

EVAP system, servicing

EVAP system components

1 - Cap nut

◆ 10 Nm

2 - Cover

◆ For EVAP canister

3 - Stud

◆ 15 Nm

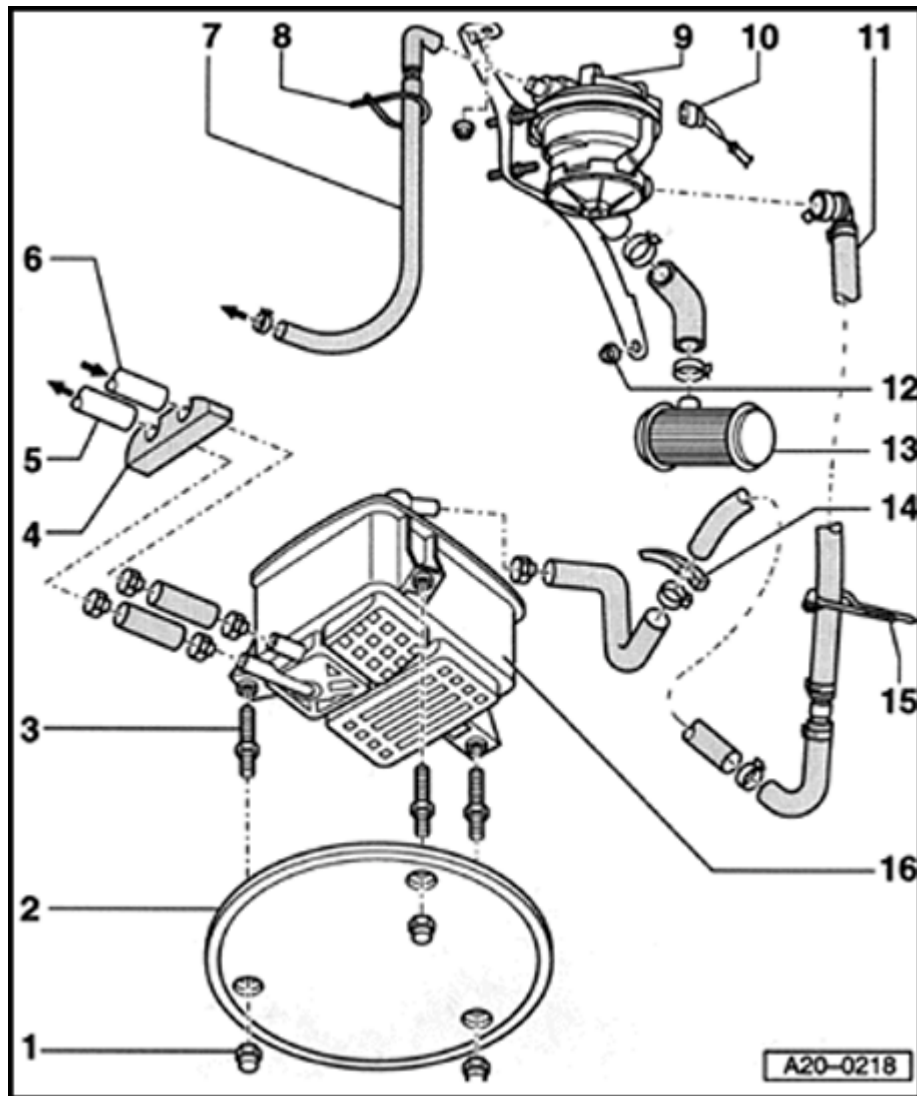
4 - Sealing piece

5 - Bleed line

◆ To EVAP canister purge regulator valve - N80

6 - Bleed line

◆ From gravity valve



7 - Vacuum hose

- ◆ LDP / throttle actuator control module
Connection in engine compartment
- ◆ 4 cylinder engine ⇒ Fig. ⇒ [1](#)
- ◆ 6 cylinder engine ⇒ Fig. ⇒ [2](#)

8 - Cable tie

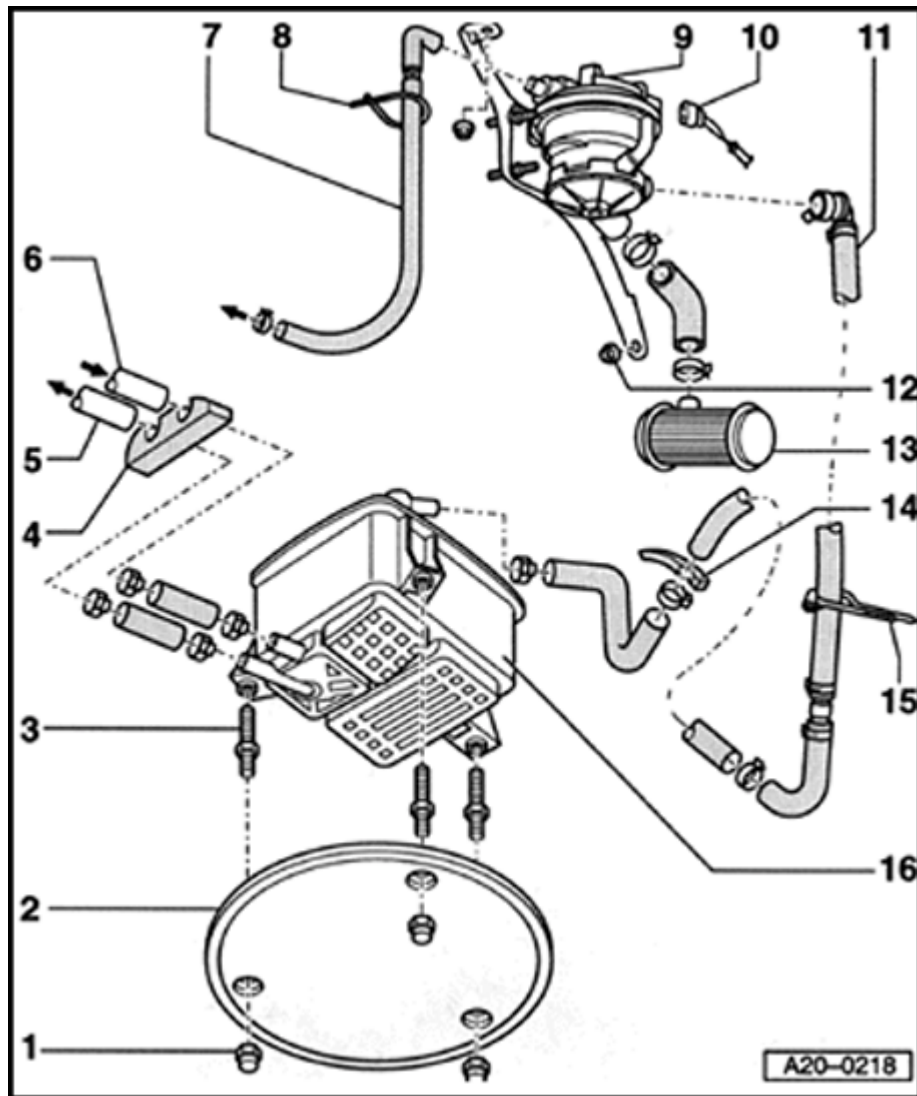
- ◆ To mounting of vacuum line on LDP bracket

9 - Leak Detection Pump (LDP) -V144

- ◆ Location: in left rear wheel house behind wheel well
- ◆ Checking ⇒ [Page 20-139](#)
- ◆ Removing and installing ⇒ [Page 20-162](#)

10 - 3-pin harness connector

- ◆ Black

**11 - Connecting hose**

- ◆ LDP / EVAP canister
- ◆ Pressure side
- ◆ To remove at LDP, press unlocking tab on connector

12 - 10 Nm**13 - Air filter**

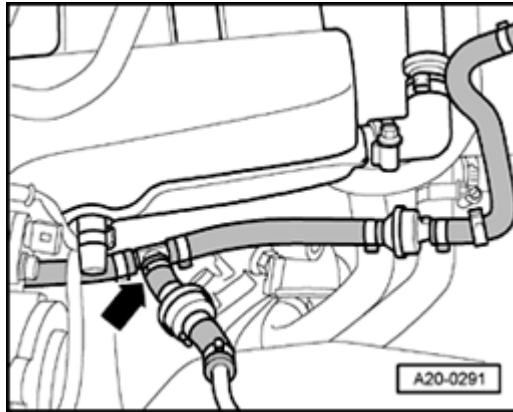
- ◆ For LDP

14 - Sealing piece**15 - Cable tie**

- ◆ For mounting connecting hose on wheel house

16 - EVAP canister

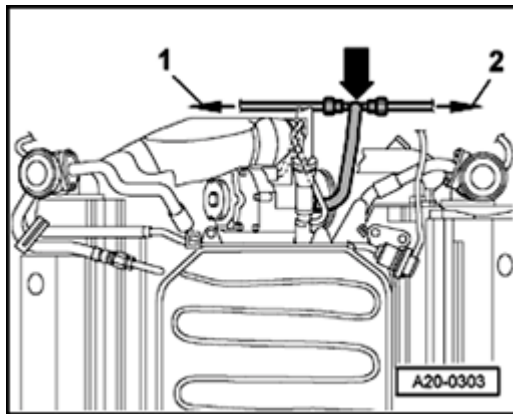
- ◆ Location: lower front in spare wheel well
- ◆ Removing and installing ⇒ [Page 20-164](#)



A **Fig. 1 Connections to LDP in engine compartment**

Vehicles with 1.8 ltr. turbo engine

The vacuum line for the LDP -V144 is connected to the Throttle actuator control module line with a T-piece -arrow-.



A **Fig. 2 Connections to LDP in engine compartment**

Vehicles with 2.8 ltr. engine

The vacuum line from the LDP -V144 is connected to the EVAP canister purge regulator valve with a T-piece -arrow-.

1 - to EVAP canister

2 - to LDP -V144

EVAP system leak detection

Function of leak detection system

The leak detection system can recognize leaks in the entire fuel system, including the main fuel tank, the EVAP canister and EVAP canister purge regulator valve -N80.

On the mechanical side, the leak detection system consists of a vacuum-operated diaphragm pump (LDP) with a reed contact on the pump diaphragm rod. The pump receives vacuum from the intake manifold.

- ◆ If the leak detection system is triggered; the diaphragm pump pressurizes the fuel system between 20 and 30 mbar.
- ◆ If specified pressure is reached, the pump diaphragm remains extended and the reed contact remains in the "open" position.
- ◆ If the pressure drops (i.e. there is a leak), the diaphragm moves back and the reed contact closes.
- ◆ During diagnosis, first there is a measurement of whether the reed contact has closed within 10 seconds. If this does NOT occur, the tank system is then sealed.

- ◆ If; however, the reed contact closes within 10 seconds, there is a leak. Then, the pump continues to cycle for four more strokes. The ECM measures the time for each of these four strokes until the next time the reed contact closes. In this fashion, the ECM can differentiate between "fine" and "large" leaks.
- ◆ Leak detection is automatically triggered, shortly after each engine start. If there is an incorrect measurement, a malfunction is stored in DTC memory.
- ◆ A warning will appear on the instrument panel if the malfunction has occurred during two successive drives. Also, leak detection can also be activated using the VAG1551 Scan Tool ⇒ [Page 20-139](#) .

Fuel tank and EVAP system, checking for leaks

Note:

In the following, individual questionable points will be considered that could be leaks in the fuel tank and tank ventilation system. After eliminating a possible leak, it is effective to then perform a tank leak diagnosis to determine whether the leak was successfully sealed.

- Switch OFF ignition.
- Check if filler cap was completely closed for the test.
- Check if filler cap seal is damaged or crimped, replace if necessary.
- Check if the gaskets under the cover flanges are OK and if the union nut on the fuel tank cover flange is correctly tightened.
- Check hose connections for tightness and integrity repair or replace as necessary.
- Remove luggage compartment trim.

- Remove connector flange cover under luggage compartment trim.

Note:

Observe the cover flange installation instructions.

◆ Front wheel drive ⇒ [Page 20-44](#)

◆ All wheel drive ⇒ [Page 20-97](#).

- Visually inspect all fuel tank system line and hose connections and replace any leaking lines, for example:

- ◆ Line from EVAP canister to EVAP canister purge regulator valve in engine compartment.
- ◆ Lines from EVAP canister to the LDP (under left wheel house liner).
- ◆ Line from the fuel tank to the EVAP canister (under the cover for the EVAP canister).
- ◆ Lines of the tank ventilation system (under right wheel house liner).
- ◆ Fuel lines to the engine.

Note:

Locate leaks at lines and components of the tank system by using a non-combustible, environmentally friendly, leak detector spray. Perform several leak diagnostics in a row to build up the system pressure. Bubbles will form at points of leakage.

- Visually inspect the fuel supply system components:
 - ◆ Fuel tank
 - ◆ EVAP canister
 - ◆ LDP
 - ◆ EVAP canister purge regulator valve -N80

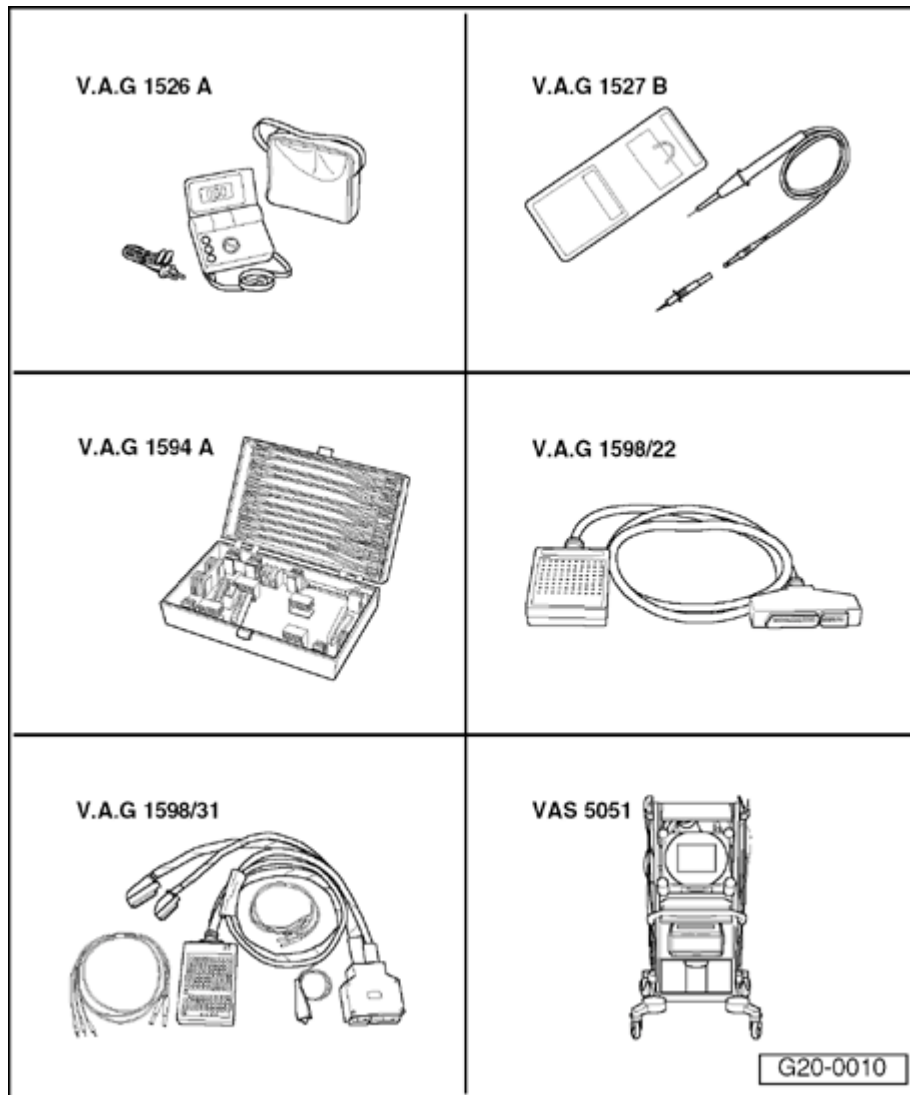
Note:

At times, the above components cannot be effectively leak tested using a leak detection spray, either because of component location or function. In such cases, clamp off the lines to the component involved and perform a leak check. If the leak is no longer displayed, the clamped off component is faulty. If the LDP is clamped off and there is still a leak displayed, the LDP is faulty.

- Check EVAP canister purge regulator valve - N80

⇒ *Repair Manual, Fuel Injection & Ignition,*

Repair Group 24



Leak Detection Pump (LDP) -V144, checking

Special tools needed:

- ◆ VAG1526 A
- ◆ VAG1527 B
- ◆ VAG1594 A
- ◆ VAG1598/22 (vehicles with mechanical accelerator cable)
- ◆ VAG1598/31 (vehicles with electronic throttle control)
- ◆ VAS5051 with VAS5051/1

or

- ◆ VAG1551 with VAG1551/3 A

Observe Safety measures ⇒ [Page 20-1](#) .

Observe Rules of cleanliness ⇒ [Page 20-4](#) .

Checking LDP via Read Measuring Value Block (vehicles with mechanical throttle control)

Note:

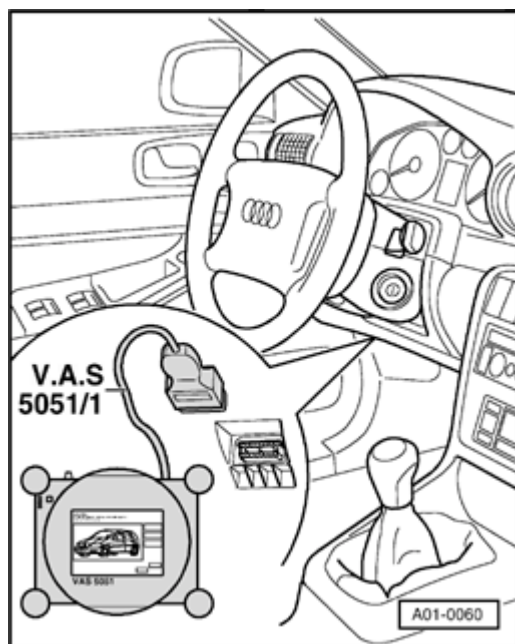
- ◆ *Always replace O-rings, sealing rings and gaskets.*
- ◆ *Radiator fan must not come on during the test!*

Troubleshooting requirements

- DTC memory checked and no DTCs stored
- All electrical consumers switched OFF
- A/C switched OFF
- Intake Air Temperature lower than 90 ° C ⇒ Display group 004, channel 4.
- Engine Coolant Temperature less than 95 ° C ⇒ Display group 004, channel 3.
- Throttle angle less than 10 ° % Display

group 003, channel 3.

20-141



On Board Diagnostic HELP
 1 - Rapid data transfer 1)
 2 - Blink code 1)

Rapid data transfer HELP
 Enter address word XX

- - Connect VAS5051 with diagnostic cable VAS5051/1 or VAG1551 Scan Tool (ST) with adapter cable VAG1551/3B.
- Start engine and let idle.

Note:

In the following description the performance of the On Board Diagnostic (OBD) procedure the VAG1551 Scan Tool (ST) is used. When using Vehicle Diagnostics Test and Information System VAS5051, use the operating instructions.

- Indicated on display:
 - 1) Appears alternately
 - Switch ignition on.
 - Press button 1 to select "Rapid data transfer".
- Display will appear as shown

Rapid data transfer HELP
Select Function XX

- Press 0 and 1 buttons to select Address word 01: "Engine electronics".

- Press Q button to enter input.

- Press → button.

⏪ Display will appear as shown

- Press 0 and 8 buttons to select Function 08: "Read measuring value block"

- Press Q button to enter input.

Read measuring value block
Enter display group number XXX

⏪ Display will appear as shown

- Press 0, 7 and 1 buttons to select "display group 71".

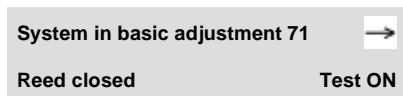
- Press Q button to enter input.

Read measuring value block →
Reed closed break Test OFF

⏪ Display will appear as shown

Note:

- ◆ *Condition for continuing test is "Reed closed" on the display.*
- ◆ *The display does not always show "Abort".*
- ◆ *If the display: "reed open" appears: Briefly open the filler cap to reduce pressure - this will close the reed contact. Continue checking as follows:*

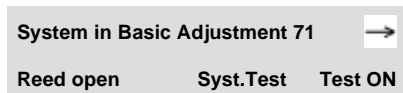


- Press 0 and 4 buttons to select Function 04: "Basic Setting".

⏪ Display will appear as shown

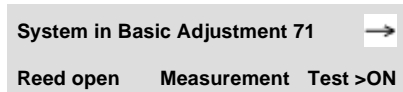
- The EVAP canister valve is opened to allow pressure relief in the system.
- Then the LDP -V144 will be triggered.
- The total procedure lasts approx. 60 seconds.

- Press → button .



⏪ Display will appear as shown

- The system makes a test, the LDP -V144 starts running and shuts off when the pump running time reaches a pre-determined time-out.
- The total procedure lasts approx. 60 seconds.



⏪ Display will appear as shown

- Measurement phase begins. The LDP -V144 is switched off and the ECM checks whether the reed contact has closed within 10 seconds.

System in Basic Adjustment 71 →
 Reed open Messg. END Syst.OK

If NO

↖ Display will appear as shown

- The system is sealed and the measurement is ended.
- Press → button.
- Press 0 and 6 buttons to select Function 06: "End output"
- Press Q button to enter input.

If contact does not close within 10 seconds

- The LDP -V144 performs 4 pump strokes. The ECM compares the time it takes to carry out the pump strokes and the time until the reed contact closes again.


System in Basic Adjustment 71 →
 Reed clos fine leak Messg. ENDSyst.n OK

↖ Display will appear as shown

- The system has recognized a fine leak (∅ greater than 1 mm).

System in Basic Adjustment 71 
Reed clos lrg leak Messg. ENDSyst.not oK

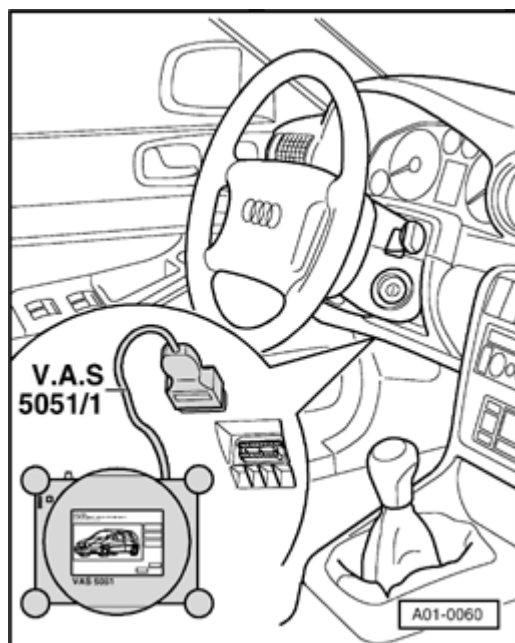
◀ Display will appear as shown

- The Leak detection system has recognized a large leak.
- Press  button.

If system has recognized a fine or large leak

- Check tank system and tank ventilation system for leaks ⇒ [Page 20-136](#).
- Perform tank leak diagnosis again.

Checking LDP via output DTM (vehicles with electronic throttle control)



On Board Diagnostic **HELP**
 1 - Rapid data transfer 1)
 2 - Blink code 1)

A

- Connect VAS5051 with diagnostic cable VAS5051/1 or VAG1551 Scan Tool (ST) with adapter cable VAG1551/3B.

Note:

In the following description the performance of the On Board Diagnostic (OBD) procedure the VAG1551 Scan Tool (ST) is used. When using Vehicle Diagnostics Test and Information System VAS5051, use the operating instructions.

A

Indicated on display:

1) Appears alternately

- Switch ignition on.
- Press button 1 to select "Rapid data transfer".

Rapid data transfer HELP
Enter address word XX

⏪ Indicated on display:

- Enter "01" for address word "Engine electronics" and confirm input by pressing Q button.
- Press → button.

Rapid data transfer HELP
Select function XX

⏪ Indicated on display:

- Enter "03" for function "Output Diagnostic Test Mode (DTM)."

Rapid data transfer Q
03-Output Diagnostic Test Mode

⏪ Indicated on display:

- Confirm input by pressing Q-button.

Output Diagnostic Test Mode →
EVAP Purge Regulator Valve -N80

⏪ Indicated on display (EVAP canister purge regulator valve -N80)

- Press → button until following display is shown:

Output Diagnostic Test Mode →
Leak Detection Pump

⏪ Indicated on display:

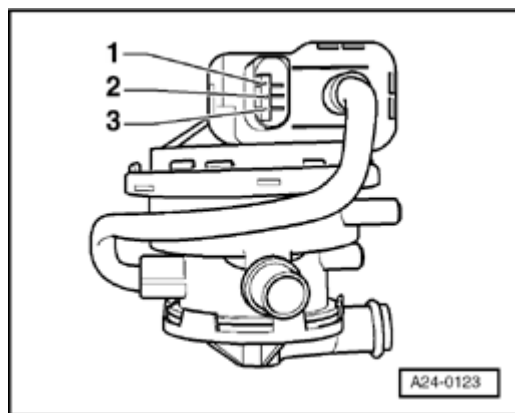
The leak detection pump is activated for about 1 minute.

Note:

You can hear the leak detection pump run at the left rear wheel housing when it is working. This will be difficult to hear. Make sure to be as close to LDP as possible and to eliminate as much surrounding noise as possible.

If LDP -V144 is not activated (pump is silent):

- Switch ignition off.
- Remove LDP (⇒ [Page 20-162](#)) and disconnect electrical connector.



Checking resistance (all vehicles)



- Switch multimeter Fluke 83 to resistance and connect as follows:

Vehicles manufactured ➤ approx. 05.97

Leak detection pump terminal	Specified value
1 + 3	640 to 720 Ω
2 + 3	17.5 to 27.5 Ω

Vehicles manufactured approx. 05.97 ➤

Leak detection pump terminal	Specified value
1 + 3	640 to 720 Ω
2 + 3	15 to 17 Ω

If you measure values other than specified values:

- Replace Leak Detection Pump (LDP) -V144 ⇒ [Page 20-162](#) .

If you reached specified values:

- Check voltage supply to electrical connector of LDP ⇒ [Page 20-151](#) .

Checking voltage supply (all vehicles)

Note:

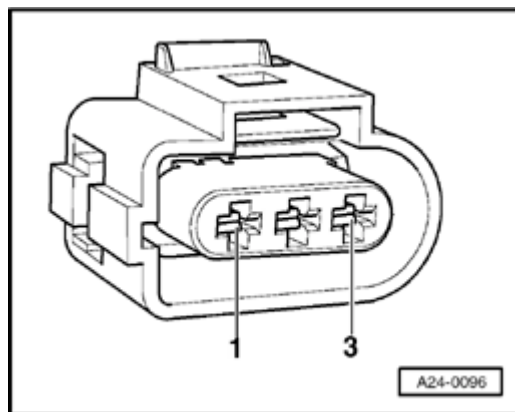
Voltage supply to the LDP is via the fuel pump relay.

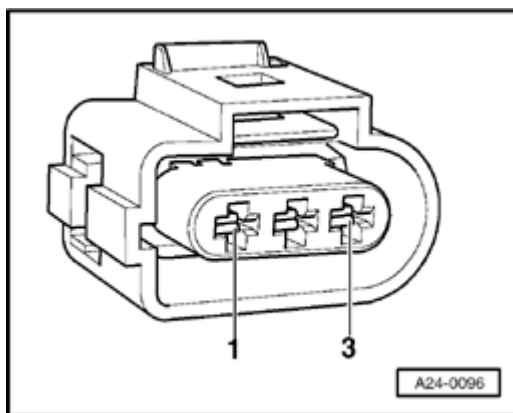
Test condition:

- Fuse for LDP is OK
- Disconnect connector from LDP.
- Connect voltage tester VAG1527 B as follows:

Connector terminal	Measure
3	Engine Ground (GND)

- Briefly operate starter motor.
- LED must light up.





If LED does not light up:

A

- Check electrical wiring from terminal 3 via fuse for fuel pump relay for open circuit.

⇒ *Electrical Wiring Diagrams, Troubleshooting & Component Locations*

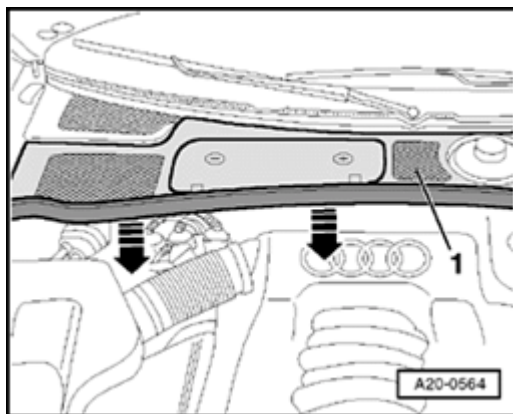
- Repair wiring as necessary.

If wiring is OK:

- Check fuel pump relay:

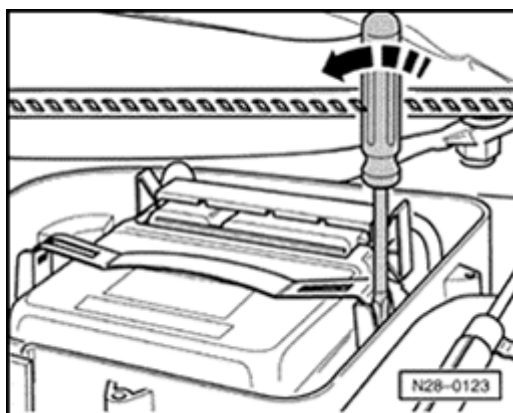
⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

Checking output wiring (vehicles with mechanical throttle activator)



A

- Remove weatherstrip at plenum chamber -arrows-.
- Remove cover for plenum chamber -1- toward front.
- Remove cover for E-box in plenum chamber.



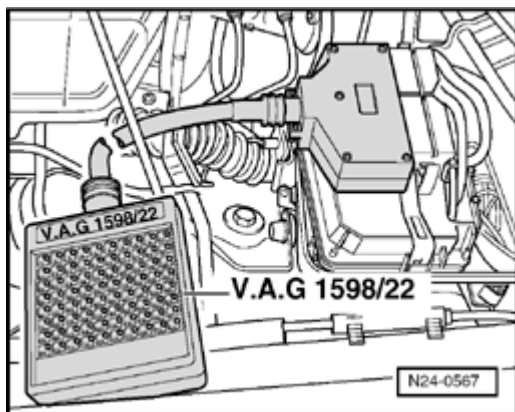
A

- Carefully lever off clamp -arrow- with screwdriver.

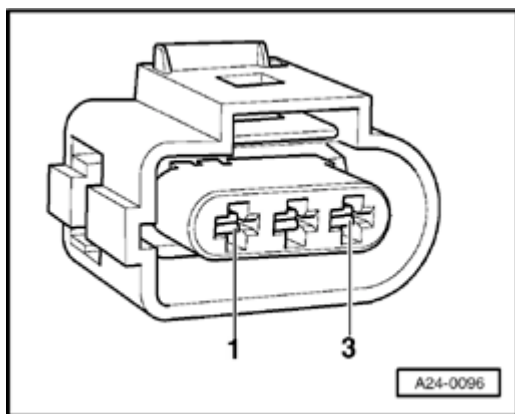
Note:

Disconnect or connect the Engine Control Module (ECM) connector only with ignition switched off.

- Unlatch clip and disconnect connector for Engine Control Module (ECM).



- A** - Connect test box VAG1598/22 to harness connector. Do not connect ECM.



- A** - Check the following wire connection for open circuit and short circuit to Ground (GND) or to plus (B+):

Electrical connector terminal	Test box VAG1598/22 socket
2	16

- Repair wiring or short circuit as necessary.

If you did not find any malfunction, however the Leak Detection Pump (LDP) did not function during the output Diagnostic Test Mode (DTM):

- Replace Leak Detection Pump (LDP) -V144 ⇒ [Page 20-162](#) .

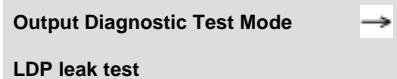
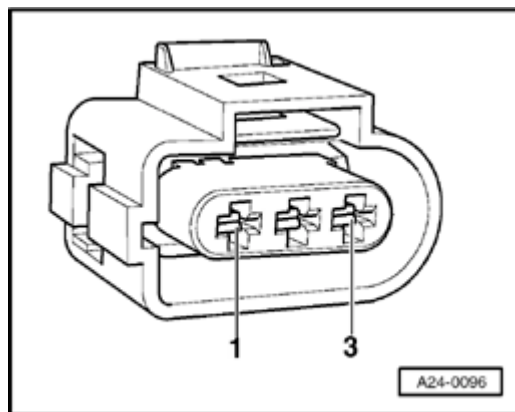
If the LED does not blink, although wiring is OK:

- Replace Engine Control Module (ECM):

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

- Generate readiness code:

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*



Checking output wiring (vehicles with electronic throttle control)



- Connect voltage tester VAG1527B as follows:

Electrical connector terminal	Specification
2	Battery Positive

- Initiate Diagnostic Test Mode (DTM) ⇒ [Page 20-146](#) .
- Press → button until following display is shown:



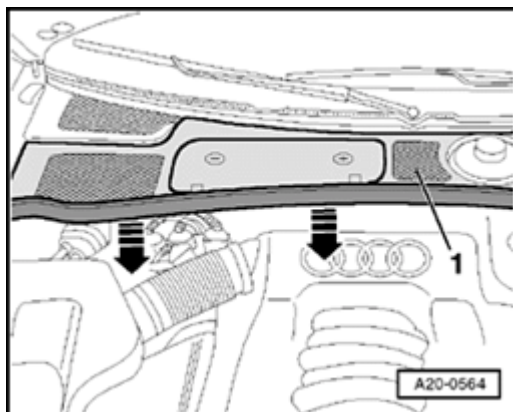
Indicated on display:

- ◆ LED must blink

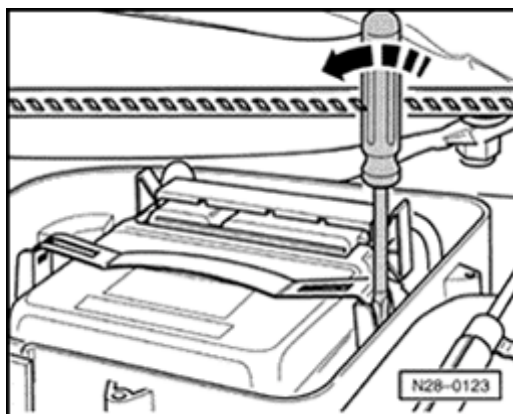
If LED does not blink:

- Switch ignition off.

20-157



- A**
- Remove weatherstrip at plenum chamber -arrows-.
 - Remove cover for plenum chamber -1- toward front.
 - Remove cover for E-box in plenum chamber.

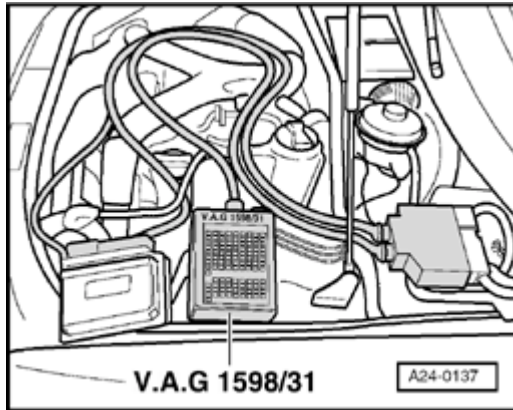


- A**
- Carefully lever off clamp -arrow- with screwdriver.

Note:

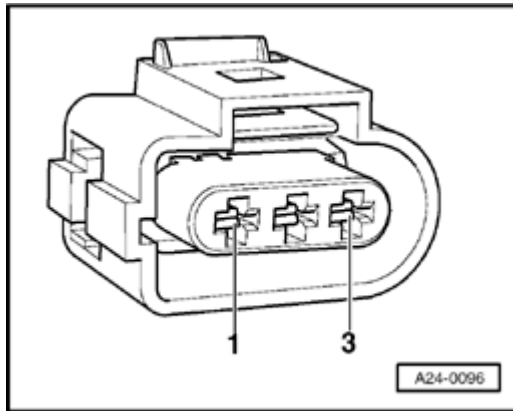
Disconnect or connect the Engine Control Module (ECM) connector only with ignition switched off.

- Unlatch clip and disconnect connector for Engine Control Module (ECM).



A

- Connect test box VAG1598/22 to harness connector. The ground clamp (not visible in the illustration) must be connected to battery ground connection. Do not connect ECM.



A

- Check the following wire connection for open circuit or short circuit to Ground or plus (B+):

Electrical connector terminal	Test box VAG1598/22 socket
2	25

- Repair wiring or short circuit if necessary.

If you did not find any malfunction, however the Leak Detection Pump (LDP) did not function during the Output Diagnostic Test Mode (DTM):

- Replace LDP ⇒ [Page 20-162](#)

If the LED does not blink, although wiring is OK:

- Replace the Engine Control Module (ECM)

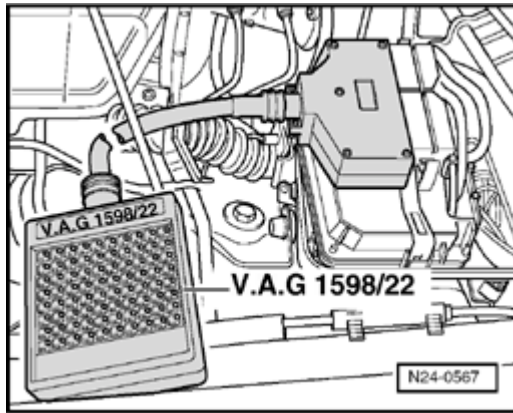
⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

- Generate readiness code:

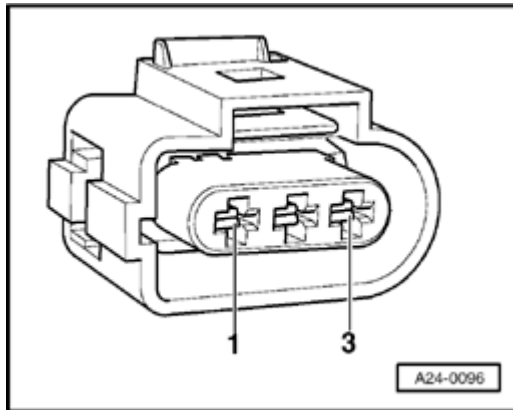
⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

Checking input wiring (vehicles with mechanical throttle activator)

- Switch ignition off.



- A** - Connect test box VAG1598/22 to harness connector ⇒ [Page 20-153](#) , "Checking output wiring."



- A** - Check the following wire connections for open circuit or short circuit to Ground or plus (B+):

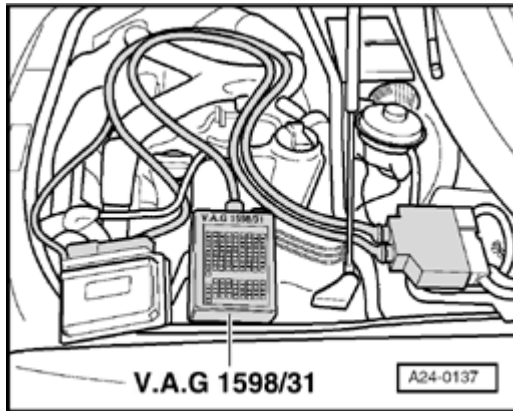
Electrical connector terminal	Test box VAG1598/22 socket
2	37

- Repair open or short circuit as necessary.
- Generate readiness code:

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

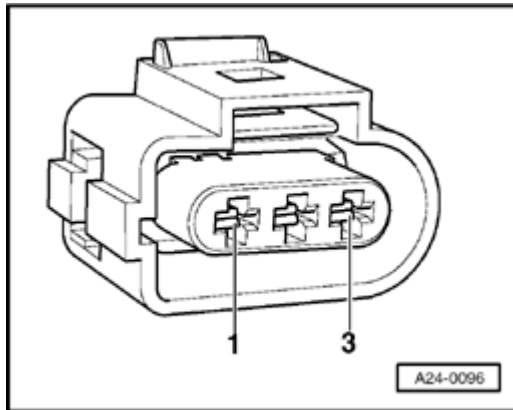
Checking input wiring (vehicles with electronic throttle control)

- Switch ignition off.



A

- Connect test box VAG1598/31 to harness connector ⇒ [Page 20-156](#) , "Check output wiring."



A

- Check the following wire connections for open circuit or short circuit to Ground or plus (B+):

Electrical connector terminal	Test box VAG1598/31 socket
1	80

- Repair open or short circuit as necessary.

- Generate readiness code:

⇒ *Repair Manual, Fuel Injection & Ignition, Repair Group 24*

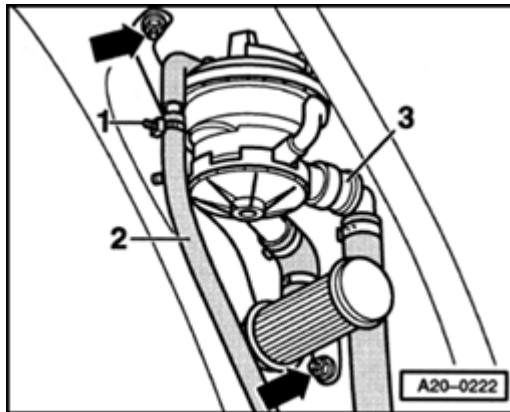
Leak Detection Pump (LDP) -V144, removing and installing

Checking LDP ⇒ [Page 20-139](#)

Removing

- Remove left rear wheel.
- Remove left rear wheel housing liner.

⇒ [Repair Manual, Body Exterior, Repair Group 66](#)



A

- Cut tie wrap -1- and remove hose -2- .
- Disconnect hose coupling -3- after pressing tab.
- Remove nuts -arrows-.
- Switch off ignition.
- Remove LDP, unclip and disconnect connector.

Installing

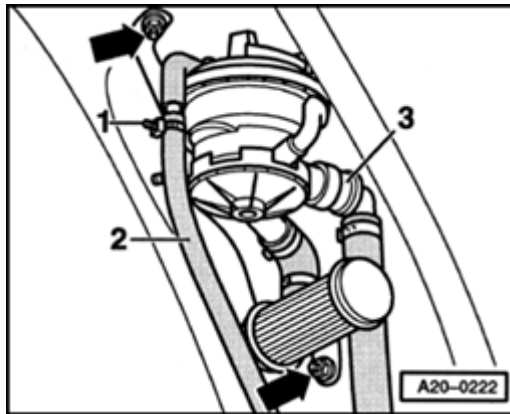
Installation is in reverse order of removal, but do the following:

Note:

Secure all hoses with clamps that are the same as factory installed.

CAUTION!

Always refer to the latest parts catalog to ensure that you use original equipment fuel hose clamps.



A

- Secure hose -2- with tie wrap -1- to bracket of LDP.

Tightening torque:

Component	Nm
Bracket for Leak Detection Pump (LDP)	7.5

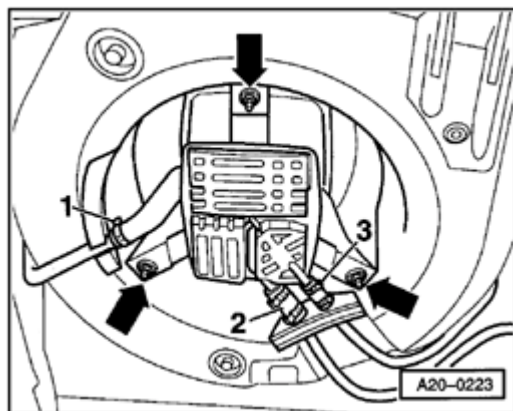
EVAP canister, removing and installing

Note:

To check seal integrity, perform tank leak diagnosis ⇒ [Page 20-139](#) .

Removing

- Remove cover for EVAP canister at bottom of spare tire well.



A

- Loosen hose connections -1- and -3- on bleed lines.
- Remove sealing pieces out and over the bleed lines.
- Loosen studs -arrows-.

Installing

Installation is performed in the reverse order of the removal procedure, during installation note the following:

CAUTION!

Always refer to the latest parts catalog to ensure that you use original equipment fuel hose clamps.

Tightening torques

Component	Nm
EVAP canister to body	15
Cover on spare wheel well	10

Evaporative Emissions (EVAP) System, Diagnosis using KLI9210 EVAP Tester

Description

The leak detection threshold has recently changed from 1.0 mm (0.040 in.) to 0.5 mm (0.020 in.). These changes to EPA regulations regarding EVAP system integrity indicated that additional resources for more accurate EVAP system diagnosis are necessary.

The KLI9210 EVAP Tester allows testing using nitrogen to pressurize the EVAP system and a smoke generator or ultrasonic tester to locate the source of EVAP system concerns.

The following procedure will outline general use of the KLI9210 EVAP Tester. It is intended as a guideline, as EVAP systems vary between models.

Test EVAP system using Leak Detection Pump (LDP) -V144- (m.y. 1998 and later)

For vehicles without LDP, proceed to "Perform EVAP tester self-test".

For vehicles with LDP:

- Perform leak test using VAS 5051 Scan Tool and Basic Setting mode, ⇒ [Page 20-139](#) .

If vehicle fails above test ("System not OK"):

- Verify fuel cap is properly closed; repeat test.

If "System OK" after re-test:

- Erase DTC memory (if necessary).

- Repeat test several times to ensure proper EVAP system operation (remove and re-install fuel cap before each test).

- Perform quality check and return vehicle to customer.

Note:

If the vehicle passes the above EVAP system test, DTCs may be sporadic; the entire EVAP system should be carefully inspected.

If VAS 5051 continues to indicate "System not OK" after re-test, proceed to next step.

Perform EVAP tester self-test

Note:

- ◆ *Always perform system self-test of KLI9210 EVAP Tester prior to use to ensure that there are no leaks.*

- ◆ *Refer to KLI9210 instruction manual for specific instructions.*

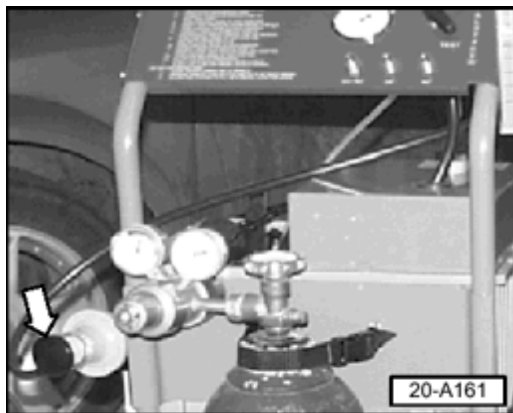


- Connect vehicle interface hose to self-test port -1-, ensuring that fitting is finger-tight. Over-tightening will damage fitting.
- Turn control valve -2- to "Test".

Gauge -3- should read 14 ± 1 in. of water.

If gauge does not read 14 ± 1 in. of water:

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- Verify that valve on EVAP tester nitrogen cylinder is open and that cylinder has sufficient pressure before continuing.

- Turn fine adjust regulator knob (arrow) until gauge reads 14 in. of water; tighten lock nut.

Note:

If gauge still does not read within above range, contact K-Line Customer Service - Technical Support for additional instructions before continuing.

- Check flow meter -4-. (upper illustration).
Meter must indicate no flow.
- Turn control valve to "Hold" position.
- Check gauge.
Gauge must hold pressure

If gauge leaks down:

- Verify that vehicle interface hose is firmly seated and repeat previous six steps before continuing.

If gauge continues to leak down:

- Use ultrasonic tester (described later) to locate and repair leak before continuing.

Note:

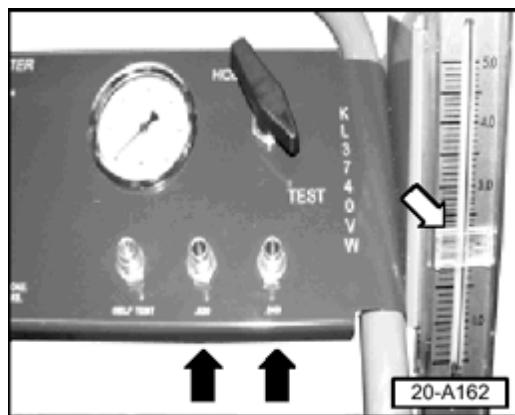
If the leak cannot be located or repaired, contact K-Line Customer Service - Technical Support.

Calibrate KLI9210 Tester

Determine vehicle leak threshold:

To m.y. 2000: leak threshold 0.040 in.

From m.y. 2001: leak threshold 0.020 in.



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- Attach test hose to appropriate preset port (black arrows).
- Turn control valve from "Hold" to "Test".
- Set flow meter flag (white arrow) at indicated value on flow meter.
- Turn control valve to "Hold"; remove test hose.

Test fuel cap

- Connect fuel cap tester to hose.



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- Screw fuel cap tightly to cap receiver (arrow).
- Turn control valve to "Test".
- Read flow meter on tester.

If no flow is indicated:

- Proceed to "Test LDP for internal leaks".

If flow is indicated:

- Replace fuel cap and re-test.

If new fuel cap shows no flow:

- Repeat Leak Test, with new fuel cap installed, using VAS 5051 and Basic Settings mode, ⇒ [Page 20-139](#) .

If Leak Test shows 'System OK':

- Perform quality check and return vehicle to customer.

Test LDP -V144- for internal leaks

If vehicle is not LDP-equipped, proceed to "Test EVAP system".

- Clamp off LDP outlet (EVAP side) using Special Tool No. 3094 or equivalent.

CAUTION!

Clamp only soft rubber lines when isolating a leak. To avoid risk of damage, never clamp hard plastic lines!

- Repeat Leak Test using VAS 5051 and Basic

Setting mode.

VAS 5051 should immediately indicate "System OK"

- Repeat test several times to verify result.

If test continues to indicate "System OK", remove clamp and proceed to "Test EVAP System".

If VAS 5051 indicates "System not OK":

- Replace LDP and repeat test.

If VAS 5051 indicates "System OK" after LDP is replaced and test result is verified:

- Perform quality check and return vehicle to customer.

Test EVAP System

Also ⇒ [Page 20-134](#) .

If vehicle is not LDP-equipped:

- Plug or clamp EVAP canister outlet and proceed to step "Continued for all vehicles" (below).

If vehicle is LDP-equipped:

- Plug or clamp LDP inlet (filter side) using Special Tool No. 3094 or equivalent.

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- A
- Attach fuel cap adapter to filler neck (arrow) and test hose to adapter.
 - Turn control valve from "Hold" to "Test".
 - Allow fuel system to pressurize.

Note:

Fuel system pressurization depends on volume of fuel system and amount of fuel in tank.

If fuel system pressurization does not stabilize:

- Verify all fuel system outlets have been sealed before continuing.

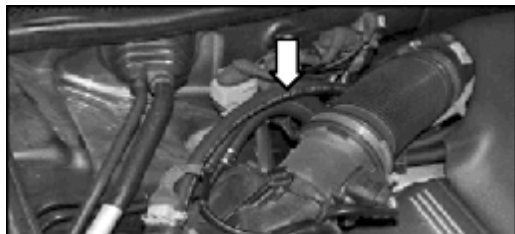
CAUTION!

Clamp only soft rubber lines when isolating a leak. To avoid risk of damage, never clamp hard plastic lines!

Note:

Any flow shown on flow meter indicates a leak. Flow before flow meter flag set at vehicle leak standard may indicate a sporadic DTC.

If flow meter on tester registers flow near or above preset pressure:



- A
- Clamp off hose (arrow) leading from EVAP purge regulator valve -N80- to intake manifold (pictured: AHA engine in A6).

If flow stops:

- Replace EVAP purge regulator valve -N80- and repeat test before continuing.

If meter indicates no flow after test:

- Perform a quality check and return vehicle to customer.

If flow continues, proceed as follows:

Method 1: Locate leak with smoke generator

- Connect leads from smoke generator to vehicle battery.
- Use smoke generator trigger to charge fuel system with smoke.
- Inspect complete EVAP system for escaping smoke.



A Method 2: Locate leak with ultrasonic tester

General search: tester only

Localized search: tester with extension (on left in illustration)

If leak cannot be located:

- Disconnect and plug or clamp shut EVAP lines to isolate fuel tank, using Special Tool No. 3094 or equivalent, before continuing.

CAUTION!

Clamp only soft rubber lines when isolating a leak. To avoid risk of damage, never clamp hard plastic lines!

If flow stops:

- Reconnect EVAP lines to search area that was isolated

If leak or source of fuel odor cannot be found:

- Contact Audi Dealer Technician Helpline.

CAUTION!

Under no circumstances should the vehicle be returned to the customer without proper diagnosis and repair.

When leak has been located:

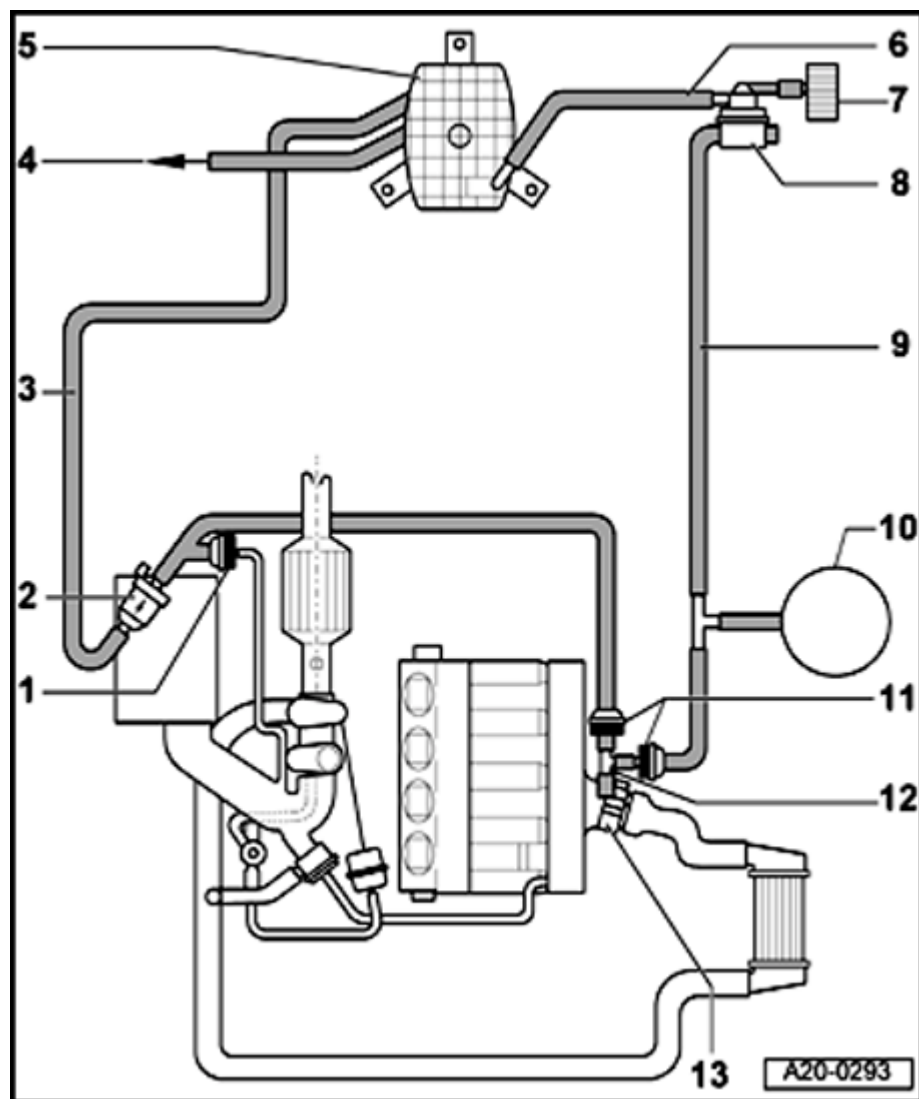
- Repair leak and repeat EVAP system test.
- Perform quality check and return vehicle to customer.

Note:

- ◆ *Because leak may be at top of fuel tank, it may not be possible to locate through fuel pump/sending unit access plate.*
- ◆ *Fuel tank may need to be lowered to locate the*

leak.

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EVAP system leak detection circuit, schematic diagram (vehicles with 1.8 ltr. turbo engine)

1 - Check valve

- ◆ Location (light/dark side): as shown in illustration

2 - EVAP canister purge regulator valve -N80-

- ◆ Location: in engine compartment
- ◆ Checking

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 24*

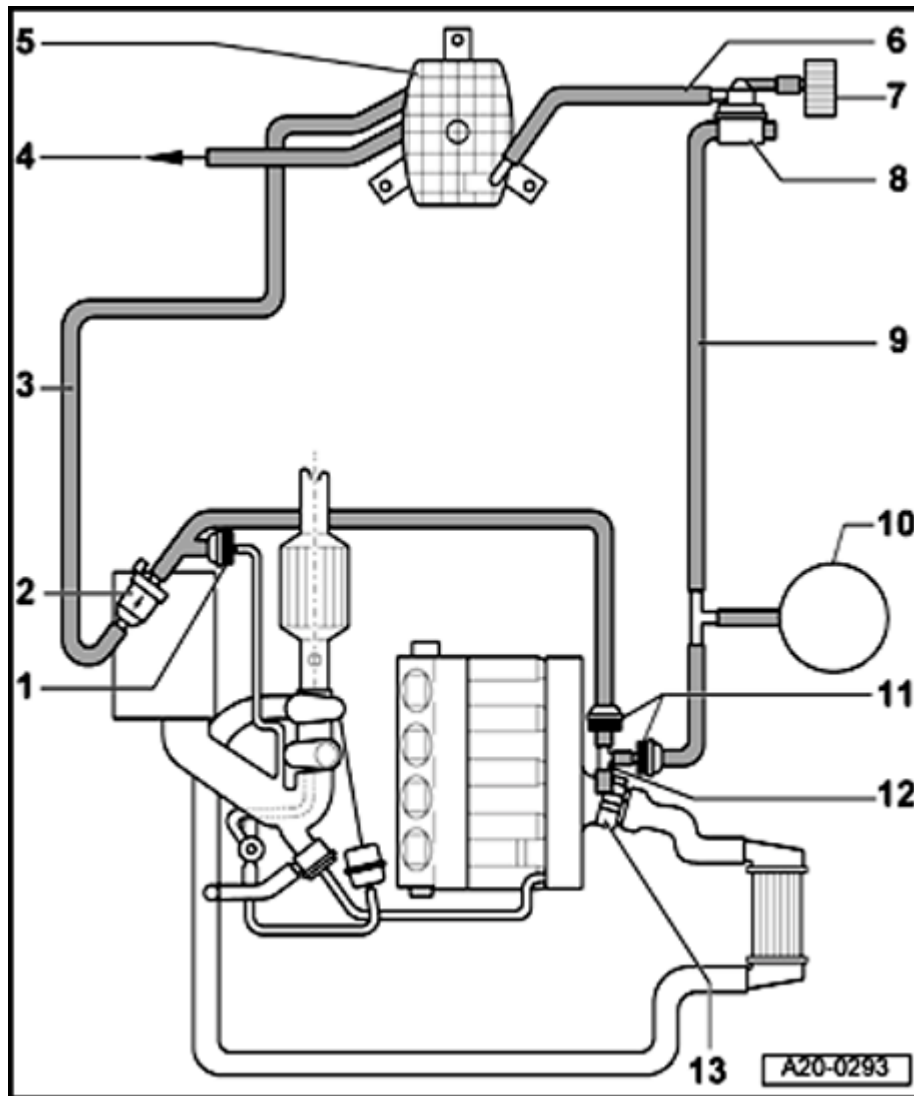
3 - Bleed line

- ◆ From EVAP canister purge regulator valve -N80-

Location

- ◆ Right side under floor pan
- ◆ Front-wheel drive: on floor pan in area of fuel tank
- ◆ All-wheel drive: on fuel tank in area of fuel tank

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**4 - Bleed line**

- ◆ From gravity valve

5 - EVAP canister

- ◆ Location: bottom of spare wheel well

6 - Connecting hose

- ◆ LDP/EVAP canister
- ◆ Pressure side

7 - Air filter

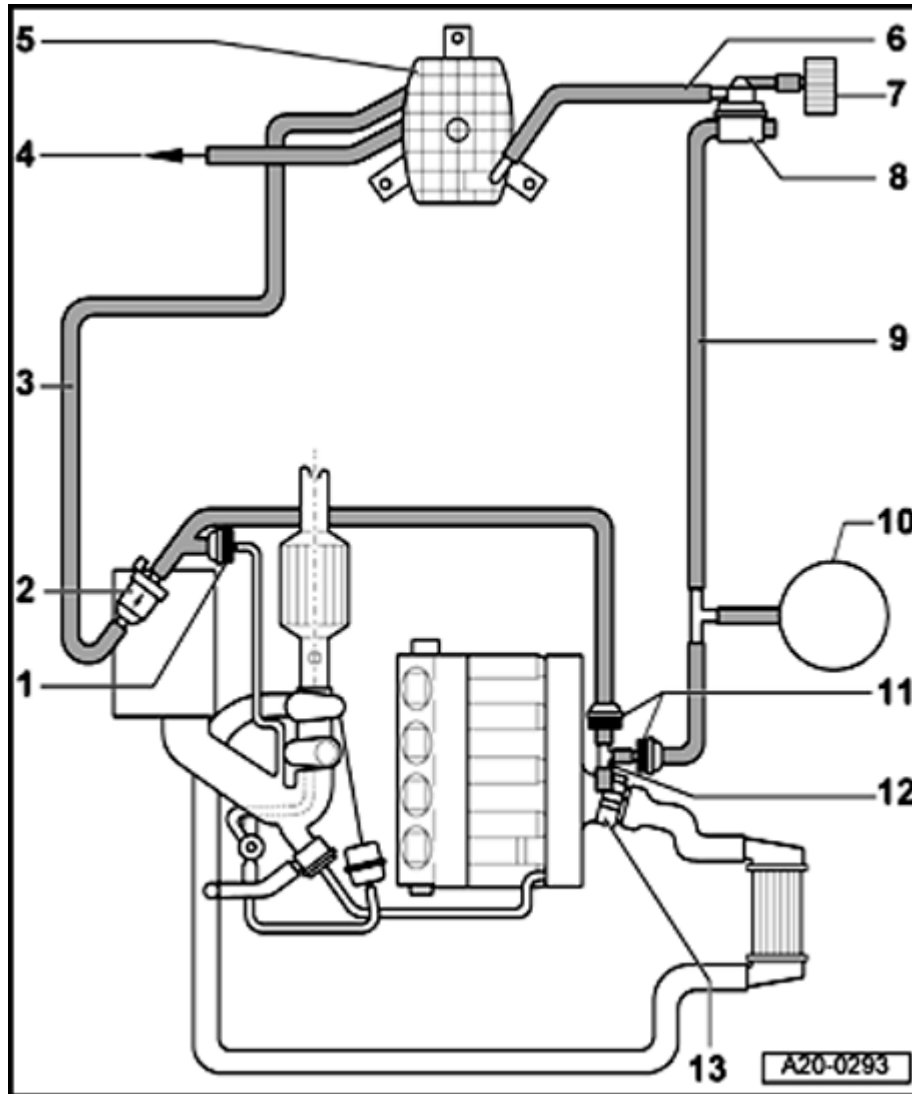
- ◆ For LDP

8 - LDP -V144-

- ◆ Location: left rear wheel house behind wheel well ⇒ [Page 20-130](#)

9 - Vacuum hose

- ◆ LDP / Throttle actuator control module



10 - Vacuum supply reservoir

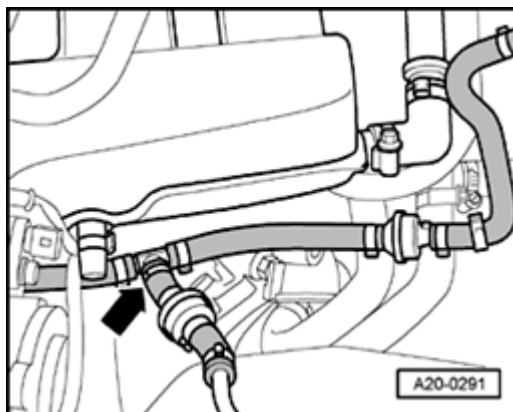
11 - Check valve

◆ Location (light/dark side): as shown in illustration

12 - T - piece

◆ Location ⇒ Fig. ⇒ [1](#)

13 - Throttle actuator control module -J338-

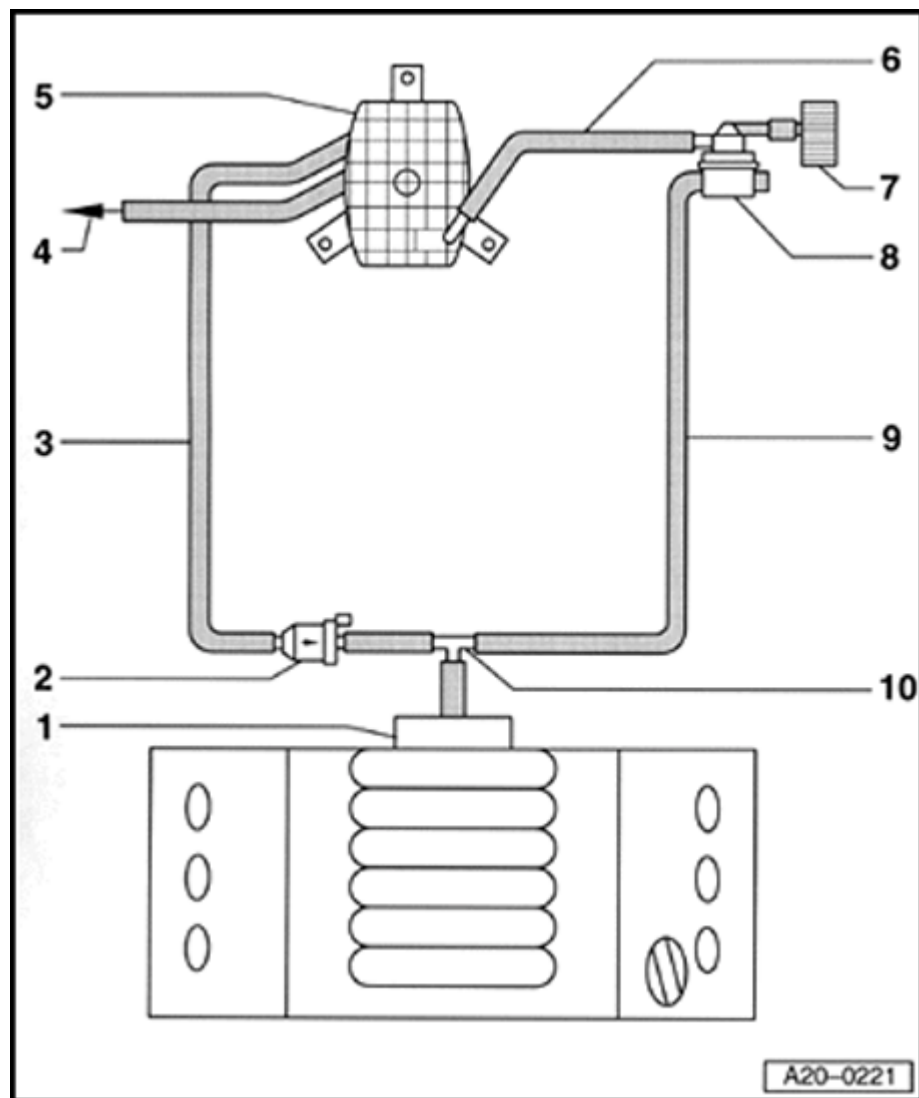


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Fig. 1 T-piece, location

T - piece -arrow- is located on left side of engine compartment.

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EVAP system leak detection circuit, schematic diagram (vehicles with 2.8 ltr. engine)

1 - Throttle actuator control module -J338-

2 - EVAP canister purge regulator valve -N80-

◆ Location: in engine compartment

◆ Checking:

⇒ *Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition, Repair Group 24*

3 - Bleed line

◆ From EVAP canister to EVAP canister purge regulator valve -N80-

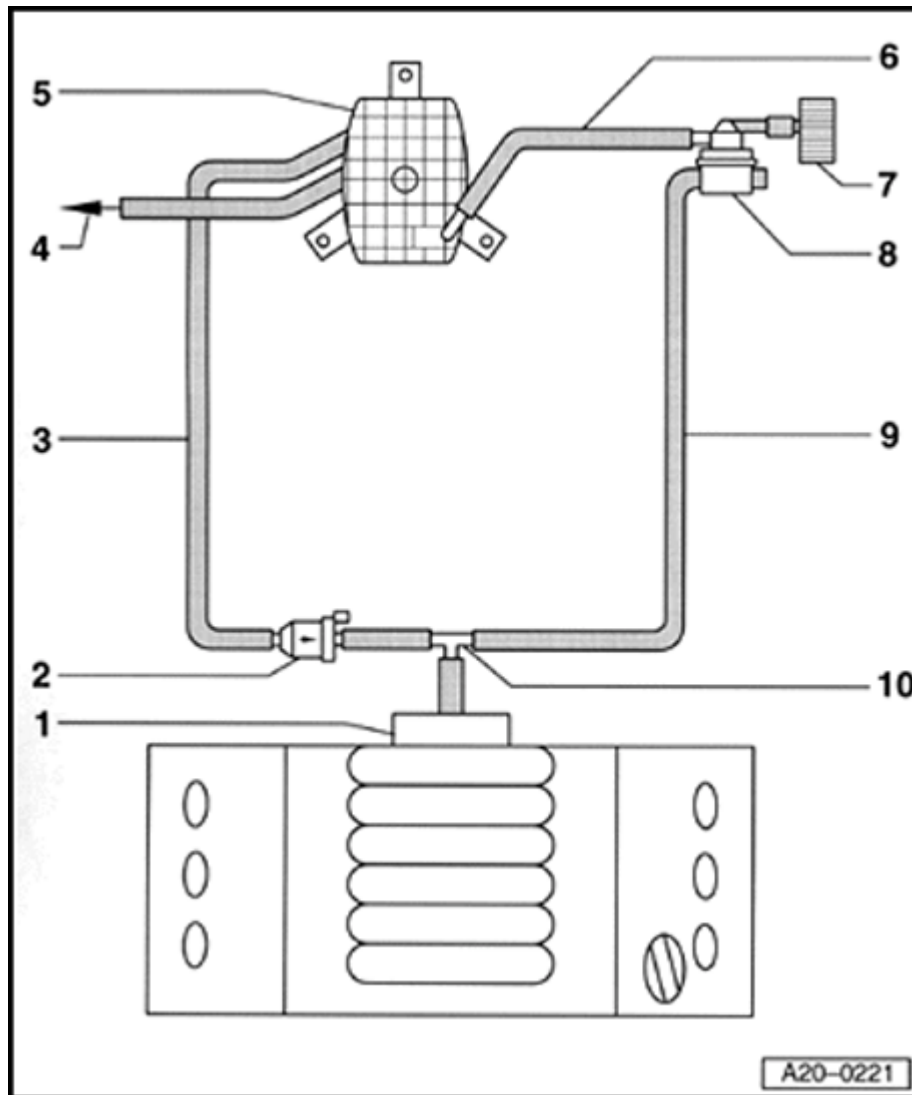
Location

◆ On right side under floor pan

◆ Vehicles with front-wheel drive: mounted on floor pan in area of fuel tank

◆ Vehicles with all-wheel drive: mounted on fuel tank

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**4 - Bleed line**

- ◆ To gravity valve on fuel tank

5 - EVAP canister

- ◆ Location: in bottom of spare tire well

6 - Connecting hose

- ◆ LDP / EVAP canister
- ◆ Pressure side

7 - Air filter

- ◆ For LDP

8 - LDP -V144

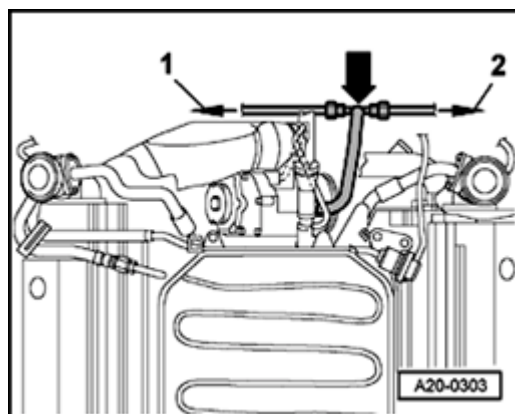
- ◆ Location: in left rear wheel house behind wheel well ⇒ [Page 20-130](#)

9 - Vacuum hose

- ◆ LDP / throttle actuator control module

10 - T - piece

- ◆ Location ⇒ Fig. ⇒ [1](#)



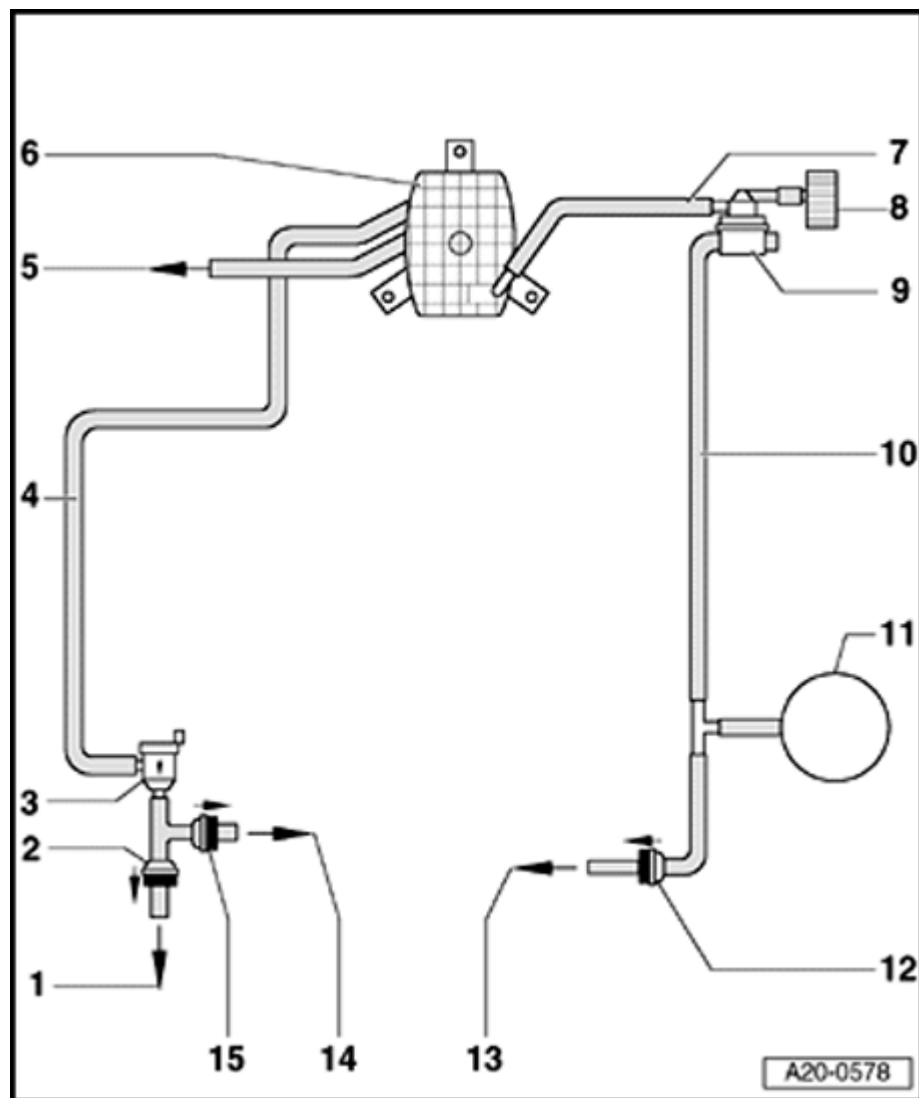
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Fig. 1 T - piece Location

The T-piece -arrow- is located between the engine and firewall.

1 - To the EVAP canister

2 - to LDP -V144-



EVAP system leak detection circuit, schematic diagram (vehicles with 2.7 ltr. turbo engine)

1 - To air intake before both turbo chargers

2 - Check valve

- ◆ Installation position: Arrow at housing indicates flow-through direction.

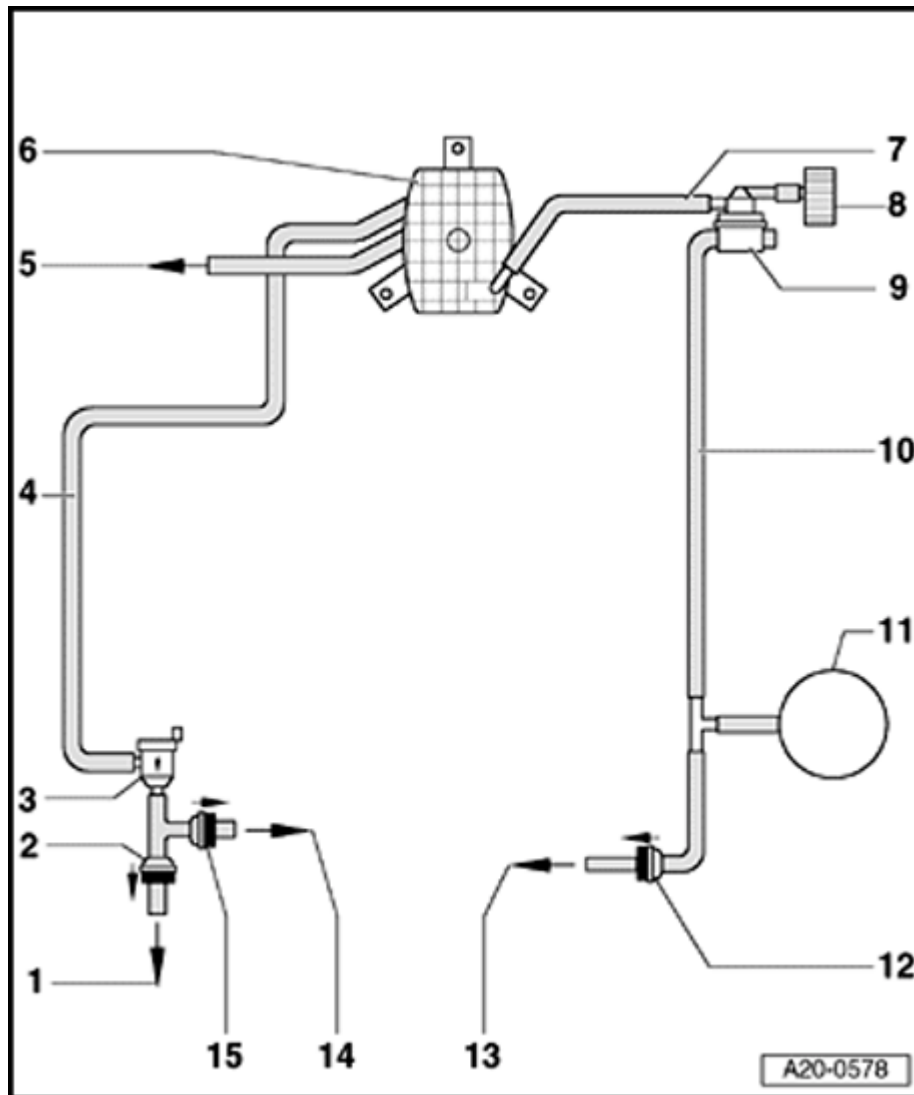
3 - Evaporative Emission (EVAP) canister purge regulator valve -N80-

- ◆ Location: On right side of engine compartment
- ◆ Checking:

⇒ [Repair Manual, 2.7 Liter V6 5V BiTurbo Fuel Injection & Ignition, Engine Code\(s\): APB, Repair Group 24](#)

4 - Vent line

- ◆ From EVAP canister to EVAP canister purge valve regulator valve -N80
- ◆ Installation position: On right side on vehicle under-side.
- ◆ Attached to fuel tank.



5 - Vent valve

- ◆ To gravity valve at fuel tank

6 - Evaporative Emission (EVAP) canister

- ◆ Location: At bottom of spare tire well

7 - Connecting hose

- ◆ Leak Detection Pump (LDP) /EVAP canister
- ◆ Pressure side

8 - Air cleaner

- ◆ For Leak Detection Pump (LDP) -V144-

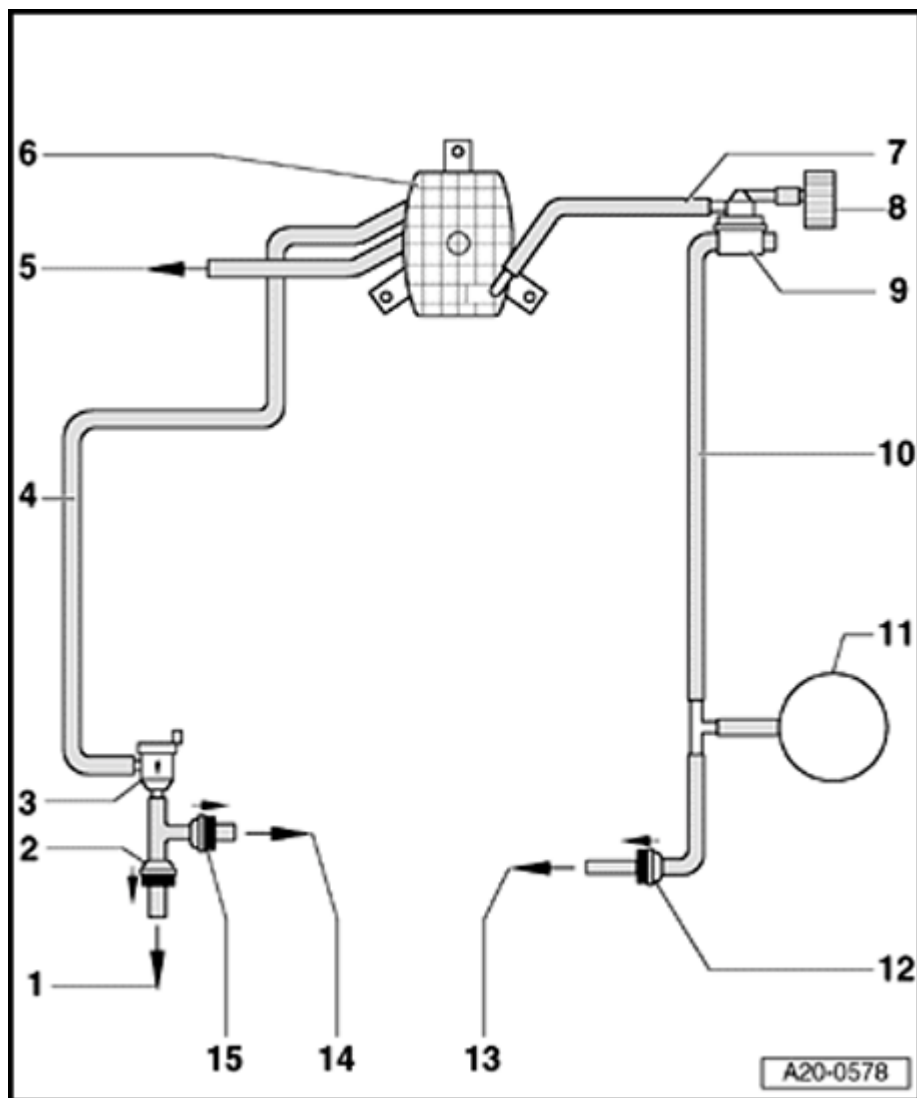
9 - Leak Detection Pump (LDP) -V144-

- ◆ Location: In left rear wheel well under wheel well liner
- ◆ Removing and installing ⇒ [Page 20-162](#)

10 - Vacuum line

- ◆ To Leak Detection Pump (LDP) -V144-

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**11 - Vacuum reservoir**

- ◆ For Leak Detection Pump (LDP) -V144-
- ◆ Location: in left front wheel well

12 - Check valve

- ◆ Installation position: Arrow at housing indicates flow-through direction.

13 - To intake manifold at top rear**14 - To intake manifold at top****15 - Check valve**

- ◆ Installation position: Arrow at housing indicates flow-through direction.