

Workshop Manual Audi A8 1994 >

Fuel supply system, diesel engines

Engine ID

AFB

AKE

AKF

AKN

Edition 12.2007

List of Workshop Manual Repair Groups

Repair Group

20 - Fuel supply system



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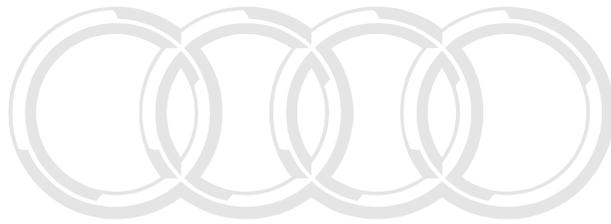
Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of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

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20 – Fuel supply system

1 General repair instructions

1.1 Safety precautions

When removing and installing components from a full or partly full fuel tank, note the following:

- ◆ Fuel tank must not be full. The amount of fuel which can be left in the tank is indicated in the corresponding procedure description. Drain the tank if necessary. Procedure with intact fuel delivery unit ⇒ [page 4](#) ; procedure with defective fuel delivery unit ⇒ [page 5](#) .
- ◆ Before commencing work, switch on exhaust extraction system and place an extraction hose close to the sender opening in the fuel tank to extract escaping petrol fumes. If no exhaust extraction system is available, a radial fan with a displacement of at least 15 m³/h can be used (the fan motor must be clear of the air stream).
- ◆ Avoid skin contact with fuel. Wear fuel-resistant gloves.

When removing and installing the fuel tank, note the following:

- ◆ Fuel tank must be empty to reduce weight. Drain the tank if necessary. Procedure with intact fuel delivery unit ⇒ [page 4](#) ; procedure with defective fuel delivery unit ⇒ [page 5](#) .

1.2 Rules for cleanliness

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Even small amounts of dirt can cause malfunctions. When working on the fuel supply system and injection system, pay careful attention to the following basic rules:

- ◆ Thoroughly clean all unions and surrounding areas before disconnecting.
- ◆ Seal off open lines and connections with clean plugs or sealing caps immediately.
- ◆ Place parts that have been removed on a clean surface and cover them over. Use only lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation. Do not use parts that have been previously unpacked and stored away loose (e.g. in toolboxes, etc.).
- ◆ When the system is open: Do not work with compressed air. Do not move the vehicle unless absolutely necessary.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.
- ◆ Please ensure that no diesel fuel contacts coolant hoses. Should this occur, the coolant hoses must be cleaned immediately. Renew coolant hoses if damaged.

1.3 Test conditions

- Battery voltage at least 12.5 V



- Fuel pump fuse OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Fuel pump relay -J17- OK: vehicles with 6-cylinder engine ⇒ [page 17](#) , vehicles with 8-cyl. engine ⇒ [page 23](#) .
- Electric fuel pump 2 relay -J49- OK: only fitted on vehicles with 8-cyl. engines ⇒ [page 41](#) ..
- Fuel tank at least $\frac{1}{4}$ full.
- Fuel filter OK
- Fuel lines OK (not obstructed or crushed).

1.4 Contact corrosion!

Contact corrosion can occur if unsuitable fasteners are used (e.g. bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are used.

Additionally, all rubber and plastic parts and all adhesives are made of non-conductive materials.

Always install new parts if you are not sure whether used parts can be re-fitted ⇒ Electronic parts catalogue .

Note the following:

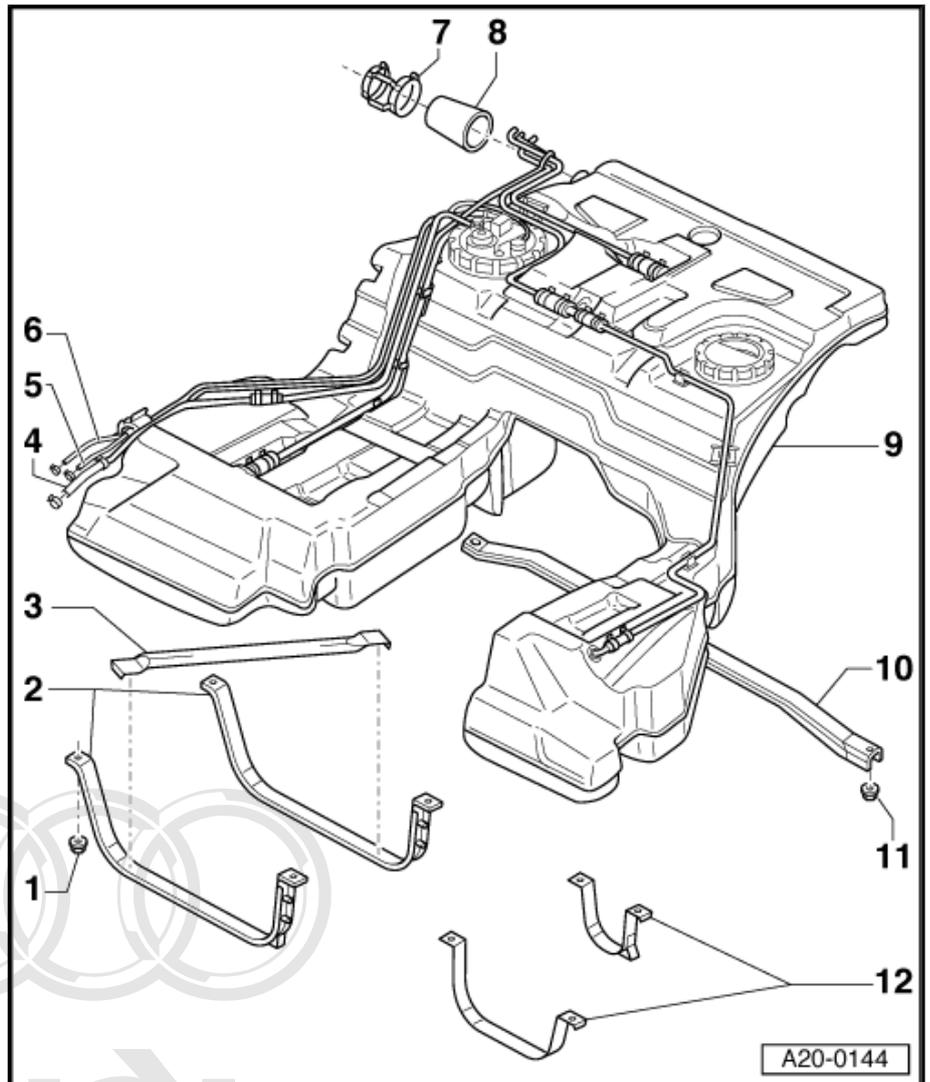
- ◆ We recommend using only genuine replacement parts; these have been tested and are compatible with aluminium.
- ◆ We recommend the use of Audi accessories.
- ◆ Damage caused by contact corrosion is not covered under warranty.

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2 Fuel tank

2.1 Fuel tank with attached components - exploded view

- 1 - Nut**
 - 23 Nm
- 2 - Securing strap**
 - Different lengths
- 3 - Cross piece**
 - Installation position
⇒ [page 4](#)
 - Flexible spacers must be fitted between cross piece and securing straps
- 4 - Supply pipe**
 - To fuel filter
- 5 - Supply pipe**
 - To auxiliary/supplementary heater
- 6 - Return pipe**
 - From fuel filter
 - Is routed as a double pipe along underside of vehicle, ending in a Y-connector. Removing and installing
⇒ [page 4](#)
- 7 - Double clamp**
 - Installation position
⇒ [page 4](#)
- 8 - Bottom connecting hose**
- 9 - Fuel tank**
 - Removing and installing
⇒ [page 6](#)
- 10 - Cross member**
 - For fuel tank
- 11 - Nut**
 - 23 Nm
- 12 - Securing strap**
 - Different lengths

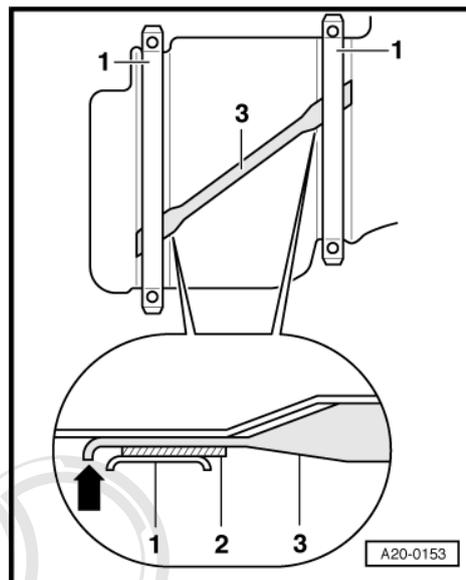


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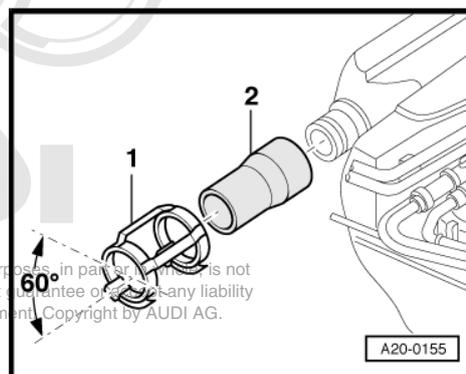
Installation position of cross piece

- Curved ends -arrow- of cross piece -3- face downwards.
- Flexible spacers -2- must be fitted between cross piece and securing straps -1-.



Installation position of double clamp

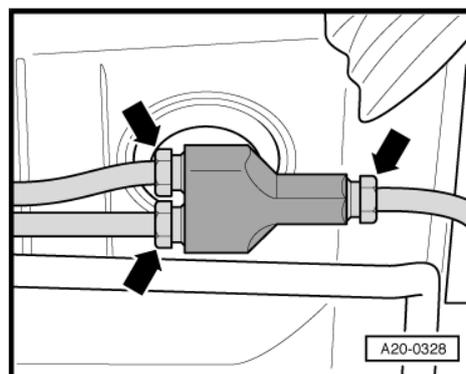
- The bolt connections of double clamp -1- for bottom connecting hose -2- must face downwards at an angle of 60°.



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Removing and installing Y-connector for fuel return pipe

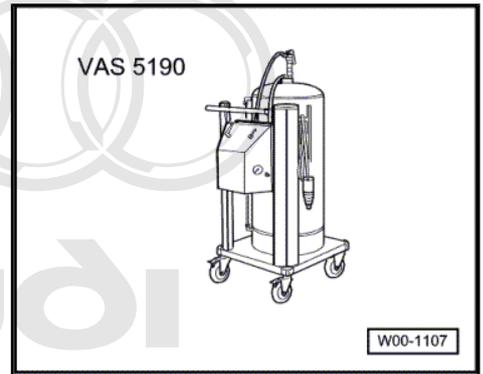
- ◆ The fuel return pipe is routed as a double pipe along the underside of the vehicle to enhance fuel cooling.
- ◆ Tighten unions -arrows- to 15 Nm.



2.2 Draining fuel tank with intact fuel delivery unit

Special tools and workshop equipment required

◆ Fuel extractor unit -VAS 5190-

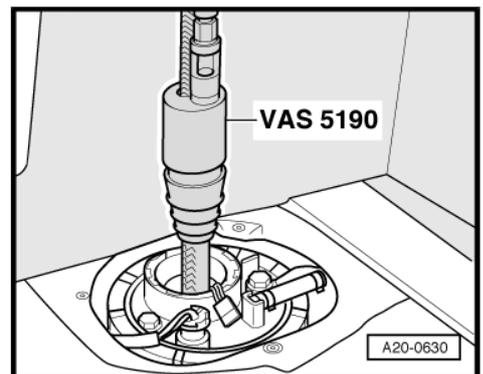


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Procedure

Proceed as follows:

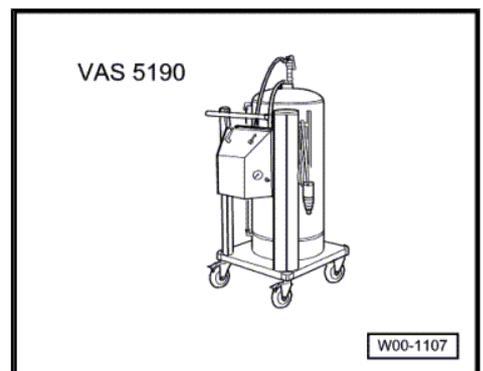
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Briefly open filler cap on fuel filler neck to dissipate pressure and close again.
- Remove fuel gauge sender -G- (right-side) ⇒ [page 54](#) .
- Use fuel extractor unit -VAS 5190- to extract all fuel from right fuel tank chamber through opening for fuel gauge sender.
- Start engine and run at idling speed for 6 ... 8 minutes to allow suction jet pump to convey remaining fuel from left to right side of fuel tank.
- Switch off ignition.
- Use fuel extractor unit -VAS 5190- for a second time to extract all fuel from right fuel tank chamber through opening for fuel gauge sender.
- Install fuel gauge sender -G- (right-side) ⇒ [page 54](#) .



2.3 Draining fuel tank with defective fuel delivery unit

Special tools and workshop equipment required

◆ Fuel extractor unit -VAS 5190-



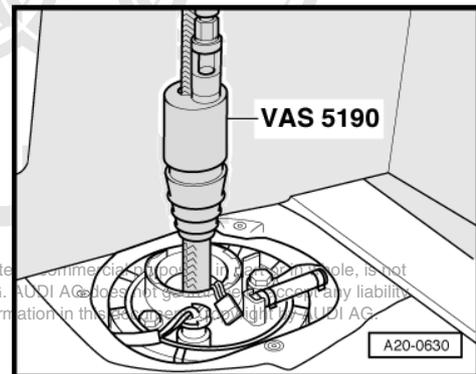
Procedure

Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .



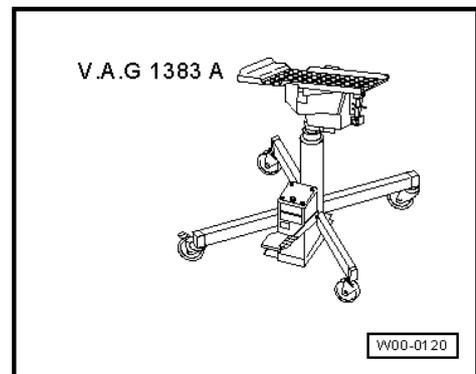
- Remove fuel gauge sender -G- (right-side) ⇒ [page 54](#) .
- Use fuel extractor unit -VAS 5190- to extract all fuel from right fuel tank chamber through opening for fuel gauge sender.
- Remove fuel gauge sender 2 -G169- (left-side) ⇒ [page 56](#) .
- Use fuel extractor unit -VAS 5190- to extract all fuel from left fuel tank chamber through opening for fuel gauge sender.
- Install fuel gauge sender -G- (right-side) ⇒ [page 54](#) .
- Install fuel gauge sender 2 -G169- (left-side) ⇒ [page 56](#) .



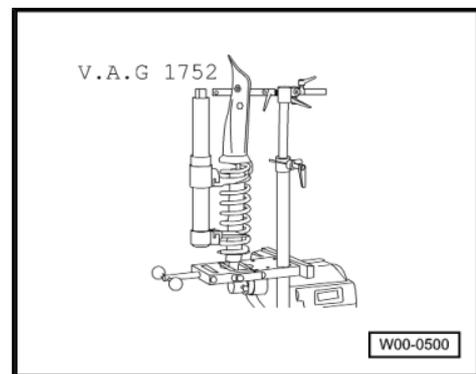
2.4 Removing and installing fuel tank with attached components

Special tools and workshop equipment required

- ◆ Engine and gearbox jack -V.A.G 1383 A-



- ◆ Suspension strut tensioner -V.A.G 1752-



Removing

Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .



WARNING

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when it is removed.*

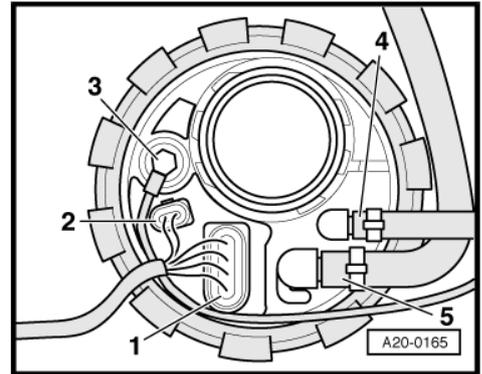
- Drain fuel tank ⇒ [page 4](#) .

- Release and unplug electrical connectors -1- and -2- on flange (right-side).

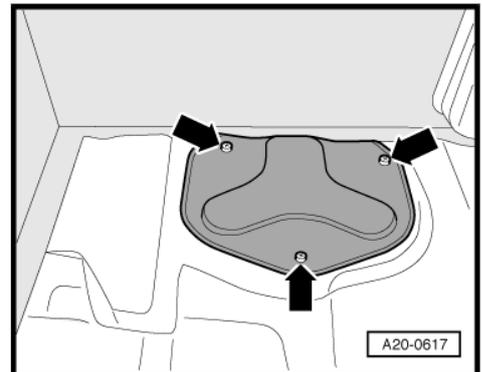


Note

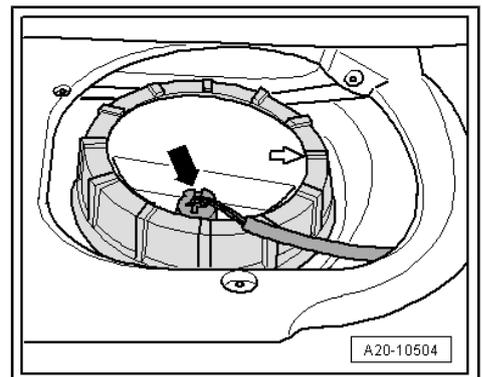
Disregard items -3, 4 and 5-



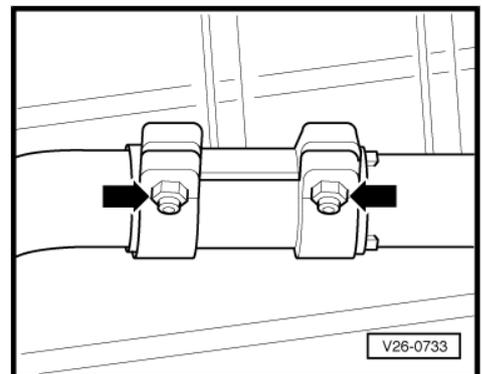
- Remove bolts -arrows- on the left under floor trim in luggage compartment and detach cover.



- Release and unplug electrical connector -arrow- from flange (left-side).
- Tie up unattached wiring in luggage compartment.

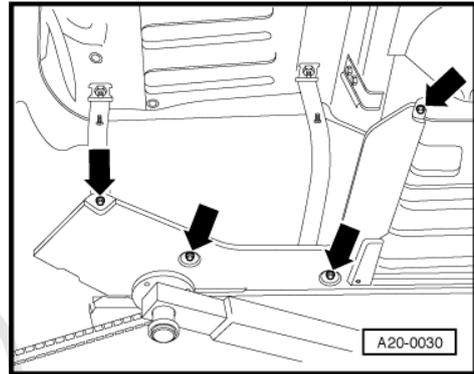


- Remove both rear wheels.
- Disconnect exhaust system at clamp -arrows-.
- Disengage and detach rear section of exhaust system.
- Remove heat shields in front of and behind rear axle.

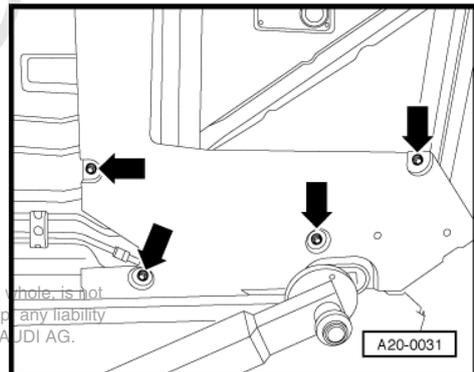


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- Remove bolts -arrows- and remove cover on underside of vehicle body (left-side).

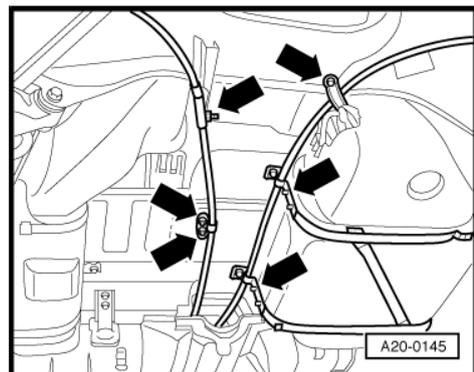


- Remove bolts -arrows- and detach cover on underside of vehicle body (right-side).



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- Unfasten retainers -arrows- for handbrake cables and move handbrake cables clear.
- Disengage handbrake cables at brake calipers → Rep. Gr. 46 .



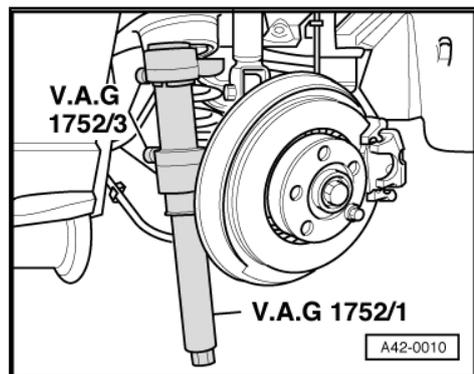
Vehicles with front-wheel drive:

- Apply spring tensioner -V.A.G 1752/1- with spring holder - V.A.G 1752/3- at rear axle coil spring.

 **WARNING**

Risk of accident.

◆ *Check coil spring is seated correctly in spring holder - V.A.G 1752/3- .*



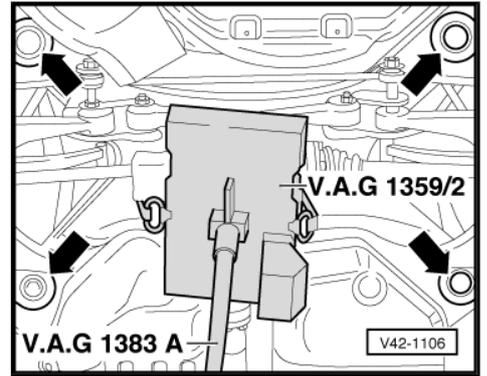
- Compress spring far enough so it can be removed.
- Perform the same work steps on the other side of the vehicle.

- Position engine and gearbox jack -V.A.G 1383 A- below subframe.
- Remove bolts -arrows- for subframe.
- Carefully lower subframe and leave it suspended from shock absorbers.

 **Caution**

Avoid damage to shock absorbers.

◆ *Secure the subframe with bolts if the fuel tank is not going to be re-installed soon.*



Vehicles with four-wheel drive:

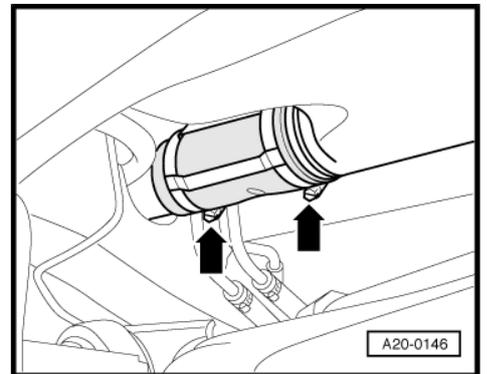
- Remove rear axle ⇒ Rep. Gr. 42 .

All vehicles (continued):

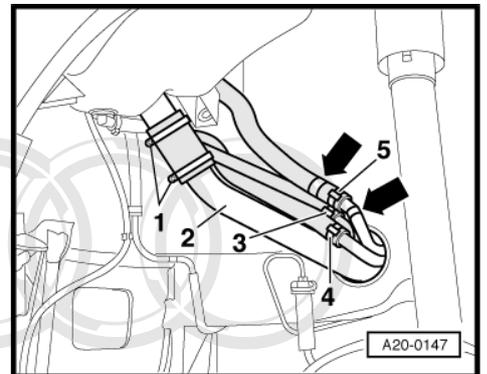
- Remove rear right wheel housing liner ⇒ Rep. Gr. 66 .
- Slacken double clamp at bottom connecting hose between fuel tank and fuel filler pipe -arrows-.

 **Note**

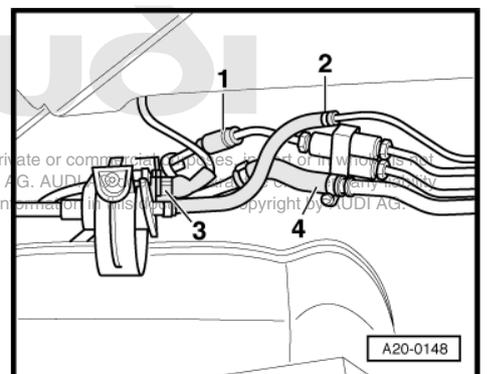
Bottom connecting hose must remain on fuel tank connection.



- Unfasten hose clips -1- at upper connecting hose between expansion chamber and fuel filler pipe -2-.
- Slide upper connecting hose off expansion chamber onto fuel filler pipe -2- and detach fuel filler pipe from fuel tank through opening in longitudinal member.
- Mark breather hoses -3, 4, 5- for re-installation (if not already marked) and detach from pipes.



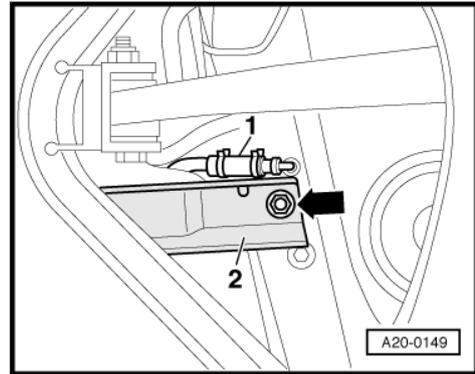
- Unplug electrical connector -3- at metering pump for auxiliary/additional heater.
- Detach fuel pipes:
 - 1 - Detach fuel return pipe.
 - 2 - Disconnect fuel supply pipe to metering pump.
 - 4 - Disconnect supply pipe from front right of fuel tank.



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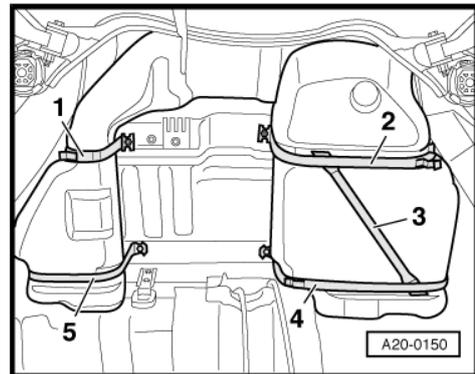
- Disengage electrical connector -1- on both sides from bracket on cross member -2- for fuel tank.
- Remove nuts -arrow- on both sides and detach cross member for fuel tank.

**WARNING**

Risk of accident caused by weight of fuel tank

- ◆ *Fuel tank must be empty when it is removed.*

- Remove nuts and detach front securing straps -4- and -5-.
- Position engine and gearbox jack -V.A.G 1383 A- below right fuel tank chamber and support fuel tank.
- Remove nuts and detach rear securing straps -1- and -2-.
- Use engine and gearbox jack -V.A.G 1383 A- to slowly lower fuel tank with the help of a second mechanic (guide breather pipes through opening in longitudinal member).

**Caution**

Avoid damage to breather pipes.

- ◆ *Do not kink breather pipes.*

- Detach cross piece -3-.

Installing

- Tightening torque ⇒ [page 3](#) .

Installation is carried out in the reverse order; note the following:

**Note**

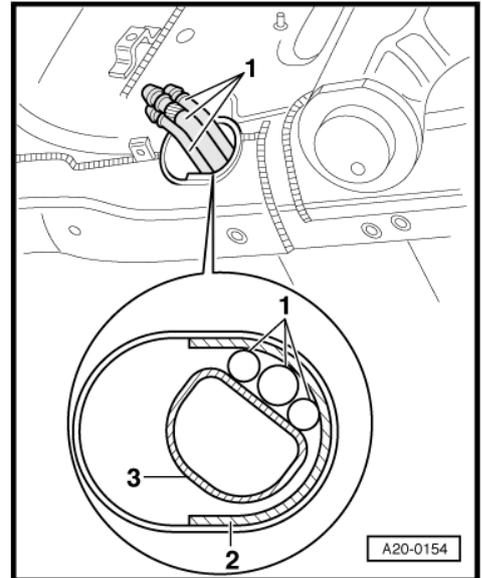
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue.

- Make sure wires to ABS speed sensors are routed correctly.

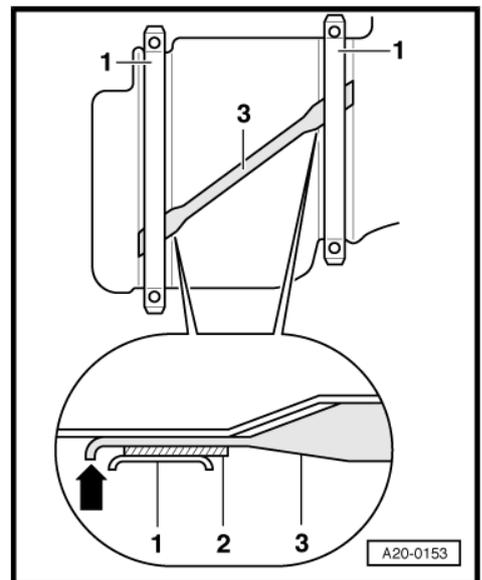


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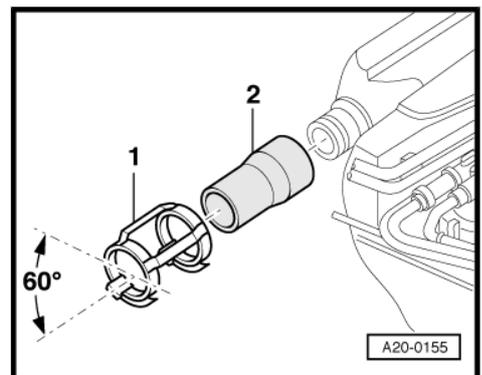
- First guide breather pipes -1- through opening in longitudinal member, then move fuel tank to its final installation position.
- Make sure flexible spacer -2- is inserted in opening as shown.
- Attach fuel filler pipe -3- onto connecting hose at bottom of fuel tank.



- When fitting securing straps -1-, position cross piece -3- with curved ends facing downwards -arrow-.
- Ensure that flexible spacers -2- are fitted.



- Fit double clamp -1- for bottom connecting hose -2-.
- The bolt connections must face downwards at an angle of 60°.
- Install subframe and rear axle ⇒ Rep. Gr. 42 .
- Install handbrake cables ⇒ Rep. Gr. 46 .
- Align the exhaust system so it is free of stress ⇒ Rep. Gr. 26 .
- Install rear wheel housing liner ⇒ Rep. Gr. 66 .



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2.5 Fuel expansion chamber - exploded view



Note

Observe safety precautions when working on fuel expansion chamber ⇒ [page 1](#).

1 - Earth connection

- Installation position
⇒ [page 13](#)

- Ensure that connector is seated firmly on metal ring of fuel filler neck

2 - Breather pipe

- From fuel tank

3 - Breather pipe

- From fuel tank

4 - Breather pipe

- From fuel tank
- White marking

5 - Breather pipe

- From gravity valve
- Vents to atmosphere

6 - Breather pipe

- From expansion chamber to gravity valve

7 - Gravity valve

- Not supplied separately
- To remove valve, unclip upwards out of filler neck
- Checking operation:

◆ Valve vertical: open

◆ Valve tilted 45°: closed

8 - O-ring

- Not supplied separately

9 - Fuel expansion chamber

- Remove wheel housing liner before removing ⇒ Rep. Gr. 66

10 - Rubber cup

11 - Filler cap

12 - Seal

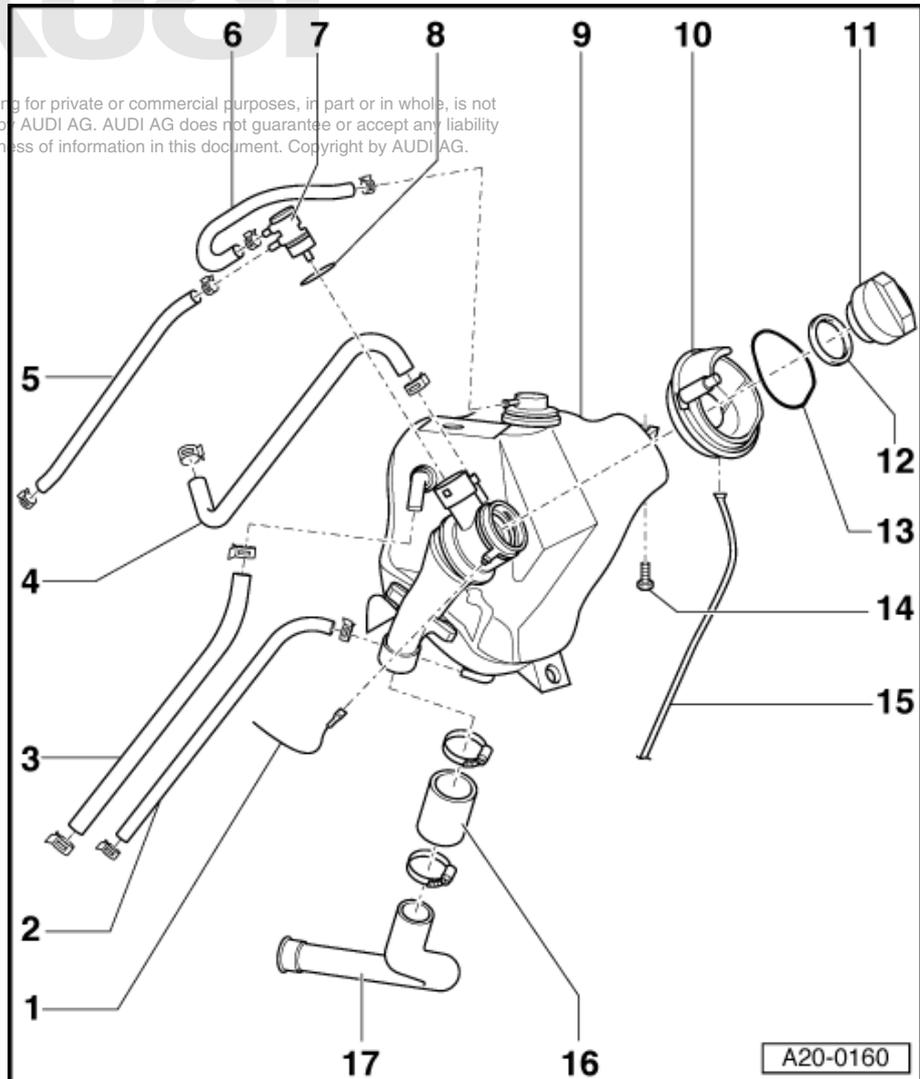
- Renew if damaged

13 - Retaining ring

- For rubber cup

14 - Bolt

- 10 Nm



15 - Overflow hose

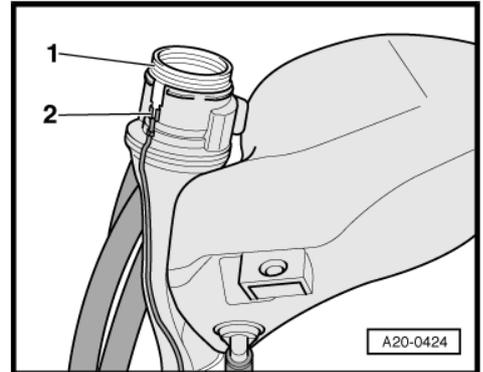
16 - Connecting hose

- To remove expansion chamber, slip connecting hose over fuel filler pipe -Item 17-

17 - Fuel filler pipe

Installation position of earth connection

- Ensure that connector for earth connection -2- is properly seated on metal ring -1- at fuel filler neck.
- After installing fuel expansion chamber, use an ohmmeter to check the electrical connection between the metal ring on the fuel filler neck and a bare metal part on the body:
- ◆ Specification: approx. 0 Ω
- Check attachment of earth connection at earth point next to battery if specification is not attained.



WARNING

Risk of explosion caused by electrostatic discharge.

- ◆ *Ensure that earth connection is screwed on and connector is properly seated on fuel filler neck.*



3 Fuel delivery unit and fuel gauge senders

3.1 Fuel delivery unit and fuel gauge senders - exploded view

1 - Seal

- Renew
- When installing, fit seal (dry) in opening in fuel tank

2 - Fuel delivery unit

- With low fuel level sender -G210-
- Renew only as complete unit
- Removing and installing ⇒ [page 32](#)
- Checking fuel system pressurisation pump - G6- (electrical test) ⇒ [page 29](#)

3 - Sealing element

- Renew

4 - O-ring

- Renew

5 - Fuel gauge sender -G-

- Checking resistance values ⇒ [page 51](#)
- Removing and installing ⇒ [page 54](#)

6 - Spring

7 - Flange for fuel gauge sender -G-

- Loosen and tighten with removal and assembly tool -2012 A- ⇒ [page 54](#)

- Loosen by turning in clockwise direction, tighten by turning in anti-clockwise direction

8 - Return pipe

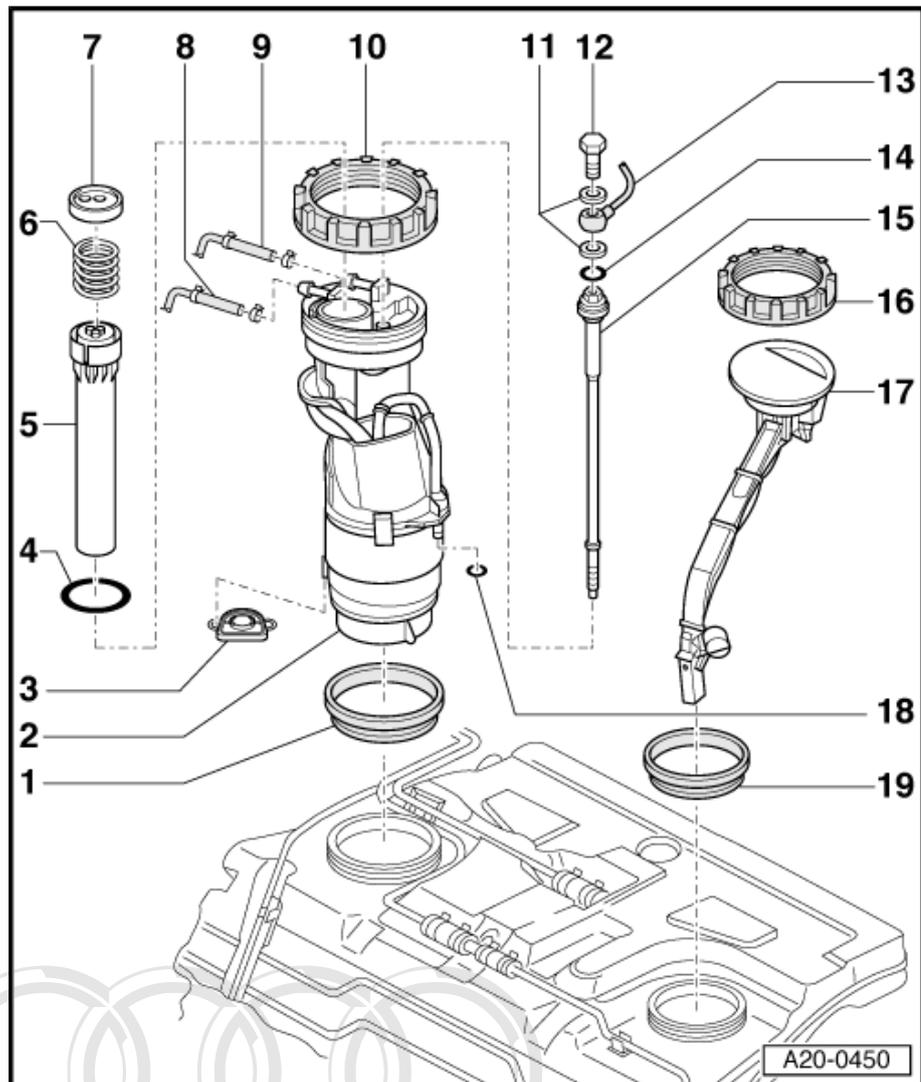
- Ø 8 mm
- From fuel filter
- Clipped onto fuel tank

9 - Supply pipe

- Ø 12 mm
- To fuel filter
- Clipped onto fuel tank

10 - Union nut

- Loosen and tighten with union nut tool -T40068-
- 70 Nm



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11 - Seal

- Renew

12 - Banjo bolt

- 13 Nm

13 - Supply pipe

- To auxiliary/supplementary heater

14 - O-ring

- Renew
- Installation position ⇒ [page 15](#)

15 - Bolt

- Hollow bolt with fitted restrictor pipe
- Installation position ⇒ [page 15](#)
- 20 Nm

16 - Union nut

- Loosen and tighten with union nut tool -3217-
- 60 Nm

17 - Fuel gauge sender 2 -G169-

- Checking resistance values ⇒ [page 51](#)
- Removing and installing ⇒ [page 56](#)

18 - O-ring

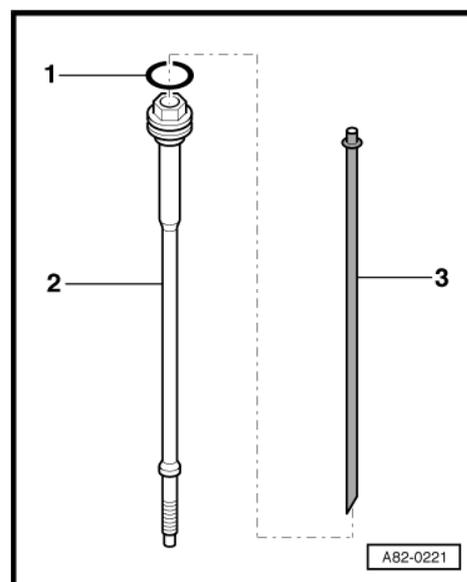
- Renew

19 - Seal

- Renew
- When installing, fit seal (dry) in opening in fuel tank

Installation position of O-ring and restrictor pipe

- Fit new O-ring -1- onto bolt -2-.
- Make sure restrictor pipe -3- is fitted in hollow bolt.



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3.2 Description of operation



Note

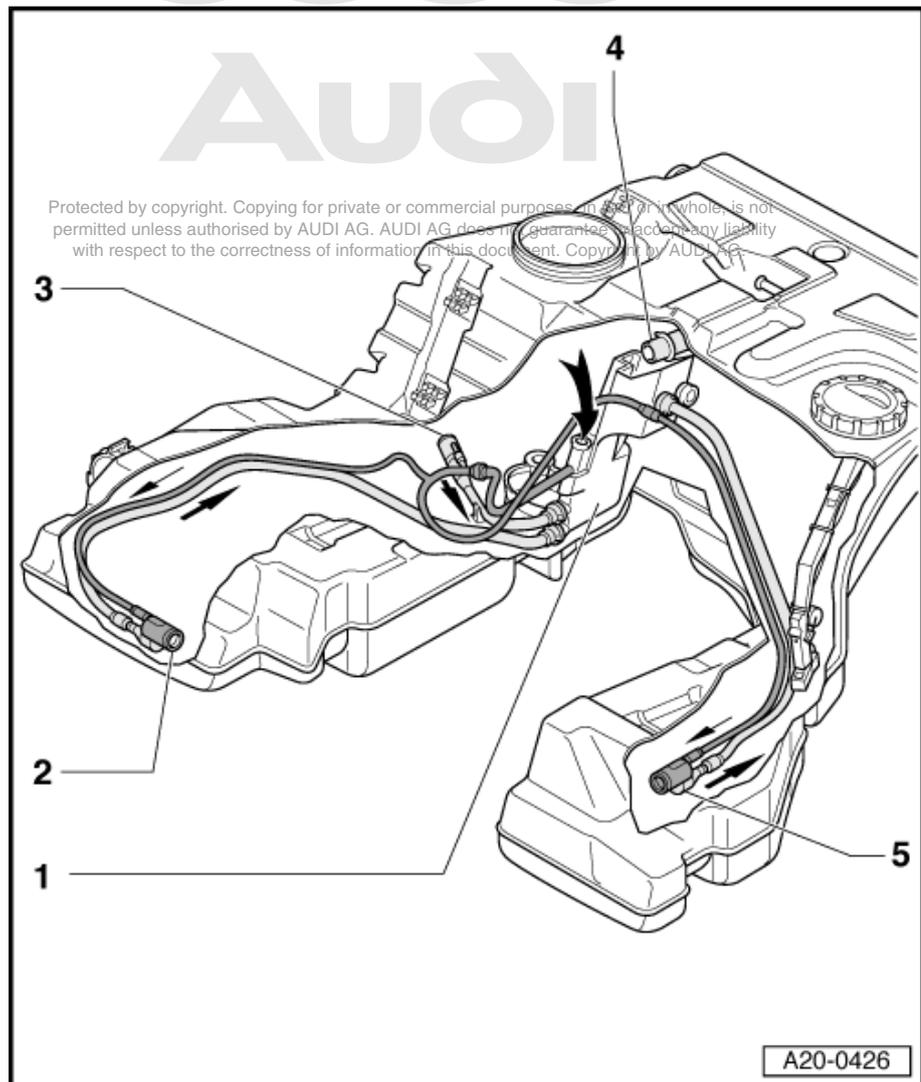
Fuel is drawn out of the fuel tank baffle housing by the high-pressure pump of the diesel direct-injection system. The fuel system pressurisation pump -G6- serves only to operate the suction-jet pumps.

2 - Suction-jet pump

3 - Suction-jet pump

5 - Suction-jet pump

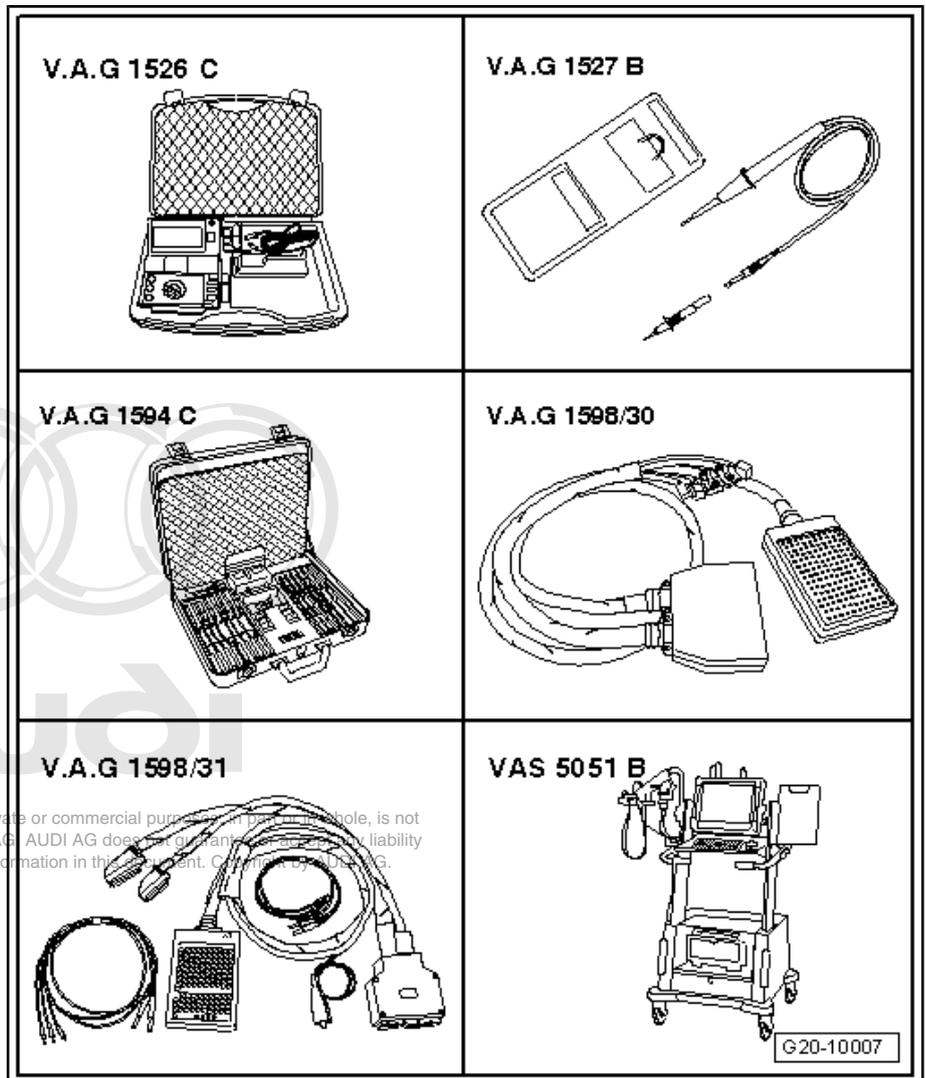
- ◆ The fuel system pressurisation pump -G6- is located in a baffle housing (not shown on illustration).
- ◆ It generates a stream of fuel (thick arrow), which is forced through a nozzle in three suction-jet pumps -2, 3, 5- and is thus accelerated. As a result of this accelerated flow, the surrounding fuel in the individual chambers is entrained and conveyed via a pipe system to the adapter plate -1- of the baffle housing.
- ◆ The fuel system pressurisation pump -G6-, the suction jet pump system and the baffle housing form a closed circuit in the fuel tank.
- ◆ To ensure reliable engine starting, the baffle housing must always be filled with fuel. To guarantee that this is the case even when the tank is refuelled with small quantities, the filler pipe -4- is routed directly into the adapter plate -1- of the baffle housing. The fuel is thus routed directly to the fuel delivery unit.



3.3 Checking fuel pump relay -J17- and activation - vehicles with 6-cylinder engine

Special tools and workshop equipment required

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Voltage tester -V.A.G 1527B-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter -V.A.G 1598/30- (engine code letters: AFB with manual gearbox or automatic gearbox: AKN with manual gearbox)
- ◆ Adapter cable, 121-pin - V.A.G 1598/31- (engine code letters: AKE with manual gearbox or automatic gearbox: AKN with automatic gearbox)
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-



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Procedure

 **Note**

- ◆ *The voltage supply for the fuel system pressurisation pump - G6- is taken from fuel pump relay -J17- .*
- ◆ *The fuel pump relay -J17- will only close if the engine is turning over. In other words, the fuel pump relay is only earthed (via the diesel direct injection system control unit -J248-) when - J248- is receiving engine speed pulses.*

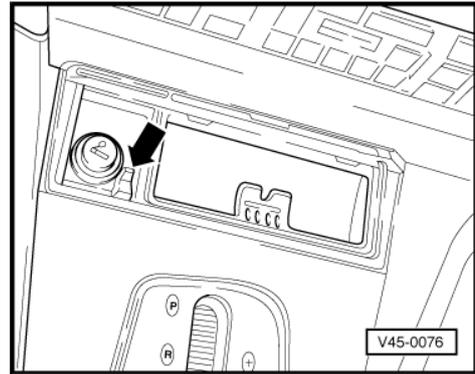
Proceed as follows:

- Observe test conditions ⇒ [page 1](#) .

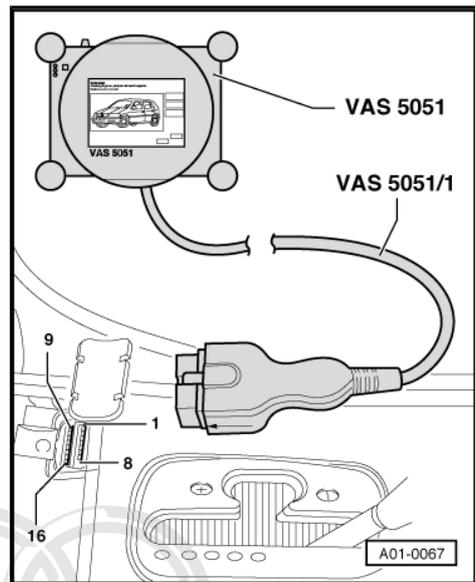


Vehicles up to 01.1999:

- Release ashtray from centre console by pressing small lever -arrow-.
- Take out ashtray and remove cover for diagnostic connector.

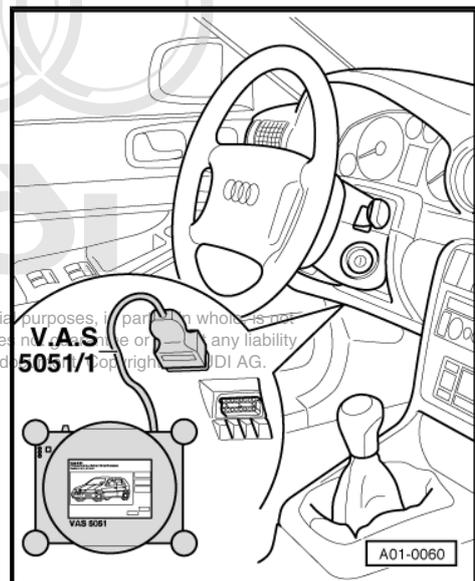


- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



Vehicles from 02.1999:

- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



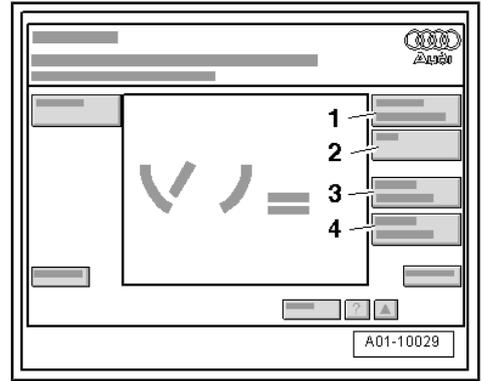
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V.A.S.
5051/1

All vehicles (continued):

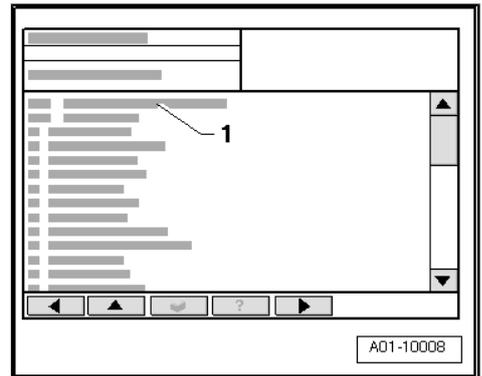
Display on -VAS 5051B- :

- Switch on ignition.
- Select Vehicle self-diagnosis from the list -item 1-.



Display on -VAS 5051B- :

- From menu -1-, select vehicle system "01 - Engine electronics" and press key to continue.

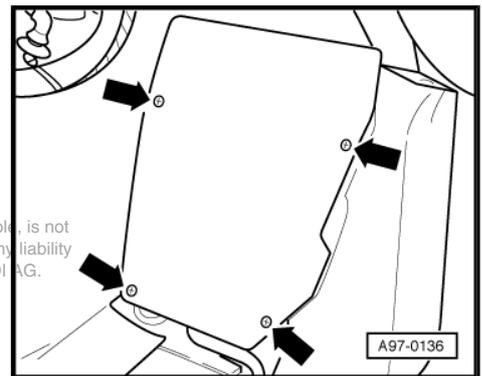


Display on -VAS 5051B- :

- From menu -1-, select diagnostic function "Final control diagnosis" and press key to continue.
- Press key repeatedly until fuel pump relay -J17- is activated.
- The fuel system pressurisation pump -G6- should run briefly at intervals of about 5 seconds (the pump can be heard at the rear right wheel housing).



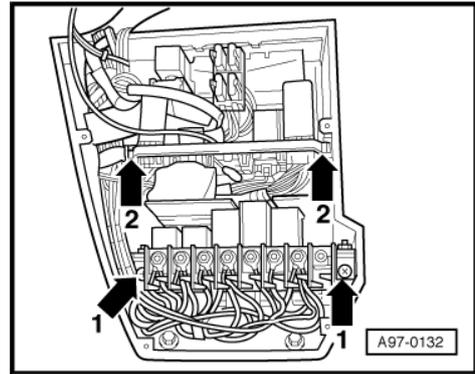
- If fuel system pressurisation pump -G6- is not activated, take out floor covering in front right footwell.
- Remove bolts -arrows- and detach cover for electronics box.



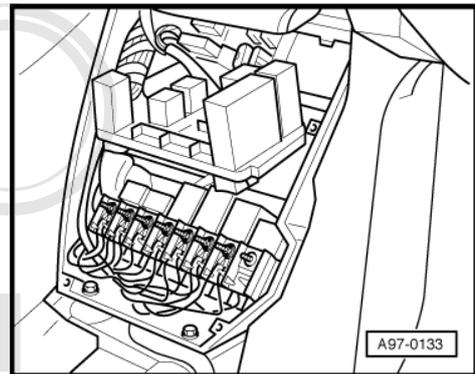
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- Pull auxiliary relay carrier out of guide rails -arrows 2- on both sides.



- Take auxiliary relay carrier out of electronics box.



- Operate starter.
- It should be possible to feel fuel pump relay -J17- pick up (relay is located on auxiliary relay carrier in electronics box in passenger's footwell, position 2), and fuel system pressurisation pump -G6- should start running (audible in boot - second mechanic required).

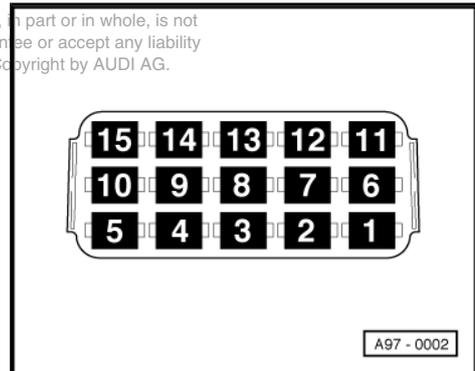
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A - If the fuel pump relay -J17- does not pick up:

- Check voltage supply of fuel pump relay -J17- => [page 20](#) .
- Check activation wiring of fuel pump relay -J17- => [page 21](#) .

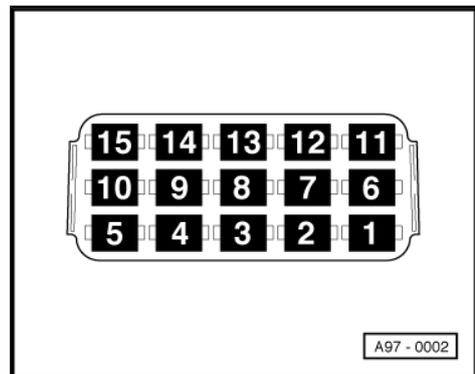
B - If the fuel pump relay -J17- picks up, but the fuel system pressurisation pump -G6- does not run:

- Check activation of fuel pump => [page 22](#) .
- Check fuel system pressurisation pump -G6- (electrical test) => [page 29](#) .



Checking voltage supply of fuel pump relay -J17-

- Fuse for fuel pump relay -J17- OK => Current flow diagrams, Electrical fault finding and Fitting locations.
- Detach fuel pump relay -J17- (located on auxiliary relay carrier in electronics box in passenger's footwell, position -2-).



- Connect voltage tester -V.A.G 1527B- as follows:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	Measure against
-2-	Earth
-6-	Earth

- Switch on ignition.
 - The LED lamp should light up in each case.
- If LED does not light up, connect adapter or adapter cable to connectors of wiring harness for diesel direct injection system control unit -J248- (do not connect control unit):
 - ◆ Adapter -V.A.G 1598/30- (engine code letters: AFB with manual gearbox or automatic gearbox: AKN with manual gearbox) ⇒ Rep. Gr. 23 .
 - ◆ Adapter cable, 121-pin -V.A.G 1598/31- (engine code letters: AKE with manual gearbox or automatic gearbox: AKN with automatic gearbox); earth clip must be connected to earth ⇒ Rep. Gr. 23 .
- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	-V.A.G 1598/30-	-V.A.G 1598/31-
2	1/1	1
6	1/1	1

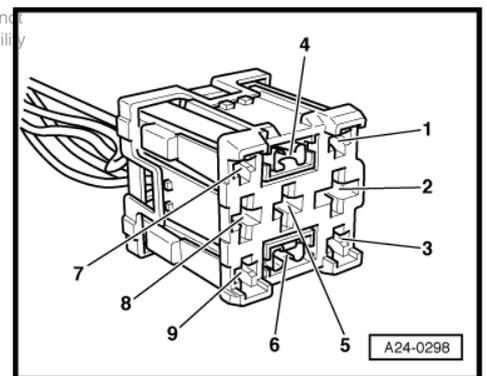
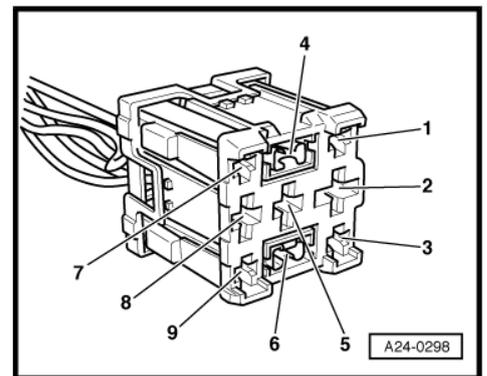
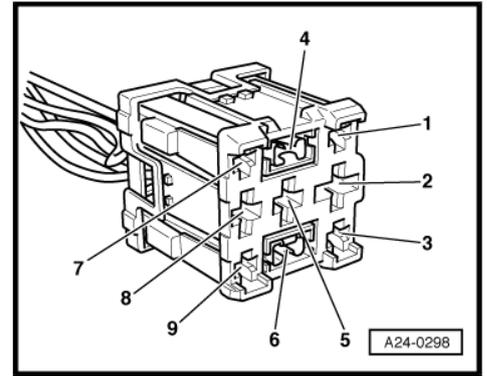
- Repair wiring connection if necessary ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Checking activation wiring of fuel pump relay -J17-

- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	-V.A.G 1598/30-	-V.A.G 1598/31-
4	4/10	80

- Repair wiring connection if necessary ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

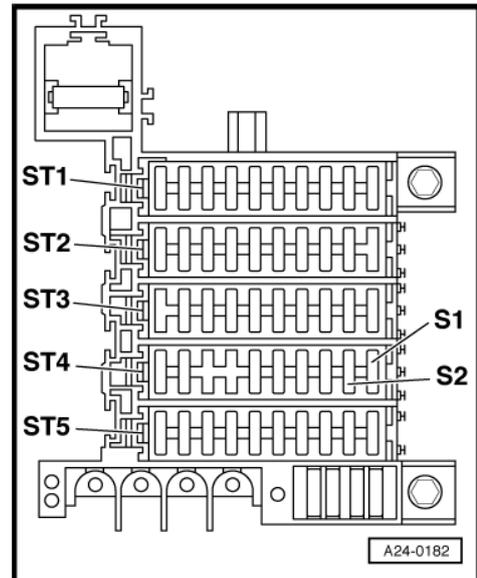
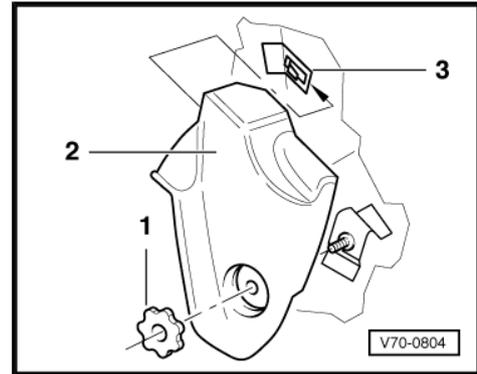




Checking activation of fuel system pressurisation pump -G6-

- Remove knurled screw -1-.
- Pull trim -2- to rear out of fastener -3- and detach.

- Pull out fuse in fuse holder -S1- from fuse carrier (blue) -ST4-.
- Connect hand-held multimeter -V.A.G 1526C- (voltage measurement range) to earth and top fuse contact.
- Briefly operate starter.
- Specification: approx. battery voltage.
- If specification is not attained, check wiring connection ⇒ Current flow diagrams, Electrical fault finding and Fitting locations .
- Renew fuel pump relay -J17- if wiring and all previous checks are OK.

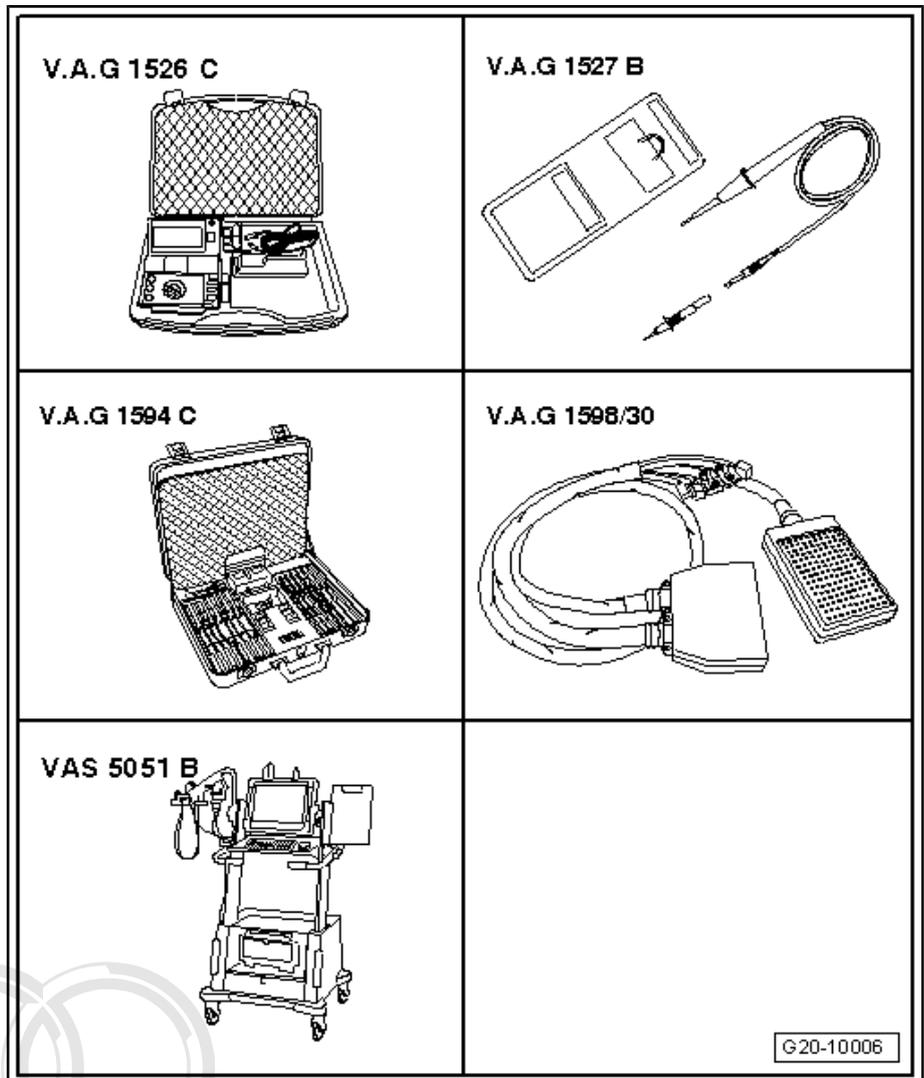


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3.4 Checking fuel pump relay -J17- and activation - vehicles with 8-cylinder engine

Special tools and workshop equipment required

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Voltage tester -V.A.G 1527B-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter -V.A.G 1598/30-
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-



Procedure

Note

- ◆ *The voltage supply for the fuel system pressurisation pump - G6- is taken from fuel pump relay -J17- .*
- ◆ *The fuel pump relay -J17- will only close if the engine is turning over. In other words, the fuel pump relay is only earthed (via the diesel direct injection system control unit -J248-) when - J248- is receiving engine speed pulses.*

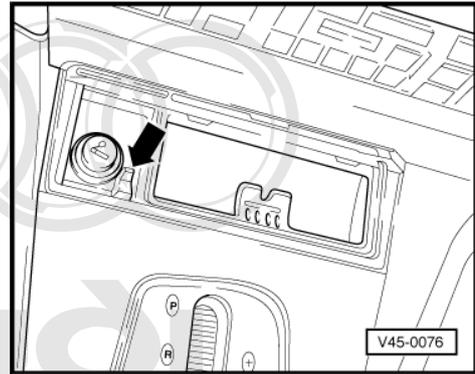
Proceed as follows:

- Observe test conditions ⇒ [page 1](#) .



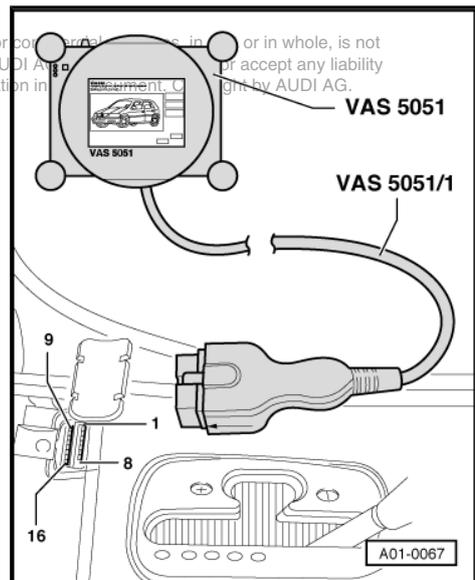
Vehicles up to 01.1999:

- Release ashtray from centre console by pressing small lever -arrow-.
- Take out ashtray and remove cover for diagnostic connector.



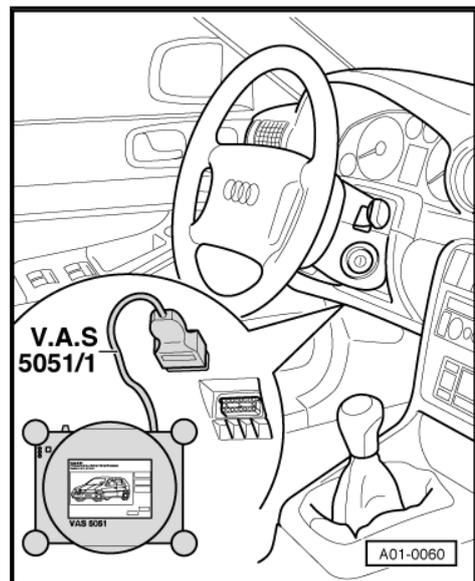
- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B-

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Vehicles from 02.1999:

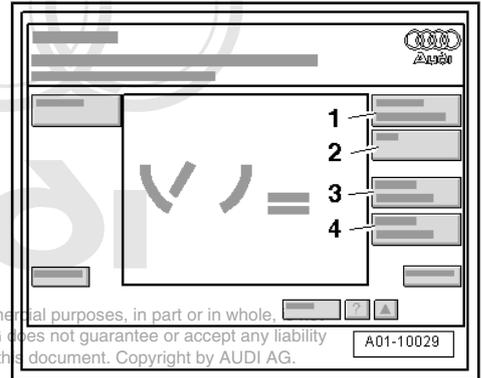
- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



All vehicles (continued):

Display on -VAS 5051B- :

- Switch on ignition.
- Select Vehicle self-diagnosis from the list -item 1-.



Display on -VAS 5051B- :

- From menu -1-, select vehicle system "01 - Engine electronics" and press key to continue.

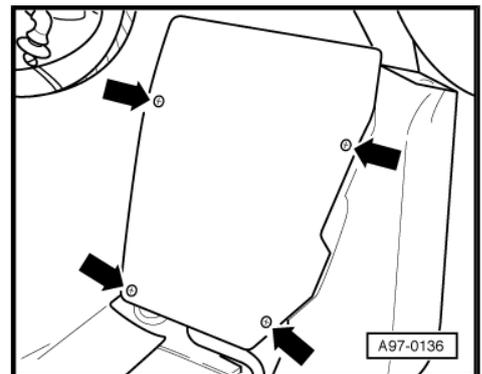


Display on -VAS 5051B- :

- From menu -1-, select diagnostic function "Final control diagnosis" and press key to continue.
- Press key repeatedly until fuel pump relay -J17- is activated.
- The fuel system pressurisation pump -G6- should run briefly at intervals of about 5 seconds (the pump can be heard at the rear right wheel housing).

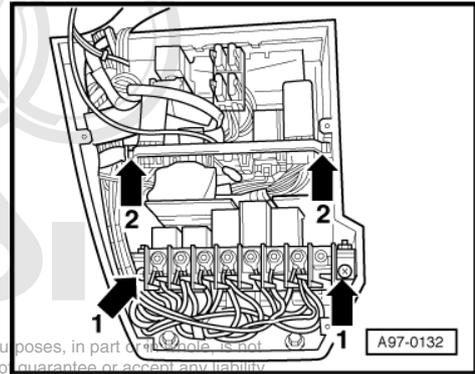


- If fuel system pressurisation pump -G6- is not activated, take out floor covering in front right footwell.
- Remove bolts -arrows- and detach cover for electronics box.



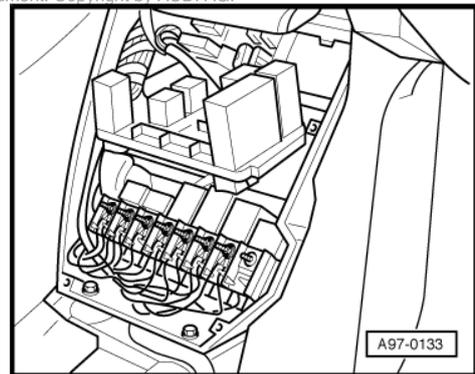


- Pull auxiliary relay carrier out of guide rails -arrows 2- on both sides.



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- Take auxiliary relay carrier out of electronics box.



- Operate starter.
- It should be possible to feel fuel pump relay -J17- pick up (relay is located on auxiliary relay carrier in electronics box in passenger's footwell, position 2), and fuel system pressurisation pump -G6- should start running (audible in boot - second mechanic required).

A - If the fuel pump relay -J17- does not pick up:

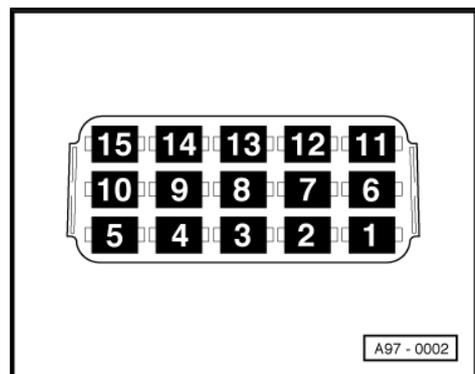
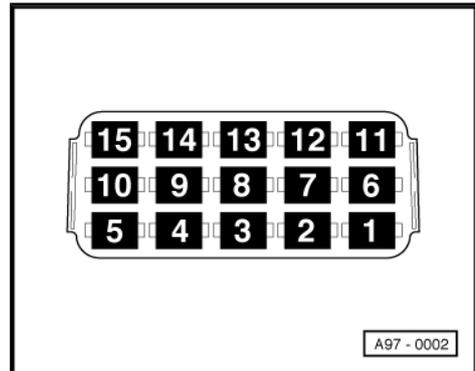
- Check voltage supply of fuel pump relay -J17- => [page 26](#) .
- Check activation wiring of fuel pump relay -J17- => [page 27](#) .

B - If the fuel pump relay -J17- picks up, but the fuel system pressurisation pump -G6- does not run:

- Check activation of fuel pump => [page 28](#) .
- Check fuel system pressurisation pump -G6- (electrical test) => [page 29](#) .

Checking voltage supply of fuel pump relay -J17-

- Fuse for fuel pump relay -J17- OK => Current flow diagrams, Electrical fault finding and Fitting locations.
- Detach fuel pump relay -J17- (located on auxiliary relay carrier in electronics box in passenger's footwell, position -2-).

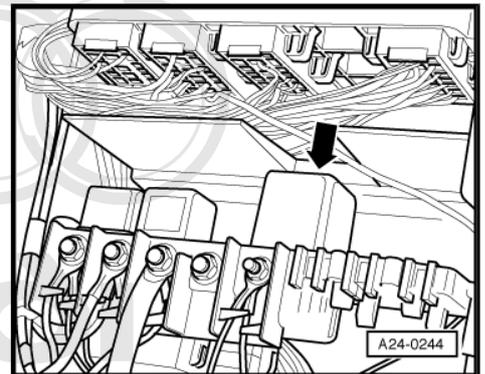
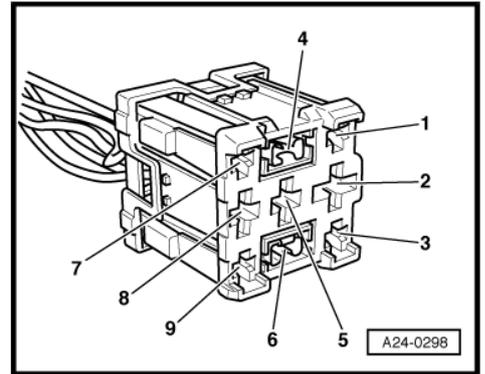


- Connect voltage tester -V.A.G 1527B- as follows:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	Measure against
-2-	Earth
-6-	Earth

- Switch on ignition.
- The LED lamp should light up in each case.

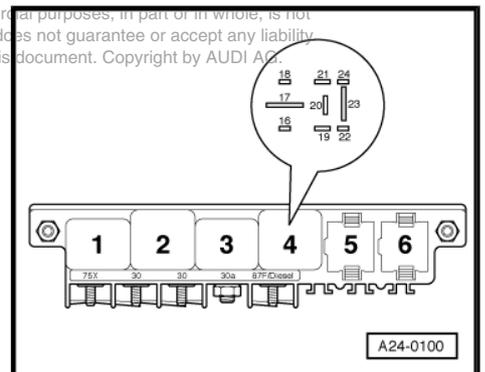
- If LED does not light up, remove terminal 30 voltage supply relay -J317- -arrow- from position "4" in micro central electrics.



- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	Micro central electrics, position 4 contact
2	-23- terminal 87
6	-23- terminal 87

- Repair wiring connection if necessary → Current flow diagrams, Electrical fault finding and Fitting locations.

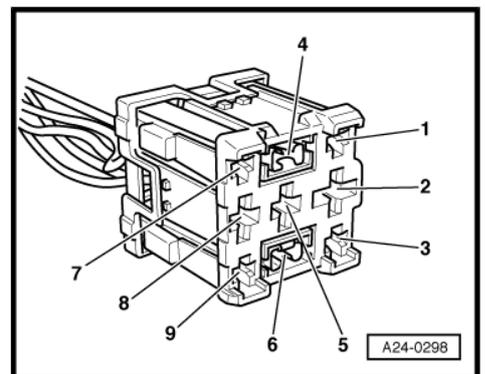


Checking activation wiring of fuel pump relay -J17-

- Connect adapter -V.A.G 1598/30- to connectors of wiring harness for diesel direct injection system control unit -J248- (do not connect control unit) → Rep. Gr. 23 .
- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 2 contact	-V.A.G 1598/30-
4	4/10

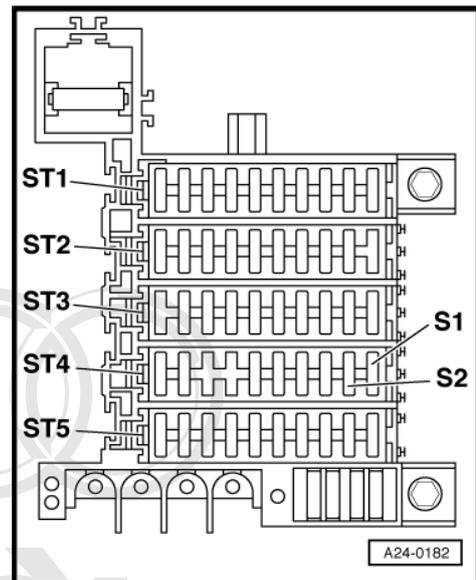
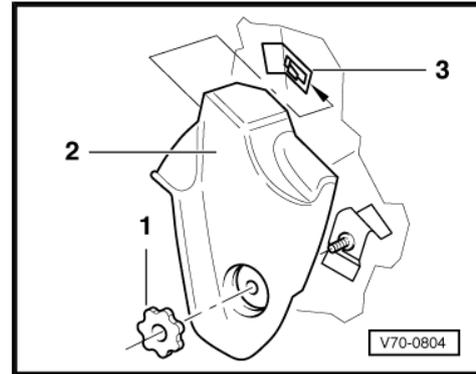
- Repair wiring connection if necessary → Current flow diagrams, Electrical fault finding and Fitting locations.





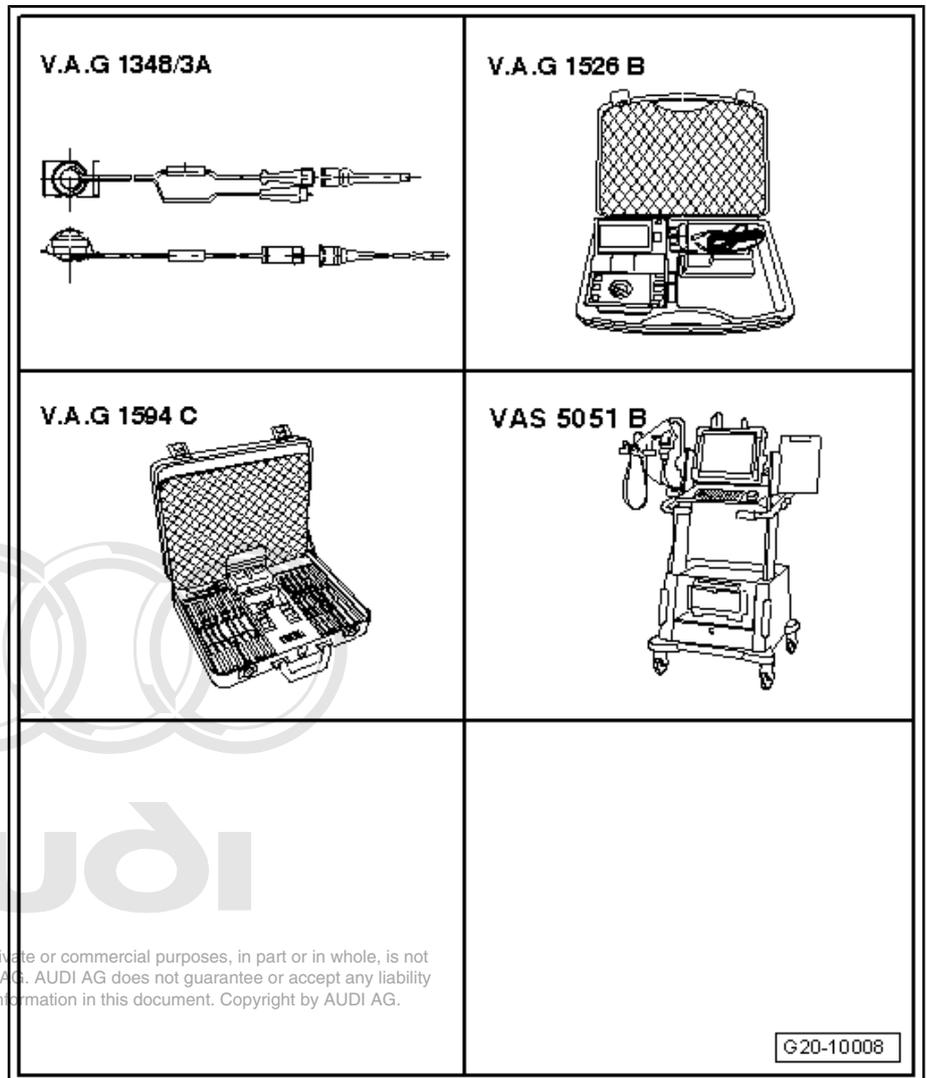
Checking activation of fuel system pressurisation pump -G6-

- Remove knurled screw -1-.
- Pull trim -2- to rear out of fastener -3- and detach.
- Pull out fuse in fuse holder -S1- from fuse carrier (blue) -ST4-.
- Connect hand-held multimeter -V.A.G 1526C- (voltage measurement range) to earth and top fuse contact.
- Briefly operate starter.
- Specification: approx. battery voltage.
- If specification is not attained, check wiring connection ⇒ Current flow diagrams, Electrical fault finding and Fitting locations .
- Renew fuel pump relay -J17- if wiring and all previous checks are OK.



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3.5 Checking fuel system pressurisation pump -G6- (electrical test) - vehicles with 6-cylinder or 8-cylinder engine



Special tools and workshop equipment required

- ◆ Remote control -V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-2-
- ◆ Hand-held multimeter -V.A.G 1526C-
- ◆ Auxiliary measuring set -V.A.G 1594C-
- ◆ Vehicle diagnostic, testing and information system -VAS 5051B- with trigger clamp, 100 A -VAS 5051B/7-

Procedure



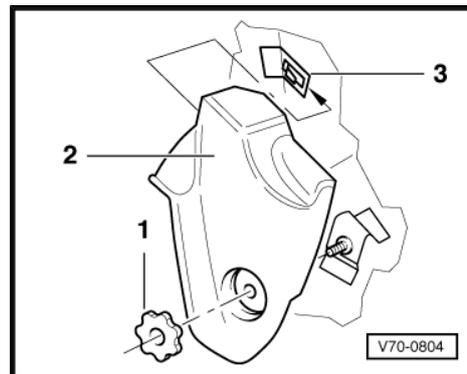
Fuel is drawn out of the fuel tank baffle housing by the high-pressure pump of the diesel direct-injection system. The fuel system pressurisation pump -G6- serves only to operate the suction-jet pumps.

Proceed as follows:

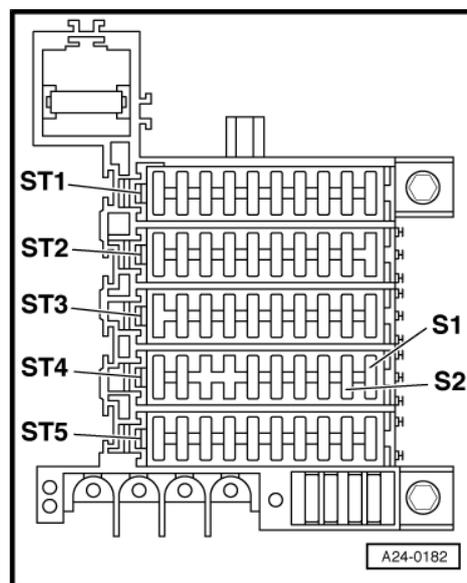
- Observe test conditions ⇒ [page 1](#) .
- Ignition off.

Checking voltage supply

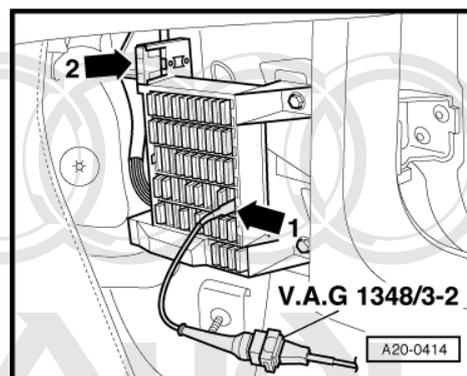
- Take out floor covering in front right footwell.
- Remove knurled screw -1-.
- Pull trim -2- to rear out of fastener -3- and detach.



- Pull out fuse in fuse holder -S1- from fuse carrier (blue) -ST4-.



- Connect remote control -V.A.G 1348/3A- with adapter cable -V.A.G 1348/3-2- to bottom terminal of socket of fuse in fuse holder -S1- -arrow 1-.
- Connect crocodile clamp to battery "+", e.g. to socket of 60 A fuse at top of fuse box -arrow 2-.
- Press remote control switch.
- Pump should start running audibly.

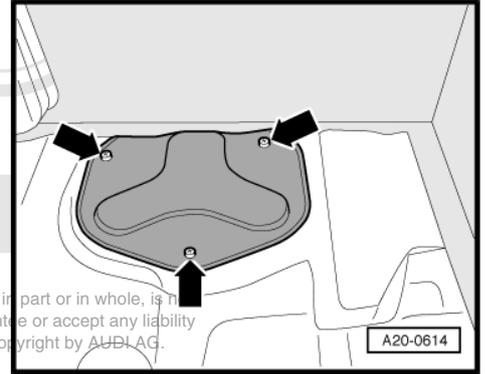


 **Note**

The fuel pump runs very quietly. Where possible, avoid noisy surroundings when testing the fuel pump (otherwise a second mechanic is required).

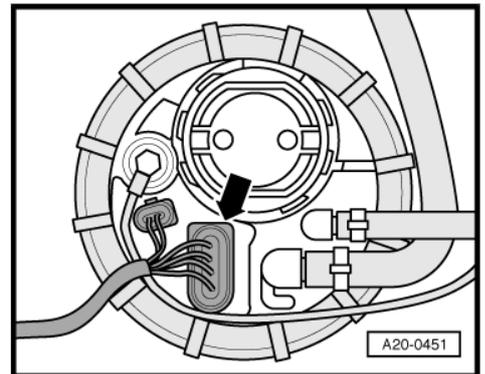
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- If no noise can be heard from the pump, remove bolts -arrows- on right under floor trim in luggage compartment and detach cover.

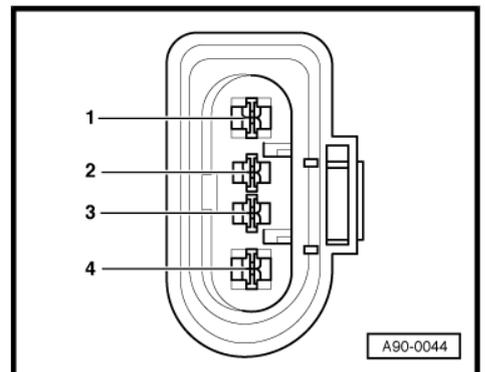


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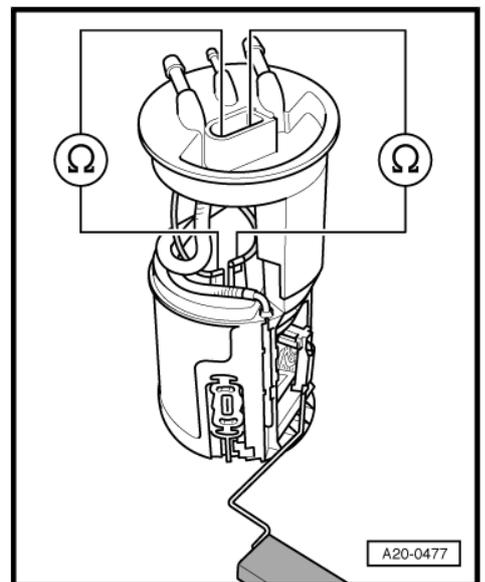
- Release and unplug electrical connector -arrow-.



- Connect hand-held multimeter -V.A.G 1526C- between contacts -1- and -4- to measure voltage.
- Press remote control switch.
- Specification: approx. battery voltage.
- If reading does not match specification, check wiring connection and repair => Current flow diagrams, Electrical fault finding and Fitting locations.
- If reading matches specification although no noise can be heard from pump, remove fuel delivery unit => [page 32](#) .



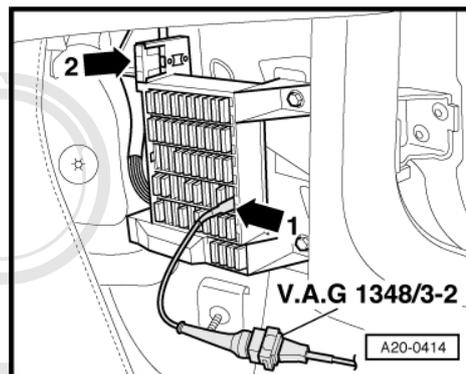
- Check connections and continuity of electrical wiring between flange and fuel pump.
- If no wiring fault is detected: fuel pump is defective. Renew fuel delivery unit => [page 32](#) .



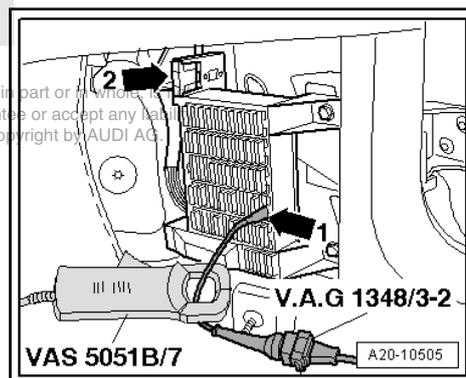


Checking current draw

- Fuel pump voltage supply OK ⇒ [page 30](#) .
- Remote control -V.A.G 1348/3A- with adapter cable -V.A.G 1348/3-2- connected to bottom terminal of socket of fuse in fuse holder -S1- -arrow 1-.
- Connect crocodile clamp to battery "+", e.g. to socket of 60 A fuse at top of fuse box -arrow 2-.



- Connect vehicle diagnostic, testing and information system - VAS 5051B- with trigger clamp, 100 A -VAS 5051B/7- to wiring of remote control as shown in illustration.
- Press remote control switch and read off current draw of fuel system pressurisation pump -G6- .
- Specification: 4 ... 6 A.
- If specification is not attained, identify fault as follows:



Readout	Cause of fault	Fault rectification
approx. 2 A	◆ Tank empty	- Fill tank
	◆ Fuel delivery unit installed incorrectly	- Check proper installation of fuel delivery unit ⇒ page 35
	◆ Baffle housing leaking	- Check baffle housing for leaks ⇒ page 40
	◆ Fuel gauge sender 2 -G169- installed incorrectly	- Check proper installation of fuel gauge sender 2 -G169- ⇒ page 56
0 A	◆ Electrical wire defective	- Repair
	◆ Fuel system pressurisation pump -G6- defective	Renew fuel delivery unit ⇒ page 35



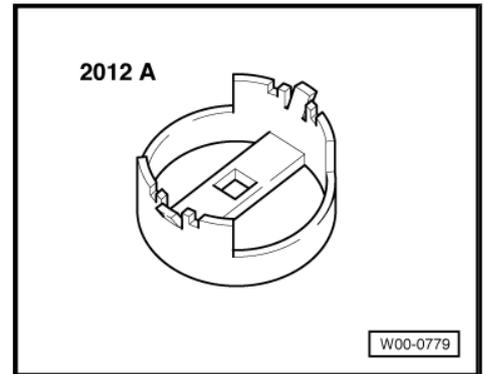
Note

- ◆ A current draw of 2 A indicates that the fuel pump is running dry because there is no fuel in the baffle housing.
- ◆ To verify test result, put 1 ltr. of diesel into fuel tank and repeat measurement. If a current draw of 6 A is now indicated, the fuel pump is OK.

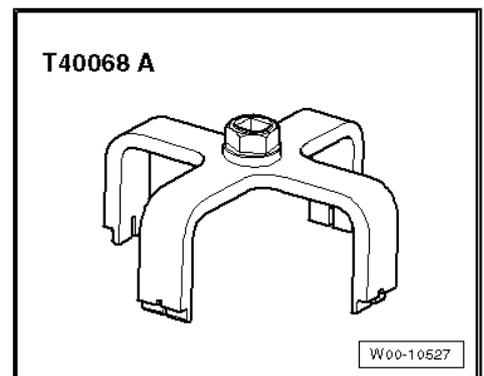
3.6 Removing and installing fuel delivery unit - vehicles with 6-cylinder and 8-cylinder engine

Special tools and workshop equipment required

◆ Special wrench -2012 A-



◆ Union nut tool -T40068 A-



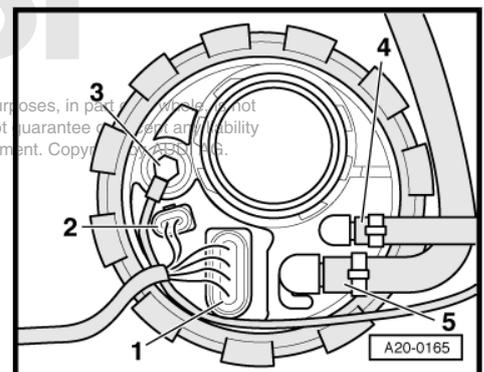
Removing

Proceed as follows:

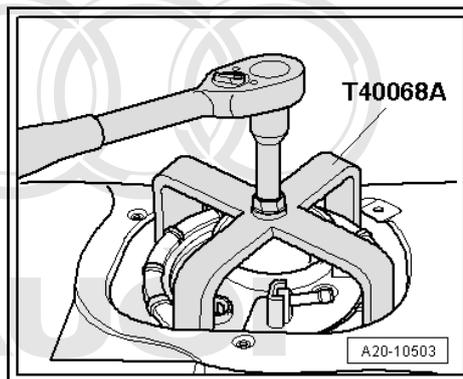
- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .

i Note

- ◆ *Before starting work, mechanics should have seen ⇒ Video Film No. 23 "Audi TV Special, 25.06.1997: A8 Tank Repair" .*
- ◆ *Prior to removing and installing the fuel delivery unit, it is advisable to take the tool kit and spare wheel out of the luggage compartment. You can then sit or kneel in the spare wheel well. This makes it much easier to install the fuel delivery unit.*
- Drain fuel tank completely. Procedure with intact fuel delivery unit ⇒ [page 4](#) ; procedure with defective fuel delivery unit ⇒ [page 5](#) .
- Remove banjo bolt -3- for fuel supply pipe to additional/auxiliary heater.
- Disconnect fuel supply pipe -5- and fuel return pipe -4-.
- Unplug electrical connectors -1- and -2-.

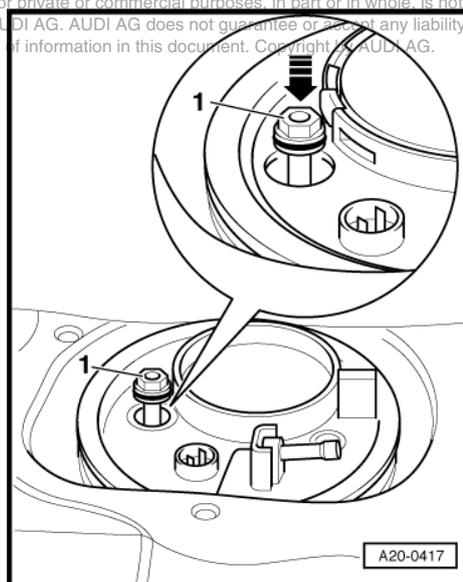


- Unscrew union nut using union nut tool -T40068 A-

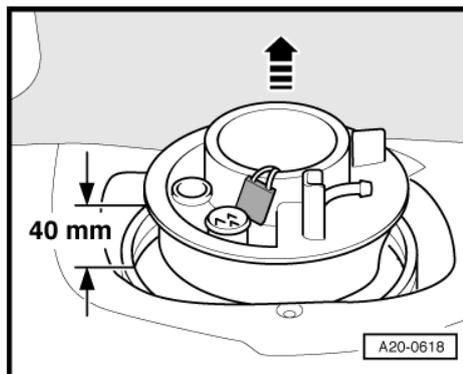


- Loosen bolt -1- several turns, but do not remove.
- Press firmly on bolt -arrow- to separate fuel delivery unit from adapter plate in fuel tank,
- Unscrew bolt completely and take out.

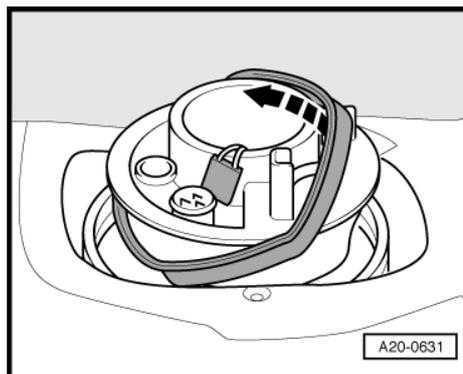
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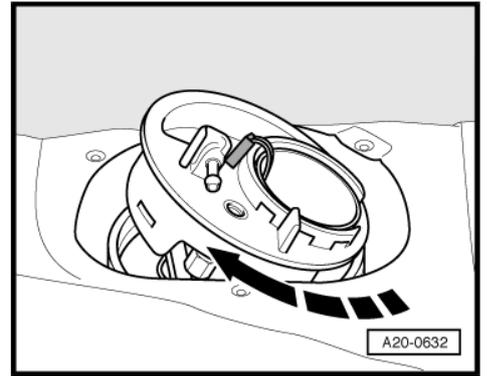
- Pull fuel delivery unit upwards by approx. 40 mm while moving it slightly backwards and forwards.



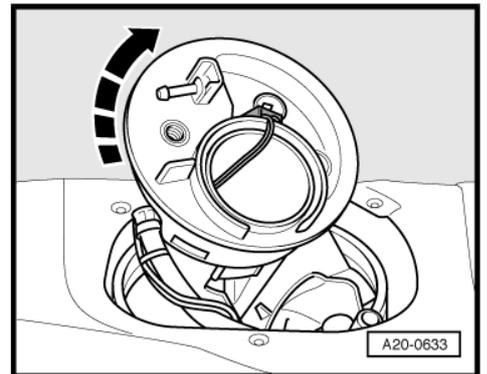
- Pull seal off rim of assembly opening.



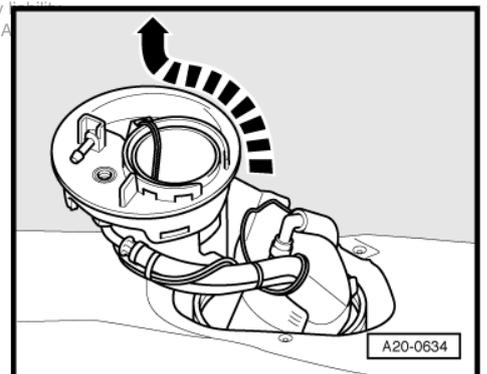
- Turn fuel delivery unit approx. 45° in clockwise direction (flange moves upwards).



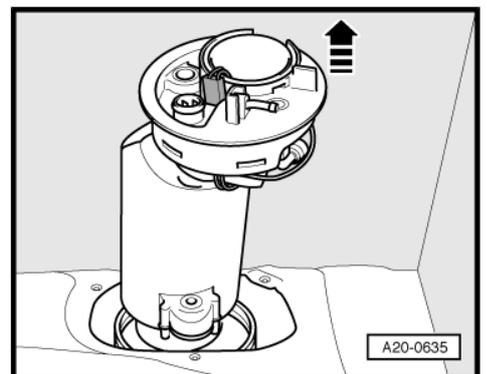
- Turn fuel delivery unit approx. 45° further in clockwise direction while pulling upwards.



- Now turn fuel delivery unit approx. 45° in anti-clockwise direction while pulling upwards.



- Pull fuel delivery unit out of fuel tank in position shown in illustration.



i Note

When removing from luggage compartment, hold cloth under fuel delivery unit to catch escaping fuel.

- Empty fuel delivery unit into a suitable container.

i Note

Observe disposal regulations for fuel.

Installing

- Tightening torques → [page 14](#)
- The fuel tank must be empty.

Installation is carried out in the reverse order; note the following:

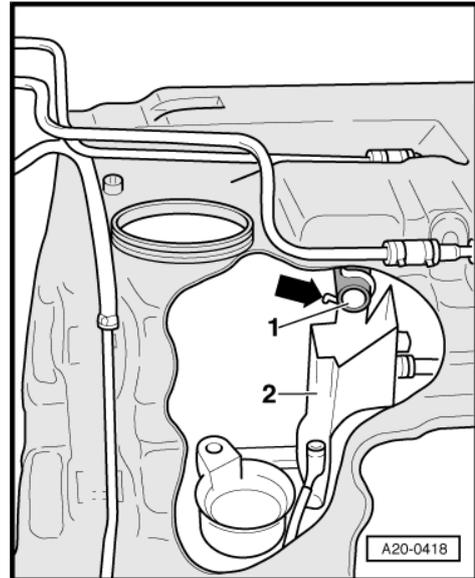


- Prior to installation, check that filler pipe -1- is clipped to adapter plate -2- with pipe holder -arrow-.



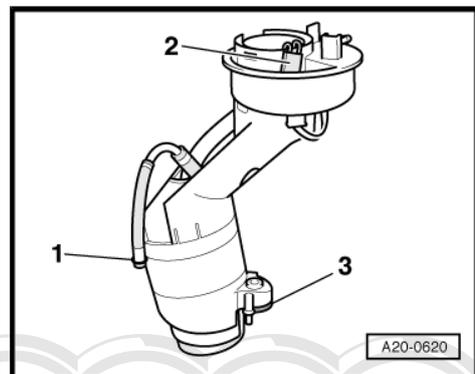
Note

- ◆ *The illustration shows a sectional view of the fuel tank from the front.*
- ◆ *Proper attachment of the filler pipe can be checked with a mirror and an electric hand torch (flashlight).*
- ◆ *If the adapter plate is not clipped to the filler pipe, the fuel delivery unit cannot be properly installed or the adapter plate will be damaged when it is fitted.*
- Before inserting fuel delivery unit, inspect baffle housing, bottom section of baffle housing and connectors for suction jet pump pipes (visual check).
- Renew O-ring -1- and sealing element -3- and check installation position.
- Secure electrical wiring with connector -2- for fuel gauge sender -G- as shown in illustration.

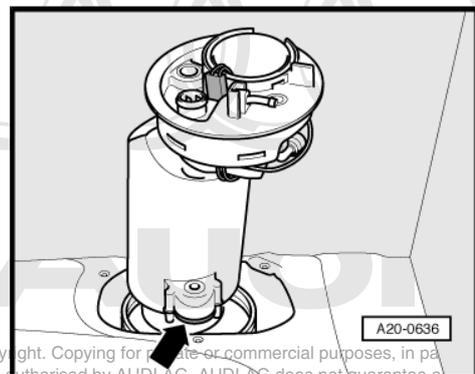


Note

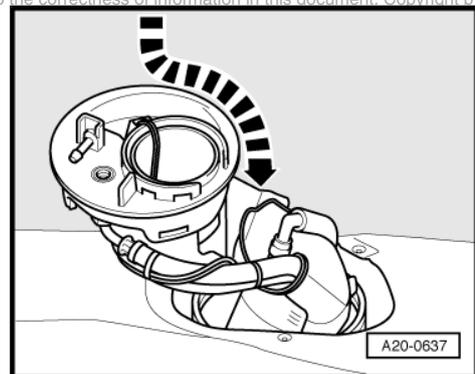
The electrical connector is not accessible after the fuel delivery unit has been installed.



- Start by installing fuel delivery unit without seal for flange.
- Hold fuel delivery unit in position shown in illustration.
- Sealing element -arrow- faces towards rear of vehicle

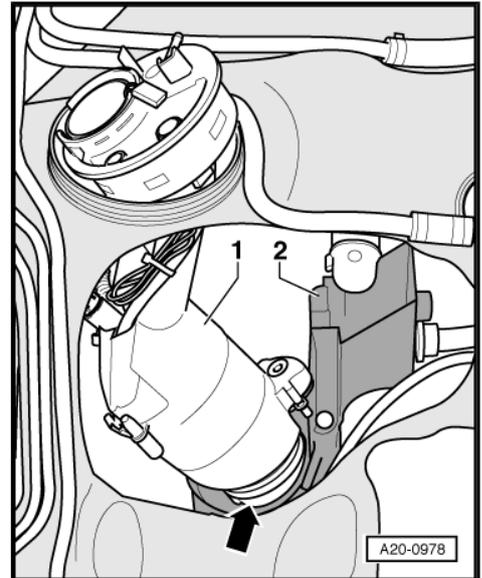


- Insert fuel delivery unit in fuel tank, at the same time turning approx. 90° in clockwise direction.

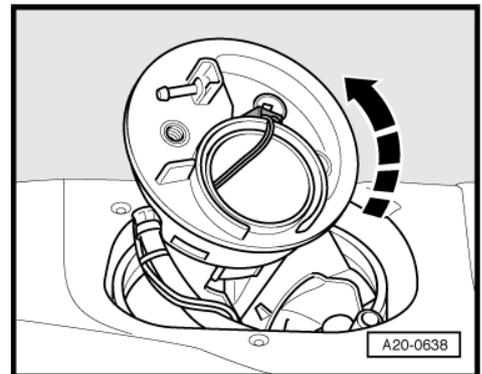


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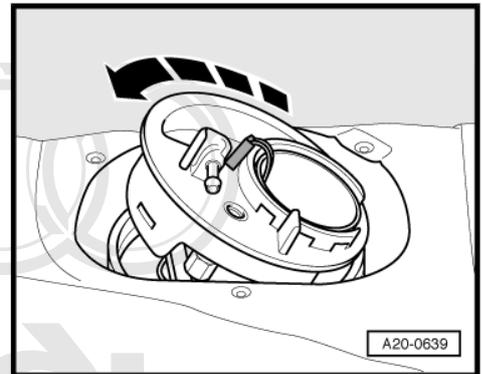
- Tilt flange of fuel delivery unit -1- into position shown in illustration so that bottom section of fuel delivery unit is swivelled to left as far as possible.
- In this position, insert fuel delivery unit in housing of adapter plate -2- inside fuel tank -arrow-.



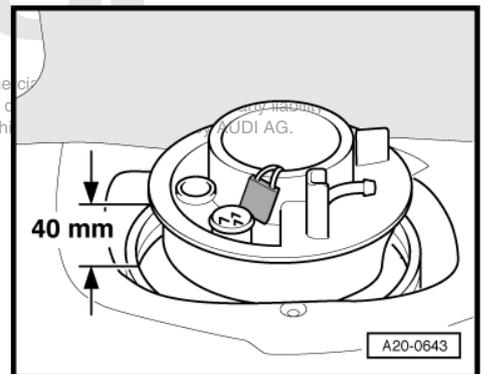
- Now turn fuel delivery unit 45° in anti-clockwise direction; fuel delivery unit is thus inserted into fuel tank.



- Turn fuel delivery unit another 45° in anti-clockwise direction; fuel delivery unit is now in installation position.



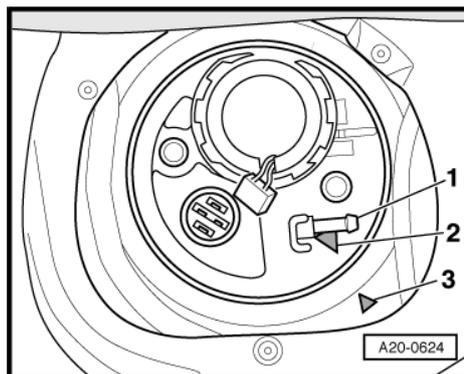
- Hold flange in installation position at a distance of approx. 40 mm above assembly opening.



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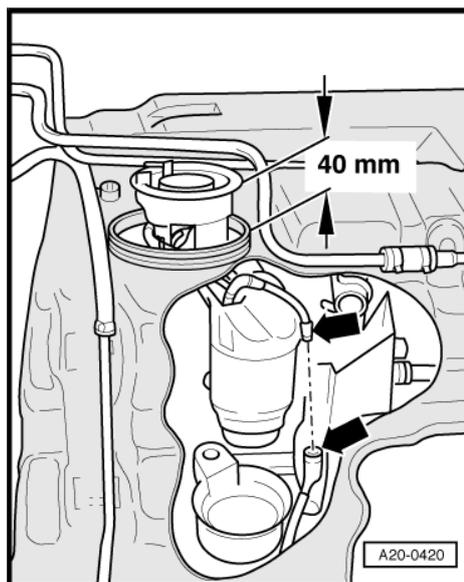
- Check installation position:
 - Hose connection -1- faces right.
 - -Arrow 2- and -arrow 3- coincide.



- Now press fuel delivery unit down.
 - This will insert the supply pipe for the suction-jet pumps on the fuel delivery unit into the funnel on the adapter plate -arrows-.

**Note**

- ◆ *If the supply pipe is not inserted in the funnel on the adapter plate, the suction jet pumps will not function and the fuel delivery unit will not be sealed off from the adapter plate.*
- ◆ *If the baffle housing leaks or the suction jet pumps do not function, the engine will stop due to fuel starvation although the fuel tank is still $\frac{1}{3}$... $\frac{1}{4}$ full.*

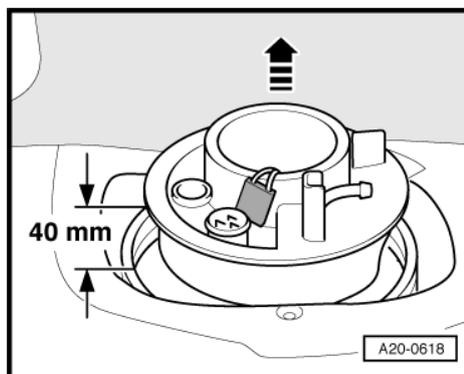
**WARNING****Risk of repeat repair.**

- ◆ *The following requirements must be met to ensure proper installation:*
- ◆ *The flange of the fuel delivery unit must rest flat and straight on the opening in the fuel tank.*
- ◆ *The bolt must slide easily and smoothly into the tapped hole in the adapter plate and it must screw easily and smoothly into the thread.*

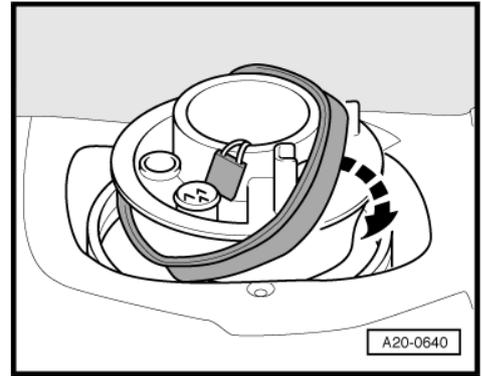
If these requirements are not met, repeat the installation procedure.

- After checking installation position, pull out fuel delivery unit approx. 40 mm again.

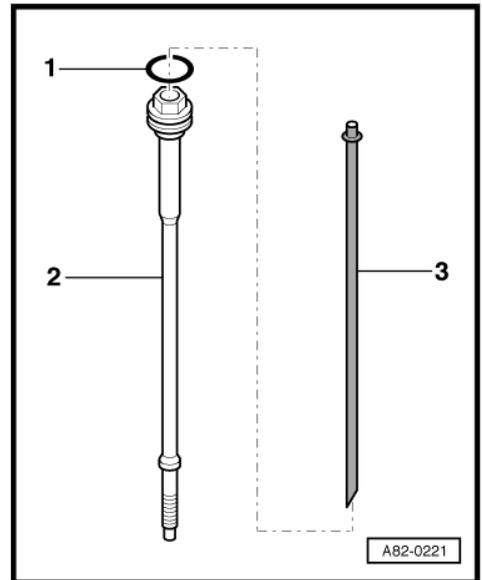
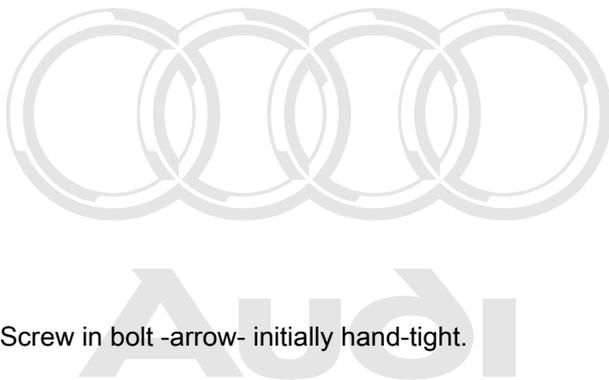
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- Fit new seal in rim of opening in fuel tank.
- Install fuel delivery unit again.

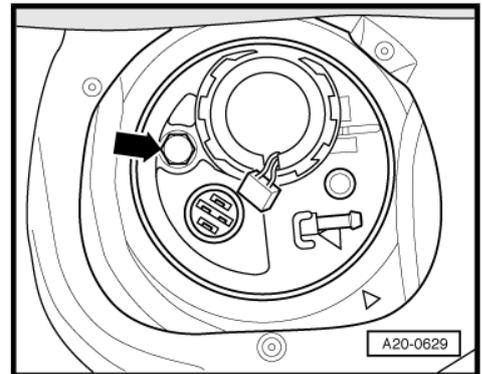


- Fit new O-ring -1- onto bolt -2-.
- On vehicles with additional/auxiliary heater, make sure restrictor pipe -3- is inserted in hollow bolt.

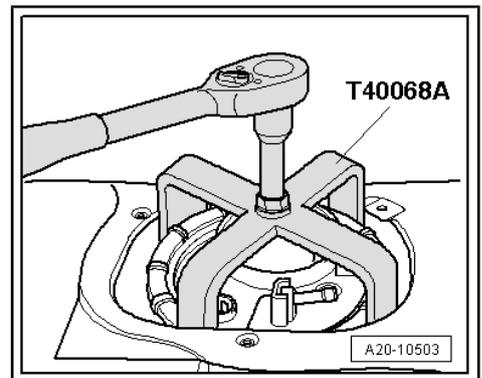


- Screw in bolt -arrow- initially hand-tight.

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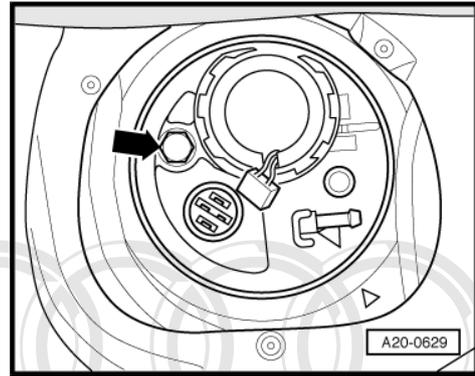


- Fit union nut and tighten using union nut tool -T40068 A- .

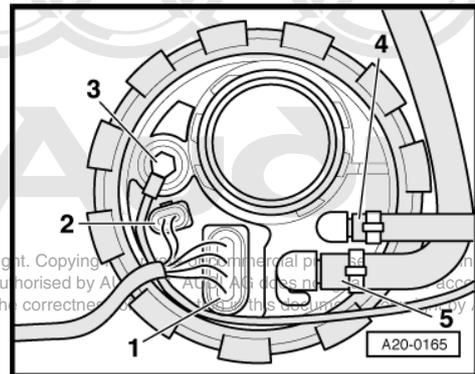




- Tighten bolt -arrow-.



- Renew seals for banjo bolts.
- Tighten banjo bolt -3- for fuel supply pipe to additional/auxiliary heater.
- Attach fuel return pipe -4- and fuel supply pipe -5- and secure with new hose clip.
- Plug in electrical connectors -1- and -2-.
- Install fuel gauge sender -G- (right-side) ⇒ [page 54](#).
- Check fuel delivery unit for leaks ⇒ [page 40](#).

**Note**

- ◆ *The fuel delivery unit must be checked for leaks after re-installing ⇒ [page 40](#). This is the only way of ensuring that the baffle housing is not leaking.*
- ◆ *If the baffle housing leaks, the engine will stop due to fuel starvation although the tank is still $\frac{1}{3}$... $\frac{1}{4}$ full.*

3.7 Checking fuel delivery unit for leaks - vehicles with 6-cylinder and 8-cylinder engines

Procedure

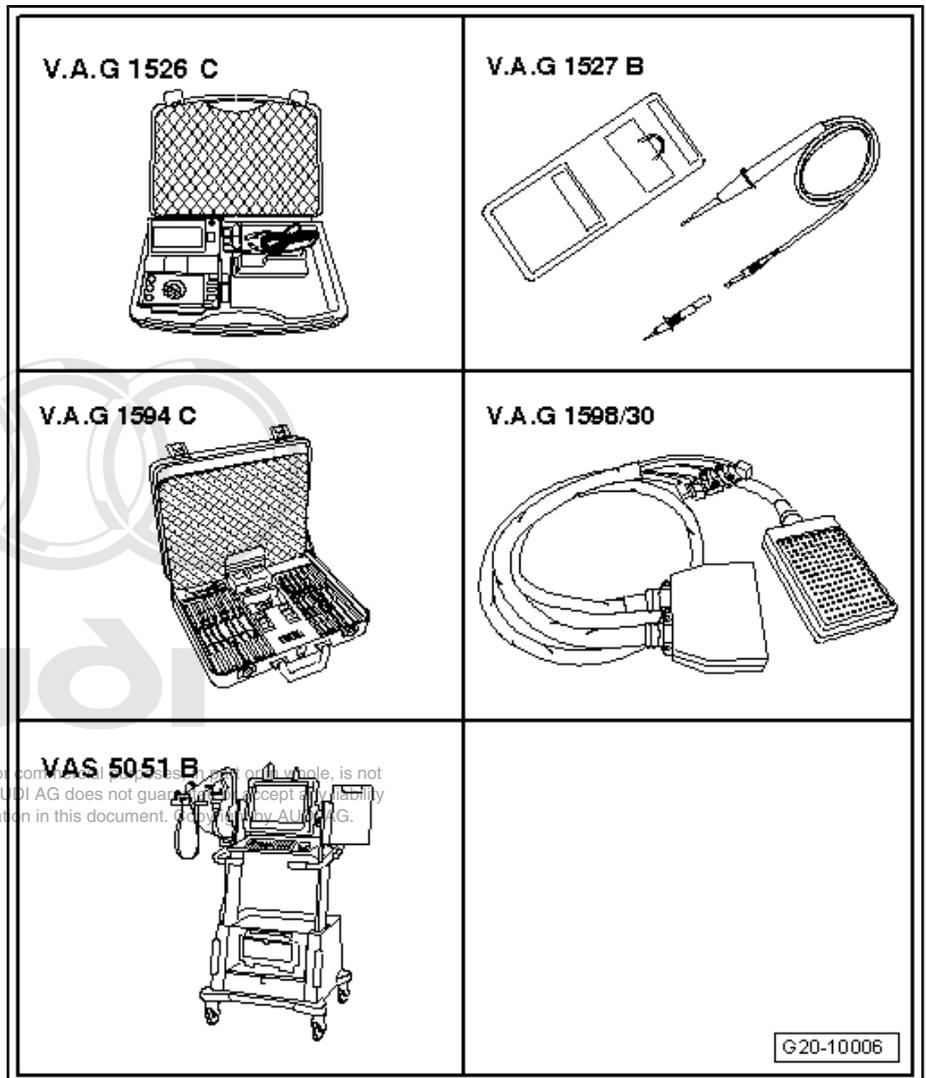
Proceed as follows:

- Fuel tank drained
- Put in 5 litres of fuel.
- Perform road test over a distance of at least 10 km (take filled fuel canister with you).
- Leave vehicle standing for at least 12 hours (overnight if possible).
- If the engine starts without difficulty after this period there are no leaks in the fuel delivery unit.
- Fill up fuel tank and perform final road test.
- If engine does not start, check proper installation of fuel delivery unit ⇒ [page 35](#).

3.8 Checking electric fuel pump 2 relay -J49- and activation - vehicles with 8-cylinder engine

Special tools and workshop equipment required

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Voltage tester -V.A.G 1527B-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter -V.A.G 1598/30-
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-



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Procedure

Note

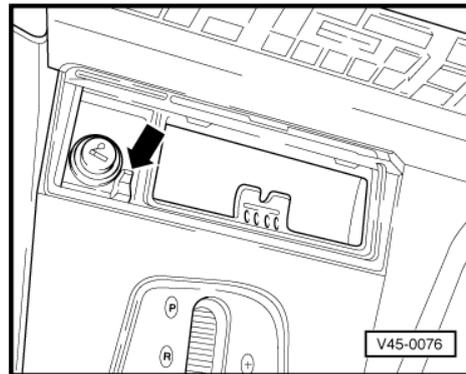
- ◆ *The voltage supply for the fuel pump -G23- is taken from electric fuel pump 2 relay -J49- .*
- ◆ *The electric fuel pump 2 relay -J49- will only close if the engine is turning over. In other words, the fuel pump relay is only earthed (via the diesel direct injection system control unit 2 - J494-) when -J494- is receiving engine speed pulses.*

Proceed as follows:

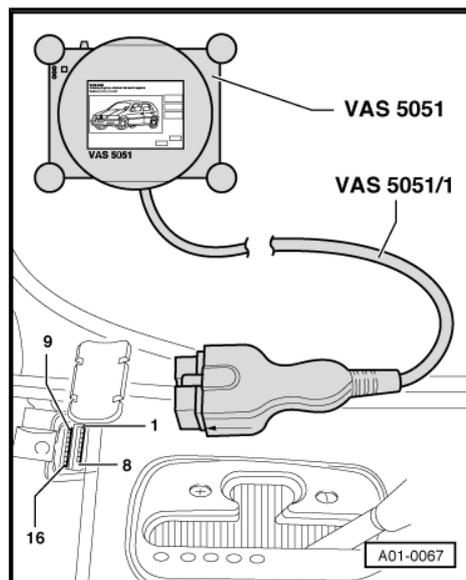
- Observe test conditions ⇒ [page 1](#) .

Vehicles up to 01.1999:

- Release ashtray from centre console by pressing small lever -arrow-.
- Take out ashtray and remove cover for diagnostic connector.

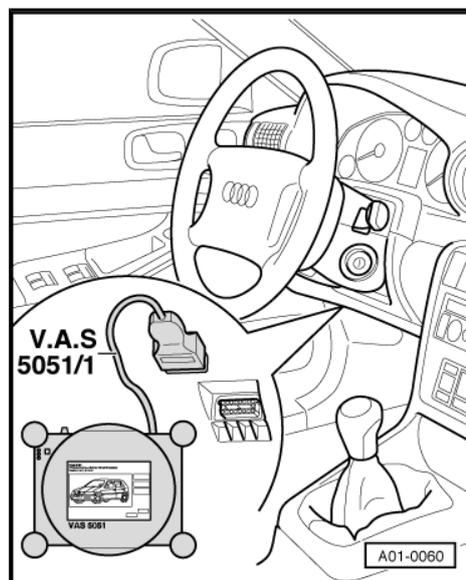


- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



Vehicles from 02.1999:

- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .

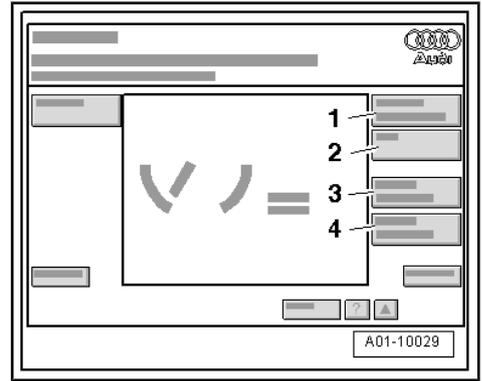


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All vehicles (continued):

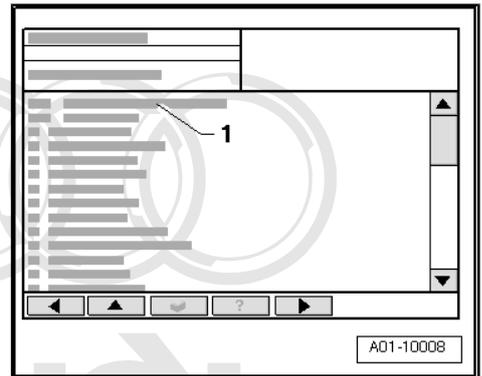
Display on -VAS 5051B- :

- Switch on ignition.
- Select Vehicle self-diagnosis from the list -item 1-.



Display on -VAS 5051B- :

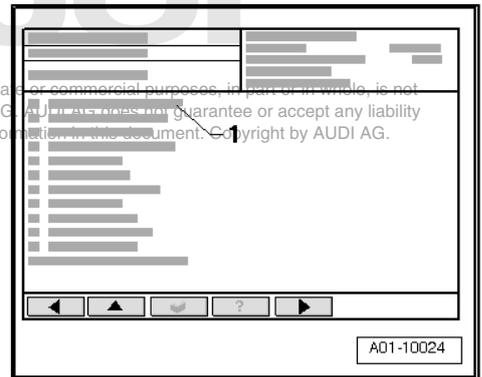
- From menu -1-, select vehicle system "01 - Engine electronics" and press ↵ key to continue.



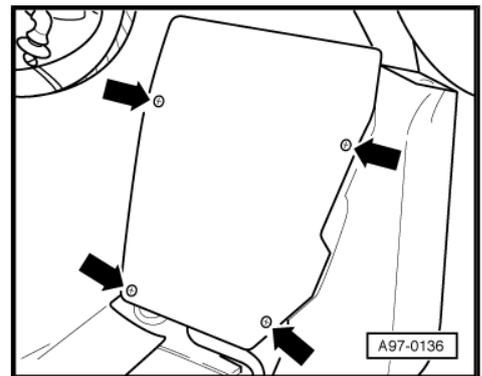
Display on -VAS 5051B- :

- From menu -1-, select diagnostic function "Final control diagnosis" and press ↵ key to continue.
- Press ↵ key repeatedly until electric fuel pump 2 relay -J49- is activated.
- The fuel pump -G23- should run briefly at intervals of about 5 seconds (the pump can be heard at the rear right wheel housing).

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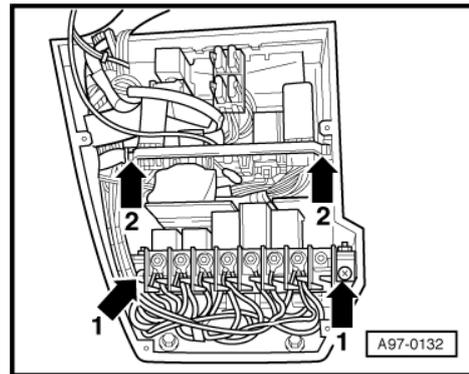


- If fuel pump -G23- is not activated, take out floor covering in front right footwell.
- Remove bolts -arrows- and detach cover for electronics box.

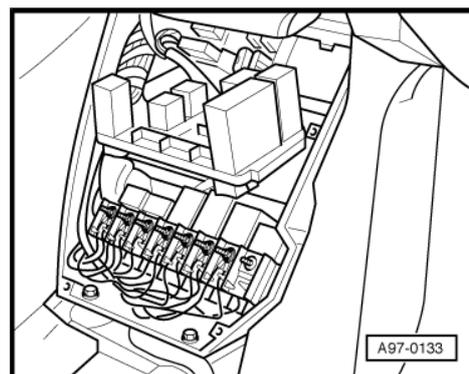




- Pull auxiliary relay carrier out of guide rails -arrows 2- on both sides.



- Take auxiliary relay carrier out of electronics box.



- Operate starter.
- It should be possible to feel electric fuel pump 2 relay -J49- pick up (relay is located on auxiliary relay carrier in electronics box in passenger's footwell, position -13-), and fuel pump -G23- should start running (audible at rear right wheel housing – second mechanic required).

A - If the electric fuel pump 2 relay -J49- does not pick up:

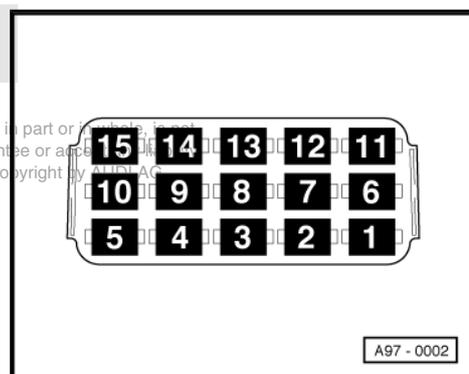
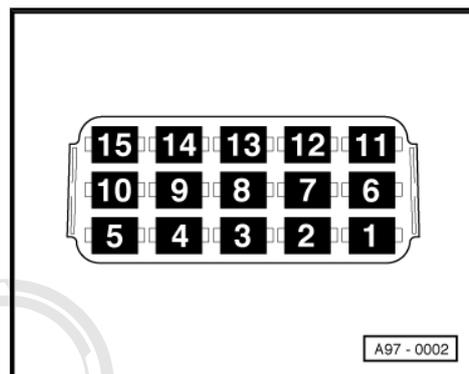
- Check voltage supply for electric fuel pump 2 relay -J49- ⇒ [page 44](#) .
- Check activation wiring for electric fuel pump 2 relay -J49- ⇒ [page 45](#) .

B - If the electric fuel pump 2 relay -J49- picks up, but the fuel pump -G23- does not run:

- Check activation of fuel pump ⇒ [page 46](#) .
- Check fuel pump -G23- (electrical test) ⇒ [page 46](#) .

Checking voltage supply for electric fuel pump 2 relay -J49-

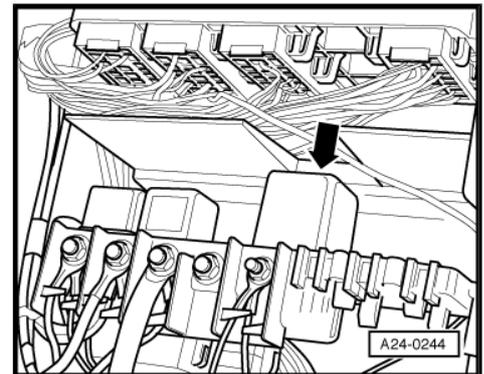
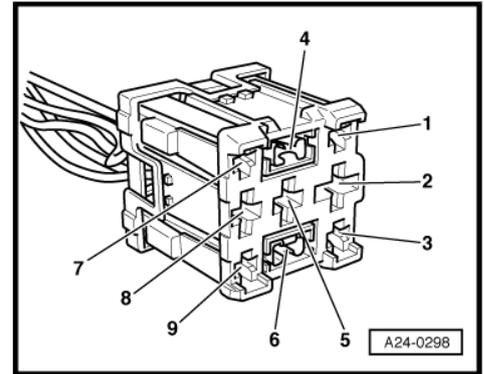
- Fuse for electric fuel pump 2 relay -J49- OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Detach electric fuel pump 2 relay -J49- (located on auxiliary relay carrier in electronics box in passenger's footwell, position -13-).



- Connect voltage tester -V.A.G 1527B- as follows:

Auxiliary relay carrier, electronics box in passenger's footwell, position 13 contact	Measure against
-2-	Earth
-6-	Earth

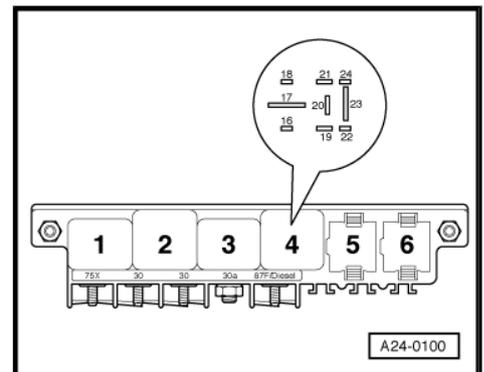
- Switch on ignition.
- The LED lamp should light up in each case.
- If LED does not light up, remove terminal 30 voltage supply relay -J317- -arrow- from position "4" in micro central electrics.



- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 13 contact	Micro central electrics, position 4 contact
2	-23- terminal 87
6	-23- terminal 87

- Repair wiring connection if necessary → Current flow diagrams, Electrical fault finding and Fitting locations.

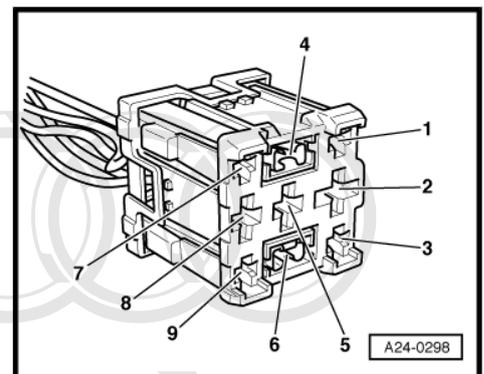


Checking activation wiring for electric fuel pump 2 relay -J49-

- Connect adapter -V.A.G 1598/30- to connectors of wiring harness for diesel direct injection system control unit 2 -J494- (do not connect -J494-) → Rep. Gr. 23 .
- Check for open circuit and short to positive or earth in the following wiring:

Auxiliary relay carrier, electronics box in passenger's footwell, position 13 contact	-V.A.G 1598/30-
4	4/10

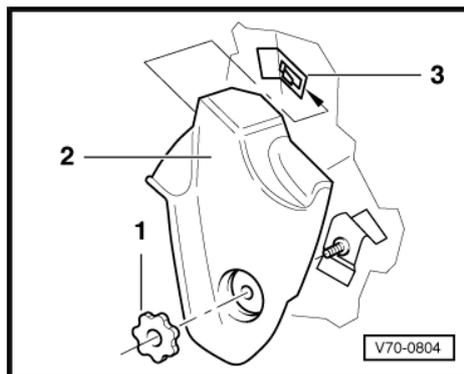
- Repair wiring connection if necessary → Current flow diagrams, Electrical fault finding and Fitting locations.



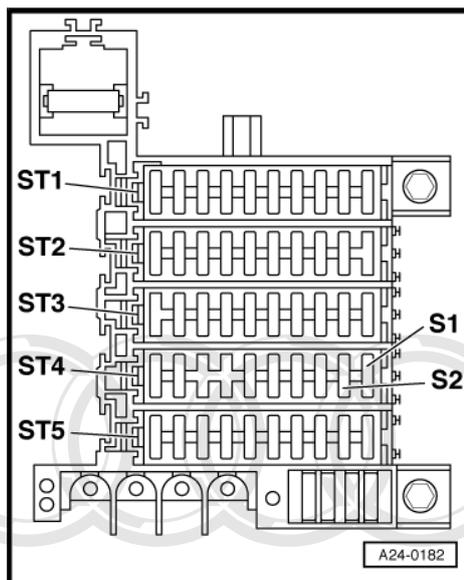


Checking activation of fuel pump -G23-

- Remove knurled screw -1-.
- Pull trim -2- to rear out of fastener -3- and detach.



- Pull out fuse in fuse holder -S3- from fuse carrier (blue) -ST4-.
- Connect hand-held multimeter -V.A.G 1526C- (voltage measurement range) to earth and top fuse contact.
- Briefly operate starter.
- Specification: approx. battery voltage.
- If specification is not attained, check wiring connection => Current flow diagrams, Electrical fault finding and Fitting locations .
- Renew electric fuel pump 2 relay -J49- if wiring and all previous checks are OK.

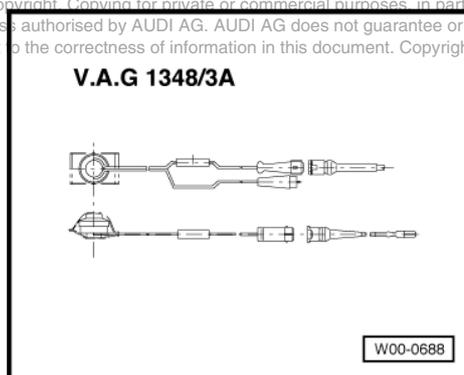


3.9 Checking fuel pump -G23- (electrical test) - vehicles with 8-cylinder engine

Special tools and workshop equipment required

- ◆ Remote control -V.A.G 1348/3A- for V.A.G 1348 with adapter cable -V.A.G 1348/3-2-

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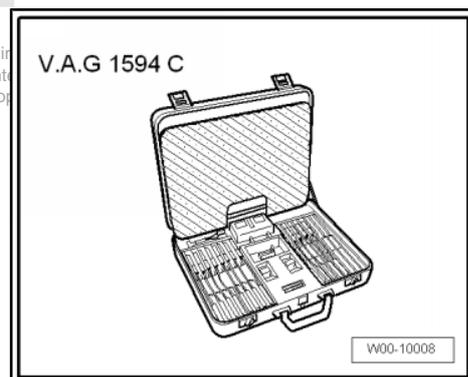


◆ Hand-held multimeter -V.A.G 1526C-



◆ Auxiliary measuring set -V.A.G 1594C-

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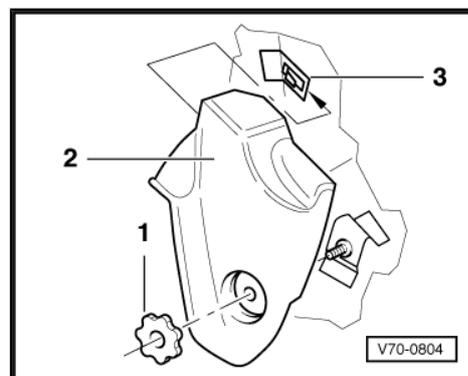
Procedure

Proceed as follows:

- Observe test conditions => [page 1](#) .
- Ignition off.

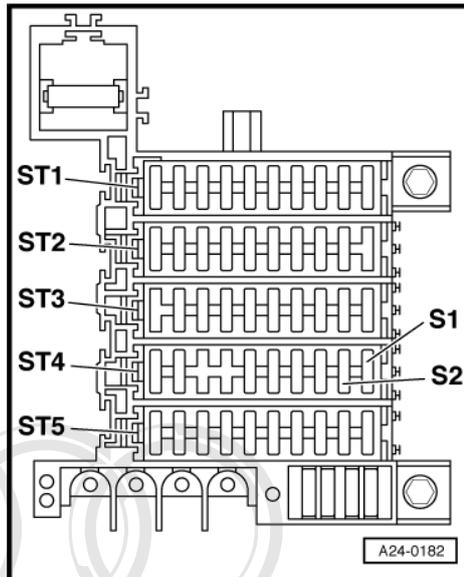
Checking voltage supply

- Take out floor covering in front right footwell.
- Remove knurled screw -1-.
- Pull trim -2- to rear out of fastener -3- and detach.

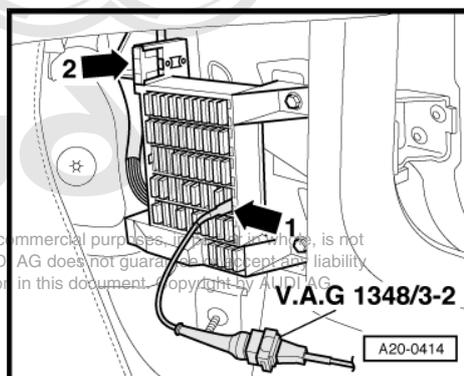




- Pull out fuse in fuse holder -S3- from fuse carrier (blue) -ST4-.



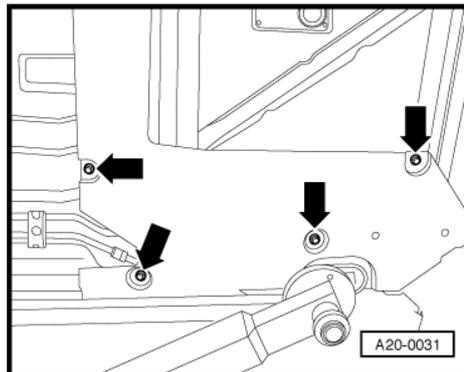
- Connect remote control -V.A.G 1348/3A- with adapter cable -V.A.G 1348/3-2- to bottom terminal of socket of fuse in fuse holder -S3- -arrow 1-.
- Connect crocodile clamp to battery "+", e.g. to socket of 60 A fuse at top of fuse box -arrow 2-.
- Press remote control switch.
- Fuel pump should start running (noise is audible at rear right wheel housing).



Note

The fuel pump runs very quietly. Where possible, avoid noisy surroundings when testing the fuel pump (otherwise a second mechanic is required).

- If no noise can be heard from pump, remove bolts -arrows- and detach cover from underside of vehicle (right-side).

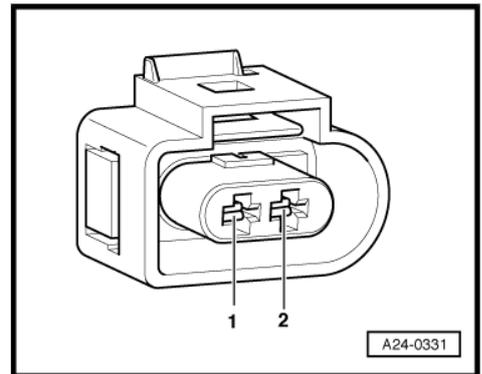
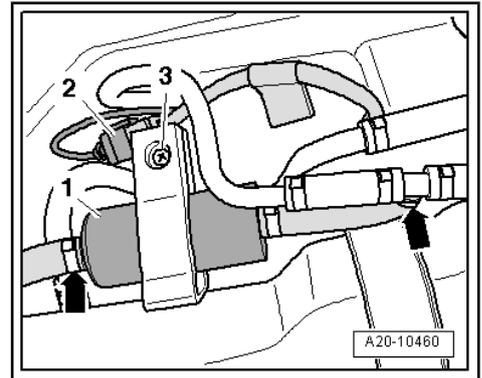


- Detach 2-pin electrical connector -2- from bracket, release and unplug.

 **Note**

Items -1, 3- and -arrows- can be disregarded.

- Connect hand-held multimeter -V.A.G 1526C- between contacts -1- and -2- to measure voltage.
- Press remote control switch.
- Specification: approx. battery voltage.
- If reading does not match specification, check wiring connection and repair ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- If reading matches specification but no noise can be heard from pump, fuel pump is defective. Renew fuel pump -G23- ⇒ [page 49](#) .



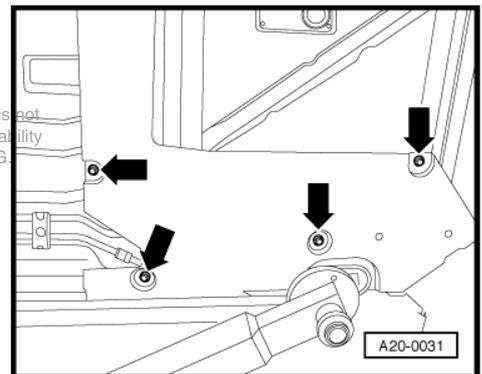
3.10 Removing and installing fuel pump - G23- - vehicles with 8-cylinder engine

Removing

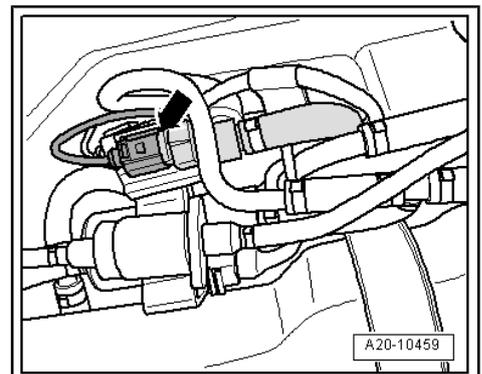
Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Remove bolts -arrows- and detach cover on underside of vehicle body (right-side).

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- Take metering pump for auxiliary/additional heater -arrow- out of bracket and press to side.

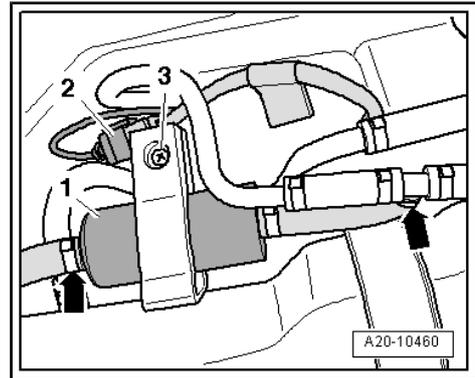




- Detach 2-pin electrical connector -2- from bracket, release and unplug.
- Disconnect fuel hoses -arrows-.
- Place fuel resistant drip tray underneath, loosen bolt -3- several turns and detach fuel pump -G23- to rear.

Installing

Install in reverse order.



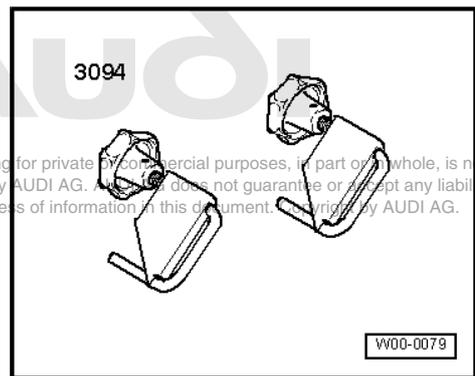
3.11 Checking fuel cooling pump relay -J445-

Checking fuel cooling pump relay -J445- => Rep. Gr. 19 ; Checking relay for fuel cooling pump -V166- .

3.12 Removing and installing fuel cooling pump -V166- - vehicles with 8-cylinder engine

Special tools and workshop equipment required

- ◆ Hose clamps for hoses up to 25 mm -3094-

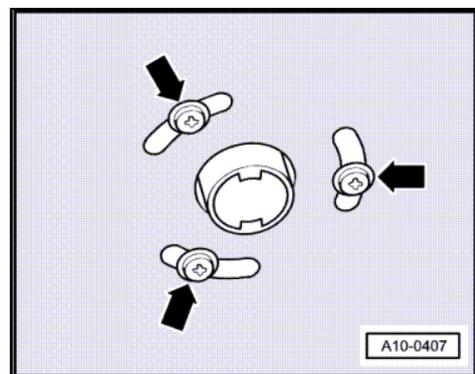


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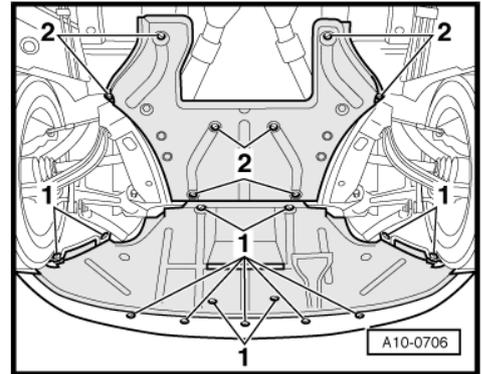
Removing

Proceed as follows:

- Observe safety precautions => [page 1](#) .
- Observe rules for cleanliness => [page 1](#) .
- If fitted, remove bolts -arrows- securing exhaust pipe for auxiliary/additional heater.



- Release fasteners -1- and remove front noise insulation.

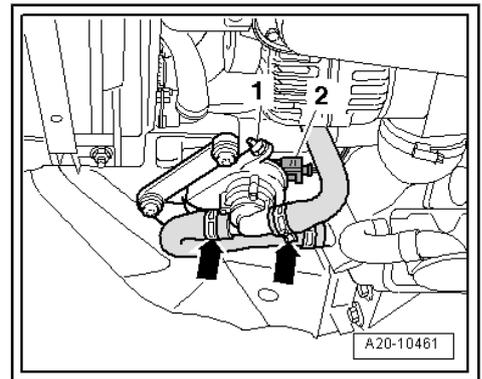


- Unplug electrical connector -2- for fuel cooling pump -V166- .

i Note

Place a cloth underneath to catch escaping coolant.

- Clamp off coolant hoses -arrows- with hose clamps -3094- and detach.
- Remove bolt -1- and detach fuel cooling pump -V166- .



Installing

Installation is carried out in the reverse order; note the following:

- Check coolant level => Rep. Gr. 19 .

3.13 Checking fuel gauge senders

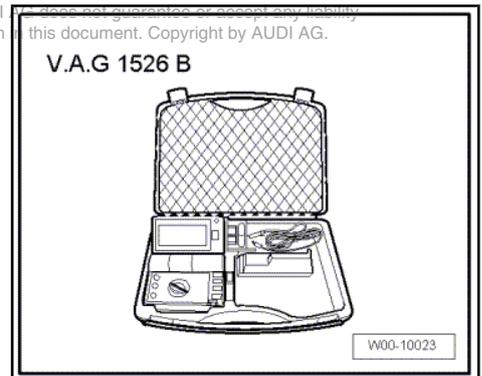
i Note

- ◆ *Checking signal from fuel gauge sender => Rep. Gr. 90 .*
- ◆ *Before removing the two fuel gauge senders, use an ohmmeter to check whether the resistance values correspond to the actual fuel gauge reading. The two fuel gauge senders are wired in series. The two resistance values must therefore be added together in order to compare them with the fuel gauge reading.*

Special tools and workshop equipment required

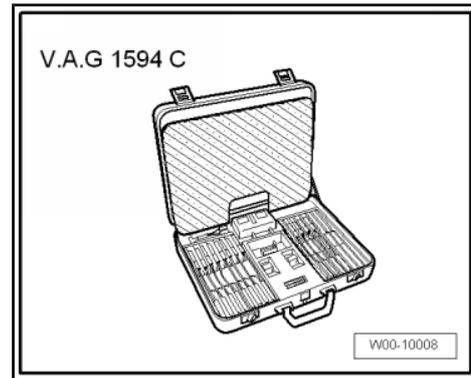
- ◆ Hand-held multimeter -V.A.G 1526 C-

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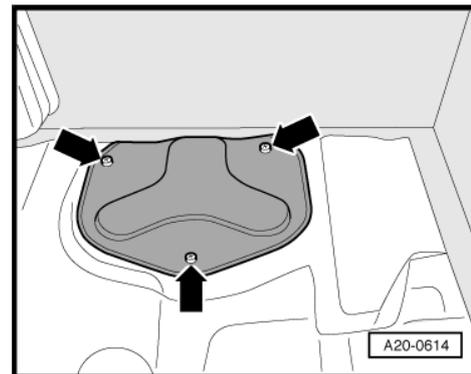
◆ Auxiliary measuring set -V.A.G 1594 C-



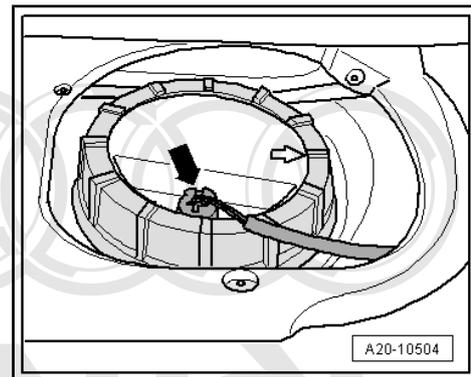
Procedure

Proceed as follows:

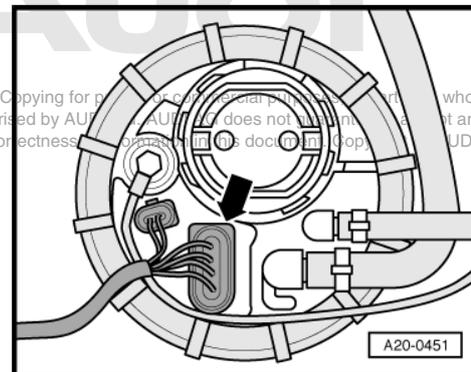
- Remove bolts -arrows- on right and left under floor trim in luggage compartment and detach covers.



- Release and unplug electrical connector -arrow- from flange (left-side).

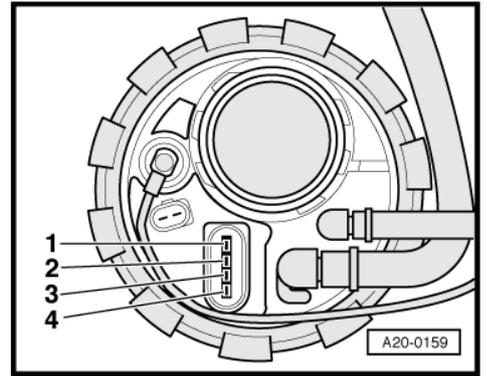


- Release and unplug electrical connector for fuel gauge sender -arrow- at right flange.



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- Connect hand-held multimeter -V.A.G 1526 C- (resistance measurement range) to fuel gauge sender -G- (right-side) between contacts -2- and -3-.



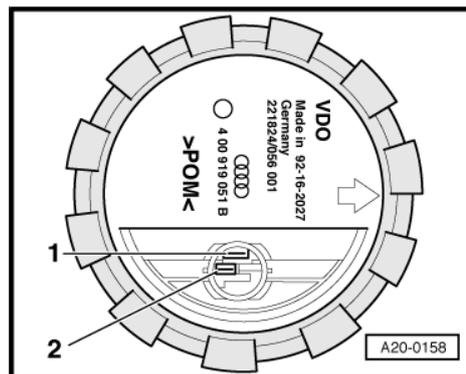
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- Connect hand-held multimeter -V.A.G 1526 C- (resistance measurement range) to fuel gauge sender 2 -G169- (left-side) between contacts -1- and -2-.
- Add together the resistance values of the two senders and compare to following table.

**Note**

- ◆ Left chamber of fuel tank is always emptied first.
- ◆ If the fuel tank is still $\frac{1}{4}$ full, the resistance measured at fuel gauge sender -G- (right-side) should therefore be 80 ... 100 Ω and on fuel gauge sender 2 -G169- (left-side) 40 ... 44 Ω .
- ◆ A resistance of 40 ... 44 Ω at fuel gauge sender 2 -G169- (left-side) indicates that the left chamber has been completely drained of fuel.



Gauge mark	Resistance Ω	Content in ltr.
Empty	166 \pm 7	0
Res. 1 ¹⁾	154 \pm 7	12
1/4	131 \pm 7	22
1/2	88 \pm 6	42
1/1 ²⁾	12 \pm 4	87
1/1 ³⁾	9 \pm 4	92

- 1) First mark in reserve fuel range
- 2) Needle exactly on maximum gauge mark.
- 3) Needle beyond maximum gauge mark.

**Note**

- ◆ In order to test the resistance values for "tank full" and "tank empty", both fuel gauge senders must be removed: fuel gauge sender -G- \Rightarrow page 54, fuel gauge sender 2 -G169- \Rightarrow page 56. Move the float of both fuel gauge senders all the way to its top position or allow it to drop to its bottom position.
- ◆ The following values are obtained with the fuel gauge sender removed, due to the greater travel of the float:

Sender unit	Float at upper stop	Float at lower stop
Fuel gauge sender -G- (on fuel delivery unit)	approx. 4.4 Ω	approx. 125 Ω
Fuel gauge sender 2 -G169- (left-side)	approx. 5.8 Ω	approx. 45 Ω

3.14 Removing and installing fuel gauge sender -G-

Special tools and workshop equipment required

◆ Special wrench -2012 A-

Removing

Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Briefly open filler cap for fuel tank and close again.
- Remove bolts -arrows- on right under floor trim in luggage compartment and detach cover.

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Note

Leave fuel pipes and electrical connectors attached.

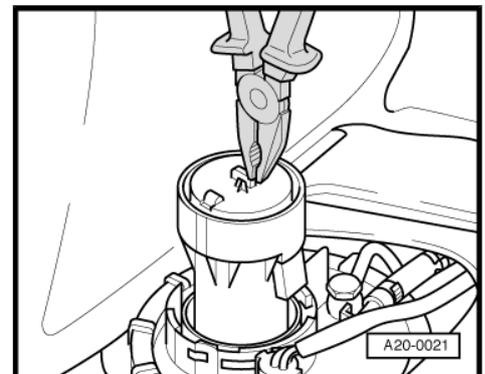
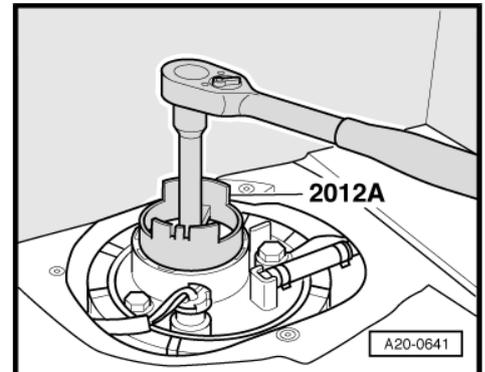
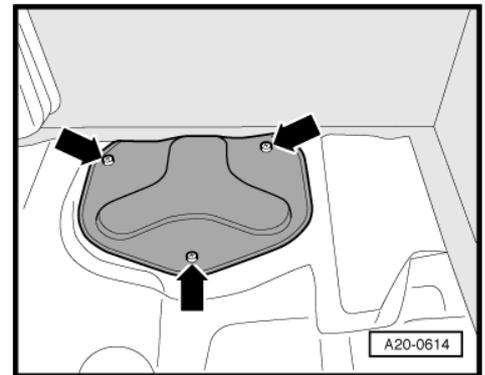
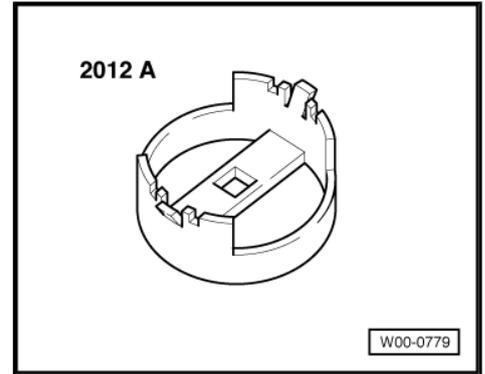
- Open sealing flange for fuel gauge sender -G- in clockwise direction using special wrench -2012 A- and detach. Take out spring beneath it.

- Use pliers to carefully raise fuel gauge sender -G- slightly.
- Take hold of fuel gauge sender -G- and unplug connector -arrow-.
- Lift fuel gauge sender -G- slightly further and wait until all the fuel has drained from the sender to the fuel tank.
- Now pull out fuel gauge sender -G- all the way.
- Secure electrical connector to prevent it from dropping into tank.



Note

- ◆ *If the cover for fuel gauge sender -G- becomes detached when the sender is pulled out, the sender housing must be removed separately.*
- ◆ *Renew fuel gauge sender -G- if cover has become detached.*





Installing

- Tightening torques ⇒ [page 14](#)

Installation is carried out in the reverse order; note the following:

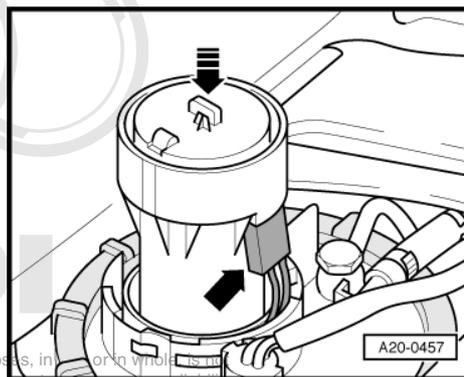
- Insert fuel gauge sender -G- :
- Attach electrical connector -arrow- while inserting fuel gauge sender -G- .



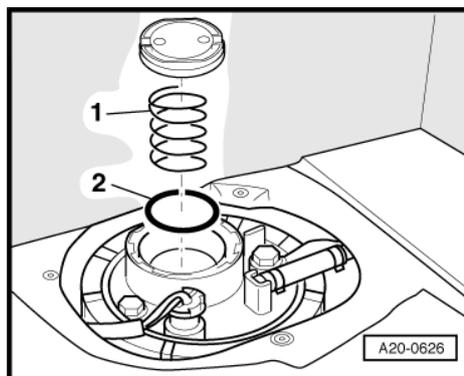
Note

Fuel gauge sender -G- can only be inserted in one position. Turn slightly if necessary.

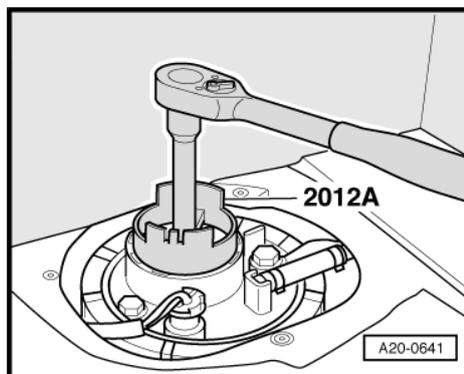
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- Fit new O-ring -2- onto fuel gauge sender -G- .
- Insert spring -1-.



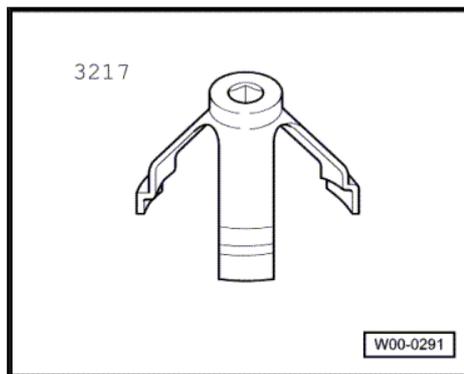
- Use special wrench -2012 A- and tighten flange for fuel gauge sender -G- as far as stop in anti-clockwise direction.



3.15 Removing and installing fuel gauge sender 2 -G169- (left-side)

Special tools and workshop equipment required

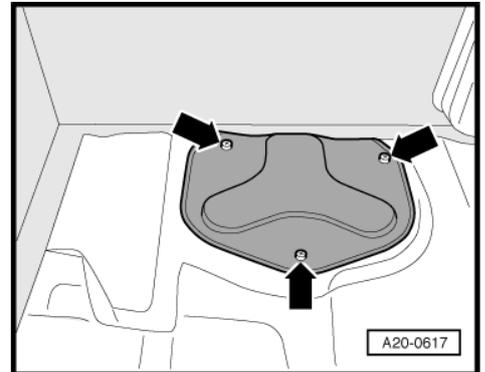
- ◆ Union nut tool -3217-



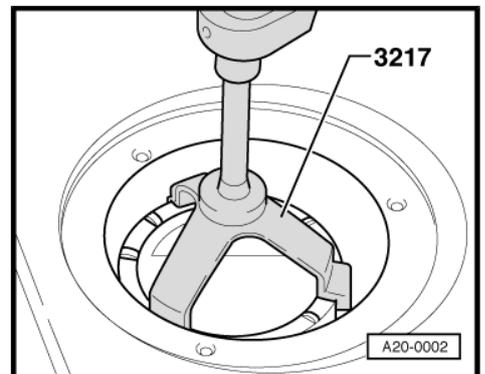
Removing

Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Briefly open filler cap for fuel tank and close again.
- Remove bolts -arrows- on left under floor trim in luggage compartment and detach cover.
- Release and unplug 2-pin electrical connector.



- Unscrew union nut with union nut tool -3217- and detach.
- Carefully pull out fuel gauge sender 2 -G169- and detach seal.



Installing

- Tightening torques ⇒ [page 14](#)

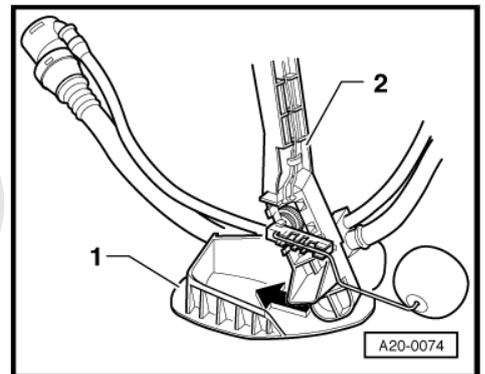
Installation is carried out in the reverse order; note the following:

- Insert fuel gauge sender 2 -G169- .
- Lever-type sender -2- must be properly engaged in retainer -1-.



Note

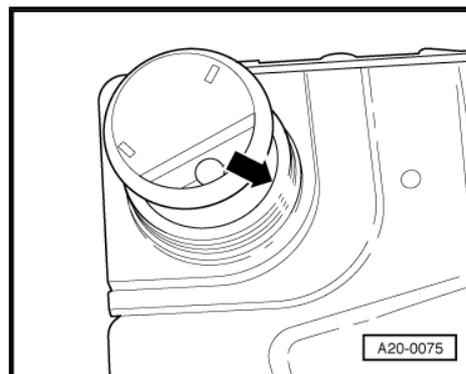
- ◆ *The lever-type sender must press down the retainer attached to the pipes for the left suction jet pump. The left suction jet pump is thus pressed against the bottom of the fuel tank.*
- ◆ *If this is not the case, the left chamber of the fuel tank cannot be completely drained. The engine will stop due to fuel starvation, although the fuel tank still contains 10 ... 14 litres of fuel.*



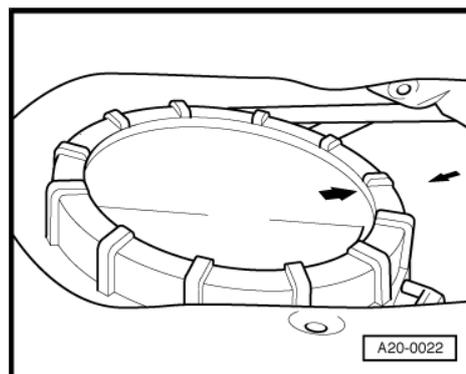
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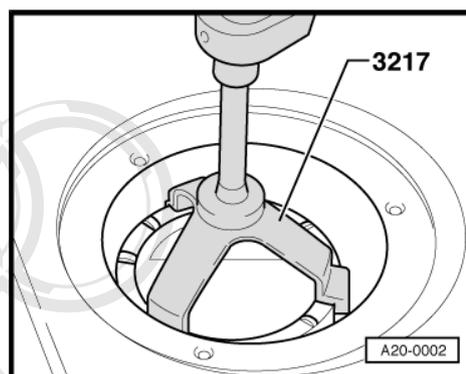
- Look down the side of the opening into the fuel tank -arrow- when inserting the sender.



- Once you have checked that lever-type sender is engaged in retainer, press sender into opening and turn until the two arrows are exactly aligned.



- Tighten union nut using union nut tool -3217- .



3.16 Checking low fuel level sender -G210-



Note

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Low fuel level sender -G210- serves to monitor the fuel level in the baffle housing of the fuel tank. If the contents of the tank drop below a certain level, the diesel direct injection system control unit -J248- receives a signal from -G210- and cuts off the injection. This prevents the high-pressure pump from drawing in air, as otherwise it would have to be bled after filling the tank.

Special tools and workshop equipment required

◆ Hand-held multimeter -V.A.G 1526 C-



◆ Auxiliary measuring set -V.A.G 1594 C-

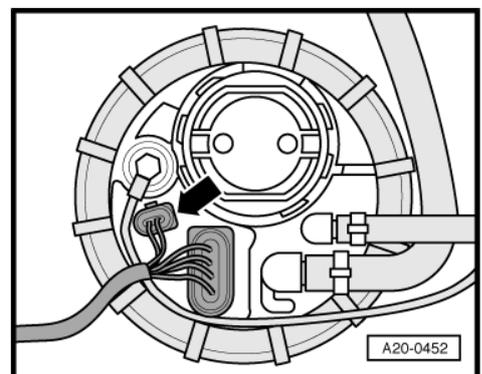
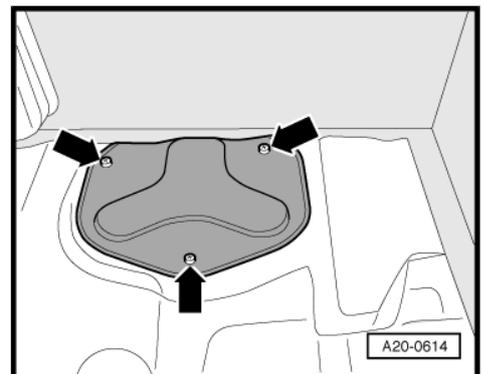
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Procedure

Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Briefly open filler cap for fuel tank and close again.
- Remove bolts -arrows- on right under floor trim in luggage compartment and detach cover.
- Release and unplug 2-pin electrical connector -arrow-.



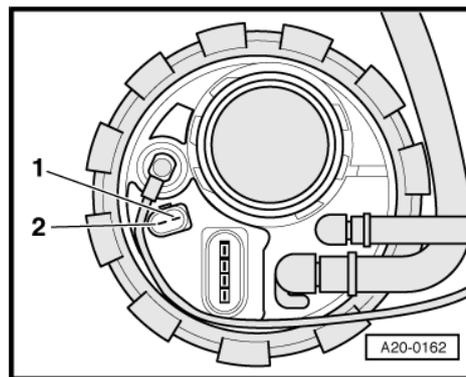


- Connect hand-held multimeter -V.A.G 1526 C- (resistance measurement range) to low fuel level sender -G210- between contacts -1- and -3-.
- Fuel level in baffle housing OK: specification approx. 430 Ω .
- Fuel level in baffle housing too low: specification approx. 100 Ω .



Note

Remove fuel pump with baffle housing to check upper and lower values. Measure resistance values with baffle housing in normal position and turned upside down.



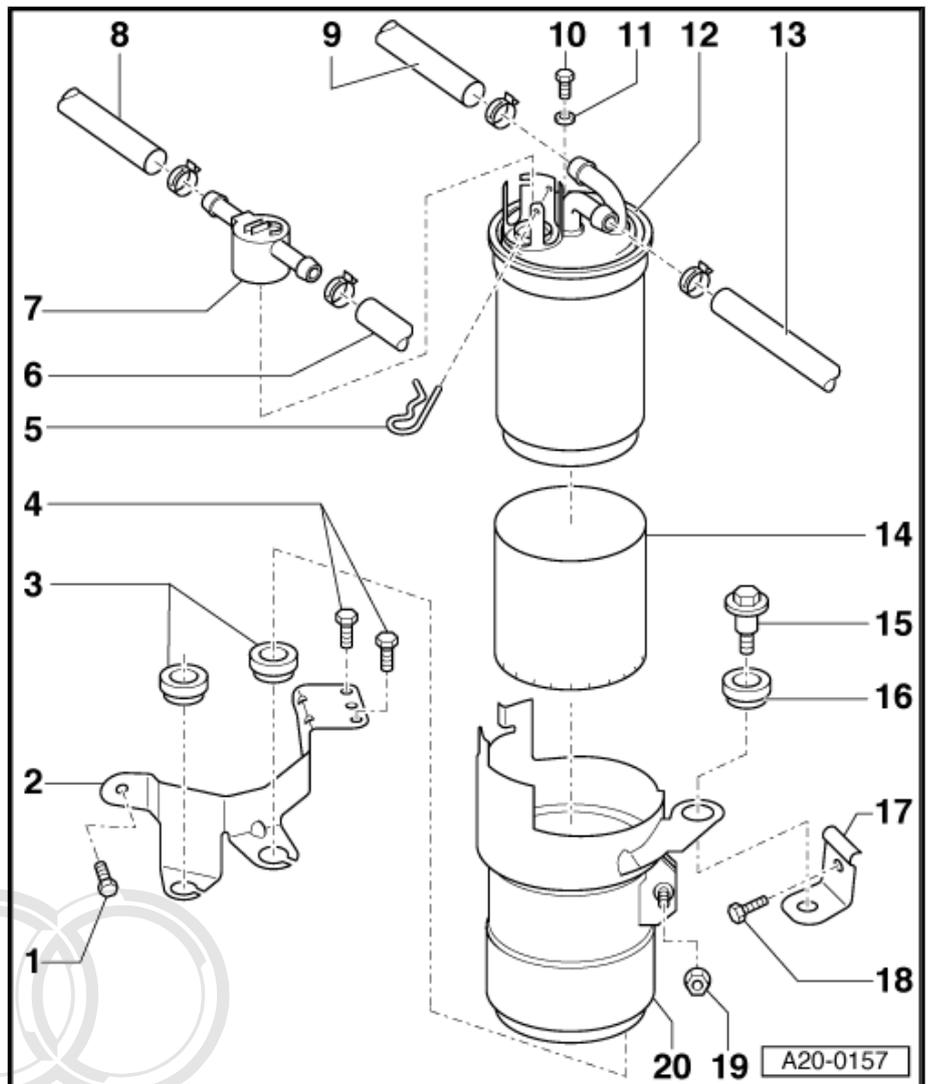
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4 Fuel filter

4.1 Fuel filter - exploded view

- 1 - Bolt**
 - 10 Nm
- 2 - Bracket**
 - For fuel filter
- 3 - Rubber grommet**
 - Engage in bracket -item 2-
 - Installation position: Side with shoulder faces upwards
- 4 - Bolts**
 - 10 Nm
- 5 - Retaining clip**
- 6 - Fuel return pipe**
 - From high-pressure pump
- 7 - Regulating valve**
 - Installation position: arrow points towards fuel tank
 - When changing filter, remove retaining clip and take off regulating valve with fuel hoses still attached.
 - Make sure O-ring in filter housing is in correct position when fitting regulating valve
 - Temperatures below + 15 °C: Passage to filter open
 - Temperatures over 31 °C: Passage to filter closed
- 8 - Fuel return pipe**
 - To fuel tank
- 9 - Fuel supply pipe**
 - From fuel tank
- 10 - Water drain plug**
 - 4 Nm
- 11 - Seal**
 - Renew
- 12 - Fuel filter**
 - Fitting location: front right of engine compartment.
 - With seal for regulating valve
 - Flow direction is marked by arrows



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- Do not interchange connections
 - Maintenance intervals ⇒ Maintenance tables
 - Bleeding fuel pipes and fuel filter:
- ◆ Vehicles with 6-cylinder engine ⇒ Rep. Gr. 23 ; Bleeding fuel system
 - ◆ Vehicles with 8-cylinder engine ⇒ Rep. Gr. 23 ; Bleeding fuel system after installing high-pressure pump

13 - Fuel supply pipe

- To high-pressure pump

14 - Insert

- Slide onto filter

15 - Flange bolt

- 10 Nm

16 - Rubber grommet

- Engage in bracket -item 17-
- Installation position: Side with shoulder faces upwards

17 - Bracket

- For fuel filter

18 - Bolt

- 10 Nm

19 - Nut

- 10 Nm

20 - Bracket

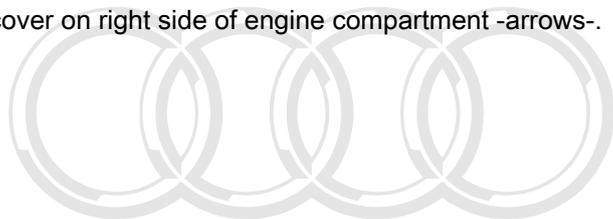
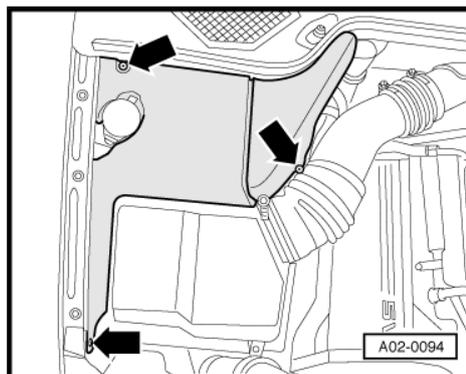
- For fuel filter
- Engage in bracket -item 2- and secure to bracket -item 17-

4.2 Removing and installing fuel filter

Removing

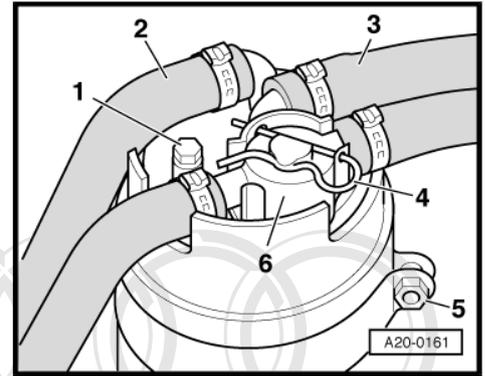
Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Remove cover on right side of engine compartment -arrows-.



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- Pull off retaining clip -4-.
- Take off regulating valve -6- with fuel hoses connected.
- Disconnect fuel hoses -2- and -3- from hose connections.
- Loosen locking nut -5- on bracket and take fuel filter out of bracket.



Installing

- Tightening torques ⇒ [page 61](#)

Installation is carried out in the reverse order; note the following:

- Slide plastic insert onto new filter.
- Insert fuel filter into bracket and secure with locking nut -5-.
- Fill new filter with clean diesel fuel. This will enable the engine to start more quickly.
- Pay attention to O-ring in filter housing when fitting regulating valve.
- Install regulating valve with fuel lines connected.
- Fit retaining clip -4-.
- Push fuel hoses -2- and -3- onto hose connections and secure with hose clips.

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4.3 Bleeding fuel system

- ◆ Vehicles with 6-cylinder engine ⇒ Rep. Gr. 23 ; Bleeding fuel system .
- ◆ Vehicles with 8-cylinder engine ⇒ Rep. Gr. 23 ; Bleeding fuel system after installing high-pressure pump .

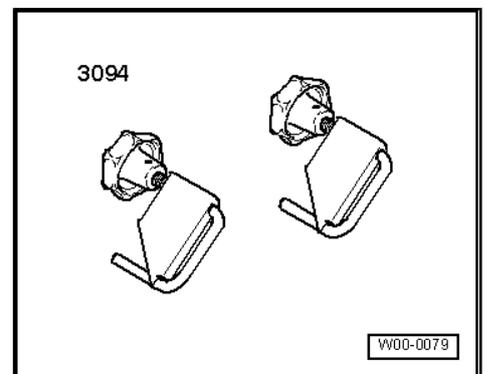
4.4 Checking fuel system for leaks - vehicles with 6-cylinder engine

A leaking fuel system can cause:

- ◆ Foam build-up or air bubbles in the supply pipe
- ◆ Lack of power, misfiring
- ◆ Starting problems

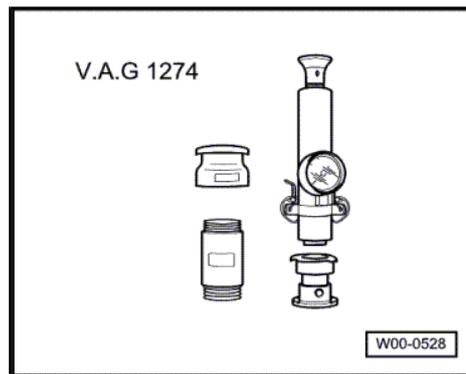
Special tools and workshop equipment required

- ◆ Hose clamps for hoses up to 25 mm -3094-





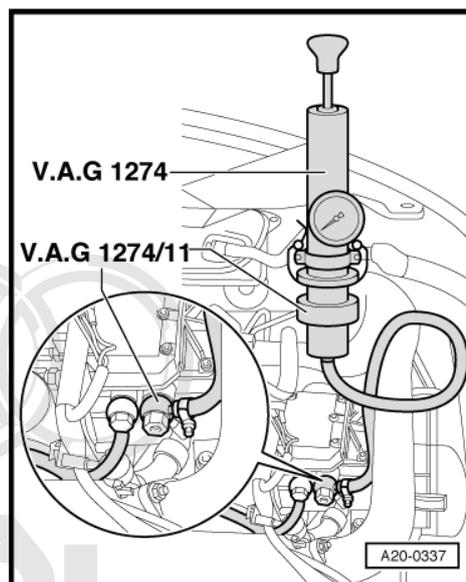
- ◆ Cooling system tester -V.A.G 1274- with adapter -V.A.G 1274/11-



Procedure

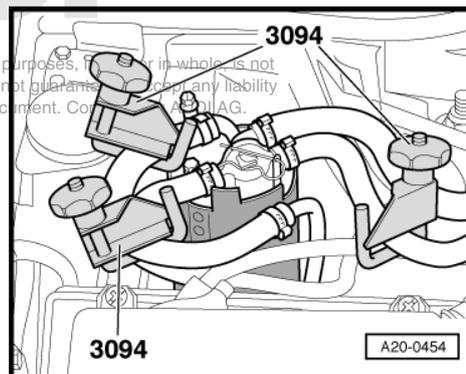
Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Secure adapter -V.A.G 1274/11- to cooling system tester - V.A.G 1274- .
- Unscrew fuel return line at high-pressure pump and in its place connect up hose of adapter -V.A.G 1274/11- .



- Using hose clamps -3094- , clamp off fuel hoses at the following points:

- ◆ Fuel supply hose behind fuel filter
- ◆ Fuel return hose behind fuel filter
- ◆ Fuel return hose to high-pressure pump

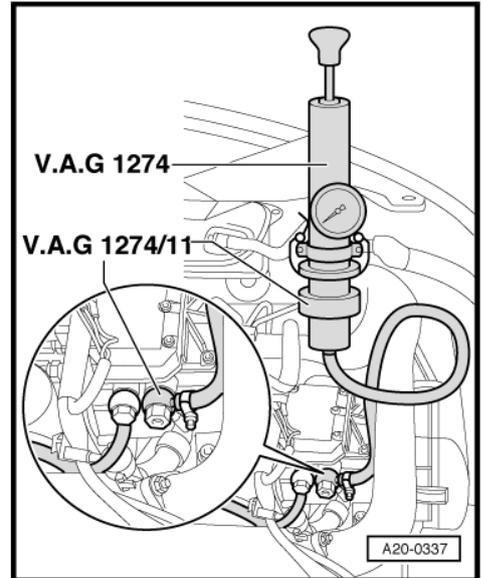


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- Using hand pump on cooling system tester, build up a pressure of approx. 1.0 ... 1.5 bar.
- If this pressure drops continuously, locate and rectify leaks.

i Note

By moving the hose clamps from the filter to the fuel tank connections it is also possible to check the fuel hoses at the same time.



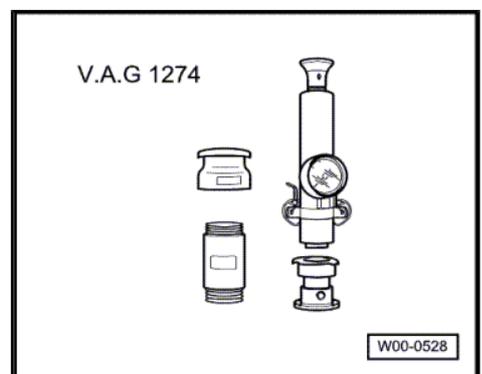
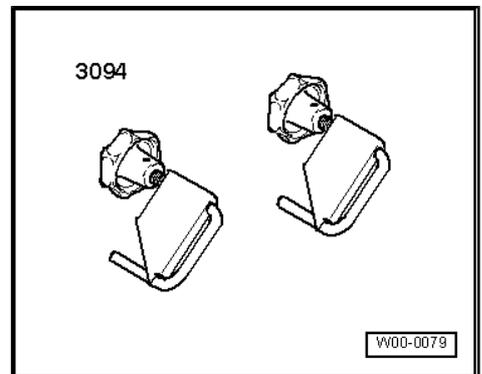
4.5 Checking fuel system for leaks - vehicles with 8-cylinder engine

A leaking fuel system can cause:

- ◆ Foam build-up or air bubbles in the supply pipe
- ◆ Lack of power, misfiring
- ◆ Starting problems

Special tools and workshop equipment required

- ◆ Hose clamps for hoses up to 25 mm -3094-



- ◆ Cooling system tester -V.A.G 1274- with adapter -V.A.G 1274/11-



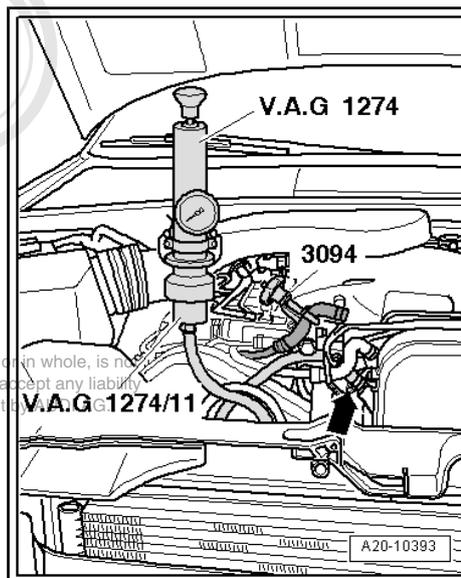
Audi

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Procedure

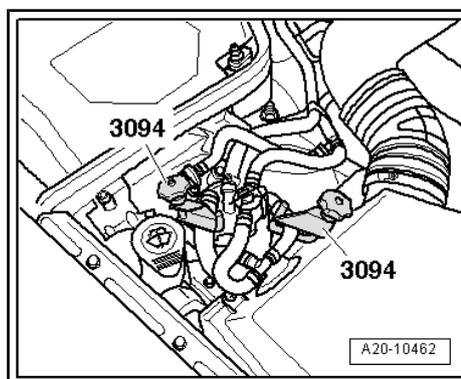
Proceed as follows:

- Observe safety precautions ⇒ [page 1](#) .
- Observe rules for cleanliness ⇒ [page 1](#) .
- Detach ring connector from adapter -V.A.G 1274/11- .
- Secure adapter -V.A.G 1274/11- to cooling system tester - V.A.G 1274- .
- Unscrew fuel return line at high-pressure pump, in its place connect up hose of adapter -V.A.G 1274/11- and secure with hose clip -arrow-
- Use hose clamp -3094- to clamp off free return line.



- Using hose clamps -3094- , clamp off fuel hoses at the following points:

- ◆ Fuel supply hose behind fuel filter
- ◆ Fuel return hose behind fuel filter

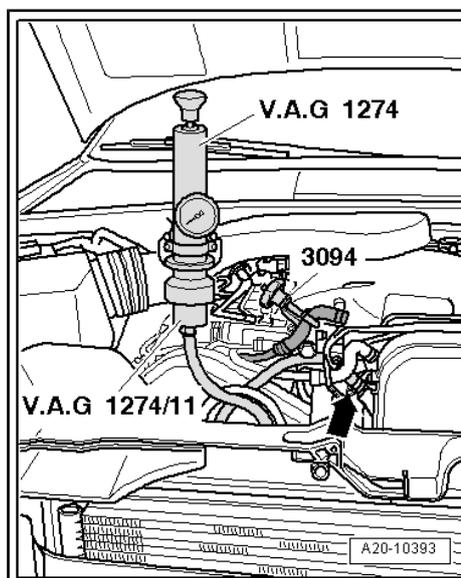


- Using hand pump on cooling system tester, build up a pressure of approx. 1.0 ... 1.5 bar.
- If this pressure drops continuously, locate and rectify leaks.



Note

By moving the hose clamps from the filter to the fuel tank connections it is also possible to check the fuel hoses at the same time.



5 Accelerator mechanism

5.1 Accelerator mechanism on left-hand drive vehicles - exploded view

Version up to 01.1999

1 - Nut

- 8 Nm

2 - Bracket

3 - Nut

- 8 Nm

4 - Spring washer

5 - Cable cam

- With cable guide
- Installation position
 ⇒ [page 75](#)

6 - Accelerator position sender -G79-

- Adjusting ⇒ [page 75](#)

7 - Bolt

- 8 Nm

8 - Nut

- 8 Nm

9 - Accelerator pedal

10 - Accelerator pedal stop

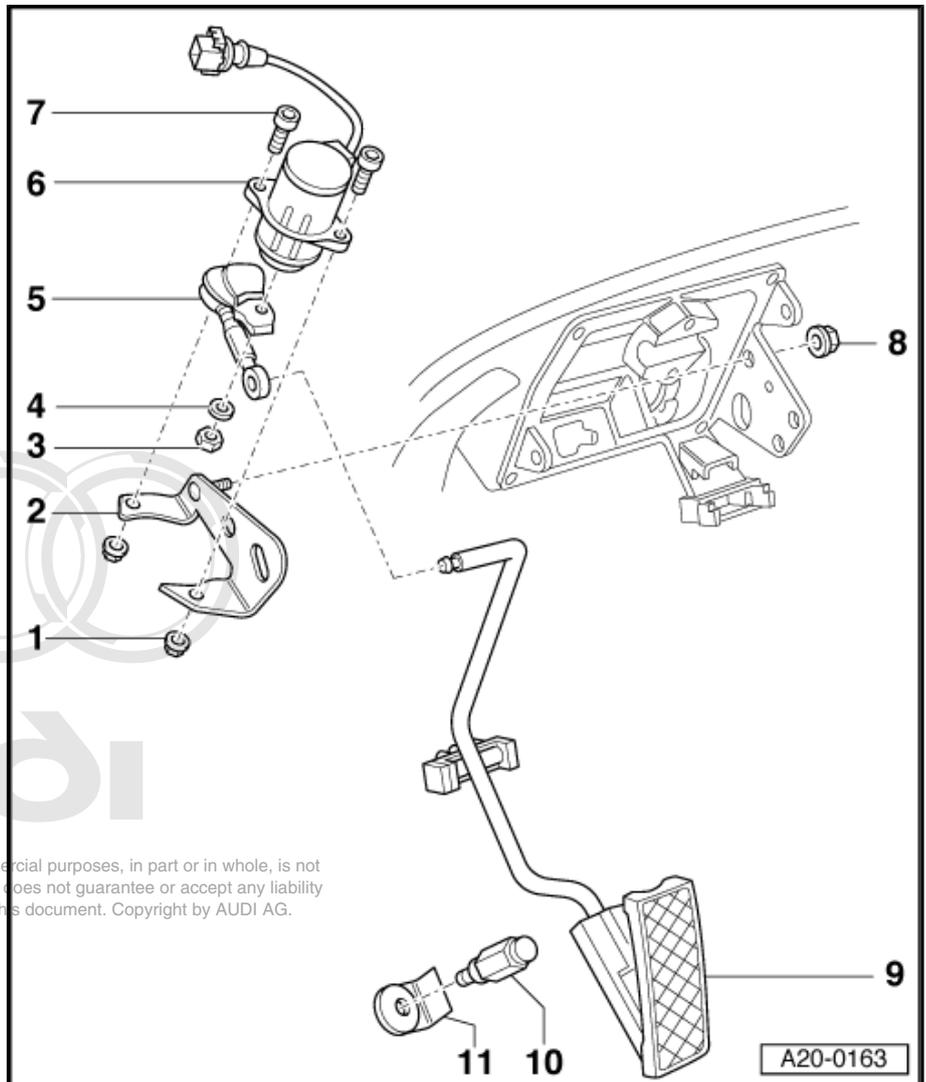
- Identification:

- ◆ Vehicles with manual gearbox: 2 grooves

- ◆ Vehicles with automatic gearbox: 1 groove

- Unbolt to remove

11 - Base plate



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Version from 02.1999 onwards



1 - Bolt

- 5 Nm

2 - Cover

3 - Nut

- 8 Nm

4 - Bracket

5 - Nut

- 8 Nm

6 - Spring washer

7 - Cable cam

- With cable guide
- Installation position => [page 75](#)

8 - Accelerator position sender -G79-

- Adjusting => [page 75](#)

9 - Bolt

- 8 Nm

10 - Nut

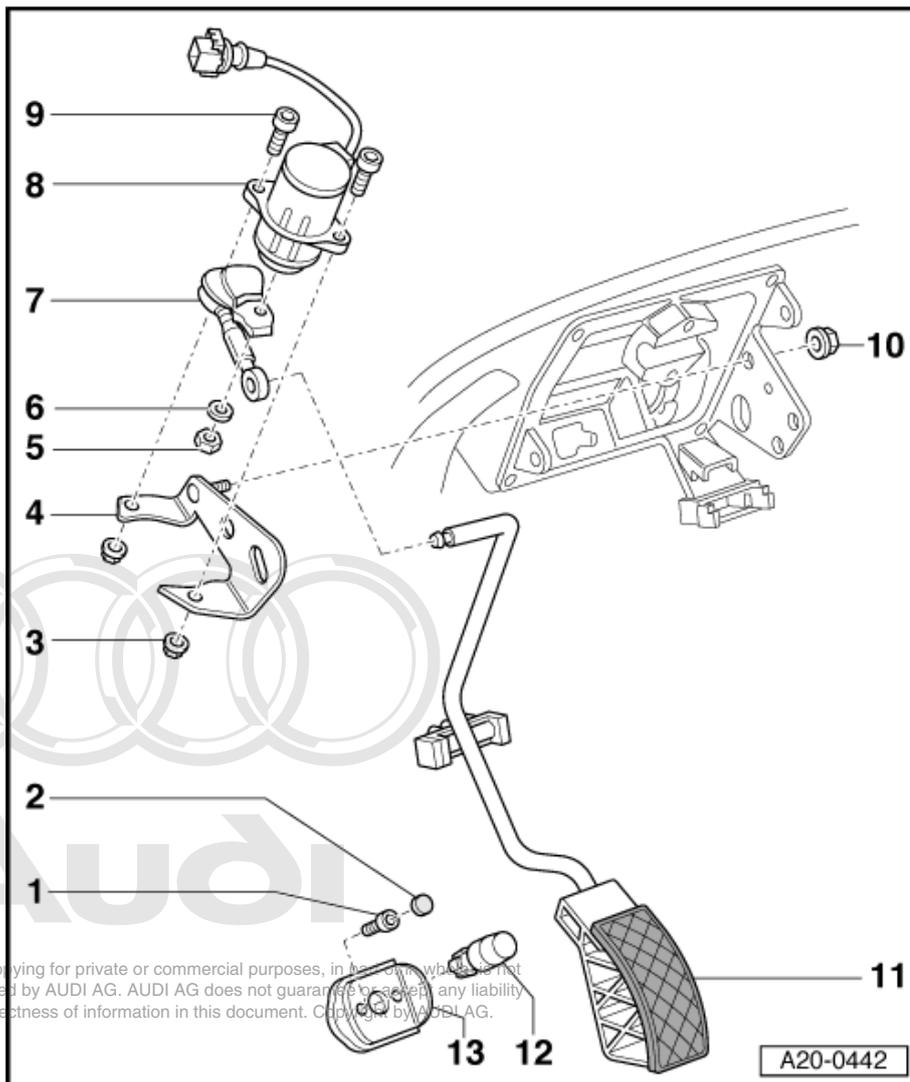
- 10 Nm

11 - Accelerator pedal

12 - Accelerator pedal stop

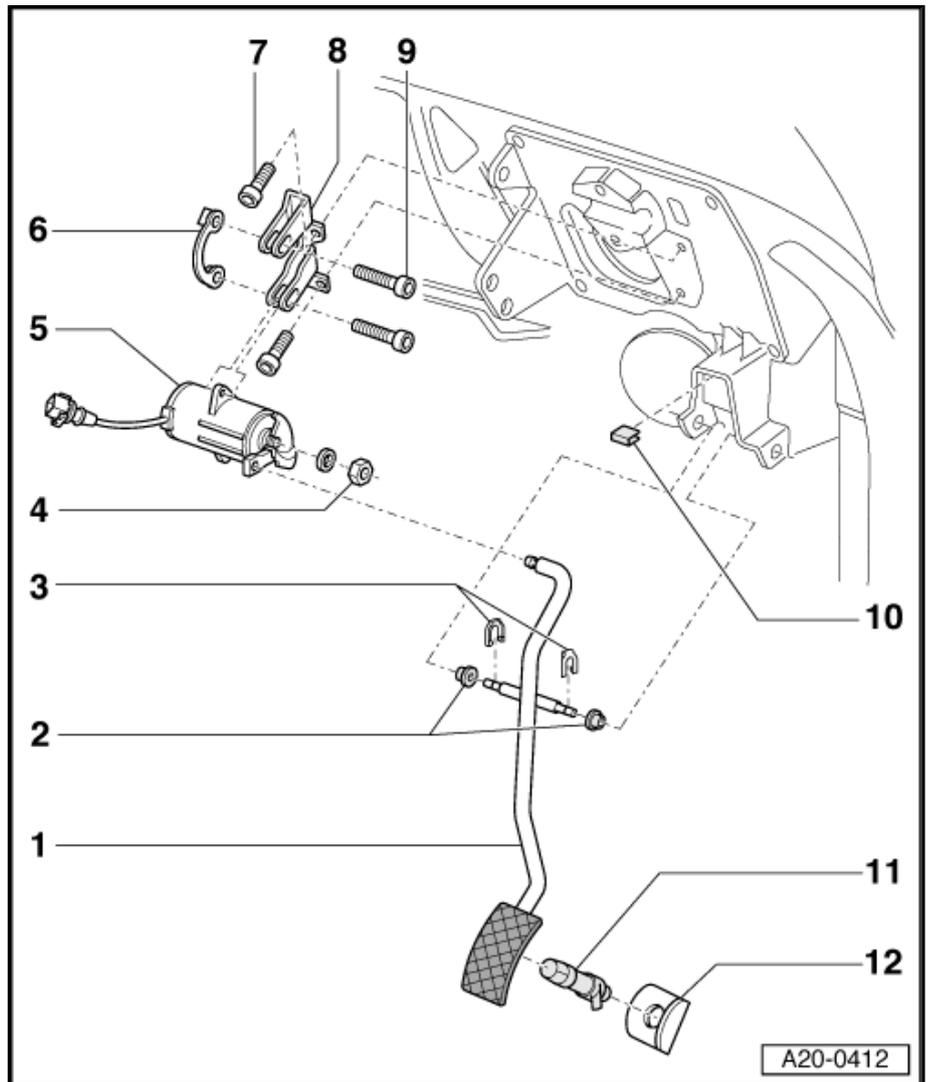
- Fixed for vehicles with manual gearbox
- Incorporating kickdown switch -F8- in vehicles with automatic gearbox
- Check kickdown switch -F8- in measured value block => Automatic gearbox 01L, Self-diagnosis; Rep. Gr. 01
- To remove, carefully lift retaining tab and turn accelerator pedal stop anti-clockwise

13 - Base plate



5.2 Accelerator mechanism on right-hand drive vehicles - exploded view

- 1 - Accelerator pedal
- 2 - Bearing bush
- 3 - Securing clip
 - Press onto shaft after inserting accelerator pedal
- 4 - Nut
 - 8 Nm
- 5 - Accelerator position sender -G79-
 - Adjusting ⇒ [page 75](#)
- 6 - Cable cam
 - With cable guide
 - Installation position ⇒ [page 75](#)
- 7 - Bolt
 - 8 Nm
- 8 - Bracket
- 9 - Bolt
 - 8 Nm
- 10 - Pad
- 11 - Accelerator pedal stop
 - With integrated kick-down switch -F8-
 - Check kickdown switch -F8- in measured value block ⇒ Automatic gear-box 01L, Self-diagnosis; Rep. Gr. 01
 - To remove, carefully lift retaining tab and turn accelerator pedal stop anti-clockwise



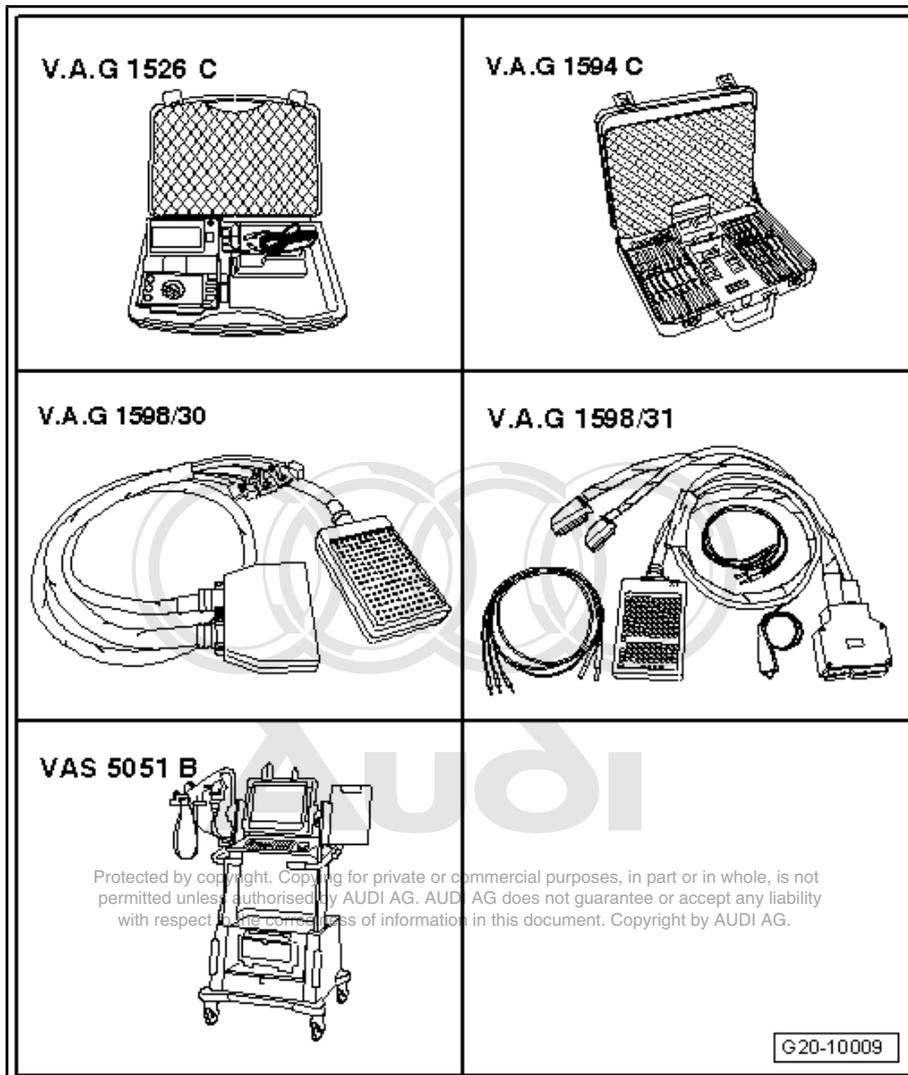
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5.3 Checking accelerator position sender -G79-

Special tools and workshop equipment required

- ◆ Hand-held multimeter - V.A.G 1526C-
- ◆ Auxiliary measuring set - V.A.G 1594C-
- ◆ Adapter -V.A.G 1598/30- (engine code letters: AFB with manual gearbox or automatic gearbox: AKN with manual gearbox and AKF)
- ◆ Adapter cable, 121-pin - V.A.G 1598/31- (engine code letters: AKE with manual gearbox or automatic gearbox: AKN with automatic gearbox)
- ◆ Vehicle diagnostic, testing and information system - VAS 5051B-

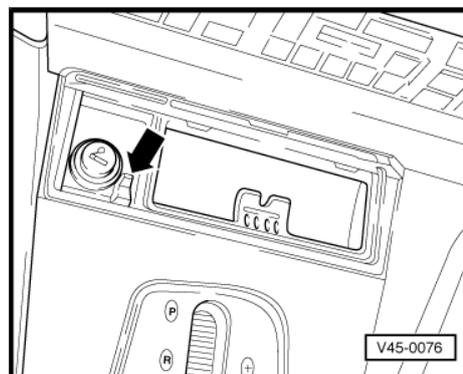


Procedure

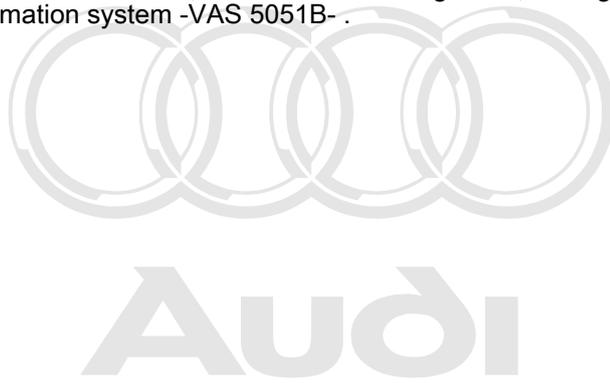
Proceed as follows:

Vehicles up to 01.1999:

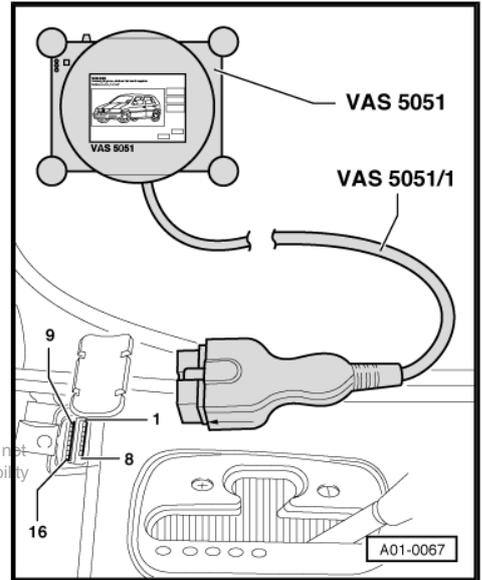
- Release ashtray from centre console by pressing small lever -arrow-.
- Take out ashtray and remove cover for diagnostic connector.



- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .

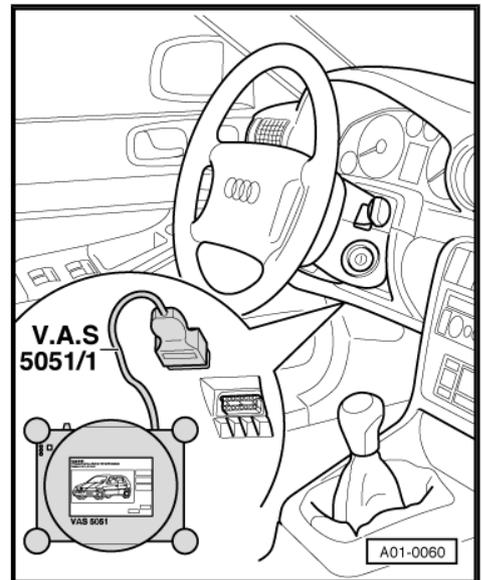


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Vehicles from 02.1999:

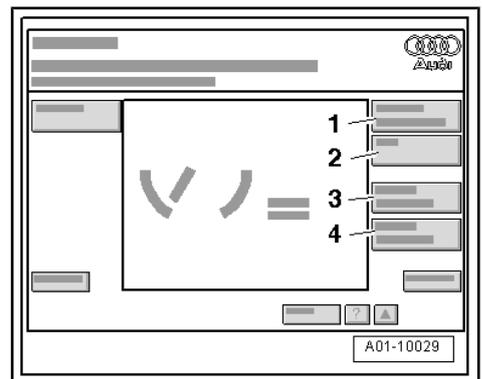
- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



All vehicles (continued):

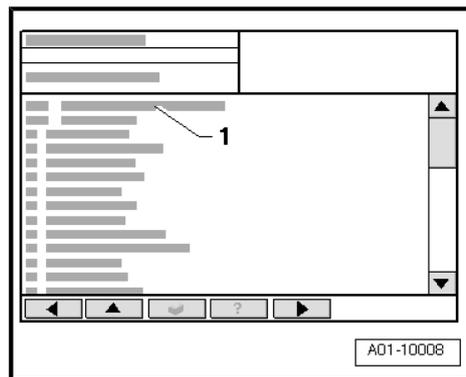
Display on -VAS 5051B- :

- Switch on ignition.
- Select Vehicle self-diagnosis from the list -item 1-.



Display on -VAS 5051B- :

- From menu -1-, select vehicle system "01 - Engine electronics" and press  key to continue.



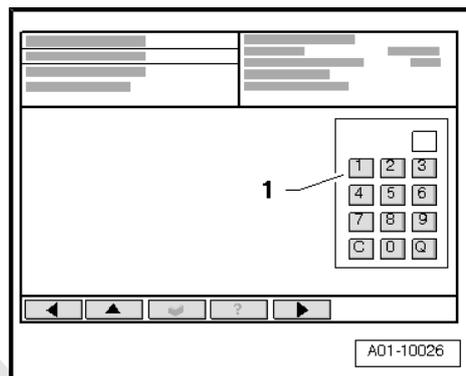
Display on -VAS 5051B- :

- From menu -1-, select diagnosis function "Measured values" and press  key to continue.



Display on -VAS 5051B- :

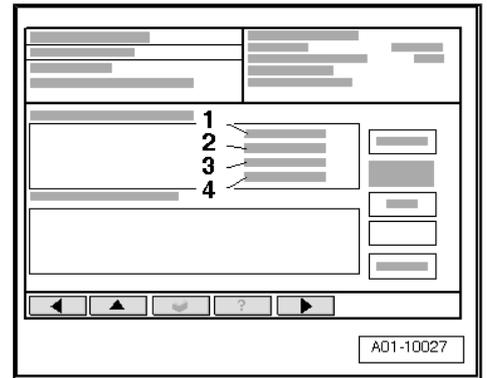
- Press key  on keypad -1- to select "Display group 002" and confirm entry by pressing key .



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Display on -VAS 5051B- :

- Check display in display zone -2-.
 - Accelerator pedal not depressed: specification 0.0 %.
- Check display in display zone -3-.
 - Accelerator pedal not depressed: specification 0 01 00.
 - Accelerator pedal depressed: specification 0 00 00.
 - Accelerator depressed past kickdown point: specification 0 10 00.
- Press accelerator pedal down slowly.



Vehicles with manual gearbox:

- Specification: the value in display zone -2- should increase steadily to 100 % (accelerator depressed to full-throttle position).

Vehicles with automatic gearbox:

- Specification: the value in display zone -2- should increase steadily to 100 % (accelerator depressed to full-throttle position, kickdown not depressed).

All vehicles (continued):

- If initial or final specifications are not attained, adjust accelerator position sender -G79- => [page 75](#) .

If the display does not change or only changes irregularly:

Checking internal resistance

- Switch off ignition.
- Remove driver's storage compartment => Rep. Gr. 68 .
- Unplug electrical connector at accelerator position sender - G79- .



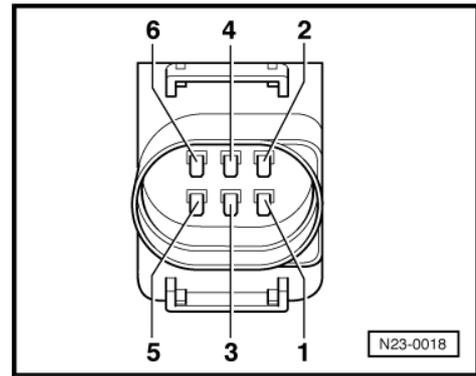
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- Connect hand-held multimeter -V.A.G 1526C- (resistance measurement range) to connector of accelerator position sender -G79- as follows.

Contacts	Accelerator pedal	Specification
1 + 3	Not depressed	0.6 ... 1.4 kΩ
2 + 3	Not depressed	0.6 ... 1.4 kΩ
4 + 6	Not depressed	0.6 ... 1.4 kΩ
	Pressed	$\infty \Omega$
5 + 6 ¹⁾	Not depressed	$\infty \Omega$
	Fully depressed	0.6 ... 1.4 kΩ

• ¹⁾ Only vehicles with automatic gearbox.



- Renew accelerator position sender -G79- if readings do not match specifications.

Checking wiring connection

- Electrical connector at accelerator position sender -G79- disconnected.
- Connect adapter or adapter cable to connectors of wiring harness for diesel direct injection system control unit -J248- (do not connect control unit):

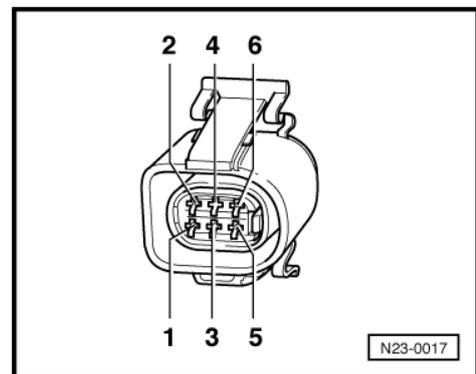
- ◆ Adapter -V.A.G 1598/30- (engine code letters: AFB with manual gearbox or automatic gearbox: AKN with manual gearbox and AKF) ⇒ Rep. Gr. 23 .

- ◆ Adapter cable, 121-pin -V.A.G 1598/31- (engine code letters: AKE with manual gearbox or automatic gearbox: AKN with automatic gearbox); earth clip must be connected to earth ⇒ Rep. Gr. 23 .

- Check for open circuit and short to positive or earth in the following wiring:

Connector for -G79- Contact	-V.A.G 1598/30- Socket	-V.A.G 1598/31- Socket
1	4/08	69
2	4/09	12
3	4/07	50
4	4/13	70
6 ¹⁾	4/34	63
6 ²⁾	4/12	51

• ¹⁾ Vehicles with manual gearbox.
• ²⁾ Vehicles with automatic gearbox.



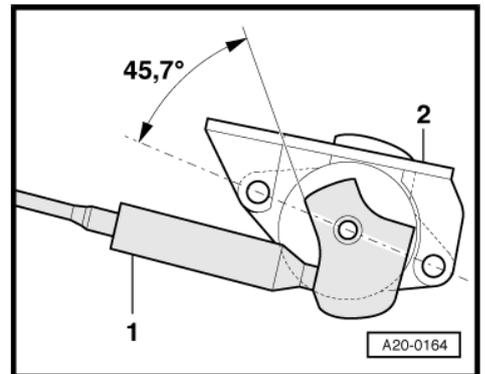
- Repair wiring connection if necessary ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

5.4 Adjusting accelerator position sender - G79-

Procedure

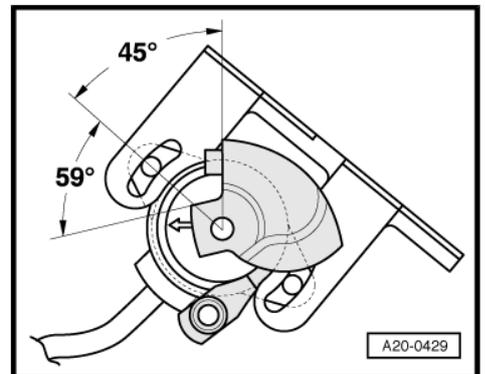
Left-hand drive vehicles:

- Vehicles up to 01.1999: accelerator pedal stop ⇒ [Item 10 \(page 67\)](#) installed (marking: 2 grooves).
 - Vehicles from 02.1999: accelerator pedal stop ⇒ [Item 12 \(page 68\)](#) installed (marking: 1 groove).
 - Fit cable cam as shown in illustration if accelerator position sender -G79- has been removed
 - Install accelerator position sender -G79- with pre-assembled cable cam.
- 1 - Cable cam with cable guide
 - 2 - Bracket for accelerator position sender -G79-



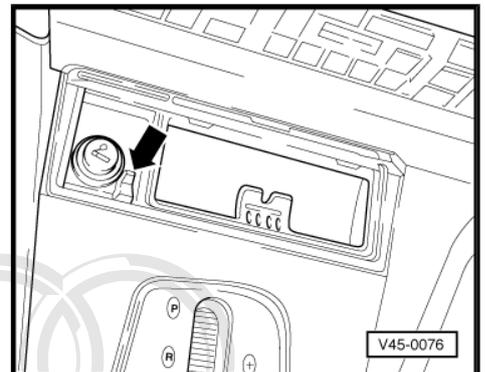
Right-hand drive vehicles:

- Accelerator pedal stop installed ⇒ [Item 11 \(page 69\)](#) .
- Fit cable cam as shown in illustration if accelerator position sender -G79- has been removed
- Install accelerator position sender -G79- with pre-assembled cable cam.



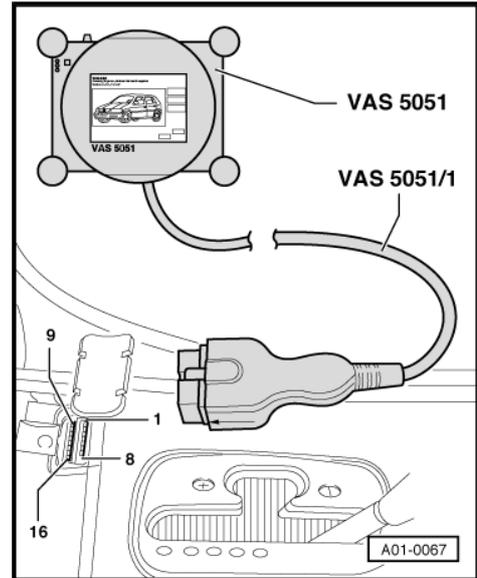
Vehicles up to 01.1999:

- Release ashtray from centre console by pressing small lever -arrow-.
- Take out ashtray and remove cover for diagnostic connector.



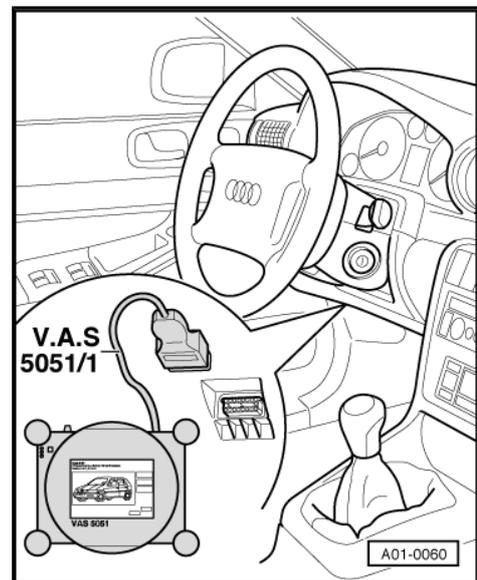
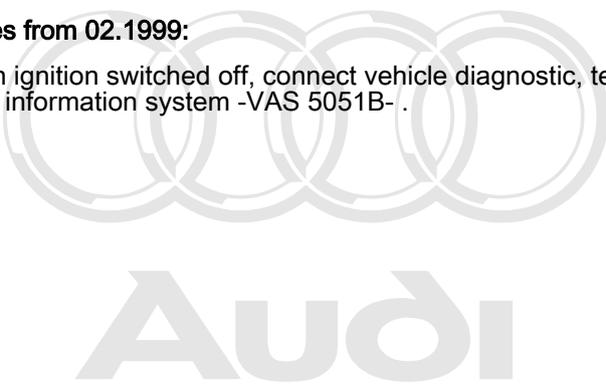


- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .



Vehicles from 02.1999:

- With ignition switched off, connect vehicle diagnostic, testing and information system -VAS 5051B- .

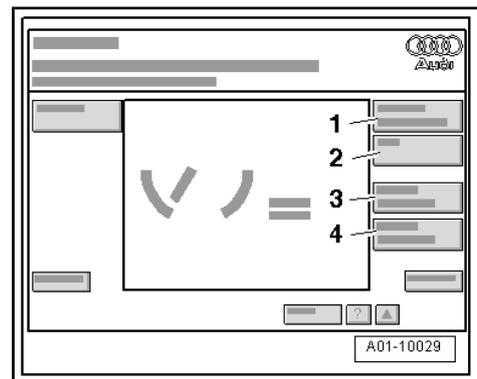


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All vehicles (continued):

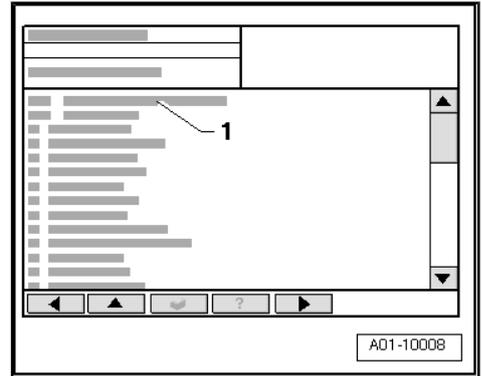
Display on -VAS 5051B- :

- Switch on ignition.
- Select vehicle self-diagnosis from the list -item 1-.



Display on -VAS 5051B- :

- From menu -1-, select vehicle system "01 - Engine electronics" and press key to continue.



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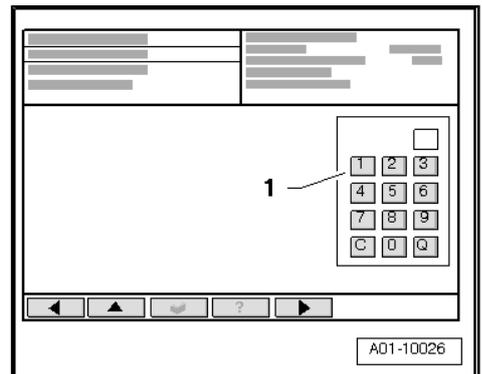
Display on -VAS 5051B-

- From menu -1-, select diagnosis function "Measured values" and press key to continue.



Display on -VAS 5051B- :

- Press key on keypad -1- to select "Display group 002" and confirm entry by pressing key .





Display on -VAS 5051B- :

- Check display in display zone -2-.
- Accelerator pedal not depressed: specification 0.0 %.
- Press accelerator pedal down slowly.
- Readout should increase steadily until it reaches 100 % (accelerator pedal fully depressed).



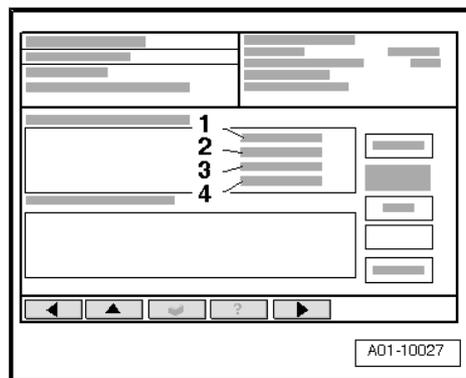
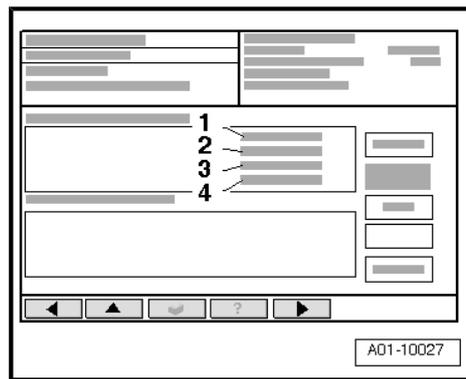
Note

The 100 % display should be reached exactly when the pedal contacts the full throttle stop. If 100 % is reached before the pedal contacts the stop, turn back the threaded collar accordingly.

- Check display in display zone -3-.
- Accelerator pedal not depressed: specification 0 01 00.
- Accelerator pedal depressed: specification 0 00 00.
- If initial or final specifications are not attained, turn threaded section of cable guide at cable cam.
- Measure difference in distance from floor of accelerator pedal and brake pedal.
- Specification: 53 mm

Vehicles with automatic gearbox:

- The adjustment procedure is the same as for vehicles with manual gearbox except for the following points:
- ◆ Vehicles up to 01.1999: when making the adjustment, the accelerator pedal stop for vehicles with manual gearbox must be installed (marking: 2 grooves).
- ◆ With this stop installed, adjust full throttle position (readout in display zone -2-: 100%).
- ◆ After performing adjustment procedure, fit accelerator pedal stop for vehicles with automatic gearbox (marking: 1 groove).
- ◆ Vehicles from 02.99: depress accelerator pedal to full throttle stop (readout in display zone -2-: 100%). Do not depress kick-down switch -F8- .
- Then check kick-down switch -F8- in display zone -3-:
- Accelerator pedal not depressed: specification 0 01 00.
- Accelerator pedal depressed: specification 0 00 00.
- Accelerator depressed past kickdown point: specification 0 10 00.



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