



## Fuel supply system components, removing and installing

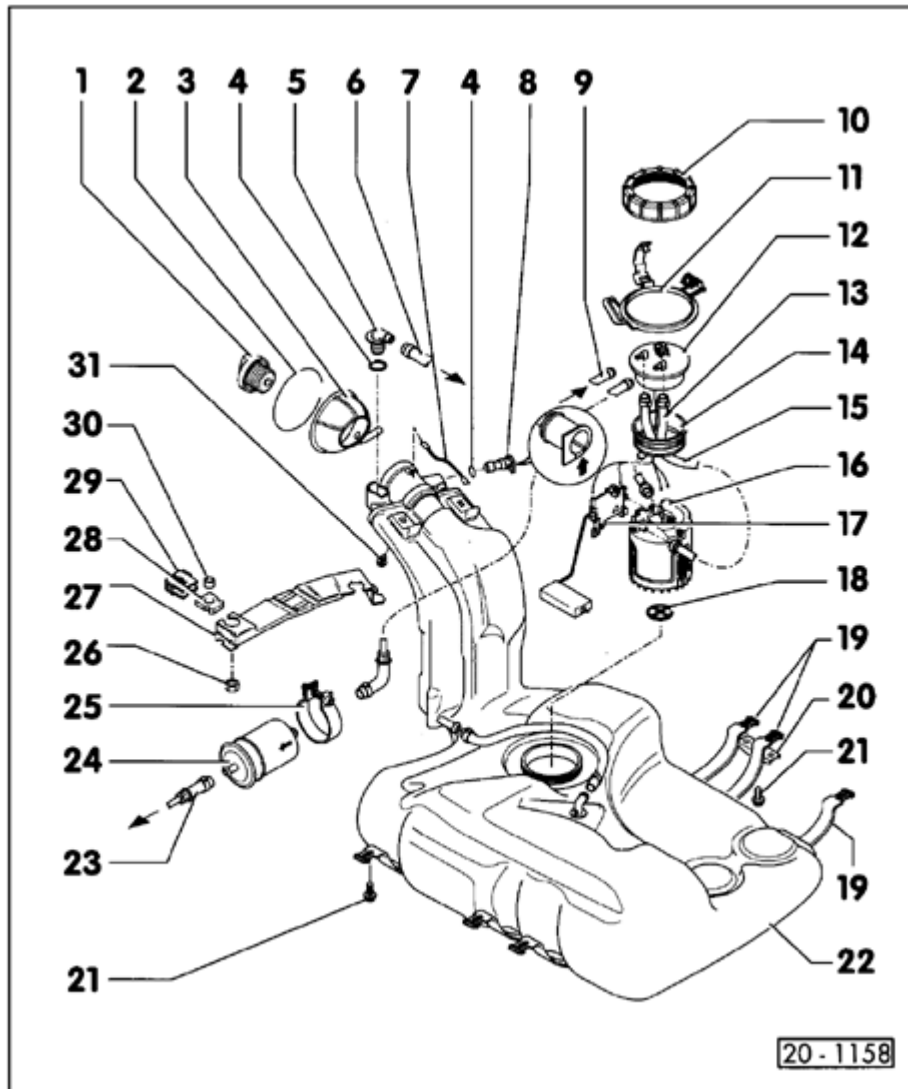
Observe safety precautions ⇒ [Page 20-7](#)

Observe rules for cleanliness ⇒ [Page 20-8](#)

Accelerator Pedal cable, adjusting ⇒ [Page 20-9](#)

### **Notes:**

- ◆ *Hose connections are secured with either screw-type, spring-type or locking (crimped) hose clamps.*
- ◆ *Secure hose connections with spring-type clamps only. DO NOT use locking (crimped) or screw-type clamps.*
- ◆ *Always replace locking (crimped) or screw-type clamps with spring-type clamps.*



## Fuel tank with attaching parts and fuel filter, removing and installing

1 - Cap

2 - Circlip

3 - Splash shield

4 - O ring

◆ Always replace

5 - Gravity valve

◆ To remove unclip valve and remove from filler pipe up and out

◆ Check valve Vertical = valve open Tipped 45° = valve closed

6 - Breather pipe

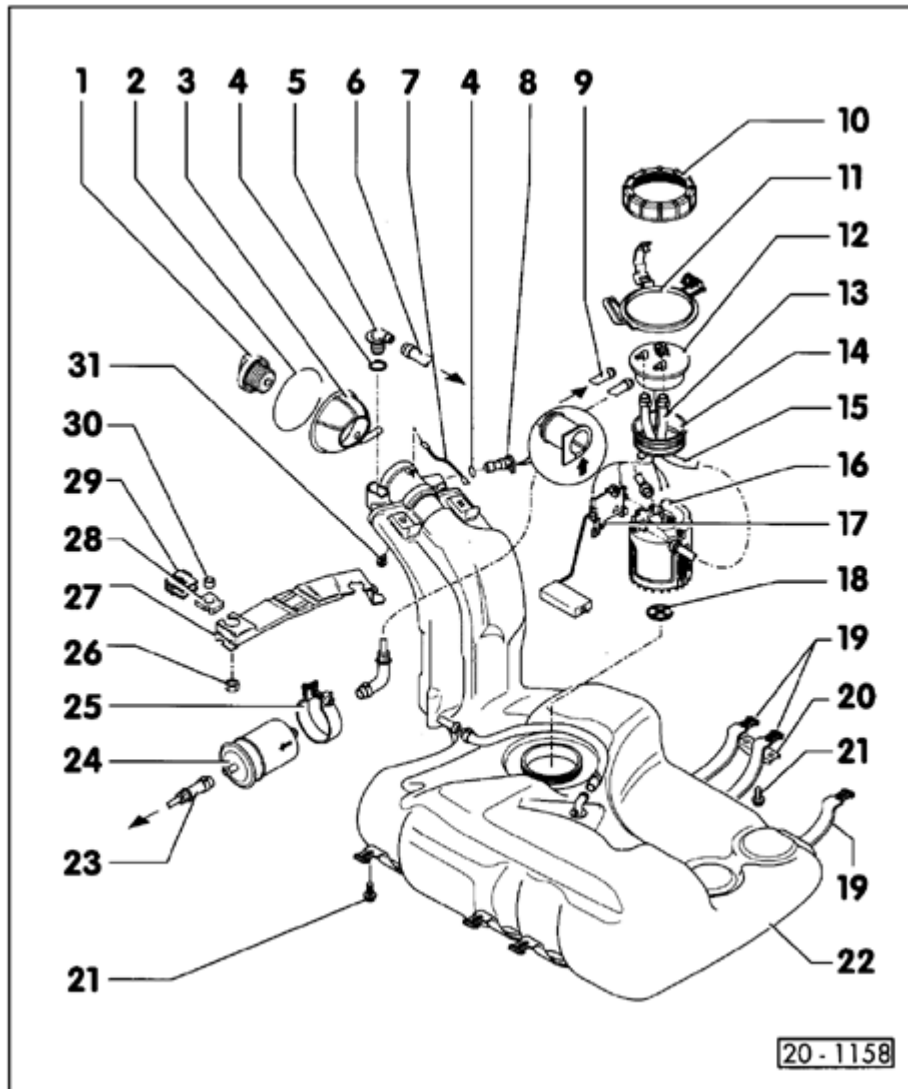
◆ To Evaporation Emission (EVAP) Canister, ⇒ [page 20-19](#) , item - 7 -

7 - Ground (GND) connection

8 - Breather valve

◆ Checking ⇒ [Page 20-6](#) , Fig. ⇒ [2](#)

◆ To remove, press safety catch lightly inward -arrow- and remove valve



20-1158

### 9 - Return line

- ◆ Color: blue
- ◆ From throttle body injection unit ⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code\(s\): ACC, Repair Group 24](#)

### 10 - Cap nut

- ◆ Remove and install with ring nut spanner 3217

### 11 - Hose guide

### 12 - Flange

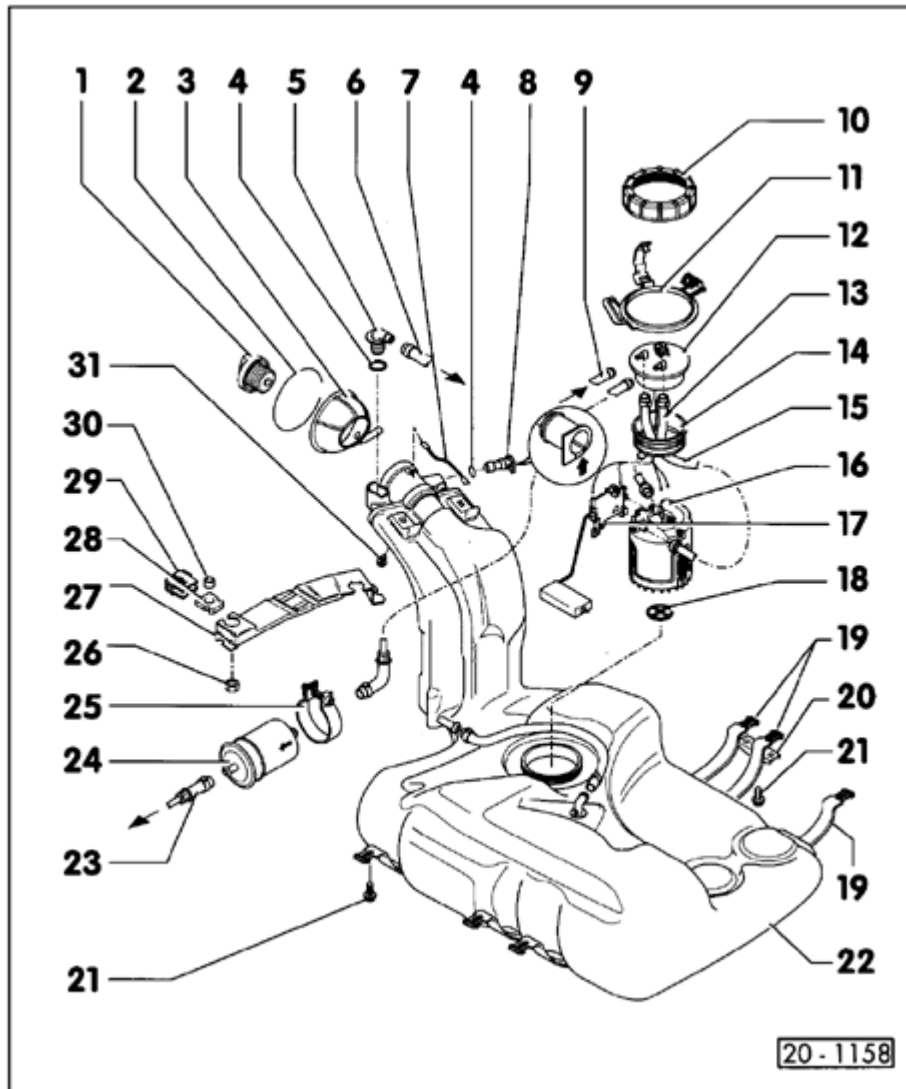
- ◆ Note fitting position on fuel tank ⇒ [Page 20-6](#), Fig. ⇒ [1](#)

### 13 - Supply hose

### 14 - Seal

- ◆ Lubricate with gasoline to assemble
- ◆ Replace if damaged

### 15 - Return hose



**16 - Fuel Pump (FP) -G6-**

- ◆ Fuel Pump (FP), checking ⇒ [Page 20-13](#)
- ◆ Pump and Fuel Level Sensor (G) -18-  
comprise Fuel Pump (FP) Module
- ◆ Removing and installing ⇒ [Page 20-11](#)

**17 - Strainer**

**18 - Fuel Level Sensor (G)**

- ◆ Sensor and Fuel Pump (FP) (G6) -16-  
comprise Fuel Pump (FP) Module
- ◆ Removing and installing ⇒ [Page 20-11](#)

**19 - Retaining strap**

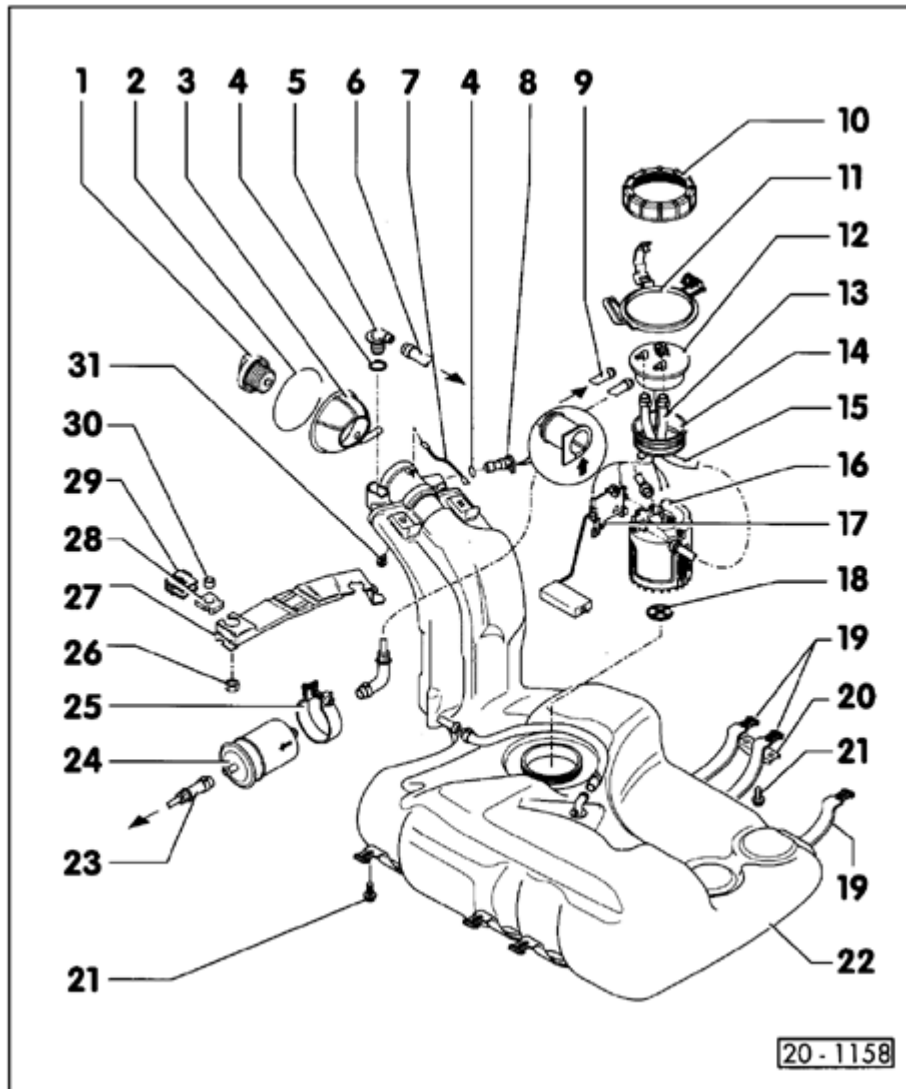
- ◆ Note differing lengths

**20 - Bracket**

**21 - 25 Nm (18 ft lb)**

**22 - Fuel tank**

- ◆ Removing: support with VAG 1383A



### 23 - Supply line

- ◆ Color: black
- ◆ To throttle body injection unit ⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code\(s\): ACC, Repair Group 24](#)

### 24 - Fuel filter

- ◆ Installation position: arrow points in direction of flow

### 25 - Retaining clamp

26 - 20 Nm (15 ft lb)

### 27 - Bracket

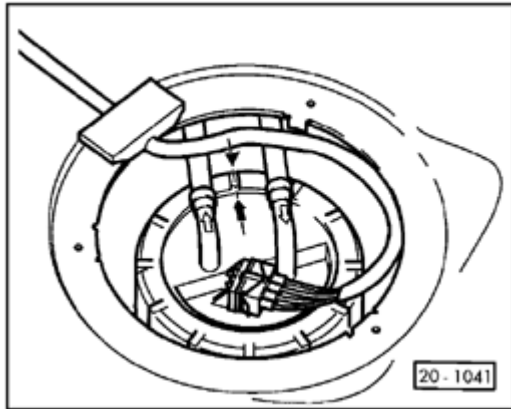
- ◆ For retaining strap

28 - Rubber pad

29 - Spring clip

30 - Spacer

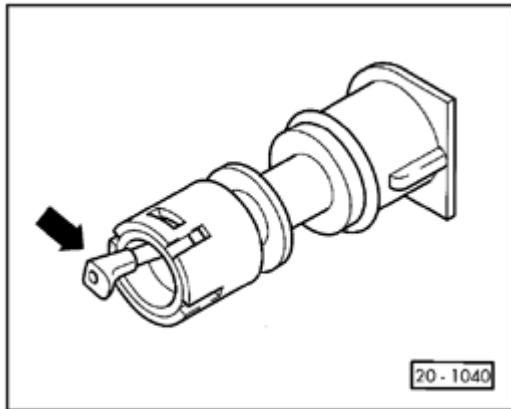
31 - 10 Nm (7 ft lb)



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**Fig. 1 Fuel Pump flange installation position**

- ◆ Mark on flange must align with mark on fuel tank



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**Fig. 2 Bleeder valve, checking**

- ◆ Lever in rest position: valve closed
- ◆ Lever pressed in direction of arrow: valve open



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## Safety rules when working on fuel system

### **WARNING!**

- ◆ ***Fuel will be discharged during many fuel system test procedures and repairs. Disconnect battery. DO NOT smoke or work near heaters, open flame, sparks or anything that can ignite fuel or fumes. Have fire extinguisher handy.***
- ◆ ***Avoid skin contact with fuel.***

When removing and installing Fuel Pump (FP) Module from a filled or partially filled fuel tank, note the following:

- ◆ Before starting to work, place an exhaust system that is turned on in the area of the fuel tank opening to suction off gases that are released.
- ◆ If no exhaust system is available, use a fan.



## Rules for cleanliness

### **CAUTION!**

#### **First:**

- ◆ ***Clean fuel connections before loosening.***

#### **When fuel system is open:**

- ◆ ***DO NOT use compressed air if you don't need it.***
- ◆ ***Move vehicle only if you must.***
- ◆ ***If you cannot finish repairs, carefully cover parts with plastic or paper. DO NOT cover with rags.***

#### **Use clean parts only:**

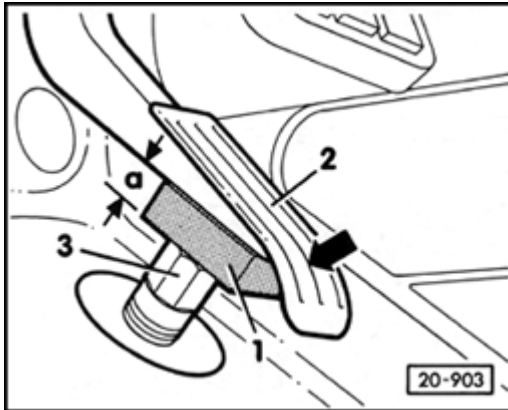
- ◆ ***DO NOT unwrap new parts before needed.***
- ◆ ***Only use new parts, not loose or used parts from tool box.***
- ◆ ***Lay removed parts on clean surface. Cover***

*with plastic or paper. DO NOT cover with rags.*



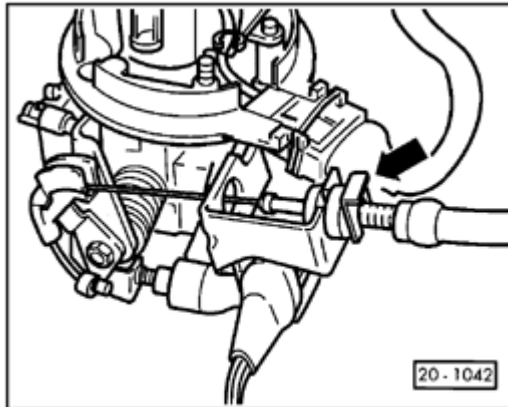
## Accelerator pedal cable, adjusting

### Vehicles with automatic transmission



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- Clamp spacer -1- between Accelerator Pedal -2- and stop -3- and hold Accelerator Pedal in this position.
- ◆ Dimension -a- = 15 mm (0.59 in.)



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### Continued for all vehicles

- Adjust Accelerator Pedal cable by moving retainer clip at cable support so that throttle valve lever just reaches Wide Open Throttle position with Accelerator Pedal held down.
- Release Accelerator Pedal.



### Vehicles with automatic transmission

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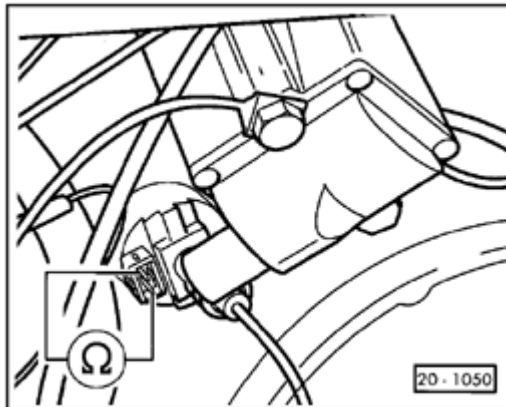
- Connect hand multimeter, Fluke® 83 or equivalent, to Kick Down Switch -F8- using test leads from VAG 1594 adapter kit.

- Check resistance at switch.

Specification: No continuity ( $\infty \Omega$ )

- Slowly move accelerator pedal in direction of full throttle.

Shortly after the kickdown pressure point the resistance must drop to  $0 \Omega$ . At this point the accelerator pedal must be just off the stop.





## Fuel Pump (FP) module, removing and installing

### Removing

Observe safety rules ⇒ [Page 20-7](#)

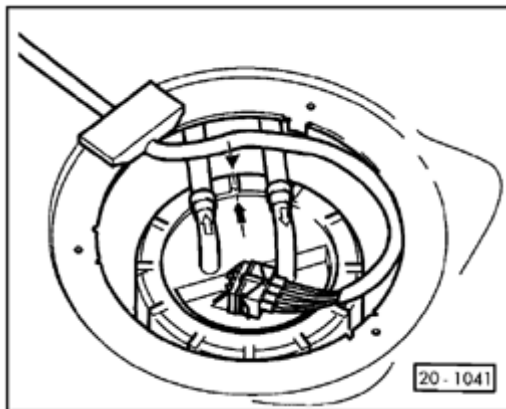
### **CAUTION!**

**Before disconnecting battery, ALWAYS ask for radio code (if equipped with an anti-theft radio).**

- With ignition switched OFF, disconnect Ground (GND) strap from battery.
- Remove luggage compartment floor covering.
- Disconnect harness connector supply line and return line from flange.
- Remove screw cap with ring nut spanner 3217.
- Remove flange and sealing ring from fuel tank opening.
- Loosen Fuel Pump (FP) Module from bayonet connection by turning to left, and remove.

### **Note:**

*If the Fuel Pump (FP) Module is still full of fuel, empty it before replacing.*



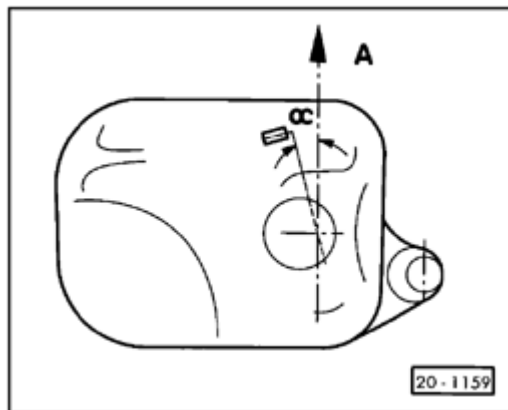


## Installing

Install Fuel Pump Module in reverse order of removal.

### Notes:

- ◆ *When installing the Fuel Pump Module, be sure that the Fuel Level Sensor arm is not bent.*
- ◆ *When unit is correctly assembled, the Fuel Level Sensor float points forward at angle  $-\alpha$ - to vehicle direction of travel -A-.*



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- ◆  $a = 5^\circ$
- Lubricate flange seal with gasoline for assembly.
- ◆ Installation position of Fuel Pump (FP) Module flange  $\Rightarrow$  [Page 20-6](#) , Fig.  $\Rightarrow$  [1](#) .



## Fuel Pump (FP), checking

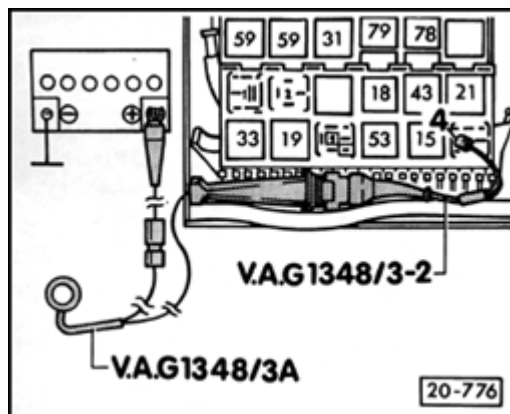
- ◆ Battery Positive Voltage (B+) OK
- ◆ Fuse No. 18 OK
- Switch ignition ON.
  - ◆ Fuel Pump (FP) should run and be audible for about 1 second.

If Fuel Pump does not run:

- Switch ignition OFF.
- Remove Fuel Pump (FP) Relay -J17- from fuse/relay panel (relay position 12).

### **CAUTION!**

- ◆ **Disconnect battery Ground (GND) strap if tools are required to remove the relay.**
- ◆ **Before disconnecting battery, ALWAYS ask for anti-theft radio code.**





- Connect VAG 1348/3A remote control to relay terminal -4- and Battery Positive Voltage (+), using VAG 1348/3-2 adapter.

- Operate remote control.

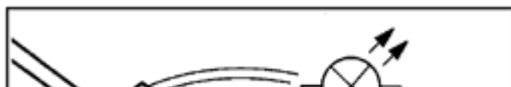
If Fuel Pump runs:

- Check activation of Fuel Pump (FP) Relay

⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code\(s\): ACC, Repair Group 24.](#)

If Fuel Pump does not run:

- Remove luggage compartment cover.
- Disconnect harness connector from flange on Fuel Pump (FP) Module.



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- Connect VAG 1527B voltage tester to connector outer terminals using

test leads from VAG 1594 adapter kit.



- Operate remote control.

◆ LED must light up.

If LED does not light:

- Check for open circuit in wiring ⇒ Electrical Wiring Diagrams, Troubleshooting and Component Locations binder.

If LED lights (voltage supply to Fuel Pump OK):

- Unscrew cap nut with ring nut spanner 3217.
- Check the make sure that wiring is connected between flange and Fuel Pump.

If no open circuit is found:

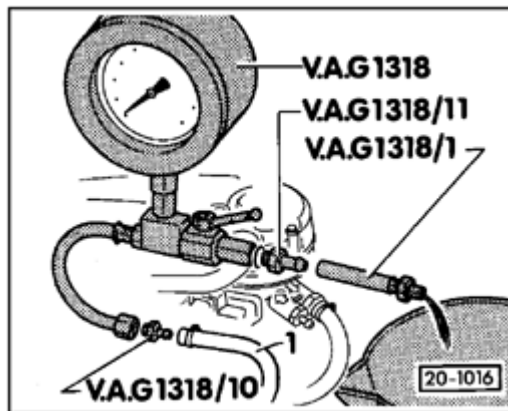
- Replace Fuel Pump (FP).



## Fuel Pump (FP) delivery rate, checking

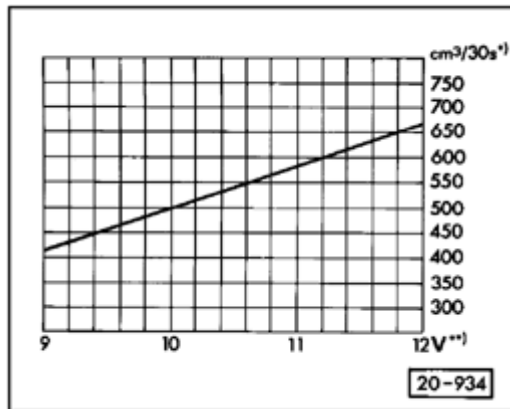
- ◆ Battery Positive Voltage (B+) OK
- ◆ VAG 1348/3A remote control connected

- Remove cap from fuel filler neck.



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- Disconnect fuel supply line -1- from throttle body injection unit.
- Connect VAG 1318 pressure tester to fuel supply line -1- using VAG 1318/10 adapter.
- Connect VAG 1318/1 hose to pressure tester with VAG 1318/11 adapter and hold open end of hose in measuring container.
- Open shut-off valve on pressure gauge (lever in direction of flow).
- When operating VAG 1348/3A remote control, slowly close shut-off valve until gauge reads 3 bar (44 psi); do not change position of shut-off valve.
- Empty measuring container.



- Operate VAG 1348/3A remove control for 30 seconds.

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- Compare amount of fuel delivered with specified delivery rate from graph.

\*) minimum fuel amount measured in cm<sup>3</sup>/30 sec.

\*\*\*) voltage at Fuel Pump with engine OFF and Fuel Pump running (approx. 2 volts less than Battery Positive Voltage B+)

If fuel delivery quantity does not meet or exceed minimum from graph, check for the following causes:

- ◆ Fuel line kinked or obstructed
- ◆ Fuel filter obstructed
- ◆ Fuel Pump malfunctioning, replace Fuel Pump (FP) Module or Fuel Pump.

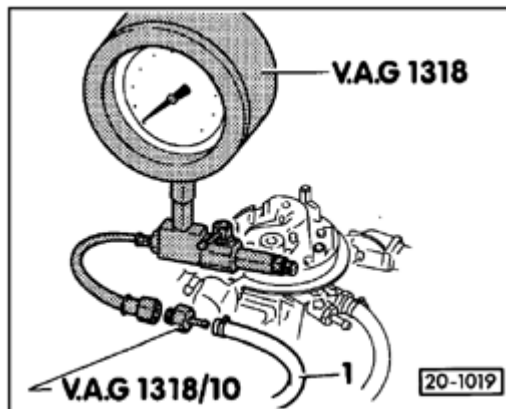


## Fuel Pump (FP) check valve, checking

- ◆ VAG 1348/3A remote control connected
- ◆ VAG 1318 pressure gauge connected

### Note:

*This pressure test checks for leaks in the fuel supply line connections from the Fuel Pump (FP) to the pressure gauge connection.*



- Close pressure gauge valve (lever in line with flow direction).
- Operate VAG 1348/3A remote control in short intervals until pressure is built up to approx. 2 bar (29 psi).
- If pressure has built up above 2 bar (29 psi), reduce pressure by carefully opening pressure gauge valve.

### **CAUTION!**

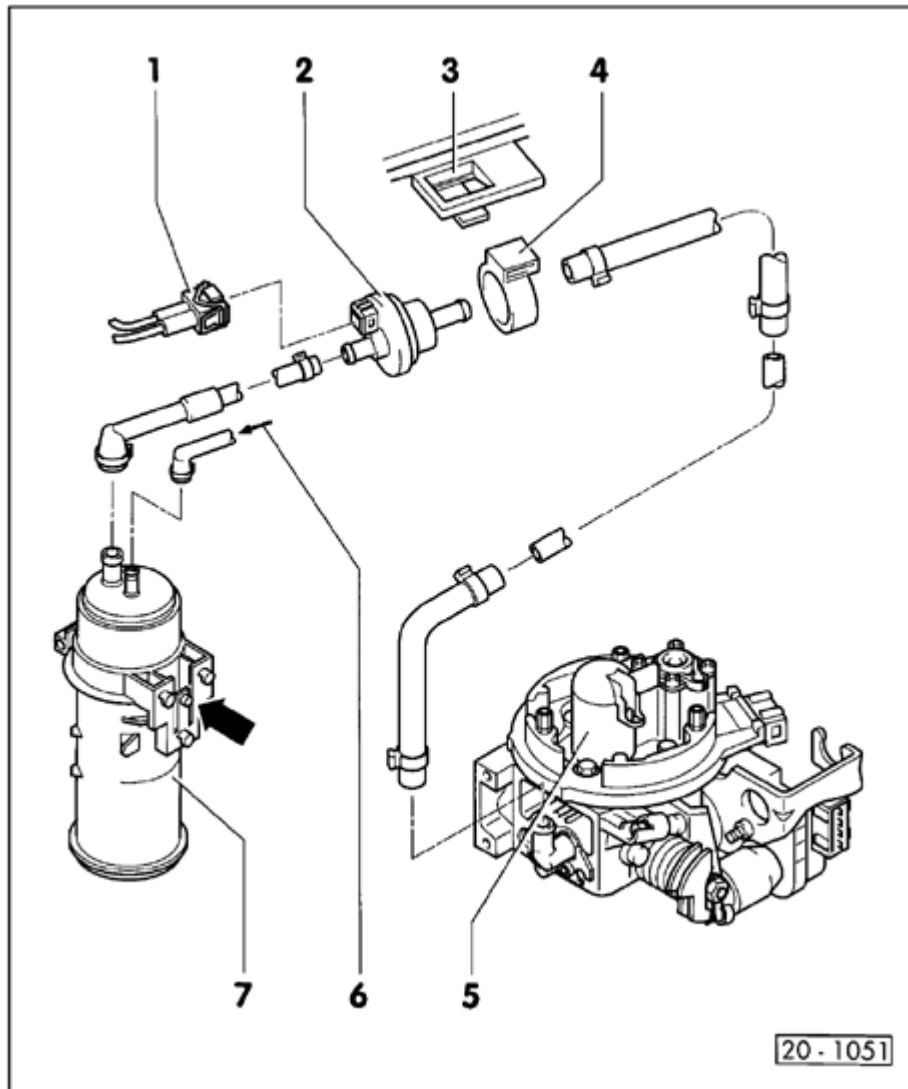
***When the valve lever is moved, fuel may spray from the open connection on the pressure gauge. Use a container to catch fuel.***

- Note drop in pressure.

Specification:

◆ After 10 minutes: at least 1.2 bar (17.4 psi)

- If necessary, check for leaks and replace Fuel Pump (FP) Module or Fuel Pump (FP).



## Evaporative Emission (EVAP) canister system, component layout

### 1 - Connector

### 2 - Evaporative Emission (EVAP) Canister Purge Regulator Valve -N80-

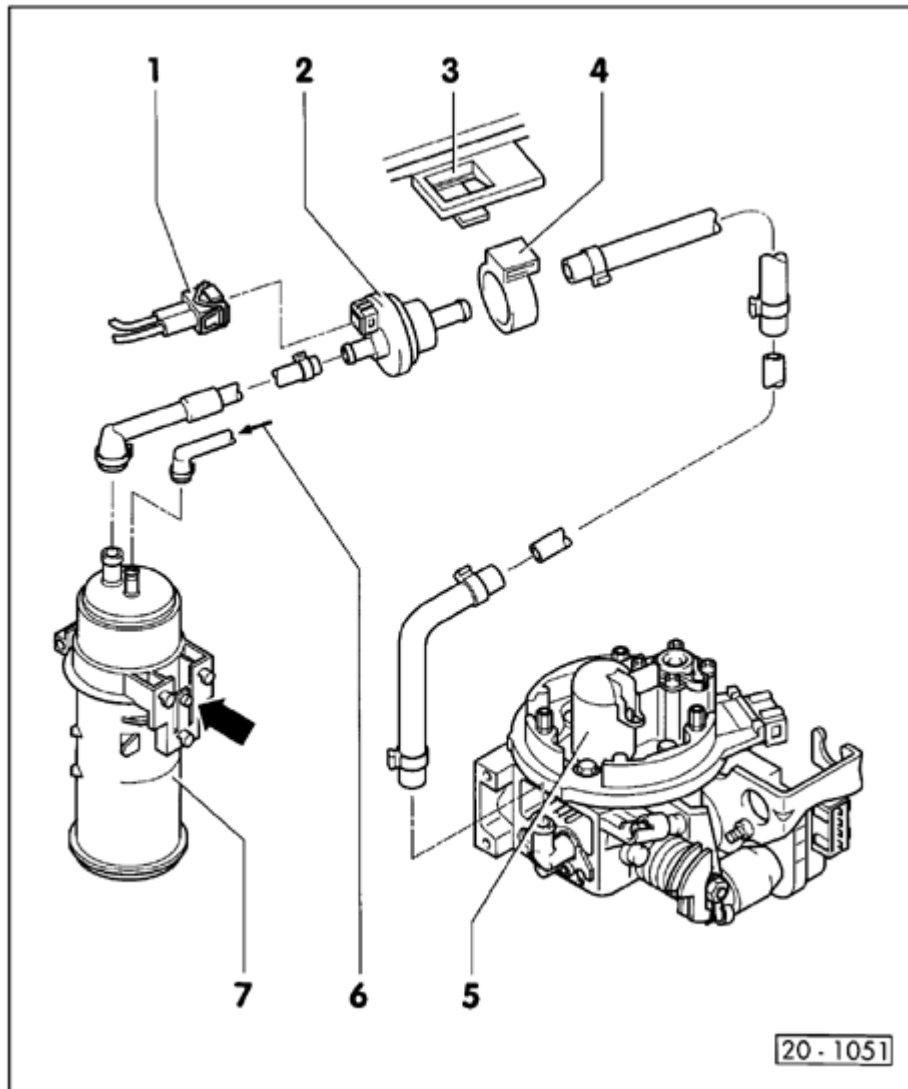
- ◆ Valve opens approx. 5 seconds after switching off the ignition
- ◆ When the engine is warm the valve will be activated from the Mono Motronic control unit (pulsed)
- ◆ Checking ⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code \(s\): ACC, Repair Group 24](#) .

### 3 - Bracket

- ◆ On air cleaner lower part

### 4 - Retaining ring

### 5 - Throttle body injection unit



### 6 - Breather pipe

- ◆ From gravity valve on fuel tank ⇒ [Page 20-2](#), Item 6

### 7 - Activated charcoal filter

- ◆ Location: in front right wheel housing
- ◆ To remove push securing strap in direction of arrow



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## Leak Detection Pump (LDP), checking

### Special tools, testers and auxiliary items

- ◆ VAG 1551/1552 Scan Tool with VAG 1551/3 adapter cables
- ◆ VAG 1598/18 test box
- ◆ Multimeter (Fluke 83 or equivalent)
- ◆ Connector test kit VW 1594
- ◆ Wiring diagram
- ◆ VAG 1390 (or US 8026) hand vacuum pump

### Test conditions

- Intake air temperature: maximum 45 ° C (113 ° F)
- Coolant temperature: maximum 80 ° C (176 ° F)

### Checking voltage supply

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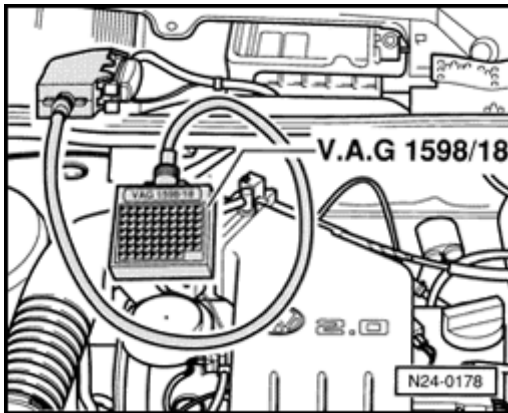
- Disconnect 3-pin connector to leak detection pump.
- Connect multimeter to measure voltage between connector terminal 3 and vehicle Ground (GND).
- Switch ignition on.

Specification: min. 11.5 volts

- Switch ignition off.



If the specifications are not attained:



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- Connect VAG 1598/18 test box to Engine Control Module (ECM) wiring harness.
- Switch ignition on.
- Check wiring for short circuit between test box and 3-pin leak detection pump connector as follows.
  - ◆ Terminal 3 and test box socket 46
  - ◆ Terminal 3 and test box socket 35

Specification: 0 volts

- Switch ignition off.
- Connect multimeter to measure resistance between test box and 3-pin leak detection pump connector. Check for open circuit according to wiring diagram.
  - ◆ Terminal 2 and test box socket 35
  - ◆ Terminal 1 and test box socket 46

Resistance: max. 1.5 ohms ( $\Omega$ )

- ◆ Terminal 2 and test box socket 1
- ◆ Terminal 1 and test box socket 1

Resistance: max.  $\infty$  ohms ( $\Omega$ )



- Reconnect connector to leak detection pump.

If no wiring malfunction is detected:

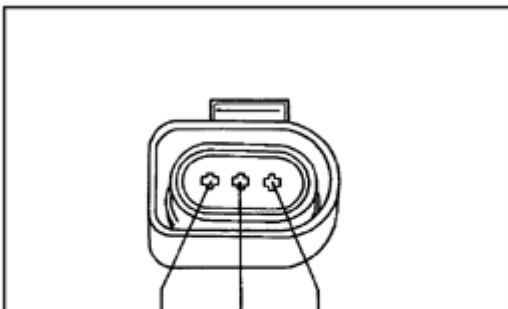
- Replace Engine Control Unit (ECM) -J220-.

- Verify repair via the appropriate display group

⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code\(s\): ACC, Repair Group 01](#) ,  
Readiness code,  
creating

### Checking reed switch and pump components

- Disconnect 3-pin connector to leak detection pump.
- Connect multimeter to measure resistance at terminals 3 and 1 of pump connector.  
Specification: max. 1.5 ohms ( $\Omega$ )
- Disconnect vacuum hose to throttle valve control module -J338-.



- Connect VAG 1390 (or US 8026) hand vacuum pump to vacuum hose.
- Apply vacuum and measure resistance at terminals 3 and 1 of pump connector.

Specification:  $\infty$  ohms ( $\Omega$ )

- Reconnect vacuum hose.



- Connect multimeter to measure resistance at terminals 3 and 2 of pump connector.

Specification: approx. 22.5 ohms ( $\Omega$ )

- Reconnect connector to leak detection pump.

If specifications are not attained:

- Replace leak detection pump.

- Verify repair via the appropriate display group

⇒ [Repair Manual, 1.8 Liter 4-Cyl. 2V Fuel Injection & Ignition, Engine Code\(s\): ACC, Repair Group 01](#),  
Readiness code,  
creating