

Fuel supply system components, removing and installing

Note:

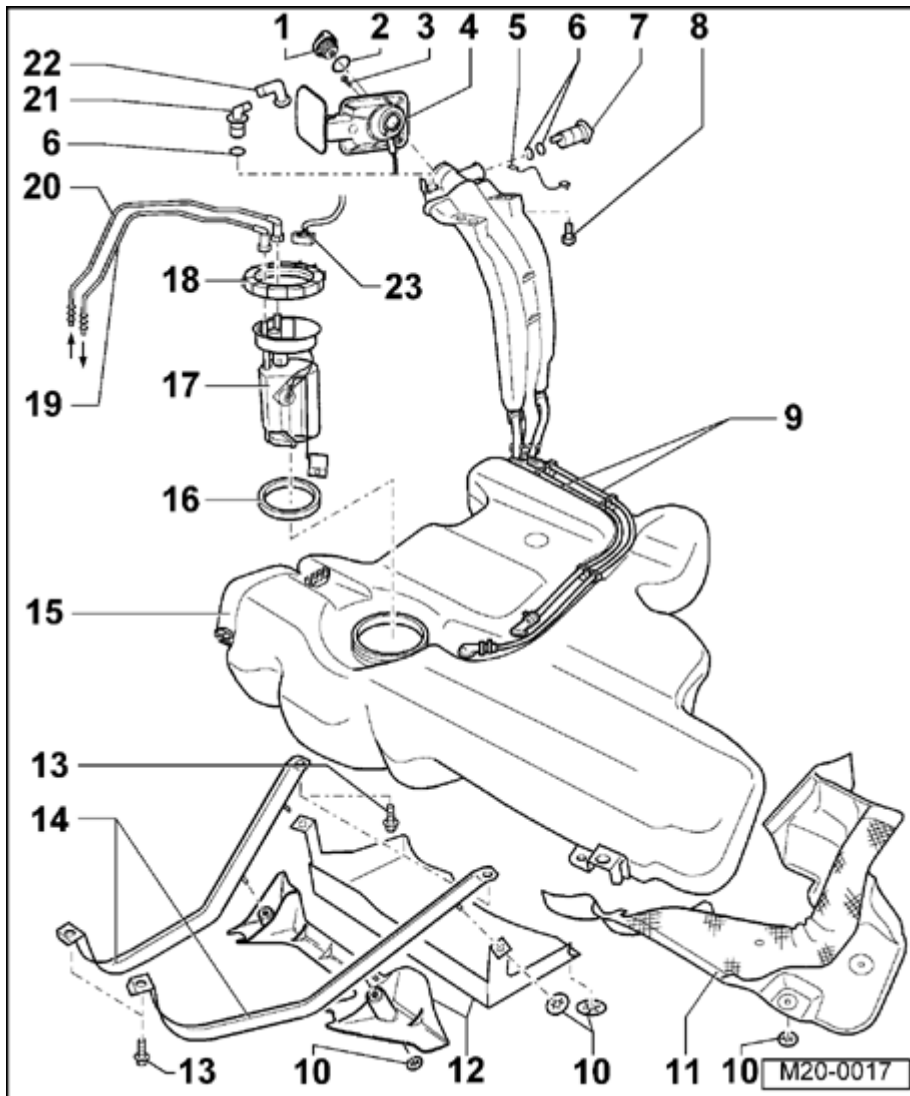
- ◆ *Hose connections are secured with either screw or spring clips.*
- ◆ *Fuel hoses at engine must be secured by spring clips. Do not use screw clamps.*
- ◆ *Use spring clip pliers VAG 1921.*
- ◆ *Always replace clamp-type clips with screw or spring clips.*

Fuel filter, servicing ⇒ [Page 20-8](#) .

Observe safety precautions ⇒ [Page 20-12](#) .

Observe rules of cleanliness ⇒ [Page 20-13](#) .

Accelerator mechanism, servicing ⇒ [Page 20-18](#) .



Fuel tank and components, removing and installing

1 - Fuel cap

- ◆ Secured with strap from MY 2000

2 - Seal

- ◆ Replace if damaged

3 - Bolt

4 - Tank filler flap unit

- ◆ With rubber cup

5 - Ground connection

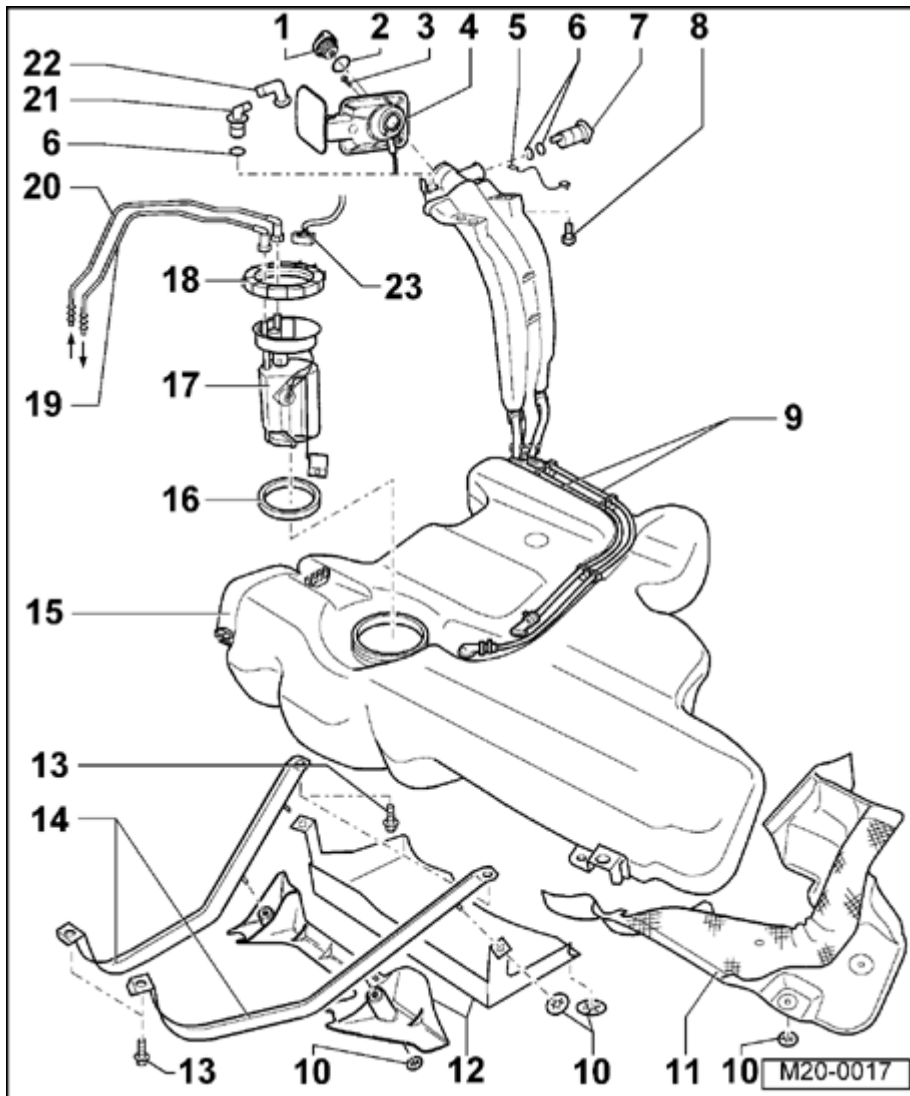
- ◆ Check for tight connection

6 - O-ring

- ◆ Always replace

7 - Vent valve

- ◆ To remove: unclip valve from side of filler neck
- ◆ Before installing, remove sealing cap (item - 1 -)
- ◆ Checking ⇒ [Page 20-7](#) , Fig. ⇒ [2](#)



8 - 10 Nm (7 ft lb)

9 - Vent line

- ◆ Color: black
- ◆ Must be securely seated
- ◆ Secure with spring clamps
- ◆ Clipped to fuel tank

10 - Clamping washer

11 - Heat shield

- ◆ For fuel tank

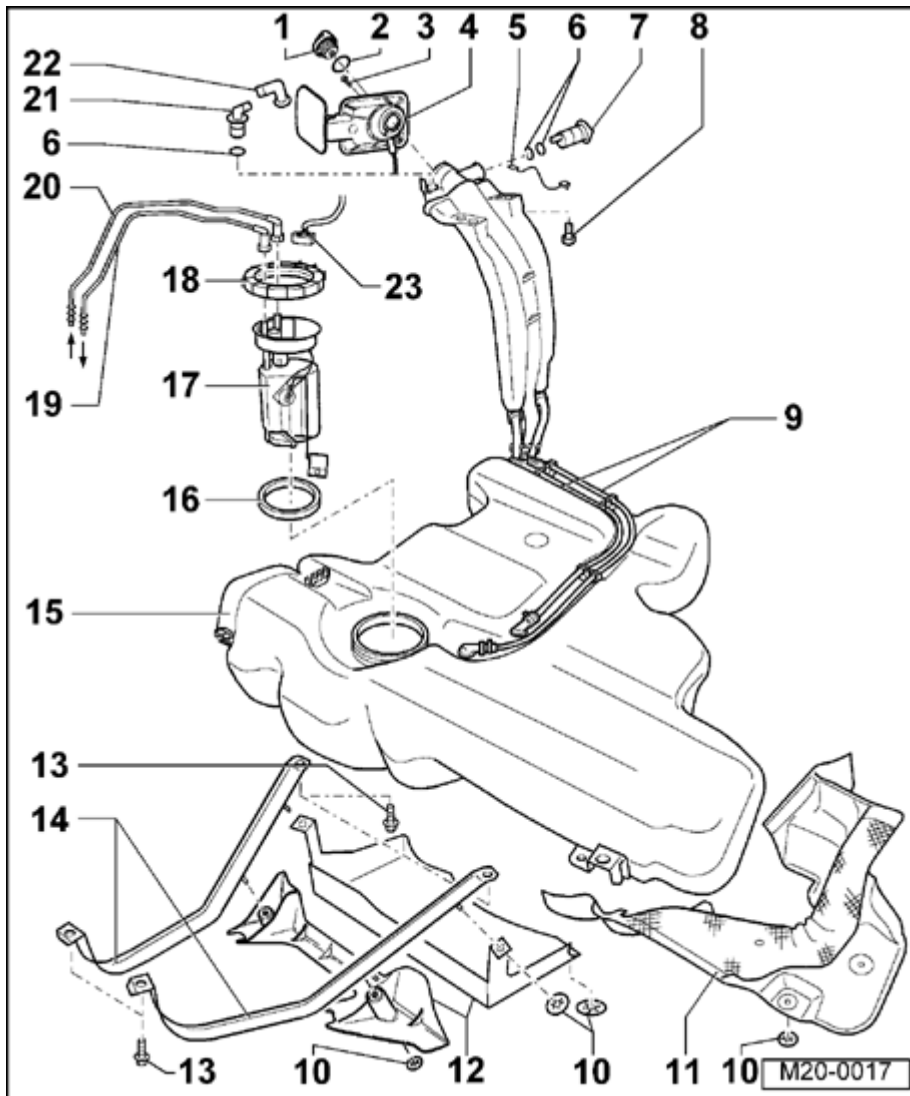
12 - Fuel tank cover

13 - 25 Nm (18 ft lb)

14 - Mounting strap

- ◆ Note different lengths
- ◆ Note installation position: locator (hole) must point toward driving direction

M20-0017



15 - Fuel tank

- ◆ Support with VAG 1383 A engine/transmission jack when removing
- ◆ Removing and installing ⇒ [Page 20-14](#)

16 - Sealing ring

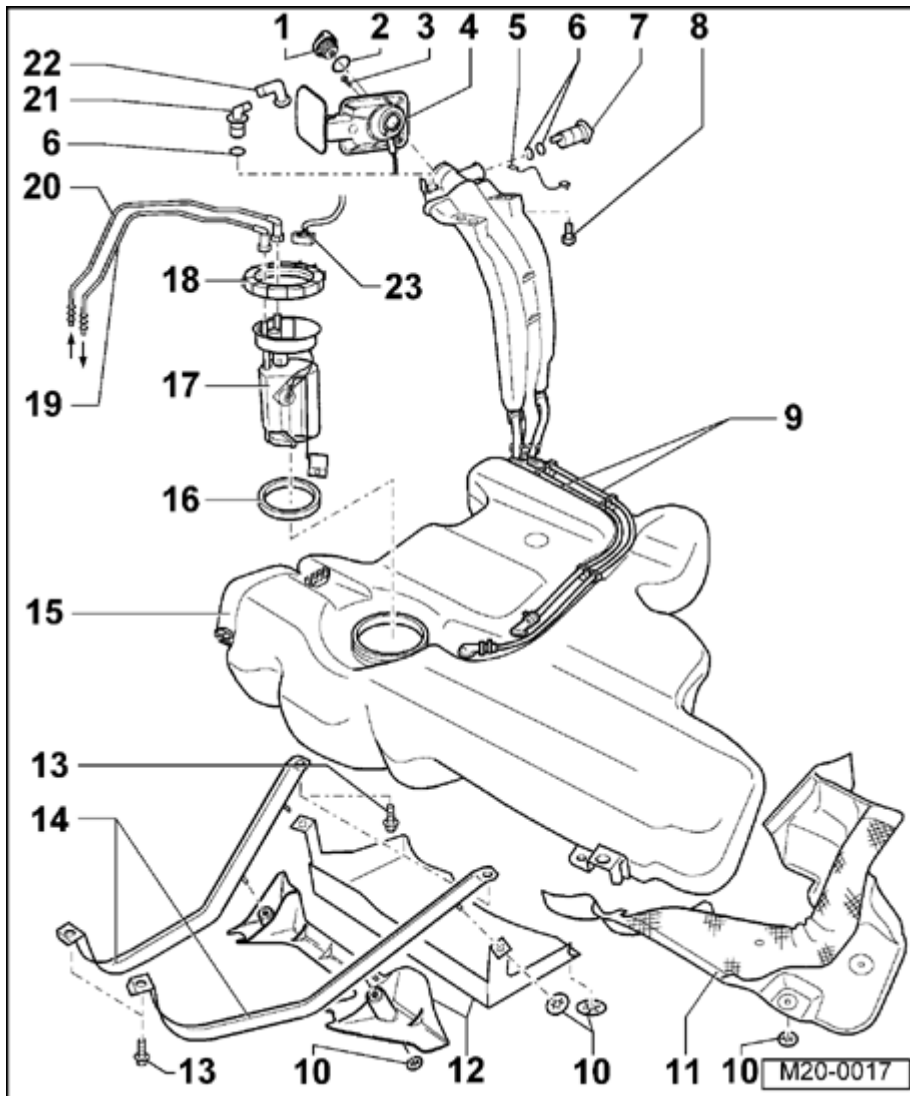
- ◆ Replace if damaged
- ◆ Moisten with fuel when installing

17 - Fuel gauge sensor

- ◆ Note installed position on fuel tank ⇒ [Page 20-7](#) , Fig. ⇒ [1](#)

18 - Union nut

- ◆ Remove and install using 3217 wrench

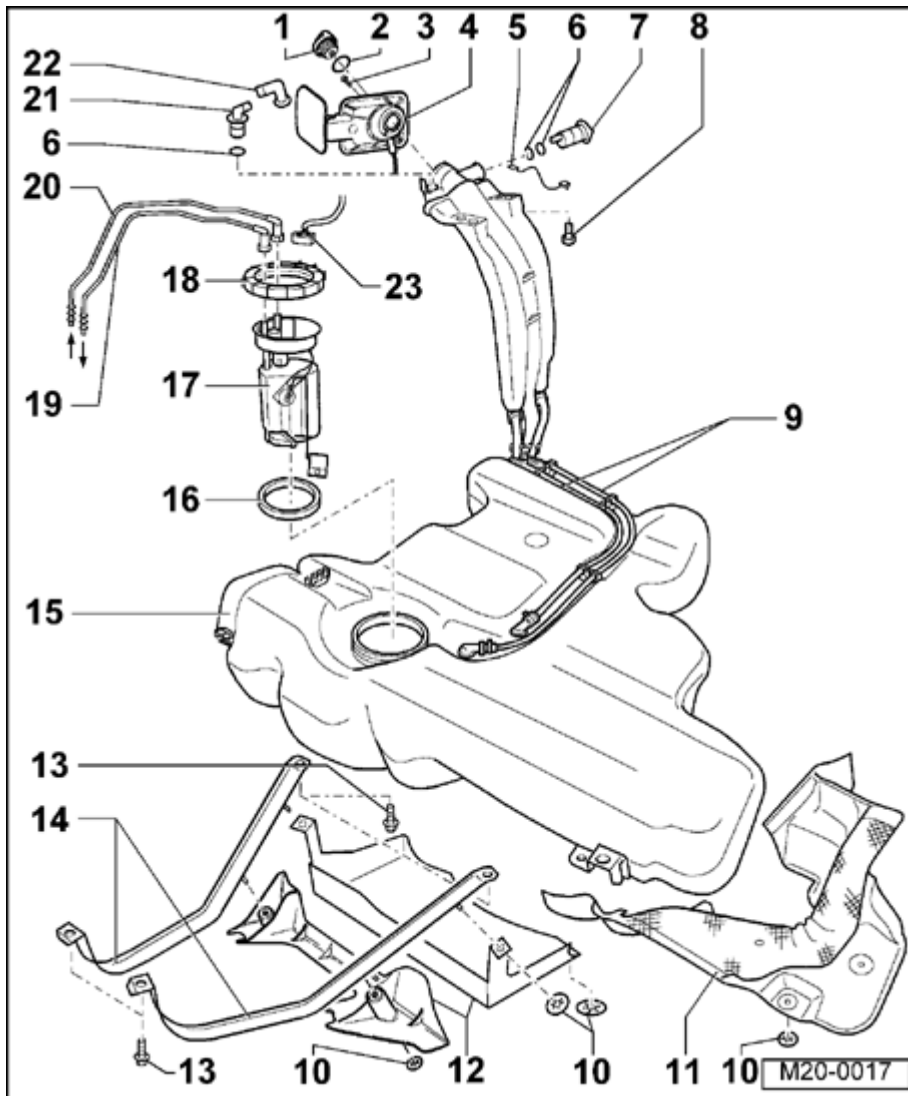


19 - Supply line

- ◆ Black
- ◆ Clipped onto fuel tank
- ◆ Check for secure fit
- ◆ To remove flange: press down on tabs at connection
- ◆ To fuel filter ⇒ [Page 20-8](#) (item - 2 -)

20 - Return line

- ◆ From fuel filter ⇒ [Page 20-8](#) , item -2-
- ◆ At connection -R-
- ◆ Blue or blue markings
- ◆ Clipped to fuel tank
- ◆ To remove from flange, press down on tabs at connection.



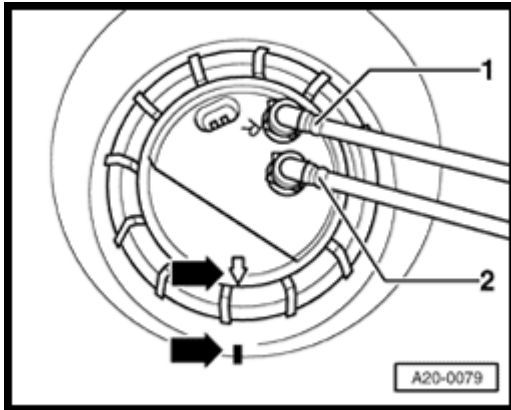
21 - Gravity/overflow valve

- ◆ To remove valve, unclip upward out of support.
- ◆ Check valve for flow valve, vertical: open; valve tilted 45° : close

22 - Angled connector

23 - Electrical connector

- ◆ Black, 2-pin



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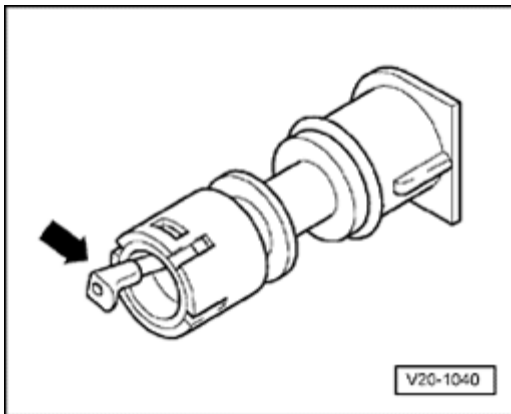
Fig. 1 Fuel gauge sensor, installed position

Mark on sensor must align with mark on fuel tank (arrows).

Return line -1- , blue or with blue markings must be attached to connector marked "R".

Note:

After installing fuel gauge sensor ensure that supply line -2- and return line -1- (marked R) are securely clipped into fuel tank.



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Fig. 2 Vent valve, checking

Lever in rest position: closed

Lever pushed in direction of arrow: open

Note:

Remove fuel tank cap before installing vent valve.

Fuel cooler, removing and installing

1 - Fuel cooler

- ◆ Location: Under vehicle on right side

2 - 20 Nm (15 ft lb)

3 - Cover

4 - Bolts

5 - Return line

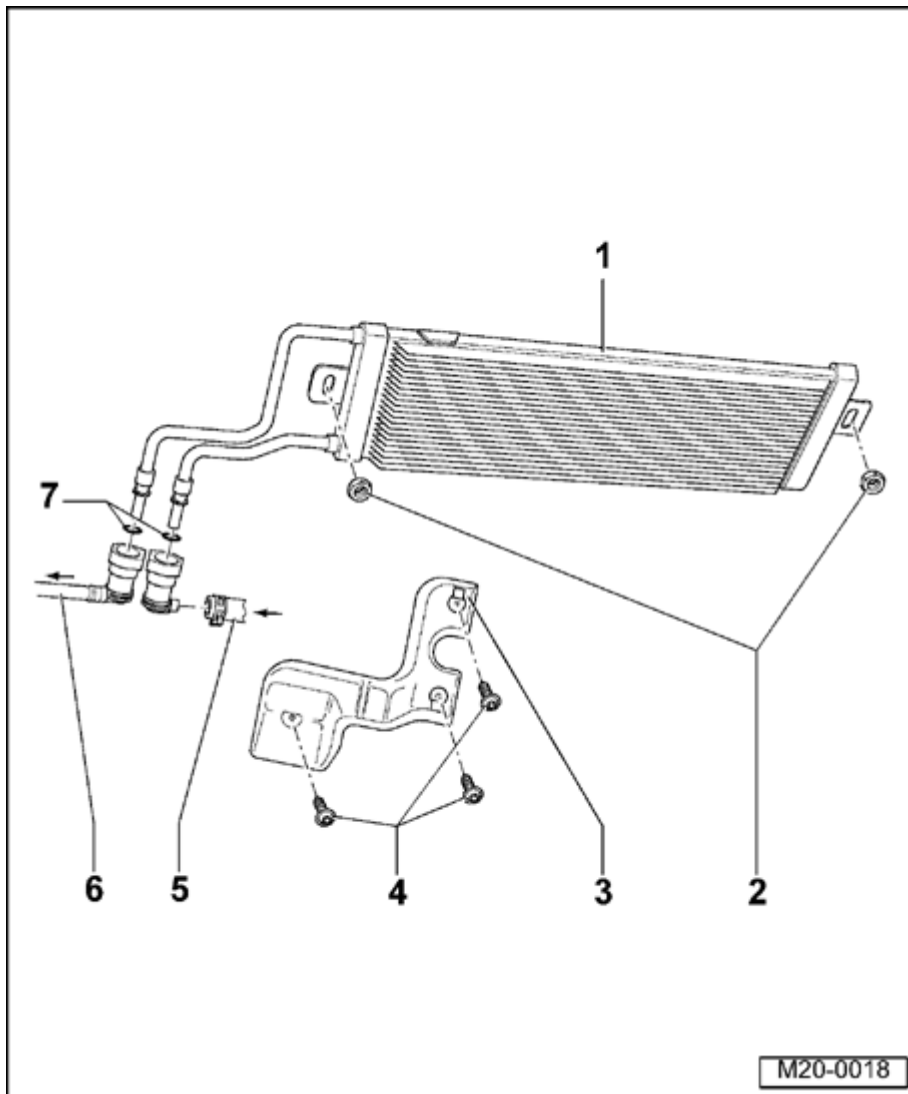
- ◆ Color: black
- ◆ Check for secure fit
- ◆ From fuel filter ⇒ [Page 20-9](#)

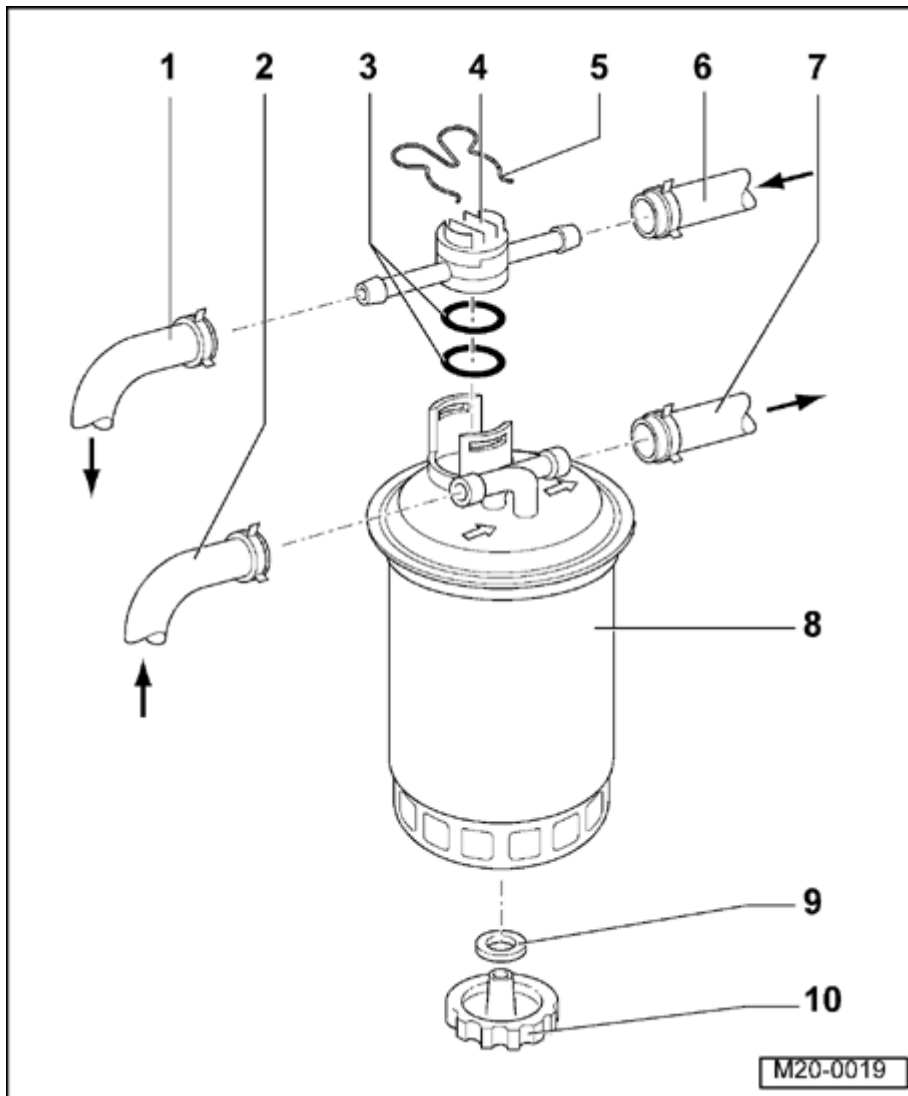
6 - Return line

- ◆ Black or blue markings
- ◆ Check for secure fit
- ◆ To remove from flange, press down on tabs at connection
- ◆ To fuel tank ⇒ [Page 20-5](#) , item 20

7 - O-ring

- ◆ Always replace





Fuel filter, servicing

1 - Return line

- ◆ Check for proper fit
- ◆ To fuel cooler ⇒ [Page 20-8](#) , item - 5 -

2 - Pressure line

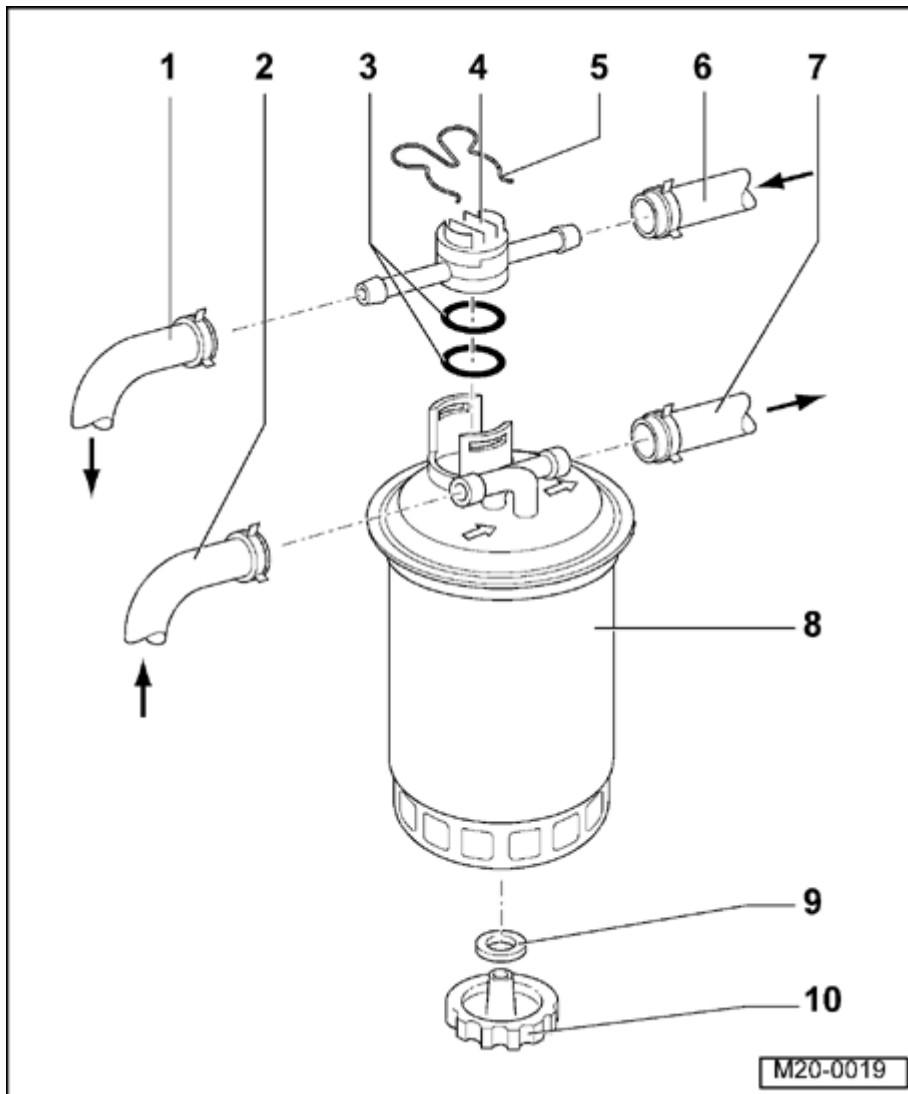
- ◆ Check for proper fit
- ◆ From fuel tank ⇒ [Page 20-4](#)

3 - O-ring

- ◆ Always replace

4 - Regulator valve

- ◆ Installation position: Arrow must point toward fuel tank
- ◆ When replacing filter, remove retaining clamps and remove regulator valve with fuel lines attached.
- ◆ Flow to filter opens below +15 ° C (59 ° F)
- ◆ Flow to filter closes above +31 ° C (88 ° F)



5 - Clamp

- ◆ Check for proper fit

6 - Return line

- ◆ Check for proper fit
- ◆ From fuel injection pump

7 - Pressure line

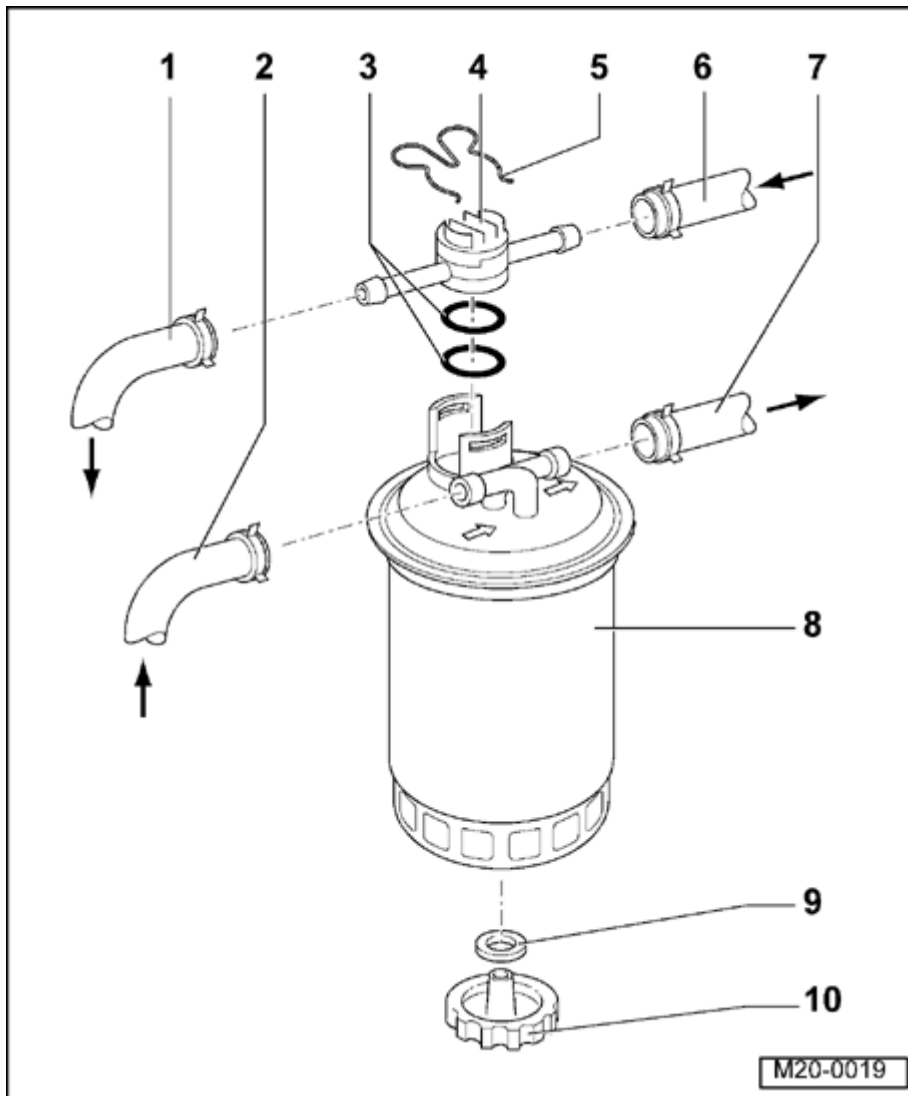
- ◆ Check for proper fit
- ◆ To fuel injection pump

8 - Fuel filter

- ◆ Before installing, fill with Diesel fuel
- ◆ Flow-through direction is marked with an arrow
- ◆ Do not interchange connections.
- ◆ Replace if damaged

9 - Seal

- ◆ Replace if damaged



10 - Water drain plug

- ◆ To bleed remove clamp for regulator valve and remove valve with fuel lines attached.
- ◆ Loosen and drain approx. 100 cm³ of fuel.



Safety precautions when working on the fuel supply system

WARNING!

Fire hazard. Do NOT smoke or have anything in the area that can ignite Diesel fuel

When removing and installing the fuel gauge sensor from a full or partly filled fuel tank, observe the following:

WARNING!

- ◆ **Fuel supply lines are under pressure!**
- ◆ **Before removing hose connections wrap a cloth around the connection. Then release pressure by carefully pulling hose off connection.**
- ◆ Before starting repairs, switch on an exhaust extraction system and place an extraction hose close to the sensor opening in the fuel tank to extract escaping Diesel fuel fumes. If no exhaust extraction system is available, a radial fan (as long as fan motor is not in air flow) with a displacement greater than 15 m³/h can be used.
- ◆ Avoid fuel contact with bare skin! Wear fuel-resistant gloves!



Rules for cleanliness

When working on the fuel supply/injection system, pay careful attention to the following rules:

- ◆ Thoroughly clean all fuel line connections and adjacent areas before disconnecting.
- ◆ Place parts that have been removed on a clean surface and cover. Do not use fluffy rags. Use surfaces of paper or plastic.
- ◆ Carefully cover opened components or seal them if the repair cannot be done immediately.
- ◆ Only install clean components. Only unpack replacement parts immediately prior to installation. Do not use parts that have been stored loose (e.g. in tool boxes, etc.).
- ◆ When the system is open do not work with compressed air if it can be avoided. Do not move vehicle unless absolutely necessary.
- ◆ Ensure that no Diesel fuel spills on coolant hoses. Immediately clean any spilled fuel. Hoses affected by spilled fuel must be replaced.

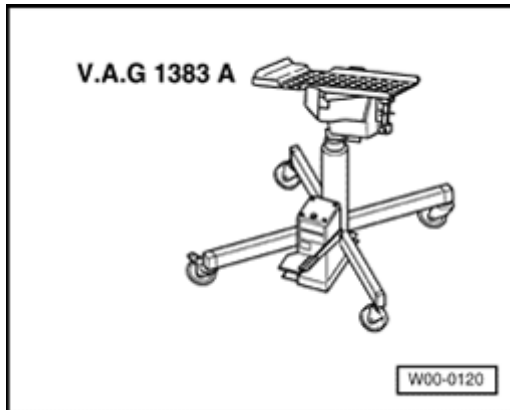


Fuel tank, removing and installing

Special tools

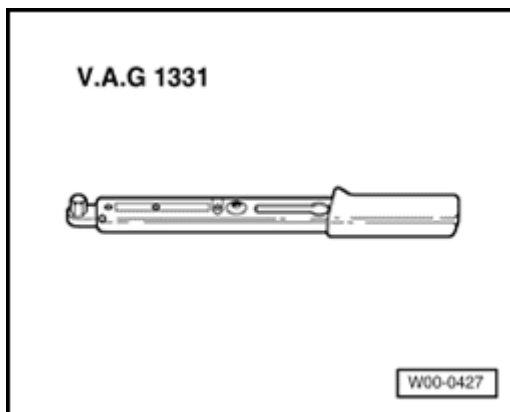
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- ◆ VAG 1383 A Engine/transmission jack



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- ◆ VAG 1331 Torque wrench 5 to 50 Nm (3.7 to 37 ft lb) or equivalent





Removing

- Before beginning any work, observe cautions ⇒ [Page 20-12](#) .

WARNING!

- ♦ ***Fuel supply lines are under pressure!***
- ♦ ***Before removing hose connections wrap a cloth around the connection. Then release pressure by carefully pulling hose off connection.***

CAUTION!

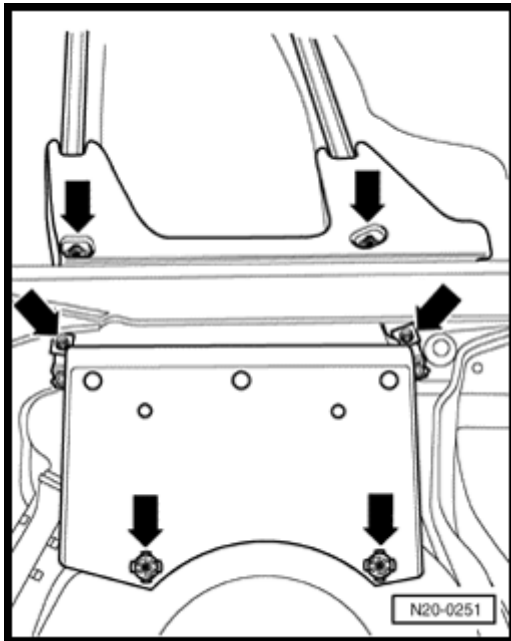
Obtain radio anti-theft code before disconnecting battery Ground strap.

- Open fuel filler cap.
- Obtain radio anti-theft code.
- With ignition switched off, disconnect battery ground strap.
- Remove right rear wheel housing liner:

⇒ [Repair Manual, Body Exterior, Repair Group](#)

- Remove rear axle:

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 42](#)

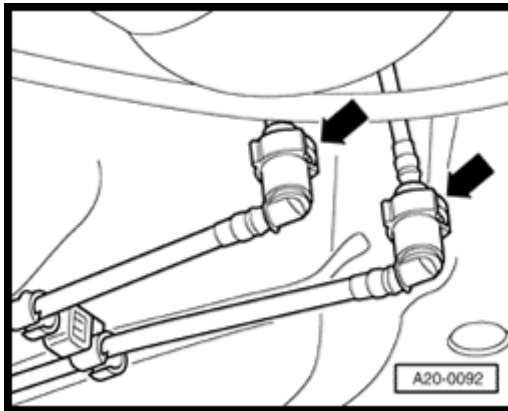


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- Remove cover from fuel tank (arrows)
- Drain fuel tank, clean fuel filler neck and surrounding area.



- Remove bolts and remove fuel filler assembly with rubber cup.
- Remove bolts at fuel filler assembly.
- Move rear seat backrest forward.
- Remove cover from fuel gauge sensor and disconnect electrical connector.

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- Disconnect fuel supply and return lines at right front of fuel tank.

Note:

To disconnect fuel lines push hose couplings (arrows).

- Cap lines to prevent dirt from entering system.
- Remove support straps while supporting tank with engine/transmission support VAG 1383.
- Carefully lower fuel tank.



Installing

Install fuel tank in reverse order of removal and note the following:

- ◆ Route supply and return lines without bending or kinking.
- ◆ Check proper fit of fuel lines.
- ◆ Do not interchange supply and return hoses (return: blue with blue markings; supply: black).
- ◆ Clip supply and return lines to fuel tank.

Note:

After installing the fuel tank, check that the fuel return and supply lines are still clipped to the fuel tank.

- Adapt engine electronics to throttle control module:

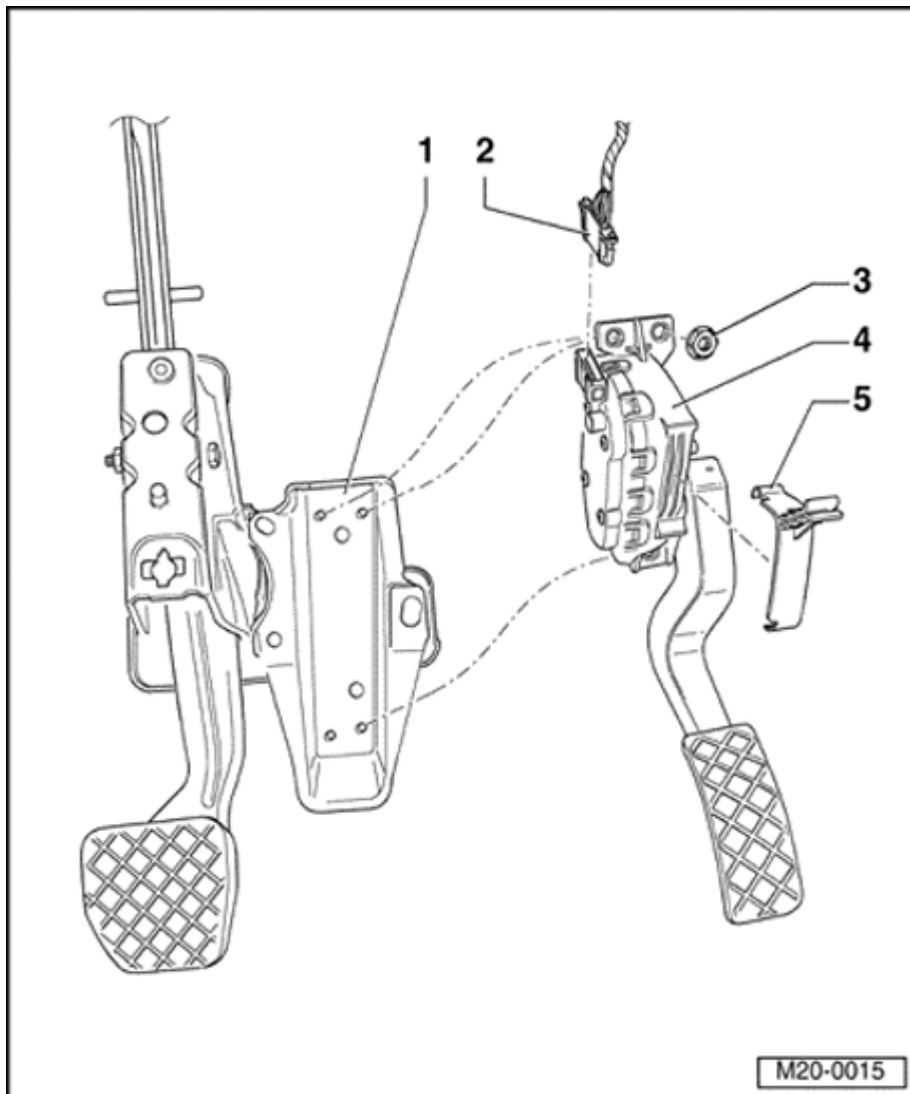
⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 23](#)

- Read readiness code.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

If the DTC memory was erased or the engine control module is subject to low voltage with ignition ON, reset readiness code.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)



Accelerator mechanism, servicing

1 - Mounting bracket

- ◆ Removing and installing:

⇒ [Repair Manual, Brake System, Repair Group 46](#)

2 - Connector

- ◆ Black, 6-pin

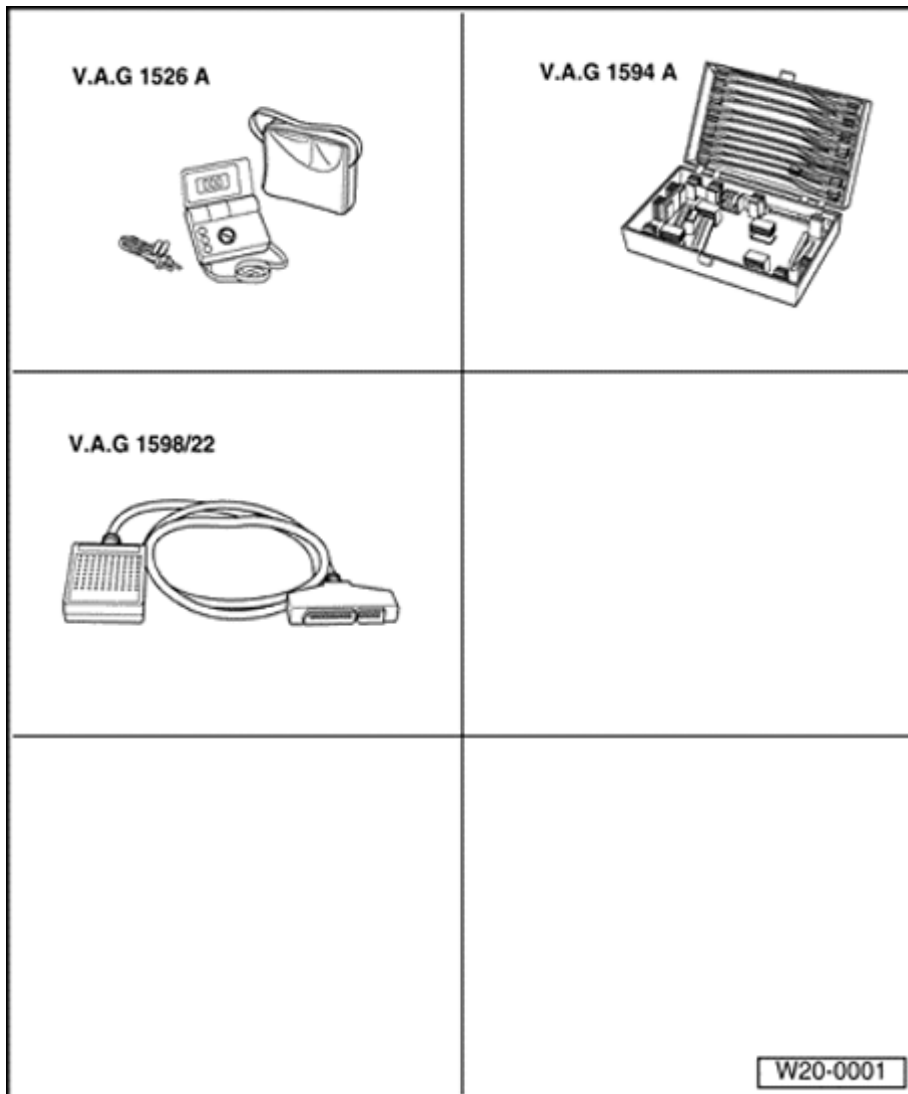
3 - 10 Nm (7 ft lb)

4 - Throttle Position (TP) sensor -G79-

- ◆ Not adjustable
- ◆ Sensor transmits driver's selection to engine control module.
- ◆ To remove sensor remove floor cover in footwell.
- ◆ Checking ⇒ [Page 20-19](#)

5 - Bracket

- ◆ for cover in foot well
- ◆ Clipped to throttle position sensor.



Throttle Position sensor, checking

Special tools

- ◆ Fluke 83 Digital multimeter
- ◆ VW 1594 Test kit
- ◆ VAG 1598/22 Test Box
- ◆ VAG 1551/1552 Scan Tool with VAG 1551/3 adaptor cable
- ◆ Wiring diagram



Checking

- Connect VAG 1551/1552 Scan Tool and select engine control module "Address word 01" . The ignition must be switched on.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

Rapid data transfer HELP
Select function XX



Indicated on display

- Press buttons -0- and -8- to select "Read measuring value block" function 08.
- Press -Q- button to confirm input.

Read measuring value block HELP
Input display group number XXX



Indicated on display

- Press -0-, -0- and -2- buttons to select "Display group 2".
- Press Q button to confirm input.

Read measuring value block 2 →
0 rpm 0.0 % 0 1 0 18.4 ° C



- Check throttle position in display field 2. Do NOT depress the accelerator pedal.
 - Specification: 0.0 %
- Also check Closed Throttle Position (CTP) switch display in display field 3. Center digit in field must show 1.
 - Display must appear as shown: 010



Read measuring value block 2 →
0 rpm 100.0 % 00 0 18.4 ° C



- Slowly depress accelerator pedal until fully depressed and observe display fields 2 and 3.

Display field 2: Throttle position value must increase continuously.

- Specification at wide open throttle position: 100 %

Display field 3: Center digit must change to 0.

- Display must appear as: 000

Note:

On vehicles with automatic transmission, the pressure point of the kick down switch must be felt before reaching the fully depressed accelerator pedal position.

- Press → button.
- Press -0- and -6- buttons to select "End output" function 06.
- Press -Q- button to confirm input
- Switch ignition off.



If the end specification is not obtained:

- Replace Throttle Position (TP) sensor -G79- ⇒ [Page 20-18](#) , item - 4 -
- Check DTC memory.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

- Read readiness code.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

If the DTC memory was erased or the constant voltage supply to the engine control module was interrupted, the readiness code must be initiated again.

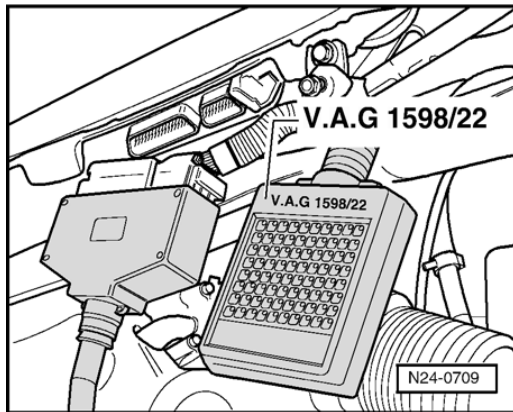
⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

If the display does not change or changes

inconsistently:

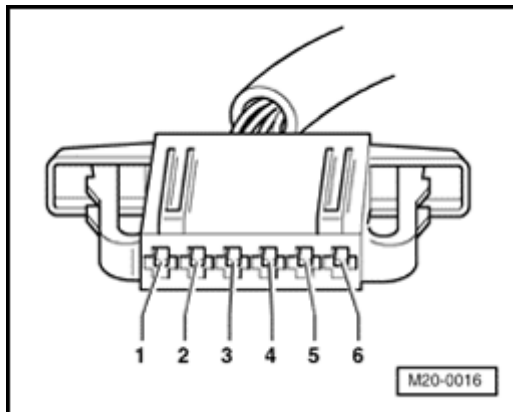
- Check wiring for Throttle Position (TP) sensor - G79- as follows:
- Remove windshield wiper arms and plenum cover.

⇒ [Repair Manual, Electrical Equipment, Repair Group 92.](#)



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- Connect test box VAG 1598/22 to harness connector of control module.
- Remove floor covering on driver's side.
- Disconnect electrical 6-pin connector for Throttle Position (TP) sensor -G79-.

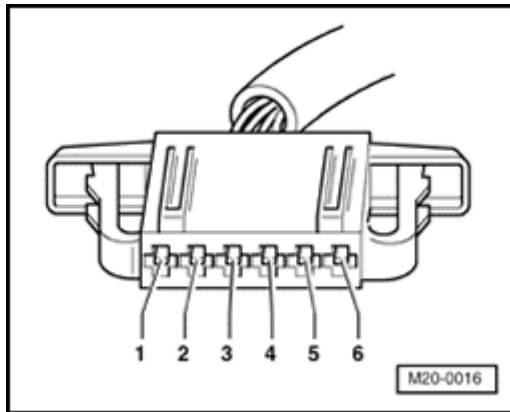


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- Check wiring for open circuit between test box and harness connector using wiring diagram.

Cavity no.	Test box socket no.	
	Through MY 1999	From MY 2000
2	11	12
3	23	50
4	24	69
5	12	70
6	25	51

- Wiring resistance: max. 1.5 Ω



▲ Vehicles with automatic transmission

Cavity no.	Test box socket no.	
	Through MY 1999	From MY 2000
1	8	63

- Wiring resistance: max. 1.5 Ω
- Also check wires for short circuit one against another, to vehicle ground and to battery positive voltage (B+).
- Wiring resistance: $\infty \Omega$

If no fault:

- Replace Throttle Position (TP) sensor -G79- ⇒ [Page 20-18](#) , item - 4 -
- Check DTC memory.

⇒ [Repair Manual, 1.9 Liter 4-Cyl. 2V TDI Fuel Injection & Glow Plug, Engine Code\(s\): ALH, Repair Group 01](#)

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