Workshop Manual
Audi A8 2010 ➢

Auxiliary heater, supplementary heater

Edition 09.2013

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Repair Group

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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.

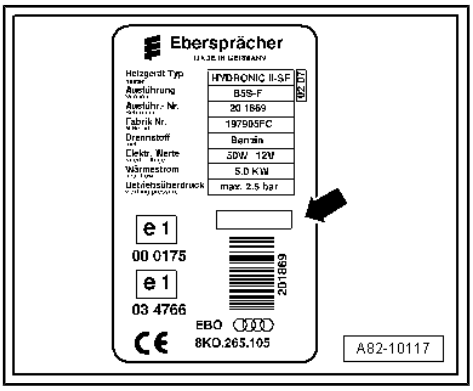
Contents

00 – Technical data

1 General notes

(ARL003456; Edition 09.2013)

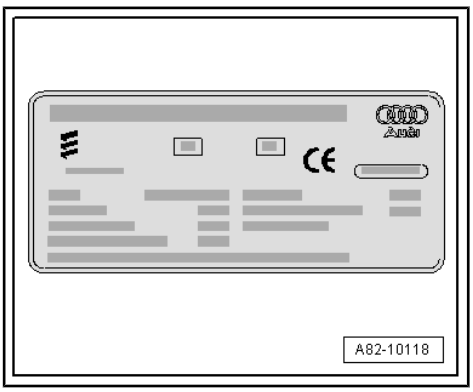
1.1 Type plates



Name plate on auxiliary heater

- The most important technical data are entered in the top section of the factory label.
- There are different types of factory labels and type plates; the illustrations show the type plate and factory label that were valid at the start of production.
- If the auxiliary heater is renewed, the factory label duplicate must be checked and renewed if necessary.
- The year of initial commissioning is entered below the technical data.
- The “Genuine replacement part” type plate must indicate the year of initial commissioning -arrow-.
- It is not necessary to renew the heat exchanger on auxiliary heaters after 10 years. German legislation only requires the heat exchanger to be renewed on air heaters; it is therefore not necessary to renew the heat exchanger on this auxiliary heater.

Type plate on bonnet



- A second type plate (duplicate) is attached to the bonnet on the left side of the engine compartment (as seen in direction of travel). If there is any doubt about the type of auxiliary heater installed, always observe the type plate attached to the auxiliary heater itself.

1.2 Notes on operation of auxiliary/supplementary heater - vehicles with diesel engine

Operation of the auxiliary heater may be impaired in cold weather (usually the only conditions under which the auxiliary heater is switched on) if vegetable or rapeseed methyl ester is used as fuel.

Reason:

– On account of their physical properties, operation with vegetable or rapeseed methyl ester fuel may result in deposits forming in the auxiliary heater combustion chamber (burner element). These deposits can cause combustion problems if the vehicle is run with vegetable or rapeseed methyl ester fuel for lengthy periods (no flame and deflagration in combustion chamber).

1.3 Starting conditions for auxiliary/supplementary heater

- Coolant circuit has been bled.
- Battery condition OK: no deactivation due to low voltage
- There is enough fuel in the fuel tank.
- The auxiliary heater must have been adapted in the air conditioner front operating and display unit (Climatronic control unit - J255-). Coding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- No fault is stored in the heater event memory.
- The ignition is off and “auxiliary heating” mode has been set.

Note

- *Only the main steps of the operating sequence are outlined on the following pages.*
- *Some procedures taking place during auxiliary heater operation cannot be heard or measured ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *Depending on vehicle equipment, the circulation pump - V55- may also be actuated when requested by the corresponding engine control unit and the air conditioner front operating and display unit, Climatronic control unit - J255- ⇒ page 63 and ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*
- *The heater coolant shut-off valve - N279- may, depending on the coolant temperature and the setting on the air conditioner front operating and display unit, Climatronic control unit - J255- , also be actuated with the auxiliary heater switched off ⇒ page 86 and in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*
- *The voltages, times and frequencies listed in the table are approximate values regulated by the control unit on the basis of measured values (voltage, temperature etc.).*
- *1 hertz (Hz) corresponds to 1 pulse per second.*

1.4 Notes on auxiliary heater

1.4.1 Notes on auxiliary heater

- The settings for various functions of the auxiliary heater are adjusted via the Multi Media Interface (MMI). In the event of problems with the auxiliary heater control function or heat output, you should therefore check these settings in the MMI ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- An electric supplementary air heater is currently installed on diesel-engined vehicles which are fitted with an auxiliary heater as an optional extra ⇒ Audi sales literature . On vehicles with a supplementary air heater, the auxiliary heater is not activated as a “supplementary heater”. Depending on vehicle equipment and production period, the supplementary air heater may be discontinued at a later date (not yet finalised).
- Vehicles with a diesel engine but no auxiliary heater are always fitted with an electric auxiliary heater. Heat energy is supplied to the air immediately after it leaves the heat exchanger of the air conditioning unit ⇒ Audi sales literature and ⇒ Heating, air conditioning; Rep. gr. 00 ; Repair notes; Notes on general repairs .
- This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .
- With this version, you must make sure that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.
- If the entry “Incorrect control unit fitted” is displayed after renewing the auxiliary heater or the auxiliary heater control unit - J364- , check that the auxiliary heater control unit - J364- has been coded for the correct type of fuel (“diesel” or “petrol”) and correct if necessary in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.
- Depending on the selected mode (“Auxiliary heating” or “Auxiliary ventilation”), certain faults which impair the auxiliary heating/auxiliary ventilation are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a problem with the auxiliary heater, also read out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.
- From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded seal for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

1.4.2 Switching on auxiliary heater

Note

Vehicles with diesel engines (including those fitted with an auxiliary heater as optional extra) are currently provided with an auxiliary air heater element - Z35- ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front); Checking auxiliary air heater element - Z35- . On vehicles with an auxiliary air heater element - Z35- and fitted with an auxiliary heater, this is not activated as supplementary heater (discontinuation of the auxiliary air heater element - Z35- on vehicles fitted with an auxiliary heater as optional extra has not yet been finalised).

No.	Operating sequence
1	Cut-in signal
	Auxiliary heater: • Signal from air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus, setting is specified on Multi Media Interface (MMI, control unit for front display and information control panel - J523-) • Signal from remote control receiver for auxiliary heater - R64- • Signal from vehicle diagnostic tester (via basic setting function) – Interrogation of air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-): • Signal from air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus • Signal from vehicle diagnostic tester (via basic setting function)
2	Initiating start procedure
	Auxiliary heater: • The air conditioner front operating and display unit (Climatronic control unit - J255-) determines that heating mode is required to attain the specified temperature in the passenger compartment. – Checking of measured values and components by interrogating event memory, power supply, coolant temperature and checking of all electrical components and input signals ⇒ page 12 – Initiation of start procedure Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-): – Checking of measured values and components by interrogating event memory, power supply, coolant temperature and checking of all electrical components and input signals ⇒ page 12 – Initiation of start procedure
	Possible deviations; start procedure not initiated
	Auxiliary heater: • The air conditioner front operating and display unit (Climatronic control unit - J255-) determines that heating mode is not required to attain the specified temperature in the passenger compartment. – Auxiliary ventilation (summer mode) ⇒ page 12
3	Starting
	3.1 Starting (diesel)
	• No deviation in measured values and components monitored ⇒ page 12 – Activation of circulation pump - V55- and heater coolant shut-off valve - N279- – Voltage supplied briefly at combustion air blower - V6- – Voltage at glow plug for heater - Q9-

No.	Operating sequence

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 8 V	5 sec.
Metering pump - V54- (regulated)	0 Hz	-
Glow plug for heater - Q9-	8 V	35 sec.

– Activation of combustion air blower - V6- (supply)

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 8 V	7 sec.
Metering pump - V54- (regulated)	0 Hz	-
Glow plug for heater - Q9-	8 V	7 sec.

– Reduced voltage at combustion air blower - V6-

– Activation of metering pump - V54- (fuel pre-supply, regulated, start-up sequence).

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	6 to 4 V	26 sec.
Metering pump - V54- (regulated)	approx. 4 Hz	26 sec.
Glow plug for heater - Q9-	approx. 8 V	26 sec.

– Increased voltage at combustion air blower - V6- (monitoring time)

– Slightly increased regulation at metering pump - V54- (fuel pre-supply, regulated)

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	4 to 9 V	37 sec.
Metering pump - V54- (regulated)	4 to 5 Hz	37 sec.
Glow plug for heater - Q9- (pre-heating, regulated)	8 V	37 sec.

– Voltage at combustion air blower - V6- slightly increased to full load

– Clock frequency of metering pump - V54- increased to full load

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 9 V	15 sec.
Metering pump - V54- (regulated)	5 to 8 Hz	15 sec.
Glow plug for heater - Q9- (pre-heating, regulated)	8 V	15 sec.

– Combustion air blower - V6- set to full load

– Clock frequency of metering pump - V54- set to full load

– Deactivation of glow plug for heater - Q9- (start of full load operation)

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 9 V	approx. 45 sec.
Metering pump - V54- (regulated)	approx. 6 Hz	approx. 45 sec.
Glow plug for heater - Q9- (flame monitoring)	0 V	-

– Start of heating operation ⇒ page 7

3.2 Starting (petrol)

• No deviation in measured values and components monitored ⇒ page 12

No.	Operating sequence

– Signal for activation of circulation pump - V55- and heater coolant shut-off valve - N279-

– Voltage supplied briefly at combustion air blower - V6-

– Voltage at glow plug for heater - Q9-

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 8 V	5 sec.
Metering pump - V54- (regulated)	0 Hz	-
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	5 sec.

– Increasing voltage at combustion air blower - V6- (supply)

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	0 to 2 V	40 sec.
Metering pump - V54- (regulated)	0 Hz	-
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	40 sec.

– Brief activation of metering pump - V54-

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	approx. 2 V	5 sec.
Metering pump - V54- (regulated)	approx. 4 Hz	5 sec.
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	5 sec.

– Increasing voltage at combustion air blower - V6-

– Clock frequency of metering pump - V54- increased to full load

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	2 to 4 V	18 sec.
Metering pump - V54- (regulated)	2 to 3 Hz	18 sec.
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	18 sec.

– Increased voltage at combustion air blower - V6-

– Increased clock frequency of metering pump - V54- (start-up sequence)

– Reduced voltage at glow plug for heater - Q9-

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	4 to 8 V	17 sec.
Metering pump - V54- (regulated)	3 to 6 Hz	17 sec.
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	17 sec.

– Increased clock frequency of metering pump - V54-

– Deactivation of glow plug for heater - Q9-

Components	Activation with	Duration approx.
Combustion air blower - V6- (regulated)	8 V	20 sec.
Metering pump - V54- (regulated)	6 to 7 Hz	20 sec.
Glow plug for heater - Q9-	0 V	-

– Voltage at combustion air blower - V6- slightly increased to full load (monitoring time)

– Increased clock frequency of metering pump - V54- to full load (start of full load operation)

Components	Activation with	Duration approx.

No.	Operating sequence			
		Combustion air blower - V6- (regulated)	approx. 9 V	approx. 45 sec.
		Metering pump - V54- (regulated)	7 to 8 Hz	approx. 45 sec.
		Glow plug for heater - Q9- (pre-heating, regulated)	0 V	-
	– Start of heating operation ⇒ page 7			
3.3	Possible deviations, start procedure is not initiated.			
	• Deviation in measured values and components monitored. By interrogation of event memory, power supply, coolant temperature and checking of all electrical components and input signals ⇒ page 12 . – Start procedure terminated • Resistance of flame monitor - G64- outside specified range ⇒ page 12 – Termination of process (1 x restart) • Resistance of glow plug for heater - Q9- outside specified range even after restart Interrogation of resistance of glow plug for heater - Q9- (remains hot) ⇒ page 12 – Termination of procedure (entry in event memory)/fault/off			

Note

- *Activation of the heater coolant shut-off valve - N279- is governed by temperature ⇒ page 15 .*
- *The air conditioner front operating and display unit (Climatronic control unit - J255-) is switched on by the auxiliary heater control unit - J364- as soon as the coolant temperature in the auxiliary heater exceeds a value of approx. 40 ...50 °C. The exact cut-in temperature depends on the version of the auxiliary heater. The air conditioner front operating and display unit (Climatronic control unit - J255-) then activates the various air conditioner control motors and the fresh air blower - V2- in auxiliary heating mode.*

1.4.3 Auxiliary heater heating mode

No.	Operating sequence			
1	Full-load heating (max. heating output)			
	• Coolant temperature in heater less than 77 °C • No deviation in measured values and components monitored ⇒ page 12 • Resistance of flame monitor - G64- in specified range – Combustion air blower - V6- set to full load – Clock frequency of metering pump - V54- set to full load – Checking of flame formation by flame monitor - G64-			
		Components	Activation with	Duration approx.
		Combustion air blower - V6- (regulated)	approx. 9 V	Until coolant temperature in heater reaches 77 °C
		Metering pump - V54- (regulated)	approx. 8 Hz	Until coolant temperature in heater reaches 77 °C
		Glow plug for heater - Q9-	0 V	-

<table>
<tr><th>No.</th><th>Operating sequence</th></tr>
<tr><td></td><td>• Coolant temperature in heater remains below 77 °C
– Heater remains in full load operation until it is switched off.
• Coolant temperature in heater reaches 77 °C.
– Switching from full load to part load operation (coolant temperature in heater reaches 77 °C)</td></tr>
<tr><td></td><td>Possible deviations in full-load heating mode (max. heating output)</td></tr>
<tr><td></td><td>• Voltage drops below specified shut-off voltage.
– Burn-off (entry in event memory)/fault/off.
• Flame goes out.
– Burn-off and re-start.</td></tr>
<tr><td>2</td><td>Part load operation (approx. 50 % of heat output)</td></tr>
<tr><td></td><td>2. Part load operation (diesel)
1
Switching from full load to part load operation (approx. 50 % of heat output):
• The coolant temperature in the heater increases and reaches 77 °C.
• No deviation in measured values and components monitored ⇒ page 12
• Resistance of flame monitor - G64- in specified range
– Reduced voltage at combustion air blower - V6-
– Reduced clock frequency of metering pump - V54-
– Checking of flame formation by flame monitor - G64-
– Activation of heater coolant shut-off valve - N279- , governed by temperature ⇒ page 15
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6- (regulated)</td><td>from approx. 9 V to approx. 6 V</td><td>5 sec.</td></tr>
<tr><td>Metering pump - V54- (regulated)</td><td>approx. 4 Hz</td><td>5 sec.</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
– Combustion air blower - V6- set to part load
– Clock frequency of metering pump - V54- set to part load
– Checking of flame formation by flame monitor - G64-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6- (regulated)</td><td>approx. 6 V</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr>
<tr><td>Metering pump - V54- (regulated)</td><td>approx. 4 Hz</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
• Coolant temperature in heater reaches 89 °C.
– Switching from part load operation to control interval</td></tr>
</table>

<table>
<tr><th>No.</th><th>Operating sequence</th></tr>
<tr><td></td><td>
• Coolant temperature in heater drops below 60 °C

– Switching from part load to full load operation
• Coolant temperature in heater remains between 60 °C and 89 °C

– Heater remains in full load operation until it is switched off.
</td></tr>
<tr><td></td><td>
2. Part load operation (petrol)
2

Switching from full load to part load operation (approx. 50 % of heat output):
• The coolant temperature in the heater increases and reaches 77 °C.
• No deviation in measured values and components monitored ⇒ page 12
• Resistance of flame monitor - G64- in specified range

– Reduced voltage at combustion air blower - V6-
– Reduced clock frequency of metering pump - V54-
– Checking of flame formation by flame monitor - G64-
– Activation of heater coolant shut-off valve - N279- , governed by temperature ⇒ page 15
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6- (regulated)</td><td>from approx. 9 V to 5 V</td><td>5 sec.</td></tr>
<tr><td>Metering pump - V54- (regulated)</td><td>approx. 2 Hz</td><td>5 sec.</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
– Combustion air blower - V6- set to part load
– Clock frequency of metering pump - V54- set to part load
– Checking of flame formation by flame monitor - G64-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6- (regulated)</td><td>5 V</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr>
<tr><td>Metering pump - V54- (regulated)</td><td>2 Hz</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
• Coolant temperature in heater reaches 89 °C.

– Switching from part load operation to control interval
• Coolant temperature in heater drops below 60 °C

– Switching from part load to full load operation
• Coolant temperature in heater remains between 60 °C and 89 °C

– Heater remains in full load operation until it is switched off.
</td></tr>
<tr><td>3</td><td>Control interval</td></tr>
</table>

<table>
<tr><th>No.</th><th>Operating sequence</th></tr>
<tr><td></td><td>
• The coolant temperature in the heater increases and reaches 89 °C.
• No deviation in measured values and components monitored ⇒ page 12
• Resistance of flame monitor - G64- in specified range
– No regulation of combustion air blower - V6-
– No regulation of metering pump - V54-
– No regulation of glow plug for heater - Q9-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6-</td><td>0 V</td><td>-</td></tr>
<tr><td>Metering pump - V54- .</td><td>0 Hz</td><td>-</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
• Coolant temperature in heater remains above 65 °C.
– Heater remains in control interval until it is switched off.
• Coolant temperature in heater drops below 65 °C
– Starting from control interval ⇒ page 4
</td></tr>
</table>

Note

On starting from the control interval, the times for the various procedures differ from those on re-starting, as the heater is already at operating temperature (e.g. pre-heating for 20 instead of 35 s, fuel delivery for 30 instead of 56 s).

1.5 Operating sequence for auxiliary heater

⇒ “1.5.1 Switching off auxiliary heater”, page 10

⇒ “1.5.2 Auxiliary ventilation”, page 12

⇒ “1.5.3 Measured values and components monitored during operating sequence”, page 12

⇒ “1.5.4 Sequence with required heat output between 50 and 100 %”, page 14

⇒ “1.5.5 Sequence with required heat output less than 50 %”, page 14

1.5.1 Switching off auxiliary heater

<table>
<tr><th>No.</th><th>Operating sequence</th></tr>
<tr><td>1</td><td>Shut-off signal</td></tr>
<tr><td></td><td>
Auxiliary heater:
• Signal from air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus, setting is specified on Multi Media Interface (MMI, control unit for front display and information control panel - J523-)
• Signal from remote control receiver for auxiliary heater - R64-
Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-):
• Signal from air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus
• Signal from vehicle diagnostic tester (via basic setting function)
</td></tr>
</table>

<table>
<tr><th>No.</th><th>Operating sequence</th></tr>
<tr><td>2</td><td>Burn-off / run-on (cooling down of heater)
• No deviation in measured values and components monitored ⇒ page 12
2.1 Diesel
– Increased voltage at combustion air blower - V6-
– Deactivation of metering pump - V54-
– Voltage at glow plug for heater - Q9-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6-</td><td>6 to 9 V</td><td>20 sec.</td></tr>
<tr><td>Metering pump - V54- .</td><td>0 Hz</td><td>-</td></tr>
<tr><td>Glow plug for heater - Q9- (afterglow, regulated)</td><td>approx. 8 V</td><td>20 sec.</td></tr>
</table>
– Deactivation of glow plug for heater - Q9-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6-</td><td>approx. 9 V</td><td>100 sec.</td></tr>
<tr><td>Metering pump - V54- .</td><td>0 Hz</td><td>-</td></tr>
<tr><td>Glow plug for heater - Q9- (afterglow, regulated)</td><td>0 V</td><td>-</td></tr>
</table>
– Deactivation of circulation pump - V55- and heater coolant shut-off valve - N279-
2.2 Petrol
• No deviation in measured values and components monitored ⇒ page 12
– Increased voltage at combustion air blower - V6-
– Deactivation of metering pump - V54-
– Deactivation of glow plug for heater - Q9-
<table>
<tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr>
<tr><td>Combustion air blower - V6-</td><td>approx. 9 V</td><td>0 to 120 sec.</td></tr>
<tr><td>Metering pump - V54- .</td><td>0 Hz</td><td>-</td></tr>
<tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr>
</table>
– Deactivation of circulation pump - V55- and heater coolant shut-off valve - N279-</td></tr>
</table>

Note

- *In “auxiliary heating mode”, the auxiliary heater is switched off automatically by the air conditioner front operating and display unit (Climatronic control unit - J255-) after a maximum of 60 minutes. The auxiliary heating/auxiliary ventilation operating time is specified on the Multi Media Interface (MMI, control unit for front display and information control panel - J523-).*
- *If the heater is shut off while it is in the control interval, it cuts out without burn-off and run-on.*
- *As the supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35- ; discontinuation of -Z35- and introduction of this auxiliary heater function not yet finalised) is operated with the engine running, it is hardly noticeable during heater operation. Heater run-on is audible if the engine is switched off.*

1.5.2 Auxiliary ventilation

No.	Operating sequence
1	Cut-in signal
	• Signal from remote control receiver for auxiliary heater - R64- – Interrogation of air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus ⇒ page 4 – Activation of air conditioner front operating and display unit (Climatronic control unit - J255- “On”)
	Possible deviations
	• The air conditioner front operating and display unit (Climatronic control unit - J255-) determines that heating mode is required to attain the specified temperature in the passenger compartment. – Auxiliary heating (winter conditions)
2	Shut-off signal
	• Deactivation signal from remote control receiver for auxiliary heater - R64- – Information to air conditioner front operating and display unit (Climatronic control unit - J255-) via data bus – Activation of air conditioner front operating and display unit (Climatronic control unit - J255- “Off”)

Note

- *In auxiliary ventilation mode, the auxiliary heater control unit - J364- is only required to switch the signal from the remote control receiver for auxiliary heater - R64- to the data bus.*
- *If auxiliary ventilation mode has been selected in the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) or if the air conditioner front operating and display unit (Climatronic control unit - J255-) has established that the auxiliary heating mode is not required to attain the specified temperature in the passenger compartment, the auxiliary heater control unit - J364- is not activated.*

1.5.3 Measured values and components monitored during operating sequence

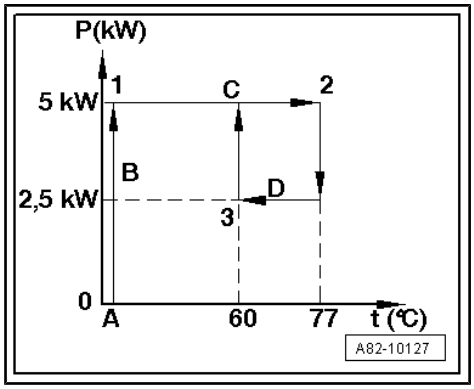
Measured values and components	Operating sequence
Interrogation of event memory	• No entry in event memory – Heating mode control sequence
	• Fault-induced interlock entered – Termination of procedure/fault/off
Interrogation of voltage at heater	• Voltage greater than specified shut-off voltage – Heating mode control sequence
	• Voltage is less than or drops below specified shut-off voltage – Termination of procedure (entry in event memory)/fault/off

Measured values and components	Operating sequence
Interrogation of information from data bus diagnostic interface - J533-	• Voltage greater than specified shut-off voltage – Heating mode control sequence
	• Voltage is less than or drops below specified shut-off voltage – Termination of procedure (entry in event memory)/fault/off
Monitoring of all electrical components and input signals	• No faults detected – Heating mode control sequence
	• Fault detected – See above ⇒ page 4 and ⇒ page 7 .
Interrogation of flame monitor - G64-	• Resistance of flame monitor - G64- in specified range – Heating mode control sequence
	• Resistance of flame monitor - G64- outside specified range – Termination of process (1 x restart)
	• Resistance of flame monitor - G64- outside specified range even after start repetition – Termination of procedure (entry in event memory)/fault/off
Interrogation of coolant temperature in heater (less than 81 °C)	• Coolant temperature (81 °C or less) – Heating mode control sequence
	• Coolant temperature (greater than 81 °C) – Switch to control interval

Note

- *The resistance characteristic curve of the flame monitor - G64- enables the auxiliary heater control unit - J364- to detect whether a flame has formed in the heater.*
- *The heater is interlocked following three consecutive unsuccessful attempted starts involving the same fault.*
- *If the heater has been interlocked due to a fault, the event memory must be read out and the content of the event memory erased. Depending on the cause of the fault, it may also be necessary to cancel the interlock via the "Adaption" function in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

1.5.4 Sequence with required heat output between 50 and 100 %



P (kW) = Heat output in kilowatts

t (°C) = Temperature of coolant in heater (degrees Celsius)

A = Starting procedure begins

– The coolant temperature in the heater must be less than 60 ° C.

B = Starting procedure

C = Full load operation

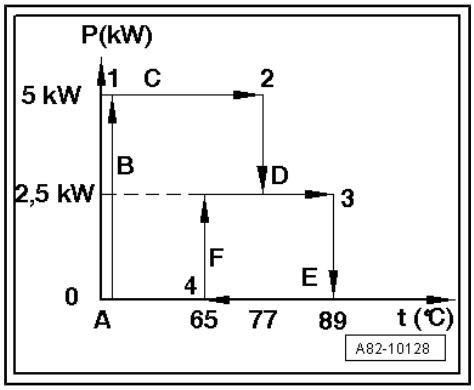
D = Part load operation

1 = Start of full load operation

2 = Switchover from full to part load operation

3 = Switchover from part to full load operation

1.5.5 Sequence with required heat output less than 50 %



P (kW) = Heat output in kilowatts

t (°C) = Temperature of coolant in heater (degrees Celsius)

A = Start procedure begins (coolant temperature in heater must be less than 60 °C)

B = Starting procedure

C = Full load operation

D = Part load operation

E = Control interval

F = Starting from control interval

1 = Start of full load operation

2 = Switchover from full to part load operation

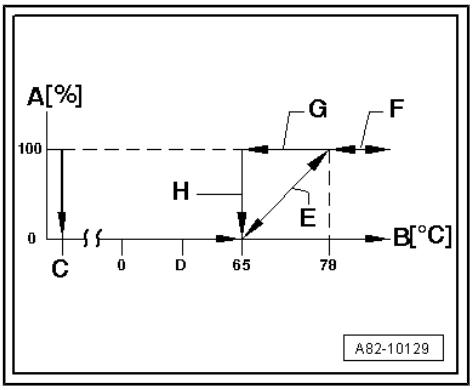
3 = Switchover from part load operation to control interval

4 = End of control interval

1.6 Checking function of coolant shut-off valve

⇒ “1.6.1 Activation of heater coolant shut-off valve N279 ”, page 15

1.6.1 Activation of heater coolant shut-off valve - N279-



A = This proportion of the coolant in % is conveyed in the large coolant circuit.

- If the heater coolant shut-off valve - N279- is not activated, 100 % of the coolant is delivered in the large circuit (via the engine to the auxiliary heater).
- If the heater coolant shut-off valve - N279- is constantly activated, 100 % of the coolant is delivered in the small circuit (directly from the heat exchanger in the air conditioning unit to the auxiliary heater).
- The heater coolant shut-off valve - N279- is activated by the auxiliary heater control unit - J364- in line with the coolant temperature and the specified request.

B = Temperature of coolant in auxiliary heater in °C (degrees Celsius).

C = Activation signal for auxiliary heater (the heater coolant shut-off valve - N279- is activated and the coolant flows back from the heat exchanger in the air conditioning unit to the auxiliary heater).

D = The auxiliary heater is in auxiliary heating full load mode; the coolant temperature increases (or remains constant). All the coolant drawn in by the circulation pump - V55- comes from the front air conditioner heat exchanger.

E = The auxiliary heater is in auxiliary heating full or part load mode. Depends on the characteristic curve stored in the auxiliary heater control unit - J364- . The coolant temperature increases (or remains constant) and the proportion of the coolant (drawn in by the circulation pump - V55-) which flows back via the engine to the auxiliary heater is regulated by the auxiliary heater control unit - J364- .

F = All the coolant drawn in by the circulation pump - V55- flows back via the engine to the auxiliary heater; the coolant temperature continues to increase (less heat is emitted by the air conditioner heat exchangers than is generated by the auxiliary heater or e.g. with the engine running).

G = All the coolant drawn in by the circulation pump - V55- flows back via the engine to the auxiliary heater; the coolant temperature decreases (more heat is emitted by the front air conditioner heat exchangers or the engine than is generated by the auxiliary heater and the engine).

H = The coolant temperature drops below 65 °C.

Note

- *Depending on the ambient temperature and the quantity of heat emitted by the air conditioner heat exchangers, the activation of the heater coolant shut-off valve - N279- may remain in the various operating statuses for a lengthy period.*
- *Activation of the heater coolant shut-off valve - N279- is also maintained if the engine is started with the auxiliary heater in operation.*
- *There are different versions of the heater coolant shut-off valve - N279- . Ensure correct assignment ⇒ Electronic parts catalogue .*
- *At a coolant temperature of approx. 89 °C, the auxiliary heater switches from control mode to control interval. During the control interval, the heater coolant shut-off valve - N279- is not activated and the coolant flows in the large coolant circuit (via the engine).*
- *The display in the "Read measured values" function for activating the coolant shut-off valve - N279- is different and depends on the vehicle version and auxiliary heater control unit - J364- . On this vehicle, for example, 100% currently indicates that 100 % of the coolant is circulating in the small circuit and the coolant shut-off valve - N279- is activated ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *Depending on the vehicle version, the engine installed, the coolant temperature and the setting on the air conditioner front operating and display unit (Climatronic control unit - J255-), the heater coolant shut-off valve - N279- may also be activated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, actuation is in response to a request from the air conditioner front operating and display unit, Climatronic control unit - J255- via the data bus.*

1.7 Rules for cleanliness when working on the auxiliary/supplementary heater and fuel system

- Carefully clean all connections and surrounding areas before disconnecting.
- Place parts that have been removed on a clean surface (use sheeting or paper, not fluffy cloths) and cover them over.
- 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 without their packaging (e.g. in toolboxes etc.).

- When fuel system is open:

– Do not work with compressed air.

– Do not move vehicle.

– Do not start engine.

– Do not switch on auxiliary heater (also applies to switching on via "Basic setting" function of Guided Fault Finding) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– Further safety precautions ⇒ Engine; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the fuel supply system

1.8 Overview of components for auxiliary heater in vehicle

Note

- *Currently only the version as an auxiliary heater is available. At the moment the auxiliary heater is not intended to be operated as a supplementary heater. On vehicles with a diesel engine, the supplementary heating function is provided by the auxiliary air heater element - Z35- ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front); Exploded view - heater/air conditioning unit and air intake box add-on components .*
- *Fitting locations of various relays and fuses for auxiliary heater ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *The Guided Fault Finding for the auxiliary heater must be performed in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off.*
- *With this version, you must make sure that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *When renewing the auxiliary heater, interrogate the encoding and adaption of the auxiliary heater control unit - J364- via the "Control unit replacement" function of the Guided Fault Finding routine before removing the component (auxiliary heater control unit - J364- is installed in heater) ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *If the auxiliary heater cannot be activated on a new vehicle or on a vehicle with a newly installed auxiliary heater (depending on the version of the auxiliary heater control unit - J364-), the component protection function may be active. If a large number of faults occurred simultaneously prior to initial commissioning, e.g. at the factory, this fault is no longer displayed although it is still active. If necessary, re-adapt the component protection function in the same way as for a newly installed auxiliary heater to cancel the component protection ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

2 Safety precautions

2.1 Safety precautions when working on the fuel system

WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply 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

Risk of overheating if cap is not fitted properly.

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

Further safety precautions ⇒ Engine; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system

2.5 Safety precautions when working on vehicles with auxiliary/supplementary heater

◆ The auxiliary heater should not be switched on in areas where there is a danger of fire or explosion. Switch off auxiliary heater by pressing “OFF” button on remote control or via Multi Media Interface (MMI, control unit for front display and information control panel - J523-).

◆ The auxiliary heater must not be switched on in closed spaces without exhaust gas extraction systems.

- Observe the relevant safety regulations when working on the fuel system ⇒ Engine; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the fuel supply system .
- If parts of the fuel system (e.g. metering pump - V54- , fuel line, fuel gauge sender) are removed or opened, the engine must not be started ⇒ Engine; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the fuel supply system .
- After completing the repair work on the auxiliary heater or fuel system, check the operation of the auxiliary heater.
- Before starting repair work on auxiliary heater:

– Release pressure in the cooling system by opening the cap on the coolant expansion tank.

– Disconnect the voltage and fuel supply to the auxiliary heater (e.g. by removing auxiliary heater fuse)⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

– If the auxiliary heater is to be renewed, interrogate the coding and adaption of the auxiliary heater control unit - J364- by way of the “Control unit replacement” function of the Guided Fault Finding routine ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

- After completing repair work on the auxiliary heater, perform Guided Fault Finding (check coding, interrogate event memory and perform basic setting and adaption) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Avoid switching the auxiliary heater on repeatedly without intermediate heating operation (if the auxiliary heater is switched off repeatedly during the start sequence, fuel may accumulate in the combustion chamber and the auxiliary heater may generate additional smoke when the auxiliary heater is next switched on).

3 Repair notes

3.1 Rules for cleanliness

- Carefully clean all connections and surrounding areas before disconnecting.
- Place parts that have been removed on a clean surface (use sheeting or paper, not fluffy cloths) and cover them over.
- 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 without their packaging (e.g. in toolboxes etc.).
- When fuel system is open:
  - Do not work with compressed air.
  - Do not move vehicle.
  - Do not start engine.
  - Do not switch on auxiliary heater (also applies to switching on via “Basic setting” function of Guided Fault Finding) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

3.2 General notes

3.2.1 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 provides information on the auxiliary/supplementary heater ⇒ page 1 .

3.2.2 Notes for vehicles with start/stop system

- A start/stop system is available as an optional extra for some versions of this vehicle. Vehicles with a start/stop system are not fitted with a coolant circulation pump - V50- for the stop function.
- On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump -

V55- in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.

Note

Depending on the engine, vehicles with auxiliary heater may be fitted with a coolant circulation pump - V50- in addition to the circulation pump - V55- . For further information, refer to ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Coolant pump/coolant regulator unit; Exploded view - coolant pump/coolant regulator unit .

3.3 General repair instructions

- Disconnect negative and positive terminals of battery - A- before starting electric welding work on the vehicle ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- If coolant has been drained, bleed auxiliary heater after filling cooling system ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system and ⇒ page 89 .
- If parts of the fuel system have been removed or renewed, make sure that all components used for the fuel take-off to the auxiliary heater are properly installed. The auxiliary heater must then be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely; the auxiliary heater must be checked for correct operation.
- After performing repairs in the vicinity of the fuel line to the auxiliary heater, check that:

– There is no air in the fuel line to the auxiliary heater.

– The fuel lines are flush with the underbody and protected against mechanical damage.

– The fuel line to the auxiliary heater is protected against heat which could affect its operation.

– The fuel line does not make contact with components which can become hot.

- When performing repair work in the area of the fuel delivery unit, make sure that the fuel take-off pipe for the auxiliary heater is routed correctly in the fuel tank. If the take-off pipe is not routed correctly, the metering pump - V54- may only supply fuel if the fuel tank is completely full; if this is not the case, no fuel is supplied and the auxiliary heater is deactivated due to a fault ⇒ page 95 .
- After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.
- If there is not enough fuel in the fuel tank (fuel gauge in control unit in dash panel insert - J285- in “red zone”), the auxiliary heater control unit - J364- does not switch on the auxiliary heater (activation prohibited via the data bus due to a lack of fuel).
- Prior to activation and during operation of the auxiliary heater, the auxiliary heater control unit - J364- interrogates the data bus diagnostic interface - J533- / battery monitor control unit - J367- via the data bus. As soon as the data bus diagnostic interface - J533- transmits a request for energy saving because the battery is no longer sufficiently charged or because the voltage of the electrical system is insufficient, the auxiliary heater control unit - J364- switches off the auxiliary heater.

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 whether certain parts can be reused, 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 Checking heating output

- Checking operation and heating output of auxiliary heater ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode
- Checking heating output of air conditioner ⇒ Heating, air conditioning; Rep. gr. 00 ; Repair notes; Checking heating output .

3.6 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.

3.7 Notes on general repairs

- Self-diagnosis for auxiliary heater ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode
- If parts of the fuel system have been removed or renewed, make sure that all components used for the fuel take-off to the auxiliary heater are properly installed.
- Before removing the coolant hoses, mark them to avoid interchanging them.
- After performing repairs in the vicinity of the fuel line to the auxiliary heater, check that:

– The fuel lines are flush with the underbody and protected against mechanical damage.

– The fuel line to the auxiliary heater is protected against heat which could affect its operation.

– The fuel line does not make contact with components which can become hot.

82 – Auxiliary heating

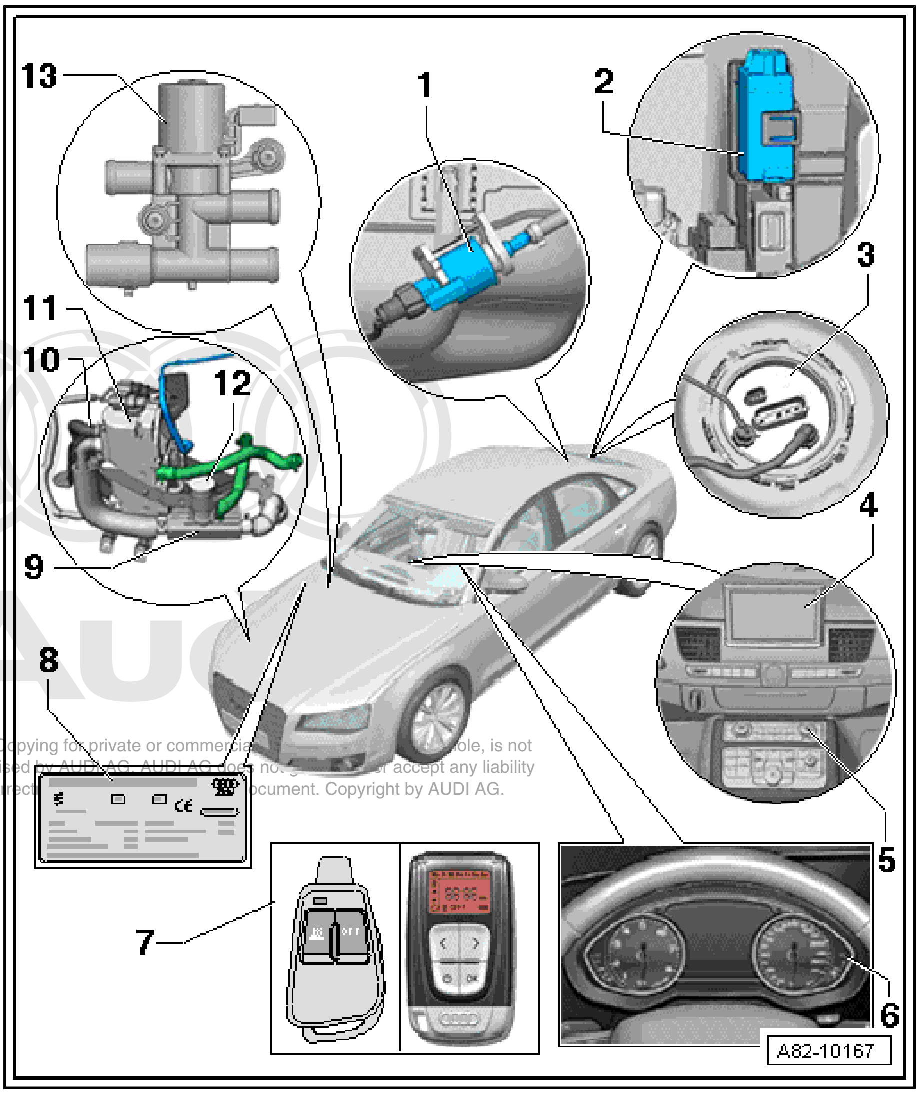
1 Overview of fitting locations - auxiliary/supplementary heater

⇒ “1.1 Exploded view of fitting locations - components not located in passenger compartment”, page 24

⇒ “1.2 Exploded view of fitting locations - components in passenger compartment at front”, page 28

⇒ “1.3 Overview of fitting locations - components in rear passenger compartment”, page 34

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



1 - Metering pump - V54-

- ❑ Removing and installing ⇒ page 108
- ❑ Fuel take-off for auxiliary heater ⇒ page 95
- ❑ Checking fuel delivery rate ⇒ page 105
- ❑ Checking activation ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Checking wiring ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Some vehicle versions are fitted with noise damping in the fuel line to the auxiliary heater in the vicinity of the metering pump - V54- to reduce noise ⇒ page 108 .

2 - Remote control receiver for auxiliary heater - R64-

3 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

- ❑ Different fuel delivery units depending on version of vehicle (petrol or diesel engine, front or all-wheel drive) ⇒ Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .
- ❑ Fuel take-off for auxiliary heater ⇒ page 95

Note

After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.

4 - Multi Media Interface (MMI, control unit for front display and information control panel - J523-)

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

6 - Instrument cluster display

7 - Remote control for auxiliary heater

8 - Factory label duplicate for auxiliary heater

- ❑ Indicates both technical data and auxiliary heater version.
- ❑ Bonded onto inside of bonnet

9 - Exhaust silencer of auxiliary heater

- ❑ Removing and installing ⇒ page 66

10 - Intake air noise insulation

- ❑ Removing and installing ⇒ page 62

11 - Auxiliary heater

- ❑ Removing and installing ⇒ page 47
- ❑ Incorporation into coolant circuit ⇒ page 82
- ❑ Dismantling and assembling ⇒ page 52
- ❑ Checking electrical components of auxiliary heater ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Overview of wiring and activation of auxiliary heater ⇒ page 73

Note

- ♦ *When renewing, observe correct version (different versions for petrol and diesel engines) ⇒ page 1 and ⇒ Electronic parts catalogue .*
- ♦ *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- ♦ *With this version, you must make sure that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*

- *Various auxiliary heater and air conditioner functions are adjusted on the Multi Media Interface (MMI). In the event of problems with the auxiliary heater control function or heat output, you should therefore check these settings in the MMI ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .*
- *A start/stop system is available as an optional extra for some versions of this vehicle. On these versions, ensure that the correct version of the air conditioner front operating and display unit (Climatronic control unit - J255-) and auxiliary heater is used ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *If the auxiliary heater or the auxiliary heater control unit - J364- is renewed, check operation of at least one hand-held transmitter and re-adapt all hand-held transmitters if necessary ⇒ page 129 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *Checking power supply ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *If the entry "Incorrect control unit fitted" is displayed after renewing the auxiliary heater or the auxiliary heater control unit - J364- , check that the auxiliary heater control unit - J364- has been coded for the correct type of fuel ("diesel" or "petrol") and correct if necessary in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

- *Depending on the selected mode (“Auxiliary heating” or “Auxiliary ventilation”), certain faults which impair the auxiliary heating/auxiliary ventilation are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a problem with the auxiliary heater, also read out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*

The auxiliary heater is fitted with the following electrical components:

- Auxiliary heater control unit - J364-
- Temperature sensor - G18-
- Flame monitor - G64-
- Temperature sensor 2 for supplementary and auxiliary heating - G587-
- Glow plug for heater - Q9-
- Combustion air blower - V6-
- Fuel pre-heating heater element - Z66-

12 - Circulation pump - V55-

- ❑ The circulation pump - V55- is activated by the auxiliary heater control unit - J364- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Removing and installing ⇒ page 63
- ❑ Depending on vehicle equipment, the auxiliary heater control unit - J364- may activate the circulation pump - V55- even when the auxiliary heater is switched off due to a request received via the data bus, e.g. from the engine control unit or air conditioner front operating and display unit (Climatronic control unit - J255-).

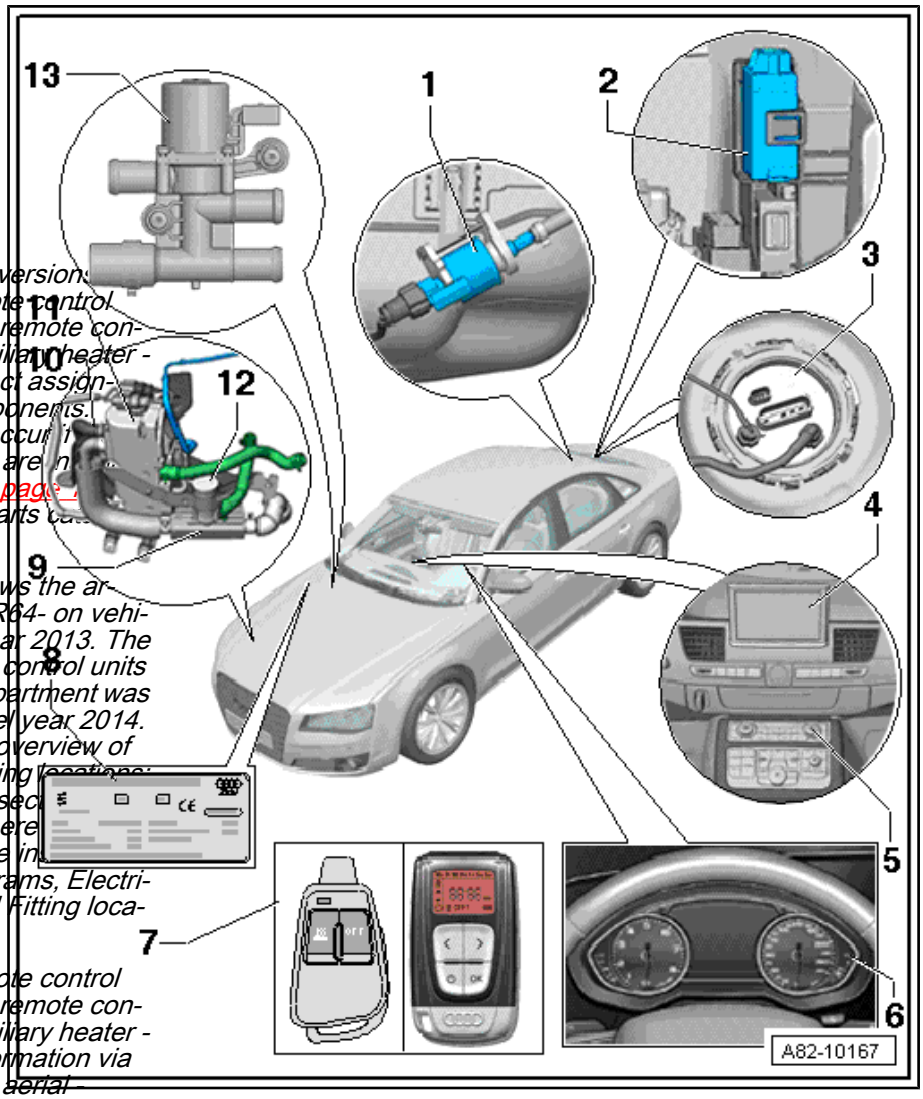
Note

On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.

13 - Heater coolant shut-off valve - N279-

- ❑ Activated in auxiliary heating mode by auxiliary heater control unit - J364- .
- ❑ Different versions. Ensure correct assignment ⇒ Electronic parts catalogue .
- ❑ Removing and installing ⇒ page 86
- ❑ Checking wiring ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ Operation ⇒ page 86 .

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



1 - Metering pump - V54-

2 - Remote control receiver for auxiliary heater - R64-

❑ Fitting location ⇒ page 34

Note

- *There are different versions of the hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- ; ensure correct assignment of these components. Malfunctions may occur if wrong components are fitted together; refer to ⇒ page [illegible] and ⇒ Electronic parts catalogue .*
- *This illustration shows the arrangement of the -R64- on vehicles up to model year 2013. The arrangement of the control units in the luggage compartment was changed from model year 2014. Please refer to the overview of fitting locations "Fitting locations: control units in rear section of vehicle" to find out where the various control units are installed ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *The hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- exchange information via the auxiliary heater aerial - R182- (fitted in the roof aerial - R216-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

3 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

4 - Multi Media Interface (MMI, control unit for front display and information control panel - J523-)

❑ The various functions for activating the auxiliary heater and auxiliary ventilation are entered via the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) and indicated in the corresponding display ⇒ page 113 .

Note

The settings for various functions of the auxiliary heater are adjusted via the Multi Media Interface (MMI). In the event of problems with the auxiliary heater control function or heat output, you should therefore check these settings in the MMI ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .

- Operation of auxiliary heater (in “Car” menu of Multi Media Interface (MMI), control unit for front display and information control panel - J523-) and corresponding displays are described in the corresponding manual ⇒ Infotainment/MMI Operating Manual .
- If there is not enough fuel in the fuel tank (fuel gauge in red zone), the auxiliary heater cannot be switched on (tick in Multi Media Interface (MMI, control unit for front display and information control panel - J523-) for “Immediate auxiliary heater activation” function and symbol for auxiliary heating mode in clock cannot be activated or disappear again) ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .

Note

- *The display of the additional auxiliary heater and air conditioner functions depends on the encoding of the air conditioner front operating and display unit (Climatronic control unit - J255-). If the assignment and encoding are incorrect, the various functions of the auxiliary heater and air conditioner cannot be displayed or selected in the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode, ⇒ Owner's Manual and ⇒ “Infotainment/MMI” Operating Manual.*
- *Depending on the version of the control units and the coding of the air conditioner front operating and display unit (Climatronic control unit - J255-), the additional auxiliary heater and air conditioner functions are selected and activated via the rotary pushbutton of the air conditioner front operating and display unit (Climatronic control unit - J255-) or the operating unit of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .*
- *Depending on vehicle version, equipment, production period and the setting in the Multi Media Interface (MMI), certain auxiliary heater functions can also be switched on and off via the programmable steering wheel button ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .*

- *Ensure correct assignment and coding of the air conditioner front operating and display unit (Climatronic control unit - J255-), e.g. to control unit for front display and information control panel - J523- or to control unit 1 for information electronics - J794- ⇒ Electronic parts catalogue (different versions). In the event of incorrect assignment, the various auxiliary heater and air conditioner functions cannot be displayed and selected in the Multi Media Interface (MMI, control unit for front display and information control panel - J523-).*

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

- ❑ Activated via the data bus
- ❑ Various auxiliary heater and air conditioner functions are adjusted on the Multi Media Interface (MMI). In the event of problems with the auxiliary heater control function or heat output, you should therefore check these settings in the MMI ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- ❑ When operating the auxiliary heater by way of the “Timer” function or the remote control unit, this determines the mode in which the auxiliary heater starts up (auxiliary ventilation or auxiliary heating) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ For the auxiliary heater to be activated via the “Timer” function or the remote control (hand-held transmitter), a temperature greater than “Lo” must have been set on the air conditioner front operating and display unit (Climatronic control unit - J255-).
- ❑ To de-ice the windows as quickly as possible, it is recommended to set the maximum temperature on the air conditioner front operating and display unit (Climatronic control unit - J255-) before switching off the ignition. The air conditioner front operating and display unit (Climatronic control unit - J255-) adopts the most recent temperature setting in auxiliary heating mode and regulates passenger compartment temperature in line with the specified temperature setting.

Note

- *A start/stop system is offered as an optional extra for this vehicle in combination with certain engines. On these versions, ensure that the correct version of the air conditioner front operating and display unit (Climatronic control unit - J255-) and auxiliary heater is used ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*

- *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*

- *Depending on the selected mode (“Auxiliary heating” or “Auxiliary ventilation”), certain faults which impair the auxiliary heating/auxiliary ventilation are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a problem with the auxiliary heater, also read out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*
- *There are different versions of the hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- ; make sure that these components are combined correctly with each other and with the air conditioner front operating and display unit (Climatronic control unit - J255-). There might be malfunctions if the wrong components are installed together*
  ⇒ “6.3.5 Remote control for auxiliary heater (without display)”, page 121 ,
  ⇒ “6.3.7 Remote control for auxiliary heater (with display)”, page 125 and ⇒ Electronic parts catalogue .
- *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 .*

6 - Instrument cluster display

- ❑ Installed in instrument cluster
- ❑ Depending on the version, the “auxiliary heater” (optional extra) must have been adapted via the “Adaption” function in the control unit in dash panel insert - J285- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- ❑ If there is not enough fuel in the fuel tank (fuel gauge in red zone), the auxiliary heater cannot be switched on (tick in Multi Media Interface (MMI) (control unit for front display and information control panel - J523-) for “Immediate auxiliary heater activation” function and symbol for auxiliary heating mode in the clock cannot be activated or disappear again) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode, ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- ❑ Depending on the operating status of the auxiliary heater (auxiliary heating/auxiliary ventilation mode) or on whether the timer function has been selected, one of the symbols for auxiliary heating/auxiliary ventilation is activated permanently, or one or both symbol(s) flash(es) ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- ❑ If the vehicle is fitted with a remote control for the auxiliary heater (currently always provided), this activates the auxiliary heater control unit - J364- . The control unit then transmits the information “Activate or deactivate auxiliary heating/auxiliary ventilation” via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-). The air conditioner front operating and display unit

(Climatronic control unit - J255-) then determines whether auxiliary heating mode is required to attain the specified temperature or whether auxiliary ventilation mode is sufficient.

Note

If the auxiliary heater is activated via the "Timer" function or the remote control and the temperature setting on -J255- is "Lo", the auxiliary heater only starts up if the ambient temperature is below e.g. 10 °C at the time. If the ambient temperature in this setting is above approx. 10 °C, only auxiliary ventilation mode is activated ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode, ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .

7 - Remote control for auxiliary heater

- ❑ For switching the "auxiliary heating" or "auxiliary ventilation" function of the auxiliary heater on and off ⇒ page 121
- ❑ There are different versions of the remote control for auxiliary heater (with different transmission signals, with different functions, without display ⇒ page 121 or with display ⇒ page 125) ⇒ Electronic parts catalogue .
- ❑ After the battery is removed, the version of the remote control can be seen on the sticker with the part number ⇒ page 121 ⇒ Electronic parts catalogue .
- ❑ Renewing battery for remote control (without display) ⇒ page 124
- ❑ Renewing battery for remote control (with display) ⇒ page 128
- ❑ Adapting remote control ⇒ page 129
- ❑ If the auxiliary heater is renewed together with the auxiliary heater control unit - J364- , check the operation of at least one remote control and re-adapt all remote controls if necessary ⇒ page 129 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ Indication of fault status ("Heating not possible") on display of remote control (with display) ⇒ page 127

Note

- ♦ *Depending on the selected mode ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating/auxiliary ventilation are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a problem with the auxiliary heater, also read out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

- *There are different versions of the hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- ; ensure correct assignment of these components. Malfunctions may occur if the wrong components are installed together; refer to ⇒ "6.3.5 Remote control for auxiliary heater (without display)", page 121 , ⇒ "6.3.7 Remote control for auxiliary heater (with display)", page 125 and ⇒ Electronic parts catalogue .*

8 - Factory label duplicate for auxiliary heater

9 - Exhaust silencer of auxiliary heater

10 - Intake air noise insulation

11 - Auxiliary heater

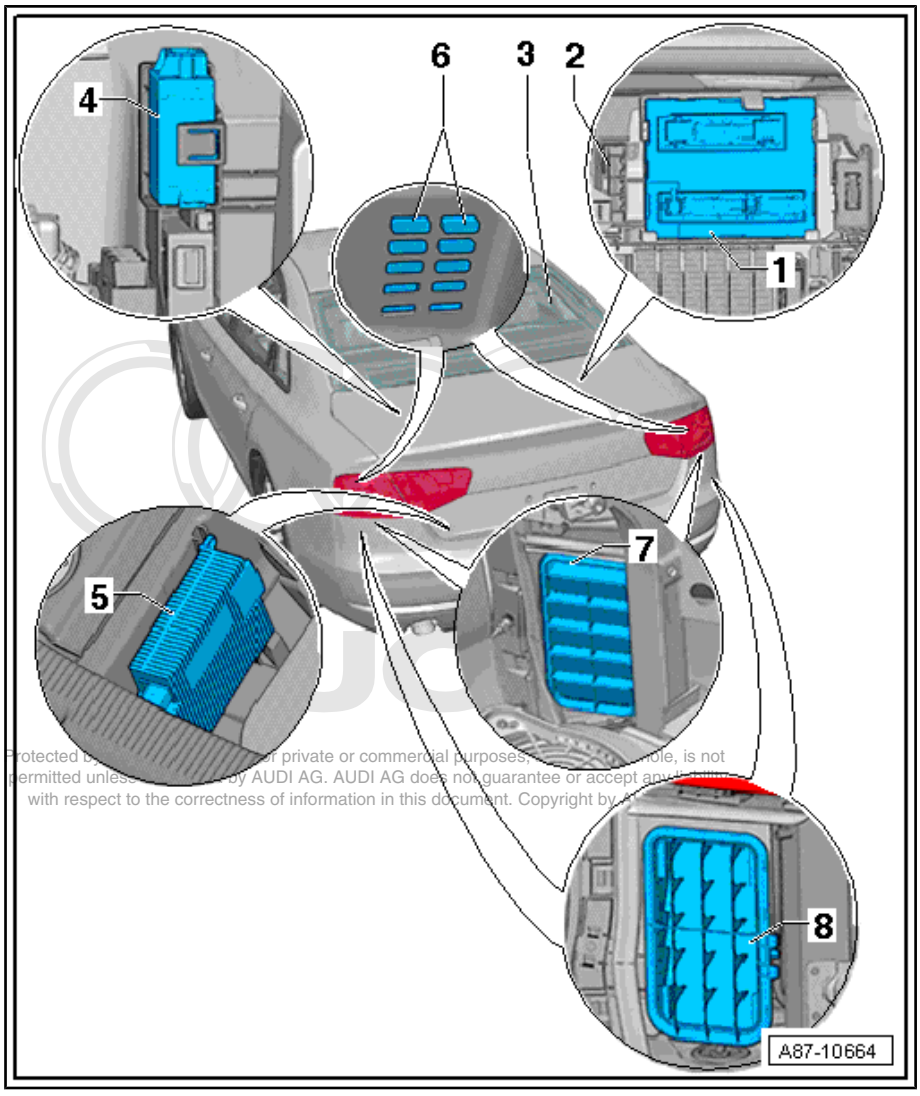
12 - Circulation pump - V55-

13 - Heater coolant shut-off valve - N279-

1.3 Overview of fitting locations - components in rear passenger compartment

Note

This illustration shows the arrangement of control units on vehicles up to model year 2013. The arrangement of the control units in the luggage compartment was changed from model year 2014. Please refer to the overview of fitting locations "Fitting locations: control units in rear section of vehicle" to find out where the various control units are installed ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



1 - Convenience system central control unit - J393-

- Activation of different vehicle systems ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

2 - Data bus diagnostic interface - J533-

- Databus connection of different control units ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

3 - Heated rear window - Z1-

- Activation of -Z1- is not influenced by the auxiliary heater.

4 - Remote control receiver for auxiliary heater - R64-

There are different versions of the remote control receiver for auxiliary heater - R64- and the hand-held remote control transmitter. It is therefore important to ensure correct assignment ⇒ "6.3.7 Remote control for auxiliary heater (with display)", page 125 and ⇒ Electronic parts catalogue .

- Removing and installing ⇒ Communication; Rep. gr. 91 ; Telephone system; Overview of fitting locations - telephone system
- The remote control is adapted in the remote control receiver for auxiliary heater - R64- . If this is renewed, all remote controls must be re-adapted ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ page 129 .
- Adaption of remote control for auxiliary heater to remote control receiver for auxiliary heater - R64- ⇒ page 129 .
- When radio signals (switching auxiliary heating/auxiliary ventilation on/off) are received, the remote control receiver for auxiliary heater - R64- transmits the information to the auxiliary heater control unit - J364- .
- The feedback from the remote control receiver for auxiliary heater - R64- is supplied by the auxiliary heater control unit - J364- to the hand-held remote control transmitter.
- The remote control receiver can be switched off in the auxiliary heater control unit - J364- (thus reducing the no-load current input, e.g. in transport mode, to relieve the load on the battery - A- until the vehicle is returned to the customer) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

- ❑ In idle mode, the current input of the remote control receiver for auxiliary heater - R64- is less than 1 mA. The current input increases as soon as a transmission signal is received.
- ❑ The remote control can be switched off by the auxiliary heater control unit - J364- (thus reducing no-load current input).

Note

- ♦ *The remote control for auxiliary heater is adapted in the remote control receiver for auxiliary heater - R64- and not in the auxiliary heater control unit - J364- .*
- ♦ *The remote control signals are only relayed by the remote control receiver for auxiliary heater - R64- . They are then processed by the auxiliary heater control unit - J364- .*
- ♦ *There are different versions of the hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- ; ensure correct assignment of these components. Malfunctions may occur if the wrong components are installed together; refer to ⇒ page 121 and ⇒ Electronic parts catalogue .*
- ♦ *The hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- exchange information via the auxiliary heater aerial - R182- (fitted in the roof aerial - R216-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

5 - Heated windscreen control unit - J505-

- ❑ Only fitted on vehicles with corresponding optional extra
- ❑ Activation of the heated windscreen is not influenced by the auxiliary heater.

Note

Depending on the setting in the Multi Media Interface (MMI), more air is directed to the windscreen in auxiliary heating mode for quicker de-icing in this area ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .

6 - Ventilation slots in luggage compartment lining

- ❑ Ventilation of passenger compartment

7 - Forced ventilation from luggage compartment

- ❑ Ventilation of passenger compartment

8 - Forced ventilation from luggage compartment

- ❑ External view with bumper cover removed

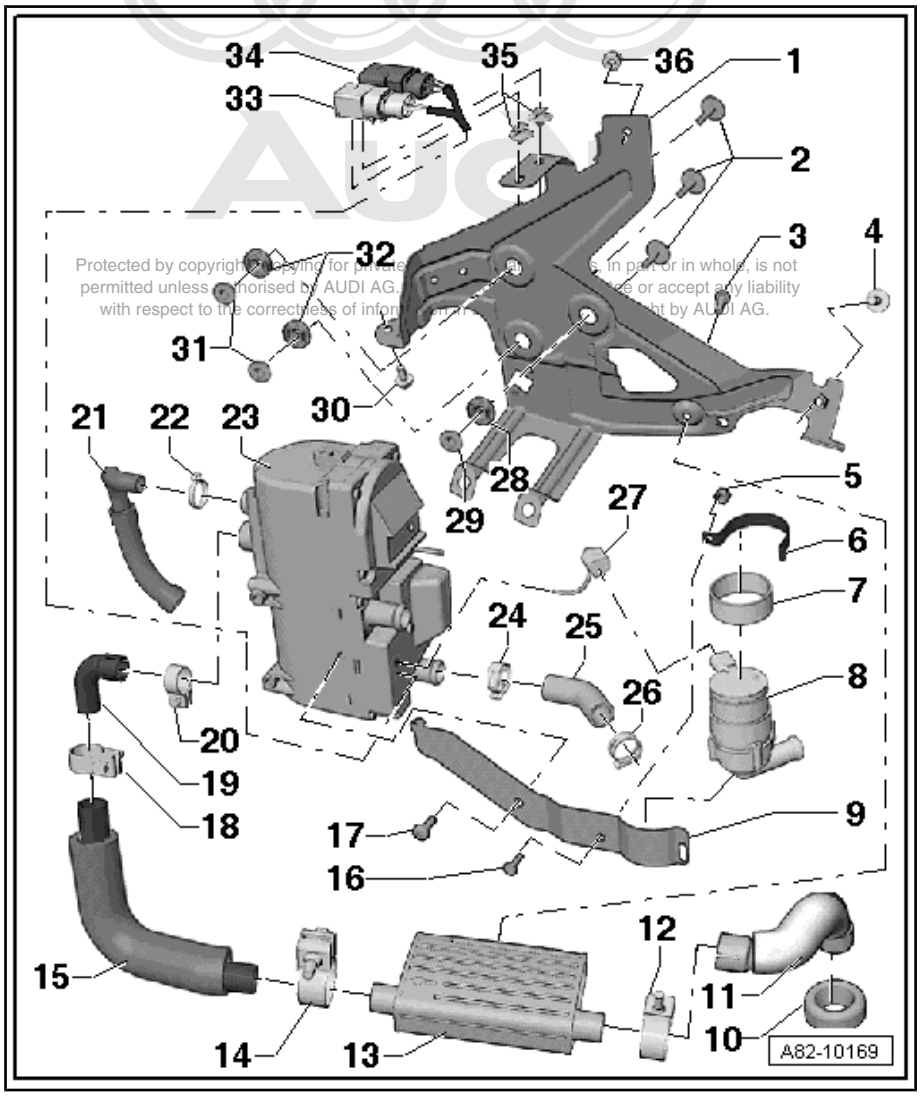
2 Auxiliary/supplementary heater

2.1 Overview of fitting locations - auxiliary/supplementary heater

Note

- *When renewing, make sure you are installing the correct version of the auxiliary heater (different versions for vehicles with petrol or diesel engine) ⇒ page 3 and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *Pay attention to correct coding for the vehicle concerned (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *Some of the auxiliary heater components listed individually in the following exploded view are not available as separate replacement parts. They are combined in various repair sets ⇒ Electronic parts catalogue .*
- *There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ page 70 and ⇒ Electronic parts catalogue .*

- *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded seal for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*
- *Incorporation of auxiliary heater into vehicle electrical system ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *Checking components of auxiliary heater ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *There are different versions of the auxiliary heater control unit - J364- . The Audi A8 must not be fitted with e.g. an auxiliary heater control unit - J364- with part number 8xx.xxx.xxx. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine); ensure that the correct version is used*
  ⇒ "1.5 Operating sequence for auxiliary heater", page 10 and
  ⇒ Electronic parts catalogue .



1 - Bracket

- ❑ Securing auxiliary heater ⇒ page 68

2 - Bolt

- ❑ Tightening torque: 6 Nm
- ❑ Securing bracket to auxiliary heater ⇒ page 68

3 - Bolt

- ❑ Tightening torque: 6 Nm
- ❑ Securing exhaust silencer ⇒ page 66

4 - Bolt

- ❑ Tightening torque: 8 Nm

5 - Nut

- ❑ Tightening torque: 3.5 Nm
- ❑ Secures circulation pump - V55-
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

6 - Retainer

- ❑ Secures circulation pump - V55-
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

7 - Rubber ring

- ❑ Secures circulation pump - V55-

8 - Circulation pump - V55-

- ❑ Removing and installing ⇒ page 63
- ❑ Incorporation into coolant circuit ⇒ page 82

9 - Bracket

- ❑ Secures circulation pump - V55-
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

10 - Rubber grommet

- ❑ Removing and installing exhaust system ⇒ page 66

11 - Exhaust pipe

- ❑ With thermal insulation to protect surrounding components
- ❑ Removing and installing exhaust system ⇒ page 66

Note

- ♦ *The flow of exhaust gas out of the exhaust pipe must not be obstructed.*
- ♦ *After working on the auxiliary heater, check the end of the exhaust pipe; it must be installed so it is at a right angle to the noise insulation at the point where it passes through the noise insulation* ⇒ page 66 .

12 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures exhaust pipe to exhaust silencer
- ❑ Removing and installing exhaust system ⇒ page 66

13 - Exhaust silencer

- ❑ Removing and installing ⇒ page 66

14 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures exhaust pipe to exhaust silencer
- ❑ Removing and installing exhaust system ⇒ page 66

15 - Exhaust pipe

- ❑ With thermal insulation to protect surrounding components
- ❑ Removing and installing exhaust system ⇒ page 66

16 - Bolt

- ❑ Secures circulation pump - V55-
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

17 - Bolt

- ❑ Tightening torque: 6 Nm
- ❑ Secures bracket for circulation pump - V55-
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

18 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures exhaust pipe
- ❑ Removing and installing exhaust system ⇒ page 66

19 - Exhaust pipe

- ❑ Removing and installing exhaust system ⇒ page 66

20 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures exhaust pipe to auxiliary heater

- ❑ Removing and installing exhaust system ⇒ page 66

21 - Intake air noise insulation

- ❑ Removing and installing ⇒ page 62

22 - Clamp

- ❑ Secures intake air noise insulation to air intake connection of auxiliary heater
- ❑ Removing and installing ⇒ page 62

23 - Auxiliary heater

- ❑ Removing and installing ⇒ page 47
- ❑ Different versions. Pay attention to correct assignment. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine) ⇒ page 1 and ⇒ Electronic parts catalogue .

Note

A start/stop system is offered as an optional extra for this vehicle in combination with certain engines. On these versions, ensure that the correct version of the air conditioner front operating and display unit (Climatronic control unit - J255-) and auxiliary heater is used ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.

24 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures coolant hose
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

25 - Coolant hose

- ❑ Removing and installing circulation pump - V55- ⇒ page 63

26 - Clamp

- ❑ Tightening torque of bolt: 6 Nm
- ❑ Secures coolant hose
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

27 - Electrical connector

- ❑ Power supply for circulation pump - V55- ⇒ page 73
- ❑ Removing and installing circulation pump - V55- ⇒ page 63

28 - Rubber element

- ❑ Secures bracket to auxiliary heater
- ❑ Noise reduction

29 - Socket

- ❑ Secures bracket to auxiliary heater with rubber element

30 - Bolt

- ❑ Tightening torque: 3.5 Nm

31 - Socket

- ❑ Secures bracket to auxiliary heater with rubber element

32 - Rubber elements

- ❑ Secures bracket to auxiliary heater
- ❑ Noise reduction

33 - Electrical connector

- 2-pin ⇒ page 73
- Power supply to auxiliary heater

34 - Electrical connector

- 6-pin ⇒ page 73
- Power supply to auxiliary heater

35 - Retaining clips

- Secure electrical connector

36 - Nut

- Tightening torque: 3.5 Nm

2.2 Exploded view - internal auxiliary/supplementary heater

Note

- *When renewing, make sure you are installing the correct version of the auxiliary heater (different versions for vehicles with petrol or diesel engine) ⇒ page 3 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *Pay attention to correct coding for the vehicle concerned (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *Some of the auxiliary heater components listed individually in the following exploded view are not available as separate replacement parts. They are combined in various repair sets ⇒ Electronic parts catalogue .*
- *There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ page 70 and ⇒ Electronic parts catalogue .*
- *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded seal for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*
- *Incorporation of auxiliary heater into vehicle electrical system ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *Checking components of auxiliary heater ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *There are different versions of the auxiliary heater control unit - J364- . The Audi A8 must not be fitted with e.g. an auxiliary heater control unit - J364- with part number 8xx.xxx.xxx. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine); ensure that the correct version is used ⇒ "1.5 Operating sequence for auxiliary heater", page 10 and ⇒ Electronic parts catalogue .*

1 - Bolt M5×80

- ❑ 4x
- ❑ Tightening torque: 6 Nm

2 - Cover for combustion air blower - V6-

- ❑ Air intake connection for auxiliary heater ⇒ page 62

3 - Bolt M4×16

- ❑ 4x
- ❑ Tightening torque: 3 Nm

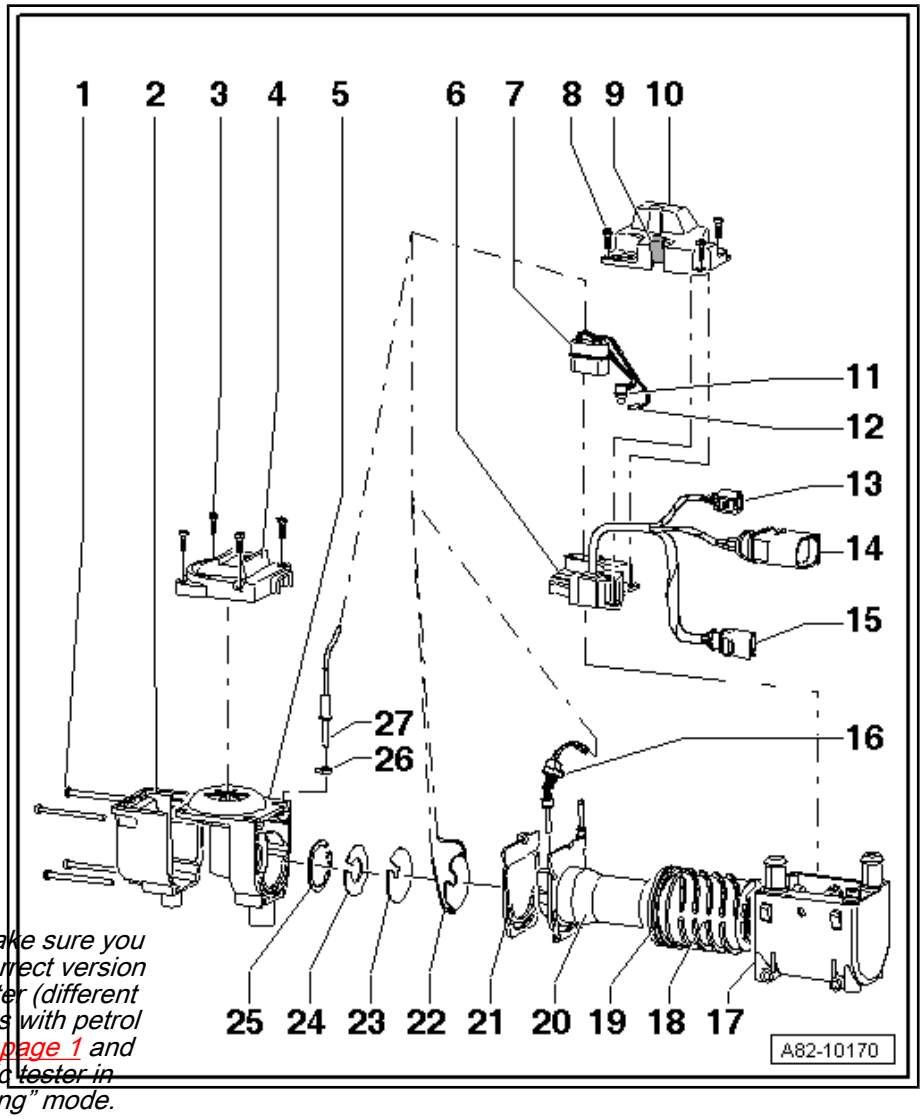
4 - Cover for combustion air blower - V6-

5 - Combustion air blower - V6-

- ❑ Renewing ⇒ page 59
- ❑ Do not dismantle any further
- ❑ Connection for auxiliary heater exhaust system ⇒ page 66

6 - Auxiliary heater control unit - J364-

- ❑ Removing and installing ⇒ page 54



Note

- *When renewing, make sure you are installing the correct version of the auxiliary heater (different versions for vehicles with petrol or diesel engine) ⇒ page 1 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *Pay attention to correct coding for the vehicle concerned (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

- *There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ page 70 and ⇒ Electronic parts catalogue .*
- *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*

Caution

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.
If a retaining clip has not been properly fitted, - G18- or -G587- may work loose.

Ensure correct assignment and proper fitting of the retaining clip.

7 - 14-pin connector

- ❑ For connection to auxiliary heater control unit - J364-

Contact assignment and wiring colours:

- Temperature sensor - G18- : Contact 10 - black, contact 11 - black.
- Flame monitor - G64- : Contact 1 - brown, contact 2 - brown.
- Temperature sensor 2 for supplementary and auxiliary heating - G587- : Contact 7 - white, contact 8 - white.
- Glow plug for heater - Q9- : Contact 3 - brown, contact 6 - white.
- Combustion air blower - V6- : Contact 13 - black, contact 14 - brown.
- Fuel pre-heating heater element - Z66- : Contact 9 - black, contact 12 - black.

8 - Bolt M4×16

- ❑ 4x
- ❑ Tightening torque: 3 Nm

9 - Clip

- ❑ For pipe leadthrough

10 - Cover for water jacket

- ❑ Cover for auxiliary heater control unit - J364-

Note

There are different versions of this cover. Make sure you are using the correct version (different versions for -J364- with part number 8xx xxx xxx and 4xx xxx xxx) ⇒ Electronic parts catalogue .

11 - Temperature sensor - G18-

- ❑ Removing and installing ⇒ page 70
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

12 - Temperature sensor 2 for supplementary and auxiliary heating - G587-

- ❑ Removing and installing ⇒ page 71
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

13 - 2-pin connector

- ❑ To circulation pump - V55-

14 - 6-pin connector

- ❑ To auxiliary heater control unit - J364-

15 - 2-pin connector

- ❑ Power supply

16 - Glow plug for heater - Q9-

- ❑ Rated voltage: 8 volts
- ❑ Removing and installing ⇒ page 56
- ❑ Checking ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode

Note

There are different versions of the glow plug for heater - Q9- . Ensure correct assignment ⇒ Electronic parts catalogue .

17 - Water jacket

18 - Heat exchanger

- ❑ Removing and installing ⇒ page 61
- ❑ Note installation position

19 - O-ring

- ❑ Renew
- ❑ Coat with small quantity of coolant when fitting

20 - Burner element

- ❑ If applicable, clean inside and outside with brass wire brush (spark plug brush).
- ❑ Different versions (for petrol and diesel) ⇒ Electronic parts catalogue

Note

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

21 - Moulded gasket

- ❑ Renew

Note

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

22 - Fuel pre-heating heater element - Z66-

- ❑ Removing and installing ⇒ page 58
- ❑ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

23 - Seal

24 - Washer

25 - Circlip

26 - Graphite seal

- ❑ Renew
- ❑ Note installation position

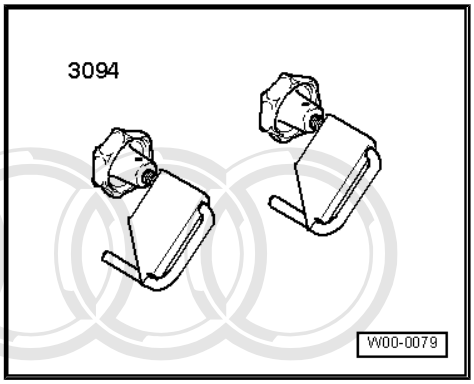
27 - Flame monitor - G64-

- ❑ Removing and installing ⇒ page 68
- ❑ Checking ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

2.3 Removing and installing auxiliary/supplementary heater

Special tools, testers and other devices required

- ♦ Hose clamps up to Ø 25 mm - 3094-



– Call up the “Control unit replacement” function in the Guided Fault Finding routine for the auxiliary heater. The encoding and adaption of the auxiliary heater control unit - J364- are interrogated ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Removing

– Switch off ignition (and auxiliary heater).

– Detach add-on components of auxiliary heater ⇒ page 68 .

WARNING

The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release the pressure in the coolant circuit by opening the cap on the coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

– Release pressure in the coolant circuit by opening the cap on the coolant expansion tank.

– Remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

– Remove the noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

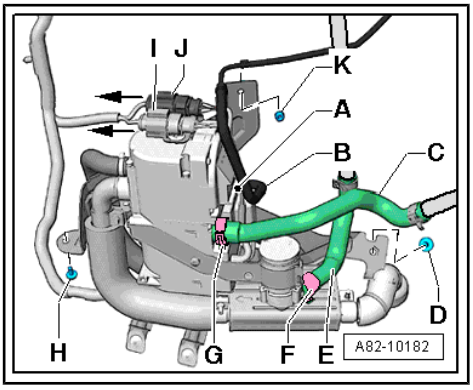
– Remove right air cleaner housing (not necessary on all vehicles) ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

Note

Only remove the air cleaner housing if components which must be detached or removed are not accessible due to certain items of equipment.

– Clamp off coolant hoses -C- and -E-, e.g. with hose clamps up to Ø 25 mm - 3094- .

– Release clamps -F- and -G- on coolant lines for auxiliary heater and detach coolant hoses.

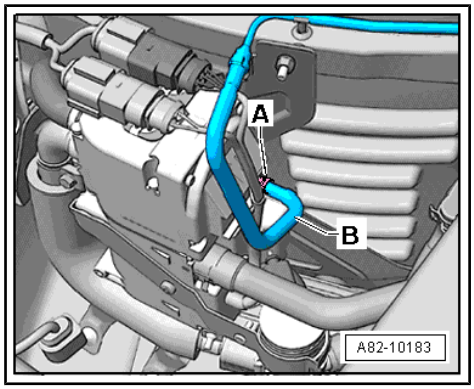


Note

Make sure that only coolant can escape from the auxiliary heater and that the coolant circuit in the other components (engine, heat exchanger in air conditioning unit etc.) remains full, so that only the auxiliary heater has to be bled after installation ⇒ page 89 .

– Unfasten clamp -A-.

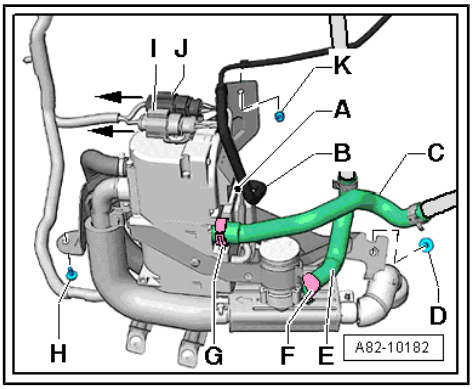
– Detach fuel line -B- from auxiliary heater and seal off.



WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply system .

– Release 2-pin connector -I- and 6-pin connector -J- and unplug in direction of -arrows-.
– Unscrew nut -K-.
– Unscrew bolts -D- and -H- and remove auxiliary heater with bracket.



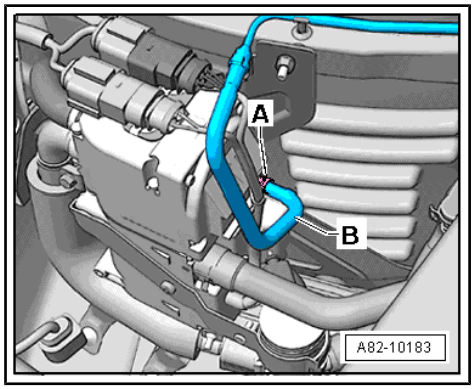
Installing

Note

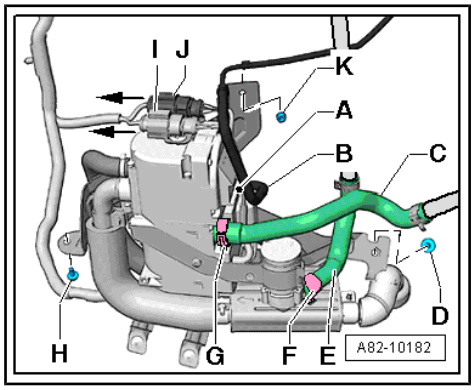
- *When renewing, make sure you install the correct auxiliary heater version (different versions for vehicles with petrol or diesel engine)* ⇒ page 1 .
- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *With this version, you must make sure that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *A start/stop system is available as an optional extra for some versions of this vehicle. On these vehicles, the circulation pump - V55- of the auxiliary heater is activated during the stop function by the auxiliary heater control unit - J364- . The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *If the assignment of the auxiliary heater control unit - J364- (type plate) differs from that displayed by the fault reader, check the display in the "Read measured values" function ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *If the auxiliary heater is renewed, the factory label duplicate must be checked and renewed if necessary.*
- *After renewing the auxiliary heater (with auxiliary heater control unit - J364-), the Guided Fault Finding routine for the auxiliary heater must be performed ("Control unit replacement" function) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *If the entry "Incorrect control unit fitted" is displayed after renewing the auxiliary heater or the auxiliary heater control unit - J364- , check that the auxiliary heater control unit - J364- has been coded for the correct type of fuel ("diesel" or "petrol") and correct if necessary in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

Install auxiliary heater in reverse order of removal ⇒ page 47 .

– Butt-joint fuel line -B- and secure it at marked locations with clamp of same type -A-.
– Fill coolant expansion tank with coolant up to top mark ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .



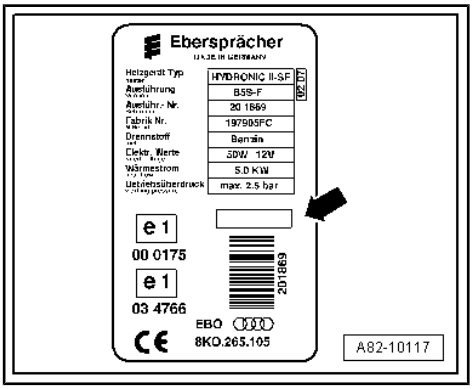
– Butt-joint coolant hose -E- at circulation pump - V55- and secure at marked locations with clamp -F- (using suitable pliers) ⇒ Electronic parts catalogue .
– Carefully open hose clamps to 25 mm - 3094- at coolant hose -E- and allow coolant to flow into auxiliary heater.
– As soon as coolant emerges from upper connection of auxiliary heater, attach coolant hose -C- to auxiliary heater and secure with clamp -G- using suitable pliers ⇒ Electronic parts catalogue .
– Detach both hose clamps up to 25 mm - 3094- .



Note

If the coolant circuit has been drained, the circulation pump - V55- must not be started up until the coolant circuit has been filled to prevent the pump from being damaged irreparably when it is run dry.

– Bleed coolant circuit of auxiliary heater ⇒ page 89 .
– Fill coolant expansion tank with coolant up to top mark ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .



Note

- *Following installation, check exhaust pipe, coolant hoses, fuel pipe and wiring to auxiliary heater (they must not make contact with other components).*
- *If the auxiliary heater is renewed, the factory label duplicate must be checked and renewed if necessary.*
- *If the auxiliary heater has been renewed, the year of initial commissioning for the newly installed heater must be entered on the heater type plate -arrow- and on the new "duplicate type plate" (illustration shows type plate for an auxiliary heater in a vehicle with petrol engine, as used at the start of production).*
- *There are different versions of factory labels.*

– Check position of air intake and air intake silencer of auxiliary heater (air inlet and exhaust outlet must not be obstructed) ⇒ page 37 .

– Continue with "Control unit replacement" function in Guided Fault Finding routine for auxiliary heater. The auxiliary heater control unit - J364- is then coded and adaption performed ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– If necessary, release component protection function in same way as for a newly installed auxiliary heater to cancel auxiliary heater locking by component protection ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– Check operation of at least one hand-held transmitter. Re-adapt all hand transmitters if necessary (adapt hand-held remote control transmitter) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– Start engine and interrogate event memory of all control units fitted. Faults may also have been entered for other control units via the data bus ⇒ Vehicle diagnostic tester in "Guided Fault Finding"mode.

– It may be necessary to completely fill the fuel pipe by way of the function "Sub-systems, general conditions", "Pipe filling" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

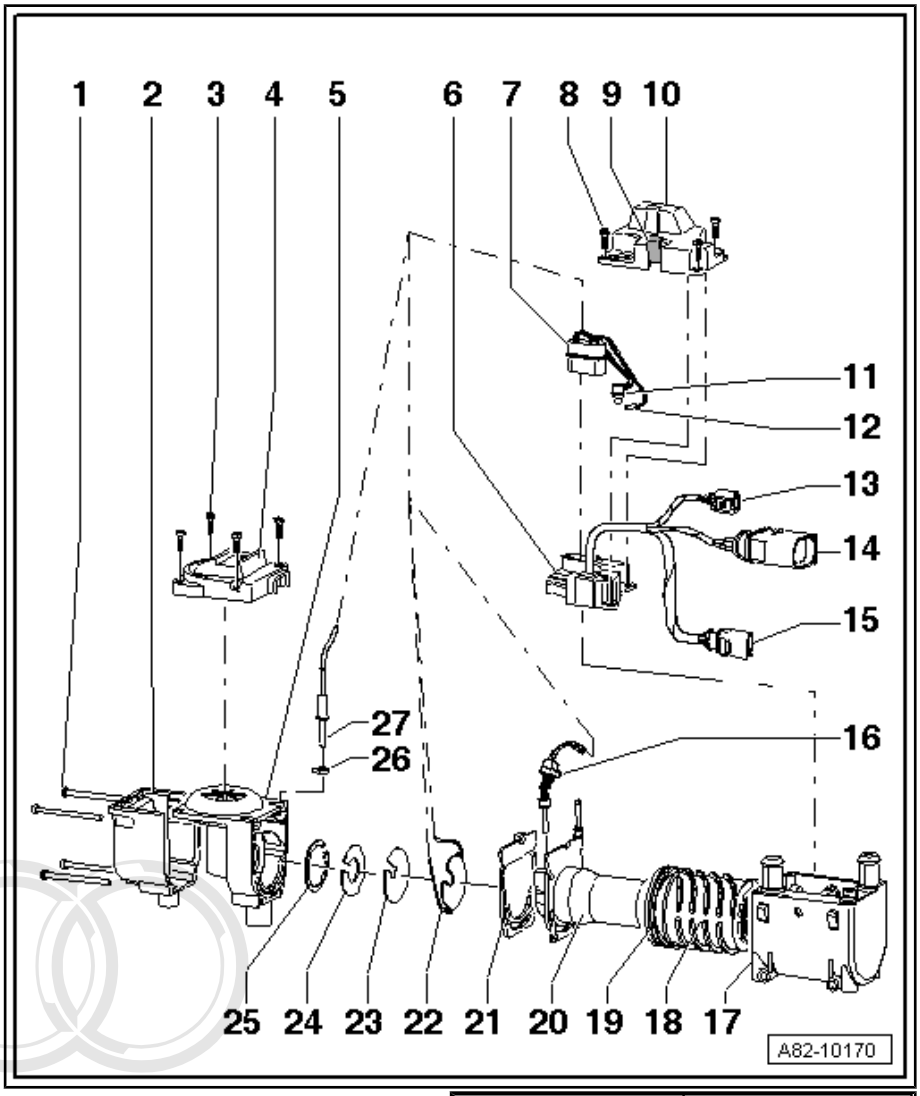
– After renewing auxiliary heater components, switch on auxiliary heater and allow it to run for at least 10 minutes at full load before the vehicle is returned to the customer. There may still be traces of factory lubricant (or similar) in the components which would evaporate following initial activation as soon as the components become hot.

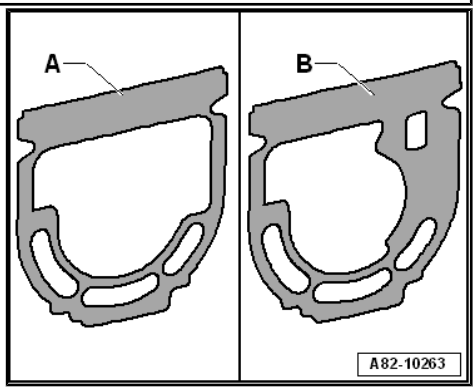
– Check "CO_2 content of exhaust gas" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ page 101 .

Tightening torques ⇒ page 37

2.4 Dismantling and assembling auxiliary/ additional heater

2.4.1 Dismantling and assembling auxiliary/additional heater





Dismantling auxiliary heater

– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 37 .
– Unscrew bolts -8- (4x) and lift cover for water jacket -10-.
– Release clip -9- at bottom, slide it out upwards and detach cover for water jacket -10-.
– Screw out bolts -3- (4x) and carefully detach cover for combustion air blower - V6- -4- from fuel connection of burner element -20-.

– Unplug 14-pin connector at auxiliary heater control unit -7-.
– Screw out bolts -1- (4x) and detach cover for combustion air blower - V6- -2-.
– Carefully separate combustion air blower - V6- -5- from water jacket -17-.

Note

When dismantling the auxiliary heater, ensure that the cables of the temperature sensor - G18- , the temperature sensor 2 for supplementary and auxiliary heating - G587- , the glow plug for heater - Q9- , the fuel pre-heating heater element - Z66- and the flame monitor - G64- are connected in the 14-pin connector. To remove the corresponding components, the electric cables must be released from the 14-pin connector.

Assembling auxiliary heater

Assemble in reverse order; note the following:

Note

- *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*
- *Version -A- of moulded gasket was fitted on petrol heaters until 06.2011. From 06.2011 onwards, version -B- was introduced for noise optimisation. On diesel heaters, version -A- is still installed ⇒ Electronic parts catalogue .*

– Clean the various components prior to assembly.
– Check the various components for damage. Pay particular attention to the sealing surfaces for the components and any permanently attached seals. Renew components with a damaged sealing surface or seal.
– Renew any seals.

Tightening torques ⇒ page 42

2.4.2 Removing and installing auxiliary heater control unit - J364-

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

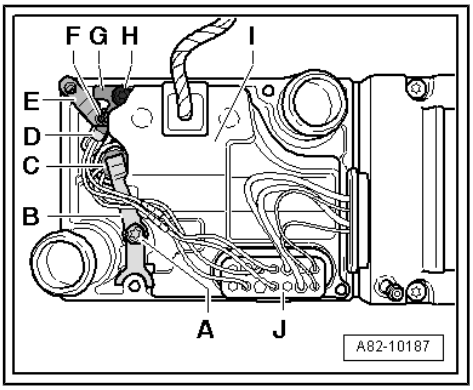
Preparation

– Switch off ignition (and auxiliary heater).
– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 68 .
– Dismantle auxiliary heater ⇒ page 52 .

Removing

– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.

– Detach auxiliary heater control unit - J364- -I- from water jacket.



Installing

Install in reverse order of removal; note the following:

Caution

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- *If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.*
- *Ensure correct assignment and proper fitting of the retaining clip.*

Note

- *When renewing, make sure you are installing the correct version of the auxiliary heater (different versions for vehicles with petrol or diesel engine) ⇒ page 1 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *Pay attention to correct coding for the vehicle concerned (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *The auxiliary heater control unit - J364- must be renewed using the "Control unit replacement" function of the auxiliary heater "Guided Fault Finding" routine on the vehicle diagnostic tester ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *If the auxiliary heater or the auxiliary heater control unit - J364- is renewed, check operation of at least one hand-held transmitter and re-adapt all hand-held transmitters if necessary ⇒ page 129 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *There are different versions of the retaining clip -B- for the temperature sensor - G18- -C-. A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. Attention must therefore be paid to correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ page 70 and ⇒ Electronic parts catalogue .*
- *From 06.2011 onwards, altered auxiliary heaters are in use (changes to auxiliary heater control unit - J364- version "2", different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*

2.4.3 Removing and installing glow plug for heater - Q9-

Note

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

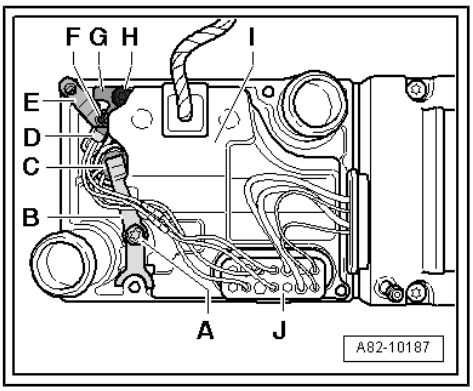
Preparation

– Switch off ignition (and auxiliary heater).

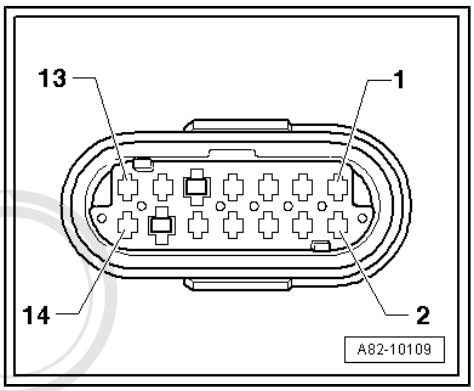
– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 68 .
– Dismantle auxiliary heater ⇒ page 52 .

Removing

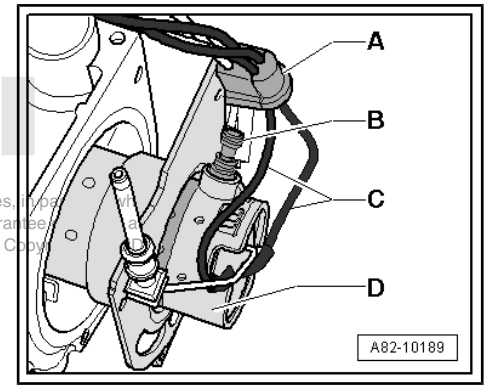
– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.



– Press wires of glow plug for heater - Q9- in contacts 3 and 6 out of 14-pin connector housing.

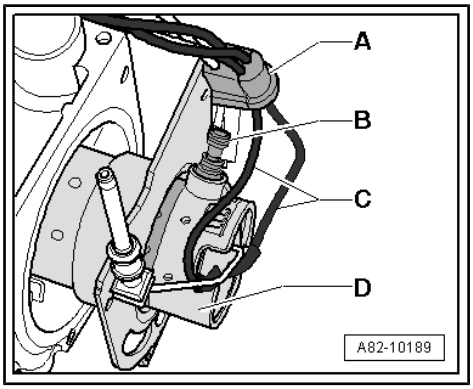


– Pull wires of fuel pre-heating heater element - Z66- -C- sideways out of seal -A-.
– Pull glow plug for heater - Q9- -B- out of burner element -D-.



Installing

Install in reverse order of removal; note the following.



Note

- *There are different versions of the glow plug for heater - Q9- . It is therefore important to observe the correct assignment ⇒ Electronic parts catalogue .*
- *If the glow plug for heater - Q9- is faulty, check and clean the burner element. Renew the burner element if deposits have formed which affect heating operation and cannot be removed with workshop equipment.*
- *Before fitting, check the leads to the glow plug for heater - Q9- . They must not be damaged or show signs of overheating (risk of short circuit).*
- *When installing, ensure that the leads to the glow plug for heater - Q9- -B- and to the fuel pre-heating heater element - Z66- -C- are correctly routed and attached, and check the position of the seal -A-.*

2.4.4 Removing and installing fuel pre-heating heater element - Z66-

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

Preparation

– Switch off ignition (and auxiliary heater).

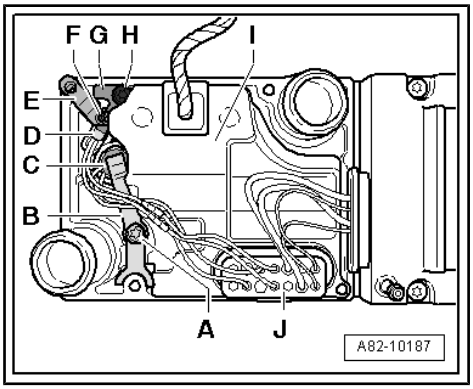
– Remove auxiliary heater ⇒ page 47 .

– Detach add-on components of auxiliary heater ⇒ page 68 .

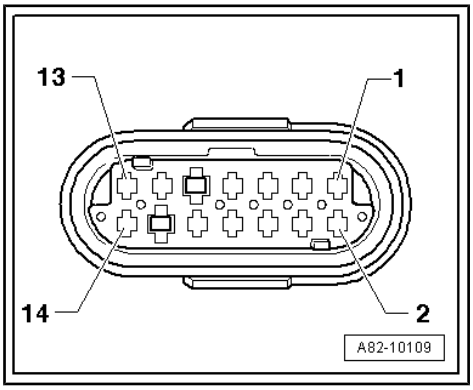
– Dismantle auxiliary heater ⇒ page 52 .

Removing

– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.



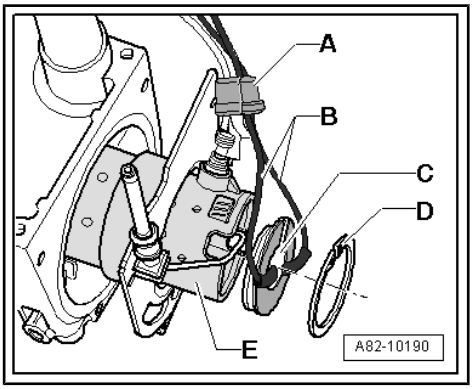
– Press wires of fuel pre-heating heater element - Z66- in contacts 9 and 12 out of 14-pin connector housing.

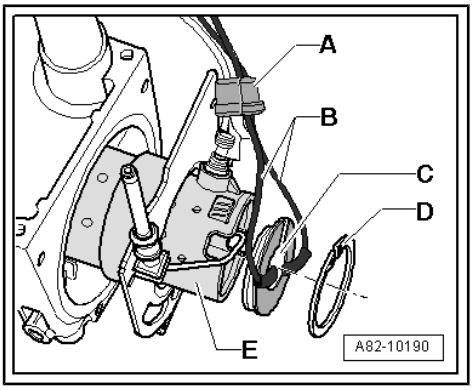


– Pull wires -B- of fuel pre-heating heater element - Z66- -C- sideways out of seal -A-.
– Remove circlip -D- and detach fuel pre-heating heater element - Z66- -C- with seal and plate.

Installing:

Install in reverse order of removal; note the following.





Note

- *If the fuel pre-heating heater element - Z66- is faulty, check and clean the burner element. Renew the burner element if deposits have formed which affect heating operation and cannot be removed with workshop equipment.*
- *Before fitting, check the leads to the fuel pre-heating heater element - Z66- . They must not be damaged or show signs of overheating (risk of short circuit).*
- *When installing, ensure that the leads to the fuel pre-heating heater element - Z66- are correctly routed and attached.*
- *Renew seals.*
- *When installing, ensure that the leads -B- to the fuel pre-heating heater element - Z66- -C- are correctly routed and attached; check the position of the seal -A-.*

2.4.5 Removing and installing combustion air blower - V6-

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

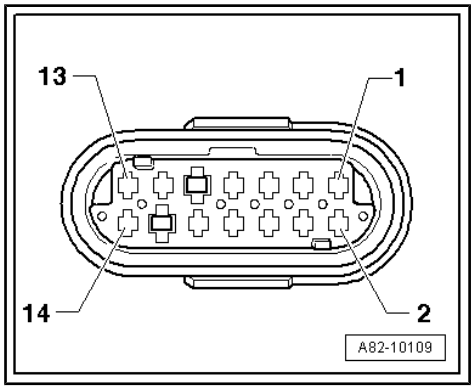
Preparation

– Switch off ignition (and auxiliary heater).
– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 68 .
– Dismantle auxiliary heater ⇒ page 52 .

Removing

– Removing and installing flame monitor - G64- ⇒ page 68 .

– Press wires of combustion air blower - V6- in contacts 13 and 14 out of 14-pin connector housing.



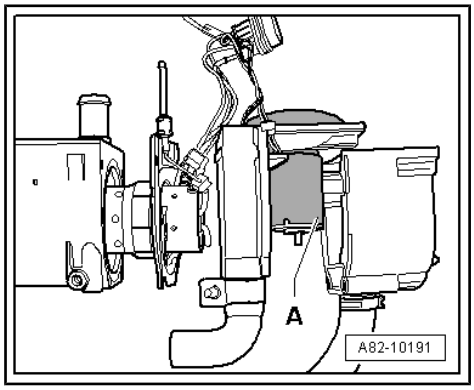
– Detach the combustion air blower - V6- .

Installing:

Install in reverse order of removal; note the following.

Note

Before installing the combustion air blower - V6- , renew the moulded gasket (between combustion air blower - V6- and heater).



2.4.6 Removing and installing burner element

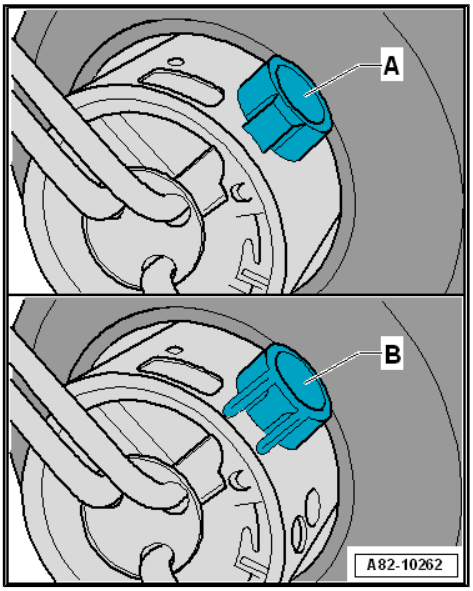
Preparation

– Switch off ignition (and auxiliary heater).
– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 68 .
– Dismantle auxiliary heater ⇒ page 52 .
– Remove glow plug for heater - Q9- ⇒ page 56 .
– Remove fuel pre-heating heater element - Z66- ⇒ page 58 .

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

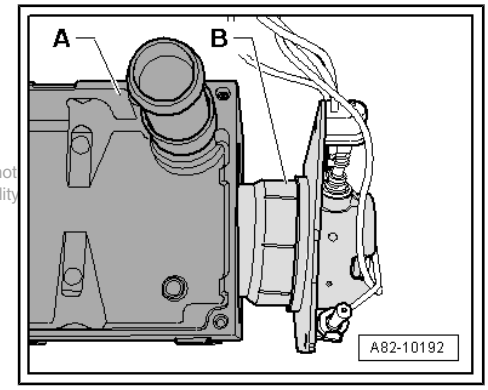
You can tell the difference between the two burner elements for diesel heaters by looking at the connection piece for the glow plugs for heater - Q9- . Version -A- was installed until 06.2011 and version -B- was installed from 06.2011 onwards ⇒ Electronic parts catalogue .

If a version -B- burner element is installed in a diesel heater which previously had a version -A- burner element, the concentration of CO_2 in the exhaust gases will increase. Please therefore refer to ⇒ "4.5 Checking CO2 content in auxiliary heater exhaust gas", page 101 .



Removing

– Pull burner element -B- out of heat exchanger -A-.



Installing:

Install in reverse order of removal; note the following.

Note

- *Before installing burner element -B-, renew moulded gasket (between burner element and heater) ⇒ Item 21 (page 46) .*
- *If the burner element is faulty, also renew the glow plug for heater - Q9- .*

– If applicable, clean inside and outside of burner element -B- with a brass wire brush (spark plug brush).

– If applicable, clean inside of heat exchanger -A- with a brass wire brush (spark plug brush).

– Check sealing surfaces at burner element -B- and heat exchanger -A- for damage.

2.4.7 Removing and installing heat exchanger

Preparation

– Switch off ignition (and auxiliary heater).

– Remove auxiliary heater ⇒ page 47 .

– Detach add-on components of auxiliary heater ⇒ page 68 .

– Dismantle auxiliary heater ⇒ page 52 .

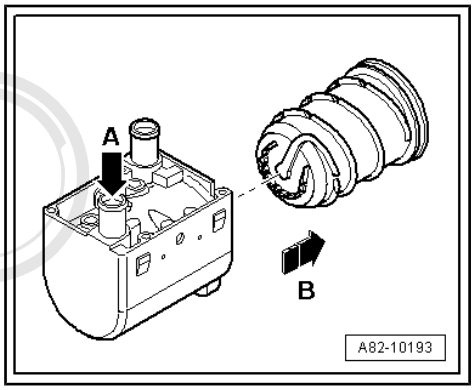
– Remove glow plug for heater - Q9- ⇒ page 56 .

– Remove fuel pre-heating heater element - Z66- ⇒ page 58 .

– Remove burner element ⇒ page 60 .

Removing

– Use a suitable screwdriver to carefully press heat exchanger through rear coolant connecting pipe (water inlet) -arrow A- out of water jacket in direction of arrow -B- ⇒ page 42 .



Installing:

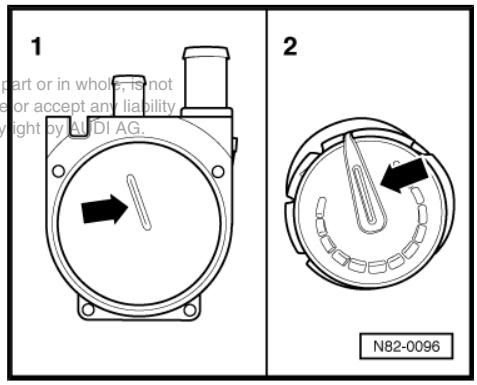
Install in reverse order of removal; note the following.

– If applicable, clean inside and outside of heat exchanger with brass wire brush (spark plug brush).

– Check sealing surfaces on heat exchanger for damage.

– Always renew O-ring before assembly ⇒ Item 19 (page 45) .

– Ensure that heat exchanger is installed in correct position -arrows-.



2.5 Removing and installing air intake silencer

Removing

– Switch off ignition (and auxiliary heater).

– Remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

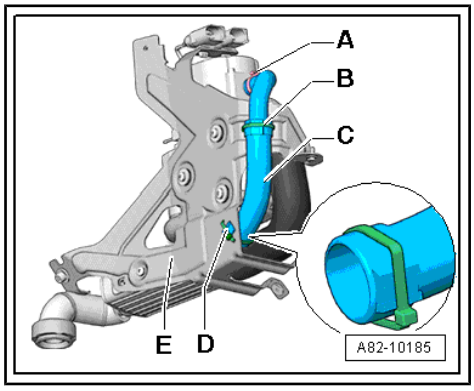
– Remove the noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

– Remove right air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

– Unfasten clamp -A-.

– Remove cable ties -B- and -D-.

– Detach intake air noise insulation -C- from heater.

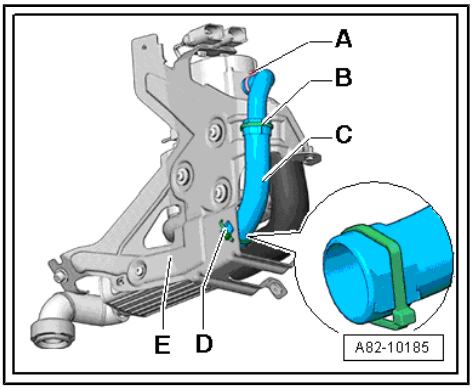


Installing

Install in reverse order of removal; note the following.

– Renew clamp with one of the same type and secure using suitable pliers ⇒ Electronic parts catalogue .

– Secure intake air noise insulation -C- at locations provided on bracket -E- with cable ties -B- and -D-.



2.6 Removing and installing circulation pump - V55-

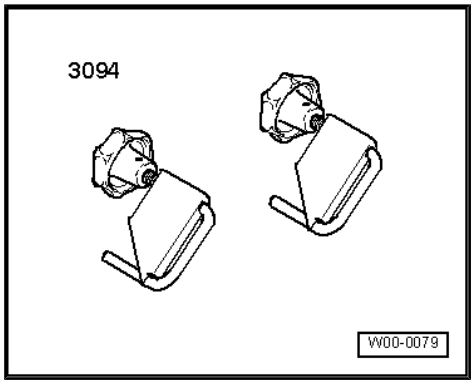
WARNING

The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release the pressure in the coolant circuit by opening the cap on the coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

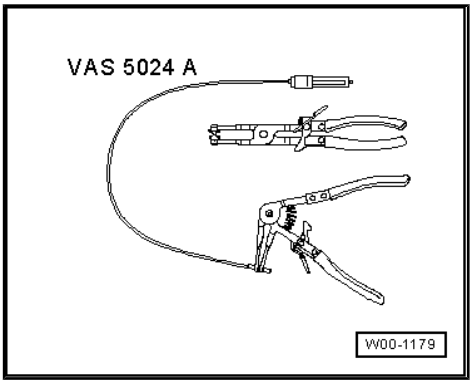
Note

- *Depending on vehicle equipment, the circulation pump - V55- may also be activated by the auxiliary heater control unit - J364- when a request is transmitted by the corresponding engine control unit or the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *A start/stop system is available as an optional extra for some versions of this vehicle. On these versions, ensure that the correct version of the air conditioner front operating and display unit (Climatronic control unit - J255-) and auxiliary heater is used ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *On vehicles with a start/stop system but no coolant circulation pump - V50- , the circulation pump - V55- of the auxiliary heater is activated during the stop function by the auxiliary heater control unit - J364- . The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *The circulation pump - V55- is incorporated into the auxiliary heater hoses.*
- *When removing the circulation pump - V55- , only clamp off, release and disconnect the coolant hoses at the circulation pump - V55- so that the entire engine coolant circuit does not have to be bled.*
- *Depending on the engine, vehicles with auxiliary heater may be fitted with a coolant circulation pump - V50- in addition to the circulation pump - V55- . For further information, refer to ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .*

Special tools, testers and other devices required



- Hose clamps up to Ø 25 mm - 3094-
- Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)



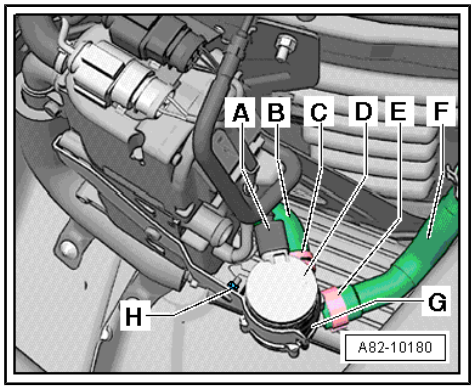
Removing

– Switch off ignition (and auxiliary heater).

– Release pressure in the coolant circuit by opening the cap on the coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/ coolant; Draining and filling cooling system .

– Remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

– Remove the noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



Note

- *Depending on the version and the equipment of the vehicle, it may be necessary to remove the air cleaner housing (right) (⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing). Only necessary if additional components are fitted which impede access to coolant hoses -B- and -F- from underneath.*
- *This illustration shows the layout of the auxiliary heater from above with the air cleaner housing (right-side) removed.*

– Clamp off coolant hoses -B- and -F- (e.g. with hose clamps up to Ø 25 mm - 3094-).
– Unfasten clamps -C- and -E-.
– Detach coolant hose -F- from circulation pump - V55- -D-.
– Unfasten nut -H- and detach retainer -G-.
– Detach circulation pump - V55- -D- from coolant hose -B-.
– Unplug electrical connector -A- from circulation pump - V55- and remove circulation pump - V55- .

Installing

Install in reverse order of removal; note the following.

Note

- *If the coolant circuit has been drained, a new circulation pump - V55- must not be started up until the coolant circuit has been filled to prevent the pump from being damaged irreparably when it is run dry.*
- *As only a small quantity of coolant escapes from the coolant circuit during removal of the circulation pump - V55- (as described above), coolant runs into the circulation pump - V55- following installation and after removing the hose clamps (additionally open the expansion tank cap), and there is no danger that the pump will run dry.*

– Only plug in electrical connector to circulation pump - V55- after hose clamps have been removed (and coolant circuit has been filled).
– Bleed coolant circuit ⇒ page 89 .

Tightening torques ⇒ page 37

2.7 Removing and installing silencer with bracket

⇒ “2.7.1 Removing and installing silencers”, page 66

⇒ “2.7.2 Removing and installing bracket”, page 68

2.7.1 Removing and installing silencers

Removing

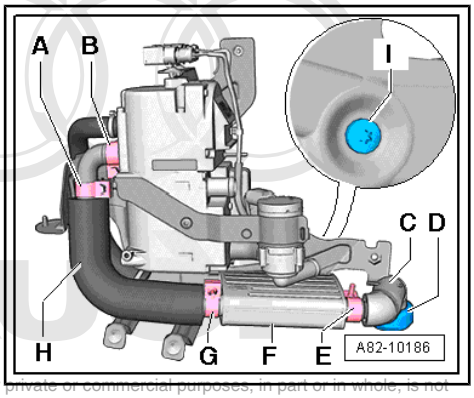
– Switch off ignition (and auxiliary heater).
– Remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

– Remove the noise insulation at front ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

– Remove right air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

– Unscrew bolt -I- (securing exhaust silencer to bracket).

– Unfasten clamp -B- and detach exhaust system.



Note

- *Release clips -A-, -E- and -G- to continue dismantling exhaust system.*
- *If separating the exhaust pipe and the silencer, make sure when assembling that the slit in the exhaust pipe is facing the arrow on the silencer.*

Installing

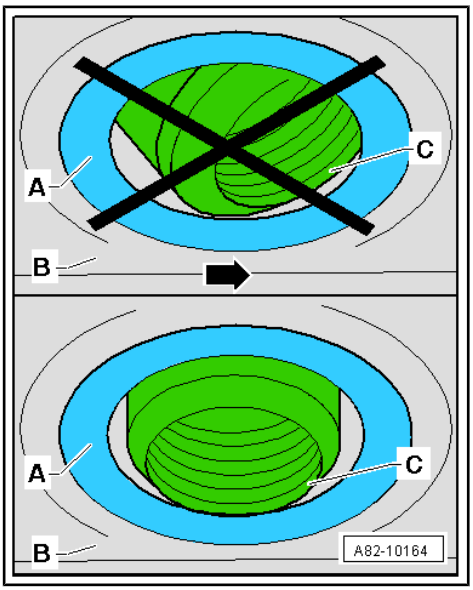
Install in reverse order of removal; note the following.

Tightening torques ⇒ page 37

– Make sure that exhaust system is not making contact with any other component.

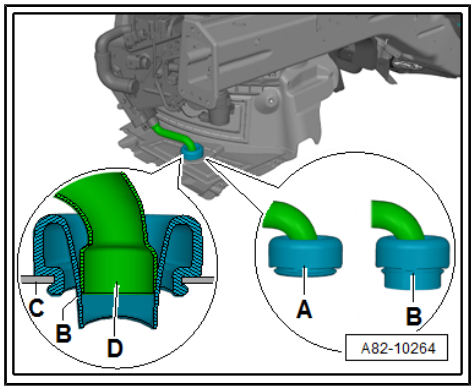
– After fitting front noise insulation, check rubber grommet -A- and exhaust pipe of auxiliary heater. Rubber grommet -A- must be positioned in noise insulation -B- so it is free of stress; exhaust pipe must be flush with rubber grommet -A- or protrude slightly out of rubber grommet -A-.

– After working on auxiliary heater or noise insulation, check end of exhaust pipe -C-; it must be installed so it is at a right angle to the noise insulation -B- at the point where it passes through grommet -A- fitted in noise insulation.



Note

- *The end of the exhaust pipe -C- must not face the direction of travel -arrow-; otherwise the head wind could cause increased counter pressure in the exhaust system when the vehicle is in motion.*
- *A modified rubber grommet is being gradually introduced on certain vehicles in model year 2013 ⇒ Electronic parts catalogue . This rubber grommet -B- is longer than the old one; this improves the flow characteristics at the exhaust pipe when the vehicle is travelling with the auxiliary heater running. It therefore protrudes somewhat further out of the noise insulation -C- than rubber grommet -A-. The position of the exhaust pipe -D- is the same with both rubber grommets.*



2.7.2 Removing and installing bracket

-A- Bracket for auxiliary heater

-B- Nut; removing and installing auxiliary heater ⇒ page 47

-C- Bushes; secure auxiliary heater to bracket

-D- Rubber elements for noise insulation; secure auxiliary heater to bracket

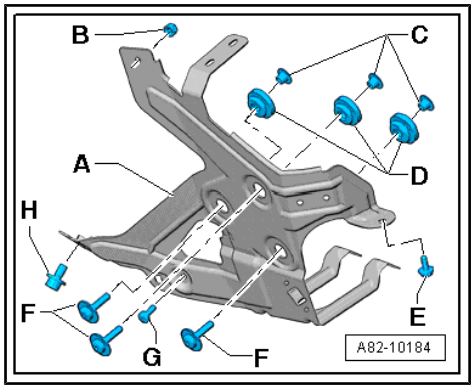
-E- Bolt; removing and installing auxiliary heater ⇒ page 47

-F- Bolt; secures auxiliary heater to bracket

-G- Bolt; secures exhaust silencer to bracket

-H- Bolt; removing and installing auxiliary heater ⇒ page 47 .

Tightening torques ⇒ page 37



2.8 Removing and installing flame monitor - G64-

Special tools and workshop equipment required

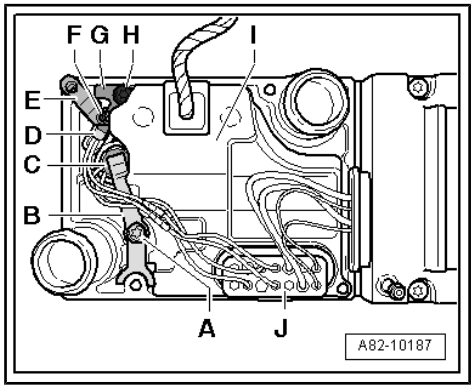
- Release tool - VAS 1978/18-

Preparation

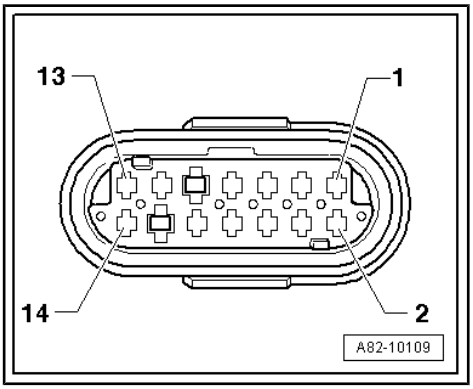
– Switch off ignition (and auxiliary heater).
– Remove auxiliary heater ⇒ page 47 .
– Detach add-on components of auxiliary heater ⇒ page 37 .
– Dismantle auxiliary heater ⇒ page 52 .

Removing

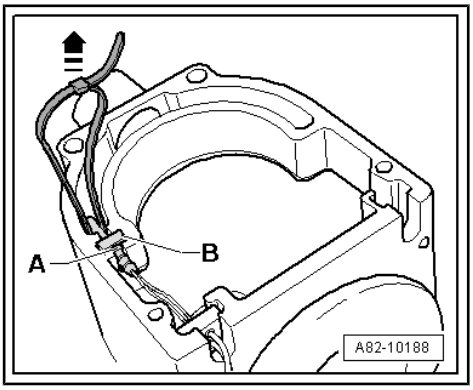
– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.



– Press wires of flame monitor - G64- in contacts 1 and 2 out of 14-pin connector housing.



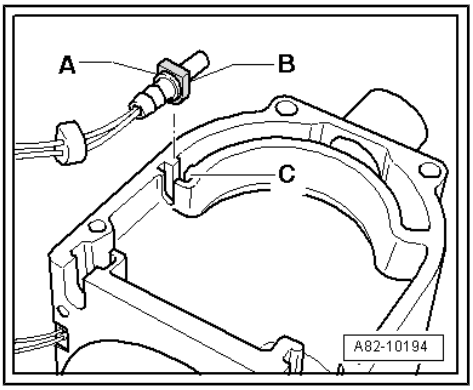
– Use a commercially available cable tie to pull flame monitor - G64- -A- together with graphite seal -B- out of housing for combustion air blower - V6- in direction of -arrow-.



Installing

Install in reverse order of removal; note the following.

– Fit new graphite seal -B- on flame monitor - G64- -A-.



Note

The burrless side of the graphite seal -B- must face the collar of the flame monitor - G64- -A-.

– Insert flame monitor - G64- in groove -C- in housing for combustion air blower - V6- .

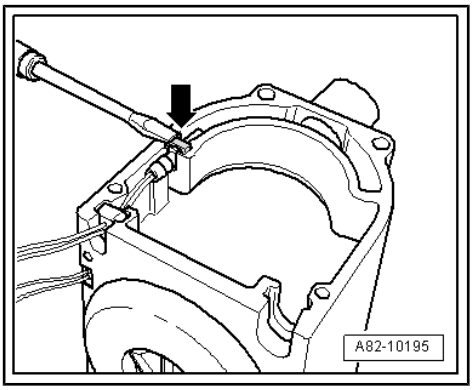
Caution

The sealing surfaces may become damaged.

This may lead to heater malfunctions.

Do not use any other sharp-edged tools.

– Use a screwdriver to press in graphite seal in direction of -arrow-.



2.9 Removing and installing temperature sensor - G18-

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

Preparation

– Switch off ignition (and auxiliary heater).

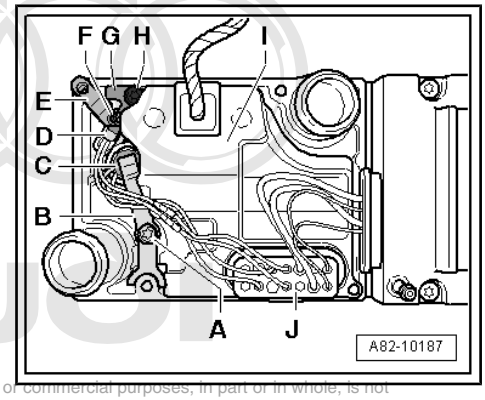
– Remove auxiliary heater ⇒ page 47 .

– Detach add-on components of auxiliary heater ⇒ page 68 .

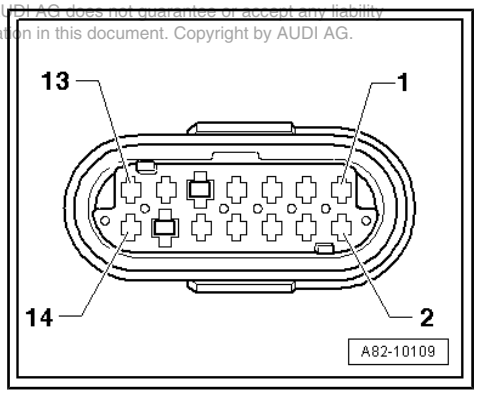
– Dismantle auxiliary heater ⇒ page 52 .

Removing

– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.

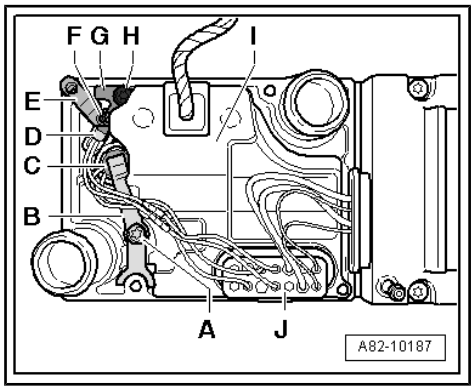


– Press wires of temperature sensor - G18- in contacts 10 and 11 out of 14-pin connector housing.



– Screw out bolt -A- and detach retaining clip -B-.

– Pull out temperature sensor - G18- -C-.



Note

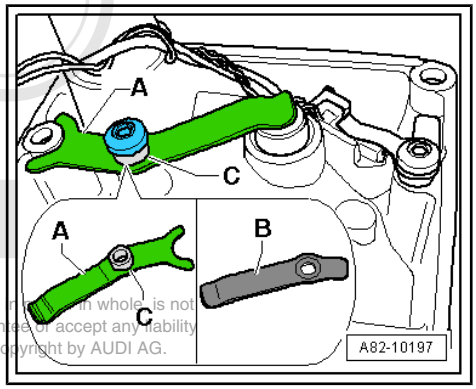
On certain versions, the wires to the temperature sensor - G18- are twisted together with the wires to the temperature sensor 2 for supplementary and auxiliary heating - G587- . In this case, the temperature sensor 2 for supplementary and auxiliary heating - G587- must also be removed ⇒ page 71 .

Installing

Install in reverse order of removal; note the following.

Note

There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips -A- with a spacer ring -C-. Attention must therefore be paid to correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ Electronic parts catalogue .



Caution

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- ***If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.***
- ***Ensure correct assignment and proper fitting of the retaining clip.***

– Clean connection area and temperature sensor - G18- and check for damage.

– Renew O-ring.

– Coat O-ring with small quantity of coolant.

2.10 Removing and installing temperature sensor 2 for supplementary and auxiliary heating - G587-

Special tools and workshop equipment required

- Release tool - VAS 1978/18-

Preparation

– Switch off ignition (and auxiliary heater).

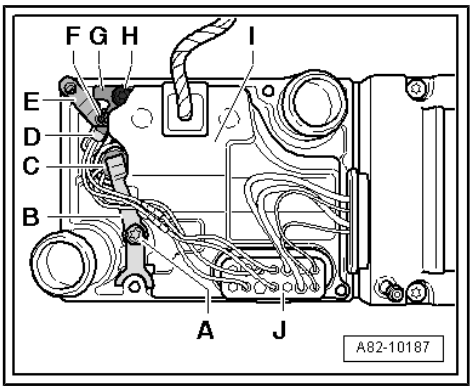
– Remove auxiliary heater ⇒ page 47 .

– Detach add-on components of auxiliary heater ⇒ page 68 .

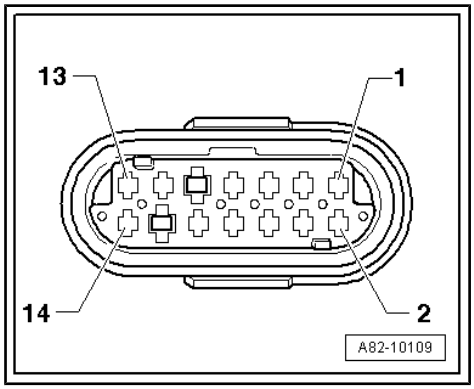
– Dismantle auxiliary heater ⇒ page 52 .

Removing

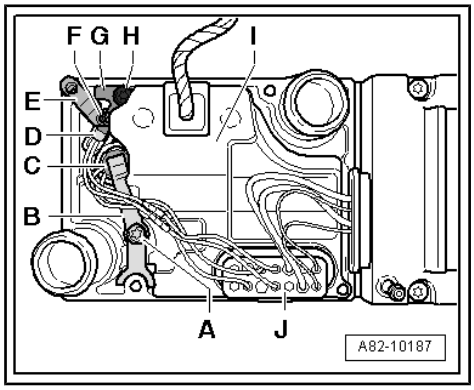
– Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.



– Press wires of temperature sensor 2 for supplementary and auxiliary heating - G587- in contacts 7 and 8 out of 14-pin connector housing.



– Unscrew bolt -F- and detach earth strap -E-.
– Screw out bolt -H- and detach retaining clip -G-.
– Take out temperature sensor 2 for supplementary and auxiliary heating - G587- -D-.



Note

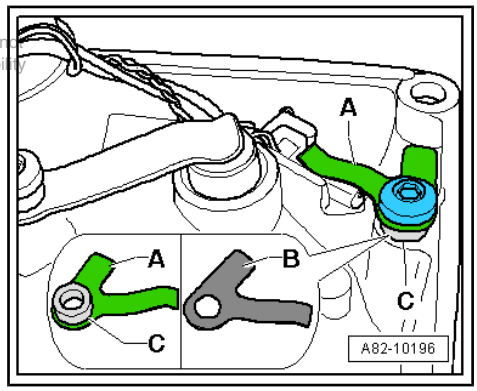
On certain versions, the wires to the temperature sensor 2 for supplementary and auxiliary heating - G587- are twisted together with the wires to the temperature sensor - G18- . In this case, the temperature sensor - G18- must also be removed ⇒ page 70 .

Installing

Install in reverse order of removal; note the following.

Note

There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . A -J364- with part number 4xx xxx xxx must only be fitted with retaining clips -A- with a spacer ring -C-. Attention must therefore be paid to correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ Electronic parts catalogue .



Caution

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- ***If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.***
- ***Ensure correct assignment and proper fitting of the retaining clip.***

2.11 Pin assignment for auxiliary/supplementary heater

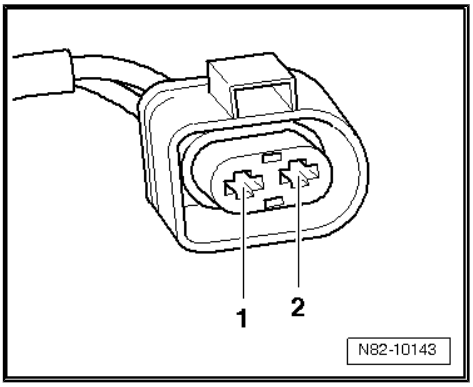
Note

Incorporation of auxiliary heater into vehicle electrical system ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Assignment of contacts in 2-pin connector (wire from auxiliary heater control unit - J364- to circulation pump - V55-)

1 - Activation of circulation pump - V55-

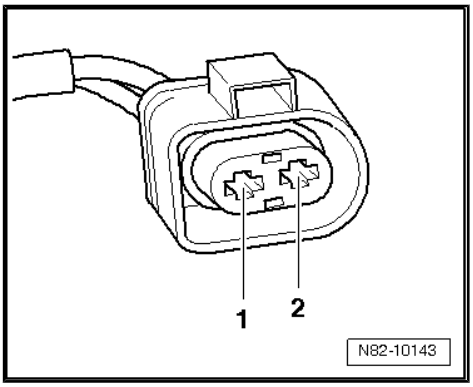
2 - Earth connection to circulation pump - V55-



Assignment of contacts in 2-pin connector (in-vehicle wiring to auxiliary heater control unit - J364-)

1 - Power supply, terminal 30

2 - Earth connection



Assignment of contacts in 6-pin connector (in-vehicle wiring to auxiliary heater control unit - J364-)

1 - Data line to data bus (high-speed CAN bus)

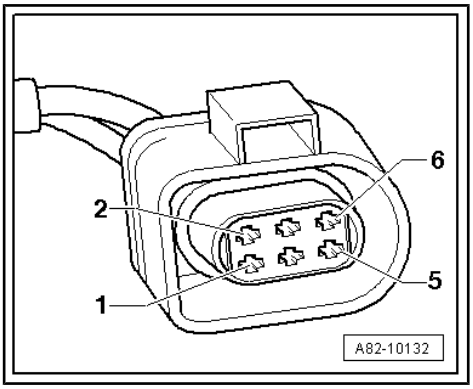
2 - Data line to data bus (low-speed CAN bus)

3 - Activation of heater coolant shut-off valve - N279-

4 - Activation of metering pump - V54-

5 - Currently not used

6 - Data line from remote control receiver for auxiliary heater - R64-



2.12 Checking electrical components of auxiliary heater

2.12.1 Checking activation and electrical connections of auxiliary heater

Note

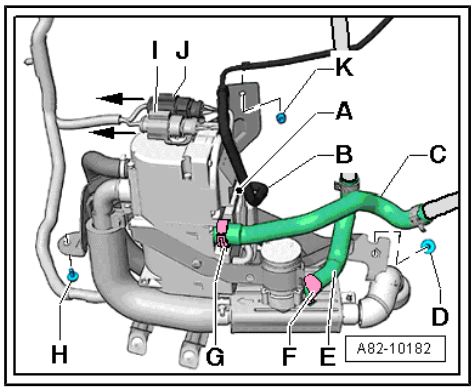
- *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

– Switch off ignition (and auxiliary heater).

– Remove right air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

– Release 2-pin connector -I- and 6-pin connector -J- and detach in direction of -arrows-.

– Perform electrical checks as described in the “Guided Fault Finding” routine ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.



2.12.2 Preparation for checking auxiliary heater components

Note

- *The "Electrical check" function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform "electrical check" as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

– Remove auxiliary heater ⇒ page 47 .

– Detach add-on components of auxiliary heater ⇒ page 37 .

– Detach cover for auxiliary heater control unit - J364- ⇒ page 42 .

Summary of electrical checks to be performed

Component checked	Page
Glow plug for heater - Q9-	⇒ page 75
Combustion air blower - V6-	⇒ page 76
Flame monitor - G64-	⇒ page 77
Temperature sensor - G18-	⇒ page 78
Temperature sensor 2 for supplementary and auxiliary heating - G587-	⇒ page 79
Fuel pre-heating heater element - Z66-	⇒ page 80

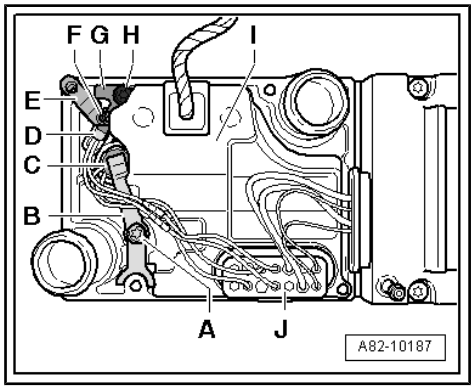
2.12.3 Checking glow plug for heater - Q9-

Note

- *The "Electrical check" function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform "electrical check" as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

- Preparation for checking auxiliary heater components performed ⇒ page 75 .

– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



– Measure resistance at connector between contact “3” and heater housing.

Specification:

∞ Ω

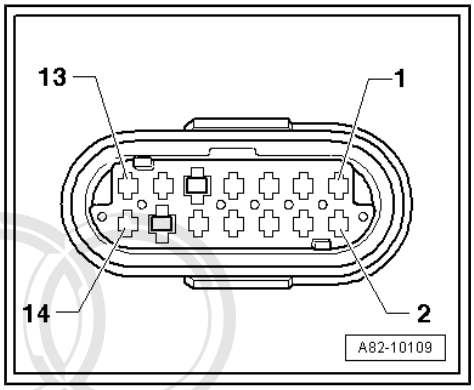
– Measure resistance at connector between contacts “3” and “6”.

Specification:

Less than 1 Ω

Rated value:

0.42 - 0.63 Ω~ (at 20 + / -2 °C)



Note

- *Resistances of less than 1 Ω cannot be measured as exactly as required using workshop equipment. Therefore this test can only be used to detect major damage to the component.*
- *If a voltage of 9 V is applied to the glow plug for heater - Q9-, the power input is between 9 and 20 A.*

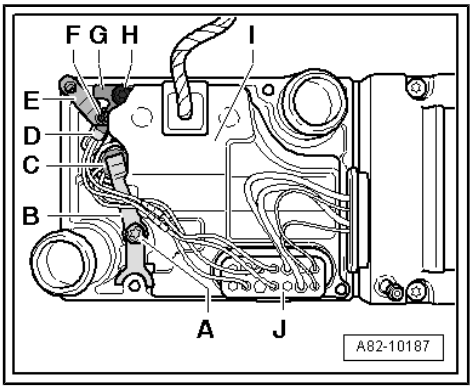
2.12.4 Checking combustion air blower - V6-

Note

- *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- Preparation for checking auxiliary heater components performed ⇒ page 75 .

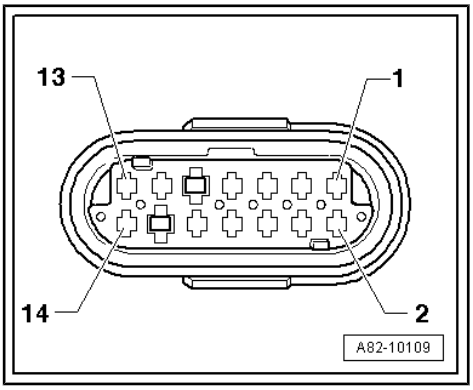
– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



– Measure resistance at connector between contact “13” and heater housing.

Specification:

∞ Ω



Note

- *If a voltage of 12 V is applied to the combustion air blower - V6- the power input is between 2 and 3 A.*
- *The internal resistance of the combustion air blower - V6- is between 3 und 6 Ω (40 Ω if the combustion air blower has not been in operation for a lengthy period). Resistances of less than 10 Ω cannot be measured as exactly as required using workshop equipment. Therefore this internal resistance test can only be used to detect major damage to the component.*

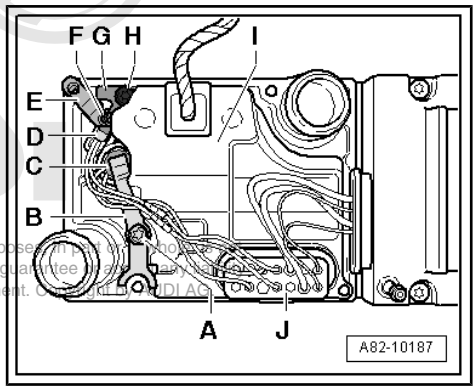
2.12.5 Checking flame monitor - G64-

Note

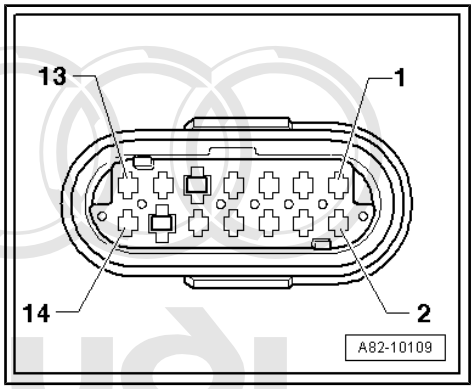
- *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- Preparation for checking auxiliary heater components performed ⇒ page 75 .

– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



– Measure resistance between contact “2” and contact “1” at brown wires.



Evaluation:

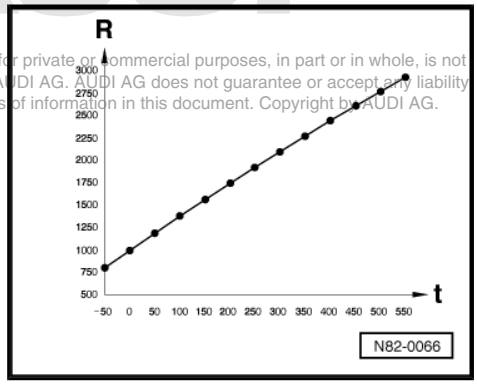
R = Resistance in Ω (ohms)

t = Temperature in °C (degrees Celsius)

– Measure resistance at current temperature.

Evaluation:

- Resistance value greater than 3040 Ω = open circuit (defective)
- Resistance value less than 780 Ω = short circuit (defective)



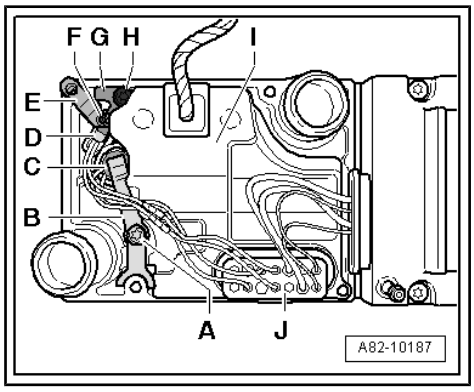
2.12.6 Checking temperature sensor - G18-

Note

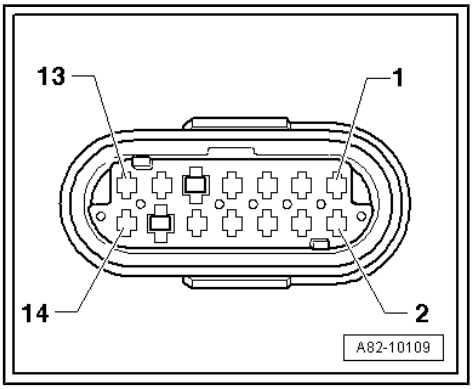
- *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- Preparation for checking auxiliary heater components performed ⇒ page 75 .

– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



– Measure resistance between contact “10” and contact “11” at black wires.



Evaluation:

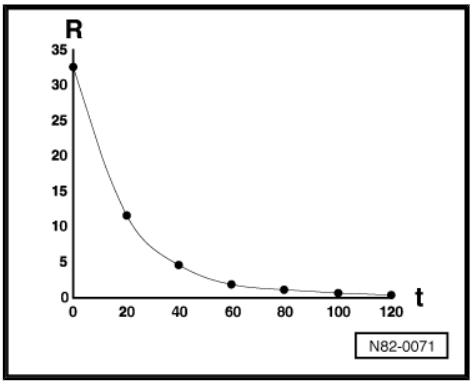
R = Resistance in kΩ (kiloohms)

t = Temperature in °C (degrees Celsius)

– Measure resistance at current temperature.

Evaluation:

- ♦ Resistance value greater than 2 MΩ (megaohms) = open circuit (defective)
- ♦ Resistance less than 50 Ω = short circuit (defective)



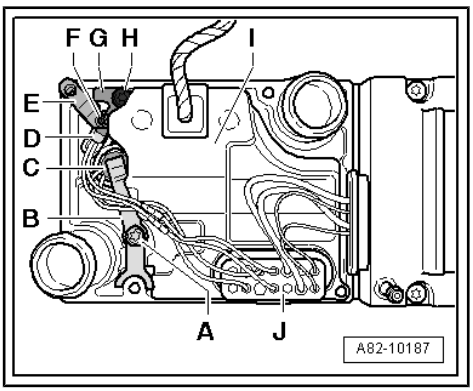
2.12.7 Checking temperature sensor 2 for supplementary and auxiliary heating - G587-

Note

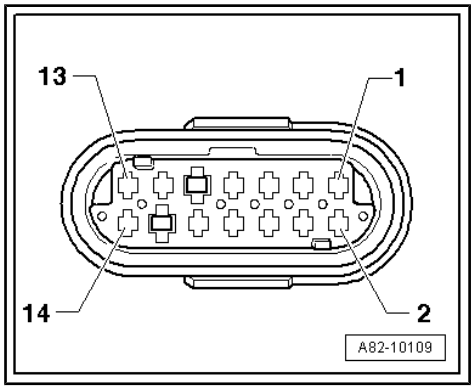
- ♦ *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- ♦ *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

- Preparation for checking auxiliary heater components performed ⇒ page 75 .

– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



– Measure resistance between contact “7” and contact “8” at white wires.



Evaluation:

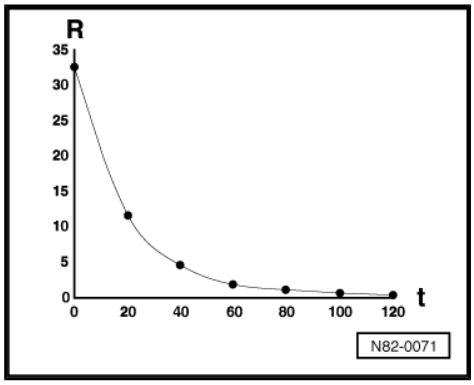
R = Resistance in kΩ (kiloohms)

t = Temperature in °C (degrees Celsius)

– Measure resistance at current temperature.

Evaluation:

- Resistance value greater than 2 MΩ (megaohms) = open circuit (defective)
- Resistance less than 50 Ω = short circuit (defective)



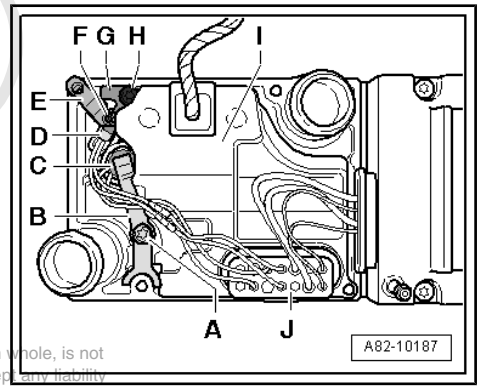
2.12.8 Checking fuel pre-heating heater element - Z66-

Note

- *The “Electrical check” function is not described in this Workshop Manual. This Workshop Manual only briefly covers the checking of individual components.*
- *Perform “electrical check” as described in the Guided Fault Finding ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

• Preparation for checking auxiliary heater components performed ⇒ page 75 .

– Unplug connector -J- from auxiliary heater control unit - J364- -I-.



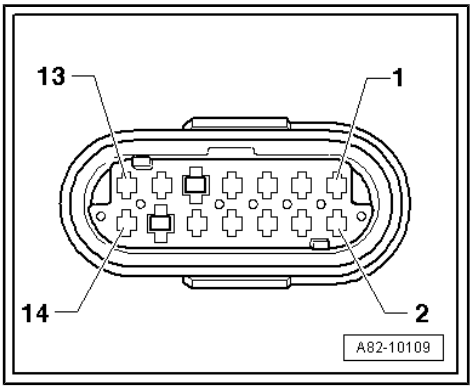
– Measure resistance between contact “9” and contact “12” at white wires.

Specification:

0.79 - 0.97 Ω (ohms at 23 + / -5 °C)

Note

Resistances of less than 1 Ω cannot be measured as exactly as required using workshop equipment. Therefore this test can only be used to detect major damage to the component.

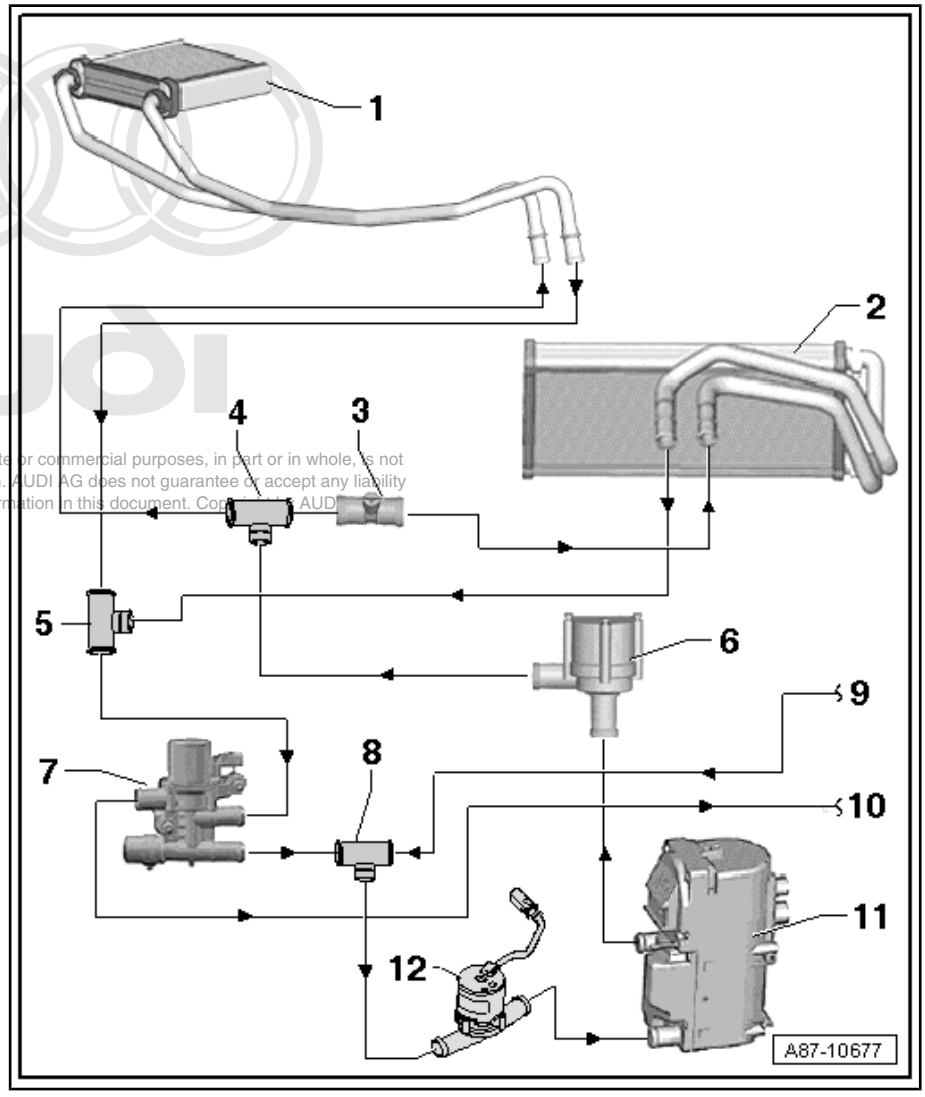


3 Coolant circuit with auxiliary/supplementary heater

3.1 Connection diagram - coolant hoses

Note

- *The -arrows- indicate the direction of coolant flow. If the heater coolant shut-off valve - N279- ⇒ Item 7 (page 84) is activated (e.g. in auxiliary heating mode with cold coolant and ignition switched off), the coolant is drawn in from the heat exchangers of the air conditioning units ⇒ Item 1 (page 83) and ⇒ Item 2 (page 83) by the circulation pump - V55- ⇒ Item 12 (page 84) . If -N279- ⇒ Item 7 (page 84) is not activated (e.g. with warm coolant and ignition switched on), the coolant is drawn in from the engine ⇒ Item 9 (page 84) by -V55- and flows from the heat exchangers of the air conditioning units ⇒ Item 1 (page 83) and ⇒ Item 2 (page 83) via -N279- ⇒ Item 7 (page 84) back to the engine ⇒ Item 10 (page 84) .*
- *Bleed coolant circuit ⇒ page 89 and ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .*
- *All components not covered ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .*
- *Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .*



1 - Heat exchanger in air conditioning unit (rear)

- The air conditioning unit (rear) is an optional extra ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .

2 - Heat exchanger in air conditioning unit (front)

- ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit

3 - Bleeder screw

- ⇒ page 89

4 - Outlet in coolant supply to heat exchanger in air conditioning unit (rear)

- The air conditioning unit (rear) is an optional extra ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .

5 - Outlet in coolant return from heat exchanger in air conditioning unit (rear)

- The air conditioning unit (rear) is an optional extra ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .

6 - Coolant circulation pump - V50-

- The coolant circulation pump - V50- is currently not fitted on all vehicles ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit . On most vehicles with auxiliary heater, this function is then performed by the circulation pump - V55- . Discontinuation of the coolant circulation pump - V50- has however still to be finalised ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Note

- *Depending on the engine, vehicles with auxiliary heater may be fitted with a coolant circulation pump - V50- in addition to the circulation pump - V55- . For further information, refer to ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .*
- *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 ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .*

7 - Heater coolant shut-off valve - N279-

- ❑ Activated in auxiliary heating mode by auxiliary heater control unit - J364- .
- ❑ Removing and installing ⇒ page 86
- ❑ Checking wiring ⇒ Vehicle diagnostic tester in “Guided fault-finding” mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ❑ Operation ⇒ page 86 .
- ❑ Different versions; ensure correct assignment ⇒ Electronic parts catalogue .

Note

- ♦ *Depending on the vehicle version, the engine installed, the coolant temperature and the setting on the air conditioner front operating and display unit (Climatronic control unit - J255-), the heater coolant shut-off valve - N279- may also be activated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, actuation is in response to a request from the air conditioner front operating and display unit, Climatronic control unit - J255- via the data bus.*
- ♦ *There are different versions of the heater coolant shut-off valve - N279- (with three or four connections for coolant hoses; on the version with four connections, one connection is sealed with a cap).*

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.

9 - Coolant supply from engine

- ❑ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

10 - Coolant return to engine

- ❑ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

11 - Auxiliary heater

- ❑ Removing and installing ⇒ page 47

12 - Circulation pump - V55-

- ❑ The circulation pump - V55- is incorporated into the auxiliary heater hoses.
- ❑ Removing and installing ⇒ page 63

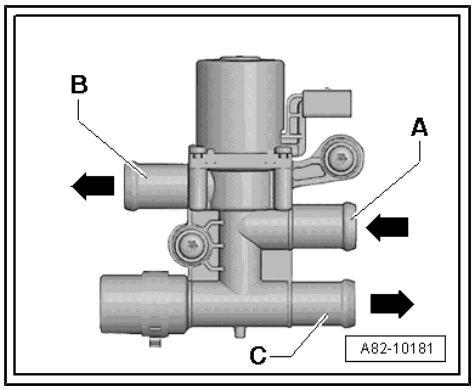
Note

- ♦ *A start/stop system is available as an optional extra for some versions of this vehicle.*

- *Not all vehicles with a start/stop system are fitted with the coolant circulation pump - V50- for maintaining the flow of coolant through the heat exchangers of the air conditioning units when the stop function is active ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .*
- *On vehicles with a start/stop system but no coolant circulation pump - V50- , the circulation pump - V55- of the auxiliary heater is activated during the stop function by the auxiliary heater control unit - J364- . The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on the circulation pump - V55- in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *Depending on the engine, vehicles with auxiliary heater may be fitted with a coolant circulation pump - V50- in addition to the circulation pump - V55- . For further information, refer to ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .*

3.2 Removing and installing heater coolant shut-off valve

3.2.1 Operation of heater coolant shut-off valve



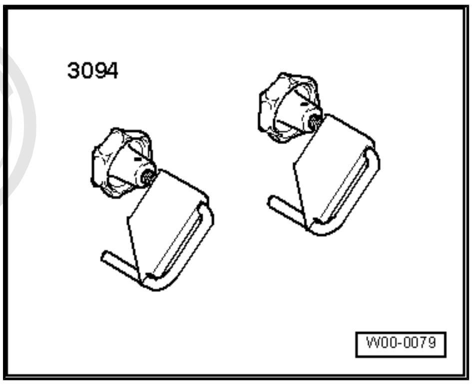
Note

- *The fitting location, designation and version of the heater coolant shut-off valve - N279- depend on the version and equipment of the vehicle. It is therefore important to observe the correct assignment ⇒ Electronic parts catalogue .*
- *If voltage is applied to the heater coolant shut-off valve - N279- (small coolant circuit), the coolant flows from connection -A- (from heat exchanger in air conditioning unit) to connection -C- (to circulation pump - V55-).*
- *If voltage is not applied to the heater coolant shut-off valve - N279- (large coolant circuit), the coolant flows from connection -A- (from heat exchanger in air conditioning unit) to connection -B- (to the engine).*
- *There are different versions of the heater coolant shut-off valve - N279- (with three or four connections for coolant hoses; on the version with four connections, one connection is sealed with a cap).*
- *Depending on the installation position of the heater coolant shut-off valve - N279- , the cap shown may also be fitted at connection -C-.*
- *In auxiliary heating mode, the heater coolant shut-off valve - N279- is activated by the auxiliary heater control unit - J364- until the coolant temperature in the auxiliary heater has reached a specified level ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *Depending on the vehicle version, the engine installed, the coolant temperature and the setting on the air conditioner front operating and display unit (Climatronic control unit - J255-), the heater coolant shut-off valve - N279- may also be activated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, actuation is in response to a request from the air conditioner front operating and display unit, Climatronic control unit - J255- via the data bus.*
- *If there are problems with poor heating of the passenger compartment in auxiliary heating mode and poor heating of the passenger compartment when the engine is running, check the incorporation of the heater coolant shut-off valve - N279- into the coolant circuit and the activation of the heater coolant shut-off valve - N279- by the auxiliary heater control unit - J364- ⇒ page 82 and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

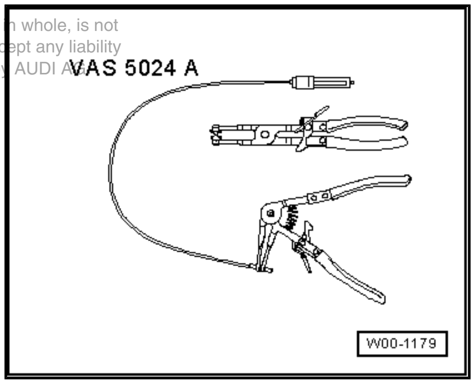
3.2.2 Removing and installing heater coolant shut-off valve

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 and fresh-air intake ⇒ Heating, air conditioning; Rep. gr. 87 ; Air duct; Removing and installing fresh air intake and ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

> ⚠ WARNING
>
> *The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release the pressure in the coolant circuit by opening the cap on the coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .*

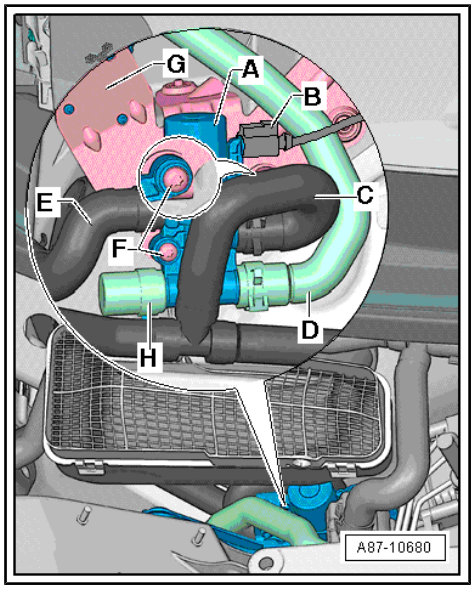
– Release pressure in the coolant circuit by opening the cap on the coolant expansion tank.

– Use an absorbent cloth or absorbent paper to cover area beneath heater coolant shut-off valve - N279- -A-.
– Mark positions of coolant hoses -C-, -D- and -E- on heater coolant shut-off valve - N279- -A-.

Caution

Ensure correct assignment of coolant hoses -C-, -D- and -E- on heater coolant shut-off valve - N279- . If coolant hoses are interchanged, this can cause the heating in the passenger compartment to fail.

– Clamp off coolant hoses -C-, -D- and -E- in area of heater coolant shut-off valve - N279- -A- (e.g. with hose clamps up to Ø 25 mm - 3094-).
– Release clamps and detach coolant hoses -C-, -D- and -E- from heater coolant shut-off valve - N279- -A-.
– Unplug electrical connector from heater coolant shut-off valve - N279- -A-.
– Remove bolts -F-.
– Remove heater coolant shut-off valve - N279- -A-.



Installing

Install in reverse order of removal; note the following.

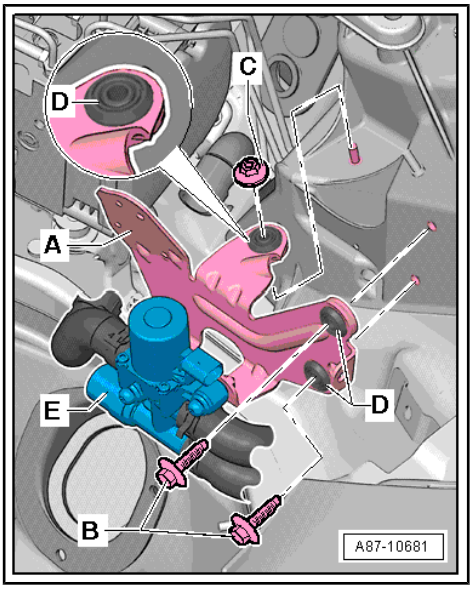
– Butt-joint coolant hoses -C-, -D- and -E- and secure with clamps.
– Bleed coolant circuit ⇒ page 89 .
– If applicable, check activation and operation of heater coolant shut-off valve - N279- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
– Re-install remaining components (removed earlier).

Tightening torques ⇒ page 37

3.2.3 Removing and installing bracket for heater coolant shut-off valve

Note

- *If fitted, the coolant circulation pump - V50- may also be attached to the holder.*
- *To remove the bracket -A-, it is not necessary to open the coolant circuit.*



Removing

– Release heater coolant shut-off valve - N279- -E- from bracket -A- ⇒ page 86 .

– If fitted, detach coolant circulation pump - V50- from bracket -A- ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit .

– Remove bolts -B- and nut with washer -C-.

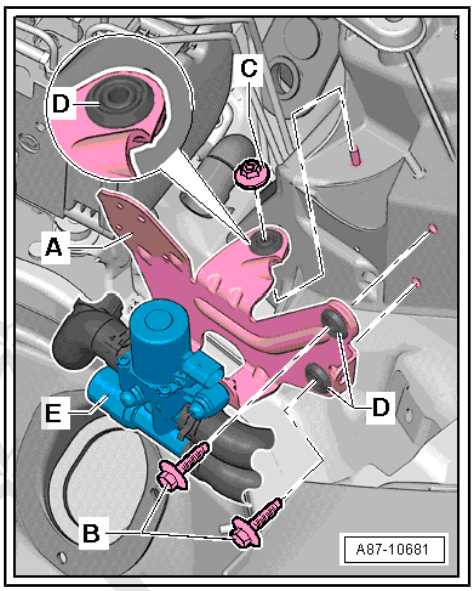
– Remove bracket -A-.

Installing

Install in reverse order of removal; note the following.

Note

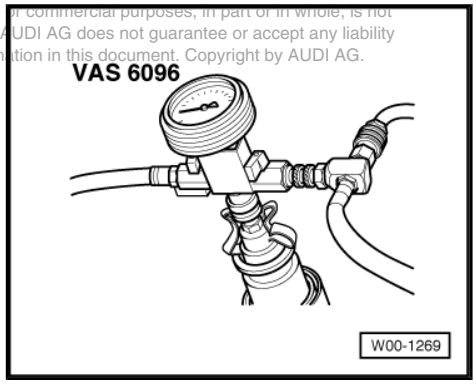
To reduce noise, the retainer -A- for the heater coolant shut-off valve - N279- -E- is not bolted directly to the body. It is attached with bolts -B- and the nut with washer -C- using rubber damper elements -D-. On installation, make sure the components do not come into direct contact with the body or other parts.



3.3 Bleeding coolant circuit

Special tools and workshop equipment required

- Cooling system charge unit - VAS 6096-



Note

- *The removal and installation procedures for the auxiliary heater described in this Workshop Manual ensure that only a small quantity of air enters or remains in the coolant circuit. Therefore it is not necessary to bleed the coolant circuit completely after removing and installing the auxiliary heater.*
- *However, if a large quantity of coolant has escaped due to another problem, e.g. a leaking hose, or after coolant pipes have been renewed, the coolant circuit must be bled completely using the cooling system charge unit - VAS 6096- ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .*
- *After bleeding and filling the coolant circuit with the cooling system charge unit - VAS 6096- , the auxiliary heater and the circulation pump - V55- must be bled additionally as described below.*

Bleeding coolant circuit of auxiliary heater

Note

- *The circulation pump - V55- must be completely filled with coolant to prevent the pump from being damaged irreparably when it is run dry.*
- *As only a small quantity of coolant escapes from the coolant circuit during removal and installation of the auxiliary heater, and only a small quantity of air remains in the coolant circuit during installation (auxiliary heater and circulation pump - V55- are already filled with coolant during installation), the system only has to be bled as described below.*
-

– Fill coolant expansion tank with coolant as far as upper mark.

– Activate circulation pump - V55- via final control diagnosis ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode. This additionally bleeds the coolant return from the heat exchanger in the air conditioning unit via the heater coolant shut-off valve - N279- to the circulation pump - V55- ⇒ page 82 .

– Set temperature on air conditioner front operating and display unit (Climatronic control unit - J255-) to “HI” (for driver's and passenger's side).

– Switch on the “auxiliary heater” via the “AC” function in the “Car” menu of the Multi Media Interface (MMI) (control unit for front display and information control panel - J523-) ⇒ Infotainment/MMI Operating Manual or e.g. via the vehicle diagnostic tester , “Basic setting” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Allow auxiliary heater to run for at least 2 minutes at full load (circulation pump - V55- starts up and heater coolant shut-off valve - N279- is activated).

– Start engine and set temperature on air conditioner front operating and display unit (Climatronic control unit - J255-) to “HI” (for driver's and passenger's side).

– Run engine at high idling speed (approx. 2000 to 2500 rpm) for at least 2 minutes.

– Switch off engine and auxiliary heater.

WARNING

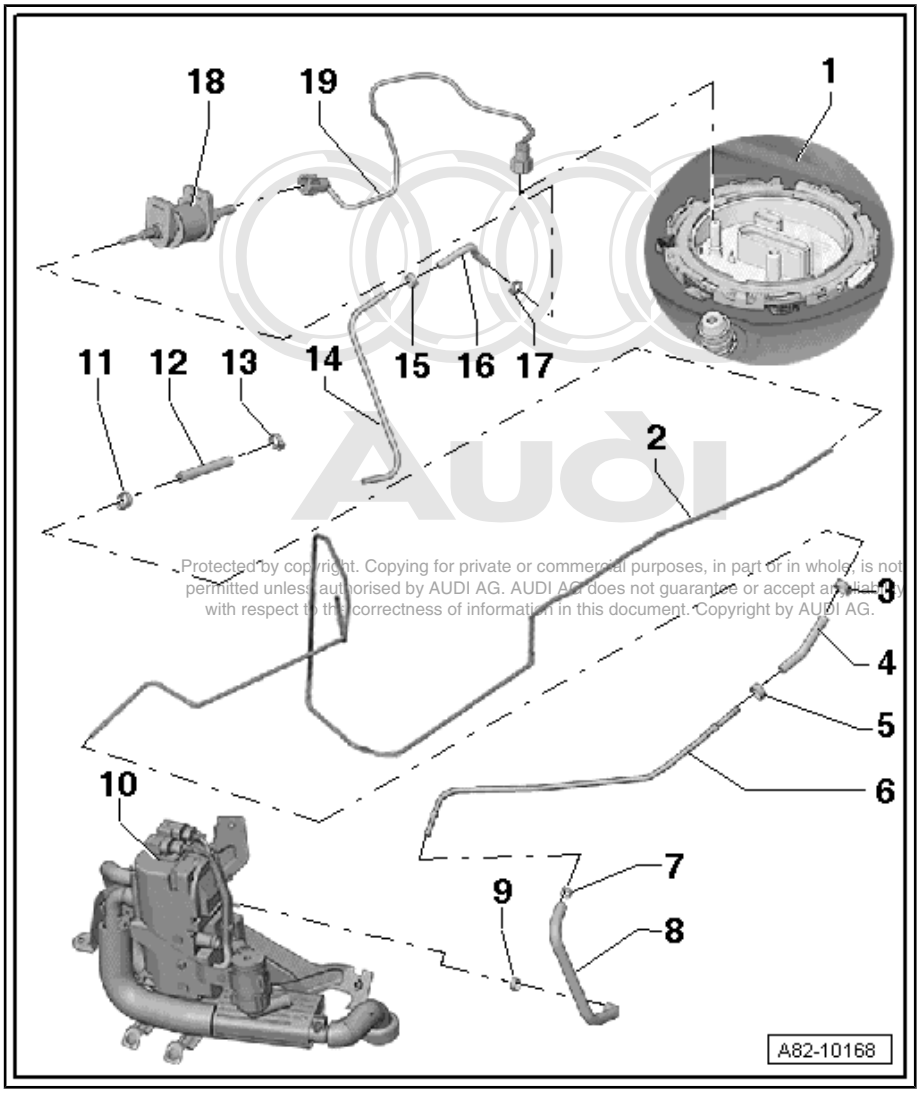
The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release the pressure in the coolant circuit by opening the cap on the coolant expansion tank ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

– Check coolant level in coolant expansion tank and top up coolant if necessary ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

4 Fuel supply system

4.1 Overview of fitting locations - fuel supply system

4.1.1 Overview of fitting locations - fuel supply system



1 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

- ❑ Removing and installing ⇒ Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender
- ❑ Diverting fuel from fuel tank ⇒ page 95
- ❑ Different fuel delivery units depending on version of vehicle (petrol or diesel engine) ⇒ Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ page 99

2 - Fuel line

- ❑ Routing of fuel line ⇒ page 100 .
- ❑ The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ page 99

3 - Clamp

4 - Fuel line

- ❑ (Hose to fuel line to auxiliary heater)

5 - Clamp

6 - Fuel line

- ❑ Routing of fuel line ⇒ page 100 .
- ❑ The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ page 99

7 - Clamp

8 - Fuel line

- ❑ (Hose to auxiliary heater)

9 - Fuel line

- ❑ (Hose to fuel line to auxiliary heater)

10 - Clamp

11 - Auxiliary heater

- ❑ Different versions depending on production period, version of vehicle and whether vehicle has petrol or diesel engine ⇒ page 1 .
- ❑ Removing and installing ⇒ page 47

Note

- *This auxiliary heater is fitted in various vehicle models. The part number may change with each new vehicle model in which this auxiliary heater is installed (e.g. 4H0 xxx xxx on the Audi A8). It is therefore important to observe the correct assignment. An old auxiliary heater version must never be installed in a vehicle that was previously fitted with a newer version ⇒ Electronic parts catalogue .*
- *With this version, you must make sure that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

12 - Clamp

13 - Fuel line

- ❑ (Hose to fuel line to auxiliary heater)

14 - Clamp

15 - Fuel line

- ❑ Routing of fuel line ⇒ page 100 .
- ❑ The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ page 99

16 - Clamp

17 - Fuel line

- ❑ (Hose to fuel line to auxiliary heater)

18 - Clamp

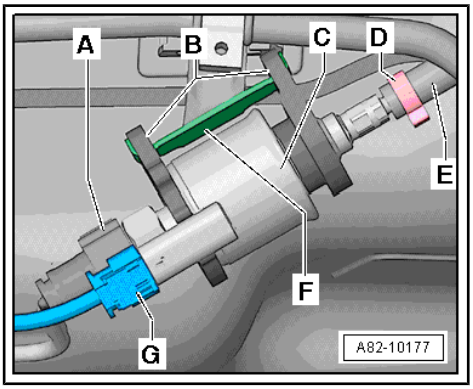
19 - Metering pump - V54-

- ❑ Removing and installing ⇒ page 108
- ❑ Checking fuel delivery rate ⇒ page 105 and ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode
- ❑ Checking activation ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- ❑ Some vehicle versions are fitted with noise damping in the fuel line to the auxiliary heater in the vicinity of the metering pump - V54- to reduce noise ⇒ page 108 .

20 - Fuel line with quick-release couplings

- ❑ Releasing quick-release coupling at fuel line for auxiliary heater ⇒ page 99

4.1.2 Overview of fitting locations - fuel supply system, metering pump - V54-



-A- Quick-release coupling; unfastening ⇒ page 99

-B- Fastening elements

-C- Metering pump - V54- Removing and installing ⇒ page 108

-D- Clamp

-E- Fuel line

-F- Mounting

-G- Electrical connector

Note

Depending on the vehicle version, the fuel line -E- (hose between metering pump - V54- and fuel line to auxiliary heater) may be provided with a constriction (restrictor in hose for fuel line) to reduce noise or fitted with a noise damper (in the vicinity of the metering pump - V54- -C-).

4.2 Fuel take-off from fuel tank

⇒ "4.2.1 Fuel take-off from fuel tank", page 95

⇒ "4.2.2 Fuel delivery unit in fuel tank", page 97

⇒ "4.2.3 Filling and bleeding fuel line to metering pump V54 with fuel", page 99

4.2.1 Fuel take-off from fuel tank

WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply system .

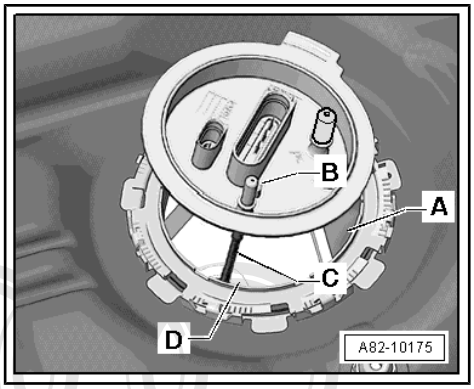
Note

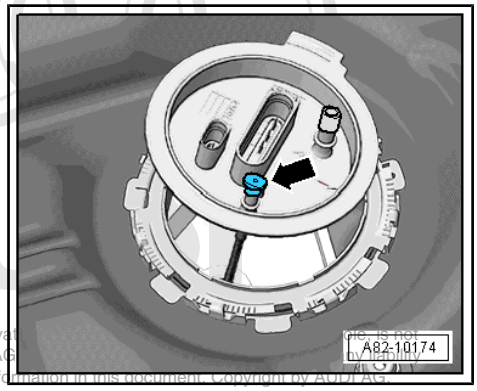
- *Air in the fuel supply to the auxiliary heater can lead to problems in auxiliary heater operation. To stop air from being drawn in by the metering pump - V54- and conveyed to the auxiliary heater when the auxiliary heater is first switched on after performing repairs on the fuel tank or the fuel delivery unit, the fuel take-off pipe must be filled with fuel (bled) after performing repairs in this area ⇒ page 99 .*
- *To operate the auxiliary heater, fuel is extracted from a stable zone in the baffle housing of the fuel delivery unit in the fuel tank ⇒ Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .*
- *To ensure there is sufficient fuel for the operation of the auxiliary heater when the engine is stopped and the fuel tank is less than 1/2 full, the fuel system pressurisation pump - G6- in the baffle housing is activated already when auxiliary heating mode is started if the engine has not been running for a certain period (currently approx. 24 hours). To ensure that there is always a minimum quantity of fuel in the baffle housing, -G6- is also activated intermittently during and at the end of auxiliary heating mode so that the baffle housing is refilled ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode. This also stops the metering pump - V54- drawing in air/fuel vapour instead of liquid fuel if the vehicle is awkwardly positioned with the fuel tank not completely full.*
- *To operate the auxiliary heater, liquid fuel has to be drawn in with no bubbles (air or fuel vapour) from the fuel tank by the metering pump - V54- and conveyed to the auxiliary heater. If air or vapour bubbles are conveyed by -V54- together with the liquid fuel, problems may occur during auxiliary heater operation (e.g. flame interruption during operation or no flame formation at the start of auxiliary heating mode ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode). If there are such problems, check the fuel conveyed in auxiliary heating mode. To do so, fit e.g. a section of transparent fuel line in the vicinity of the auxiliary heater. If bubbles are visible in this hose during auxiliary heater operation, determine and eliminate the cause of the bubbles in the fuel.*
- *Depending on the amount of fuel in the tank, problems may be encountered during heating operation if the fuel system pressurisation pump - G6- is not activated in auxiliary heating mode. There may be no supply of liquid fuel and the fault "Flame interruption" may be entered ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*
- *Vehicles with no auxiliary heater are generally fitted with a fuel delivery unit with no additional connection for fuel take-off for auxiliary heater and with no suction line in the fuel tank ⇒ Electronic parts catalogue .*
- *Butt-joint the fuel lines and secure with clamps at the marked locations.*

- Fuel delivery unit in fuel tank ⇒ page 97
- Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ page 99

4.2.2 Fuel delivery unit in fuel tank

The fuel for the auxiliary heater is drawn in via the connection -B- and the riser -C- from a stable zone -D- in the baffle housing of the fuel delivery unit -A-.



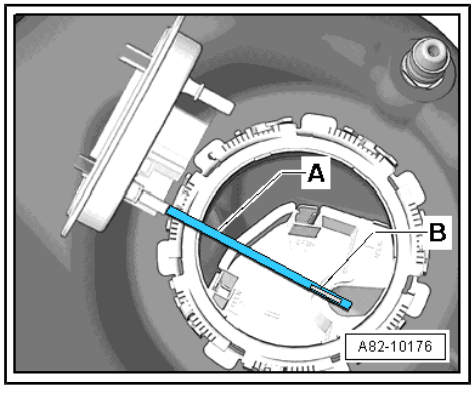


Note

- *To prevent an excessive drop in the fuel level in the baffle housing of the fuel delivery unit -C- in auxiliary heating mode, the fuel system pressurisation pump - G6- is activated briefly at the start of (depending on quantity of fuel in fuel tank and period for which vehicle has been standing), during and at the end of auxiliary heating mode ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *If the fuel tank is less than 1/4 full, vapour bubbles may form in the baffle housing of the fuel delivery unit -A- while the engine is running, particularly on vehicles with diesel engine. To prevent the metering pump - V54- from drawing in air bubbles while the engine is running, the riser -C- must be fitted in the stable zone -D-.*
- *To prevent the fuel tank from becoming completely drained in auxiliary heating mode, the auxiliary heater is no longer switched on if the fuel gauge in the instrument cluster is in the "red zone".*
- *If the auxiliary heater functions properly when the fuel tank is completely full or when the engine is running and problems are encountered if the fuel tank is only partially full after the engine has been stopped for a certain period (fault message "No flame formation" or "Repeated flame interruption"), this indicates that the suction line is routed incorrectly or that the bottom valve of the fuel delivery unit is leaking. If the baffle housing of the fuel delivery unit is leaking at the bottom valve, the fuel level will drop if the fuel tank is almost empty, and no further fuel can flow into the stable zone -D-. The fuel in the stable zone -D- will soon be used up, and this would result in failure of the auxiliary heater (e.g. due to flame interruption during operation). As the fuel system pressurisation pump - G6- currently is not always activated (in order to fill the baffle housing) even if the fuel tank is less than 1/2 full ⇒ page 95 , it might be advisable to shorten the time for which the engine must have been stopped so that -G6- is activated briefly when auxiliary heating mode is started ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *After removing and installing components of the fuel system, the fuel line to the metering pump - V54- must be filled with fuel ⇒ page 99 . The auxiliary heater must then be switched on and operated at full load for at least 10 minutes to make sure the fuel line is bled completely.*
- *On vehicles without "auxiliary heater" (fitted as an optional extra), the connection for the fuel take-off pipe must always be sealed with a cap -arrow-.*

Vehicles with diesel engine

Vehicles with a diesel engine have an additional filter -B- at the end of the riser -A- (to retain any air bubbles that form while the engine is running).



4.2.3 Filling and bleeding fuel line to metering pump - V54- with fuel

Note

- *Air/fuel vapour in the fuel supply to the auxiliary heater can lead to problems in auxiliary heater operation. To stop air/fuel vapour being drawn in by the metering pump - V54- and conveyed to the auxiliary heater when the auxiliary heater is first switched on after working on the fuel tank or fuel delivery unit, the fuel take-off pipe must be filled with fuel (bled) after working in this area.*
- *After working on the fuel system, switch on the auxiliary heater and let it run for at least 10 minutes at full load to check operation.*

• Auxiliary heater is switched off (metering pump - V54- is not activated).

– Switch off ignition.

– Unfasten quick-release coupling -A- ⇒ page 99 .

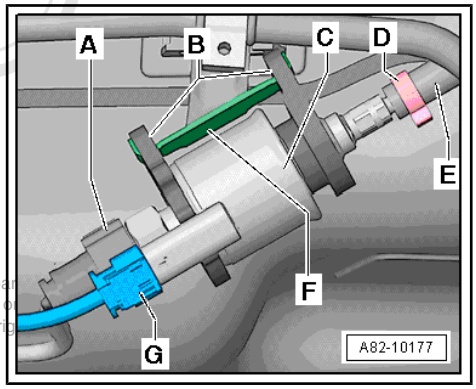
– Connect quick-release coupling -A- for fuel line to diesel extraction unit - VAS 5226- .

– Connect diesel aspirator - VAS 5226- to workshop compressed air system ⇒ Rep. gr. 23 ; Injection system; Filling/bleeding injection system or ⇒ Rep. gr. 24 ; Injection system; Filling/bleeding injection system .

– Completely fill fuel line with fuel by briefly extracting air.

– Connect fuel line with quick-release coupling -A- to metering pump - V54- .

– After re-installing all components removed, switch on auxiliary heater and let it run at full load for roughly 10 minutes.



4.3 Releasing quick-release coupling at fuel line for auxiliary heater

WARNING

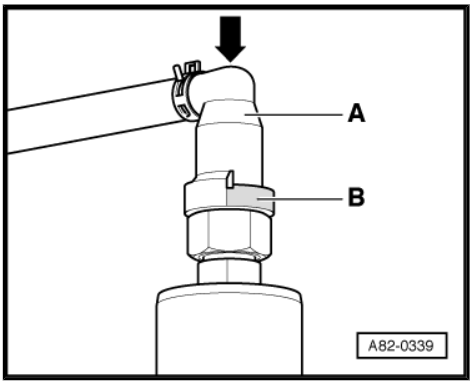
When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply system .

– Press quick-release coupling -A- for fuel line in direction of -arrow- towards connection.

– Release fastener on quick-release coupling by pressing on area -B-.

– Detach quick-release coupling -A- with fuel line.

– Seal fuel line -A- and its connection.



4.4 Routing of fuel pipe to auxiliary heater

Note

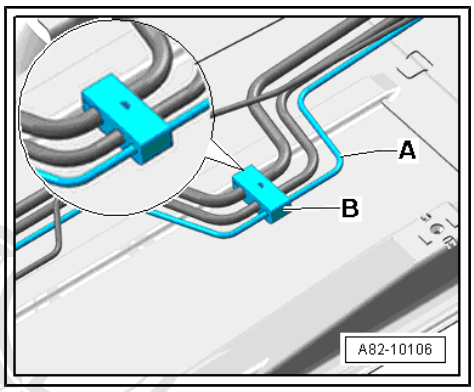
Butt-joint fuel lines and secure with clamps at marked locations.

The fuel line -A- between the metering pump - V54- and the auxiliary heater is routed along the underbody.

The retainers -B- secure the fuel line -A- to the auxiliary heater and the fuel lines to the engine in position.

The fuel line -A- must be routed such that it does not make contact with components which can become hot, is protected against heat which could affect its operation and does not make contact with other components (noise).

– When installing fuel lines, make sure that they are butt-jointed.



Note

- *The fuel line must be flush with the underbody and protected against mechanical damage.*
- *The fuel line to the auxiliary heater must be protected against heat which could affect its operation.*
- *The fuel line must not make contact with moving components or components which can become hot.*
- *The fuel line to the auxiliary heater must be filled completely with fuel (bled).*
- *Vehicles with and without auxiliary heater have different fuel delivery units fitted in the fuel tank ⇒ Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender and ⇒ Electronic parts catalogue .*
- *The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.*

4.5 Checking CO_2 content in auxiliary heater exhaust gas

⇒ “4.5.1 Checking CO2 content in auxiliary heater exhaust gas”, page 101

⇒ “4.5.2 Test requirements”, page 101

⇒ “4.5.3 Checking CO2 content”, page 102

4.5.1 Checking CO_2 content in auxiliary heater exhaust gas

CO_2 (carbon dioxide) content

Note

- *For this test, the auxiliary heater can be switched on via the rotary pushbutton of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) or with the remote control. For activation with the remote control, the temperature setting on the air conditioner front operating and display unit (Climatronic control unit - J255-) must be “Hi”; otherwise (depending on the ambient temperature), the “auxiliary ventilation” function will be activated and the auxiliary heater will not start up.*
- *With the “Basic setting” function, the auxiliary heater can be operated up to a coolant temperature of 110 °C and starting from the control interval is possible. The operating time is then restricted to a maximum of 10 minutes ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *For notes on switching on the auxiliary heater via the “Basic setting” function, refer to e.g. the section “Checking CO2 content in exhaust gas” of Guided Fault Finding; please also note the display of the activation signals for the auxiliary heater (e.g. in “General function check” in Guided Fault Finding) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

Test requirements

- Sufficient fuel in tank (fuel gauge in instrument cluster not in red zone)
- Battery - A- (vehicle battery) fully charged
- Auxiliary heater installed completely and connected to vehicle electrical system
- All auxiliary heater fuses OK (according to current flow diagram) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- Auxiliary heater switched off
- Event memory of all systems with self-diagnosis capability read out, cause of any faults displayed in vehicle systems eliminated and displayed event memory entries erased ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

4.5.2 Test requirements

- Coolant temperature below 30 °C
- Ambient temperature below 25 °C
- Sufficient fuel in tank (fuel gauge in instrument cluster not in red zone)

- Battery - A- (vehicle battery) fully charged
- Auxiliary heater installed completely and connected to vehicle electrical system
- All auxiliary heater fuses OK (according to current flow diagram) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- Auxiliary heater switched off
- Event memory of all systems with self-diagnosis capability read out, cause of any faults displayed in vehicle systems eliminated and displayed event memory entries erased ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

Note

Pay particular attention to the following vehicle systems: dash panel insert, air conditioner/heater electronics, auxiliary/supplementary heater and data bus diagnostic interface - J533- .

4.5.3 Checking CO_2 content

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester
- ♦ Exhaust emission test station - VAS 6300-
- ♦ Battery charger - VAS 5903-

Requirements satisfied ⇒ page 101

– Connect battery charger.

– Connect vehicle diagnostic tester to diagnostic connection in vehicle.

Note

The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off.

– Select address word “Supplementary/auxiliary heater” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Select function “Interrogating event memory” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Erase event memory if necessary ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

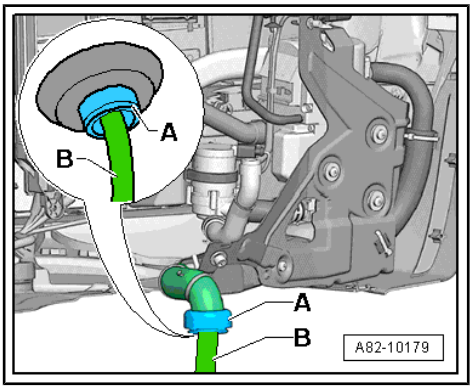
– Check coding and correct if necessary ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Select function “Checking CO_2 content of exhaust gas” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Note

The following description corresponds to the Guided Fault Finding test sequence.

– Switch on exhaust emission test station - VAS 6300- and insert exhaust probe -B- in exhaust pipe -A- of auxiliary heater.



Note

Hose -B- of exhaust probe must not prevent exhaust gas from leaving exhaust pipe -A- during check.

WARNING

When pulling out the exhaust probe, take care not to touch the exhaust probe of the exhaust emission test station - VAS 6300- or the exhaust pipe as these become very hot.

– Set air conditioner front operating and display unit (Climatronic control unit - J255-) to maximum heat output (“HI” temperature setting).

– Restrict fresh air blower speed by setting air conditioner front operating and display unit (Climatronic control unit - J255-) to approx. 50 % of maximum fresh air blower speed.

♦ The auxiliary heater is switched on via the “Basic setting” function ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Note

For notes on switching on the auxiliary heater via the “Basic setting” function, refer to e.g. the section “Checking CO2 content in exhaust gas” of Guided Fault Finding; please also note the display of the activation signals for the auxiliary heater (e.g. in “General function check” in Guided Fault Finding) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Wait until auxiliary heater switches from starting to full load operation (auxiliary heater must be at full load approx. 4 minutes after it is switched on).

Note

♦ *If the connector for the heater coolant shut-off valve - N279- is unplugged, the engine is also heated up and the auxiliary heater runs longer at full load.*

♦ *With the “Basic setting” function, the auxiliary heater can be operated up to a coolant temperature of 110 °C and starting from the control interval is possible. The operating time is then restricted to a maximum of 10 minutes ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*

– Wait at least four more minutes after the auxiliary heater has started running at full load.

– Read off measured value for CO_2 (carbon dioxide) content of exhaust gas from CO_2 measuring instrument.

Specifications:

♦ 8 to 11 % by CO_2 volume for vehicles with diesel engine

♦ 7.5 to 10.5 % by CO_2 volume for vehicles with petrol engine

Note

- *If measured value is in lower range (less than 9 % for diesel or less than 8.5 % for petrol), problems may occur with auxiliary heater combustion under unfavourable conditions, e.g. high vehicle speed with auxiliary heater switched on. Check fuel delivery rate of metering pump - V54- ⇒ page 105 .*
- *If CO_2 values displayed by measuring instrument only fluctuate slightly, calculate mean value from highest and lowest measured value.*
- *If the measured values displayed for CO_2 fluctuate considerably (more than approx. +/- 0.6 % depending on the analyser), check the position of the measurement probe in the auxiliary heater exhaust pipe.*

- The auxiliary heater is switched off via the “Basic setting” function after measurement is complete ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– If applicable, plug connector back in at heater coolant shut-off valve - N279- .

– Interrogate event memory and erase if necessary ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

If the measured value is outside the permitted range:

– Check intake air noise insulation and auxiliary heater exhaust system for contamination or cross-sectional constriction; clean or renew these components if necessary ⇒ page 62 and ⇒ page 66 .

– Check fuel delivery rate of metering pump - V54- ⇒ page 105 .

– If CO_2 content of exhaust gas and fuel delivery rate of metering pump - V54- are in lower specified range, renew metering pump - V54- ⇒ page 108 .

If the CO_2 content of the exhaust gas is not OK although the fuel delivery rate is OK:

– Check intake air noise insulation and auxiliary heater exhaust system for contamination or cross-sectional constriction; clean or renew these components if necessary ⇒ page 62 and ⇒ page 66 .

If the CO_2 content of the exhaust gas is not OK and no fault can be found:

– Check combustion air blower - V6- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

If there are problems starting the auxiliary heater although the fuel delivery volume and the CO_2 content in the exhaust gas are OK:

– Check glow plug for heater - Q9- and fuel pre-heating heater element - Z66- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Note

If problems with auxiliary heater operation only occur when the engine is switched off and the fuel tank is less than half full, refer to ⇒ “4.2 Fuel take-off from fuel tank”, page 95 .

4.6 Checking fuel delivery rate

4.6.1 Test requirements

WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply system .

Note

Fill fuel line completely ⇒ page 106 .

- Coolant temperature below 30 °C
- Ambient temperature below 25 °C

Note

A higher ambient temperature can lead to incorrect measurements of the fuel quantity delivered due to fuel evaporation.

- Sufficient fuel in tank (fuel gauge in instrument cluster not in red zone)
- Battery - A- (vehicle battery) fully charged
- Auxiliary heater installed completely and connected to vehicle electrical system
- All auxiliary heater fuses OK (according to current flow diagram) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- Auxiliary heater switched off
- Event memory of all systems with self-diagnosis capability read out, cause of any faults displayed in vehicle systems eliminated and displayed event memory entries erased ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

Note

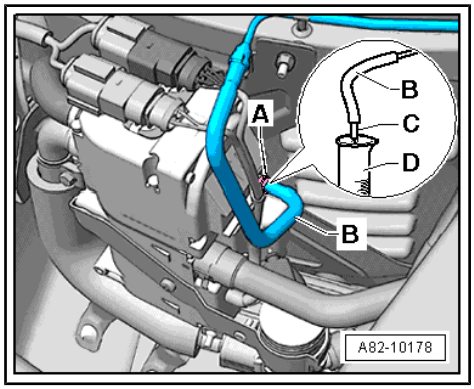
Pay particular attention to the following vehicle systems: dash panel insert, air conditioner/heater electronics, auxiliary/supplementary heater and data bus diagnostic interface - J533- .

– Switch off ignition.

4.6.2 Preparation

– Remove right air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

– Unfasten clamp -A-.
– Detach fuel line (hose to auxiliary heater) -B- from auxiliary heater.
– Hold fuel line (hose to auxiliary heater) -B- over measuring cup -D-.



Note

If necessary, extend the fuel line (hose to auxiliary heater) -B- with a hose -C-.

4.6.3 Checking fuel delivery rate

Requirements satisfied ⇒ page 105 and test preparation performed ⇒ page 105 .

– Connect battery charger.
– Switch on ignition and switch off all electrical equipment.

Note

The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– Select address word "Supplementary/auxiliary heater" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
– Select function "Checking fuel delivery rate" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Note

- *The following description corresponds to the Guided Fault Finding test sequence.*
- *The "Pipe filling" cannot be aborted once it has started; it is implemented in full by the control unit regardless of any entries made via the tester.*

– Follow the procedure in the "Checking fuel delivery rate" test routine.

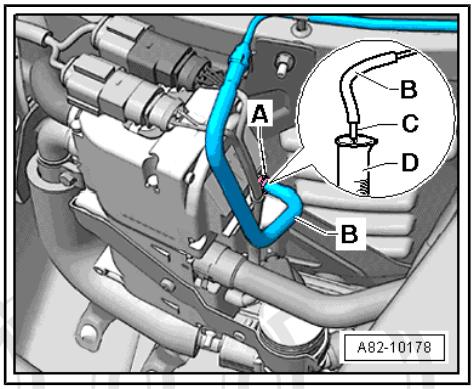
- The fuel pipe is first completely filled. The metering pump - V54- is activated for 30 seconds at 8 hertz (8 pulses per second). The fuel delivery rate specified in the metering pump - V54- is approx. 0.028 ml per stroke (0.028/1000 litres) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

– Wait until metering pump - V54- is no longer activated.

– Empty measuring cup -D- and hold fuel line (hose to auxiliary heater) -B- over measuring cup -D- again.
– Continue with “Checking fuel delivery rate” test routine.

The metering pump - V54- is activated for 240 seconds at 8 hertz (8 pulses per second). The fuel delivery rate specified in the metering pump - V54- is approx. 0.028 ml per stroke (0.028/1000 litres) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– Wait until metering pump - V54- is no longer activated.
– Measure amount of fuel delivered by metering pump - V54- in measuring cup -D-.



Note

One millilitre (ml) corresponds to 1/1000 litre or 1 cm^3.

Specifications:

Diesel - 51 to 62 ml

Benzin - 48 to 58 ml

If the quantity of fuel delivered is outside the tolerance range:

– Check fuel line (from fuel tank via metering pump - V54- to auxiliary heater) for damage and proper routing ⇒ page 100 .
– Check operation of fuel system pressurisation pump - G6- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode “Diagnostic system, drive system” and ⇒ page 95 .

Note

The test routine for checking fuel system pressurisation pump - G6- can be found under “Drive system” in the “Electrical components” of the engine ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

– If no fault is found, renew metering pump - V54- ⇒ page 108 .
– If there are problems starting the auxiliary heater although the fuel delivery volume is OK, check the CO_2 content in the exhaust gas ⇒ page 101 .

Note

If problems with auxiliary heater operation only occur when the engine is switched off and the fuel tank is less than half full, refer to ⇒ page 95 .

– If the quantity of fuel delivered is in the lower tolerance range (less than 52 ml for diesel engine/less than 49 ml for petrol engine) and there are problems starting the auxiliary heater, renew metering pump - V54- if applicable ⇒ page 108 .
– Fit fuel hose to auxiliary heater and secure with a clamp of the same type.
– Install right air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing or ⇒ Rep. gr. 24 ; Air cleaner; Removing and installing air cleaner housing .

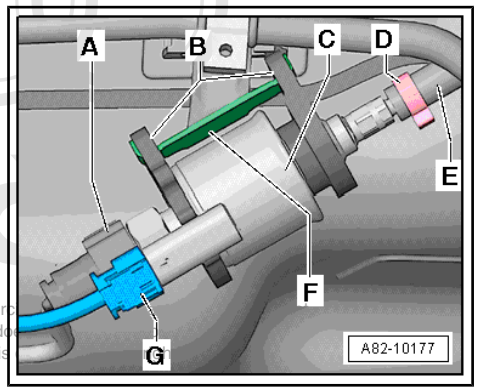
4.7 Removing and installing metering pump - V54-

WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ page 21 ⇒ Engine; Rep. gr. 00 ; Safety precautions when working on the fuel supply system .

Note

- *Depending on the vehicle version, the fuel line -E- (hose between metering pump - V54- and fuel line to auxiliary heater) may be provided with a constriction (restrictor in hose for fuel line) to reduce noise or fitted with a noise damper (in the vicinity of the metering pump - V54- -C-).*
- *If fitted, the current dimensions of the restrictor in the fuel line -E- (hose between metering pump - V54- and fuel line to auxiliary heater) are as follows: outer diameter 5 mm, length 7 mm, bore 1.3 mm. The restrictor (or noise damper) reduces the increase in pressure in the fuel line to the auxiliary heater during the working stroke of the metering pump - V54- -C-; this means that less operating noise is transmitted from the metering pump - V54- .*
- *Depending on the vehicle version, a strainer may be fitted between the connection for the metering pump - V54- -C- and the fuel line to the fuel tank to prevent dirt particles from entering the metering pump.*



Removing

– Switch off ignition (and auxiliary heater).

– Remove right underbody trim panels ⇒ Body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Removing and installing underbody trim panels .

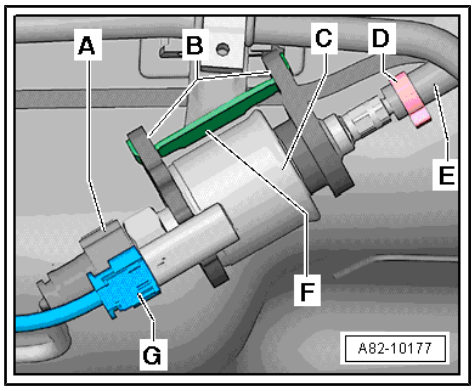
– Unplug electrical connector -G- from metering pump - V54- -C-.

– Release fastening elements -B- from mounting -F-.

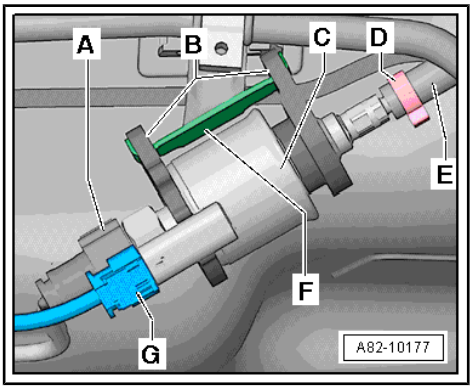
– Unfasten clamp -D-.

– Detach fuel line -E- from metering pump - V54- -C- and seal fuel line.

– Unfasten quick-release coupling -A- ⇒ page 99 and seal fuel line.



Installing



Install in reverse order of removal; note the following.

– Butt-joint fuel line -E-.

– Use suitable pliers to secure fuel line -E- with a clamp -D- of the same type ⇒ Electronic parts catalogue .

Pay attention to the following when installing the metering pump - V54- -C-:

♦ Fit metering pump - V54- -C- and corresponding fuel lines such that they do not make contact with other components (noise).

♦ Take care not to twist fuel lines.

– Fit underbody trim (right-side; with the corresponding brackets in front of the fuel tank) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim panels; Exploded view - underbody trim panels .

– After renewing metering pump - V54- , switch on auxiliary heater and check operating sequence ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Note

After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.

5 Auxiliary/supplementary heater control

⇒ “5.1 Functional description”, page 111

⇒ “5.2 Switching auxiliary heating/auxiliary ventilation on and off”, page 112

5.1 Functional description

Note

- *The “auxiliary heating” function can be switched on and off using the remote control for auxiliary heater ⇒ page 121 and ⇒ page 125 or on the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) ⇒ Infotainment/MMI Operating Manual and ⇒ page 113 .*
- *Various auxiliary heater and air conditioner functions are adjusted on the Multi Media Interface (MMI). In the event of problems with the auxiliary heater control function or heat output, you should therefore check these settings in the MMI ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .*
- *If the “Auxiliary heating / auxiliary ventilation” function is called up via the remote control for auxiliary heater or the Multi Media Interface (MMI, control unit for front display and information control panel - J523-), the air conditioner front operating and display unit (Climatronic control unit - J255-) determines on the basis of the “specified temperatures” and the “actual temperature” measured whether the “auxiliary heating” or just the “auxiliary ventilation” function needs to be activated.*

- *Depending on the amount of heat generated by the auxiliary heater (and engine) and emitted by the heat exchangers of the air conditioning unit, the heater may remain at full load, part load (controlled operation) or in the control interval for a lengthy period.*
- *To ensure that combustion in the heater always remains in the optimum range, the metering pump - V54- (clock frequency) and combustion air blower - V6- (voltage) are regulated over the entire sequence.*
- *If the heater has been interlocked due to a fault, the event memory must be read out and the content of the event memory erased. Depending on the cause of the fault, it may also be necessary to cancel the interlock via the “Adaption” function in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*
- *If the first attempted start fails to produce a flame, the auxiliary heater control unit - J364- terminates the sequence and attempts a restart after any combustion residue has been blown out with the combustion air blower - V6- . The auxiliary heater control unit - J364- is switched off if the restart also fails to produce a flame. The heater is disabled after three attempted manual starts (each with one restart) via the air conditioner front operating and display unit (Climatronic control unit - J255-).*
- *If the heater is switched off during the starting process, the heater is either immediately switched off or switches to run-on mode (burn-off, cooling) if necessary, depending on the point reached in the starting sequence.*
- *If the coolant temperature exceeds 89 °C before full load is reached (e.g. with a hot engine), the heater switches to the control interval.*

- *Various functions of the auxiliary heater are constantly monitored during operation (the auxiliary heater is switched off as soon as a fault occurs).*
- *Auxiliary heating operation can be monitored via the vehicle diagnostic tester ("Read measured values" function) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *The temperatures given in the following procedures (operating sequences, etc.) are approximate. The actual temperatures at which the various functions are switched on and off may differ depending on the version of the vehicle and the characteristic curves stored in the auxiliary heater control unit - J364- .*
- *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. The auxiliary heater control unit - J364- is requested by the air conditioner front operating and display unit (Climatronic control unit - J255-) via the data bus to switch on -V55- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*

5.2 Switching auxiliary heating/auxiliary ventilation on and off

⇒ "5.2.1 Overview of activation of auxiliary heater with remote control", page 112

⇒ "5.2.2 Switching auxiliary heating / auxiliary ventilation on and off via Multi Media Interface (MMI, control unit for front display and information control panel J523)", page 113

5.2.1 Overview of activation of auxiliary heater with remote control

Note

- *A signal (switching on/off) is transmitted by the hand-held remote control transmitter for the auxiliary heater to the remote control receiver for auxiliary heater - R64- . The air conditioner front operating and display unit (Climatronic control unit - J255-) determines whether auxiliary heating mode is required to attain the specified temperature in the passenger compartment or whether auxiliary ventilation mode is sufficient.*
- *There are different versions of the hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- ; ensure correct assignment of these components. Malfunctions may occur if the wrong components are installed together; refer to ⇒ page 121 and ⇒ Electronic parts catalogue .*

If an activation signal is transmitted to the auxiliary heater via the remote control for auxiliary heater, the air conditioner front operating and display unit (Climatronic control unit - J255-) determines whether to operate the auxiliary ventilation or auxiliary heating.

Auxiliary ventilation mode

- The air conditioner front operating and display unit (Climatronic control unit - J255-) determines that auxiliary heating mode is not required to attain the specified temperature. The air conditioner front operating and display unit, Climatronic control unit - J255- starts up without transmitting a request for activation of the auxiliary heater via the data bus to the auxiliary heater control unit - J364- (auxiliary ventilation mode).

Auxiliary heater mode

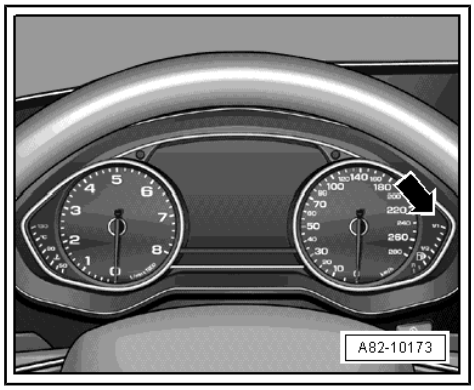
- The air conditioner front operating and display unit (Climatronic control unit - J255-) determines that auxiliary heating mode is not required to attain the specified temperature. The air conditioner front operating and display unit (Climatronic control unit - J255-) transmits a request for activation of the auxiliary heater via the data bus to the auxiliary heater control unit - J364- . The auxiliary heater control unit - J364- switches on the auxiliary heater (auxiliary heating mode); it informs the air conditioner front operating and display unit (Climatronic control unit - J255-) as soon as the coolant temperature in the auxiliary heater exceeds approx. 40 °C. This then starts up.

5.2.2 Switching auxiliary heating / auxiliary ventilation on and off via Multi Media Interface (MMI, control unit for front display and information control panel - J523-)

Note

- *The “Immediate on” and “Timer” functions can be called up via the Multi Media Interface (MMI, control unit for front display and information control panel - J523-). The auxiliary heater or auxiliary ventilation is activated depending on the ambient temperature and the temperature setting on the air conditioner front operating and display unit (Climatronic control unit - J255-).*
- *Depending on vehicle version, equipment, production period and the setting in the Multi Media Interface (MMI), certain auxiliary heater functions can also be switched on and off via the programmable steering wheel button ⇒ Owner's Manual and ⇒ 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 .*

Important



- The auxiliary heater must have been adapted in the air conditioner front operating and display unit (Climatronic control unit - J255-) (check and perform coding if necessary) ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- The auxiliary heating/auxiliary ventilation can only be switched on by the auxiliary heater control unit - J364- if there is enough fuel in the fuel tank. When the ignition is on, the fuel gauge in the instrument cluster -arrow- must not be in the “red zone” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- There must not be any event memory entries in the auxiliary heater control unit - J364- .
- The battery - A- (vehicle battery) must be charged sufficiently.
- There must not be any faults in the vehicle data bus.
- Transport mode and component protection for auxiliary heater must not be active ⇒ Vehicle diagnostic tester in “Guided Fault Finding”.

Switching on auxiliary heating/auxiliary ventilation with “Immediate on” function

– Switch on ignition.

– Using the controls of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) select: function selector button CAR > “Car systems” > “Auxiliary heating” > “Activate auxiliary heating”, and then set the required operating time ⇒ Infotainment/MMI Operating Manual .

Switching off auxiliary heating / auxiliary ventilation via “Immediate on” function

– Using the controls of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) select: function selector button CAR > “Car systems” > “Auxiliary heating” > “Deactivate auxiliary heating” ⇒ Infotainment/MMI Operating Manual .

Switching on auxiliary heating / auxiliary ventilation via “Timer” function

– Switch on ignition.

– De-icing vehicle windows only: Using the controls of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) select: function selector button CAR > “Car systems” > “Auxiliary heating” > “Heating effect” > “defrost” ⇒ Infotainment/MMI Operating Manual .

– De-icing vehicle windows and heating up passenger compartment: Using the controls of the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) select: function selector button CAR > “Car systems” > “Auxiliary heating” > “Heating effect” > “warm” ⇒ Infotainment/MMI Operating Manual .

– Using the controls on the Multi Media Interface (MMI, control unit for front display and information control panel - J523-) select the following: Function selector button CAR > “Car systems” > “Auxiliary heater” > “Program timers”, e.g. “Timer 1: target time” ⇒ Infotainment/MMI Operating Manual .

– Set the time and date.

– To activate the timer, confirm your entry by pressing the rotary pushbutton ⇒ Infotainment/MMI Operating Manual .

Note

- *If the auxiliary heater (auxiliary heater control unit - J364-) is activated by way of the “Timer” function, the air conditioner front operating and display unit, Climatronic control unit - J255- . (-J255-) decides whether auxiliary heating mode is required to attain the specified temperature set or whether auxiliary ventilation mode is sufficient.*
- *If the “Timer” function is active, the control unit in dash panel insert - J285- activates the air conditioner front operating and display unit (Climatronic control unit - J255-) and the onboard supply control unit - J519- via the data bus approx. 50 minutes before the selected time. -J519- determines the current charge status of the battery - A- , uses this to determine the permissible auxiliary heating/auxiliary ventilation operating time and then transmits this value to -J285- via the data bus. If the battery - A- is not charged sufficiently, for example, the auxiliary heating (auxiliary ventilation) is not switched on or the auxiliary heating (auxiliary ventilation) operating time is shortened such that the battery - A- is not excessively discharged (this may mean that the temperature specified for the passenger compartment is no longer attained). On the basis of the prevailing conditions (e.g. ambient temperature and passenger compartment temperature), -J255- determines whether auxiliary heating mode is required to attain the specified temperature or whether auxiliary ventilation mode is sufficient. If auxiliary heating mode is required, -J255- calculates the auxiliary heating time needed to attain the desired passenger compartment temperature at the specified time and transmits this value to -J285- via the data bus. Depending on the ambient conditions, the auxiliary heater is then activated immediately (at very low temperatures) or the data bus is deactivated again by -J285- for the period prior to the calculated activation time. At the calculated cut-in point, the data bus is activated again by -J285- and -J255- is switched on. -J255- starts up (no obvious outward signs) and activates the auxiliary heater. The data bus is likewise deactivated if -J255- determines that auxiliary ventilation mode is sufficient to attain the specified temperature. Only approx. 15 minutes before the specified time, -J255- is activated for auxiliary ventilation mode by -J285- via the data bus and -J255- starts up in “Auxiliary ventilation” mode.*
- *In the “Timer” function, auxiliary heating mode and auxiliary ventilation mode are switched off approx. 10 minutes after the specified time. As the operating time is limited to a maximum of 60 minutes, the auxiliary heater is activated no sooner than 50 minutes before the specified time even at very low ambient temperatures.*

6 Further control components

⇒ “6.1 Removing and installing ambient temperature sensor”, page 116

⇒ “6.2 Removing and installing remote control receiver for auxiliary heater R64 ”, page 116

⇒ “6.3 Functional description of remote control for auxiliary/supplementary heater”, page 117

6.1 Removing and installing ambient temperature sensor

The ambient temperature sensor - G17- is required for the calculation of the ambient temperature so that the auxiliary heater can be regulated.

– Removing and installing ambient temperature sensor - G17- ⇒ Heating, air conditioning; Rep. gr. 87 ; Overview of fitting locations - air conditioner; Overview of fitting locations - components not located in passenger compartment

– Checking ambient temperature sensor - G17- ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode

6.2 Removing and installing remote control receiver for auxiliary heater - R64-

Removing and installing remote control receiver for auxiliary heater ⇒ Communication; Rep. gr. 91 ; Telephone system; Overview of fitting locations - telephone system

6.3 Functional description of remote control for auxiliary/supplementary heater

6.3.1 Switching on auxiliary heating / auxiliary ventilation with “Immediate on” function

– The remote control is activated by pressing button -A-.

– The “Immediate on” function is selected with button -A- (the arrow points to -D- in the remote control display).

– The required operating time is set with buttons -B- and -F- (in 10-minute increments).

– The auxiliary heater/auxiliary ventilation is activated by pressing button -G-.

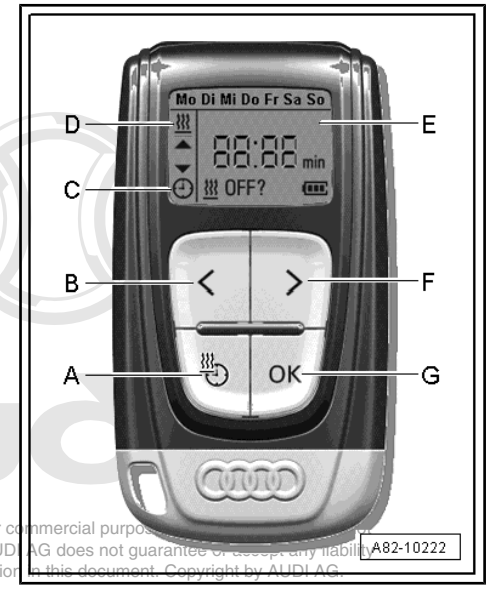
Note

- *The request for activation is transmitted after button -G- is pressed. The data transfer symbol (aerial) appears on the remote control display.*
- *If the cut-in signal is received correctly by the auxiliary heater control unit - J364- and there are no faults in the auxiliary heater, feedback is sent to the remote control and the auxiliary heater/auxiliary ventilation is activated. The operating time or remaining running time appears on the remote control display.*
- *Heating is not possible if the vehicle battery charge level is too low, if there are any event memory entries in the auxiliary heater control unit - J364- or if there is not enough fuel in the tank. A feedback signal is sent to the remote control and the cause of the problem is indicated on the display* *⇒ page 127* *.*
- *If the vehicle is outside the range of the remote control, the message "No radio link with vehicle"* *⇒ page 127* *is displayed as feedback.*
- *The LCD of the remote control for auxiliary heater is automatically switched off 8 seconds after the last button has been pressed. Pressing button -A- activates the remote control for auxiliary heater and the remaining running time is displayed.*

6.3.2 Switching off auxiliary heating / auxiliary ventilation via "Immediate on" function

– The remote control for auxiliary heater is activated by pressing button -A-.

– The auxiliary heater can be switched off by pressing button -G-, irrespective of the operating time.



6.3.3 Switching on auxiliary heating / auxiliary ventilation via “Timer” function

– The remote control is activated by pressing button -A-.
– The “Timer” function is selected with button -A- (the arrow points to -C- in the remote control display).
– The required “hour” setting is selected with buttons -B- and -F-.
– Switch to the “minute” setting by pressing button -G-.
– The required “minute” setting is selected with buttons -B- and -F-.
– Switch to the “day” setting by pressing button -G-.
– The required “day” setting is selected with buttons -B- and -F-.
– The auxiliary heater is switched on by pressing button -G-.

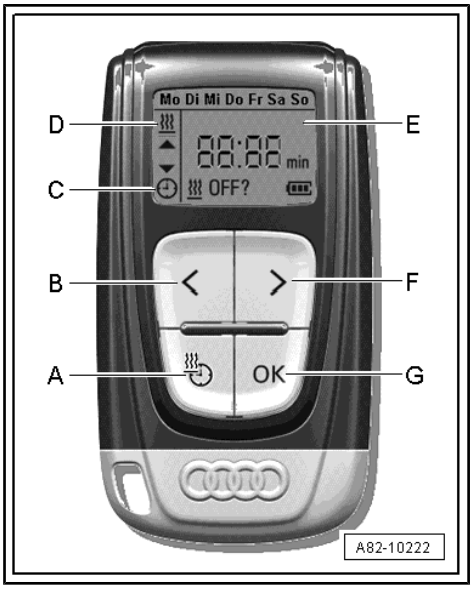
Note

- *The entry is transmitted after button -G- is pressed. The data transfer symbol (aerial) appears on the remote control display.*
- *If the cut-in signal is received correctly by the auxiliary heater control unit - J364- and there are no faults in the auxiliary heater, a feedback signal is sent to the remote control for auxiliary heater. The time setting appears on the remote control display.*
- *Heating is not possible if the vehicle battery charge level is too low, if there are any event memory entries in the auxiliary heater control unit - J364- or if there is not enough fuel in the tank. A feedback signal is sent to the remote control and the cause of the problem is indicated on the display* *⇒ page 127* *.*
- *If the vehicle is outside the range of the remote control, the message “No radio link with vehicle”* *⇒ page 127* *is displayed as feedback.*
- *The timer programmed with the remote control for auxiliary heater is always displayed in the Multi Media Interface (MMI, control unit for front display and information control panel - J523- , “Auxiliary heater” function) as “Timer 1”. If “Timer 1”, “Timer 2” or “Timer 3 ” has already been activated via the Multi Media Interface (MMI, control unit for front display and information control panel - J523- , “Auxiliary heater” function), the new programming using the remote control overwrites the previously activated timer; this is then displayed in the Multi Media Interface (MMI, control unit for front display and information control panel - J523- , “Auxiliary heater” function) as “Timer 1”.*
- *The display of the remote control for auxiliary heater is automatically switched off 8 seconds after the last button has been pressed. Pressing button -A- reactivates the remote control for auxiliary heater and the timer programming or - if the auxiliary heater has already been activated - the remaining running time is displayed.*
- *If the auxiliary heater (auxiliary heater control unit - J364-) is activated by way of the “Timer” function, the air conditioner front operating and display unit, Climatronic control unit - J255- . (-J255-) decides whether auxiliary heating mode is required to attain the specified temperature set or whether auxiliary ventilation mode is sufficient.*

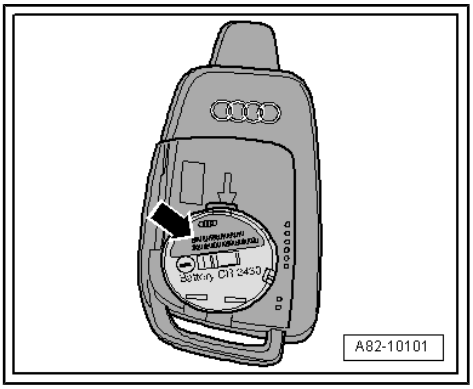
6.3.4 Switching off auxiliary heating / auxiliary ventilation with “Timer” function

– The remote control is activated by pressing button -A-.

– The auxiliary heater can be switched off by pressing button -G- again, irrespective of the timer programming selected.



6.3.5 Remote control for auxiliary heater (without display)



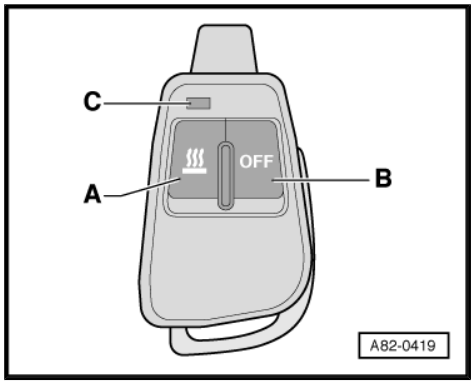
Note

- *The remote control for auxiliary heater (without display) is currently not available for the Audi A8. The remote control for auxiliary heater is always supplied with a display ⇒ Electronic parts catalogue and ⇒ page 125 .*
- *The auxiliary heater can be switched on and off immediately (“Immediate on”) using the remote control for auxiliary heater (without display). The auxiliary heater or auxiliary ventilation is activated depending on the ambient temperature and the temperature setting on the air conditioner front operating and display unit (Climatronic control unit - J255-).*
- *If the auxiliary heater (auxiliary heater control unit - J364-) is activated by a cut-in signal from the remote control for auxiliary heater, the remote control receiver for auxiliary heater - R64- initially activates -J364- . -J364- then transmits the information “Activate or deactivate auxiliary heating/auxiliary ventilation” via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-). -J255- then determines whether auxiliary heating mode is required to attain the specified temperature or whether auxiliary ventilation mode is sufficient.*
- *Various versions of the remote control for auxiliary heater (without display) are available. It is therefore important to ensure correct assignment ⇒ Electronic parts catalogue . After the batteries are removed ⇒ page 124 , the version of the remote control can be seen on the sticker -arrow- with the part number ⇒ Electronic parts catalogue .*
- *There are different versions of the remote control receiver for auxiliary heater - R64- . It is therefore important to ensure the correct assignment to the remote control and correct encoding of the auxiliary heater ⇒ Electronic parts catalogue and in ⇒ Vehicle diagnostic tester “Guided Fault Finding” mode.*
- *The remote control for auxiliary heater (without display) has a range of approx. 600 m. This may be considerably reduced by obstacles (e.g. buildings) between the remote control and the vehicle.*

-A- ON button

-B- OFF button

-C- Indicator lamp (flashes red or green)

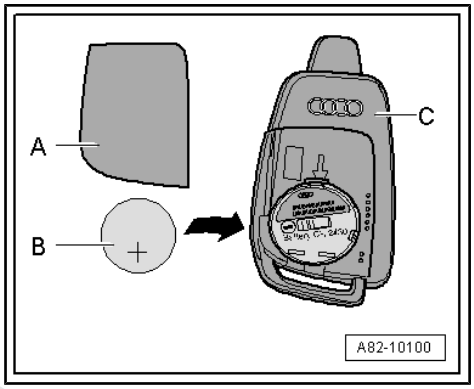


Note

- *For the remote control for auxiliary heater (without display) to recognise that a button has been pressed and transmit a radio signal, the corresponding button must be pressed for at least 1 second ⇒ Owner's Manual .*
- *If the batteries of the remote control for auxiliary heater (without display) are discharged to such an extent that a radio signal can no longer be transmitted with sufficient strength, the indicator lamp -C- does not light up when the ON button -A- or OFF button -B- is pressed.*
- *The indicator lamp -C- lights up green briefly (approx. 2 seconds) as a functional check after the ON button -A- is pressed.*
- *If the cut-in signal is received correctly by the auxiliary heater control unit - J364- and there are no faults in the auxiliary heater, the auxiliary heater control unit - J364- transmits confirmation and the indicator lamp -C- then flashes green 30 times at approx. 1 Hz (1 pulse per second).*
- *If the cut-in signal is not received correctly by the auxiliary heater control unit - J364- , e.g. because the transmitter is too far away from the vehicle (and a connection with the control unit cannot be established), the indicator lamp -C- flashes red 30 times.*
- *If there is a fault in the vehicle or the auxiliary heater (e.g. the auxiliary heater cannot be switched on as the fuel tank is empty), the auxiliary heater control unit - J364- transmits a fault message and the indicator lamp -C- flashes red 30 times.*
- *The indicator lamp -C- lights red briefly (approx. 2 seconds) as a functional check after pressing the OFF button -B-, and then flashes red 30 times at approx. 1 Hz (1 pulse per second).*
- *If the shut-off signal is not received correctly by the auxiliary heater control unit - J364- , e.g. because it is too far away from the vehicle (and a connection with the control unit cannot be established), the indicator lamp -C- then flashes red for 10 seconds at approx. 4 Hz (4 pulses per second).*
- *To transmit, always hold the remote control for auxiliary heater (without display) with the transmission aerial facing upwards.*
- *Ensure a sufficient distance from the vehicle aerial when pressing the buttons of the remote control for auxiliary heater (without display). There may be reception problems if the radio signal is too strong; if necessary, cover transmission aerial with hand or keep a minimum distance of 10 metres from the vehicle.*
- *The remote control receiver for auxiliary heater - R64- can be switched to power-saving mode by the auxiliary heater control unit - J364- (radio signal can no longer be received, the no-load current input decreases from approx. 1 mA to approx. 0.04 mA) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *Depending on the selected mode ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating/auxiliary ventilation are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a problem with the auxiliary heater, also read out the event memory of the air conditioner front operating and display unit (Climatronic control unit - J255-) in ⇒ Vehicle diagnostic tester "Guided Fault Finding" mode.*

6.3.6 Renewing batteries for remote control for auxiliary heater (without display)

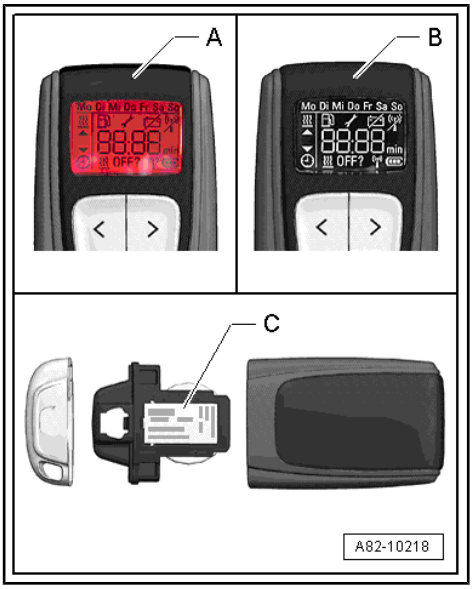
– Carefully detach battery cover -A- from remote control for auxiliary heater (without display) -C-.



Note

- *Ensure that the battery is installed in the correct position (marked in the battery compartment; the "negative terminal" faces the underside of the remote control for auxiliary heater [without display]).*
- *Only fit batteries -B- with specifications corresponding to the original battery (e.g. CR2430 3V 280mAh). You can obtain these batteries e.g. from specialised dealers or via the replacement parts programme ⇒ Electronic parts catalogue .*

6.3.7 Remote control for auxiliary heater (with display)



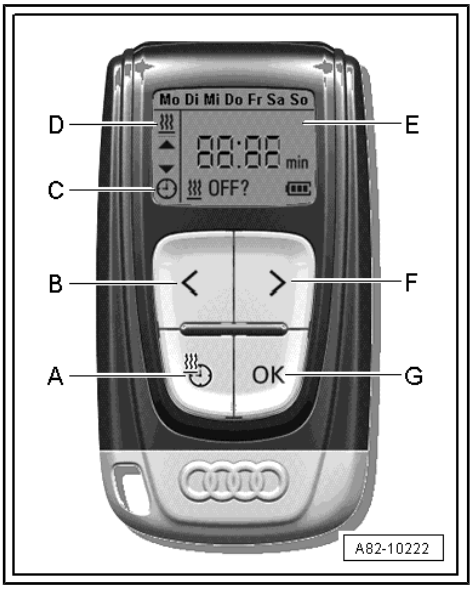
Note

- *The Audi A8 is currently always supplied with the remote control for auxiliary heater (with display) ⇒ Electronic parts catalogue .*
- *The functions “Immediate on” and “Timer” can be called up using the remote control for auxiliary heater (with display). The auxiliary heater or auxiliary ventilation is activated depending on the ambient temperature and the temperature setting on the air conditioner front operating and display unit (Climatronic control unit - J255-).*
- *The auxiliary heater can be switched on and off immediately using the remote control for auxiliary heater (with display). The auxiliary heater or auxiliary ventilation is activated depending on the ambient temperature and the temperature setting on - J255- .*
- *If the auxiliary heater (auxiliary heater control unit - J364-) is activated by a cut-in signal from the remote control for auxiliary heater, the remote control receiver for auxiliary heater - R64- initially activates -J364- . -J364- then transmits the information “Activate or deactivate auxiliary heating/auxiliary ventilation” via the data bus to the air conditioner front operating and display unit (Climatronic control unit - J255-). -J255- then determines whether auxiliary heating mode is required to attain the specified temperature or whether auxiliary ventilation mode is sufficient.*
- *The remote control for auxiliary heater (with display) has a range of approx. 700 - 1000 m. This may be considerably reduced by obstacles (e.g. buildings) between the remote control and the vehicle.*
- *Various versions of the remote control for auxiliary heater (with display) are available. It is therefore important to ensure correct assignment ⇒ Electronic parts catalogue .*
- *There are different versions of the remote control for auxiliary heater (remote control hand-held transmitter and remote control receiver for auxiliary heater - R64-) and the air conditioner front operating and display unit (Climatronic control unit - J255-). It is therefore important to ensure that these components are correctly assigned. Malfunctions may occur if the “wrong components are installed together” or if the coding or adaption are incorrect ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.*
- *Up to model year 2011, hand-held remote control transmitters with dark lettering and a red display -A- were used (part number 4H0 963 511 without index). From model year 2012 onwards, hand-held remote control transmitters with white lettering on a dark background -B- and with part number 4H0 963 511 with index “A” are being introduced gradually. At a later date (gradual introduction on Audi A8, exact date not yet finalised), hand-held remote control transmitters with white lettering on a dark background -B- and with part number 4H0 963 511 from index “B” onwards will be introduced. The two versions of the hand-held transmitter with white lettering on a dark background -B- have different functions.*

- *The two remote control unit versions with white lettering on a dark background -B- can only be differentiated to a limited extent by way of the display as follows. If the part number has index “A”, the lines appear under the date shown on the display immediately after the "on" button is pressed. If the version has a part number with index “B” or above, the lines appear under the day shown on the display regardless of the version of the auxiliary heater radio receiver - R64- installed in the vehicle.*
- *If a remote control from index “B” onwards recognises from the radio signal from -R64- that the vehicle is fitted with an -R64- with part number 4H0 963 271 up to index “C” (gradual introduction on Audi A8 up to model year 2014, exact date not yet finalised), the lines underneath the day display appear immediately after the ON button of the hand-held transmitter is pressed. If the radio signal identifies an -R64- with part number 4H0 963 271 from index “D” onwards (gradual introduction on Audi A8 from model year 2014 onwards, exact date not yet finalised), the lines underneath the day display do not appear on the display until approx. 2 seconds after the ON button of the hand-held transmitter has been pressed.*
- *The part number of the hand-held remote control transmitter is given on a sticker on the battery carrier -C-.*
- *The two versions of the hand-held transmitter with white lettering on a dark background -B- also have different functions. For example, on the version with part number 4H0 963 511 from index “B” onwards, it is possible to set the “Timer function” with the auxiliary heater switched on. However, this function (and other new ones) can only be implemented if an air conditioner front operating and display unit (Climatronic control unit - J255-) with part number from index “J” onwards (can be seen e.g. from A/C button) and a remote control receiver for auxiliary heater - R64- with part number 4H0 963 271 from index “D” onwards are fitted (exact date of introduction for Audi A8 not yet finalised, gradual introduction planned from model year 2014 onwards) ⇒ Electronic parts catalogue .*
- *The remote control receiver for auxiliary heater - R64- exchanges data with the air conditioner front operating and display unit (Climatronic control unit - J255-) via the auxiliary heater control unit - J364- .*
- *The hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- exchange information via the auxiliary heater aerial - R182- (fitted in the roof aerial - R216-) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *Vehicles with an air conditioner front operating and display unit (Climatronic control unit - J255-) with part number up to index “H” (can be seen e.g. from AC button) must only be fitted with a remote control receiver for auxiliary heater - R64- with part number 4H0 963 271 up to index “C” (exact date of introduction for Audi A8 not yet finalised, gradual introduction planned from model year 2014 onwards) ⇒ Electronic parts catalogue .*
- *Vehicles with an air conditioner front operating and display unit (Climatronic control unit - J255-) with part number from index “J” onwards (can be seen e.g. from A/C button) must only be fitted with a remote control receiver for auxiliary heater - R64- with part number 4H0 963 271 from index “D” onwards (exact date of introduction for Audi A8 not yet finalised, gradual introduction planned from model year 2014 onwards) ⇒ Electronic parts catalogue .*

- *Make sure the hand-held transmitters for remote control and the remote control receiver for auxiliary heater - R64- are correctly assigned. Hand-held transmitters for remote control with part number without index or with index “A” can exchange data correctly with a -R64- with part number 4H0 963 271 up to index “C”. Certain data cannot be exchanged with a -R64- with part number 4H0 963 271 from index “D” onwards.*
- *Hand-held transmitters for remote control with part number from index “B” onwards can exchange data correctly with an -R64- with part number 4H0 963 271 up to index “C” and from index “D” onwards. These hand-held transmitters can identify the version via the signal from -R64- and adapt their transmission signal accordingly.*

Functions of hand-held remote control transmitter



Note

- *The main functions of the remote control are listed in the following. For a detailed functional description of this remote control, refer to the ⇒ Owner's Manual .*
- *The LCD of the remote control is activated by pressing button -A-.*

-A- Activation of remote control and selection of menus (“Immediate on” and “Timer”)

-B- Down button

-C- “Timer” display

-D- “Immediate on” display

-E- LCD

-F- Up button

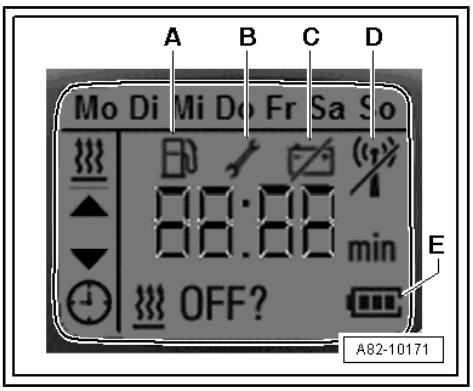
-G- Activation/deactivation of auxiliary heater with required operating time and timer programming

-A- Activation of remote control and selection of menus (“Immediate on” and “Timer”)

6.3.8 Display of fault conditions on remote control for auxiliary heater (with display)

Heating not possible:

-A- Not enough fuel in the tank



Note

When the ignition is switched on, the fuel gauge in the instrument cluster must not be in the “red zone”.

-B- Event memory entry in auxiliary heater control unit - J364-

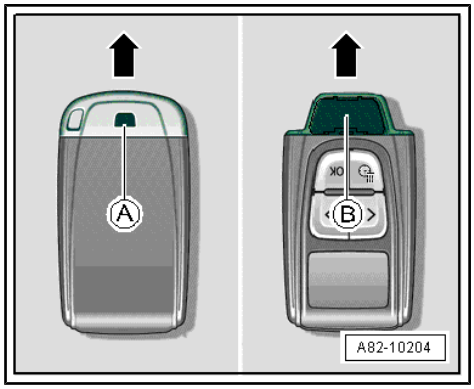
-C- Vehicle battery charge level too low

-D- No radio link with vehicle (outside range)

Battery capacity:

-E- Battery capacity of remote control

6.3.9 Renewing battery for remote control for auxiliary heater (with display)



– Press release tab -A- and detach cover in direction of -arrow-.
– Press release tab -B- on battery carrier and pull out battery carrier in direction of -arrow-.
– Fit new battery with “positive terminal” facing downwards.

Note

- *Only fit batteries with specifications corresponding to the original battery (e.g. CR2430 3V 280mAh). You can obtain these batteries e.g. from specialised dealers or via the replacement parts programme ⇒ Electronic parts catalogue .*
- *Pressing any button on the remote control for auxiliary heater (with display) activates the LCD. Repeated unintentional activation of the LCD (e.g. while in your pocket) will shorten battery service life.*

6.3.10 Adaption of remote control for auxiliary heater

Note

- *The remote control for auxiliary heater should be held upright (transmission aerial upwards) while pressing the buttons.*
- *Currently up to four remote controls can be adapted in the remote control receiver for auxiliary heater - R64- (via auxiliary heater control unit - J364-). If a fifth remote control is adapted, the first remote control that was adapted is deleted.*
- *The remote control for auxiliary heater is adapted in the remote control receiver for auxiliary heater - R64- . If this is renewed, all remote controls must be re-adapted.*
- *There are different versions of the remote control receiver for auxiliary heater - R64- . It is therefore important to ensure the correct assignment to the remote control and correct encoding of the auxiliary heater ⇒ "6.3.7 Remote control for auxiliary heater (with display)", page 125 , ⇒ Electronic parts catalogue and ⇒ Vehicle diagnostic tester "Guided Fault Finding" function.*
- *The remote control for auxiliary heater can be adapted with the "Remote control adaption" function via the auxiliary heater control unit - J364- ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.*
- *As the battery of the remote control for auxiliary heater becomes weaker, the transmission power and thus the reception quality deteriorate. The current battery capacity is indicated in the display of the remote control (with display) ⇒ page 127 . The reception quality of the transmission signal is displayed in the "Read measured values" function of the auxiliary heater control unit - J364- ⇒ Vehicle diagnostic tester in "Guided Fault Finding " mode.*
- *The code of each remote control for auxiliary heater is stored in the remote control receiver for auxiliary heater - R64- .*
- *In the event of adaption problems, check the aerial connector and attempt to adapt the remote control for auxiliary heater in the luggage compartment if necessary.*
- *Should it not be possible to switch on the auxiliary heater using the remote control for auxiliary heater, check the fuel level in the fuel tank (there must be a sufficient amount of fuel) and the operating status of the vehicle (transport mode must not be active). If these two shut-off criteria were recently active, e.g. on a new vehicle, it may be necessary to briefly interrupt the power supply to the auxiliary heater and the remote control receiver for auxiliary heater - R64- to restore the normal function (auxiliary heater "reset").*

Important

The remote control to be used must be coded in the auxiliary heater control unit - J364- (remote control with or without display).

– If applicable, check coding and remote control receiver for auxiliary heater - R64- and encode auxiliary heater control unit - J364- accordingly (remote control with or without display) ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Adapting remote control for auxiliary heater

– Connect battery charger.

– Switch on ignition and switch off all electrical equipment.
– On vehicle diagnostic tester, select “Supplementary/auxiliary heater” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
– Select “Remote control adaption” function and follow program sequence indicated on display ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.