

Important!

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Technical Bulletin

Subject: **VAG 1687 Diagnostic Tool, Checking Intake System for Leaks**

Group: **01**

Number: **01-01**

Model(s): **All with 1.8L Turbo
All with 2.7L BiTurbo**

**1997 >
2000 >**

Date: **Oct. 26, 2001**

Condition

Diagnostic trouble codes (DTC's) related to fuel trim, charge (boost) pressure or Mass air flow (MAF), may be caused by:

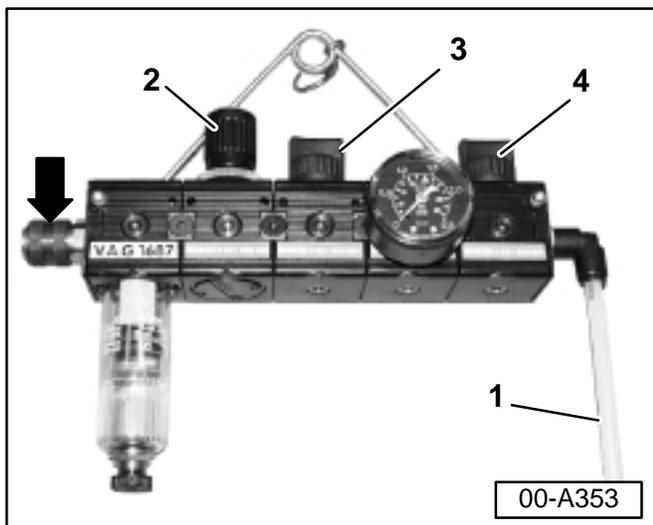
- Leaking (worn/torn) intake hoses during charge conditions
- Incorrectly torqued or improperly placed, clamps on intake hoses etc., causing leaks during charge conditions

Service

- ◀ The charge air pressure system can be checked using the VAG 1687 Charge air system tester along with the VAG1687/1 adapter as follows:

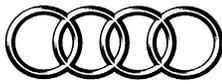
Special tool VAG 1687 Charge air system tester, preliminary set-up

- ◀ – Back off pressure regulator knob -2- of VAG 1687 fully to protect gauge when shop air supply is applied to the assembly.
- Close valve -3- before gauge.
- Close valve -4- after gauge.
- ◆ Shop air supply line will later be attached to inlet of VAG 1687.
- Remove female fitting from tester (arrow) and install an appropriate “male” air fitting that will connect to your shop air supply line (See WARNING).



WARNING!

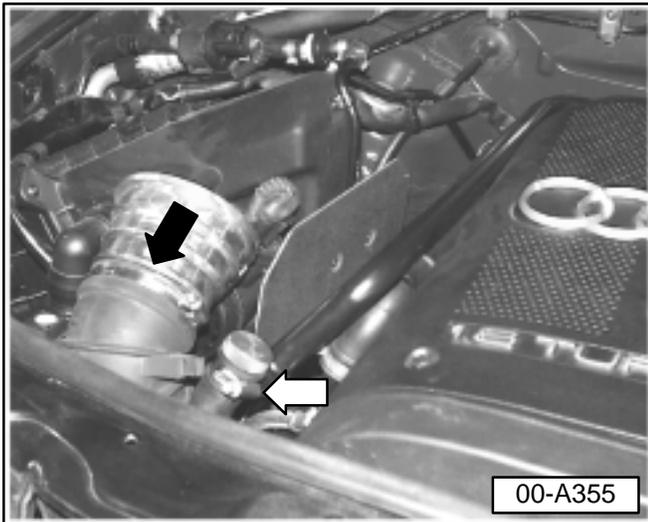
Use only approved air fittings to adapt shop air supply line to VAG 1687 tester.



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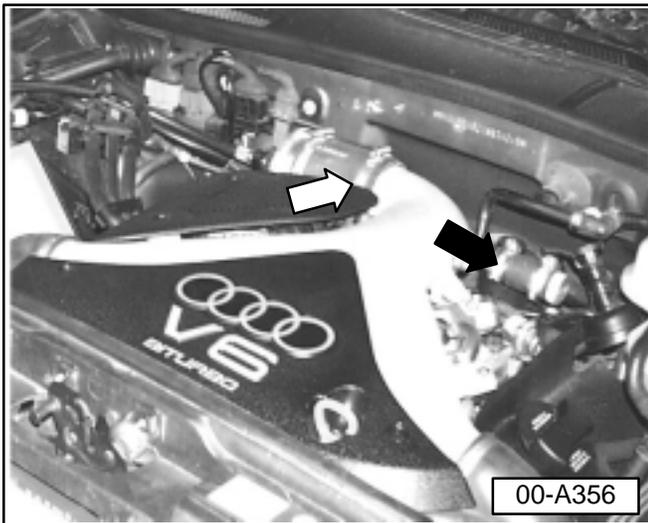
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Special tool VAG 1687/1 pressure adapter, installing (1.8L Turbo)

- Separate intake hose from the Mass Airflow Sensor assembly (MAF).
- ◀ - Insert VAG 1687/1 pressure adapter in intake hose -black arrow- using existing clamp (as shown).
- Remove crankcase ventilation tube from intake hose at -white arrow-.
- Plug hose with appropriate metal plug and hose clamps supplied with VAG 1687/1 special tool kit at -white arrow-.



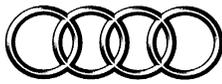
Special tool VAG 1687/1 pressure adapter, installing (2.7L BiTurbo)

- Remove upper air cleaner housing and hoses to intake manifold as necessary (see AESIS Repair group - Maintenance, *Air cleaner housing, cleaning; air cleaner element, replacing*).
- ◀ - Insert VAG 1687/1 pressure adapter in intake hose -white arrow- using existing clamp (as shown).
- Disconnect engine crankcase ventilation hose from intake manifold -black arrow-.
- Plug intake manifold fitting (for crankcase ventilation hose) with appropriate hose and metal plug using clamps supplied with VAG 1687/1 special tool kit.

Note:

To help find small leaks, BEFORE pressurizing the system, fill system with smoke using special tool KLI9210 and adapter KLI9210/50 as described on page 3.

An Ultrasonic detector may also be used to detect extremely small leaks where smoke may not be visible.

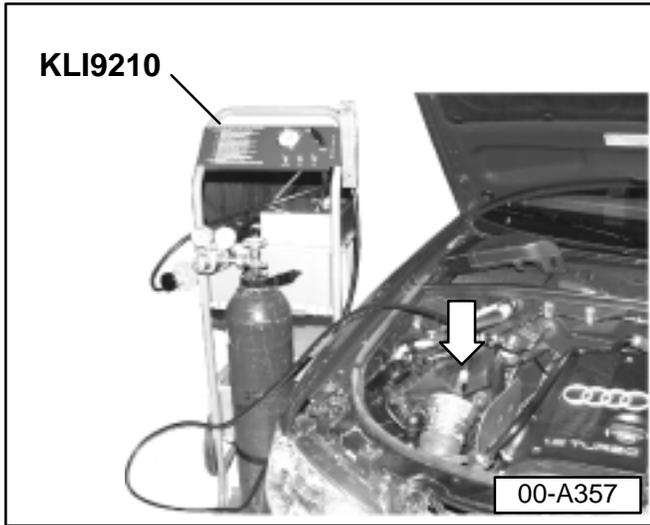


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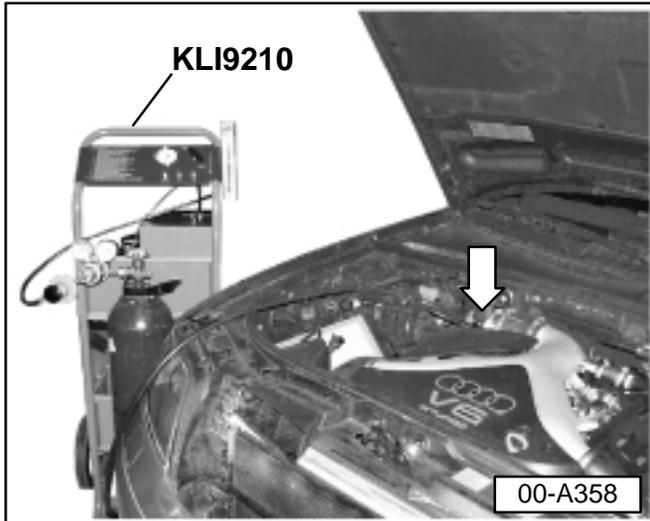
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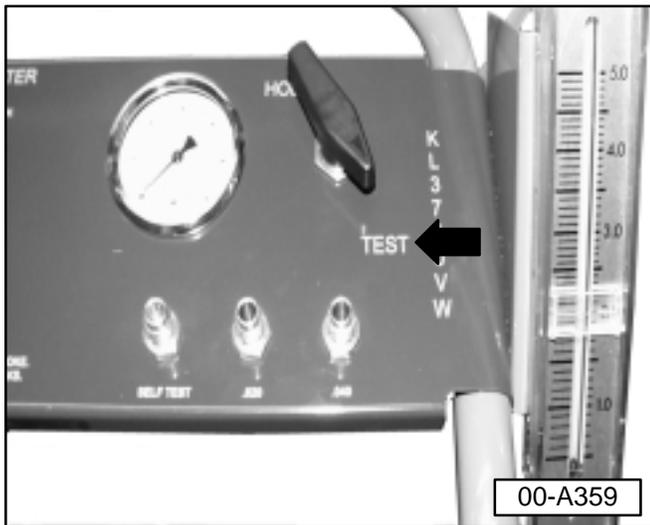
Special tool KLI9210 (Evaporative system leak detector), connecting to 1.8L Turbo

- Install optional fitting KLI 9210/50 on hose of special tool KLI9210.
- ◀ - Connect KLI9210 to VAG 1687/1 adapter (KLI 9210 is shown attached to VAG1687/1 at arrow on 1.8L Turbo).



Special tool KLI9210 (Evaporative system leak detector), connecting to 2.7L BiTurbo

- Install optional fitting KLI 9210/50 on hose of special tool KLI9210.
- ◀ - Connect KLI9210 to VAG 1687/1 adapter (KLI 9210 is shown attached to VAG1687/1 at arrow on 2.7L BiTurbo).

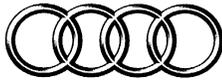


Special tool KLI9210 (Evaporative system leak detector), preliminary set-up

- Connect smoke generator leads to vehicle battery.
- ◀ - Turn valve to test (black arrow).
- Press smoke generator button to fill system with smoke (see instructions printed on tester).

With system filled with smoke:

- Remove smoke generator hose and connect VAG 1687 quickly to prevent smoke from leaking out (see page 4).

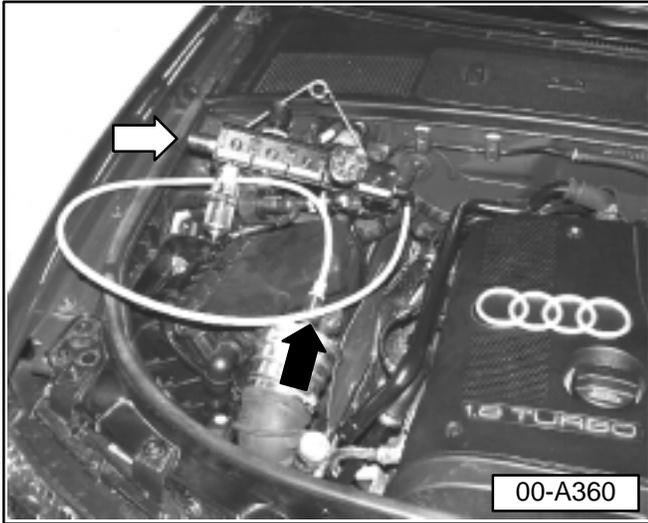


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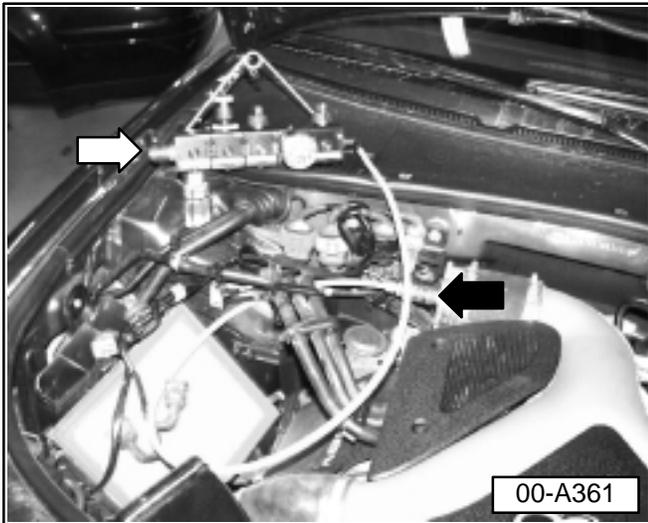
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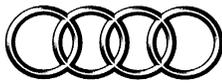
Special tool VAG 1687 connecting to pressure adapter 1687/1 (1.8L Turbo),

- ◆ For Illustration purposes VAG 1687 is shown lying in engine compartment. In practice tool should be hung from hood.
- Connect VAG 1687 quickly to prevent smoke from leaking out.
- ◀◆ VAG 1687 is shown connected to VAG 1687/1 (black arrow)
- ◆ Shop air supply will be connected to VAG 1687 at (white arrow).
- Perform pressure test (see page 5).



Special tool VAG 1687 connecting to pressure adapter 1687/1 (2.7L BiTurbo),

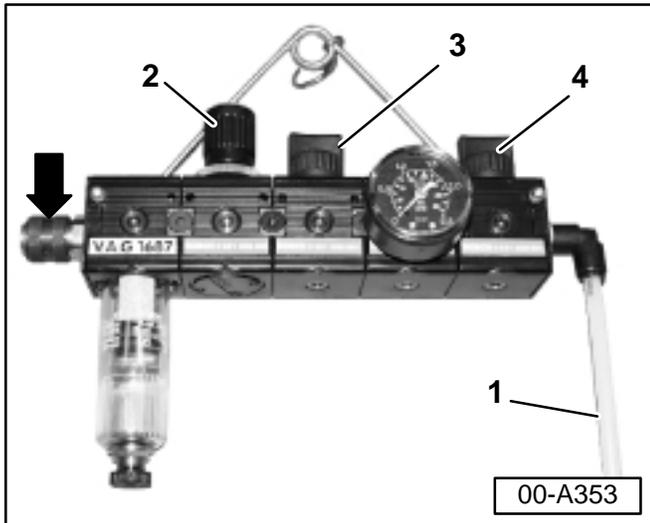
- ◆ For Illustration purposes VAG 1687 is shown lying in engine compartment. In practice tool should be hung from the hood.
- Connect VAG 1687 quickly to prevent smoke from leaking out.
- ◀◆ VAG 1687 is shown connected to VAG 1687/1 (black arrow)
- ◆ Shop air supply will be connected to VAG 1687 at (white arrow).
- Perform pressure test (see page 5).



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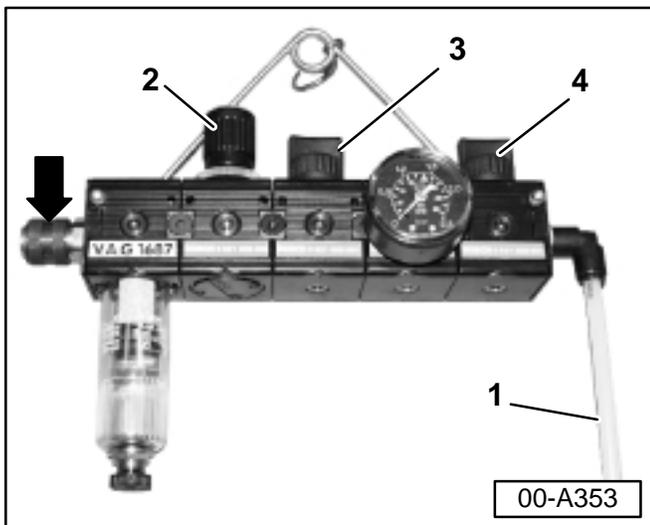
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Performing pressure Test:

- ◀ – With outlet hose -1- of VAG 1687 connected to air pressure adapter.
- Attach shop air supply line to previously installed male fitting (see page 1).



- ◀ – Open valve -3- between regulator valve and gauge.
- Adjust test pressure up to 0.5 bar (see CAUTION below) by turning the regulator valve -2-.

CAUTION!

**DO NOT pressurize system above 0.5bar!
Doing so may force oil into the intake
system which can damage the engine.**

- Slowly open outlet valve -4- (after gauge) to test hose connections.
- Observe pressure gauge for a drop in pressure.

Note:

Some pressure will be lost past the throttle plate.

- Readjust test pressure to 0.5 bar (see CAUTION above) by turning the regulator valve -2-.
- Listen for any very large intake leaks.



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If smoke generator was used to fill the system with smoke:

- Inspect intake system connections for smoke at leaks.

Note:

An Ultrasonic detector may also be used to detect extremely small leaks where smoke may not be visible.

- Repair any leaks found.
- Remove tester.
- Remove plug from crankcase ventilation hose.
- Remove air pressure adapter.

With 5051 diagnostic tool connected:

- Erase DTC memory.

If smoke generator was not used to fill the system with smoke:

- Apply soapy water solution or equivalent to intake system connections.

Note:

An Ultrasonic detector may also be used to detect extremely small leaks.

- Inspect intake system connections for leaks.
- Repair any leaks found.
- Remove tester.
- Remove plug from crankcase ventilation hose.
- Remove air pressure adapter.

With 5051 diagnostic tool connected:

- Erase DTC memory.