in different ways. Depending on the vehicle equipment, -N82- or -N279- may be fitted. -N82- is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-) - N279- is activated by the auxiliary heater control unit - J364- in response to a request from -J255- .*

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- ◆ *The heat exchanger for heater is shut off from the engine coolant circuit according to the engine/gearbox version: for some versions, the heat exchanger is not shut off; for other versions it is shut off in conjunction with the heating or cooling of the gear oil.*
- ◆ *When it is not activated, the - N82- is open; to allow the electrical function of the valve to be checked, it is activated for short period of time at certain intervals (e.g. for 1 second every twentieth engine start).*

8 - Coolant supply from engine

- ☐ Incorporation of air conditioner into engine coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

9 - Coolant return to engine

- ☐ Incorporation of air conditioner into engine coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses



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8.1.3 Incorporation of front air conditioner into coolant circuit - vehicles with auxiliary heater

1 - Heat exchanger in air conditioning unit (rear)

- ☐ The air conditioning unit (rear) is an optional extra.
- ☐ Removing and installing with air conditioning unit installed
⇒ ["6.8 Removing and installing heat exchanger", page 553](#)
- ☐ Removing and installing with air conditioning unit removed ⇒ [page 523](#)

2 - Heat exchanger in air conditioning unit (front)

- ☐ Removing and installing with air conditioning unit installed
⇒ ["5.15 Removing and installing heat exchanger", page 507](#)
- ☐ Removing and installing with air conditioning unit removed
⇒ ["5.1 Exploded view - heater/air conditioning unit and air intake box add-on components", page 440](#)

3 - Bleeder screw

- ☐ ⇒ ["8.6 Bleeding coolant circuit", page 625](#)

4 - Outlet in coolant supply to heat exchanger in air conditioning unit (rear)

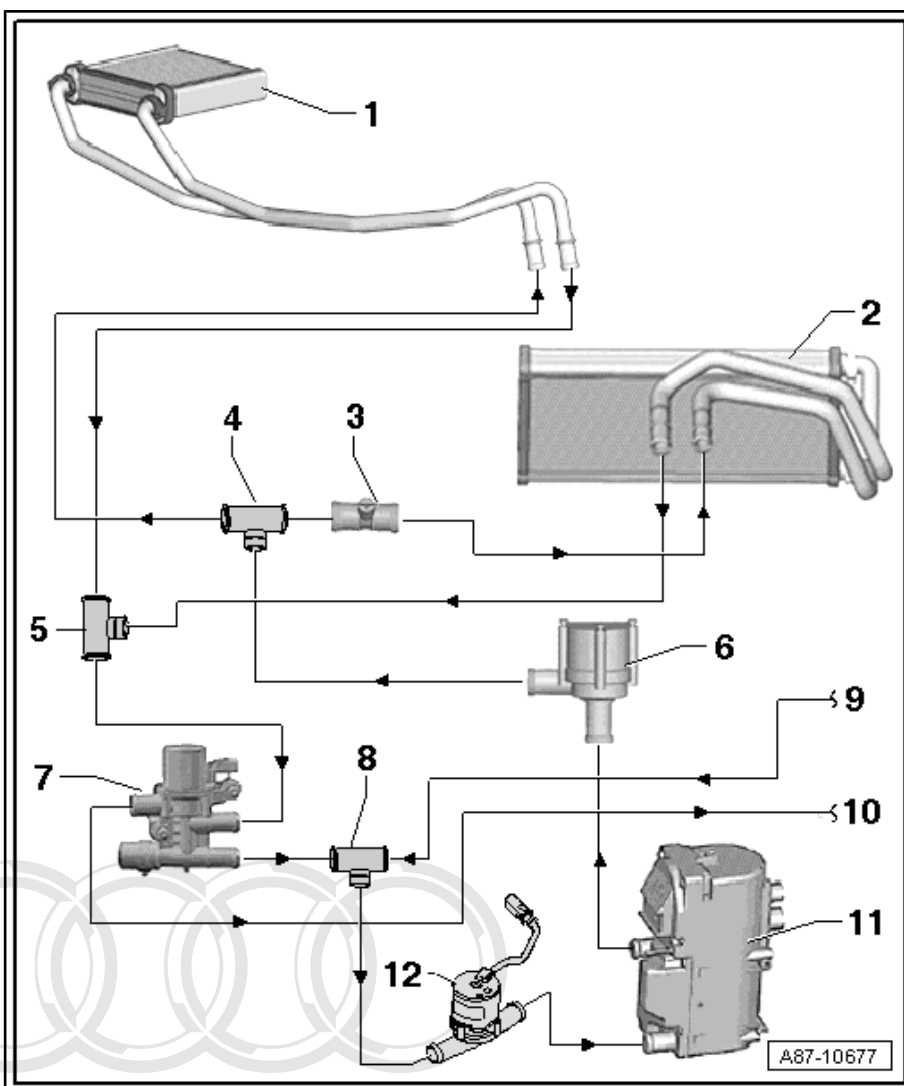
- ☐ The air conditioning unit (rear) is an optional extra.

5 - Outlet in coolant return from heat exchanger in air conditioning unit (rear)

- ☐ The air conditioning unit (rear) is an optional extra.

6 - Coolant circulation pump - V50-

- ☐ -V50- is not currently fitted on all vehicles. Vehicles fitted with an auxiliary heater as optional extra may not have a -V50-. This function is then assumed by the circulation pump - V55- fitted on vehicles with an auxiliary heater. Discontinuation of -V50- has however not yet been finalised ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode)
- ☐ Checking operation of coolant circulation pump - V50-
⇒ ["5.9 Checking heating output of activation of air conditioner temperature flap", page 478](#)
- ☐ ⇒ ["8.2.1 Coolant circulation pump V50 function", page 611](#)



**Note**

- ◆ *The coolant circulation pump - V50- assists the engine coolant pump to ensure an adequate, uniform flow of coolant through the heat exchanger(s) of the air conditioning unit.*
- ◆ *-V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber as shown in the illustration. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.*
- ◆ *The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit → Current flow diagrams, Electrical fault finding and Fitting locations.*

7 - Heater coolant shut-off valve - N279-

- ⇒ ["8.4.1 Heater coolant shut-off valve N279 function", page 620](#)
- Vehicles with auxiliary heater are fitted with a heater coolant shut-off valve - N279- . For vehicles without auxiliary heating, coolant shut-off valve - N82- (different version) is fitted on specific engines, and the designation is therefore also different ⇒ Electronic parts catalogue and ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses .
- Check actuation and operation of the heater coolant shut-off valve - N279- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Further notes ⇒ [Item 7 \(page 601\)](#)

8 - Outlet in coolant supply to auxiliary heater

- In auxiliary heating mode, the heater coolant shut-off valve - N279- is activated until the coolant temperature in the auxiliary heater exceeds a certain value ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- With the heater coolant shut-off valve - N279- actuated, the coolant is conveyed directly from the heat exchangers into the auxiliary heater. The engine is then not incorporated into the air conditioner coolant circuit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- If the engine is started while the auxiliary heater is in operation, the auxiliary heater control unit - J364- determines (according to the coolant temperature measured in the engine and the auxiliary heater) whether activation of -N279- is maintained or whether it is switched off ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

9 - Coolant supply from engine

- Incorporation of air conditioner into coolant circuit ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses
- With the heater coolant shut-off valve - N279- actuated, the coolant is conveyed directly from the heat exchangers into the auxiliary heater. The engine is then not incorporated into the air conditioner coolant circuit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

10 - Coolant return to engine

- Incorporation of air conditioner into coolant circuit ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses

- ❑ With the heater coolant shut-off valve - N279- actuated, the coolant is conveyed directly from the heat exchangers into the auxiliary heater. The engine is then not incorporated into the air conditioner coolant circuit ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

11 - Auxiliary heating

- ❑ Check actuation of the circulation pump - V55- and the heater coolant shut-off valve - N279- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

12 - Circulation pump - V55-

- ❑ Depending on the production period, vehicles with "auxiliary heater" as optional extra may be fitted with both pumps (coolant circulation pump - V50- and circulation pump - V55-). It is however also possible that -V50- is not fitted and that its function is assumed by -V55- ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses .
- ❑ Vehicles fitted with an auxiliary heater as optional extra may not have a -V50- . This function is then assumed by the circulation pump - V55- fitted on vehicles with an auxiliary heater. Discontinuation of - V50- does not apply to all vehicles ⇒ Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode)

8.1.4 Incorporation of air conditioner (rear) into refrigerant and coolant circuit

1 - Retainer for refrigerant lines

- ❑ On underbody

2 - Refrigerant lines to evaporator in air conditioning unit (rear)

- ❑ ⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)
- ❑ ⇒ ["2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223](#)

3 - Expansion valve (rear)

- ❑ For evaporator in rear air conditioning unit (fitted on underbody of vehicle in area of centre tunnel).

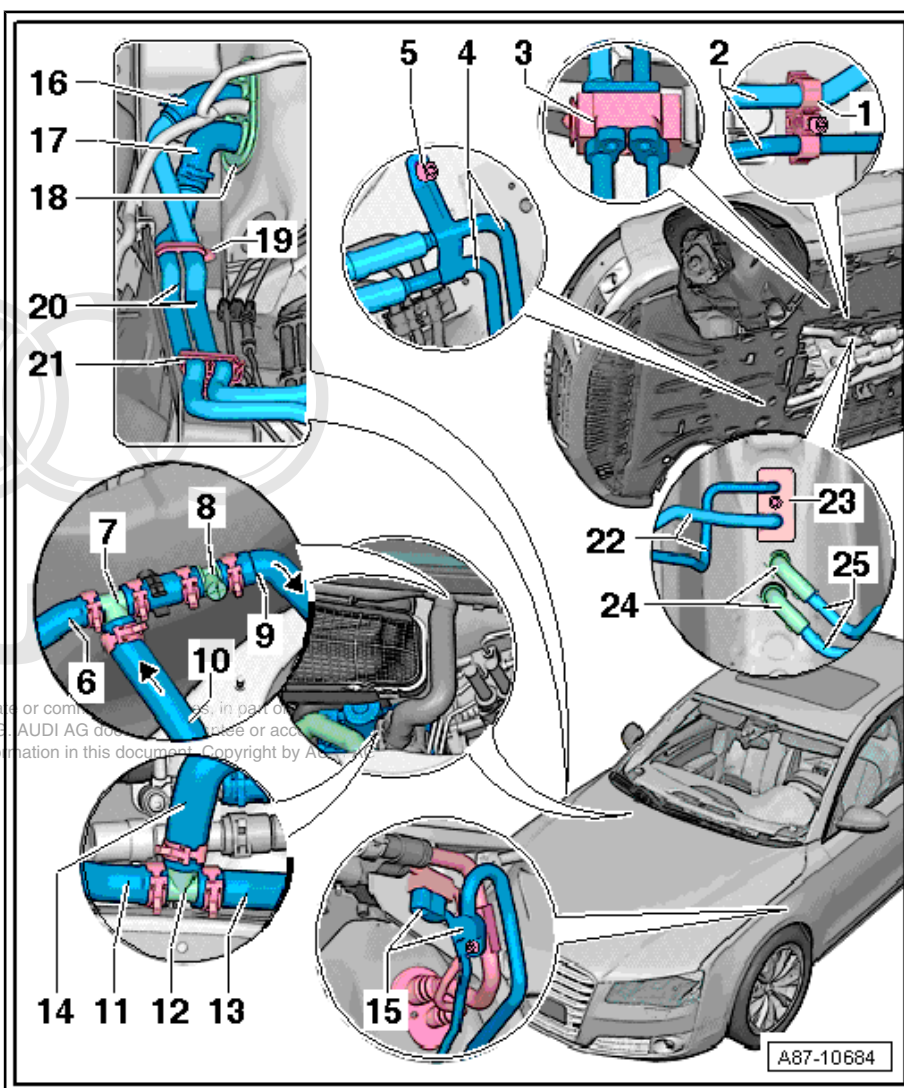


Caution

Danger from the escape of pressurised refrigerant.
Frostbite on the skin and other parts of the body.
Only unfasten the screws on the joints after discharging the refrigerant circuit.

- ❑ ⇒ ["2.9.5 Removing and installing rear expansion valve", page 221](#)

- ❑ Ensure correct allocation ⇒ Electronic parts catalogue
- ❑ Check operation ⇒ ["3.8.3 Checking - vehicles without high-voltage system", page 74](#)



**Note**

After the air conditioner compressor is switched off, it might take a relatively long time with this vehicle before the pressure in the high-pressure side drops (the expansion valve(s) is/are cold and the pressure in the low-pressure side increases rapidly after the compressor is switched off, the expansion valve(s) is/are closed and the refrigerant can flow only slowly to the low-pressure side).

- ☐ ⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)
- ☐ ⇒ ["2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223](#)

4 - Coolant lines

- ☐ To heat exchanger in air conditioning unit (rear)

5 - Retainer for coolant lines

- ☐ On underbody

6 - Coolant hose in plenum chamber

- ☐ Coolant supply to heat exchanger in air conditioning unit (rear)

7 - T connection

- ☐ In coolant supply line to heat exchangers in air conditioning unit (front and rear)

8 - Bleeder screw

- ☐ In coolant supply line to heat exchangers in air conditioning unit (front)

9 - Coolant hose in plenum chamber

- ☐ Coolant supply to heat exchanger in air conditioning unit (front)

10 - Coolant hose in plenum chamber

- ☐ Coolant supply line from coolant circulation pump - V50- to heat exchangers in air conditioning unit (front and rear)

11 - Coolant hose in plenum chamber

- ☐ Coolant return from heat exchanger in air conditioning unit (front)

12 - T connection

- ☐ In coolant return line from heat exchangers in air conditioning unit (front and rear)

13 - Coolant hose in plenum chamber

- ☐ Coolant return from heat exchanger in air conditioning unit (rear)

14 - Coolant hose in plenum chamber

- ☐ Coolant return from heat exchangers in air conditioning unit (front and rear)
- ☐ Return to engine depends on vehicle equipment and engine
⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#)

**Note**

This illustration shows the layout on vehicles with an auxiliary heater (return via heater coolant shut-off valve - N279-).

15 - Refrigerant line outlet to evaporator in air conditioning unit (rear)



16 - Coolant hose from plenum chamber

- ☐ Coolant supply to heat exchanger in air conditioning unit (rear)
- ☐ ➔ ["8.6 Bleeding coolant circuit", page 625](#)



Note

Mark coolant hoses before detaching. Interchanging coolant hoses when attaching can cause problems with bleeding heat exchanger in air conditioning unit (rear).

17 - Coolant hose from plenum chamber

- ☐ Coolant return from heat exchanger in air conditioning unit (rear)
- ☐ ➔ ["8.6 Bleeding coolant circuit", page 625](#)



Note

Mark coolant hoses before detaching. Interchanging coolant hoses when attaching can cause problems with bleeding heat exchanger in air conditioning unit (rear).

18 - Grommet for coolant hoses

- ☐ Fitted in plenum chamber partition panel (right-side)

19 - Retainer for coolant lines

- ☐ Under wing (front right)

20 - Coolant lines

- ☐ Under wing (front right)



Note

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In order to remove the refrigerant lines, first remove the aerodynamic fairing (right-side) of the underbody and the front wheel housing liner (right-side) ➔ General body repairs, exterior; Rep. gr. 66; Underbody trim panels; Removing and installing underbody trim panels, ➔ General body repairs, exterior; Rep. gr. 66; Wheel housing liners; Removing and installing wheel housing liner (front)

21 - Retainer for coolant lines

- ☐ Under wing (front right)

22 - Refrigerant pipes

- To refrigerant pipes of evaporator in air conditioning unit (rear)



Note

- ◆ *These refrigerant pipes are fitted in centre tunnel above propshaft behind heat shield*
- ◆ *Evaporator refrigerant pipes connected to these refrigerant pipes are part of air conditioning unit (rear) and must be removed together with air conditioning unit ⇒ ["6.4 Removing and installing heater and air conditioning unit", page 535](#).*
- ◆ *The refrigerant pipes can only be taken out after removing the aerodynamic fairing (left-side) of the underbody and the heat shield from the centre tunnel ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .*
- ◆ *Depending on the vehicle model, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .*

23 - Refrigerant line connection

- To evaporator in rear air conditioning unit
- ⇒ ["2.9.7 Removing and installing refrigerant lines from connection point to rear expansion valve", page 225](#)
- ⇒ ["2.9.6 Removing and installing refrigerant lines from rear expansion valve to evaporator in rear air conditioning unit", page 223](#)



Note

- ◆ *These refrigerant lines are fitted in the centre tunnel above the propshaft behind the heat shield.*
- ◆ *Evaporator refrigerant pipes connected to these refrigerant lines are part of air conditioning unit (rear) and must be removed together with air conditioning unit ⇒ ["6.4 Removing and installing heater and air conditioning unit", page 535](#).*
- ◆ *The heat shield in centre tunnel must be removed in order to remove the coolant lines ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor*

- ◆ Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

24 - Connection for coolant hoses

- ☐ To heat exchanger in air conditioning unit (rear)
- ☐ Ensure correct assignment of coolant hoses



Note

- ◆ These coolant lines are fitted in the centre tunnel above the propshaft behind the heat shield.
- ◆ Coolant pipes for rear heat exchanger that are connected to these refrigerant lines are part of air conditioning unit (rear) and are fitted in passenger compartment.
- ◆ The coolant lines ⇒ **Item 25 (page 609)** can only be taken out after removing the aerodynamic fairing (right-side) of the underbody and the heat shield from the centre tunnel ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels
- ◆ Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

25 - Coolant lines

- ☐ To coolant pipes leading to heat exchanger at air conditioning unit (rear) (in passenger compartment).



Note

- ◆ The coolant pipes connecting these coolant lines to the coolant hoses are a component of the air conditioning unit (rear).
- ◆ The aerodynamic fairing (right-side) of the underbody and the heat shield in centre tunnel must be removed in order to remove the coolant lines ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor

- ◆ *Air duct of rear fresh air blower - V80-
⇒ "6.6 Removing and installing rear fresh air blower V80", page 547 and heat shield in centre tunnel must be removed in order to remove the coolant lines to the heat exchanger ⇒ General body repairs, exterior; Rep. gr. 66 ; Strips / panels / width extensions / trim; Removing and installing heat shield for floor .*
- ◆ *The coolant lines to the heat exchanger in the rear air conditioning unit are connected to the coolant circuit by coolant hoses routed in the centre tunnel above the propshaft over the heat shield.*
- ◆ *Depending on the vehicle, the exhaust system with the centre silencer and propshaft may have to be removed in order to remove the heat shield ⇒ Axle drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .*



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8.2 Removing and installing coolant circulation pump - V50-

⇒ ["8.2.1 Coolant circulation pump V50 function", page 611](#)

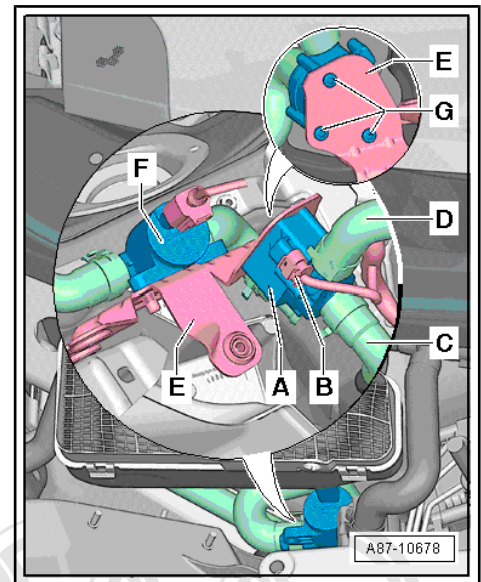
⇒ ["8.2.2 Removing and installing coolant circulation pump V50", page 612](#)

8.2.1 Coolant circulation pump - V50- function



Note

- ◆ The coolant circulation pump - V50- -A- is currently not fitted on all vehicles ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses . Vehicles fitted with an auxiliary heater as optional extra may not have a -V50- . The circulation pump - V55- fitted on vehicles with an auxiliary heater then assumes this function. Discontinuation of -V50- does not however apply to all vehicles ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations).
- ◆ To reduce noise, retainer -E- for -V50- and for coolant shut-off valve - N82- / heater coolant shut-off valve - N279- -F- is not bolted directly to the body. It is attached by way of bolts and rubber elements. Make sure these components do not make direct contact with the body or come into contact with other components.
- ◆ Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant in the small circuit flows back to the engine via this non-return valve even when the coolant shut-off valve - N82- -F-/ heater coolant shut-off valve - N279- is activated ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ -V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber as shown in the illustration. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.
- ◆ The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



Operation

- ◆ The coolant circulation pump - V50- -A- helps the engine coolant pump to circulate the coolant. It is activated by the air conditioner front operating and display unit (Climatronic control unit - J255-) to ensure an adequate, even flow of coolant through the air conditioner heat exchanger(s) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ When -V50- -A- is running, coolant is drawn in through coolant hose -C- from engine and pumped through coolant hose -D- to heat exchangers of air conditioning units. Coolant flows back to engine via heat exchangers in air conditioning units (front and rear) and coolant shut-off valve - N82- / heater coolant shut-off valve - N279- (depending on engine version and vehicle equipment)
⇒ ["8.1 Incorporation of air conditioner into coolant circuit", page 599](#) .

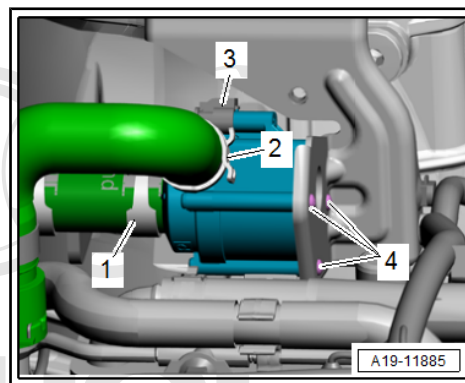
- ◆ Depending on the coolant temperature and the setting on the front air conditioner operating and display unit (Climatronic control unit - J255-), the -V50- -A- is activated directly by the operating and display unit when the ignition is on ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ Depending on the vehicle model, -V50- -A- may also be activated by the air conditioner front operating and display unit (Climatronic control unit - J255-) when the auxiliary heater is switched on or in "Residual heat" mode ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ On vehicles with a start/stop system, -V50- -A- and the coolant shut-off valve - N82- are also activated directly by the air conditioner operating and display unit (Climatronic control unit - J255-). If fitted, the heater coolant shut-off valve - N279- is also actuated via the auxiliary heater control unit - J364- by - J255- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ If faults at these components have been stored in the air conditioner front operating and display unit, Climatronic control unit - J255- , attention is therefore to be paid to the version, encoding and adaption of -J255- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Removing and installing coolant circulation pump - V50-
⇒ ["8.2.2 Removing and installing coolant circulation pump V50"](#), page 612
- ◆ Removing and installing bracket -E- for coolant circulation pump - V50- and coolant shut-off valve - N82- / heater coolant shut-off valve - N279-
⇒ ["8.4.1 Heater coolant shut-off valve N279 function"](#), page 620

8.2.2 Removing and installing coolant circulation pump - V50-



Note

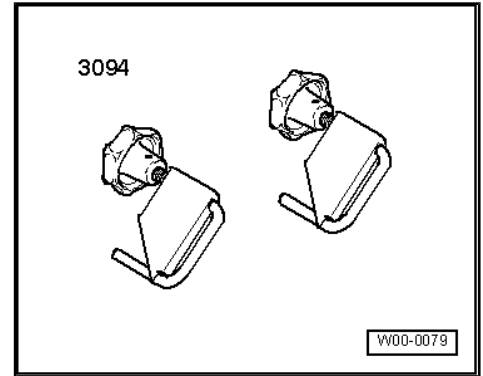
- ◆ -V50- can be fitted in different locations. On most vehicles it is installed in the plenum chamber. On vehicles with a high-voltage system (hybrid vehicles) it is located between the plenum chamber partition panel and the engine.
- ◆ On vehicles from model year 2014, the V50 may be located above the gearbox (e.g. 3.0 l TFSI engine) as shown in the illustration.
- ◆ The activation of -V50- differs. On most vehicles, it is activated directly by the air conditioner front operating and display unit (Climatronic control unit - J255-). On vehicles with a high-voltage system (hybrid vehicles), activation occurs after a request from -J255- via the corresponding engine control unit ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ The following describes removal and installation of -V50- on vehicles with -V50- fitted in the plenum chamber. Remove and install the -V50- on vehicles where the -V50- is located between the plenum chamber bulkhead and the engine.



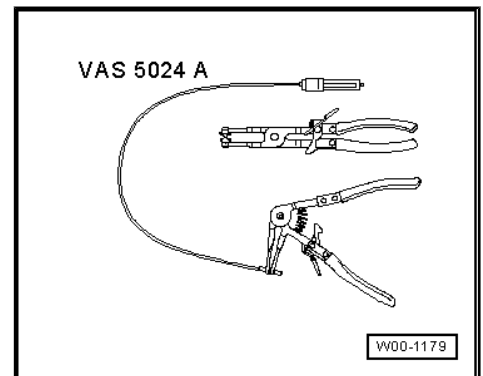
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Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-

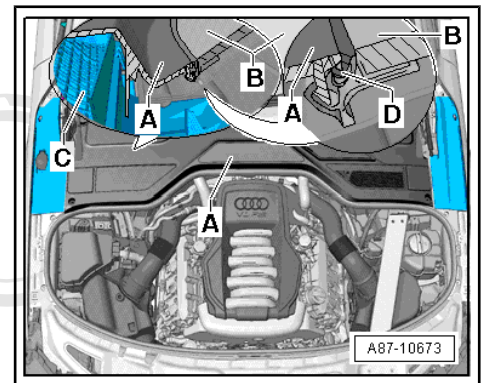


- ◆ Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)



Removing

- Switch off ignition (and auxiliary heater).
- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

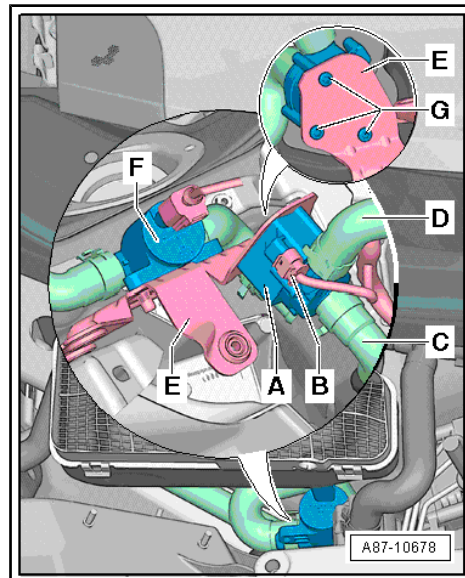


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Note

- ◆ *The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.*
- ◆ *To reduce noise, the holder -E- for -V50- -A- and for the coolant shut-off valve - N82- / heater coolant shut-off valve - N279- -F- is not bolted directly to the body. It is attached by way of bolts and rubber elements. Make sure these components do not make direct contact with the body or come into contact with other components.*
- ◆ *This illustration shows the arrangement of the -V50- and -N82- on a vehicle with an 8-cyl. FSI engine without the auxiliary heater as an optional extra. The layout of -V50- and -N82- (or -N279-) may differ depending on vehicle equipment.*

- Mark position of coolant hoses -C- and -D- at -V50- .


Caution

- ◆ *Ensure that coolant hoses -C- and -D- are positioned correctly at -V50- .*
- ◆ *If coolant hoses are interchanged or crushed, this can cause the heating in the passenger compartment to fail.*


WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

- Open the coolant expansion tank cap.
- Use an absorbent cloth or absorbent paper to cover area beneath coolant circulation pump - V50- .
- Clamp off coolant hoses -B- and -F- in area of -V50- (e.g. with hose clamps up to Ø 25 mm - 3094-).
- Unfasten clamps and detach coolant hoses -B- and -C-.
- Unplug electrical connector -B-.
- Remove bolts -E- from bracket -E-.
- Remove coolant circulation pump - V50- -A-.

Installing

Install in reverse order of removal; note the following.

- Butt-joint coolant hoses.



Caution

- ◆ *Note direction of coolant flow at coolant circulation pump - V50- .*
- ◆ *Ensure that coolant hoses -C- and -D- are correctly positioned at coolant circulation pump - V50- .*
- ◆ *If coolant hoses are interchanged, heating in passenger compartment may fail due to coolant flowing in the incorrect direction.*

- Bleed coolant circuit; observe notes [⇒ page 625](#) .
- If applicable, check activation and operation of coolant circulation pump - V50- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Re-install remaining components (removed earlier).



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8.3 Removing and installing coolant shut-off valve - N82-

⇒ ["8.3.1 Coolant shutoff valve N82 function", page 616](#)

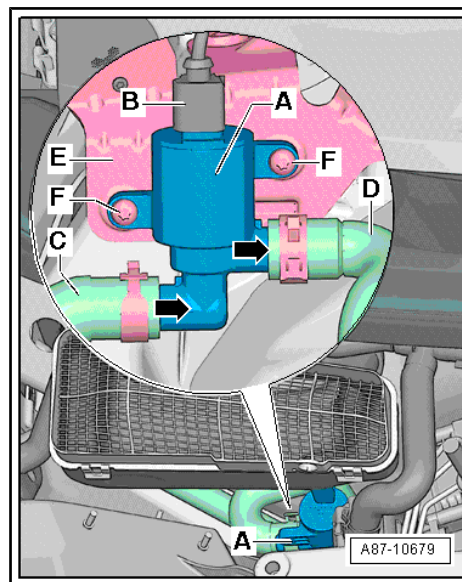
⇒ ["8.3.2 Removing and installing coolant shut-off valve N82 ", page 617](#)

8.3.1 Coolant shutoff valve - N82- function



Note

- ◆ The fitting location, designation and version of -N82- -A- depend on the vehicle model and equipment; note correct allocation ⇒ *Electronic parts catalogue*.
- ◆ At present, the -N82- -A- is only fitted on vehicles with certain engines (currently not fitted for example on vehicles with an 8-cyl. TDI engine) ⇒ *Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses*. If vehicles with these engines are equipped with an auxiliary heater as optional extra, no shutoff valve is fitted (this function is assumed by the heater coolant shutoff valve - N279- fitted on vehicles with auxiliary heater). Not authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of information in this document.
⇒ ["8.4.1 Heater coolant shut-off valve N279 function", page 620](#)). It is therefore important to ensure the correct encoding of the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode*.
- ◆ To reduce noise, the retainer -E- for -V50- and for -N82- -A- is not bolted directly to the body. It is attached by way of bolts and rubber elements. Make sure these components do not make direct contact with the body or come into contact with other components.
- ◆ The air conditioner regulation system only activates -N82- -A- in certain air conditioner settings (e.g. in "OFF" mode or if maximum cooling output is required). In this case, the engine speed must be smaller than 5000 rpm, and the coolant temperature must be below 90 °C (Centigrade). If the coolant circuit to the heat exchangers of the air conditioning system is shut off, the engine will heat up more quickly when the coolant is cold.
- ◆ When it is not activated, the -N82- -A- is open; to allow the electrical function of the valve to be checked, it is activated for short period of time at certain intervals (e.g. for 1 second every twentieth engine start).
- ◆ Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant in the small circuit flows back to the engine via this non-return valve even when the coolant shut-off valve - N82- -A-/ heater coolant shut-off valve - N279- is activated ⇒ *Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses*.
- ◆ -N82- is currently not fitted in vehicles with an engine with regulated coolant circuit (certain vehicles from model year 2010 onwards, e.g. with a regulated coolant pump and a coolant valve for cylinder head - N489-). On engines with a regulated coolant pump, the engine control unit activates the coolant pump to regulate coolant circulation ⇒ *Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses*.
- ◆ Removing and installing coolant shut-off valve - N82-
⇒ ["8.3.2 Removing and installing coolant shut-off valve N82 ", page 617](#)



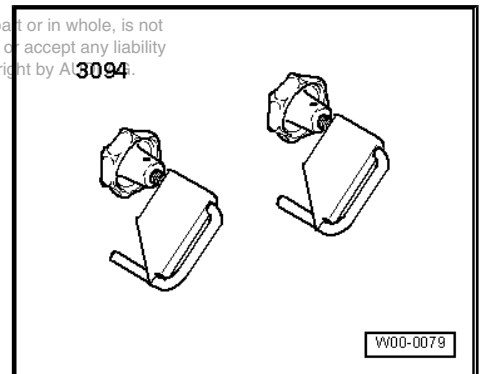
- ◆ Removing and installing bracket -E- for coolant circulation pump - V50- and coolant shut-off valve - N82- / heater coolant shut-off valve - N279-
⇒ ["8.4.1 Heater coolant shut-off valve N279 function"](#),
[page 620](#)

8.3.2 Removing and installing coolant shut-off valve - N82-

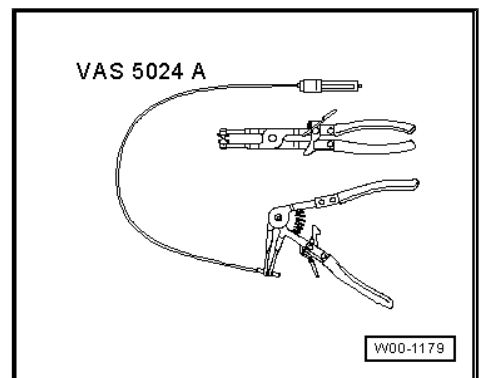
Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-

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- ◆ Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)



Removing

- Switch off ignition.
- Remove the plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove fresh air intake ⇒ [page 594](#) .

- Mark positions of coolant hoses -C- and -D- at coolant shut-off valve - N82- -A-.


Note

This illustration shows the arrangement of the -V50- and -N82- on a vehicle with an 8-cyl. FSI engine without the auxiliary heater as an optional extra. The layout of -V50- and -N82- (or -N279-) may differ depending on vehicle equipment.

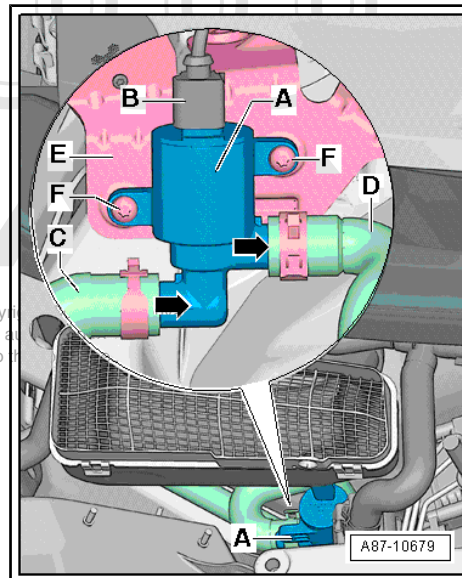

Caution

- ◆ *Ensure that coolant hoses -C- and -D- are positioned correctly at -N82- -A-*
- ◆ *If coolant hoses are interchanged, this can cause the heating in the passenger compartment to fail.*


WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*



- Open the coolant expansion tank cap.
- Use an absorbent cloth or absorbent paper to cover area beneath -N82- -A-.
- Clamp off coolant hoses -B- and -D- in area of -N82- -A- (e.g. with hose clamps up to Ø 25 mm - 3094-).
- Unfasten clamps and detach coolant hoses from -N82- -A-.
- Unplug electrical connector -B-.
- Remove securing bolts -F- from -N82- -A-.
- -N82- Remove -A-.

Installing

Install in reverse order of removal; note the following.

- Butt-joint coolant hoses -C- and -D-.


Caution

- ◆ *The direction of coolant flow is marked at -N82- .*
- ◆ *Ensure that coolant hoses -C- and -D- are positioned correctly at -N82- -A-*
- ◆ *If coolant hoses are interchanged, heating in passenger compartment may fail due to coolant flowing in the incorrect direction.*

- Bleed coolant circuit; observe notes ⇒ [page 625](#) .

- If applicable, check activation and operation of coolant shut-off valve - N82- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Re-install remaining components (removed earlier).



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8.4 Removing and installing heater coolant shut-off valve - N279-

⇒ ["8.4.1 Heater coolant shut-off valve N279 function", page 620](#)

⇒ ["8.4.2 Removing and installing heater coolant shut-off valve N279", page 621](#)

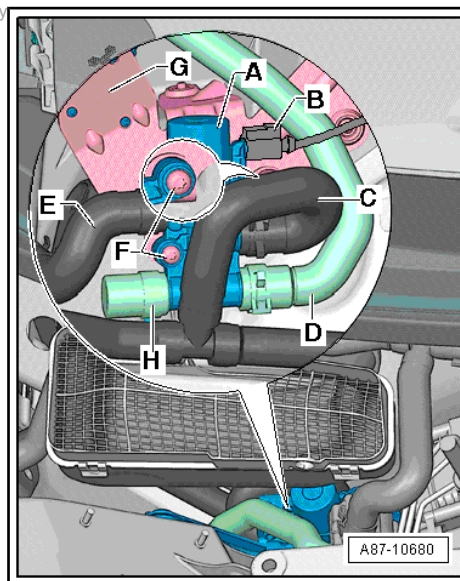
8.4.1 Heater coolant shut-off valve - N279-function

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Note

- ◆ The fitting location, designation and version of -N279- -A- depend on the vehicle model and equipment; note correct allocation ⇒ *Electronic parts catalogue*.
- ◆ At present, the coolant shut-off valve - N82- is only fitted on vehicles with certain engines ⇒ *Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses*. Vehicles with these engines that are equipped with auxiliary heating as an optional extra are not fitted with -N82- ; this function is assumed by the -N279- -A- fitted in vehicles with auxiliary heating ⇒ *Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses*.
- ◆ To reduce noise, the holder -G- for -V50- and for -N279- -A- is not bolted directly to the body. It is attached by way of bolts and rubber elements. Make sure these components do not make direct contact with the body or come into contact with other components.
- ◆ With the auxiliary heater switched off, the air conditioner regulation system only activates -N279- -A- (by way of the auxiliary heater control unit - J364-) in certain air conditioner settings (e.g. in "OFF" mode or if maximum cooling output is required). In this case, the engine speed must be smaller than 5000 rpm, and the coolant temperature must be below 90 °C (Centigrade). If the coolant circuit to the heat exchanger of the air conditioning unit is shut off, the engine will heat up more quickly when the coolant is cold. When the auxiliary heater is switched on, -N279- -A- is activated depending on e.g. the coolant temperature in the engine and in the auxiliary heater ⇒ *Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Connection diagram - coolant hoses and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode*.
- ◆ Layout, activation and operation of the coolant shut-off valve - N82-
⇒ ["8.3.1 Coolant shutoff valve N82 function", page 616](#).
- ◆ Function of the -N279- ⇒ *Auxiliary/supplementary heater; Rep. gr. 82 ; Coolant circuit with auxiliary/supplementary heater; Removing and installing heater coolant shut-off valve*.
- ◆ In the event of problems with warming of the passenger compartment in auxiliary heating mode or with the engine running, Check the incorporation of -N279- into the coolant circuit and actuation of -N279- by the auxiliary heater control unit - J364-
⇒ ["8.1.3 Incorporation of front air conditioner into coolant circuit - vehicles with auxiliary heater", page 603](#) and ⇒ *Vehicle diagnostic tester in "Guided Fault Finding" mode*.

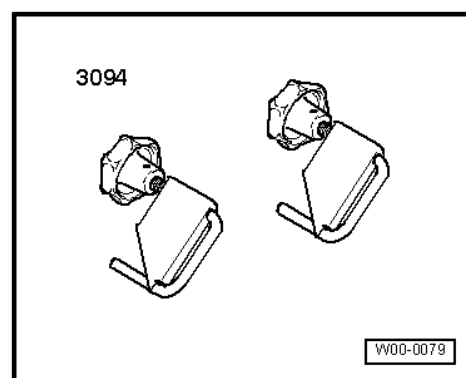


- ◆ Removing and installing heater coolant shut-off valve - N279-
⇒ ["8.4.2 Removing and installing heater coolant shut-off valve N279"](#), page 621
- ◆ Removing and installing bracket -E- for coolant circulation pump - V50- and coolant shut-off valve - N82- / heater coolant shut-off valve - N279-
⇒ ["8.5 Removing and installing bracket for shut-off valves"](#), page 623

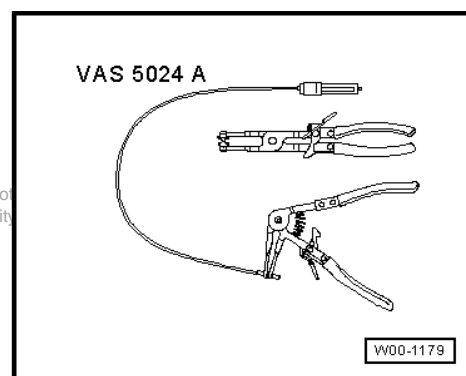
8.4.2 Removing and installing heater coolant shut-off valve - N279-

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)



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Removing

- Switch off ignition (and auxiliary heater).
- Remove the plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove fresh air intake ⇒ [page 594](#) .

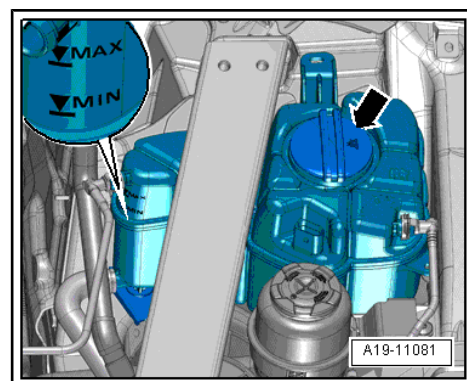


WARNING

Danger of scalding from hot steam or hot coolant.

- ◆ *The cooling system is pressurised when the engine is warm.*
- ◆ *To relieve pressure, cover coolant expansion tank cap with a cloth and open carefully.*

- Open cap -arrow- on coolant expansion tank.



- Use an absorbent cloth or absorbent paper to cover area beneath -N279- -A-.
- Mark positions of coolant hoses -C-, -D- and -E- at -N279- -A-.



Caution

- ◆ **Ensure that coolant hoses -C-, -D- and -E- are positioned correctly at -N279- -A-.**
- ◆ **If coolant hoses are interchanged, this can cause the heating in the passenger compartment to fail.**



Note

- ◆ *There are different versions of -N279- (with 3 or 4 connections for coolant hoses). On the version with 4 connections, one connection is sealed with a cap -H-.*
- ◆ *Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant in the small circuit flows back to the engine via this non-return valve in the small circuit even when the -N279- is activated ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .*

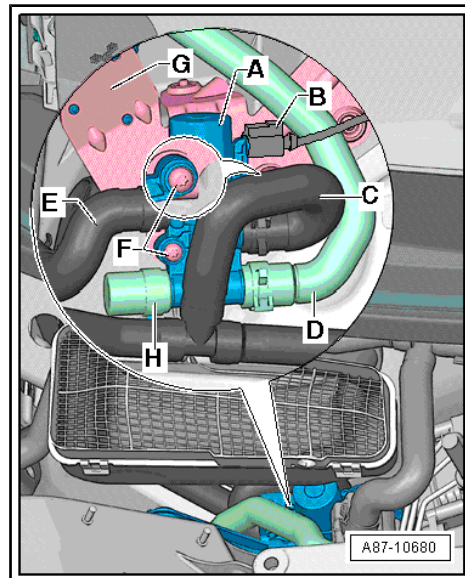
- Clamp off coolant hoses -C-, -D- and -E- in area of -N279- -A- (e.g. with hose clamps up to dia. 25 mm - 3094-).
- Unfasten clamps and detach coolant hoses -C-, -D- and -E-.
- Unplug electrical connector -B- from -N279- -A-.
- Remove securing bolts -F- from -N279- -A-.
- Remove -N279- .

Installing

Install in reverse order of removal; note the following.

- Butt-joint coolant hoses -C-, -D- and -E-.
- Bleed coolant circuit; observe notes ⇒ [page 625](#) .

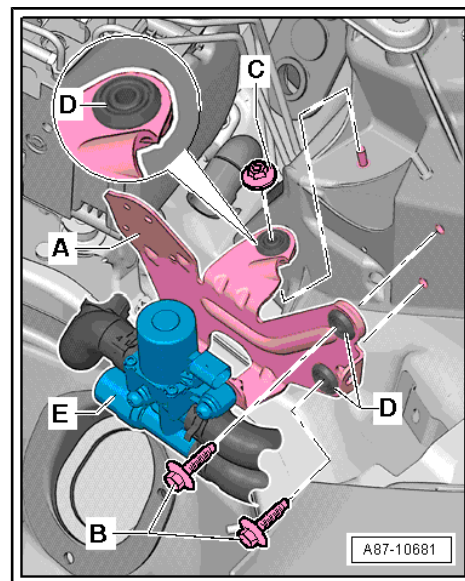
- If applicable, check activation and operation of -N279- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Re-install remaining components (removed earlier).



8.5 Removing and installing bracket for shut-off valves

Note

- ◆ To remove the bracket -A-, it is not necessary to open the coolant circuit.
- ◆ To reduce noise, the holder -A- for the coolant circulation pump -V50- and for the coolant shut-off valve -N82- / heater coolant shut-off valve -N279- -E- is not bolted directly to the body. It is attached by way of the bolts -B-, the combi nut -C- and rubber elements -D-. Make sure the holder -A- and the components attached to it do not make direct contact with the body or come into contact with other body components.
- ◆ This illustration shows the arrangement of the -V50- and -N82- on a vehicle with an 8-cyl. FSI engine without the auxiliary heater as an optional extra. The layout of -V50- and -N82- (or -N279-) may differ depending on vehicle equipment.
- ◆ -N82- is currently not fitted in vehicles with an engine with regulated coolant circuit (certain vehicles from model year 2010 onwards, e.g. with a regulated coolant pump and a coolant valve for cylinder head -N489-). On engines with a regulated coolant pump, the engine control unit activates the coolant pump to regulate coolant circulation ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .



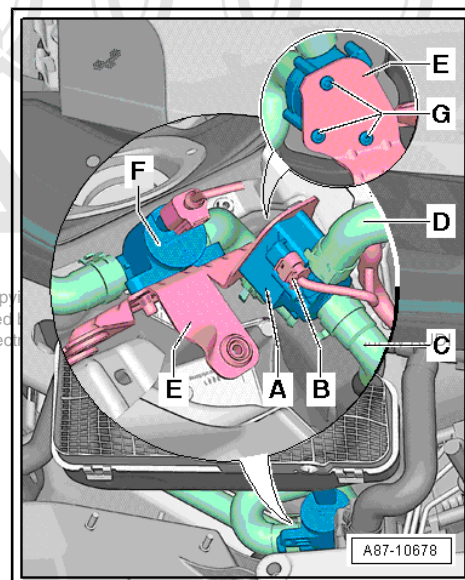
Removing and installing

- Unfasten -V50- from bracket -A-
⇒ ["8.2.2 Removing and installing coolant circulation pump V50"](#) page 612 .

Unfasten -N82- / -N279- -F- from bracket -E-.

Note

This illustration shows the arrangement of the -V50- and -N82- on a vehicle with an 8-cyl. FSI engine without the auxiliary heater as an optional extra. The layout of -V50- and -N82- (or -N279-) may differ depending on vehicle equipment.



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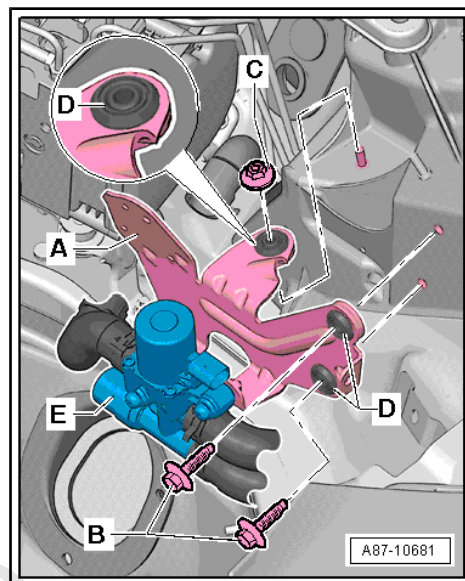


- Remove bolts -B- and nut with washer -C- (tightening torque: 8 Nm).
- Remove bracket -A-.



Note

This illustration shows the layout of -N279- on a vehicle with auxiliary heater as optional extra. The layout of -V50- and -N82- (or -N279-) may differ depending on vehicle equipment.

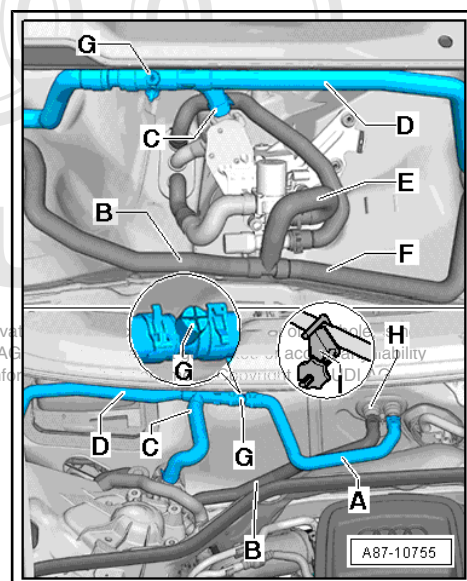


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8.6 Bleeding coolant circuit

Note

- ◆ The steps for removing the air conditioner components described in this Workshop Manual ensure that only a small quantity of air enters the coolant circuit. Therefore it is not necessary to completely bleed the coolant circuit after removing and installing these components.
- ◆ If, however, a large quantity of coolant has escaped on account of some other problem, e.g. a leaking hose, bleed the coolant circuit completely using the cooling system charge unit - VAS 6096- ➔ Rep. gr. 19; Cooling system/coolant; draining and adding coolant.
- ◆ After bleeding and charging the coolant circuit using the cooling system charge unit - VAS 6096- , bleed the relevant part of the air conditioner coolant circuit (heat exchanger and corresponding tubing) again as necessary via the bleeder screw -G-.



Important

- Most of the coolant circuit is filled with coolant; there are only a few air bubbles at a few locations in the coolant circuit.

Note

- ◆ As on installing the air conditioner components (e.g. heat exchanger in front or rear air conditioning unit, coolant circulation pump - V50- , coolant shut-off valve - N82-) only a small quantity of air ingresses into the coolant circuit and this is pre-filled again when the components are installed, there is very little air in the coolant circuit. With the engine warm, it is therefore sufficient to set the air conditioner to maximum heat output (to activate the coolant circulation pump - V50-) and to run the engine for a few minutes at high idle (approx. 2000 rpm) to completely bleed the coolant circuit.
- ◆ When bleeding the coolant circuit, take special care to ensure that the heat exchangers are completely bled. If air bubbles remain in the heat exchangers, complaints may be received about a lack of heat output in winter or differences in the temperature of the air flowing out of the vents with the same setting in control mode
➔ "5.9 Checking heating output of activation of air conditioner temperature flap", page 478.

Bleeding

- Fill coolant expansion tank with coolant up to top mark ➔ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Start the engine and leave it running until it reaches operating temperature.
- Set the front operating and display unit, Climatronic control unit - J255- (and, if fitted, the rear Climatronic operating and display unit - E265-) to maximum heat output for the driver's and front passenger's side (e.g. "HI" temperature setting).
- On -J255- (and if applicable -E265-) set the fresh air blower speed to approx. 30 % of the maximum output.
- The fresh air blower - V2- and the rear fresh air blower - V80- operate in the low speed range.

- If fitted, briefly switch on auxiliary heater ⇒ Auxiliary/supplementary heater; Rep. gr. 00 ; General information .
- Run the engine for approx. 2 minutes at high idle (approx. 2000 to 2500 rpm).
- Switch off the ignition, check the coolant level in the coolant expansion tank and add coolant if necessary ⇒ Rep. gr. 19 ; Cooling system/coolant; draining and adding coolant .

**WARNING**

- ◆ *The coolant circuit is pressurised. Hot vapour or hot coolant may escape on opening the coolant expansion tank. The cap is therefore to be covered with a cloth and opened carefully.*

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9 Operating and display unit

⇒ [“9.1 Block diagram of operating and display unit”, page 627](#)

⇒ [“9.2 Removing and installing operating and display unit”, page 630](#)

9.1 Block diagram of operating and display unit

⇒ [“9.1.1 Block diagram of front operating and display unit”, page 627](#)

⇒ [“9.1.2 Block diagram of rear operating and display unit”, page 629](#)

9.1.1 Block diagram of front operating and display unit

General notes

⇒ [“1.9 Control components of air conditioner \(in passenger compartment\)”, page 27](#)

A - Operating unit, Climatronic control unit - J255-

- ☐ Different versions ⇒ Electronic parts catalogue

1 - Left seat ventilation button

- ☐ Lighting of LEDs indicates the setting selected
- ☐ The setting selected is reduced by one unit on completion of a pre-set time ⇒ [page 9](#)

2 - Defrost mode button

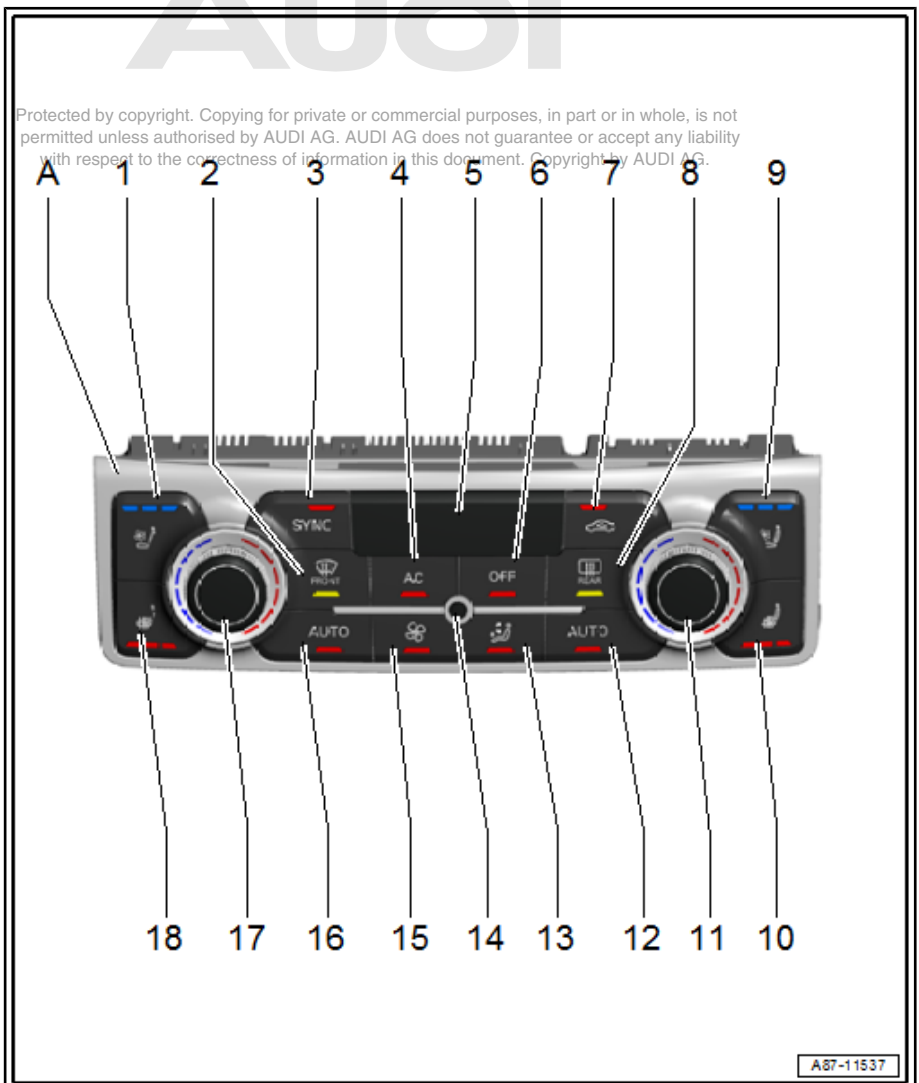
- ☐ Lighting of LED indicates selected function “Defrost mode”

3 - **SYNC** button

- ☐ Lighting of LED indicates selected function “SYNC”
- ☐ Pressing the button stores the settings for the front driver's side at the front passenger's side as well and if applicable, also on the rear operating and display unit.

4 - **AC** / **A/C** button for air conditioner compressor

- ☐ Lighting of LED indicates selected function “Air conditioner com-



pressor on”

**Note**

AC or **A/C** button labelled differently, depending on the version of the operating unit, Climatronic control unit - J255- ⇒ *Electronic parts catalogue*

5 - Display**6 - **OFF** button for switching heating/climate control off**

- ☐ Lighting of LED indicates selected function “off”

7 - Air recirculation mode button

- ☐ Lighting of LED indicates selected function “Air recirculation mode”
- ☐ The “air recirculation mode” function is cancelled on pressing the defrost mode button (air to windscreen)

8 - Heated rear window button

- ☐ Lighting of LED indicates selected function “Heated rear window on”

9 - Right seat ventilation button

- ☐ Lighting of LEDs indicates the setting selected
- ☐ The setting selected is reduced by one unit on completion of a pre-set time ⇒ [page 9](#)

10 - Right seat heating button

- ☐ Lighting of LEDs indicates the setting selected
- ☐ The setting selected is reduced by one unit on completion of a pre-set time ⇒ [page 4](#)

11 - Passenger side rotary temperature setting control**12 - **Auto** button for automatic control of left air conditioner**

- ☐ Lighting of LED indicates selected function “Automatic control”

13 - Button for setting air distribution

- ☐ the selected function for the “air distribution” appears on the display

14 - Infrared temperature and sunlight penetration sensor

- ☐ measures the temperature and sunlight penetration on the operating and display unit

15 - Button for fresh air blower - V2-

- ☐ For setting blower speed

16 - **Auto button for automatic control of right air conditioner**

- ☐ Lighting of LED indicates selected function “Automatic control”

17 - Driver side rotary temperature setting control**18 - Left seat heating button**

- ☐ Lighting of LEDs indicates the setting selected
- ☐ The setting selected is reduced by one unit on completion of a pre-set time ⇒ [page 4](#)

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9.1.2 Block diagram of rear operating and display unit

General notes

⇒ "1.9 Control components of air conditioner (in passenger compartment)", page 27

A - Rear Climatronic operating and display unit - E265-

- ❑ Different versions ⇒ Electronic parts catalogue

1 - Left seat heating button

- ❑ Lighting of LEDs indicates the setting selected

2 - Left seat ventilation button

- ❑ Lighting of LEDs indicates the setting selected

3 - Display

4 - Button for rear fresh air blower - V80-

- ❑ For setting blower speed

5 - [OFF] button for switching heating/climate control off

- ❑ Lighting of LED indicates selected function "off"

6 - Button for setting air distribution

- ❑ the selected function for the "air distribution" appears on the display

7 - Right seat ventilation button

- ❑ Lighting of LEDs indicates the setting selected

8 - Right seat heating button

- ❑ Lighting of LEDs indicates the setting selected

9 - Passenger side rotary temperature setting control

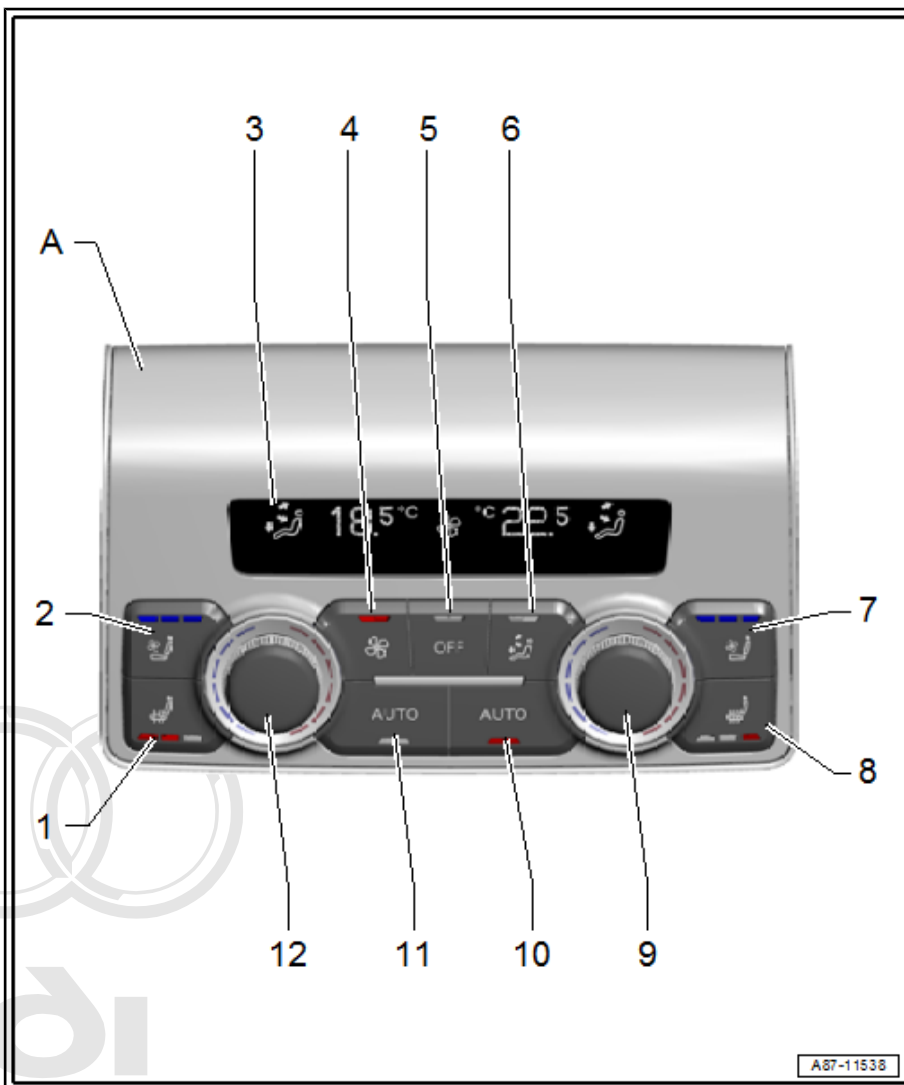
10 - [Auto] button for automatic control of right air conditioner

- ❑ Lighting of LED indicates selected function "Automatic control"

11 - [Auto] button for automatic control of left air conditioner

- ❑ Lighting of LED indicates selected function "Automatic control"

12 - Driver side rotary temperature setting control



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9.2 Removing and installing operating and display unit

⇒ "9.2.1 Removing and installing air conditioner front operating and display unit, Climatronic control unit J255", page 630

⇒ "9.2.2 Removing and installing rear Climatronic operating and display unit E265", page 632

9.2.1 Removing and installing air conditioner front operating and display unit, Climatronic control unit - J255-

- Interrogate the encoding and adaption of -J255- using the "Control unit replacement" function of the Guided Fault Finding routine (if -J255- is to be replaced) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

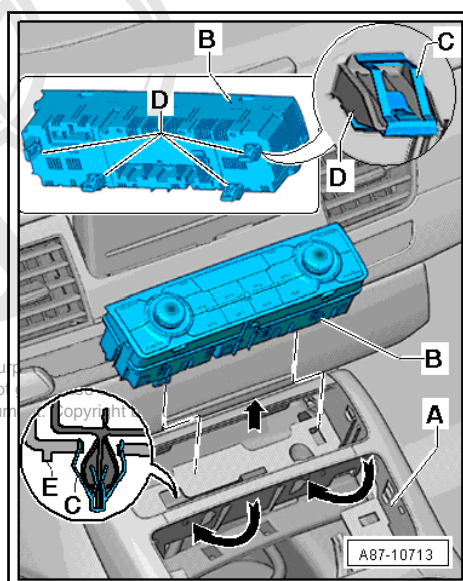
Removing

- Switch off ignition.



Caution

- Do not pull or press too firmly to avoid damaging -J255- and the centre console on removal.
- Take care not to damage the surface of the centre console on removal (cover up).
- If the clips -C- are holding -J255- so firmly in position in the centre console that there is a risk of damaging the centre console on removal, take out the multimedia system operating unit - E380- ⇒ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380-. After removing -E380-, reach into the mounting slot -A- and carefully press -J255- -B- from underneath -arrow direction- out of the centre console mounting slot.



Note

-J255- is held in position in the mounts of the centre console -E- by the clips -C-. Depending on the strength of the clips -C-, the force required to remove -J255- differs.

- Cover the trim of the centre console -A- to avoid damage on removing -J255- -C-.
- Remove the trim beneath the slot for the control unit 1 for information electronics - J794- -B- and the slot for -J794- → General body repairs, interior; Rep. gr. 70 ; Dash panel; Exploded view - dash panel .

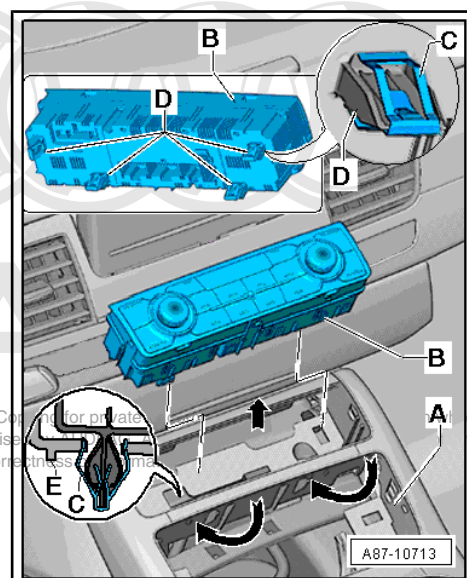
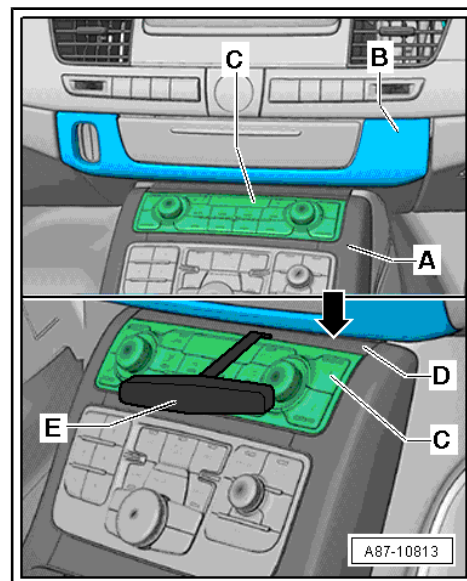
Removing -J255- if the multimedia system operating unit - E380- is installed and does not have to be removed:

- Carefully press the trim -D- above -J255- -C- in arrow direction to insert the front end hook - 3370- -E-.
- Carefully pull -J255- -C- out of the centre console mount using -3370- -E-.

Removing -J255- if the multimedia system operating unit - E380- has been or has to be removed:

- Remove multimedia system operating unit - E380- → Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- After removing -E380- , reach into the mounting slot -A- and carefully press -J255- -B- from underneath -arrow direction- out of the centre console mounting slot.

All models:

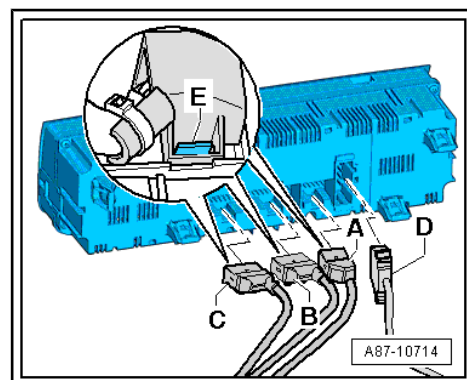


- Release und detach the connector -D-.



Caution

- ◆ *Risk of interchange with other identical connectors in the centre console (connector -B- and the connector for -E380- are identical for example).*
- ◆ *Plugging in the wrong connector could damage the control units.*
- ◆ *Mark the connectors before unplugging from the control units.*

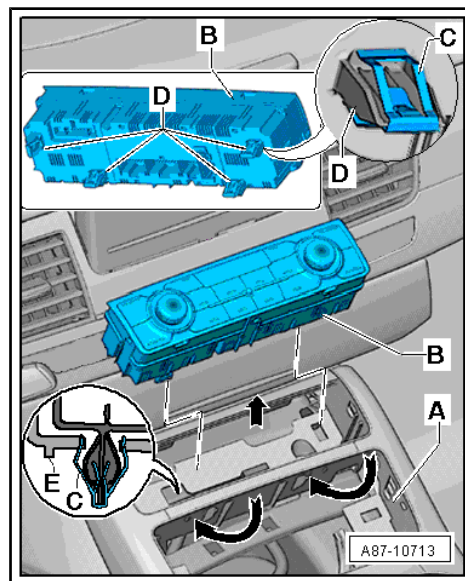


- Mark the connectors -A- to -D-.
- Release the catch -E- of the connectors -A-, -B- and -C- and unplug the connectors.

Installing

Install in reverse order of removal; note the following.

- ◆ On replacing -J255- -B-, pay attention to the exact assignment
⇒ Electronic parts catalogue
- ◆ Check for proper positioning of the clips -C- on the holders
-D- of -J255- -B-.
- ◆ So as not to damage the cover of the centre console, insert -
J255- -B- in the mounting slot and then press in carefully.
- Always perform the following operations after replacing/install-
ing -J255- ⇒ Vehicle diagnostic tester in “Guided Fault Find-
ing” mode
- ◆ Re-encode (or check the encoding of) -J255-
- ◆ Perform basic setting of -J255- .
- ◆ Interrogate the event memory of -J255- (rectify the cause of
any faults displayed) and erase the event memory.
- ◆ Check and if necessary correct the adaption of -J255- .
- ◆ Perform final control diagnosis for -J255- (depending on the
nature of the problem).



9.2.2 Removing and installing rear Climatronic operating and display unit - E265-

- Interrogate the encoding and adaption of -E265- using the
“Control unit replacement” function of the Guided Fault Finding
routine (if -E265- is to be replaced) ⇒ Vehicle diagnostic tester
in “Guided Fault Finding” mode.

Removing



Caution

- ◆ *Do not pull or press too firmly to avoid damaging -E265-
and the centre armrest on removal.*
- ◆ *Take care not to damage the surface of the centre armrest
on removing -E265- (cover up).*

- Switch off ignition.

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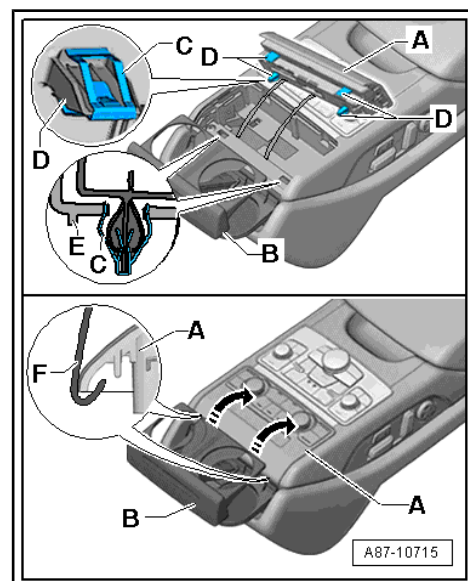
- Open the cup holder -B-.
- Cover the trim of the rear centre armrest to stop it being squashed or damaged on removing -E265- -A-.

 Note

- ◆ Depending on vehicle equipment, a trim panel may be fitted instead of a cup holder -B-.
- ◆ -E265- -A- is held in position in the mounts of the centre armrest -E- by the clips -C-. Depending on the strength of the clips -C-, the force required to remove -E265- -A- differs.
- Carefully remove -E265- -A- in -arrow direction- from the rear centre armrest mounting slot.

 Note

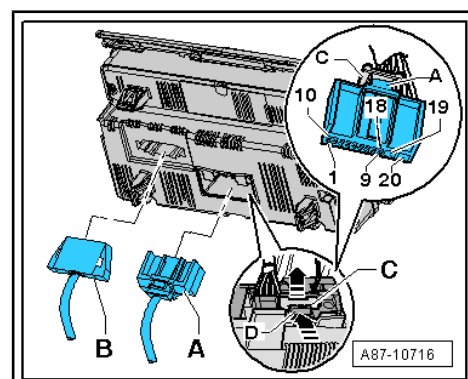
Depending on the strength of the clips -C-, -E265- -A- can be removed by hand or using a front end hook -3370- -F-.



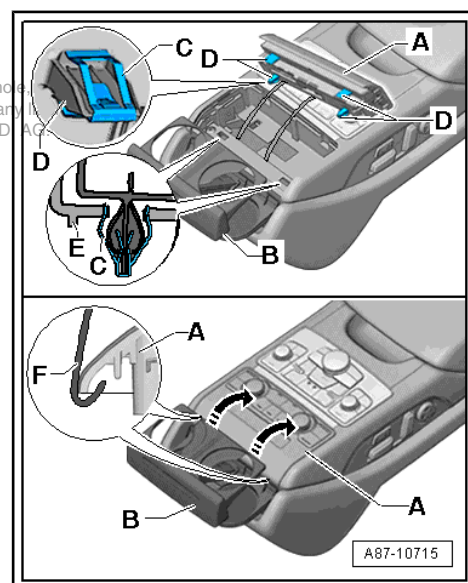
- Release the locking element of the catch -C- of the connector -A- by pulling in arrow direction -arrow-.
- Press the catch -D- towards the connector -arrow- and unplug the connectors -A-.
- Release the fasteners of the catch of the connector -B- by pressing the retainer tabs -D- and unplug the connector.

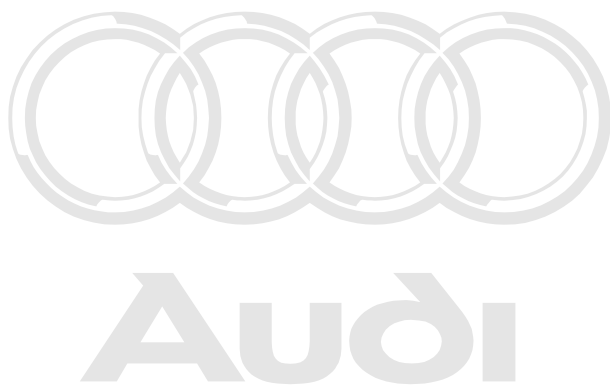
Installing

Install in reverse order of removal; note the following.



- ◆ On replacing -E265- -A-, pay attention to the exact assignment ⇒ Electronic parts catalogue .
- ◆ Check for proper positioning of the clips -C- on the holders -D- of -E265- -A-.
- ◆ So as not to damage the cover of the centre armrest, insert -E265- -A- carefully in the mounting slot and then press in.
- Always perform the following operations after replacing/installing -E265- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- ◆ Re-encode (or check the encoding of) -E265- .
- ◆ Perform basic setting of -E265- .
- ◆ Interrogate the event memory of -E265- and -J255- (rectify the cause of any faults displayed) and erase the event memory.
- ◆ Check and if necessary correct the adaption of -E265- .
- ◆ Perform final control diagnosis for -E265- (depending on the nature of the problem).





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10 Further control components

⇒ "10.1 Removing and installing heated windscreen control unit J505", page 635

⇒ "10.2 Removing and installing sunlight penetration photosensor G107", page 636

⇒ "10.3 Operation of air quality sensor G238", page 637

⇒ "10.4 Removing and installing air quality sensor G238", page 646

⇒ "10.5 Removing and installing ambient temperature sensor G17", page 648

⇒ "10.6 Removing and installing control unit for air ionisation system J897", page 649

⇒ "10.7 Removing and installing left vent temperature sender G150", page 649

⇒ "10.8 Removing and installing right vent temperature sender G151", page 650

⇒ "10.9 Removing and installing left footwell vent temperature sender G261", page 650

⇒ "10.10 Removing and installing right footwell vent temperature sender G262", page 651

⇒ "10.11 Removing and installing evaporator output temperature sender G263", page 651

⇒ "10.12 Removing and installing rear left chest vent temperature sender G635", page 652

⇒ "10.13 Removing and installing rear right chest vent temperature sender G636", page 653

⇒ "10.14 Removing and installing vent temperature sender for rear left footwell G637", page 653

⇒ "10.15 Removing and installing vent temperature sender for rear right footwell G638", page 654

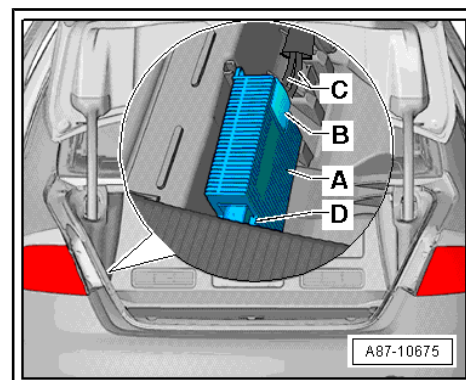
10.1 Removing and installing heated windscreen control unit - J505-

Removing

- Disconnect earth cable from battery with ignition switched off
⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove lining for spare wheel well ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Removing and installing spare wheel well lining .
- If fitted, remove cover from control unit.
- Release and open cover -B-, mark electrical wiring -C- for re-installation.
- Unscrew nuts and remove electrical wiring.
- Unplug electrical connector -D-.
- Loosen screw connections and pull control unit -A- up and out of the bracket.
- Detach control unit

Installing

Install in reverse order of removal; note the following:



Insert the control unit into the guide on the spare wheel well with the retaining tab facing down.

- Attach electrical wiring according to the applied markings.
- Tightening torque: Nut 7.5 Nm; Screw connection 4 Nm.

10.2 Removing and installing sunlight penetration photosensor - G107-



Note

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There are different versions of -G107-. Attention is therefore to be paid to correct assignment ⇒ Electronic parts catalogue . If a -G107- not intended for this vehicle has been fitted (it emits a different signal to the one intended for this air conditioner front operating and display unit, Climatronic control unit - J255-), -J255- cannot evaluate the signal from -G107- and the air conditioner will not be properly regulated.

Removing

- Switch off ignition.
- Use a small screwdriver for example to carefully prise -G107-A- out of the defroster vent -B- (for the windscreen).



Note

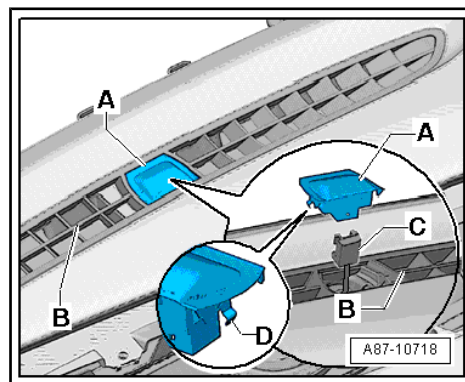
- ◆ *When doing so take care not to damage the surface of the cover of -G107- -A- and the defroster vent -B-.*
- ◆ *-G107- -A- is held in position by the clips -D- of the defroster vent -B-.*

- Release und unplug the connector -C-.

Installing

Install in reverse order of removal; note the following.

- Following installation, interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.3 Operation of air quality sensor - G238-

⇒ ["10.3.1 Operating mode of air quality sensor G238 "](#),
[page 637](#)

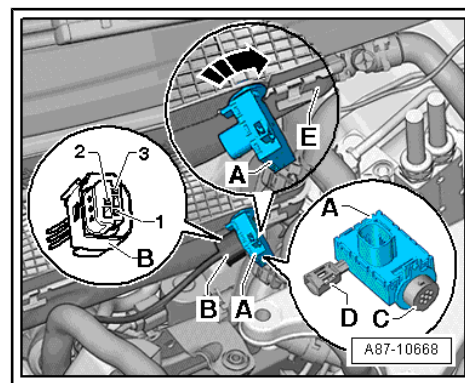
⇒ ["10.3.2 Checking operation of air quality sensor G238 "](#),
[page 640](#)

⇒ ["10.3.3 Operation of humidity sender in fresh air intake duct G657 "](#), [page 645](#)

⇒ ["10.3.4 Checking humidity sender in fresh air intake duct G657 "](#), [page 646](#)

10.3.1 Operating mode of air quality sensor - G238-

- ◆ -G238- -C- detects the NOx content (nitrogen oxide) and the CO content (carbon monoxide) of the air flow with one sensor each. In addition, the -G238- fitted in this vehicle exchanges information with the onboard supply control unit - J519- by way of the data bus. Attention is therefore to be paid to the correct version of -G238- / -G657- ⇒ Electronic parts catalogue .
- ◆ The measured value of -G238- -C- is evaluated by -J519- and transmitted via the data bus to the air conditioner front operating and display unit, Climatronic control unit - J255- . In response to a request, -J255- switches to air recirculation mode if no shut-off criterion applies ⇒ Vehicle diagnostic tester "Guided fault-finding" function.
- ◆ Certain air conditioner functions (including regulation of automatic air recirculation mode) can be activated and deactivated by way of the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Control of the air conditioner may also be influenced by way of default settings in the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. The default setting in the MMI should therefore be checked first in the event of problems with these components ⇒ Infotainment / MMI operating instructions .
- ◆ After switching on the ignition, -G238- -C- needs roughly 2 minutes to attain its operating temperature. The function of -G238- is restricted during the warm-up phase.
- ◆ -G238- -C- detects pollutants in the ambient atmosphere (generally petrol and/or diesel emissions) and causes -J255- to switch the air conditioner to air recirculation mode.



The air conditioner front operating and display unit, Climatronic control unit - J255- recognizes the nature and level of the air pollution from the signal from -G238- . In addition, -J255- receives the sensitivity setting via the data bus from the multimedia system operating unit - E380- . On the basis of this information, -J255- then determines if and when to switch the air conditioner to air recirculation mode ⇒ Infotainment / MMI Operating Manual and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Example:

- At ambient temperatures greater than approx. +2 °C, even a slight increase in pollutant concentration causes switching to air recirculation mode in response to a request from -G238-.
- At ambient temperatures below approx. -1 °C and in "Econ mode" (air conditioner compressor switched off, lamp in  or  button not lit), switching only takes place if there is a considerable increase in pollutant concentration and only for approx. 15 s. If there is a renewed increase in pollutant concentration within approx. 2 minutes, -J255- does not switch to "automatic air recirculation mode" within this period.

- If the air conditioner compressor is switched off (e.g. in “Econ” mode, lamp in **AC** or **A/C** button not lit), the maximum “automatic air recirculation mode” time is limited by -J255- to approx. 15 seconds (to stop the windscreen, rear window and door windows misting up).
- A decrease in concentration results in the air conditioner being switched back to fresh air mode.
- The “automatic air recirculation mode” time is governed by the -J255- version and the setting on -E380-. At ambient temperatures below approx. +10 °C and with maximum sensitivity set on -E380-, the system remains in “automatic air recirculation mode” for approx. 30 s for example. On completion of this period, the system is switched to fresh air mode. In the event of a renewed increase in pollutant concentration within approx. 2 minutes, -J255- does not switch to “automatic air recirculation mode” within this period.
- ◆ The “automatic air recirculation” function can be deactivated any time. If the function is active, the air conditioner compressor will be switched on even at ambient temperatures below +2 °C when there is a request for “automatic air recirculation”. However, at temperatures below approx. -5 °C, compressor operation is no longer possible.
- ◆ If “automatic air recirculation” mode has been set on the MMI (Multi Media Interface), the air conditioner compressor may be switched on down to temperatures of approx. -5 °C even if air recirculation mode has been activated manually (via the “air recirculation” button).
- ◆ To prevent constant air conditioner air recirculation mode in areas with a persistently high level of pollutant emissions, -G238- is adaptive (its sensitivity is matched to the environmental impact).
- ◆ If the pollutant level in the ambient air remains relatively high for a lengthy period, -G238- starts to adapt to the change in ambient conditions by way of an adaption program, with the result that an air recirculation request is generally applied for less than 12 minutes given uniform ambient air pollution. If there are several consecutive peak impact levels, the air conditioner may also operate in air recirculation mode for a longer period.
- ◆ Switching of the air conditioner flaps takes a certain length of time. To prevent gaseous pollutants from ingressing into the passenger compartment together with the fresh air drawn in before the air flow/fresh air flaps can close (and the air recirculation flaps can open) when there is a sudden increase in pollutant levels (e.g. when driving through a cloud of diesel emissions), vehicles with an air quality sensor -G238- are fitted with a dust and pollen filter with an activated charcoal layer. Once a filter is saturated with pollutants, it can no longer perform this function and must be renewed.
- ◆ To stop the air flow/fresh-air flap and the air recirculation flap being switched too frequently, switching does not take place immediately in the event of a slight increase in the pollutant level in the ambient atmosphere (-G238- does not transmit a request to -J255-). In such cases, the filter effect of the activated charcoal layer in the dust and pollen filter suffices.
- ◆ To stop the air flow/fresh-air flap and the air recirculation flaps being switched too frequently, a -G238- request for “Automatic air recirculation mode” is applied for at least 25 s (minimum dwell time) even if the pollutant concentration in the air has decreased again to such an extent that air recirculation mode would no longer be necessary.

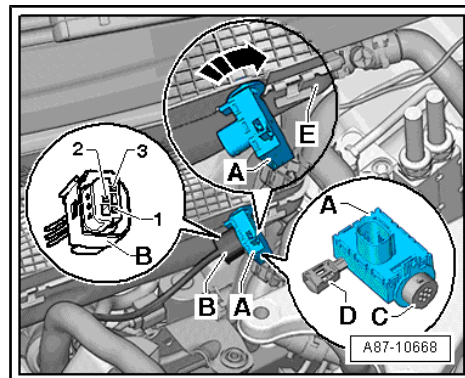
- ◆ To demist the windscreen, rear window and door windows as quickly as possible, -J255- does not permit air recirculation in "Defrost" mode (a request from -G238- is not implemented).
- ◆ It takes approx. 30 seconds for the air quality sensor - G238- to warm up after the ignition is switched on. During this period no request is sent by -G238- to the air conditioner front operating and display unit, Climatronic control unit - J255- for "automatic air recirculation mode".
- ◆ The sensor -A- (combined sensor with -G238- and -G657-) is a highly sensitive electronic component which could be destroyed by direct exposure to fluids, solvents, fuels and certain chemical compounds. In addition, direct contact with water can impair operation of -G657- to such an extent that correct humidity measured values can no longer be determined (either briefly or permanently depending on the composition of the fluid). The vehicle should therefore not be fitted with sensors which have been in contact with such substances.
- ◆ When the ignition is switched on, certain ambient influences (e.g. high pollutant content in the air) during the warm-up phase of the air quality sensor - G238- may result in a fault being stored for the -G238- in the onboard supply control unit - J519- although the sensor is OK. In this case, proceed as follows:
 - Switch off ignition for at least 2 minutes.
 - Switch on the ignition and wait at least 2 minutes.
 - Read out event memory of onboard supply control unit - J519- . If the air quality sensor - G238- is still displayed as a static fault, perform Guided Fault Finding⇒ Vehicle diagnostic tester. If -G238- is no longer displayed as being faulty or if the fault becomes sporadic, -G238- is OK (and requires no further attention). Erase the event memory.

10.3.2 Checking operation of air quality sensor - G238-



Note

- ◆ After switching on the ignition, -G238- -A- needs roughly 2 minutes to attain its operating temperature. The function of -G238- is restricted during the warm-up phase.
- ◆ Under certain ambient conditions, a -G238- fault message may be displayed during the warm-up phase. Only replace -G238- if -G238- is permanently entered as being defective. If the fault display for -G238- changes from "static" to "sporadic" after switching the ignition off and on again (wait at least 2 minutes in each case), -G238- is OK and the event recorder entry requires no further attention (erase event recorder) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Certain air conditioner functions (including regulation of automatic air recirculation mode) can be activated and deactivated by way of the MMI (Multi Media Interface) in the "A/C" function of the "Car"/"Car systems" menu. Control of the air conditioner may also be influenced by way of default settings in the MMI (Multi Media Interface) in the "A/C" function of the "Car"/"Car systems" menu. The default setting in the MMI should therefore be checked first in the event of problems with these components ⇒ Infotainment / MMI operating instructions .



Special tools, testers and other devices required

- ◆ Vehicle diagnostic tester
- ◆ Commercially available gas lighter

Test requirements

- ◆ Vehicle standing in a clean atmosphere (away from running engines, exhaust vents, etc.)
- ◆ The engine compartment and plenum chamber must be clean (not contaminated with oil or fuel).
- ◆ The engine compartment and plenum chamber must not have been sprayed with solvent-based cleaning agents or anti-corrosion material.
- ◆ "Automatic air recirculation" must be switched on.



Note

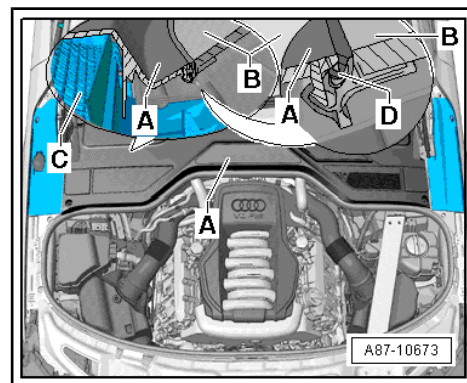
The "Automatic air recirculation" function can be activated and deactivated by way of the "A/C" function in the "Car"/"Car systems" menu of the MMI (Multi Media Interface) ⇒ Infotainment / MMI operating instructions .

Checking operation

- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

 Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.

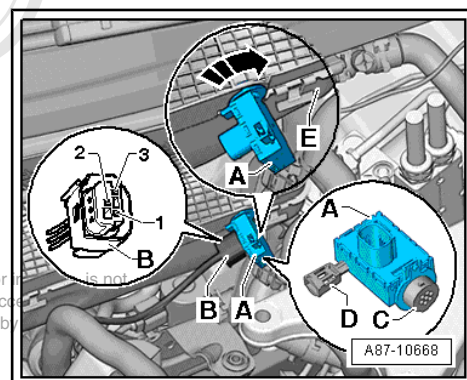


- Connect the vehicle diagnostic tester to the vehicle diagnostic connection with the ignition switched off and start Guided Fault Finding⇒ Vehicle diagnostic tester.
- Start engine.
- Interrogate event memory of air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Set -J255- to “Auto” mode.
- Use MMI (Multi Media Interface) to set -J255- to automatic air recirculation mode ⇒ Infotainment/MMI Operating Manual .
- Wait 2 minutes (-G238- warm-up time).
- Select “Reading measured values” function on vehicle diagnostic tester and read out measured values for air quality sensor - G238- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

 Note

The “Reading measured values” function of the Guided Fault Finding routine displays the air pollution level measured by the air quality sensor - G238- and the measured value for the NOx content (nitrogen oxide) and the CO content (carbon monoxide) content of the air. Explanatory notes on possible displays ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

- Turn air quality sensor - G238- -A- approx. 90° and remove it from the fresh-air intake -E-.



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- Allow a small quantity of gas from cigarette lighter -B- to flow past section -A- of -G238- (from above).


Note

The air quality sensor - G238- reacts when exposed to cigarette smoke or cigarette lighter gas. As cigarette lighter gas is heavier than air, remove -G238- and apply the gas from above.

- In “Reading measured values” function of Guided Fault Finding routine, select and read out measured values for -G238- → Vehicle diagnostic tester in “Guided Fault Finding” mode.

Specifications:

- ◆ In the display zones, the measured values for the “CO content” change with respect to the initial value and thus indicate that the sensor for the “CO content” in the air quality sensor - G238- is functioning properly and that the electronics of -G238- are correctly evaluating the measured values.


Note

There is currently no provision for checking the sensor for “NOx” content with workshop equipment. However, if the composition of the air surrounding the sensor changes, the value displayed for the “NOx” content will also change.

- Wait briefly (approx. 1 minute, depending on amount of gas applied to sensor).
- Read out display in display zones with measured values for - G238- .

Specifications:

- ◆ The measured values in the display zones should return to the initial levels, indicating that both sensors are functioning properly and the sensor electronics are evaluating the measured values correctly.

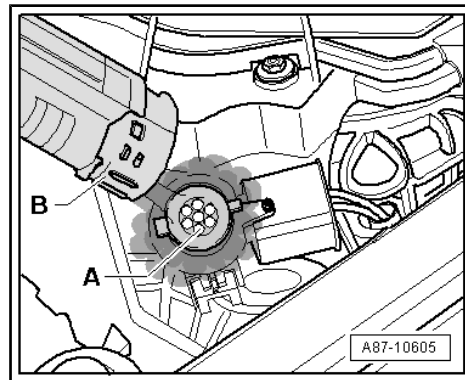

Note

Due to changes in pollutant levels, the values currently displayed may differ from those measured initially.

- Read out the display with the measured values for the air conditioner operating status (air recirculation/fresh air mode).

Specifications:

- ◆ The display zone should indicate that the air conditioner is operating in fresh air mode.





Note

- ◆ *If a value deviating from "fresh air mode" is displayed in the "Reading measured values" function of the Guided Fault Finding routine, air recirculation mode has already been requested (e.g. because "maximum cooling output" or "manual air recirculation mode" has been selected manually); in this case, select a mode which does not require air recirculation.*
- ◆ *If the "Reading measured values" function of the Guided Fault Finding routine indicates that the air quality sensor - G238- is already requesting automatic air recirculation mode, clean the plenum chamber (if necessary) or move the vehicle to an area with a cleaner ambient atmosphere ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*



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- Allow a small quantity of gas from cigarette lighter -B- to flow past section -A- of air quality sensor - G238- (from above).
- Read out display for air recirculation/fresh air mode.

Specifications:

- ◆ The “Reading measured values” function of the Guided Fault Finding routine should indicate that there is a request for air recirculation mode and the air conditioner is operating in air recirculation mode.



Note

- ◆ *If the “Reading measured values” function of the Guided Fault Finding routine indicates that the air quality sensor - G238- is requesting automatic air recirculation mode, but that this request cannot be implemented by the air conditioner front operating and display unit, Climatronic control unit - J255- on account of a shut-off criterion, eliminate the cause of this shut-off criterion accordingly ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- ◆ *To prevent the air flow/fresh air and air recirculation flaps from being switched too frequently, a request from the air quality sensor - G238- for “automatic air recirculation mode” is applied for at least 25 seconds (minimum dwell time) even if the pollutant concentration in the air has decreased again to such an extent that air recirculation mode would no longer be necessary.*

- Wait briefly (approx. 1 minute, depending on amount of gas applied to sensor).
- ◆ The “Reading measured values” function of the Guided Fault Finding routine should indicate that there is no request for air recirculation mode and the air conditioner is operating in air recirculation mode.

Proceed as follows if the air quality sensor - G238- functions properly in this test but a customer complaint has been received:

- Check dust and pollen filter for dirt
⇒ [“5.13 Removing and installing dust and pollen filter”, page 501](#).
- Connect a vehicle diagnostic tester to the vehicle diagnostic connection with the ignition switched off and start Guided Fault Finding⇒ Vehicle diagnostic tester.
- Select “Reading measured values” function using vehicle diagnostic tester ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

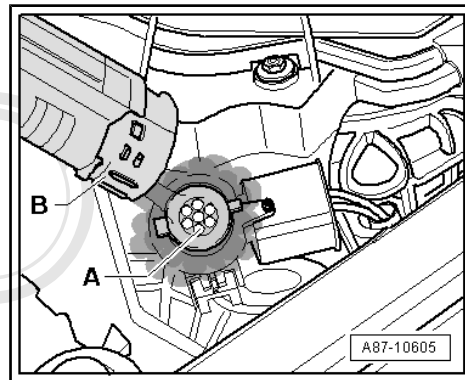


Note

A second person is required to read out the values displayed while the other is driving.

Observe the safety precautions:

- Alternately read out displays in “Reading measured values” function of Guided Fault Finding routine for measured values of air quality sensor - G238- and request for air recirculation/fresh-air mode ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start by driving vehicle into an area with a relatively clean atmosphere (system in fresh air mode).



- Then drive vehicle into an area where the atmosphere is polluted (e.g. onto an uphill road with heavy commercial traffic).
- Read out displays in the various display zones. The displays in the various zones must change, e.g. when driving through a cloud of diesel emissions.

Note

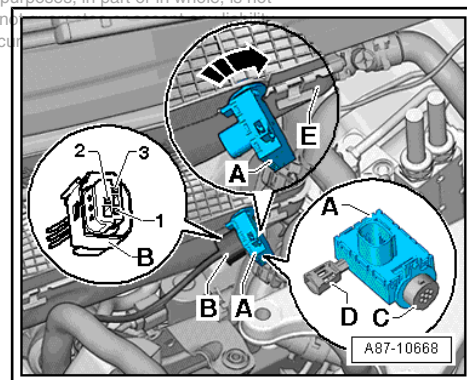
Please also note the descriptions

⇒ ["5.13 Removing and installing dust and pollen filter"](#),
[page 501](#) and

⇒ ["10.3 Operation of air quality sensor G238"](#), [page 637](#) (Operation of air quality sensor - G238- and humidity sender in fresh air intake duct - G657-).

10.3.3 Operation of humidity sender in fresh air intake duct - G657-

- ◆ The sender fitted in the sensor -A (-G657-) detects the temperature and the moisture contained in the air flow. In addition, the -G238- / -G657- fitted in this vehicle exchanges information with the onboard supply control unit - J519- by way of the data bus. Attention is therefore to be paid to the correct version of -G238- / -G657- ⇒ Electronic parts catalogue .
- ◆ The measured value of -G657- is evaluated by -J519- and transmitted via the data bus to the air conditioner front operating and display unit, Climatronic control unit - J255- .
- ◆ Certain air conditioner functions (including regulation of automatic air recirculation mode) can be activated and deactivated by way of the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. Control of the air conditioner may also be influenced by way of default settings in the MMI (Multi Media Interface) in the "A/C" function of the "Car" / "Car systems" menu. The default setting in the MMI should therefore be checked first in the event of problems with these components ⇒ Infotainment / MMI operating instructions .
- ◆ -J255- uses the measured values to calculate the current relative humidity of the fresh air drawn in. The calculated humidity value then indicates whether there is a risk of the windscreen, rear window and door windows misting up from the inside. If this is the case, -J255- takes corrective action by altering various characteristic curves. This may involve, for example, reducing the evaporator temperature (by activating the air conditioner compressor), increasing the response thresholds for the request for automatic air recirculation mode, preventing the start/stop system from switching off the engine etc. ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ After switching on the ignition, -G657- needs roughly 2 minutes to attain its operating temperature. The function of -G657- is restricted during the warm-up phase.
- ◆ The sensor -A- (combined sensor with -G238- and -G657-) is a highly sensitive electronic component which could be destroyed by direct exposure to fluids, solvents, fuels and certain chemical compounds. In addition, direct contact with water can impair operation of -G657- to such an extent that correct humidity measured values can no longer be determined (either briefly or permanently depending on the composition of the fluid). The vehicle should therefore not be fitted with sensors which have been in contact with such substances.

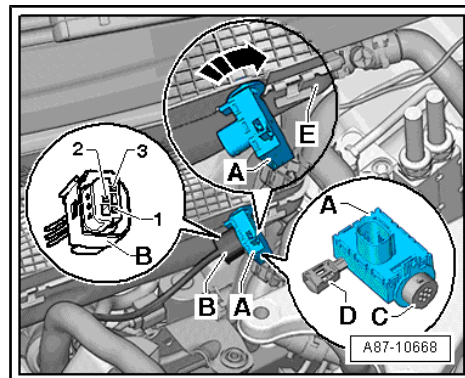


10.3.4 Checking humidity sender in fresh air intake duct - G657-



Note

- ◆ After switching on the ignition, the humidity sender in fresh air intake duct - G657- -D- takes approx. 2 minutes to reach its operating temperature; the function of the -G657- is restricted during the warm-up phase ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ◆ Operation of -G657- can only be checked by way of the Guided Fault Finding routine in which the measured values of -G657- are evaluated by way of the "Reading measured values" function and compared to the temperature and humidity measured at the fitting location of -G657- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.4 Removing and installing air quality sensor - G238-

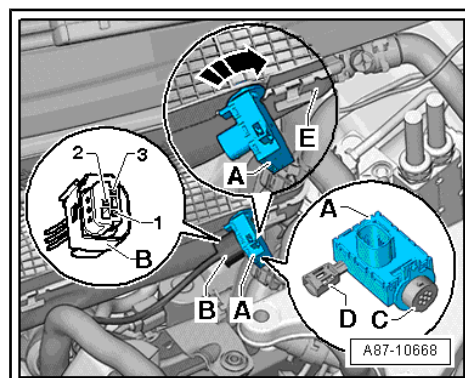
⇒ "10.4.1 Removing and installing air quality sensor G238 with humidity sender in fresh air intake duct G657", page 646

10.4.1 Removing and installing air quality sensor - G238- with humidity sender in fresh air intake duct - G657-



Note

- ◆ There are different versions of -G238- / -G657-. This vehicle is fitted with a sensor -A- which combines -G238- -C- and -G657- -D- as one component ⇒ Electronic parts catalogue.
- ◆ The sensor -A- (combined sensor comprised of -G238- and -G657-) is a highly sensitive electronic component which could be irreparably damaged by direct exposure to fluids, solvents, fuels and certain chemical compounds (contamination may ingress e.g. via area -C- or -D-). In addition, direct contact with water can impair the function of -G657- to such an extent that the values for humidity levels can no longer be measured correctly (either temporarily or permanently, depending on the composition of the fluid). Sensors that have come into contact with such substances must not be installed in the vehicle.
- ◆ Following removal, do not set down -G238- / -G657- in areas where it could come into contact with solvents, fuels or certain chemical compounds (liquids or vapours).



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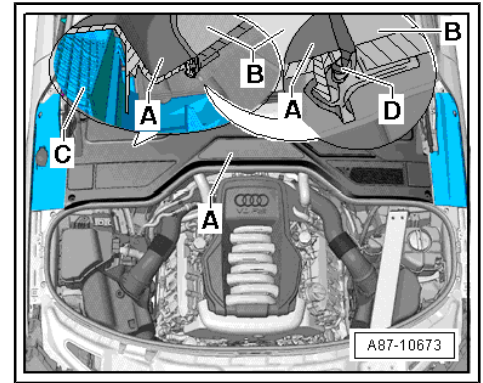
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– Switch off ignition.

- Remove plenum chamber cover -A- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

 Note

The plenum chamber cover -A- must be undamaged in order to prevent water from running into the air conditioning unit via the intake duct -C- when the plenum chamber cover -A- is fitted. The plenum chamber cover -A- must also be properly and fully engaged in the frame -D- of the windscreen -B-.



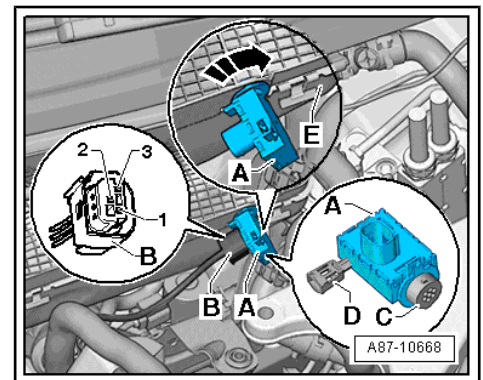
- Turn -G238- / -G657- -A- approx. 90° and remove it from the fresh-air intake -E-.
- Unplug electrical connector -B- from sensor -A-.

Contact assignment in connector -B-

1 - Positive (terminal "15")

2 - Negative (terminal "31")

3 - Signal wire to onboard supply control unit - J519- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations



 Note

- ◆ *The signal emitted by -G238- and -G657- cannot be evaluated using workshop equipment.*
- ◆ *The data of -G238- and -G657- are evaluated by the onboard supply control unit - J519- and transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *The measured values of -G238- and -G657- are displayed in the "Reading measured values" function of the Guided Fault Finding routine for -J255- and -J519- . For explanatory notes on displays, refer to ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

10.5 Removing and installing ambient temperature sensor - G17-

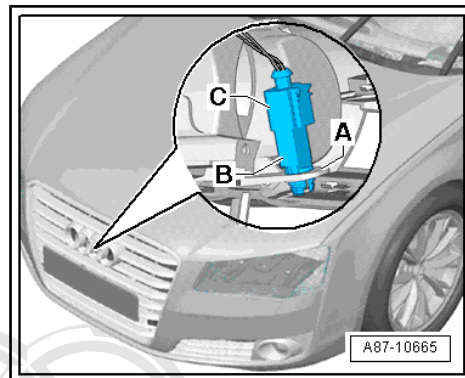


Note

The measured value of the -G17- -B- is evaluated by the onboard supply control unit - J519- and transmitted via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-) and the control unit in dash panel insert - J285- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Removing and installing:

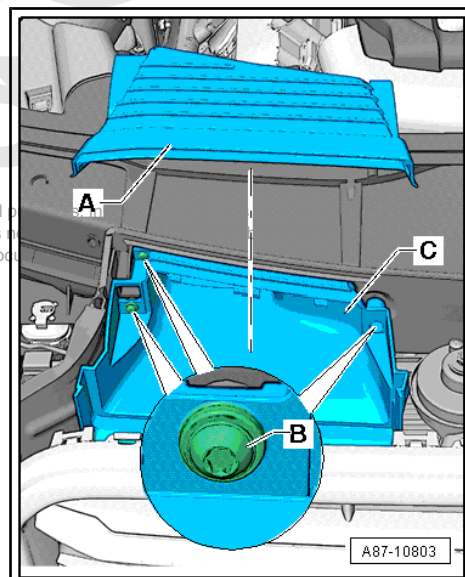
- Switch off ignition.
- Remove top cover for lock carrier ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing attachments .



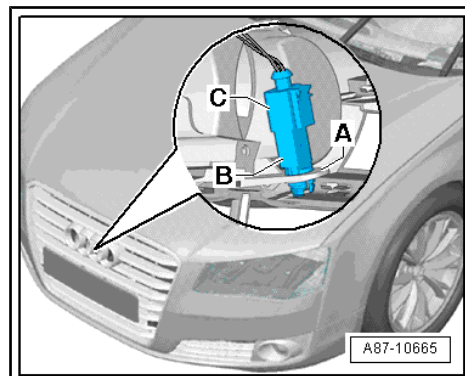
Note

In order to remove -G17- , the horn (right-side, bass horn - H7-) may be removed instead of the air duct (right-side) for the engine air intake (-A- and -C-) ⇒ Electrical system; Rep. gr. 90 ; Horn; Removing and installing treble horn - H2- / bass horn - H7-.

- Detach top section of air duct (right-side) -A- for engine air intake.
- Remove bolts -B-.
- Detach bottom section of air duct (right-side) -C- for engine air intake.



- Unplug electrical connector -C- from temperature sensor -B- and unclip temperature sensor from bracket -A-.
- Following installation, interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- (and onboard supply control unit - J519-) and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.6 Removing and installing control unit for air ionisation system - J897-

Note

- ◆ *The air ionisation system is only available for vehicles with a rear Climatronic operating and display unit - E265- and only in combination with a certain country-specific version ⇒ Audi sales range .*
- ◆ *The button for air ionisation system - E677- and the control unit for air ionisation system - J897- are always installed in the B-pillar behind the front passenger's seat (in the right B-pillar on left-hand drive vehicles).*
- ◆ *The ionizer -D- neutralises any odorous substances contained in the flow of air.*
- ◆ *On vehicles with no control unit for air ionisation system - J897- , use adhesive tape for example to provide an airtight seal for the installation opening in the air duct -F- if applicable.*

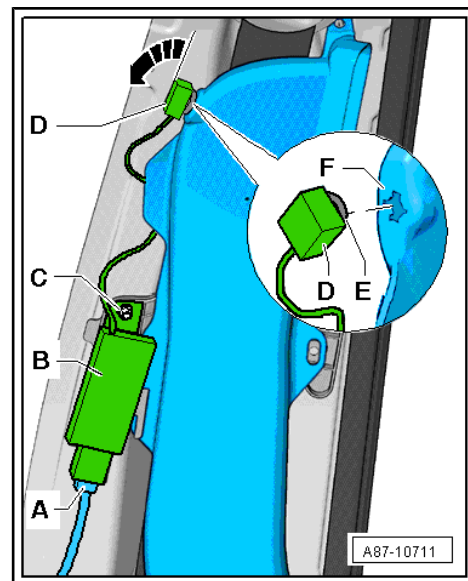
Removing

- Move the front right seat (front passenger's seat) as far forwards as it will go.
- Switch off ignition.
- Remove top trim panel of right B-pillar ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim .
- Unplug connector -A-.
- Remove bolt -C-.
- Turn the ionizer -D- through 90° -arrow- and remove it from the mount of the air duct -F-.

Installing

Install in reverse order of removal; note the following.

- Check the seal -E- for damage and proper attachment.
- Re-install all parts removed in reverse order.
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.7 Removing and installing left vent temperature sender - G150-

Removing

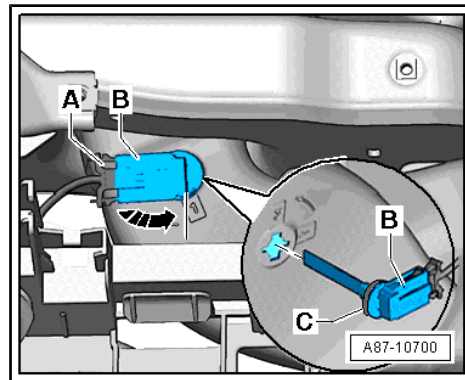
- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/ storage compartments/covers; Removing and installing driver side dash panel trim

- Reach behind the dash panel cross-member and unplug the connector -A-.
- Turn the sender -B- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check that seal -C- is not damaged and is seated correctly.
- Re-install all parts removed in reverse order.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.8 Removing and installing right vent temperature sender - G151-

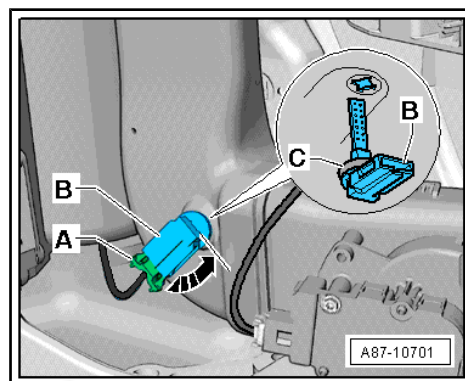
Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Unplug connector -A-.
- Turn the sender -B- through 90° -arrow- and remove.

Installing

Install in reverse order of removal; note the following.

- Check that seal -C- is not damaged and is seated correctly.
- Re-install all parts removed in reverse order.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.9 Removing and installing left footwell vent temperature sender - G261-

Removing

- Move driver's seat to rearmost position.
- Switch off ignition.
- Remove storage compartment beneath dash panel on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing driver side dash panel trim

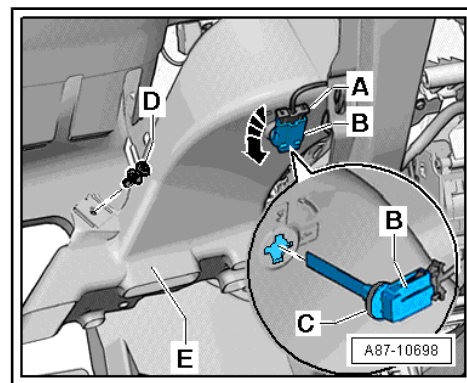
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- Unplug connector -A-.
- Turn the sender -B- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check that seal -C- is not damaged and is seated correctly.
- Re-install all parts removed in reverse order.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.10 Removing and installing right footwell vent temperature sender - G262-

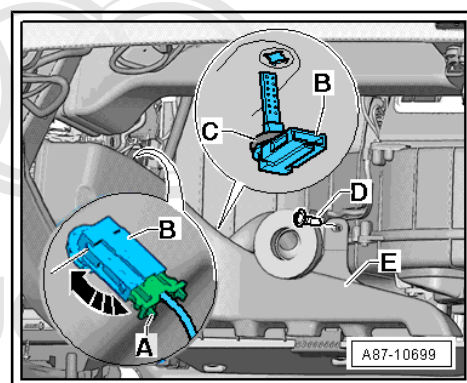
Removing

- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove the right (front passenger's side) -E- footwell vent ⇒ [page 584](#) .
- Unplug connector -A-.
- Give the sender -B- a 90° turn -arrow- and pull it out of the right footwell vent -E-.

Installing

Install in reverse order of removal; note the following.

- Check that seal -C- is not damaged and is seated correctly.
- Re-install all parts removed in reverse order.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.11 Removing and installing evaporator output temperature sender - G263-

Removing

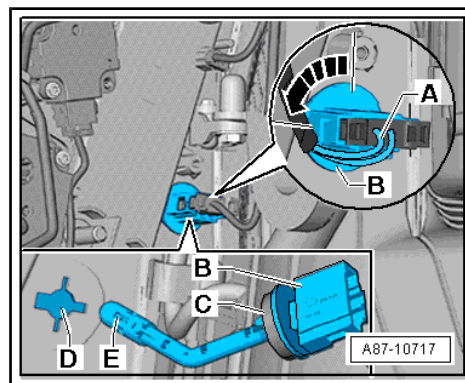
- Move the front right seat (front passenger's seat) as far back as it will go.
- Switch off ignition.
- Remove the glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves/storage compartments/covers; Removing and installing glove compartment .
- Remove right footwell vent (front passenger's side) ⇒ [page 584](#) .

- Unplug connector -A-.
- Turn the sender -B- through 90° -arrow- and remove it from the mount -D- of the air conditioning unit.

Installing

Install in reverse order of removal; note the following.

- Check that seal -C- is not damaged and is seated correctly.
- Insert -G263- -B- in the mount -D- of the air conditioning unit.
- Turn -G263- -B- through 90° -in the direction opposite to the arrow- and secure it in this position in the mount.
- Re-install all parts removed in reverse order.
- Interrogate the event recorder of the front air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.12 Removing and installing rear left chest vent temperature sender - G635-

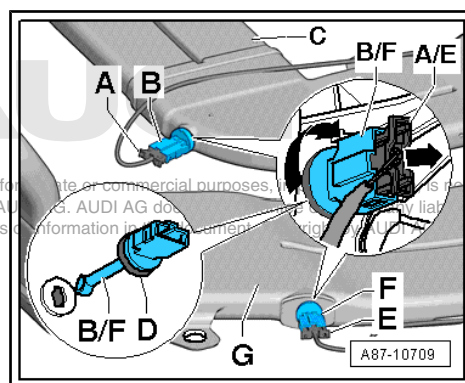
Removing

- Move the front left seat (driver's seat) as far forwards as it will go.
- Switch off ignition.
- Remove left rear seat or rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench / individual seats .
- Remove left rear door sill panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .
- Remove lower B-pillar trim and left C-pillar trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim , ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim .
- Carefully detach the rear left floor covering from the vehicle to provide access to -G635- -F- (fitted in the air duct to the rear left chest vent -G-).
- Unplug the connector -E-.
- Turn the sender -F- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check the seal -D- for damage and proper attachment.
- Re-install all parts removed in reverse order.
- Check that the trim panels for the footwell vents are installed in the proper position beneath the front seat.
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.13 Removing and installing rear right chest vent temperature sender - G636-

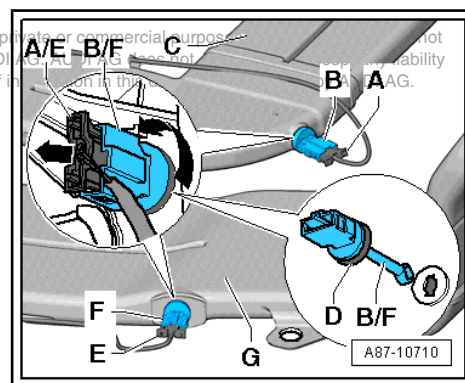
Removing

- Move the front right seat (front passenger's seat) as far forwards as it will go.
- Switch off ignition.
- Remove right rear seat or rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench / individual seats .
- Remove left rear door sill panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .
- Remove lower B-pillar trim and left C-pillar trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim , ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim .
- Carefully detach the rear right floor covering from the vehicle to provide access to -G636- -B- (fitted in the air duct to the rear right chest vent -C-).
- Unplug the connector -E-.
- Turn the sender -F- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check the seal -D- for damage and proper attachment.
- Re-install all parts removed in reverse order.
- Check that the trim panels for the footwell vents are installed in the proper position beneath the front seat.
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.14 Removing and installing vent temperature sender for rear left footwell - G637-

Removing

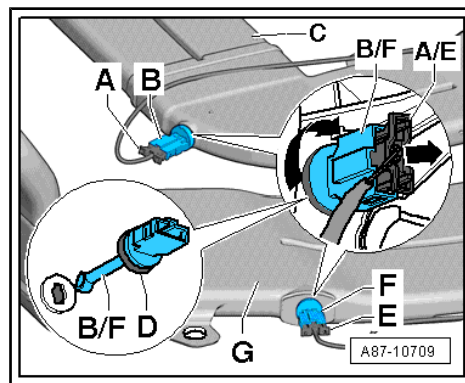
- Move the front left seat (driver's seat) as far forwards as it will go.
- Switch off ignition.
- Remove right rear seat or rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench / individual seats .
- Remove left rear door sill panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .
- Remove lower B-pillar trim and left C-pillar trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim , ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim .

- Carefully detach the rear left floor covering from the vehicle to provide access to -G637- -B- (fitted in the air duct to the rear left footwell vent -C-).
- Unplug connector -A-.
- Turn the sender -B- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check the seal -D- for damage and proper attachment.
- Re-install all parts removed in reverse order.
- Check that the trim panels for the footwell vents are installed in the proper position beneath the front seat.
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



10.15 Removing and installing vent temperature sender for rear right footwell - G638-

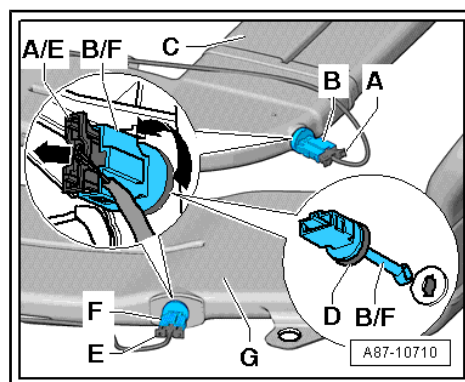
Removing

- Move the front right seat (front passenger's seat) as far forwards as it will go.
- Switch off ignition.
- Remove right rear seat or rear seat bench ⇒ General body repairs, interior; Rep. gr. 72 ; Rear seats; Removing and installing seat bench / individual seats .
- Remove right rear door sill panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .
- Remove lower B-pillar trim and right C-pillar trim ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim , ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim; Removing and installing B-pillar trim .
- Carefully detach the rear right floor covering from the vehicle to provide access to -G638- -F- (fitted in the air duct to the rear right footwell vent -G-).
- Unplug connector -A-.
- Turn the sender -B- through 90° and remove.

Installing

Install in reverse order of removal; note the following.

- Check the seal -D- for damage and proper attachment.
- Re-install all parts removed in reverse order.
- Check that the trim panels for the footwell vents are installed in the proper position beneath the front seat.
- Interrogate the event memory of the air conditioner front operating and display unit, Climatronic control unit - J255- and the rear Climatronic operating and display unit - E265- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



11 Battery cooling module

⇒ [“11.1 Exploded view of fitting locations - components not located in passenger compartment”, page 655](#)

⇒ [“11.2 Overview of fitting locations - components in rear passenger compartment”, page 659](#)

⇒ [“11.3 Exploded view - battery cooling module”, page 661](#)

⇒ [“11.4 Air intake, air outlet and air duct on battery cooling module”, page 664](#)

⇒ [“11.5 Exploded view - air ducts”, page 666](#)

⇒ [“11.6 Removing and installing refrigerant shut-off valve 1 for hybrid battery N516”, page 670](#)

⇒ [“11.7 Removing and installing air ducts”, page 676](#)

⇒ [“11.8 Moving battery cooling module to service position”, page 688](#)

⇒ [“11.9 Removing and installing battery cooling module”, page 691](#)

⇒ [“11.10 Removing and installing battery fan 1 V457”, page 697](#)

⇒ [“11.11 Removing and installing evaporator temperature sensor”, page 699](#)

⇒ [“11.12 Removing and installing condensation drain hose”, page 704](#)

⇒ [“11.13 Checking condensation drain hose”, page 706](#)

11.1 Exploded view of fitting locations - components not located in passenger compartment

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

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**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

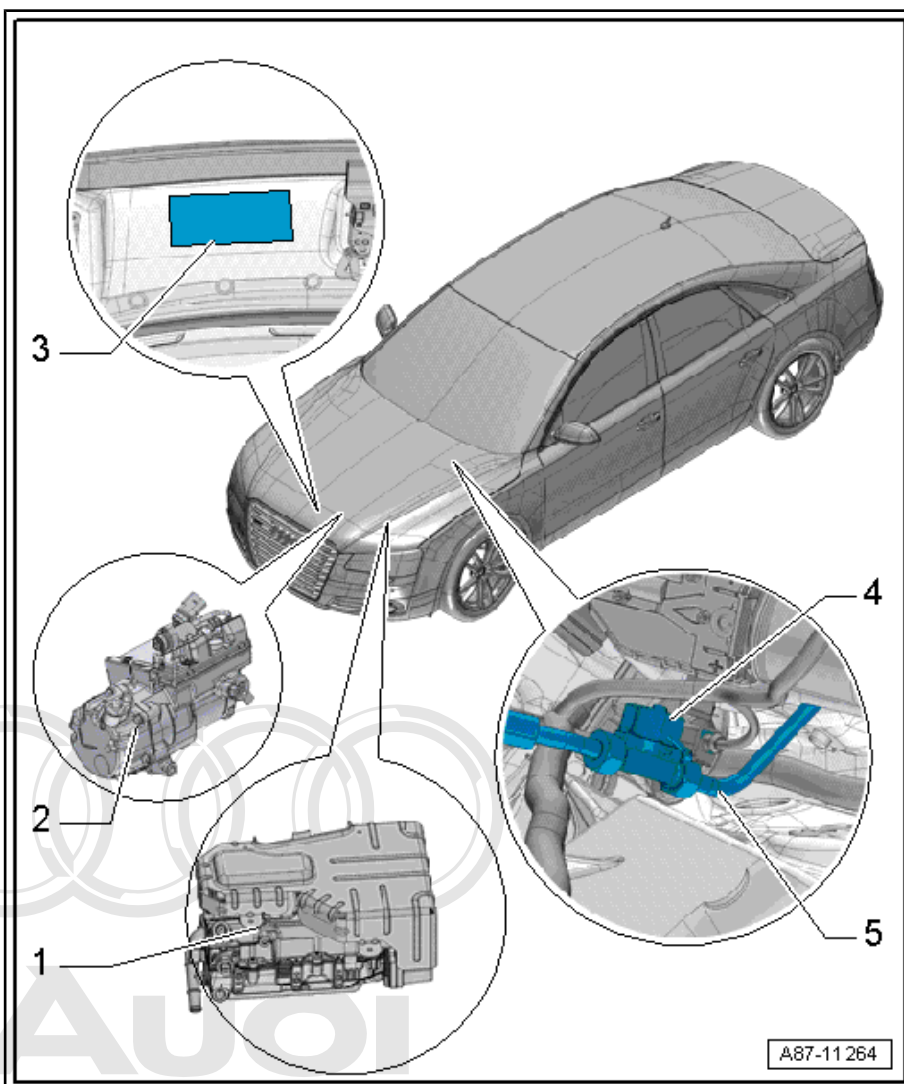
- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

1 - Power and control electronics for electric drive - JX1-

- ❑ For all work on the power and control electronics for electric drive - JX1- and on vehicles with a high-voltage system, pay attention to the additional warnings for such vehicles
⇒ [page 36](#) and ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system

2 - Electrically driven air conditioner compressor

- ❑ With control unit for air conditioning compressor - J842- and electrical air conditioner compressor - V470-
- ❑ Detaching air conditioner compressor from holder/re-attaching on vehicles with a 4-cyl. engine ⇒ [page 257](#)
- ❑ ⇒ ["3.1.1 General information on air conditioner - electrically driven air conditioner compressor", page 246](#)
- ❑ ⇒ ["3.5.3 Removing and installing electrically driven air conditioner compressor", page 290](#)



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- ◆ *The compressor version may differ depending on the production period and engine ⇒ Electronic parts catalogue .*
- ◆ *The air conditioner compressors are available as replacement parts with different oil capacities; please observe the oil quantity in the compressor and exact part number ⇒ Electronic parts catalogue and ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils .*

- ◆ *There may be different refrigerant oil capacities for the refrigerant circuit depending on the type of air conditioner compressor. The reason for the different oil quantities in the air conditioner compressor for an otherwise identical refrigerant circuit is the design of the actual compressor; please note the different oil quantities. Too much oil in the refrigerant circuit results in higher pressures and a reduction in the cooling output of the air conditioner. Lubrication problems may be encountered in the air conditioner compressor if there is insufficient oil ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils.*
- ◆ *When fitting refrigerant lines and the corresponding retainers, make sure there is adequate clearance from other components (such as belts and engine pulleys).*



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3 - Label

- ☐ Indicates type of refrigerant and specified capacity ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; Capacities for refrigerant R134a, refrigeration oil and approved refrigeration oils.

4 - Refrigerant shut-off valve 1 for hybrid battery - N516-

- ☐ Fitted in plenum chamber (left-side)
- ☐ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- ☐ ⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger", page 163](#)



Note

-N516- is activated, for example, if the battery needs to be cooled but the air conditioner is not set to cooling mode for the passenger compartment (valve open when not activated).

- ☐ ⇒ ["11.6.2 Removing and installing refrigerant shut-off valve 1 for hybrid battery N516", page 673](#)

5 - Refrigerant line from condenser

**Caution**
Danger from the escape of pressurised refrigerant.
Frostbite on the skin and other parts of the body.
Only unfasten the screws on the joints after discharging the refrigerant circuit.

11.2 Overview of fitting locations - components in rear passenger compartment

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

**Caution**

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

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1 - Temperature sensor after evaporator for hybrid battery - G757-

- ❑ Exploded view
⇒ [page 661](#)

2 - Air recirculation flap 1 control motor for hybrid battery - V479-

- ❑ Exploded view
⇒ [page 661](#)

3 - Expansion valve with refrigerant shut-off valve 2 for hybrid battery - N517-

- ❑ Exploded view
⇒ [page 661](#)

4 - Nut

- ❑ Tightening torque
⇒ [page 169](#)

5 - Leadthrough for refrigerant lines into luggage compartment

- ❑ With refrigerant lines to refrigerant shut-off valve 2 for hybrid battery - N517-
- ❑ Exploded view
⇒ [page 169](#)

6 - Nut

- ❑ Tightening torque
⇒ [page 169](#)

7 - Battery fan 1 - V457-

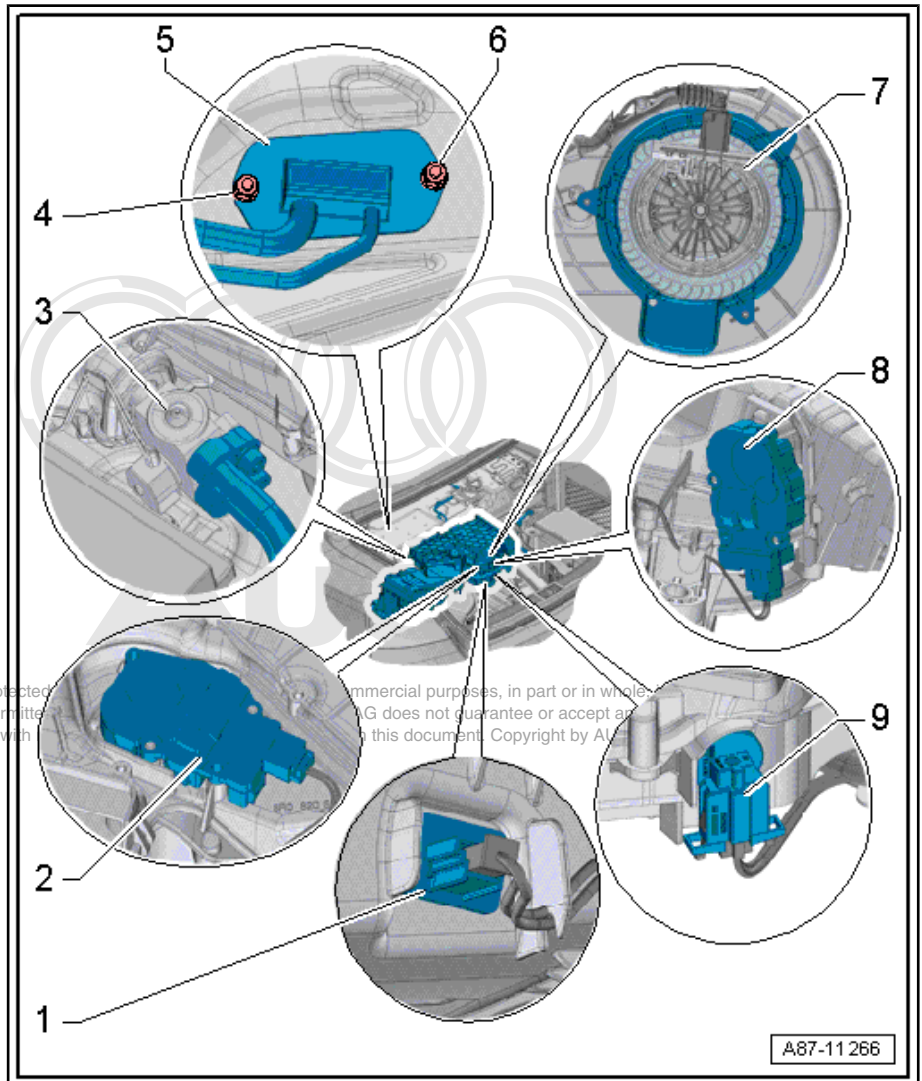
- ❑ Exploded view
⇒ [page 661](#)

8 - Air recirculation flap 2 control motor for hybrid battery - V480-

- ❑ Exploded view ⇒ [page 661](#)

9 - Temperature sensor before evaporator for hybrid battery - G756-

- ❑ Exploded view ⇒ [page 661](#)



11.3 Exploded view - battery cooling module

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*



Caution

Danger from the escape of pressurised refrigerant.

Frostbite on the skin and other parts of the body.

- ◆ *Only unfasten the screws on the joints after discharging the refrigerant circuit.*

1 - Condensation drain

- ❑ Removing and installing
⇒ [page 704](#)
- ❑ Checking ⇒ [page 706](#)

2 - Bonded rubber mounting

3 - Nut

- ❑ 9 Nm

4 - Battery cooling module

- ❑ Moving to service position ⇒ [page 688](#)
- ❑ Removing and installing
⇒ [page 691](#)

5 - Bolt

- ❑ Tightening torque: 10 Nm

6 - Expansion valve with refrigerant shut-off valve 2 for hybrid battery - N517-

- ❑ ⇒ ["2.9.8 Removing and installing expansion valve with refrigerant shut-off valve 2 for hybrid battery N517", page 227](#)

7 - O-rings

- ❑ Renew ⇒ [page 116](#) ; for correct version refer to ⇒ Electronic parts catalogue
- ❑ Before installing, lubricate lightly with refrigerant oil

8 - Retaining clip

9 - Bolt

- ❑ 1.5 Nm

10 - Air recirculation flap 1 control motor for hybrid battery - V479-

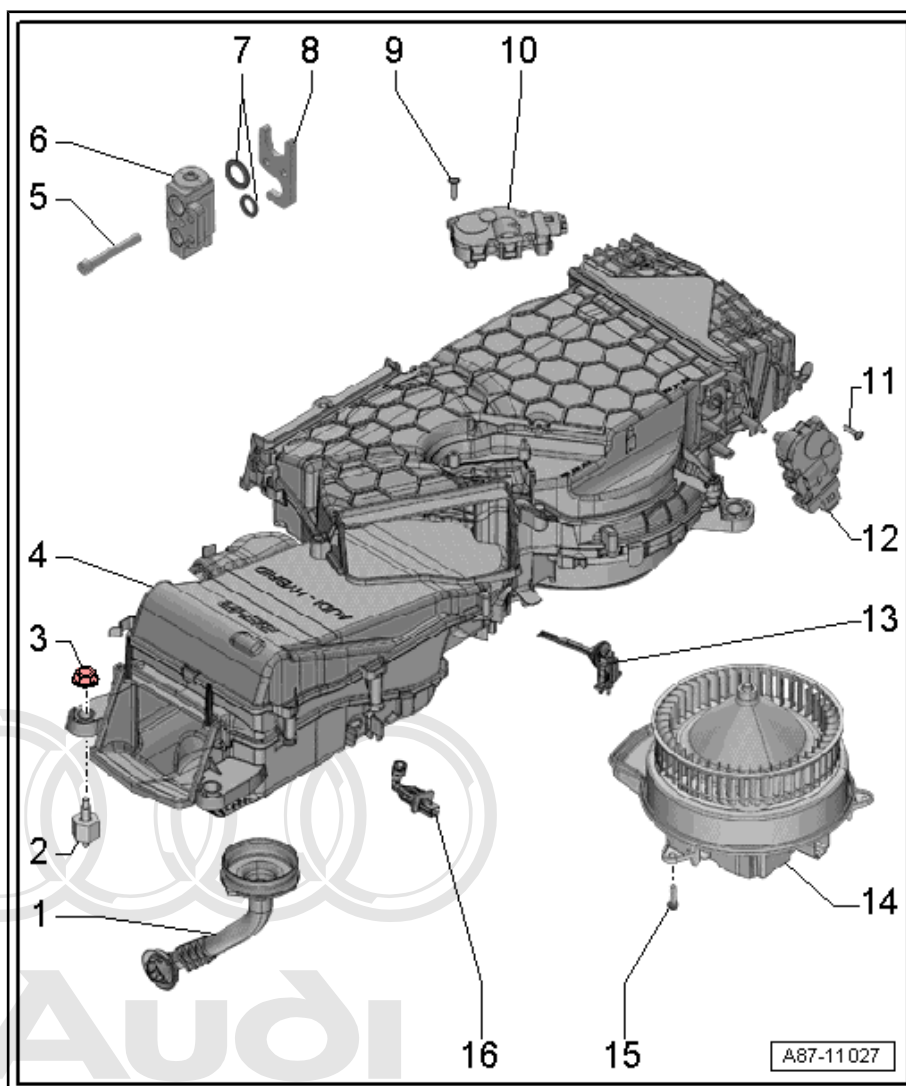
- ❑ ⇒ ["4.30 Removing and installing air recirculation flap 1 control motor for hybrid battery V479", page 423](#)

11 - Bolt

- ❑ 1.5 Nm

12 - Air recirculation flap 2 control motor for hybrid battery - V480-

- ❑ ⇒ ["4.31 Removing and installing air recirculation flap 2 control motor for hybrid battery V480", page 426](#)



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13 - Temperature sensor before evaporator for hybrid battery - G756-

- ⇒ [“11.11.1 Removing and installing temperature sensor before evaporator for hybrid battery G756”, page 699](#)

14 - Battery fan 1 - V457-

- ⇒ [“11.10 Removing and installing battery fan 1 V457”, page 697](#)

15 - Bolt

- 1.5 Nm

16 - Temperature sensor after evaporator for hybrid battery - G757-

- ⇒ [“11.11.1 Removing and installing temperature sensor before evaporator for hybrid battery G756”, page 699](#)

11.4 Air intake, air outlet and air duct on battery cooling module

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

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DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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A - To air outlet duct (rear)

B - To air inlet duct

- ☐ For drive battery

C - To air duct for drive battery

D - To air outlet duct (front)

- ☐ Air outlet from drive battery

E - To air duct for drive battery

- ☐ Air outlet from drive battery

F - To drive battery

G - To battery cooling module

H - Air inlet from area below luggage compartment floor panel

J - To air extractor (left side)

- ☐ Exploded view
⇒ ["1.1.3 Exploded view of fitting locations - components not located in passenger compartment, rear", page 128](#)

1 - Air outlet duct (front)

- ☐ For drive battery

2 - Air duct (left-side)

- ☐ To air inlet and outlet duct

3 - Air duct (right-side)

- ☐ To air inlet and outlet duct

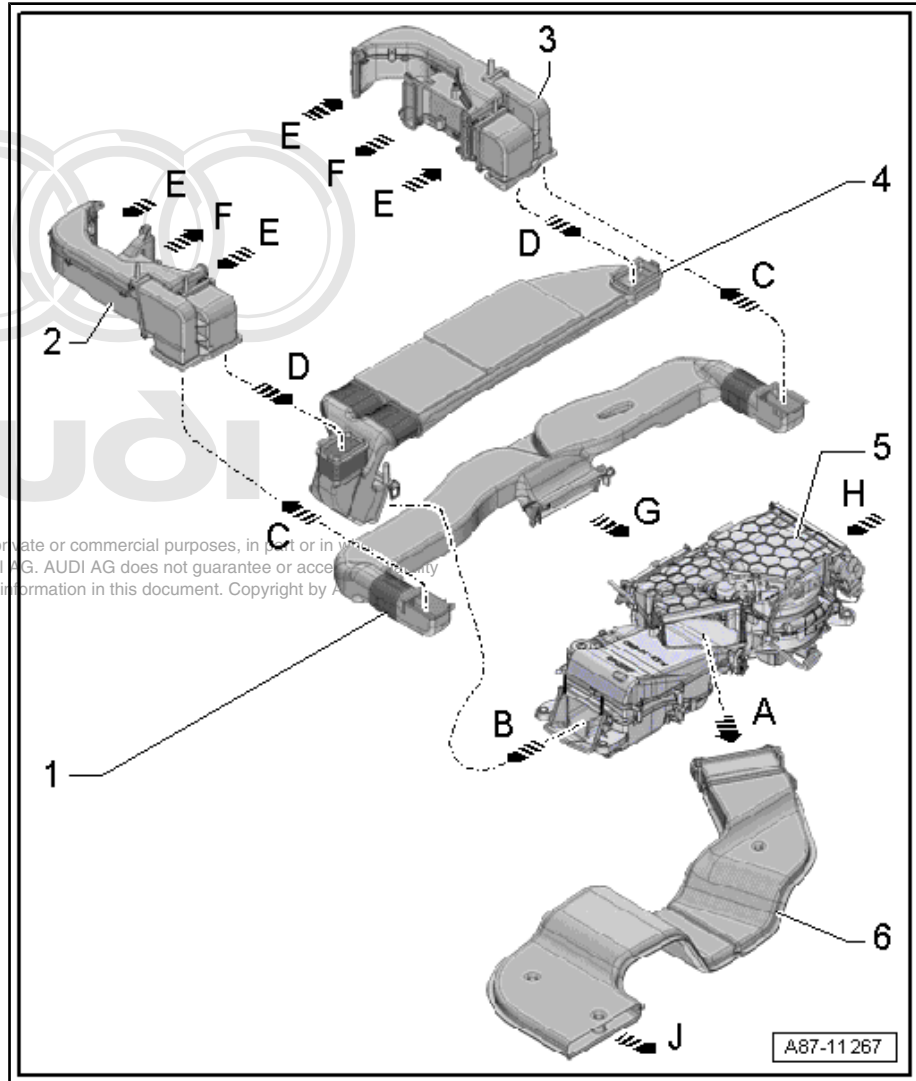
4 - Air inlet duct

- ☐ For drive battery

5 - Battery cooling module

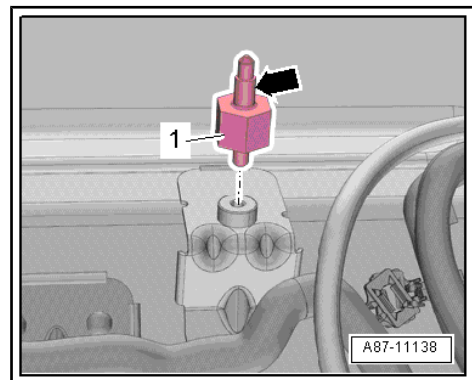
6 - Air outlet duct (rear)

- ☐ From battery cooling module



Bonded rubber mounting - installation position

- The collar -arrow- on the bonded rubber mounting -1- faces upwards.



11.5 Exploded view - air ducts

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles

⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*



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1 - Rear air outlet duct for drive battery

- ☐ behind the luggage compartment left side trim
- ☐ Removing and installing ⇒ [page 679](#)

2 - Cover

- ☐ for rear exhaust air duct for drive battery

3 - Nut

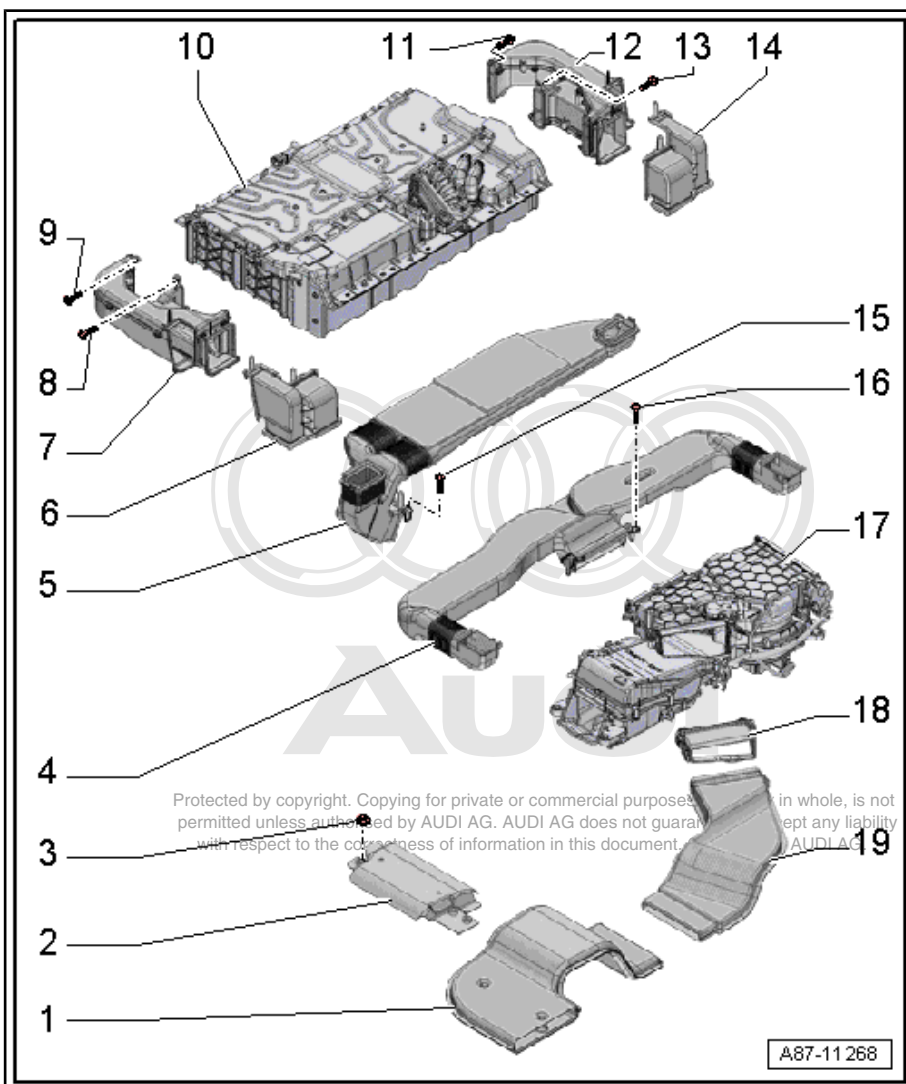
- ☐ 2 Nm

4 - Front air outlet duct for drive battery

- ☐ If the fasteners no longer hold or if one of the retainer tabs breaks off, the air duct can also be secured with bolts at the battery cooling module
- ☐ Removing and installing ⇒ [page 679](#)

5 - Air inlet duct for drive battery

- ☐ If the fasteners no longer hold or one of the retainer tabs breaks off, the air duct can also be secured with a bolt at the battery cooling module and with bolts at the air ducts
- ☐ Removing and installing ⇒ [page 681](#)



6 - Left air duct - rear

- ☐ If the fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- ☐ Removing and installing ⇒ [page 684](#)

7 - Left air duct - front

- ☐ If the fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- ☐ Removing and installing ⇒ [page 684](#)

8 - Bolt

- ☐ 2x
- ☐ 2 Nm

9 - Bolt

- ☐ If the air duct fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

10 - Drive battery - A2-

- ☐ For work on -A2- , such as removal and installation, de-energisation of the system etc., refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery

11 - Bolt

- ☐ If the air duct fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

12 - Right air duct - front

- ☐ If the fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- ☐ Removing and installing ⇒ [page 684](#)

13 - Bolt

- ☐ 2x
- ☐ 2 Nm

14 - Right air duct - rear

- ☐ If the fasteners no longer hold, the air duct must be secured with an additional bolt. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- ☐ Removing and installing ⇒ [page 684](#)

15 - Bolt

- ☐ If the air duct fasteners no longer hold, the air duct must be secured with an additional bolt

16 - Bolt

- ☐ If the air duct fasteners no longer hold, the air duct must be secured with an additional bolt

17 - Battery cooling module**18 - Connection for rear air outlet duct****19 - Rear air outlet duct for drive battery**

- ☐ at battery cooling module
- ☐ Removing and installing ⇒ [page 676](#)

11.6 Removing and installing refrigerant shut-off valve 1 for hybrid battery - N516-

⇒ ["11.6.1 Detaching and attaching refrigerant line at refrigerant shut-off valve 1 for hybrid battery N516", page 670](#)

⇒ ["11.6.2 Removing and installing refrigerant shut-off valve 1 for hybrid battery N516", page 673](#)

11.6.1 Detaching and attaching refrigerant line at refrigerant shut-off valve 1 for hybrid battery - N516-**Vehicles with high-voltage system (hybrid vehicles)**

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-

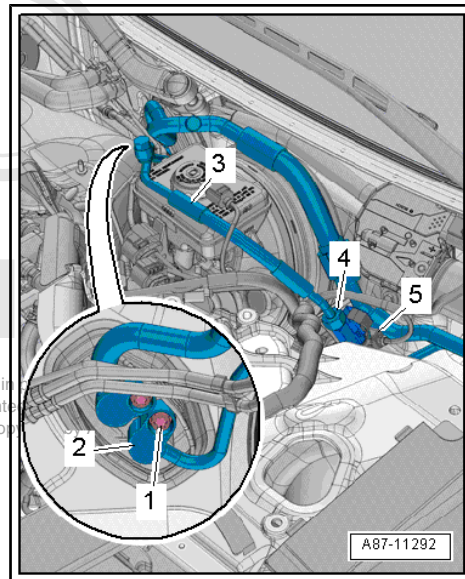
Removing

- Switch off ignition.
- Remove the plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Counterhold shut-off valve 1 -item 5- and unscrew union nut -4-.
- Unscrew bolt -1- and detach the refrigerant line -2- from the expansion valve and from shut-off valve 1.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

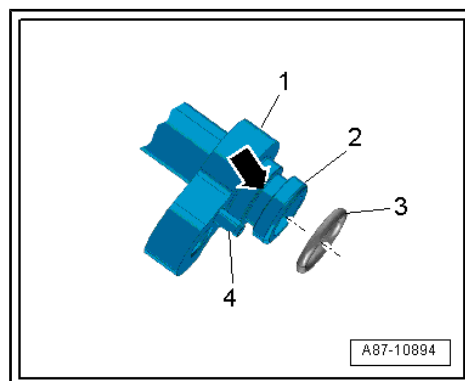
Seal open lines and the connections with suitable caps (to prevent damage and the ingress of dirt and moisture).



Installing

Install in reverse order of removal; note the following:

- Tightening torque
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger", page 163](#)
- Replace the O-rings ⇒ [page 116](#) ; for version, refer to ⇒ Electronic parts catalogue .
- If fitted, check that dowel pin -4- is not damaged and is seated correctly.
- Check guide ring -2- at refrigerant line connection for damage.
- Insert O-ring -3- in groove -arrow- in connection for refrigerant line -1-.



Note

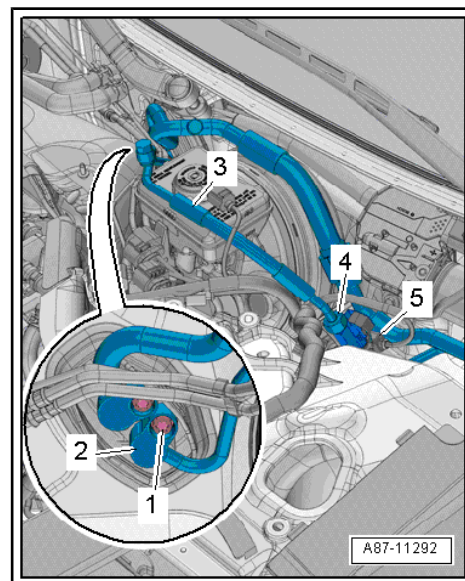
- ◆ Observe fitting instructions for O-rings ⇒ [page 116](#) .
- ◆ After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.

- Replace the O-rings ➔ [page 116](#) ; for version, refer to ➔ Electronic parts catalogue .
- Screw on union nut -4- by hand until it makes contact, then tighten fully.

 Note

When tightening the union nuts, make sure not to strain the refrigerant lines.

- Make sure the scuff guard -3- is positioned in the area of the brake fluid reservoir at the refrigerant line.
- Evacuating and charging refrigerant circuit ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and control unit for air conditioning compressor - J842- and erase any faults displayed ➔ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit ➔ [page 241](#) .



 Note

Also observe notes on starting up air conditioner after charging ➔ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .

11.6.2 Removing and installing refrigerant shut-off valve 1 for hybrid battery - N516-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ➔ [page 36](#) and ➔ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ➔ [page 41](#) and “note general warning instructions for work on the high-voltage system” ➔ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

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**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-

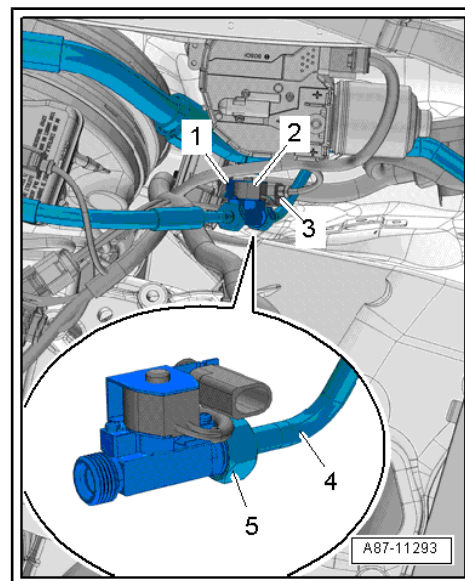
Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Remove refrigerant line from refrigerant shut-off valve 1 for hybrid battery ⇒ [page 670](#) .
- Unplug electrical connector -3- and remove from bracket -1-.
- Counterhold shut-off valve 1 -item 2- and unscrew union nut -5-.
- Pull refrigerant shut-off valve 1 for hybrid battery - N516- off refrigerant line -4-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

Seal open lines and the connections with suitable caps (to prevent damage and the ingress of dirt and moisture).



Installing

Install in reverse order of removal; note the following.

- Tightening torque
⇒ ["2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger"](#), [page 163](#)



Note

- ◆ *Observe fitting instructions for O-rings ⇒ [page 116](#) .*
- ◆ *After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.*



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- Replace the O-rings ⇒ [page 116](#) ; for version, refer to ⇒ Electronic parts catalogue .
- Screw in union nut by hand until it makes contact.
- Install refrigerant line at refrigerant shut-off valve 1 for hybrid battery ⇒ [page 670](#) .
- Finish tighten the union nuts -1, 3- whilst providing support at the shut-off valve 1 -Item 2-
⇒ [“2.4.1 Exploded view - refrigerant lines, expansion valve, internal heat exchanger”, page 163](#) .


Note

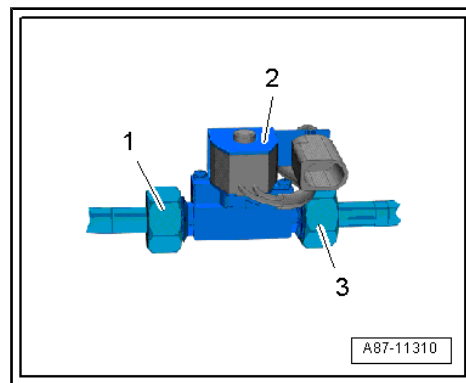
When tightening the union nuts, make sure not to strain the refrigerant lines.

- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Re-install remaining components (removed earlier).
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and control unit for air conditioning compressor - J842- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .


Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87; General information on air conditioner .*

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11.7 Removing and installing air ducts

⇒ [“11.7.1 Removing and installing rear air outlet duct for drive battery A2”, page 676](#)

⇒ [“11.7.2 Removing and installing rear exhaust air duct for drive battery A2 behind luggage compartment side trim”, page 679](#)

⇒ [“11.7.3 Removing and installing front air outlet duct for drive battery A2”, page 679](#)

⇒ [“11.7.4 Removing and installing air inlet duct for drive battery A2”, page 681](#)

⇒ [“11.7.5 Removing and installing air ducts \(left and right\) at drive battery A2”, page 684](#)

11.7.1 Removing and installing rear air outlet duct for drive battery - A2-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles
⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage”

⇒ “2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41 and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

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DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

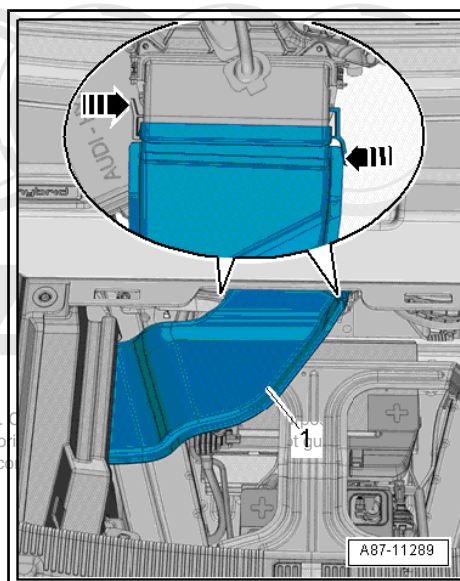
Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Release the retainer tabs on the left and right -arrow- and detach the rear exhaust air duct -1-.

Installing

Install in reverse order of removal; note the following.

- Press the air duct onto the battery cooling module. When doing so, the retainer tabs -4- on the left and right must be heard to engage.
- Re-install all parts removed in reverse order.



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11.7.2 Removing and installing rear exhaust air duct for drive battery - A2- behind luggage compartment side trim

Removing

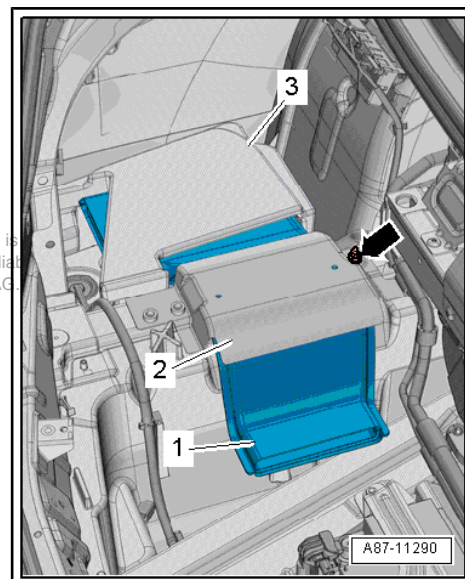
- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove air outlet duct (rear) for drive battery ⇒ [page 676](#) .
- Take out the moulding -3-.
- Unscrew the nut -arrow- and detach the cover -2-.
- Take out the rear exhaust air duct -1- to the right.

Installing

- Tightening torque ⇒ [page 666](#)

Install in reverse order of removal; note the following.

- Re-install all parts removed in reverse order.



11.7.3 Removing and installing front air outlet duct for drive battery - A2-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

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**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove air inlet duct for drive battery ⇒ [page 681](#) .

- If fitted, unscrew bolts -1 and 2-.
- Release retainer tabs -3- (left and right) and detach front air outlet duct -1- from battery cooling module.
- Carefully take out the front exhaust air duct.

Installing

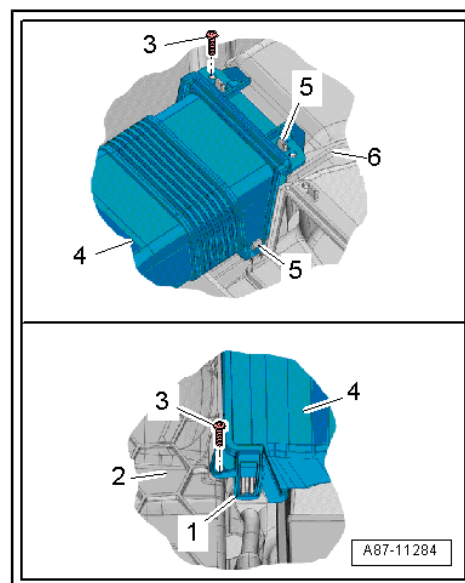
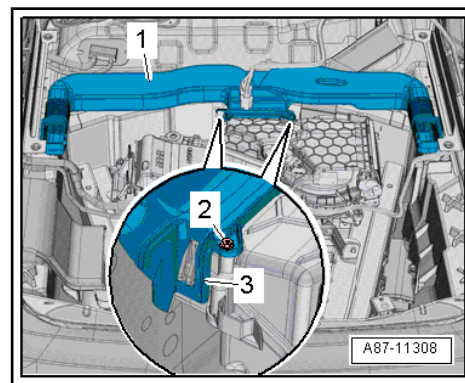
Install in reverse order of removal; note the following.



Note

If one of the retainer tabs -1 or 5- breaks off, the air duct -4- can also be secured with bolts -3- at the battery cooling module -2- and at the air duct -6-.

- Press air duct onto battery cooling module and onto air duct at drive battery, making sure that retainer tabs engage audibly.
- Re-install all remaining components (removed earlier).



11.7.4 Removing and installing air inlet duct for drive battery - A2-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93; De-energising high-voltage system.
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.

**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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**Note**

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management - J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - De-energise high-voltage system (Rep. gr. 93)***

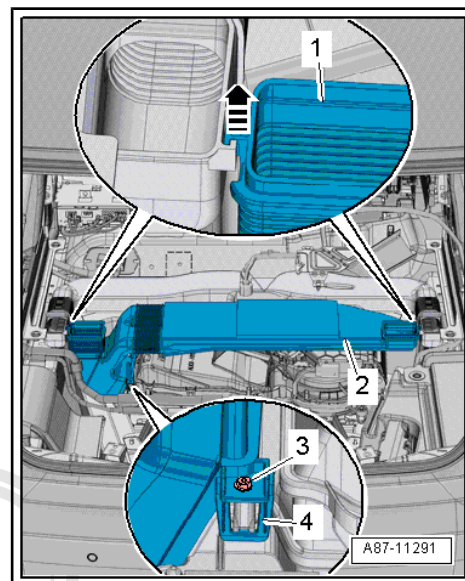
Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

- If fitted, remove bolt -3-.
- Release the retainer tabs -4- and detach the supply air duct -2- from the battery cooling module -6-. In doing so, disengage the connection -1- upwards from the fastener -arrow-.
- Carefully detach the supply air duct.

Installing

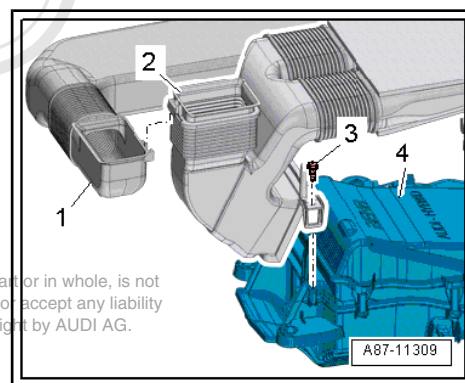
Install in reverse order of removal; note the following.



Note

If the fasteners no longer hold or if one of the retainer tabs breaks off, the air duct can also be secured with a bolt -3- at the battery cooling module -4-.

- Start by clipping in the supply air duct at the battery cooling module and then insert in the connection -2- in the mount at the connection for the front exhaust air duct -1-.
- Re-install all other components removed in reverse order.



Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

- Switch on ignition.
- Interrogate the event recorder of the air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

11.7.5 Removing and installing air ducts (left and right) at drive battery - A2-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1-, electric drive motor - V141-, air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW -.*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view- Luggage compartment floor
- Check the attachment of the air ducts on the left and right at the drive battery - A2-

Protection of the environment: The repair of the vehicle in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the use of the repair instructions.



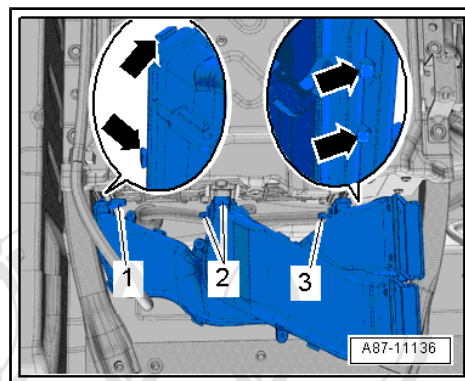
Note

Removal of the air ducts involves taking out the drive battery on vehicles provided with the additional bolted joints -3-.

- ♦ Air duct for removal secured with additional bolt -3-, de-energising high-voltage system ⇒ [page 686](#)
- ♦ Air duct for removal secured without additional bolt -3- ⇒ [page 687](#)

De-energising high-voltage system

- ♦ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- ♦ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



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DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ♦ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ♦ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ♦ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ♦ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

 Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ **Function/component selection**
- ◆ **Body**
- ◆ **Electrical system**
- ◆ **Self-diagnosis compatible systems**
- ◆ **8C - Hybrid battery management - J840**
- ◆ **8C - Hybrid battery management, functions**
- ◆ **51 - De-energise high-voltage system (Rep. gr. 93)**

Removing

 Note

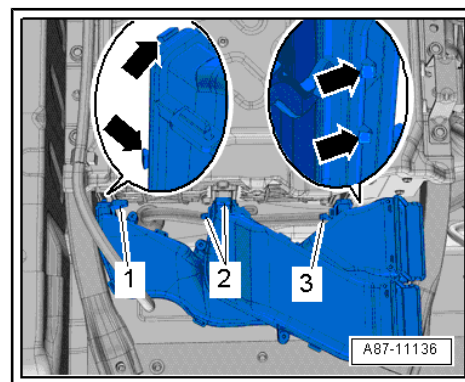
Removal of the air ducts involves taking out the drive battery on vehicles provided with the additional bolted joints -3-.

Vehicles with additional threaded fasteners for air ducts:

- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove bolts -1, 2 and 3- and detach air ducts.

Vehicles without additional threaded fasteners for air ducts:

- Remove relevant front bracket for luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove bolts -2- and carefully unclip air ducts from fasteners.



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Installing

Install in reverse order of removal; note the following.



Caution

If the air duct fasteners no longer hold, the air ducts must be secured with additional bolts -3-. You must remove the drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .

- If removal or installation of the air duct involved isolation of the high-voltage system from the supply

Re-energising high-voltage system



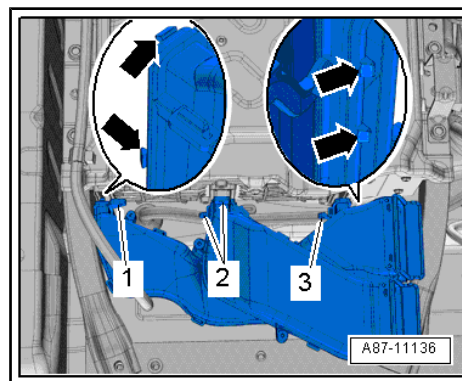
DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

- Switch on ignition.
- Interrogate the event recorder of the air conditioner operating and display unit, Climatronic control unit - J255- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



11.8 Moving battery cooling module to service position

Vehicles with high-voltage system (hybrid vehicles)

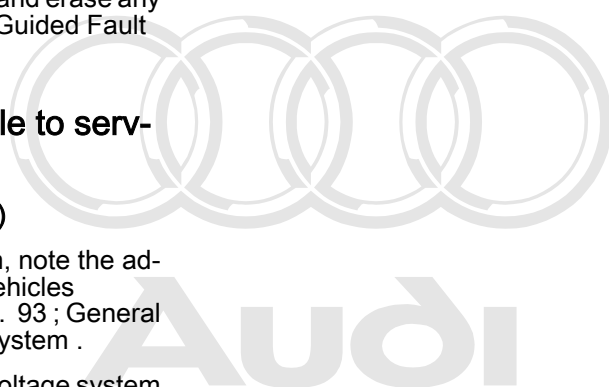
For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- Switch off ignition.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .



- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ➔ Electrical system, hybrid; Rep. gr. 93; General warning instructions for work on the high-voltage system.



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



Note

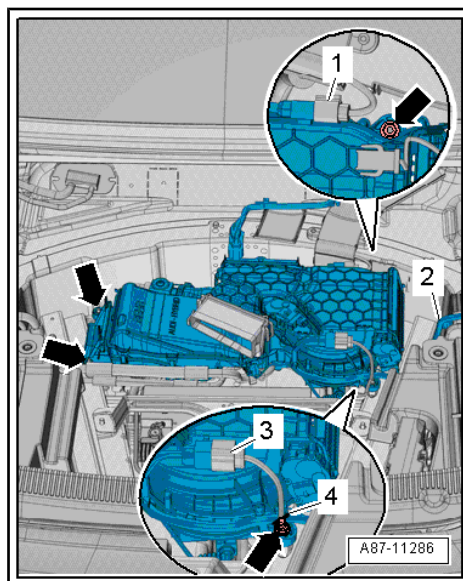
- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ *Function/component selection*
- ◆ *Body*
- ◆ *Electrical system*
- ◆ *Self-diagnosis compatible systems*
- ◆ *8C - Hybrid battery management - J840*
- ◆ *8C - Hybrid battery management, functions*
- ◆ *51 - De-energise high-voltage system (Rep. gr. 93)*

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Moving battery cooling module to service position

- Remove luggage compartment floor ➔ General body repairs, interior; Rep. gr. 70; Luggage compartment trim panels; Exploded view - luggage compartment floor.
- Remove drive battery ➔ Electrical system, hybrid; Rep. gr. 93; High-voltage battery unit; Removing and installing high-voltage battery.
- Remove air outlet duct (rear) for drive battery ➔ [page 676](#).
- Remove air inlet duct for drive battery ➔ [page 681](#).

- Remove air outlet duct (front) for drive battery ⇒ [page 679](#) .
- Unplug electrical connectors -1, 3-.
- Sever cable tie -4- and move wiring harness clear at body -2-.
- Remove nuts -arrows-.



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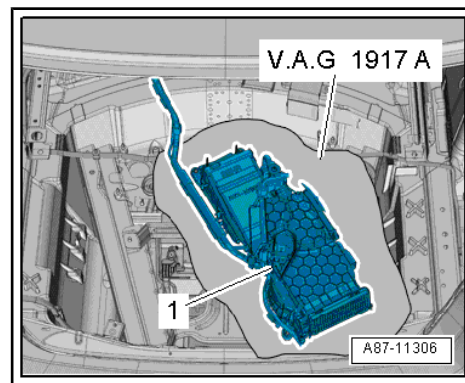
- Cover batteries -A- / -A1- using Audi wing protector - V.A.G 1917A- or similar.
- Detach battery cooling module -1- and set down as shown on covered batteries.



Caution

Risk of damage to refrigerant lines and hoses.

- ◆ *Do not stretch, kink or bend refrigerant lines and hoses.*



Installing

Install in reverse order of removal; note the following.

- Re-install removed components.

Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

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11.9 Removing and installing battery cooling module

For all work on vehicles with a high-voltage system, note the additional warning instructions for work on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ [page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

**DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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De-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



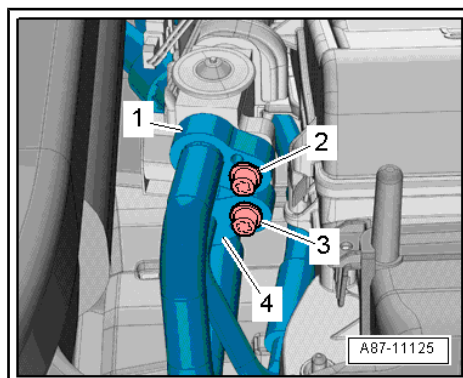
Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management - J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - De-energise high-voltage system (Rep. gr. 93)***
- ◆ *Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ **Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system**.*
- ◆ *The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ **Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system**.*

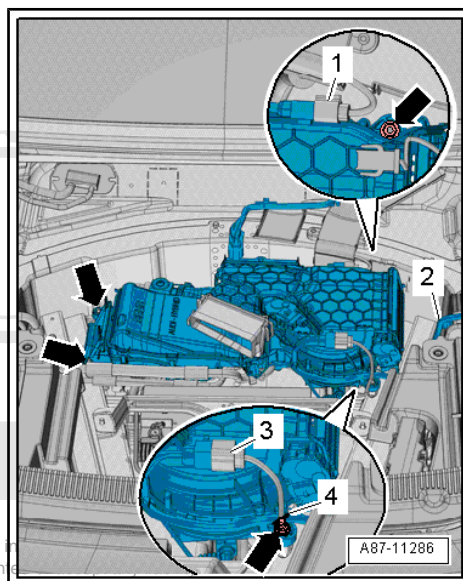
Removing

- Switch off ignition.
- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove drive battery ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage battery unit; Removing and installing high-voltage battery .
- Remove air outlet duct (rear) for drive battery ⇒ [page 676](#) .
- Remove air inlet duct for drive battery ⇒ [page 681](#) .
- Remove air outlet duct (front) for drive battery ⇒ [page 679](#) .
- Remove bolts -2 and 3-.

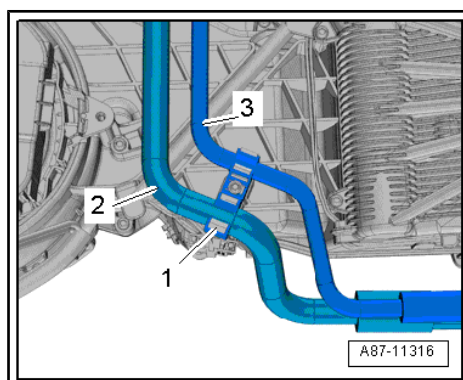


- Unplug electrical connectors -1, 3-.
- Sever cable tie -4- and move wiring harness clear at body -2-.
- Remove nuts -arrows-.



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- Lift the battery cooling module and lay bare the refrigerant lines -2, 3- at the holder -1-.



- Detach the refrigerant lines -1, 4-.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

 Note

Seal open pipes and connections at refrigerant line with suitable caps (to prevent ingress of dirt and moisture).

- Detach the battery cooling module.

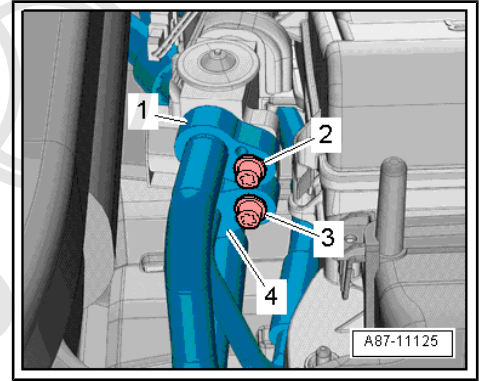
Installing

Install in reverse order of removal; note the following.

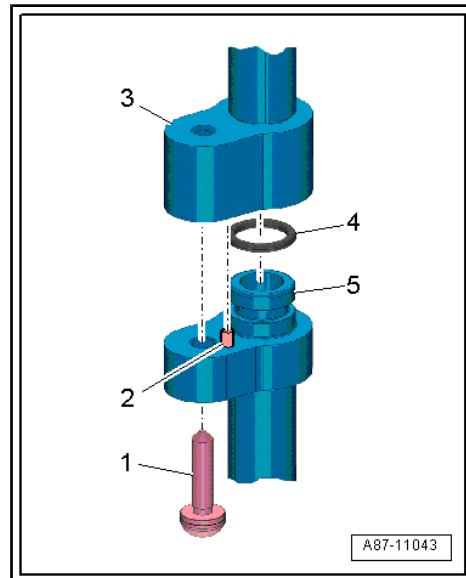
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 Note

- ◆ *Observe fitting instructions for O-rings ⇒ [page 116](#) .*
- ◆ *After attaching, check routing of refrigerant lines. They must be inserted in brackets provided and should not make contact with other components.*



- Renew O-rings -4-; for correct version refer to ⇒ Electronic parts catalogue .
- Clean refrigerant line connections -3 and 5- and check for damage.
- Make sure that O-rings -4- are correctly seated in grooves of corresponding mounting.
- Check that dowel pin -2- (not fitted on all connections) is not damaged and is seated correctly.
- Tighten bolts -1-.
- Re-install remaining components (removed earlier).
- Tightening torque
⇒ [“2.3.1 Overview of fitting locations - refrigerant lines, vehicles with high-voltage system”, page 161](#) and
⇒ [“2.4.4 Exploded view - refrigerant lines, rear refrigerant lines on vehicles with high-voltage system”, page 169](#)
- For electrical connections and routing, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Re-energise power supply of high voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .



Re-energising high-voltage system



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via “Guided Fault Finding”.*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



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 Note

- ◆ *Re-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select Guided Fault Finding mode*
- ◆ *Using the Go to key, select the following menu items in succession*
- ◆ Function/component selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management - J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - Re-energise high-voltage system (Rep. gr. 93)
- Evacuating and charging refrigerant circuit ⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; Refrigerant circuit .
- Switch on ignition.
- Interrogate event memory of operating and display unit (Climatronic control unit - J255-) and erase any entries displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Start up air conditioner after charging refrigerant circuit
⇒ [page 241](#) .

 Note

*Also observe notes on starting up air conditioner after charging
⇒ Air conditioner with refrigerant R134a; Rep. gr. 87 ; General information on air conditioner .*

11.10 Removing and installing battery fan 1 - V457-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, “perform a visual inspection of the high-voltage components and wiring to check for damage” ⇒ [“2.1.2 Visual inspection of high-voltage components and wiring for damage”, page 41](#) and “note general warning instructions for work on the high-voltage system” ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- Switch off ignition.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the

supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .

- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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**Note**

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management - J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - De-energise high-voltage system (Rep. gr. 93)***

**Note**

- ◆ *Voltage is supplied via the fan enabling relay - J937- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Activated by the battery regulation control unit - J840- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

Removing

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Move battery cooling module to service position ⇒ [page 688](#) .
- Fold back sleeve -1- at electrical connector and unplug connector.
- Remove bolts -arrows- and detach battery fan 1 - V457- .

Installing

Install in reverse order of removal; note the following.

- Re-install remaining components (removed earlier)
- Re-energising high-voltage system

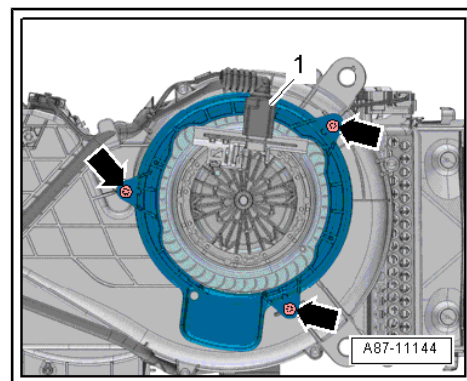


DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

11.11 Removing and installing evaporator temperature sensor

⇒ ["11.11.1 Removing and installing temperature sensor before evaporator for hybrid battery G756", page 699](#)

⇒ ["11.11.2 Removing and installing temperature sensor after evaporator for hybrid battery G757", page 702](#)

11.11.1 Removing and installing temperature sensor before evaporator for hybrid battery - G756-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for

work on the high-voltage system" ⇒ Electrical system, hybrid;
Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- ***Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.***
- ***High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.***
- ***The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.***

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DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

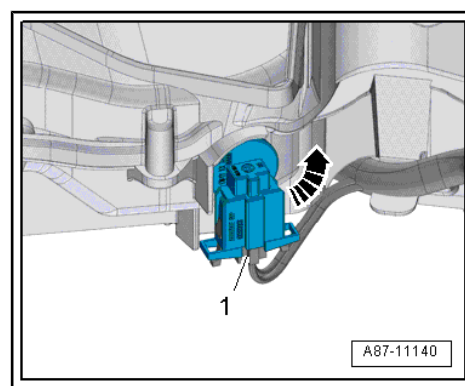
Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Turn temperature sensor anti-clockwise -arrow- and detach.
- Unplug electrical connector -1-.

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Install in reverse order of removal; note the following

- Check any seals for damage and proper attachment.
- Re-install remaining components (removed earlier).
- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



11.11.2 Removing and installing temperature sensor after evaporator for hybrid battery - G757-

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

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Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ ***It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.***
- ◆ ***Before starting work, visually inspect the high-voltage components in the areas involved.***
- ◆ ***Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1-, electric drive motor - V141-, air conditioner compressor - V470- and high-voltage wiring.***
- ◆ ***Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.***
- ◆ ***Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW -.***
- ◆ ***Visually inspect all potential equalisation lines.***

Check the following when making the visual inspection:

- ◆ ***There must be no external damage on any component.***
- ◆ ***The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.***
- ◆ ***There must be no unusual deformation of the high-voltage wiring.***
- ◆ ***All high-voltage components must be identified by a red warning sticker.***

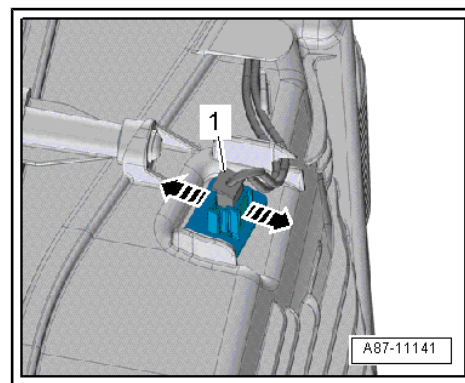
Removing

- Switch off ignition.
- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Release temperature sensor after evaporator for hybrid battery - G757- from fastener by moving it back and forth -arrows- and detach.
- Unplug electrical connector -1-.

Installing

Install in reverse order of removal; note the following.

- Check any seals for damage and proper attachment.
- Re-install remaining components (removed earlier).
- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.



11.12 Removing and installing condensation drain hose

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- Switch off ignition.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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 Note

- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester*
- ◆ *Select **Guided Fault Finding** mode*
- ◆ *Using the **Go to** key, select the following menu items in succession*
- ◆ ***Function/component selection***
- ◆ ***Body***
- ◆ ***Electrical system***
- ◆ ***Self-diagnosis compatible systems***
- ◆ ***8C - Hybrid battery management -J840***
- ◆ ***8C - Hybrid battery management, functions***
- ◆ ***51 - De-energise high-voltage system (Rep. gr. 93)***

Removing

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .
- Remove rear cover for spare wheel well ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .
- Carefully release fasteners -arrows A- of plastic ring and press condensation drain -1- into battery recess.
- Move battery cooling module to service position ⇒ [page 688](#) .
- Guide condensation drain -3- out of retaining bracket -2- -arrow B-.

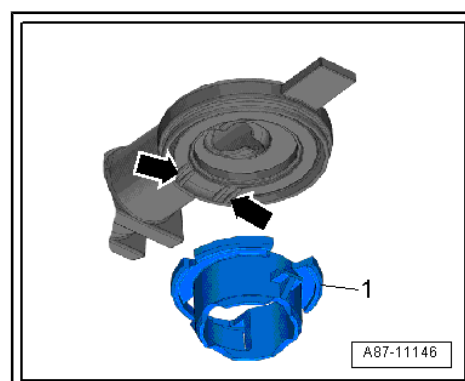
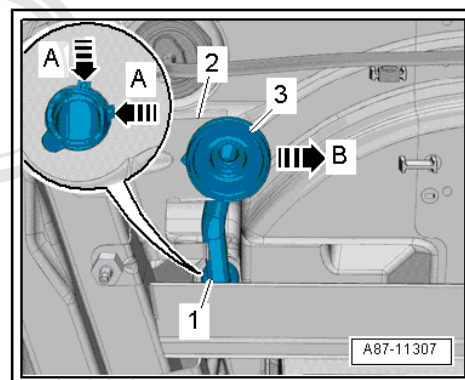
Installing

Install in reverse order of removal; note the following.

 Note

- ◆ ***Renew the condensation drain if the plastic ring is damaged.***
- ◆ ***Seal the plastic ring with silicone compound if slightly out of shape.***

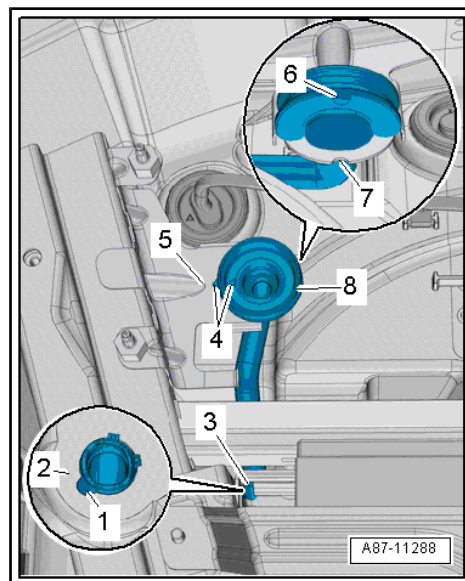
- Pay attention to installation position when fitting plastic ring:
- The lug -1- on the plastic ring must be positioned between the two marks on the condensation drain -arrows-.
- Fit condensation drain -arrow A- so that lug -1- engages in recess -2- in retaining bracket.



- Guide condensation drain -8- into retainer so that it engages; lug -6- must fit in recess -7-.
- Fit condensation drain -3- into body opening and press in until it engages audibly.
- The guide lug -1- must be on the outside of the body -2-, as shown in the illustration.


Note

- ◆ *If the grommet does not completely seal off the battery recess, apply silicone adhesive sealant - D 176 001 A3- or similar at this location ⇒ Electronic parts catalogue .*
- ◆ *The bonding surface must be clean and free from grease when applying the silicone adhesive sealant.*
- Check correct positioning of condensation drain.
- The lugs -4- must face bead -5- in retainer.
- Re-install remaining components (removed earlier).


Re-energising high-voltage system

DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

11.13 Checking condensation drain hose

Vehicles with high-voltage system (hybrid vehicles)

For all work on vehicles with a high-voltage system, note the additional warning instructions for working on such vehicles ⇒ [page 36](#) and ⇒ Electrical system, hybrid ; Rep. gr. 93 ; General warning instructions for work on the high-voltage system.

For the following steps, work in the vicinity of high-voltage system components is necessary. Therefore, "perform a visual inspection of the high-voltage components and wiring to check for damage" ⇒ ["2.1.2 Visual inspection of high-voltage components and wiring for damage", page 41](#) and "note general warning instructions for work on the high-voltage system" ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

- Switch off ignition.

De-energising high-voltage system

- ◆ Before starting work on the high-voltage system, a high-voltage technician must isolate the high-voltage system from the supply ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- ◆ The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information, see ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system.



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) ensures that the system is de-energised and secured with the locking cap - T40262- to prevent anyone from switching it on. Furthermore, the qualified person must also store the ignition key and maintenance connector for high-voltage system - TW - in a safe place as an additional measure to prevent the system from being switched back on.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



Note

- ◆ De-energising high-voltage system:
- ◆ Connect vehicle diagnostic tester
- ◆ Select **Guided Fault Finding** mode
- ◆ Using the **Go to** key, select the following menu items in succession
- ◆ **Function/component selection**
- ◆ **Body**
- ◆ **Electrical system**
- ◆ **Self-diagnosis compatible systems**
- ◆ **8C - Hybrid battery management - J840**
- ◆ **8C - Hybrid battery management, functions**
- ◆ **51 - De-energise high-voltage system (Rep. gr. 93)**

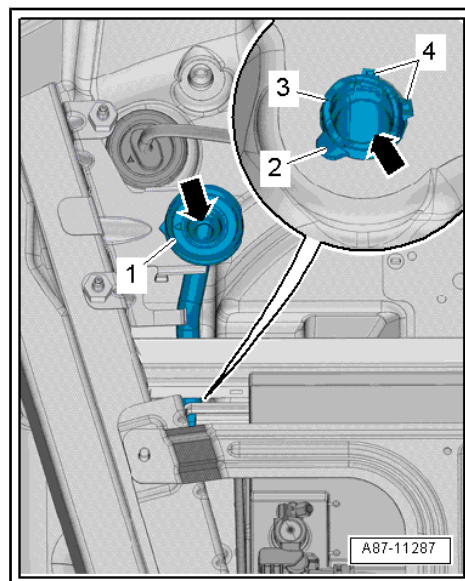
Checking

- Remove luggage compartment floor ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trim panels; Exploded view - luggage compartment floor .

- Move battery cooling module to service position ⇒ [page 688](#) .
- Check condensation drain -3- for dirt -arrow- and proper installation.
- Tab -2- on support ring -3- must face outwards.
- Fasteners -4- must be correctly engaged.

Re-energising high-voltage system

- Switch on ignition.
- After installation, interrogate event memory of operating and display unit (Climatronic control unit - J255-) and battery regulation control unit - J840- and erase any faults displayed
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



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