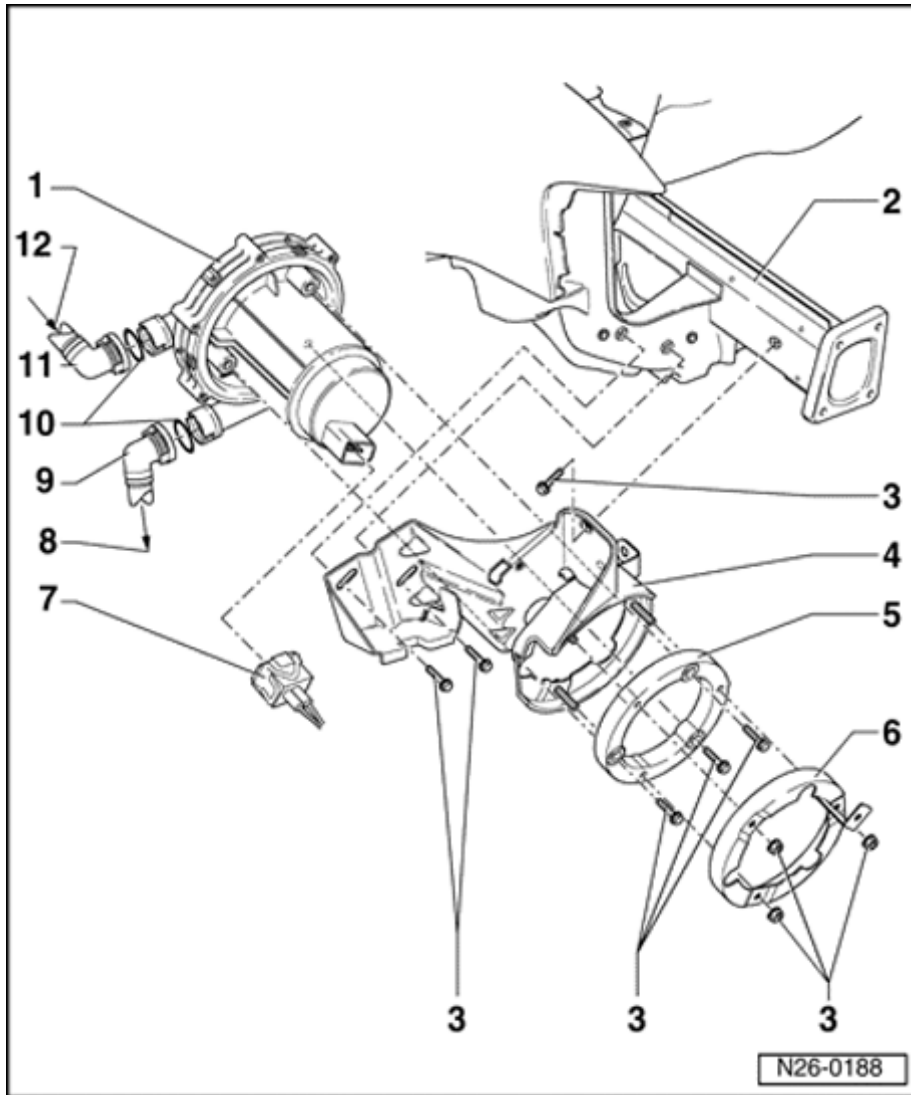




## Secondary air system

### Function

The secondary air system blows air in behind the exhaust valve for 65 seconds during the cold start (+15 ° C - +35 ° C coolant temperature). This produces an oxygen rich exhaust gas, causes afterburning and reduces the heating-up phase of the catalyst. Activation occurs from the Motronic control module (J220) via the Secondary Air Injection (AIR) pump relay -J299- to Secondary Air Injection (AIR) valve -N112- and combi-valve. Additionally after each subsequent engine start (up to max. 85 ° C engine temperature) the secondary air system will after a 20 second delay switch in for 5 seconds during idling and will be checked by the On Board Diagnostic (OBD).



## Secondary air system components, removing and installing

### Secondary Air Injection (AIR) pump motor V101 - assembly overview

#### Note:

- ◆ Components marked with an \* are checked by the On Board Diagnostic (OBD):

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 01](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 01](#)

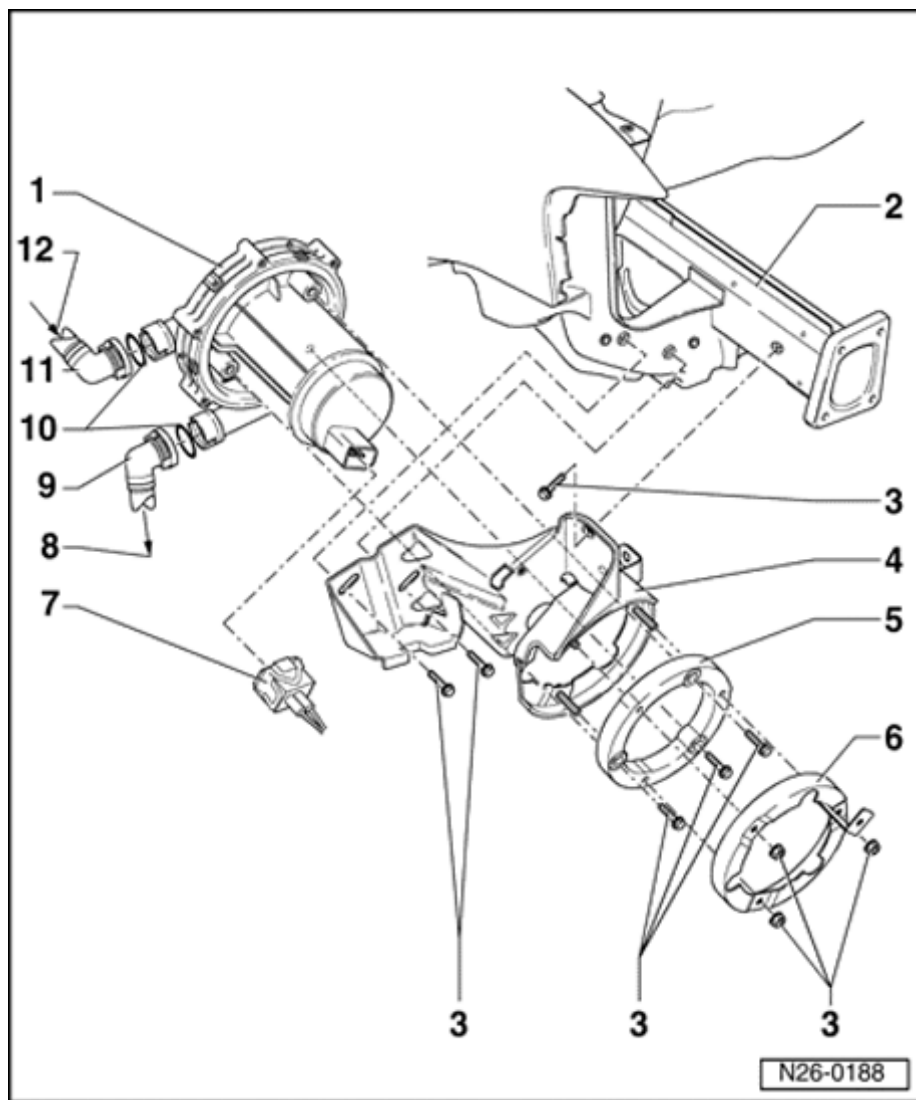
- ◆ Components marked with \*\* are checked by the output diagnostic test mode:

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 01](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 01](#)

- ◆ Secondary air pump relay J299-\*\* ⇒ [Page 26-25](#) , Fig. ⇒ [1](#)

**1 - Secondary Air Injection (AIR) pump motor V101\*/\*\***



## 2 - Front right longitudinal member

3 - 10 Nm

## 4 - Bracket

- ◆ For secondary air injection pump motor
- ◆ Secured to intake manifold

## 5 - Insulation ring

- ◆ Securing collar must face to pump eye

## 6 - Protective cap

## 7 - Connector

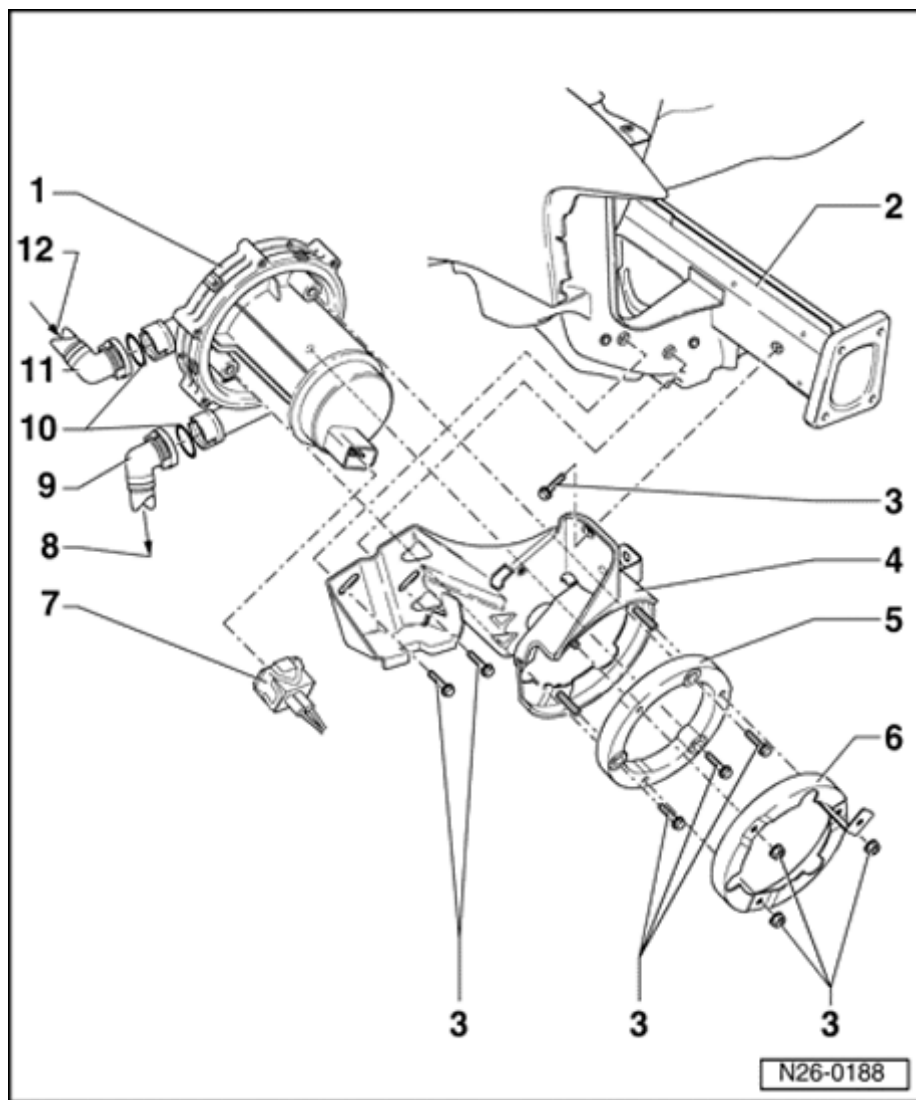
- ◆ For secondary air injection pump motor
- ◆ Black, 2-pin

## 8 - To connecting pipe

- ◆ ⇒ [Page 26-24](#) , item 15

## 9 - Pressure hose

- ◆ Ensure seated tightly
- ◆ Press together at front to release



### 10 - O-Ring

- ◆ Always replace

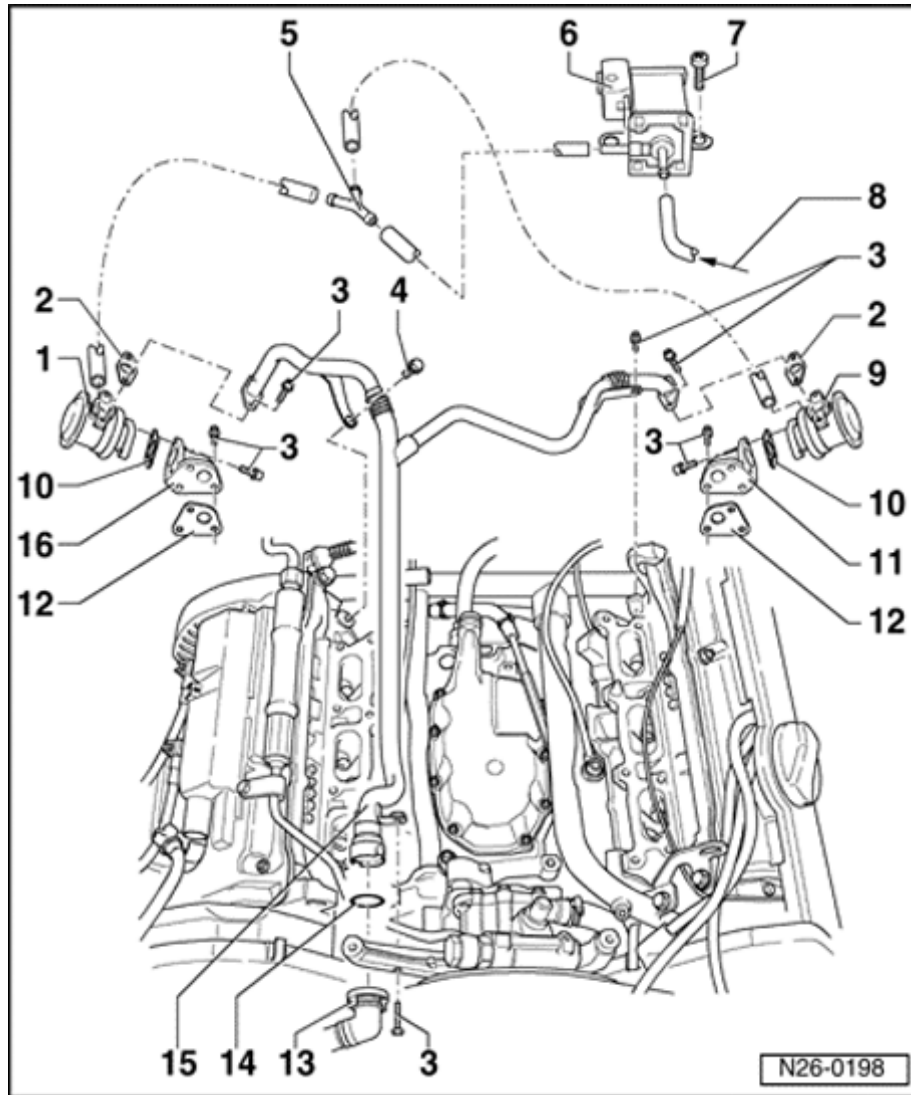
### 11 - Intake hose

- ◆ Ensure seated tightly
- ◆ Press together at front to release

### 12 - From air cleaner upper part

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 24; Disassembling and assembling air cleaner](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 24; Disassembling and assembling air cleaner](#)



## Connecting pipe and combi-valves - assembly overview

### Note:

- ◆ Components marked with an \* are checked by the On Board Diagnostic (OBD):

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 01](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 01](#)

- ◆ Components marked with \*\* are checked by the output diagnostic test mode:

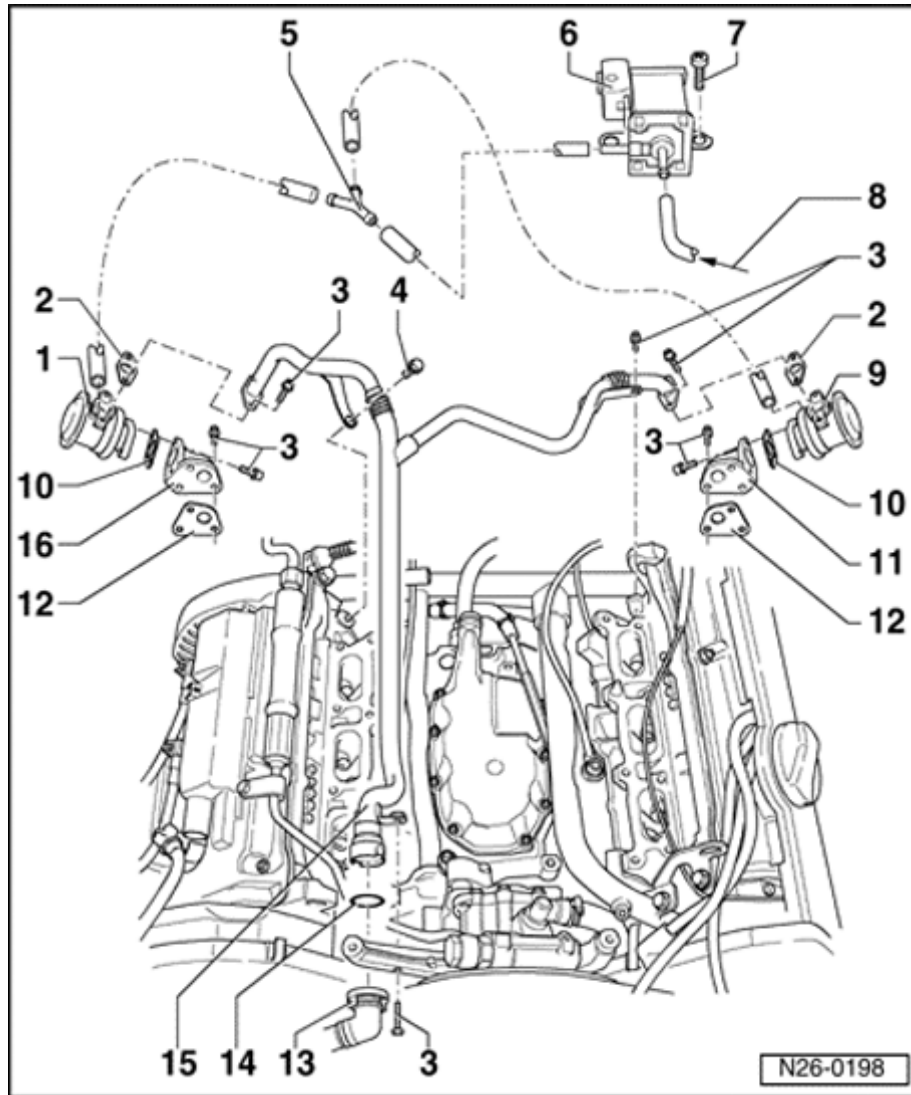
⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 01](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 01](#)

- ◆ Secondary Air Injection (AIR) pump relay -J299-\*\* ⇒ [Page 26-25](#) , Fig. ⇒ [1](#)

### 1 - Left combi-valve

- ◆ Checking ⇒ Page ⇒ [Page 26-26](#)
- ◆ Removing and installing ⇒ [Page 26-28](#)



## 2 - Gasket

◆ Always replace

3 - 10 Nm

4 - 25 Nm

5 - Y piece

6 - Secondary Air Injection (AIR) Solenoid valve - N112-\*/\*\*

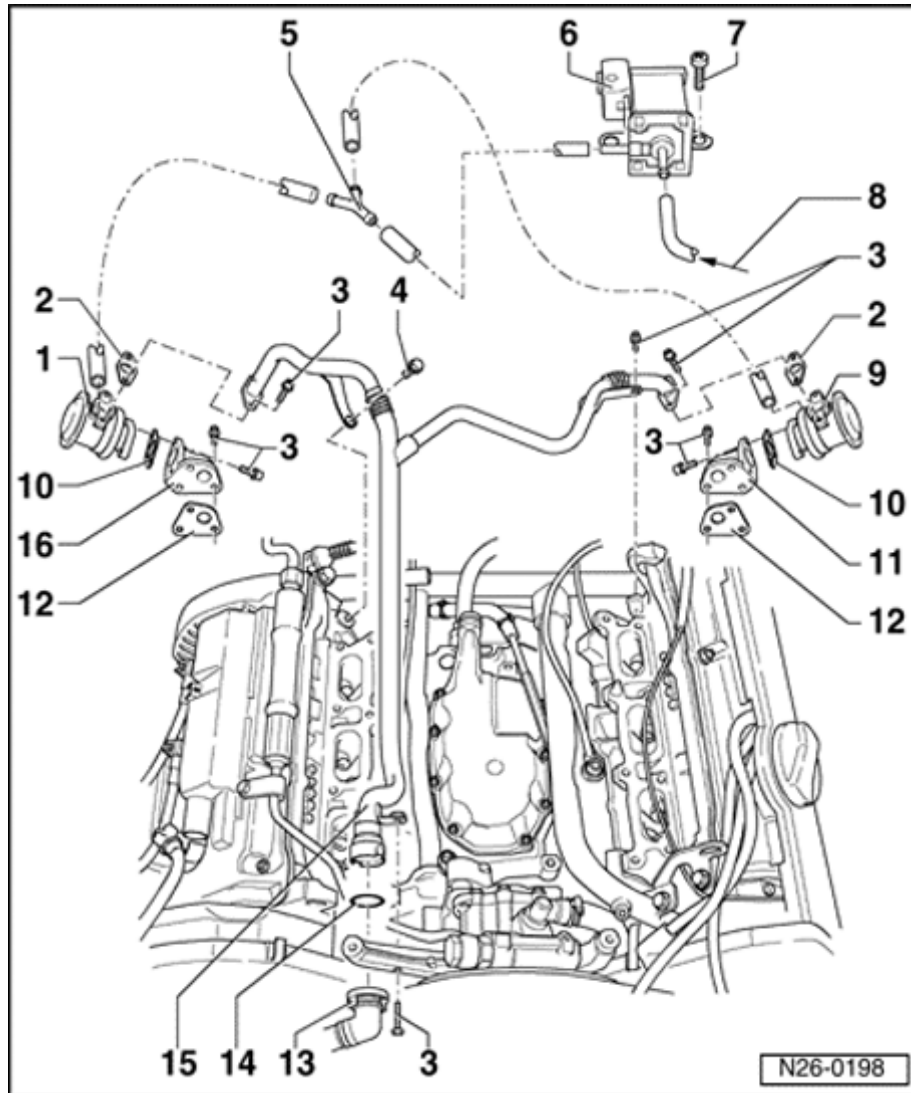
7 - 6 Nm

8 - From vacuum reservoir

◆ Location: In left wheel housing

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 24; Removing and installing parts of the intake manifold change-over](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 24; Removing and installing parts of the intake manifold change-over](#)



### 9 - Left combi-valve

- ◆ Checking ⇒ Page ⇒ [Page 26-26](#)
- ◆ Removing and installing ⇒ [Page 26-28](#)

### 10 - Gasket

- ◆ Always replace

### 11 - Connection

### 12 - Gasket

- ◆ Always replace

### 13 - Pressure hose

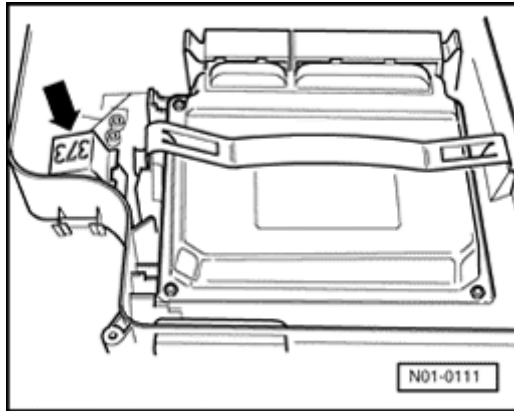
- ◆ Ensure seated tightly
- ◆ Press together at front to release

### 14 - O-Ring

- ◆ Always replace

### 15 - Connecting pipe

### 16 - Connection



A

Fig. 1 Secondary Air Injection (AIR) pump relay -J299- -arrow-



## Combi-valve, checking

### Special tools and equipment

- ◆ Hand vacuum pump V.A.G 1390

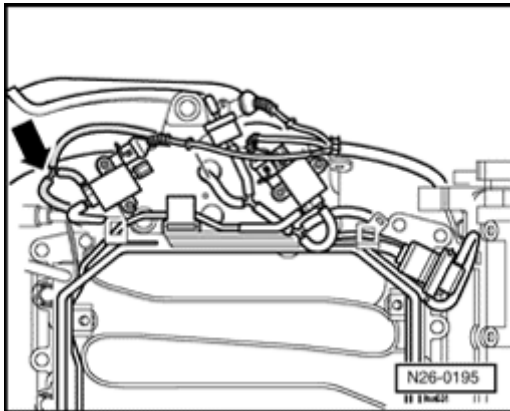
### Check conditions

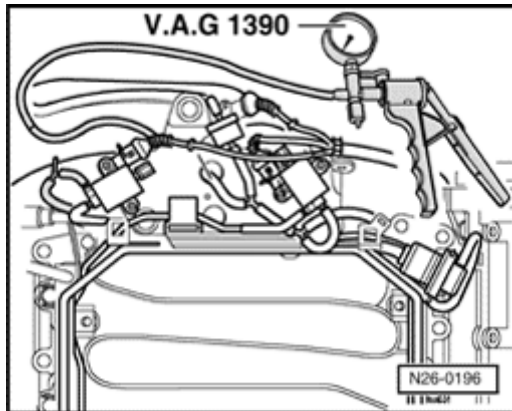
- Vacuum pipes and hose connections free of leaks.
- Vacuum pipes not blocked/kinked.

### Test sequence

A

- Pull vacuum hose off Y piece -arrow- of combi-valve to be checked.





A

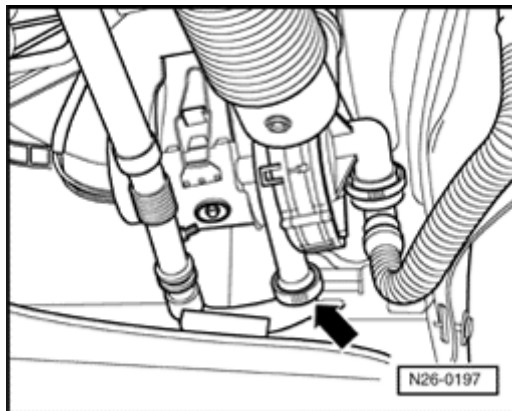
- Connect hand vacuum pump V.A.G 1390 to vacuum hose of valve to be checked.

**Note:**

*Do not use compressed air during the following check!*

- Remove sound insulation:

⇒ [Repair Manual, Body Exterior, Repair Group 50](#)



A

- Remove pressure hose -arrow- between secondary air injection pump motor and connecting pipe and blow in with slight pressure.

Both combi-valves must be closed.

- Operate hand vacuum pump.  
Corresponding combi-valve must open.

If the combi-valve does not open:

- Replace corresponding combi-valve ⇒ [Page 26-28](#) .



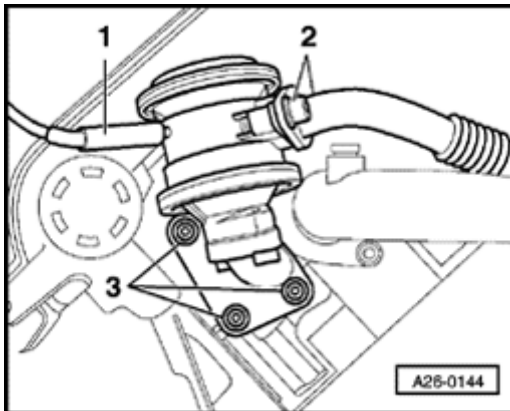
## Combi-valve, removing and installing

### Note:

*Always replace all gaskets and seals.*

### Removing left combi-valve

- Remove coolant system expansion reservoir and set to one side.



A

- Pull vacuum hose -1- off combi-valve.
- Unscrew securing bolts -2- and remove connecting pipe.
- Unscrew securing bolts -3- and remove combi-valve from cylinder head.

### Installing

Install in reverse order.

### Removing right combi-valve

- Remove connecting hose between air cleaner and intake air pipe:

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 24; Removing and installing parts of the injection system](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA,](#)

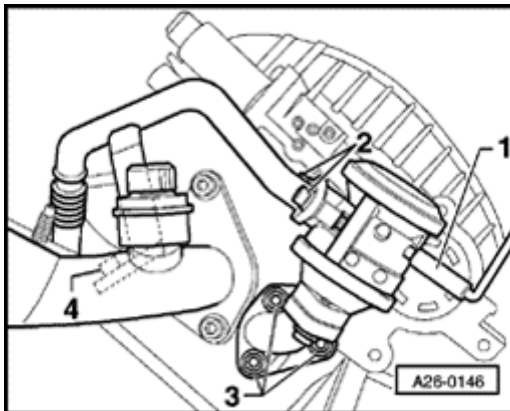
*Repair Group 24; Removing and installing parts of the injection system*



- Remove intake air pipe from throttle valve control module:

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): ATQ, Repair Group 24; Removing and installing throttle valve control part](#)

⇒ [Repair Manual, 2.8 Liter V6 5V Fuel Injection & Ignition Engine Code\(s\): AHA, Repair Group 24; Removing and installing throttle valve control part](#)



A

- Pull vacuum hose -1- off combi-valve.
- Unscrew securing bolts -2- and remove connecting pipe.
- Unscrew securing bolts -3- and remove combi-valve from cylinder head.
- If necessary unscrew securing bolts -4- for connecting pipe retainer.

### Installing

Install in reverse order of removal.