

24-154

## Intake Manifold Tuning (IMT) system

### Notes:

- ◆ *The change-over of the manifold from long to short intake path occurs at approx. 4500 RPM.*
- ◆ *Component location ⇒ [page 24-1](#)*

### Required special tools and test equipment

- VAG1551 or VAG1552 Scan Tool (ST) with VAG1551/3 adapter cable
- VAG1598/22 test box
- Multimeter US1119 (Fluke 83 or equivalent)
- VW1594 connector test kit
- VAG1348/3A remote control connection
- VAG1348/3-2 adapter cable
- VAG1390 hand pump

- Wiring diagrams

## Intake Manifold Tuning (IMT) function, checking

### **Note:**

*The following test should only be conducted if performance deficiencies occur.*

- Increase engine rpm clearly above 4500 RPM.

Intake manifold tuning vacuum solenoid must be actuated (solenoid is located on intake manifold, left-front, under the ignition coils).

If the vacuum solenoid is not actuated:

- Check intake manifold tuning valve -N156- (change-over valve) ⇒ [page 24-156](#) .
- Check vacuum system for leaks ⇒ [page 24-162](#) .
- Check that vacuum lines are correctly installed, do not leak and are not blocked.
- Check change-over mechanism for ease of movement (activate change-over linkage by hand).

## Intake Manifold Tuning (IMT) valve, checking

### *Notes:*

- ◆ *Without current the tuning -N156- is closed.*
- ◆ *Component locations ⇒ [page 24-1](#)*

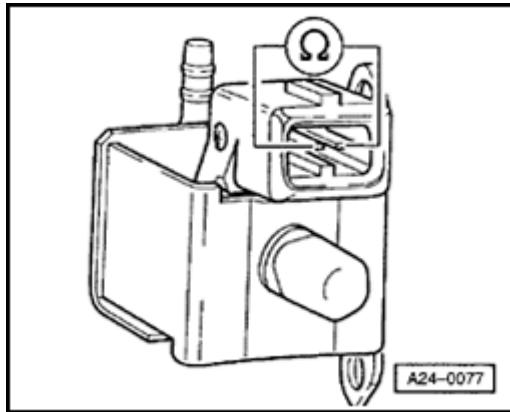
### Checking flow and for leaks

- Remove intake manifold tuning valve -N156-.
  - After removing, re-connect valve -N156- to harness connector.
  - Conduct output Diagnostic Test Mode (DTM) for intake manifold tuning valve -N156- ⇒ [page 01-51](#) .
  - Blow through hose to valve output DTM and make sure that -N156- opens and closes correctly.
- If -N156- does not open and close:
- Replace intake manifold tuning valve -N156-.

24-157

**Electrical check of intake manifold tuning valve -N156-**

- Disconnect harness connector from intake manifold tuning valve.



4

- Connect multimeter for resistance measurement between contacts.  
Specified value: 25-35 Ohms.

If the specified value is not attained:

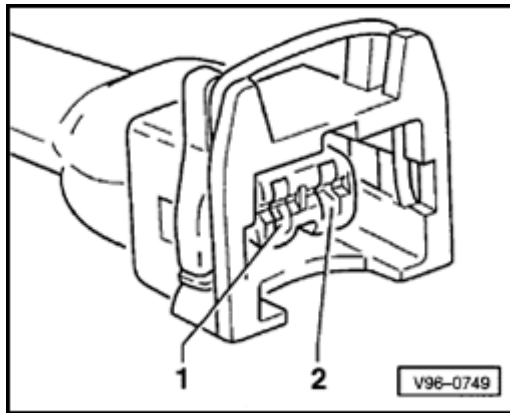
- Replace intake manifold tuning valve.

24-158

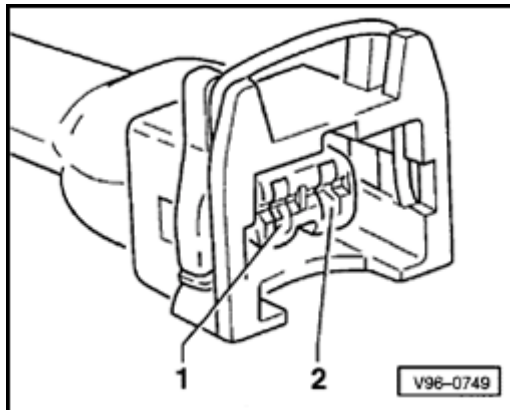
### Checking voltage supply for intake manifold tuning valve -N156-

#### Test requirements

- Fuse for for intake manifold tuning valve OK



- A
- Disconnect harness connector from intake manifold tuning valve.



- A
- Connect LED test lamp VAG1527 with wires from test kit VAG1594 between terminal 1 (B+) of 2-pin connector and engine Ground.

- Crank starter.

LED must light up.

If LED does not light up:

- Check fuse for -N156-

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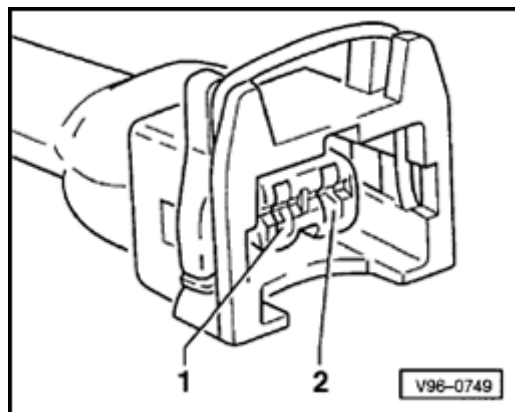
**24-159**

- Check wiring from terminal 1 of 2-pin connector to fuse per wiring diagram for continuity.

Specified value: max. 1 Ohm

If wiring is OK:

- Check fuel pump relay and signal to relay ⇒ [page 24-95](#) .



### Checking signal for intake manifold tuning valve -N156-

- Connect LED test lamp VAG1527 with wires from test kit VAG1594 between terminals of 2-pin connector for -N156-.
- Conduct output Diagnostic Test Mode (DTM) for intake manifold tuning valve -N156- ⇒ [page 01-51](#) .

When the intake manifold tuning valve is activated the LED must flash.

If LED does not flash or stays on continuously:

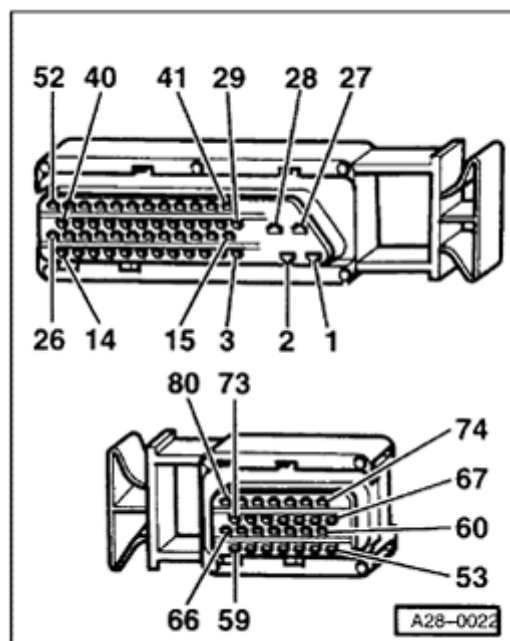
- Connect VAG1598/22 test box to ECM harness connector ⇒ [page 01-67](#) .

If LED does not flash:

- Check wiring from terminal 2 of 2-pin connector to terminal 64 of test box for continuity and short circuit to B+ per wiring diagram.



24-161



If LED stays on continuously:

A

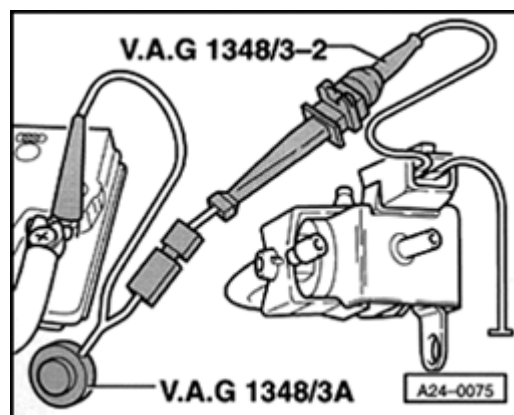
- Check wiring from terminal 2 of 2-pin connector to terminal 64 of test box for ground per wiring diagram.

If wiring is OK:

- Replace Motronic ECM -J220- ⇒ [page 01-68](#) .
- Carry out adaptation of throttle valve control module to ECM ⇒ [page 24-150](#) .
- Check readiness code ⇒ [page 01-70](#) . If Diagnostic Trouble Code (DTC) memory has been erased, or ECM was disconnected, generate new readiness code ⇒ [page 01-73](#) .

### Vacuum system, checking for leaks

- Let engine run 2 to 3 minutes at idle (for vacuum to build up).
- Switch ignition off.
- Remove 2-pin connector from intake manifold tuning valve -N156- (change-over valve).



4

- Connect jumper wire (from VAG1594) from one terminal of -N156- to engine ground.
- Use VAG1248/3A remote, adapter wire VAG1348/3-2 and auxiliary wire to connect second terminal of -N156- to B+.
- Activate intake manifold tuning valve -N156-, using remote control VAG1348/3A, for approx. 2 to 3 min.

The vacuum solenoid must remain actuated during this time.

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**24-163**

If vacuum solenoid releases, check solenoid as follows:

- Remove vacuum line from vacuum solenoid for intake manifold change-over.
- Connect VAG1390 hand pump to vacuum solenoid.
- Activate VAG1390 hand pump and watch change-over process.
- Check vacuum solenoid for leaks.

Vacuum solenoid should not return to initial position as long as vacuum is being applied by hand pump.

If vacuum solenoid returns:

- Replace vacuum solenoid.