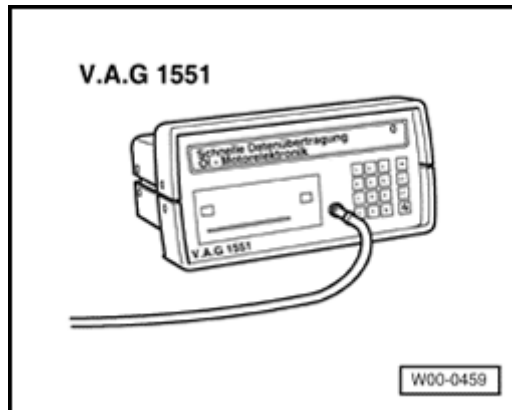


Charge air pressure system, checking

Charge air pressure regulation, checking

Special tools, workshop equipment, testers,
measuring instruments and auxiliary items
required



A

- ♦ V.A.G 1551 scan tool

Note:

The vehicle system tester V.A.G 1552 can be used instead of the VAG 1551 scan tool, however a print-out is not possible.



A

- ♦ V.A.G 1551/3 Cable

Check conditions

- No faults must be stored in DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module (ECM), checking and erasing*

- No leaks on intake and exhaust systems.
- Engine oil temperature min. 80 °C



Test sequence

- The charge air pressure is measured under full load, whilst driving or on a rolling road.

Observe applicable safety precautions when carrying out a road test ⇒ [Page 21-21](#) .

- Connect VAG 1551 scan tool ((V.A.G 1552).
Start engine and select engine electronics control module with "Address word" 01.
Connecting scan tool and selecting engine control module:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; On Board Diagnostic (OBD); Connecting VAG 1551 scan tool and selecting engine electronics control module*

Rapid data transfer

HELP

Select function XX



Indicated on display:

- Press keys 0 and 8 for the function "Read measured value block" and confirm entry with Q key.

Read measured value block



Indicated on display:

Input display group number XXX

- Press keys 1, 1 and 4 for "Display group number 114" and confirm entry with Q key.

Read measured value block 114 →

1 2 3 4



Indicated on display: (1 to 4 = Display zones)



- Check duty cycle of wastegate bypass regulator valve -N75- in display zone 4 (at full throttle between 1800 to 2300 RPM) during a test drive or on a rolling road. Specification: 5.0 to 95.0 %

If the specification is obtained:

- Change to display group 115 as follows: V.A.G 1551: Press key 3 V.A.G 1552: Press key ↑

Read measured value block 115 →

1 2 3 4



Indicated on display: (1 to 4 = Display zones)

- Check charge air pressure (actual value) at full throttle in display zone 4:

On rolling road

In 3rd gear or in 2nd driving range

During test drive

Vehicles with manual transmission

- Accelerate in 2nd gear with full throttle.

Vehicles with automatic transmission.

- Manually select drive mode 4 (Tiptronic) and accelerate vehicle from a low

speed at Wide Open Throttle (WOT, without Kick-Down, transmission no longer shifts down).



Engine speed AWD, AWW

- Press the print button between 1800 to 2300 RPM and read the charge air pressure actual value in display zone 4. Specification: 1350 to 1750 bar

Engine speed AWP

- Press the print button between 1800 to 2300 RPM and read the charge air pressure actual value in display zone 4. Specification: 1700 to 2000 bar

Continued for all vehicles

- Compare actual charge air pressure value with specified charge air pressure value in display zone 3 Difference: max. 100 mbar

Note:

Repeat the measurement if the charge air pressure has not fully built-up or there is a large difference between specified and actual values.

- Press the → key.

- Press keys 0 and 6 for the "End output" function and confirm input with the Q key.
- Switch off ignition.

If the charge air pressure is exceeded:



- Check charge air pressure sensor -G31- ⇒ [Page 21-31](#)
- Test wastegate bypass regulator valve -N75-.
(Hose from turbocharger via valve to pressure unit not blocked when connector is pulled off).
- Check pressure unit for charge air pressure regulating valve is securely mounted on turbocharger.
- Check pressure unit ⇒ [Page 21-38](#)
- Check shaft mount for charge air pressure regulating valve in turbocharger for ease of movement. When corroded together, replace turbocharger.

If the charge air pressure is not attained:

- Check charge air pressure sensor -G31- ⇒ [Page 21-31](#)
- Check Wastegate bypass regulator valve - N75-.



- Check shaft mount for charge air pressure regulating valve in turbocharger for ease of movement. When corroded together, replace turbocharger.
- Turbocharger malfunctioning. Replace turbocharger ⇒ [Page 21-2](#) , Removing and installing turbocharger with attachments.
- Check DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module, checking and erasing*

- Read out readiness code:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code; Reading out readiness code*

- If the DTC memory has been erased or the

engine control module separated from the permanent positive, the readiness code must be generated again.

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code*



Wastegate bypass regulator valve -N75-, checking

**Special tools, workshop equipment, testers,
measuring instruments and auxiliary items
required**

- ◆ VAG 1551 scan tool or vehicle system tester
V.A.G 1552 with cable V.A.G 1551/3
- ◆ Hand multimeter V.A.G 1526 or multimeter
V.A.G 1715
- ◆ Adapter set V.A.G 1594

Test conditions

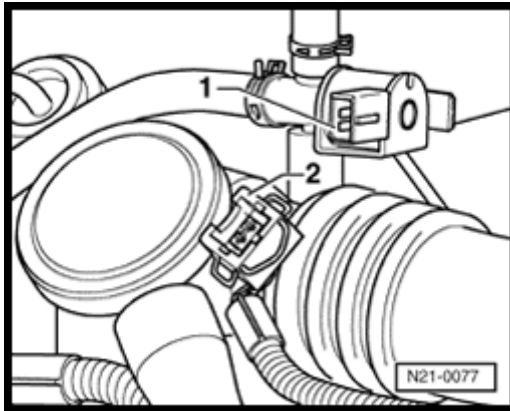
- Carry out Output Diagnostic Test Mode

*⇒ Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel
Injection & Ignition, Repair Group 01; Output
Diagnostic Test Mode; Performing Output
Diagnostic Test Mode*

- Ignition switched off.

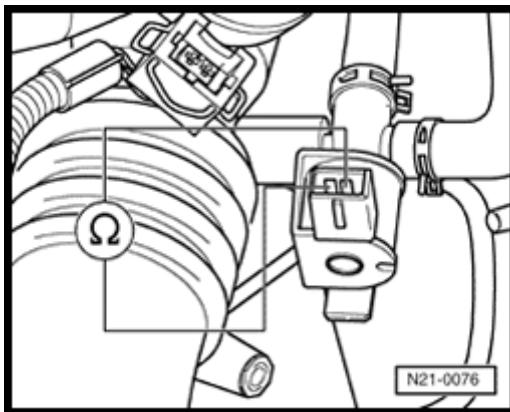


Test sequence



A

- Pull off wastegate bypass regulator valve -N75- -1- connector -2-.



A

- Measure resistance between valve contacts.
- Specification: 25 to 35 Ω

If the specification is not obtained:

- Replace wastegate bypass regulator valve -N75-.
- Check DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module (ECM), removing and installing*

- Read out readiness code:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code; Reading out readiness code*



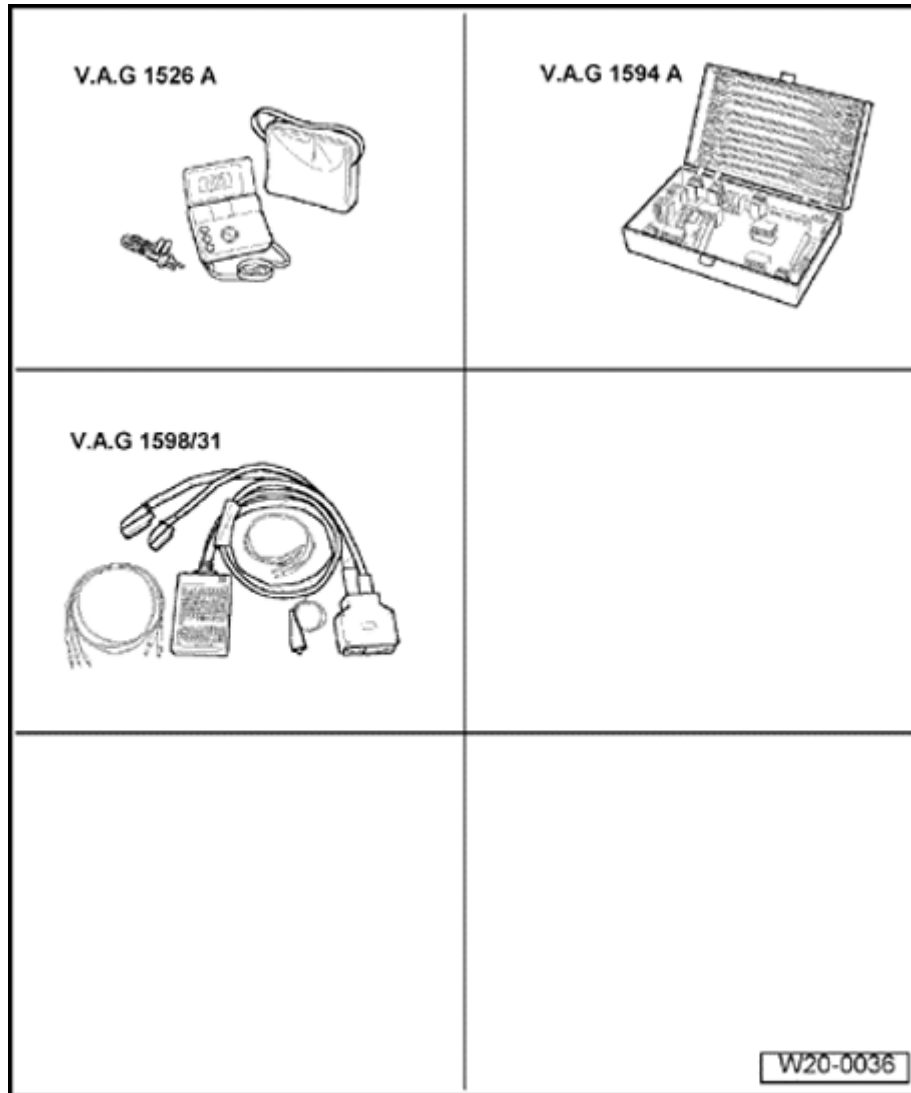
- If the DTC memory has been erased or the engine control module separated from the permanent positive, the readiness code must be generated again.

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code*

If the specification is obtained:

- Check specifications in measured value blocks for charge air pressure control: Display groups 110 to 119

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Measuring Value Blocks, evaluating, Display groups 110 to 119 -Boost pressure control*



Charge air pressure sensor -G31-, checking

Special tools, workshop equipment, test and measuring appliances and aux. items required

- ◆ V.A.G 1526 A Hand multimeter
- ◆ V.A.G 1594 A Adapter set
- ◆ V.A.G 1598/31 Test box
- ◆ Wiring diagram



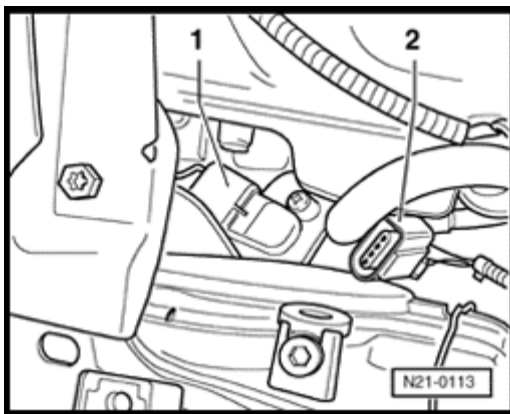
Check conditions

- On Board Diagnostic (OBD) has detected a fault with the charge air pressure sensor:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module (ECM), checking and erasing*

- Ignition switched off.

Checking voltage supply and wiring to control module



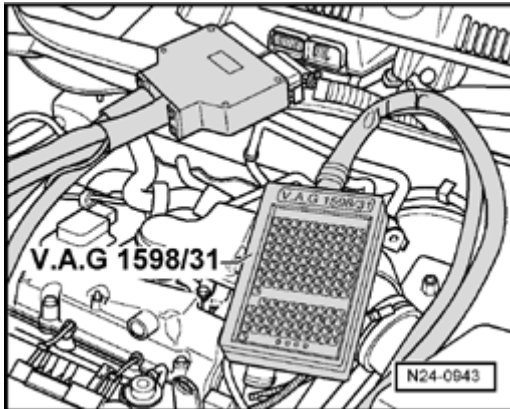
A

- Pull 4-pin connector --2- off charge air pressure sender -G31 -1-.



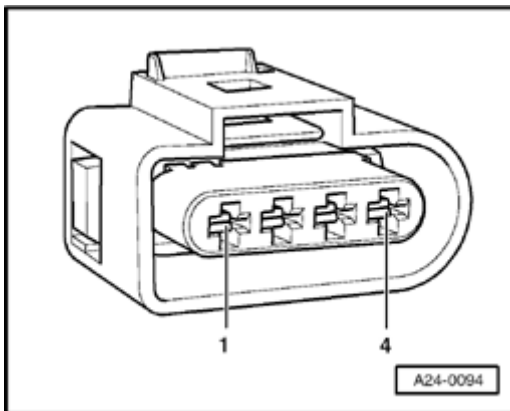
- Connect multimeter to measure voltage to contacts 1 (Ground) and 3 (positive) of connector for charge air pressure sensor using adapter cables from V.A.G 1594 .
- Switch on ignition. Specification: min. 4.5 V
- Switch off ignition.

If no voltage is present:



A

- Connect test box V.A.G 1598/31 to control module wiring harness. The engine control module remains disconnected.



A

- Check wiring between test box and connector for open circuit according to wiring diagram.

Contact 1+socket 108

Contact 3+socket 98

Contact 4+socket 101

Wire resistance: Max. 1.5 Ω

- Additionally check wires for short to one another.

If no wiring fault is detected and voltage was present between contacts 1+3:

- Checking the functions \Rightarrow [Page 21-34](#)



If no wiring fault is detected and no voltage was present between contacts 1+3:

- Replace engine control module:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 24; Engine control module; Replace engine control module*

Checking function

- Connect the test box V.A.G 1598/31 to engine control module wiring harness and to engine control module.
- Reconnect connector to charge air pressure sensor (G31).
- Connect multimeter to measure voltage to sockets 101 (positive) and 108 (Ground) using adapter cables from V.A.G 1594.
- Start engine and measure the basic voltage.
Specification: 1.80 to 2.00 V

- Raise engine revs by pressing accelerator to
Specification: 2.00 to 3.00 V

If the specifications are not attained:

- Replace charge air pressure sensor (G31).



- Check DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory, DTC memory of Engine Control Module (ECM), checking and erasing*

- Read out readiness code:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code; Reading out readiness code*

- If the DTC memory has been erased or the engine control module separated from the permanent positive, the readiness code must be generated again.

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code*



Recirculating valve for turbocharger - N249-, checking

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required

- ◆ Hand multimeter V.A.G 1526 or multimeter V.A.G 1715
- ◆ Adapter set V.A.G 1594

Test conditions

- Carry out Output Diagnostic Test Mode

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Output Diagnostic Test Mode; Performing Output Diagnostic Test Mode*



Test sequence

- Switch off ignition.
- Pull connector off recirculating valve for turbocharger -N249-.
- Measure resistance between valve contacts. Specification: 27 to 30 Ω

If the specification is not obtained:

- Replace turbocharger recirculation valve (N249).
- Check DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module (ECM), checking and erasing*

- Read out readiness code:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code; Reading out readiness code*

- If the DTC memory has been erased or the engine control module separated from the permanent positive, the readiness code must be generated again.

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code*



Pressure unit for charge air pressure regulating valve, checking

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required

- ♦ VAG 1551 scan tool or vehicle system tester V.A.G 1552 with cable V.A.G 1551/3

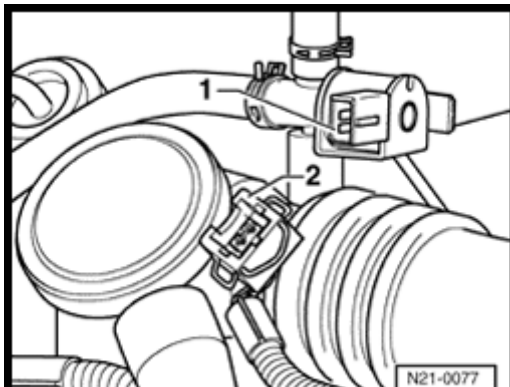
Check conditions

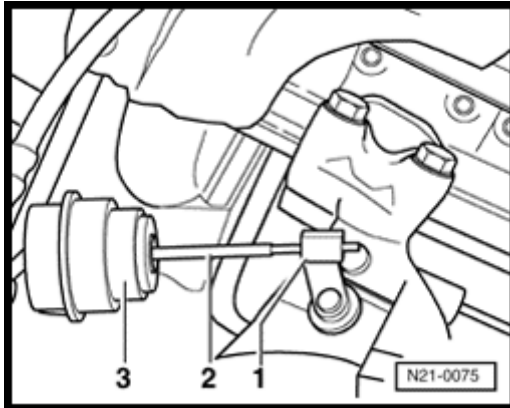
- Engine oil temperature min. 60 °C
- No leaks on intake and exhaust systems.

Test sequence

A

- Pull off wastegate bypass regulator valve -N75- -1- connector -2-.





A

- Start engine and raise to maximum speed briefly by operating throttle. The operating rod -2- for charge air pressure regulating valve must move.

If the operating rod does not move:

- Check charge air pressure control valve lever -1- for ease of movement. When corroded together, replace turbocharger.

If the operating rod does not move, even though the lever is free to move:

- Turbocharger malfunctioning. Replace turbocharger ⇒ [Page 21-2](#) , Removing and installing turbocharger with attachments.
- Check DTC memory:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; DTC memory; DTC memory of Engine Control Module (ECM), checking and erasing*

- Read out readiness code:

⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group 01; Readiness code; Reading out readiness code*

- If the DTC memory has been erased or the engine control module separated from the permanent positive, the readiness code must be generated again.

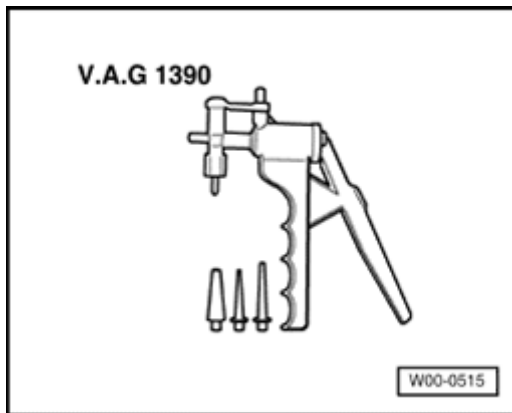
⇒ *Repair Manual, 1.8 Liter 4-Cyl. 5V Turbo Fuel Injection & Ignition, Repair Group*

01; Readiness code



Overrun shut-off valve, checking

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required



A

- ◆ V.A.G 1390 Hand vacuum pump

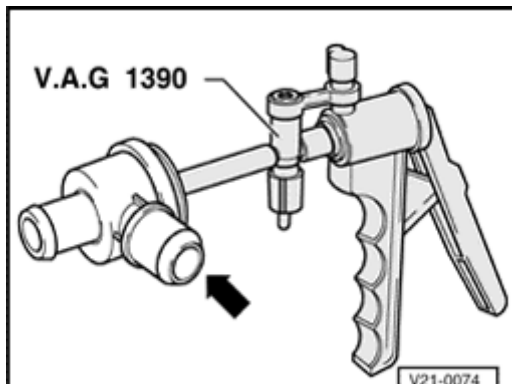
Test conditions

- Reduced performance or load change shudders

Test sequence

Note:

The overrun shut-off valve is located in front of the turbocharger. It is opened by vacuum pressure during the overrun phase and at idling speed.



A

- Connect hand vacuum pump V.A.G 1390 to vacuum connection on overrun valve.
- Operate hand vacuum pump. Overrun valve must open in direction of arrow.



- Operate vent valve on hand vacuum pump.
Overrun valve must close.

Overrun valve does not open or close, replace valve.

Note:

The overrun shut-off valve connections are secured with screw-type clips.