

## Repair Manual Audi TT 2007 >

Heating, Ventilation and Air Conditioning								
Engine ID	CEP B	CDM A	CET A	CCT A	BPY	BUB	CBR A	

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## List of Workshop Manual Repair Groups

### Repair Group

80 - Heating, Ventilation

87 - Air Conditioning



# Audi

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 80 – Heating, Ventilation

### 1 General Information

⇒ [“1.1 Servicing Heater System”, page 1](#)

⇒ [“1.2 Contact Corrosion”, page 1](#)

⇒ [“1.3 Performing Guided Fault Finding on Heating System”, page 2](#)

⇒ [“1.4 Heating System Electrical Components”, page 2](#)

⇒ [“1.5 Heater Activation and Control Components”, page 3](#)

#### 1.1 Servicing Heater System



##### WARNING

*Before working on electrical system (wiring), remove relevant fuse(s).*



##### Note

*Disconnect battery before starting electric welding work on vehicle. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27](#); [Removal and Installation](#).*

- ◆ Contact corrosion. Refer to ⇒ [“1.2 Contact Corrosion”, page 1](#).
- ◆ Notes for performing Guided Fault Finding on the heating, refer to ⇒ [“1.3 Performing Guided Fault Finding on Heating System”, page 2](#).
- ◆ Checking the electrical components on the heating system, refer to ⇒ [“1.4 Heating System Electrical Components”, page 2](#).
- ◆ Checking the electrical components actuated by the heating system, refer to ⇒ [“3.3 Electrical Components Controlled by Heating System, Checking”, page 16](#).

#### 1.2 Contact Corrosion

Contact corrosion can occur if inappropriate fasteners (bolts, nuts, washers, rivets, plugs, grommets, adhesives etc.) are used.

For this reason, the manufacturer only installs fasteners with a special surface coating. Also, rubber and plastic parts and adhesive consist of materials that do not conduct electricity. These parts, which have been tested and are aluminum compatible, are also available as replacement parts. Refer to Electronic Parts Catalog (ETKA).

##### Note

- ◆ Always install new parts if there is any doubt as to whether parts can be reused.
- ◆ Original equipment replacement parts are recommended. They have been tested and are compatible with aluminum. Refer to Electronic Parts Catalog (ETKA).



- ◆ Audi accessories are recommended. Refer to Electronic Parts Catalog (ETKA).
- ◆ Damage due to contact corrosion is not covered by warranty.

### 1.3 Performing Guided Fault Finding on Heating System

- ◆ There are different versions of the Climatronic control module -J255- heater control head. Pay attention to precise assignment on replacement. Refer to Electronic Parts Catalog (ETKA).
- ◆ Heating system OBD is performed in the "Guided Fault Finding" function with the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ The Climatronic control module -J255- , can currently be exchanged as usual, component protection is not active at this time. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ If the Climatronic control module -J255- is supposed to be replaced, check the coding and adaptation before removing it using the "Replace Control Module" function, starting with Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

### 1.4 Heating System Electrical Components

The electrical components for the heating system are identical to the electrical components for the A/C system. The electrical test for the various heater components is done in the same way as the test for these components in the A/C system. Refer to ⇒ ["1.8 Checking Electrical Components", page 31](#) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

On vehicles with no A/C, only a heater, various components that are required for control on vehicles with A/C are not installed ( A/C Compressor Regulator Valve -N280- , Right Temperature Door Motor -V159- , Interior Temperature Sensor Fan -V42- etc.). Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and ⇒ Wiring diagrams, Troubleshooting & Component locations.



#### Note

*The function "electrical testing" is not described in this Repair Manual. Perform the electronic test with "Guided Fault Finding". This also contains information on the functions that should be tested. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*

## 1.5 Heater Activation and Control Components



### Note

- ◆ *If there is a malfunction in the system, first check the Climatronic control module -J255- DTC memory. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *If no fault is displayed, read the measured value block for the Climatronic control module and activate the component with the "output diagnosis test mode" function on the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *Electrical checking of the various control motors, potentiometers and senders is described in Guided Fault Finding. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ Perform the following work after completion of repair operations:
  - Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - Check coding of Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - If necessary, check adaptation of the Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - Perform heater basic setting, Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Components outside passenger compartment, refer to ["2.1 Components Outside Passenger Compartment", page 4](#).
- ◆ Components inside the passenger compartment, refer to ["2.2 A/C Components Inside Passenger Compartment, Left Side", page 6](#) and ["2.3 A/C Components Inside Passenger Compartment, Right Side", page 8](#).

## 2 Description and Operation

⇒ [“2.1 Components Outside Passenger Compartment”, page 4](#)

⇒ [“2.2 A/C Components Inside Passenger Compartment, Left Side”, page 6](#)

⇒ [“2.3 A/C Components Inside Passenger Compartment, Right Side”, page 8](#)

⇒ [“2.4 Heater Components”, page 9](#)

### 2.1 Components Outside Passenger Compartment

#### 1 - Forced Air Extractor

- ❑ A forced air extraction vent is installed at left and right under rear bumper.
- ❑ Sealing doors on air extraction vent must be able to move freely and close automatically.
- ❑ In order for the passenger compartment ventilation to function properly, the air ducts that run through the luggage compartment trim must be unobstructed.
- ❑ Checking, refer to ⇒ [“4.9 Passenger Compartment Forced Air Extraction, Checking”, page 98](#).

#### 2 - Intake Grille For Fresh Air Intake

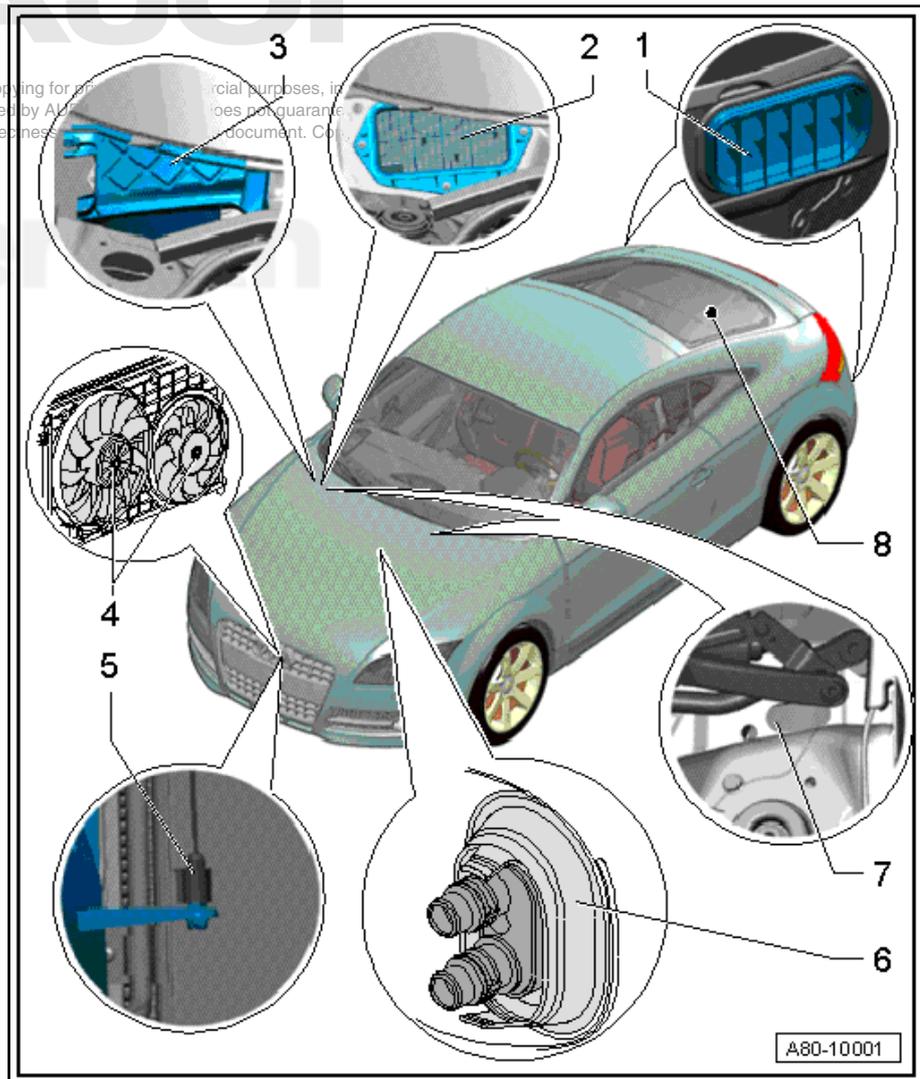
- ❑ Check for proper seating, prevents foreign objects (e.g. leaves) entering intake housing of heater unit.
- ❑ Check the bonded seal for damage and proper seating. This seal prevents water from flowing through beneath the intake grille into heater intake housing.
- ❑ Removing and installing, refer to ⇒ [“5.12 Fresh Air Intake Cover”, page 142](#).

#### 3 - Fresh Air Intake Cover

- ❑ Check the bonded seal for damage and proper seating. This seal prevents water between the windshield lower frame and the cover from getting into the heater air intake shroud.
- ❑ Removing and installing, refer to ⇒ [“5.12 Fresh Air Intake Cover”, page 142](#) and ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

#### 4 - Coolant Fan -V7- and Coolant Fan 2 -V177-

- ❑ Different versions of the Coolant Fan and Coolant Fan 2 are installed depending on vehicle equipment. Refer to Electronic Parts Catalog (ETKA).



- ❑ In standard vehicle operation, the radiator fan is not activated by the Climatronic control module -J255-. It will be displayed in the heater control head measured values block that the fan is not activated. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ❑ The request to switch on the Coolant Fan -V7- is only transmitted by the Climatronic control module in "Output Diagnostic Test Mode (DTM)" via the databus system to the engine control module (ECM). Then, with the engine running, the ECM activates the fan ( Coolant Fan -V7- and Coolant Fan 2 -V177- ) directly or via the Coolant Fan Control Control Module -J293-. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and ⇒ Engine Mechanical; Rep. Gr. 19 ; Description .
- ❑ With engine running, the respective engine control modules switches, for example, the Coolant Fan and Coolant Fan 2 (directly via the Coolant Fan Control Control Module) continuously to the desired output (depending on engine type). Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and ⇒ Wiring diagrams, Troubleshooting & Component locations.

#### 5 - Outside Air Temperature Sensor -G17-

- ❑ The measured value of the Outside Air Temperature Sensor is not used by the Climatronic control module -J255- for controlling the heater. However, the measured value is used to calculate the permitted switch-on time for the Heated Rear Window -Z1- .
- ❑ Measured value of Outside Air Temperature Sensor is evaluated by Instrument Cluster Control Module -J285- and transmitted via Comfort CAN-Bus system to the Climatronic control module -J255-. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

#### Removing and Installing

- Remove the bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .
- Disconnect connector on temperature sensor and unclip from mount in air duct

#### 6 - Coolant Hose Connections To Heater Core

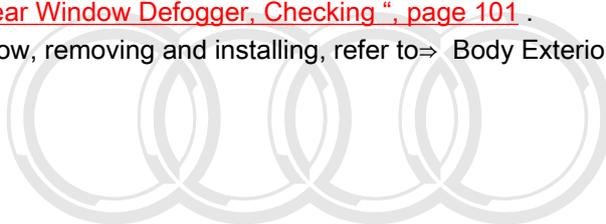
- ❑ Coolant hoses from connections to heater core, detaching and attaching, refer to ⇒ ["5.14 Heater Core", page 144](#) .
- ❑ Heat exchanger connection in engine coolant circuit, refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Removal and Installation .

#### 7 - Plenum Chamber Water Drains

- ❑ A water drain is installed at left and right in plenum chamber.
- ❑ Grommet, removing and installing, checking and cleaning, refer to ⇒ ["4.10 Plenum Chamber Water Drain, Checking and Cleaning", page 100](#) .

#### 8 - Heated Rear Window -Z1-

- ❑ The command to heat the rear window is sent by the Climatronic control module -J255- via the Comfort databus system. The vehicle electrical system control module -J519- controls the rear window defogger. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Notes on function of heated rear window, refer to ⇒ ["4.11 Rear Window Defogger, Checking ", page 101](#) .
- ❑ Rear window, removing and installing, refer to⇒ Body Exterior; Rep. Gr. 64 ; Removal and Installation



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## 2.2 A/C Components Inside Passenger Compartment, Left Side

### 1 - Left Front Seat Temperature Sensor -G344- and Left Front Heated Seat -Z45-

- ❑ Seat heater is not installed in all vehicles (optional equipment).
- ❑ When the seat heater is activated, is displayed in the Climatronic control module -J255- measured values block. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ❑ Seat heating, servicing, refer to ⇒ Body Interior; Rep. Gr. 74 ; Removal and Installation .

### 2 - Diagnostic Connection

- ❑ Perform On Board Diagnostic (OBD) on heating system using Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.

### 3 - Defroster Vent/Left Side Window

- ❑ Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation (Instrument Panel).

### 4 - Instrument Panel Vent, Left

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation (Instrument Panel).

### 5 - Instrument Cluster Control Module -J285-

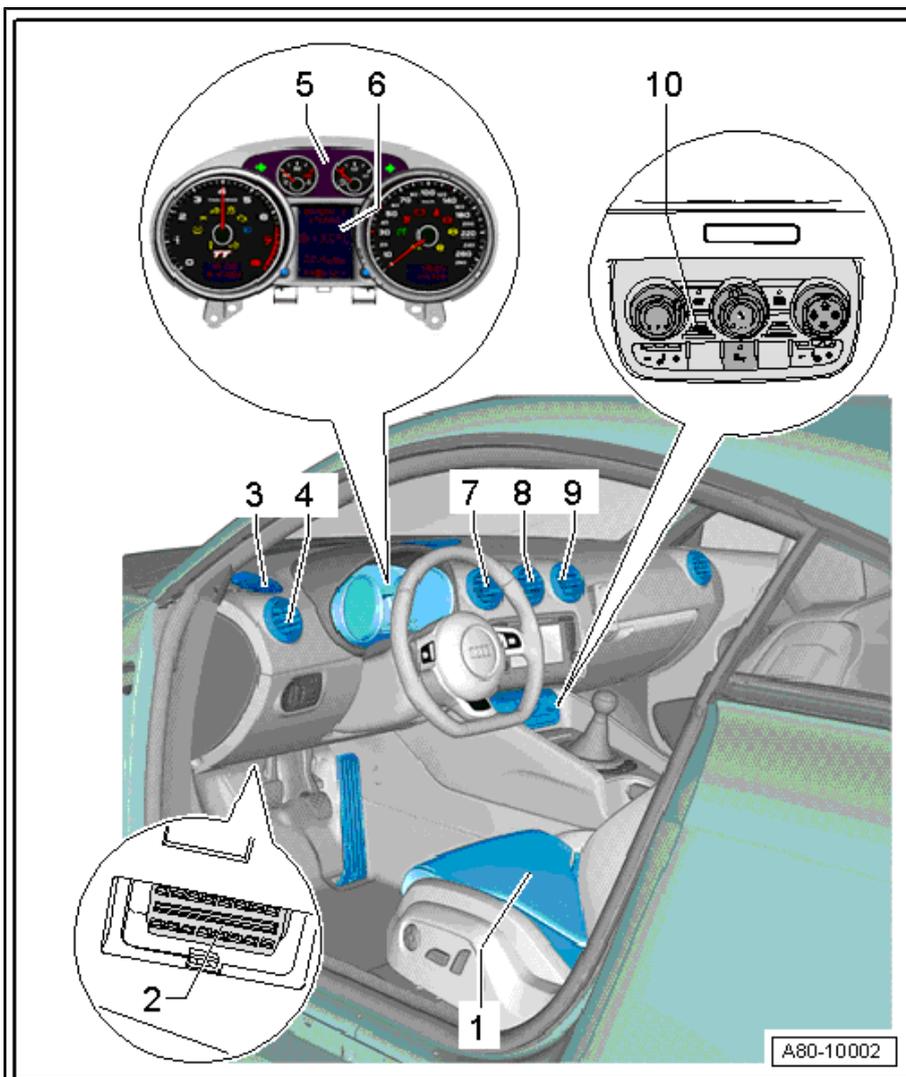
- ❑ With the outside air temperature display -G106- .
- ❑ The Instrument Cluster Control Module -J285- evaluates the measured value of the Outside Air Temperature Sensor -G17- and then transmits it via the Comfort databus system to the Climatronic control module -J255- . Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

### 6 - Outside Air Temperature Display -G106-

- ❑ The Outside Air Temperature Display is a component of the Instrument Cluster Control Module -J285- .
- ❑ Measured value of Outside Air Temperature Sensor -G17- is evaluated by Instrument Cluster Control Module -J285- and transmitted via Comfort CAN-Bus system to the Climatronic control module -J255- . Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ❑ If temperature display is incorrect, check temperature sensor measured value using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

### 7 - Left Center Instrument Panel Vent

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .



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### 8 - Instrument Panel Vent, Center

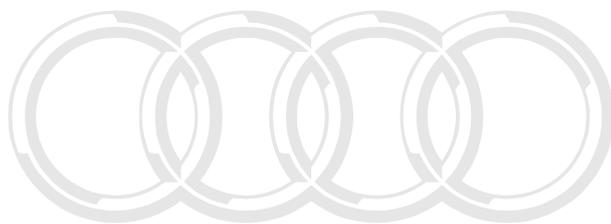
- ❑ Removing and installing instrument panel vents, refer to ⇒ [“5.16 Instrument Panel Vents”, page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 9 - Right Center Instrument Panel Vent

- ❑ Removing and installing instrument panel vents, refer to ⇒ [“5.16 Instrument Panel Vents”, page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 10 - Climatronic Control Module -J255-

- ❑ Versions vary (for vehicles with or without seat heater, allocation, refer to the Electronic Parts Catalog (ETKA).
- ❑ 5-cylinder vehicle may only have heater controls, part number 8J0 819 043 starting with index “D”. Refer to Electronic Parts Catalog (ETKA) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ❑ Starting with model year 2011, heating system control heads—part number 8J0 819 043, beginning with index “H”—shall be gradually installed. These control modules possess an added function for the expanded change indicator that is part of the efficiency indicator for the on-board computer. Therefore, no heating system control head with part number 8J0 819 043 up through index “G” may be installed in a vehicle containing an expanded change indicator in the on-board computer. Refer to Electronic Parts Catalog (ETKA), Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and the owner's manual.
- ❑ Removing and installing, refer to ⇒ [“1.9 Climatronic Control Module J255”, page 31](#) .
- ❑ There is no Instrument Panel Interior Temperature Sensor -G56- and no Interior Temperature Sensor Fan -V42- installed in the Climatronic control module.
- ❑ Also observe additional notes for Climatronic control module. Refer to ⇒ [“1.9 Climatronic Control Module J255”, page 31](#) .
- ❑ On Board Diagnostic (OBD) of Climatronic control module -J255- is to be performed as described in Guided Fault Finding using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ❑ The buttons and rotatory switches have LEDs, they cannot be replaced individually.
- ❑ The function and indicator lights in the buttons and in the rotary knobs cannot be replaced separately.



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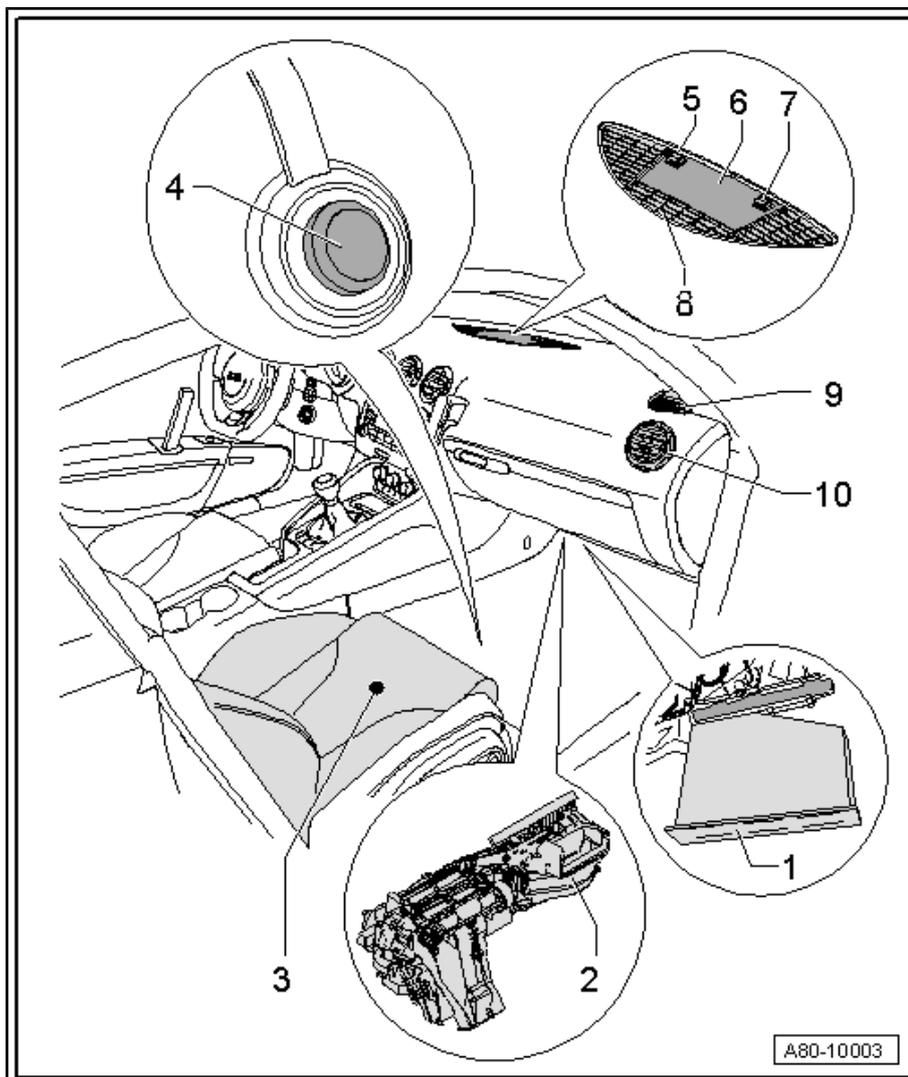
## 2.3 A/C Components Inside Passenger Compartment, Right Side

### 1 - Dust and Pollen Filter

- Removing and Installing, refer to ⇒ ["5.9 Dust and Pollen Filter", page 138](#) .
- Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- Vehicles without A/C (with heating only) have dust and pollen filter without an activated charcoal insert. Refer to Electronic Parts Catalog (ETKA) and ⇒ ["1.12 Dust and Pollen Filter with Activated Charcoal Insert", page 33](#) .

### 2 - Heater With Attachments

- Air duct in heater and in vehicle, refer to ⇒ ["2.13 Air Guide In Evaporator Housing", page 68](#) and ⇒ ["2.14 Air Guide In Air Distribution Housing", page 69](#) .
- Heater components, refer to ⇒ ["2.4 Heater Components", page 9](#) .
- Heater, removing and installing, refer to ⇒ ["5.3 A/C Unit", page 108](#) .



### Note

### 3 - Right Front Seat Temperature Sensor -G345- and Right Front Heated Seat -Z46-

- Seat heater is not installed in all vehicles (optional equipment).
- When the seat heater is activated, it is displayed in the Climatronic control module -J255- measured values block. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Seat heating, servicing, refer to ⇒ Body Interior; Rep. Gr. 74 ; Removal and Installation .

### 4 - Plug

- The opening on the center tunnel for draining condensation water from the A/C must be sealed with a plug if the vehicle does not have A/C.

### 5 - Cap

- Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

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### 6 - Cover For Speaker In Center Instrument Panel

- Removing and installing cover, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 7 - Light Emitting Diode for Central Locking System

- Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 8 - Defroster Vent/Front Window

- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 9 - Defroster Vent/Right Side Window

- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 10 - Instrument Panel Vent, Right

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

## 2.4 Heater Components

Observe notes for control and regulation of components in heater.

Refer to

⇒ ["1.5 Heater Activation and Control Components", page 3](#)



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- ◆ *The air duct in the heater and in the vehicle is the same as on vehicles with A/C system. Refer to ⇒ ["2.13 Air Guide In Evaporator Housing", page 68](#) and ⇒ ["2.14 Air Guide In Air Distribution Housing", page 69](#) .*
- ◆ *The heater should be removed and installed the same way as the A/C unit. Refer to ⇒ ["5.3 A/C Unit", page 108](#) .*

### 1 - Heater With Attachments

- ❑ Heater, removing and installing, refer to ⇒ ["5.3 A/C Unit"](#), page 108 .



#### Note

- ❑ Heater, disassembling and assembling, refer to ⇒ ["4.2 Heater"](#), page 20 .

### 2 - Defroster Door Motor - V107-

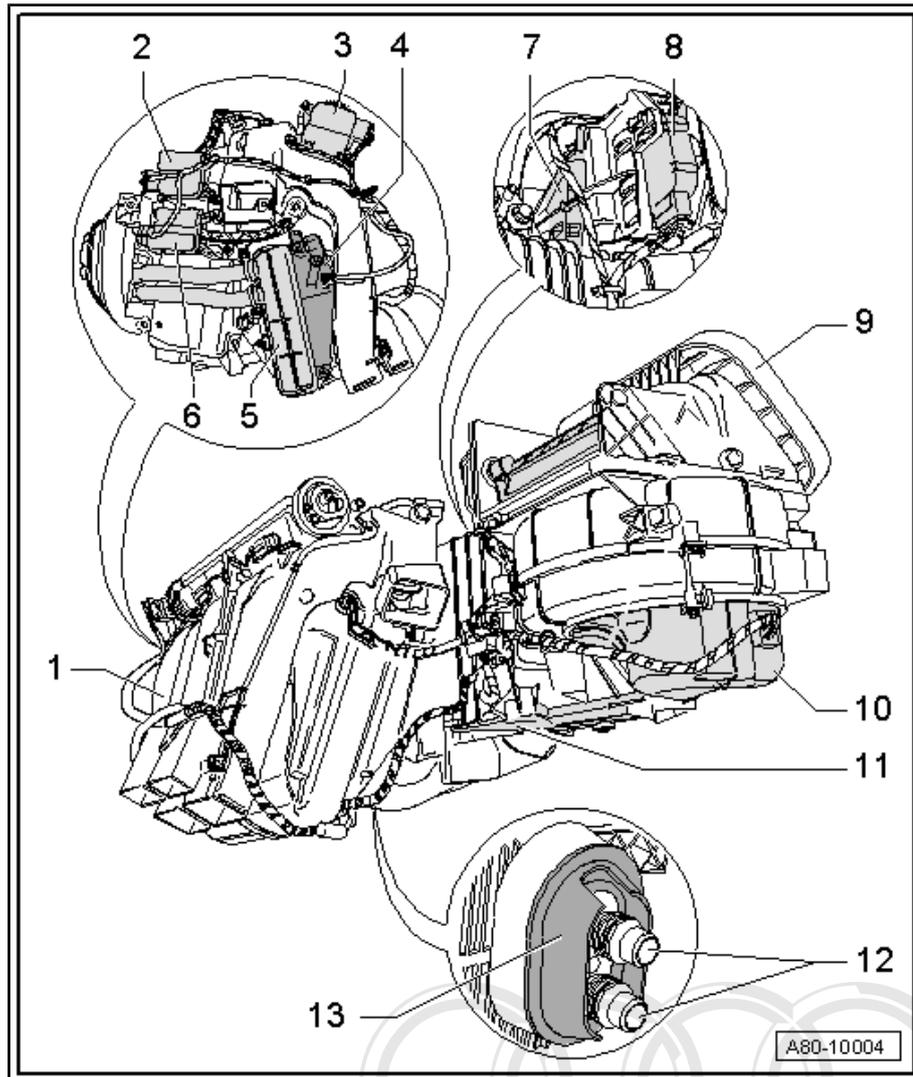
- ❑ With Defroster Door Motor Position Sensor - G135- .
- ❑ Lever color identification: blue.
- ❑ Removing and installing, refer to ⇒ ["5.8.3 Defroster Door Motor V107"](#), page 131 .



#### Note

### 3 - Central Air Door Motor - V70-

- ❑ With Central Door Motor Position Sensor - G112- .
- ❑ Removing and installing, refer to ⇒ ["5.8.2 Central Air Door Motor V70 / V145"](#), page 130 .



### 4 - Auxiliary Air Heater Heating Element -Z35-

- ❑ Only intended for vehicles with Diesel engine.

### 5 - Heat Exchanger For Heater Unit

- ❑ Removing and installing, refer to ⇒ ["5.14 Heater Core"](#), page 144 .

### 6 - Left Temperature Door Motor -V158-

- ❑ With Left Temperature Door Potentiometer/Actuator -G220- .
- ❑ Lever color identification: white.
- ❑ Removing and installing, refer to ⇒ ["5.8.4 Left Temperature Door Motor V158"](#), page 133 .



#### Note

### 7 - Back Pressure Door Motor -V71-

- ❑ With Back Pressure Door Motor Position Sensor -G113- .
- ❑ Removing and installing, refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function"](#), page 62 .

### 8 - Control motor Door Motor -V113-

- ❑ With Recirculation Door Motor Position Sensor -G143- .
- ❑ Removing and installing, refer to ⇒ ["5.8.5 Recirculation Door Motor V113"](#), page 135 .

### 9 - Intake Housing With Recirculating Air and Air Flow/Fresh Air Door

- Removing and installing, refer to  
 ⇒ ["5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door", page 115](#) .

### 10 - Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-

- Removing and installing, refer to  
 ⇒ ["1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 ", page 36](#) .
- Different versions. At the start of production, a Fresh Air Blower on which the Fresh Air Blower Control Module is cast with the blower -V2- (cannot be replaced individually) was installed. In model year 2007, Fresh Air Blower Control Module and Fresh Air Blower that are bolted together (each can be replaced separately) will be introduced as a running change. Refer to  
 ⇒ ["1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 ", page 36](#) and Electronic Parts Catalog (ETKA).
- The Fresh Air Blower Control Module -J126- is installed in the Fresh Air Blower -V2- . Depending on the version, both of these components can be either replaced separately or only together.
- Checking, refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

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### 11 - Dust and Pollen Filter

- Removing and installing, refer to ⇒ ["5.9 Dust and Pollen Filter", page 138](#) .
- Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- Vehicles without A/C (with heating only) have dust and pollen filter without an activated charcoal insert. Refer to Electronic Parts Catalog (ETKA) and  
 ⇒ ["1.12 Dust and Pollen Filter with Activated Charcoal Insert", page 33](#) .

### 12 - Coolant Pipes To Heater Core

### 13 - Grommet

- For sealing any holes in the refrigerant lines through the plenum chamber bulkhead to the engine compartment.



## 3 Diagnosis and Testing

⇒ ["3.1 Heat Output and Temperature Door Activation, Checking", page 12](#)

⇒ ["3.2 Temperature Door and Heater Output Activation, Checking", page 16](#)

⇒ ["3.3 Electrical Components Controlled by Heating System, Checking", page 16](#)

### 3.1 Heat Output and Temperature Door Activation, Checking

⇒ ["3.1.1 Test Requirements", page 12](#)

⇒ ["3.1.2 Heating Performance, checking", page 12](#)

#### 3.1.1 Test Requirements

##### Special tools and workshop equipment required

- ◆ Vehicle diagnosis, testing and information system - VAS5051B- (or Vehicle Diagnosis and Service System -VAS 5052- ).
- ◆ A standard thermometer (for temperature measurements, if necessary a thermometer with 2 measuring probes for simultaneous measurement, for example, for temperature on the right and left)
- ◆ Coolant circuit has been bled according to specifications. Refer to:⇒ Engine Mechanical; Rep. Gr. 19 General Information.
- ◆ All air ducts, covers and seals OK and properly installed.
- ◆ Air flow through dust and pollen filter not obstructed by dirt.
- ◆ Engine is warm.
- ◆ Climatronic control module -J255- DTC memory was checked and erased, basic setting was performed and Climatronic control module coding was checked using -VAS5051B- in "Guided Fault Finding".
- ◆ Adaptation of Climatronic control module was checked using -VAS5051B- in "Guided Fault Finding".
- ◆ Vehicle not exposed to sunlight.

#### 3.1.2 Heating Performance, checking

##### Special tools and workshop equipment required

- ◆ Vehicle diagnosis, testing and information system - VAS5051B- (or Vehicle Diagnosis and Service System -VAS 5052- ).
- ◆ A standard thermometer (for temperature measurements, if necessary a thermometer with 2 measuring probes for simultaneous measurement, for example, for temperature on the right and left)
- Close hood.
- Close doors, windows and rear lid.
- Open all dash panel vents.
- Initiate heating system On Board Diagnostic (OBD) using -VAS5051B- in "Guided Fault Finding".
- Measure the ambient temperature (temperature in workshop)

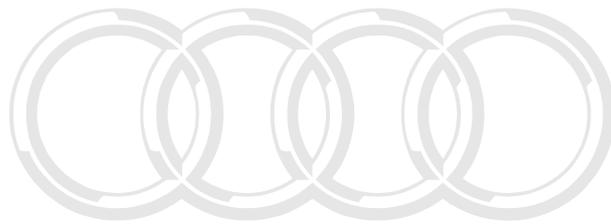


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- Start the engine.

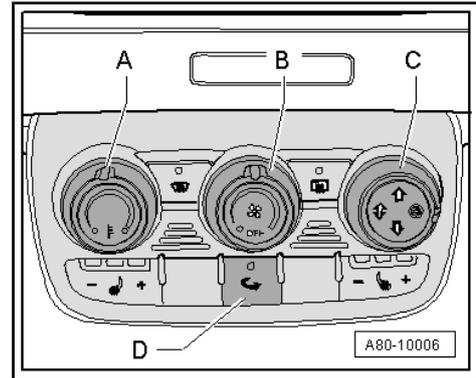


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- Place Climatronic control module -J255- temperature knob -A- in "cold" position.
- Adjust Climatronic control module air distribution knob -C- so air flows out of instrument panel vents.
- Place Climatronic control module fresh air blower speed knob -B- in "maximum fresh air blower speed" position.



**i Note**

- ◆ *The heater works in fresh air mode, the indicator light for the recirculation button -D- does not light up.*
- ◆ *Fresh Air Blower runs at maximum speed.*
- In the "read measured values block" function, select -VAS5051B- in "Guided Fault Finding".
- Read the measured values block with the display for the position of the Left Temperature Door Motor -V158-. Refer to -VAS5051B- in "Guided Fault Finding".
- Measure temperature of air flowing out of left and right instrument panel vents.

Target values:

- ◆ It will display that the Left Temperature Door Motor -V158- is at the "bottom" ("cold").
- ◆ The temperature of the air coming out of the left and right instrument panel vents is a maximum of 15 °C greater than the previously measured environmental temperature (the heater temperature increase is less than 16 °C).
- ◆ ~~The temperature difference between the air coming out of the left and right instrument panel vents is less than 8 °C.~~

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- Place Climatronic control module -J255- temperature knob -A- in "warm" position.
- Read the measured values block from Left Temperature Door Motor. Refer to -VAS5051B- in "Guided Fault Finding".
- Measure temperature of air flowing out of left and right instrument panel vents.

Target values:

- ◆ It will display that the Left Temperature Door Motor is at the "top" ("warm").
- ◆ The temperature of the air coming out of the left and right instrument panel vents increases to a value greater than 55 °C (at an engine temperature of approximately 90 °C, depending on the current engine compartment temperature).
- ◆ The temperature difference between the air coming out of the left and right instrument panel vents is less than 8 °C.

**i Note**

*The coolant flow rate through the heater core (and therefore the heat output) also depends on the engine speed.*

- Place Climatronic control module temperature knob -A- in "cold" position.

- Read the measured values block with the display for the position of the Left Temperature Door Motor -V158- . Refer to -VAS5051B- in "Guided Fault Finding".
- Measure temperature of air flowing out of left and right instrument panel vents.

Target values:

- ◆ It will display that the Left Temperature Door Motor is at the "bottom" ("cold").
- ◆ The temperature of the air coming out of the left and right instrument panel vents decreases within 5 minutes to a value that is a maximum of 15 °C higher than the previously measured environmental temperature.

**If the specified values are not reached, check the following:**

- ◆ If the required heat output is not reached
  - Ventilation of coolant circuit. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .
  - The integration of the heater core in the coolant circuit, refer to⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .
  - Activation and function of Left Temperature Door Motor -V158- using -VAS5051B- in "Guided Fault Finding".
  - The foam seal on the heater core. Refer to ⇒ ["5.14 Heater Core", page 144](#) .
  - Function of temperature doors in air distribution housing. Refer to ⇒ ["2.14 Air Guide In Air Distribution Housing", page 69](#) .
  - Coolant regulator (engine coolant may not warm properly if regulator is malfunctioning). Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation .
  - The delivery of the engine coolant pump. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation .
- ◆ If the air coming out of the vents is too warm when it is set to "Cold"
  - Activation and function of Left Temperature Door Motor -V158- using -VAS5051B- in "Guided Fault Finding".
  - Function of temperature doors in air distribution housing. Refer to ⇒ ["4.2 Heater", page 20](#) .
  - The plenum chamber and seal between engine compartment and plenum chamber.

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## 3.2 Temperature Door and Heater Output Activation, Checking

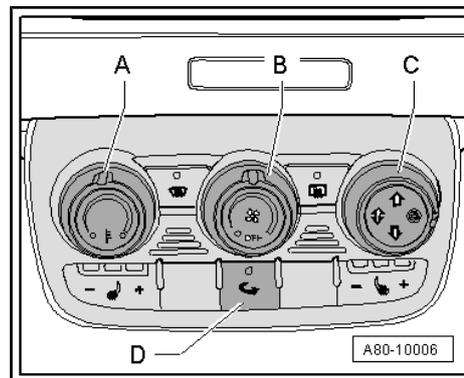


### Note

- ◆ On Audi TT without A/C (just heating), only one temperature door motor is installed. Both temperature doors for the left and right sides are connected in the heater air distributor housing via a shaft and moved together by the Left Temperature Door Motor -V158-. Refer to [⇒ "4.1 Heater Electrical Attachments", page 18](#).
- ◆ Vehicles without A/C do not have a temperature sensor. The outflow temperature is not controlled. The Left Temperature Door Motor -V158- is placed in a position calculated according to the temperature setting on the temperature rotary switch -A- and the programmed motor stop values by the Climatronic control module -J255-.
- ◆ If coolant circuit is not completely bled after filling, air may accumulate in heater core of heater, thus reducing heating performance, additional noises may occur or customer may complain of different air temperatures flowing out of vents at driver's side and front passenger's side.

### Corrective action:

- Perform long road test at increased engine speed (at least 10 minutes, engine speed greater than 2500 RPM). Select a low gear during the test to prevent excessive vehicle speed.
- If customer complains of poor heating performance at specific engine speeds, check incorporation of heater core of heater in the coolant circuit. If both coolant hoses (supply and return) of engine are interchanged, coolant is flowing in the wrong direction through the heater core. Refer to⇒ Engine Mechanical; Rep. Gr. 19; Description and Operation.
- ◆ Heat output and temperature door activation, checking refer to [⇒ "3.1 Heat Output and Temperature Door Activation, Checking", page 12](#).



## 3.3 Electrical Components Controlled by Heating System, Checking

### From the Climatronic control module -J255-

The vehicle electrical components that are activated by heater are identical to those on vehicles with A/C. The electrical test for the various components is therefore performed in the same way as the test for these components on vehicles with an A/C system. Refer to Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.

These components are activated and function the same way on a vehicle without A/C (vehicles with a heater only). Refer to [⇒ "4.4 Components Actuated by A/C System, Electrical Test", page 91](#) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

 Note

*Various vehicle electrical components (for example, Heated Rear Window -Z1- and heated seats) that do not belong to the heater are activated by the Climatronic control module -J255-. Check the electrical components as described in Guided Fault Finding (it is the same on both vehicle with and without A/C). Refer to ⇒ ["4.4 Components Actuated by A/C System, Electrical Test"](#), [page 91](#) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*



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## 4 Disassembly and Assembly

⇒ "4.1 Heater Electrical Attachments", page 18

⇒ "4.2 Heater", page 20

⇒ "4.3 Air Guide Channel", page 22

### 4.1 Heater Electrical Attachments

Heater, removing and installing, refer to

⇒ "5.3 A/C Unit", page 108 .



#### Note

Remove the heater the same way as removing the A/C unit. The items that affect components that are only present on the A/C system are omitted.

#### 1 - Wiring Harness For Heater

- ❑ Different versions, for example, with or without voltage supply to the auxiliary heater heating element -Z35-). Refer to Electronic Parts Catalog (ETKA).
- ❑ Mark the allocation before disconnecting the connectors (connectors of same shape for different motors, risk of interchanging them).
- ❑ Secure wiring harness to mounting points provided on housing (using cable ties, or on mounts) so that it does not come into contact with moving components.

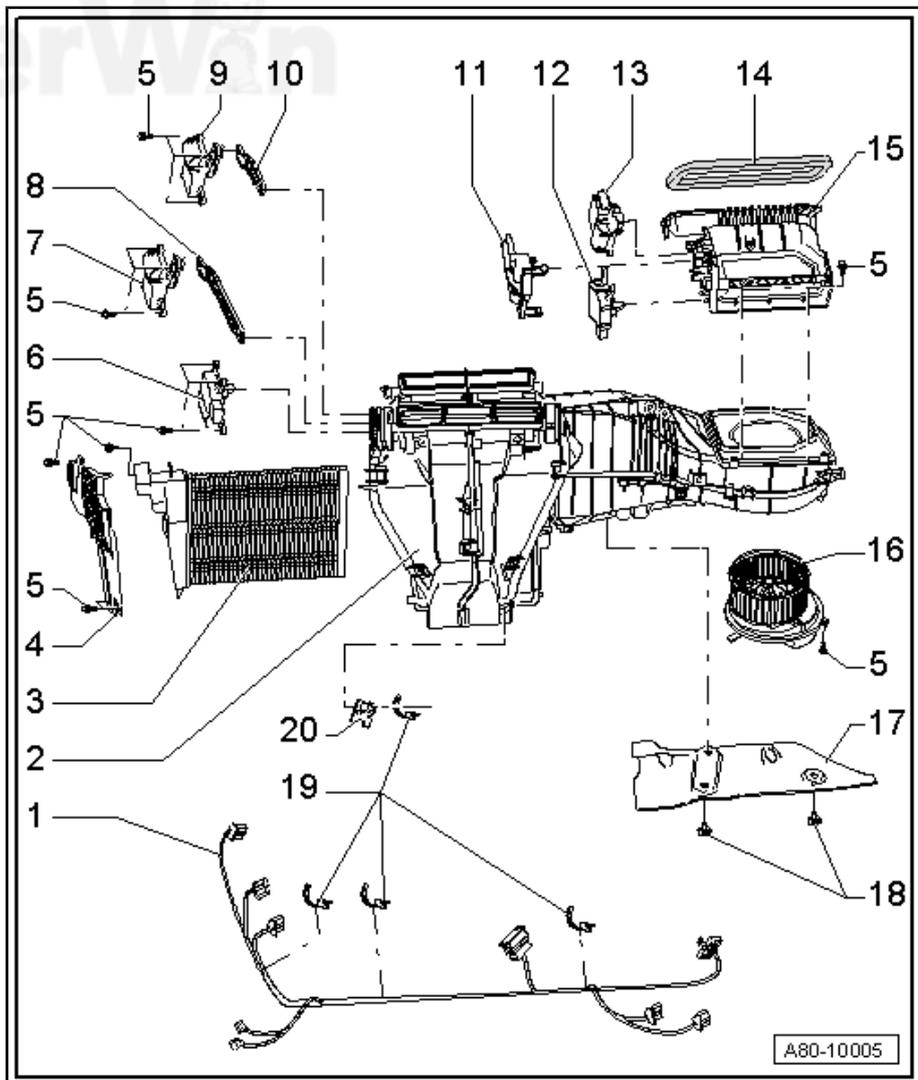
#### 2 - Heater Unit

- ❑ Removing and installing, refer to ⇒ "5.3 A/C Unit", page 108 (A/C unit, removing and installing).



#### Note

- ❑ Heater, disassembling and assembling, refer to ⇒ "4.2 Heater", page 20 .
- ❑ Air guide channel, disassembling and assembling, refer to ⇒ "4.3 Air Guide Channel", page 22 .



#### 3 - Auxiliary Air Heater Heating Element -Z35-

- ❑ Only intended for vehicles with Diesel engine.

#### 4 - Cover For Coolant Pipes and Heater Core

- This illustration shows version for vehicles with Auxiliary Air Heater Heating Element -Z35- .
- Different versions for vehicles with or without Auxiliary Air Heater Heating Element -Z35- (opening for Auxiliary Air Heater Heating Element -Z35- is sealed by this cover in vehicles without Auxiliary Air Heater Heating Element -Z35- ). Refer to Electronic Parts Catalog (ETKA).

#### 5 - Screw

#### 6 - Central Air Door Motor -V70-

- With Central Door Motor Position Sensor -G112- .
- Removing and installing, refer to ⇒ ["5.8.2 Central Air Door Motor V70 / V145 ", page 130](#) .

#### 7 - Left Temperature Door Motor -V158-

- With Left Temperature Door Potentiometer/Actuator -G220- .
- Lever color identification: white.
- Removing and installing, refer to ⇒ ["5.8.4 Left Temperature Door Motor V158 ", page 133](#) .



Note

#### 8 - Connecting Rod to Left Temperature Door Motor -V158-

- Color identification: black.

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#### 9 - Defroster Door Motor -V107-

- With Defroster Door Motor Position Sensor -G135- .
- Lever color identification: blue.
- Removing and Installing, refer to ⇒ ["5.8.3 Defroster Door Motor V107 ", page 131](#) .



Note

#### 10 - Connecting Rod to Defroster Door Motor -V107-

- Color identification: blue.

#### 11 - Cover and Bracket for Air Flow Door Motor -V71- and Recirculation Door Motor -V113-

- Removing and installing, refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function", page 62](#) .
- After installing, check both control motors which must be held in position by this bracket, if they are not installed free of play, use some foam to rectify play if necessary, attaching it to inside of mounting points of bracket. Refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function", page 62](#) .

#### 12 - Control motor Door Motor -V113-

- With Recirculation Door Motor Position Sensor -G143- .
- Removing and installing, refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function", page 62](#) .

#### 13 - Back Pressure Door Motor -V71-

- With Back Pressure Door Motor Position Sensor -G113- .
- Removing and installing, refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function", page 62](#) .

#### 14 - Foam Seal

- For sealing heater air intake shroud to vehicle.

#### 15 - Intake Housing With Recirculating Air and Air Flow/Fresh Air Door

- Do not disassemble further.
- Removing and installing, refer to ⇒ ["5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door", page 115](#) .
- Can be obtained as a replacement part in various versions. Refer to ⇒ ["5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door", page 115](#) .

#### 16 - Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-

- Removing and installing, refer to ⇒ ["1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 ", page 36](#) .
- Different versions. At the start of production, a Fresh Air Blower was installed, with Fresh Air Blower Control Module cast on the blower (cannot be replaced individually). In model year 2007, Fresh Air Blower

Control Module and Fresh Air Blower that are bolted together (each can be replaced separately) will be introduced as a running change. Refer to [⇒ "1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2", page 36](#) and Electronic Parts Catalog (ETKA).

- ❑ The Fresh Air Blower Control Module -J126- is installed in the Fresh Air Blower -V2- . Depending on the version, both of these components can be either replaced separately or only together.

17 - Insulation Mat

18 - Screw Clips

19 - Cable Ties

20 - Wiring Harness Bracket

## 4.2 Heater



### Note

*Remove the heater the same way as removing the A/C unit. The items that affect components that are only present on the A/C system are omitted.*

- Remove heater. Refer to [⇒ "5.3 A/C Unit", page 108](#) .
- Remove electrical attachments from heater. Refer to [⇒ "4.1 Heater Electrical Attachments", page 18](#) .



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**1 - Air Distribution Housing For Heater**

- Different version for heating and A/C, refer to the Electronic Parts Catalog (ETKA).



**2 - Screw**

**3 - Air Guide Channel To Left Footwell Vent**

- Different versions. Refer to Electronic Parts Catalog (ETKA).
- "Heater" version (without an opening for installing a temperature sensor).

**4 - Heater Core For Heater Unit**

- Removing and installing, refer to ⇒ ["5.14 Heater Core", page 144](#).

**5 - Sealing Ring**

- Replace
- Coat thinly with coolant and insert on proper side. Refer to ⇒ ["5.14 Heater Core", page 144](#).

**6 - Clip**

- Replace
- Ensure it is seated correctly.
- Removing and installing, refer to ⇒ ["5.14 Heater Core", page 144](#).

**7 - Screw**

- Tightening specification 2.5 Nm

**8 - Coolant Pipes**

- Disconnect and connect from heater core. Refer to ⇒ ["5.14 Heater Core", page 144](#).

**9 - Foam Spacer**

- Installed between grommet and heater.

**10 - Grommet**

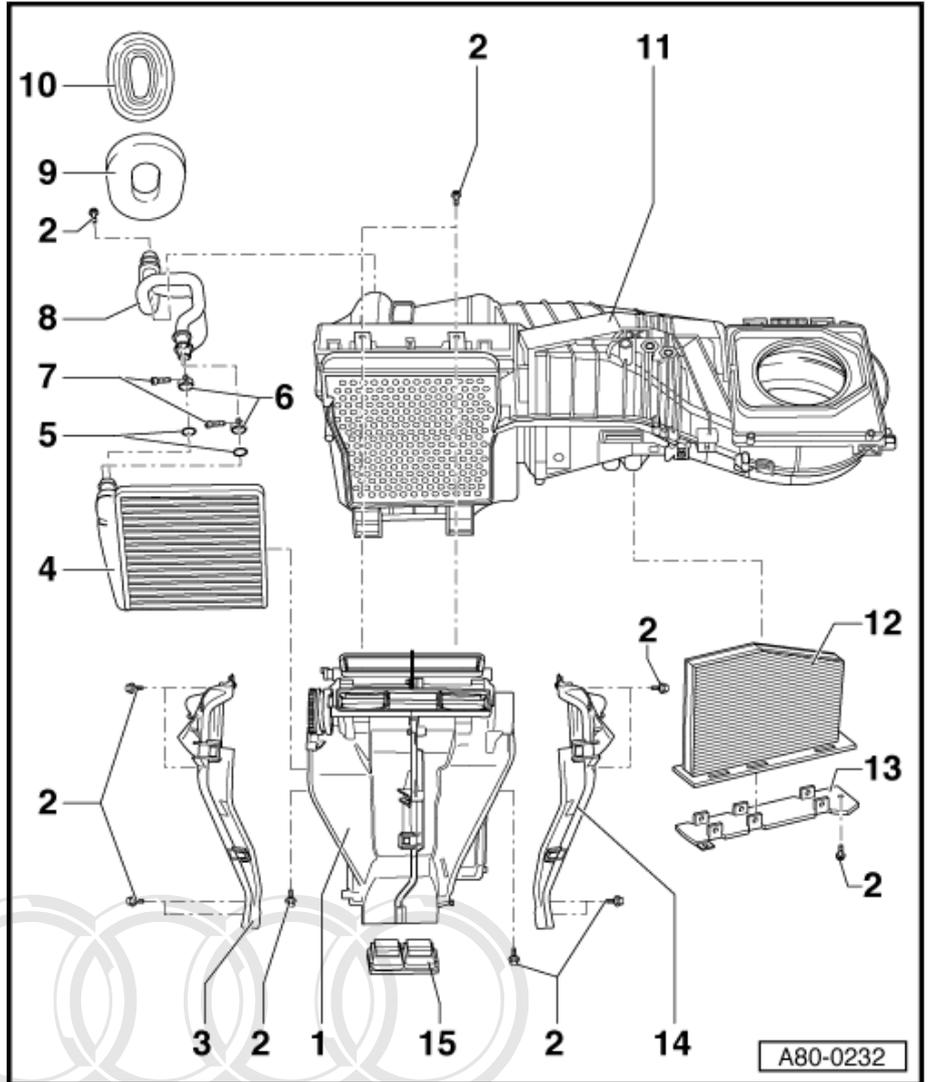
- Install in the back of the plenum chamber before installing the heater, refer to ⇒ ["5.3 A/C Unit", page 108](#).
- Installing, refer to ⇒ ["5.3 A/C Unit", page 108](#).

**11 - Air Guide Channel**

- Air guide channel, disassembling and assembling, refer to ⇒ ["4.3 Air Guide Channel", page 22](#).

**12 - Dust and Pollen Filter**

- Removing and installing, refer to ⇒ ["5.9 Dust and Pollen Filter", page 138](#).
- Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- Vehicles without A/C (with heating only) have dust and pollen filter without an activated charcoal insert. Refer to the Electronic Parts Catalog (ETKA) and ⇒ ["1.12 Dust and Pollen Filter with Activated Charcoal Insert", page 33](#).



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### 13 - Cover For Dust and Pollen Filter

- ❑ Removing and installing, refer to ⇒ [“5.9 Dust and Pollen Filter”, page 138](#) .

### 14 - Air Guide Channel To Right Footwell Vent

- ❑ Different versions. Refer to Electronic Parts Catalog (ETKA).
- ❑ “Heater” version (without an opening for installing a temperature sensor).

### 15 - Plug

- ❑ Present two times in different version. Refer to ⇒ [“2.1 Air Routing and Distribution in Passenger Compartment”, page 44](#) .

## 4.3 Air Guide Channel



### Note

*Remove the heater the same way as removing the A/C unit. The items that affect components that are only present on the A/C system are omitted.*

- Remove heater. Refer to ⇒ [“5.3 A/C Unit”, page 108](#) .
- Remove electrical attachments from heater. Refer to ⇒ [“4.1 Heater Electrical Attachments”, page 18](#) .
- Disassemble heater as far as necessary. Refer to ⇒ [“4.2 Heater”, page 20](#) .



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**1 - Lower Section Of Air Guide Channel**

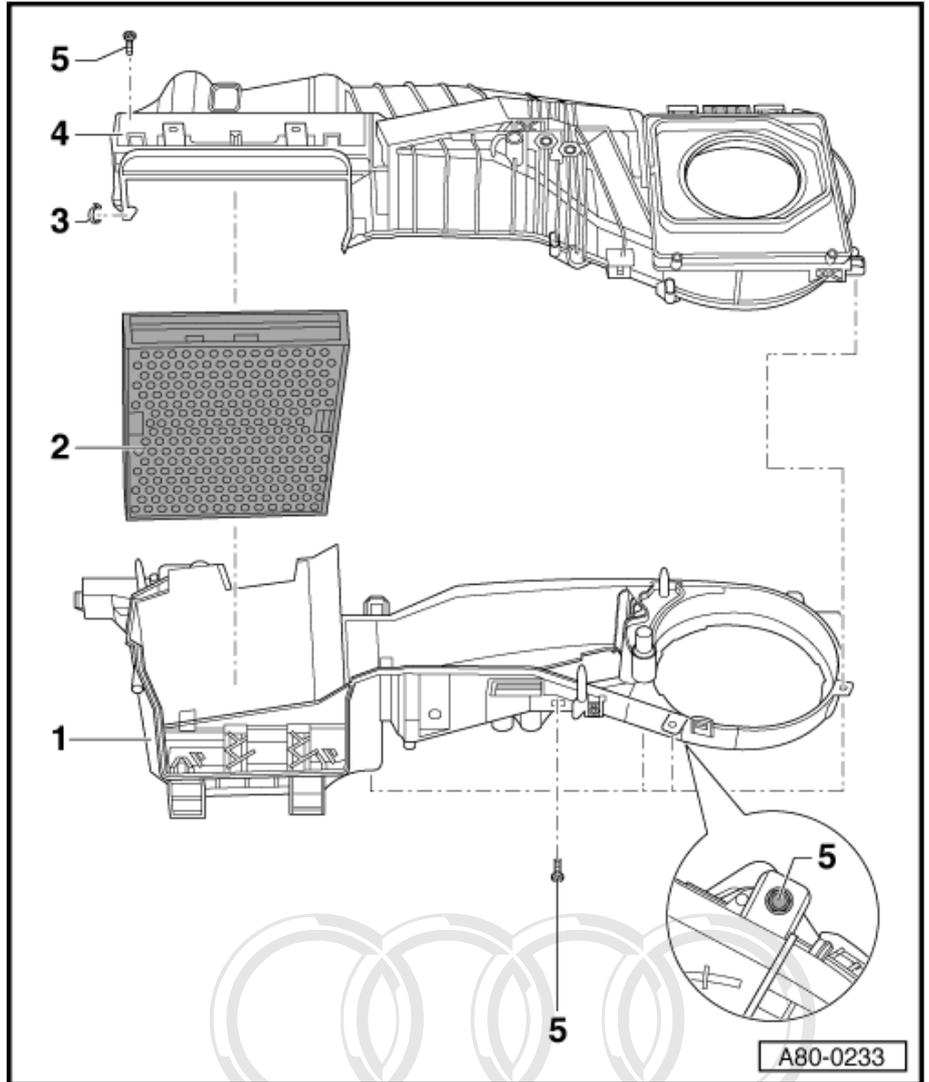
**2 - Noise Insulation**

- In vehicles without A/C system (with heater only), a foam core piece is installed for noise insulation instead of evaporator.

**3 - Clip**

**4 - Upper Section Of Air Guide Channel**

**5 - Screw**



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## 87 – Air Conditioning

### 1 General Information

- ⇒ [“1.1 A/C Compressor Belt Pulley, Replacement”, page 24](#)
- ⇒ [“1.2 A/C System Control and Regulation Components Outside Passenger Compartment”, page 25](#)
- ⇒ [“1.3 A/C System Control and Regulation Components Inside Passenger Compartment”, page 27](#)
- ⇒ [“1.4 A/C System, Operating After Filling Refrigerant Circuit”, page 28](#)
- ⇒ [“1.5 A/C and Refrigerant Safety Precautions”, page 29](#)
- ⇒ [“1.6 A/C Air Distribution Housing Defroster Outlet Door”, page 30](#)
- ⇒ [“1.7 Adapter Cable for Activating Control Motors”, page 30](#)
- ⇒ [“1.8 Checking Electrical Components”, page 31](#)
- ⇒ [“1.9 Climatronic Control Module J255”, page 31](#)
- ⇒ [“1.10 Contact Corrosion”, page 33](#)
- ⇒ [“1.11 Dryer Cartridge”, page 33](#)
- ⇒ [“1.12 Dust and Pollen Filter with Activated Charcoal Insert”, page 33](#)
- ⇒ [“1.13 Evaporator, Cleaning with Ultrasound A/C Cleaner”, page 34](#)
- ⇒ [“1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2”, page 36](#)
- ⇒ [“1.15 Painting Vehicles with A/C”, page 36](#)
- ⇒ [“1.16 Performing Guided Fault Finding”, page 36](#)
- ⇒ [“1.17 Refrigerant Circuit, Draining”, page 36](#)
- ⇒ [“1.18 Refrigerant Circuit, Repairs”, page 37](#)
- ⇒ [“1.19 Refrigerant Circuit, Servicing”, page 38](#)
- ⇒ [“1.20 Refrigerant Safety Precautions”, page 41](#)
- ⇒ [“1.21 Refrigerant Circuit O-rings”, page 41](#)
- ⇒ [“1.22 Refrigerant R134a”, page 42](#)

#### 1.1 A/C Compressor Belt Pulley, Replacement



##### Note

*At start of production, only A/C compressors manufactured by “Denso” type “6 SEU 14” are installed on the Audi TT. Depending on the engine and time period of production, A/C compressors from other manufacturers (for example “Sanden”, Type “PXE 16” or “ZJX” on 5 cylinder vehicles) or a different version may be installed. Refer to Electronic Parts Catalog (ETKA).*

- ◆ Replace the belt pulley (“Denso” A/C compressor, version “1”)  
⇒ [“2.4 Belt Pulley, Denso A/C Compressor, Version 1”, page 52](#) .

- ◆ Replace the belt pulley ("Denso" A/C compressor, version "2")  
 ⇒ ["2.5 Belt Pulley, Denso A/C Compressor, Version 2", page 53](#) .
- ◆ Belt pulley, replacing ("Sanden" A/C compressor), refer to  
 ⇒ ["5.6.3 Sanden A/C Compressor", page 121](#) .

**Preparation**

- Remove noise insulation. Refer to⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation
- Releases the tension on the ribbed belt (belts) and remove it (them). Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .



**Note**

- ◆ *The A/C compressor can be removed and installed at the bracket without opening the refrigerant lines. Refer to*  
 ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) .
- ◆ *Mark direction of rotation of ribbed belt using chalk or felt-tip marker before removing. Running a used belt in the opposite direction could destroy it.*
- ◆ *The A/C compressor on 5 cylinder vehicles have 2 ribbed belts. The A/C compressor has a belt pulley with a double belt guide.*
- Remove the A/C compressor from engine (if equipped). Refer to  
 ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) or  
 ⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) .

## 1.2 A/C System Control and Regulation Components Outside Passenger Compartment



**Note**

- ◆ *If there is a malfunction in the system, first check the Climatronic control module -J255- DTC memory. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *If no fault is displayed, read the measured value block for the Climatronic control module and activate the component with the "output diagnosis test mode" function on the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *The electrical test for various actuators, potentiometers and sensors is described in Guided Fault Finding using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *Servicing operations on refrigerant circuit are described in*  
 ⇒ ["1.19 Refrigerant Circuit, Servicing", page 38](#) .
- ◆ Perform the following work after completion of repair operations:
  - Check Climatronic control module DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis,



testing and information system -VAS5051B- in the "Guided Fault Finding" function.

- Check coding of Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Check adaptation of Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function..
- Perform A/C system basic setting using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



#### Note

- ◆ *Coolant hoses from connections to A/C unit heat exchanger, removing and installing; refer to ["5.14 Heater Core", page 144](#) .*
- ◆ *A/C unit heater core connection in engine coolant circuit. Refer to ⇒ [Engine Mechanical; Rep. Gr. 19; Description and Operation](#) .*
- ◆ *Depending on vehicle production period, connection points may be installed in refrigerant lines on certain versions (not planned at this time, introduction not yet finalized). Refer to [Electronic Parts Catalog \(ETKA\)](#). As with connections on various components, these connection points may only be loosened and opened when the refrigerant circuit is empty. Refer to ⇒ ["1.19 Refrigerant Circuit, Servicing", page 38](#) and ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation](#) .*
- ◆ *Depending on the vehicle production period, a damping chamber may be installed in the refrigerant lines from the expansion valve to the compressor on certain versions (not planned at this time, introduction not yet finalized). Refer to the [Electronic Parts Catalog \(ETKA\)](#). The damping chamber balances out pressure fluctuations that can occur when operating the A/C compressor. Refer to ⇒ ["1.19 Refrigerant Circuit, Servicing", page 38](#) and ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation](#) .*
- ◆ *Component group 1, components outside of passenger compartment, refer to ⇒ ["2.6 Components Outside of Passenger Compartment, Group 1", page 55](#)*
- ◆ *Component group 2, components outside of passenger compartment, refer to ⇒ ["2.7 Components Outside of Passenger Compartment, Group 2", page 57](#)*

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### 1.3 A/C System Control and Regulation Components Inside Passenger Com- partment

 Note

- ◆ *If there is a malfunction in the system, first check the Climatronic control module -J255- DTC memory. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *If no fault is displayed, read the measured value block for the Climatronic control module -J255- and activate the component with the "output diagnosis test mode" function on the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *The electrical test for various actuators, potentiometers and sensors is described in Guided Fault Finding using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *Servicing operations on refrigerant circuit are described in ⇒ ["1.19 Refrigerant Circuit, Servicing", page 38](#) .*
- ◆ Perform the following work after completion of repair operations:
  - Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - Check coding of Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - If necessary, check adaptation of the Climatronic control module using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - Perform A/C system basic setting using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Left side components, refer to ⇒ ["2.8 A/C Components Inside Passenger Compartment, Left Side", page 59](#) .
- ◆ Right side components, refer to ⇒ ["2.9 A/C Components Inside Passenger Compartment, Right Side", page 61](#) .

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## 1.4 A/C System, Operating After Filling Refrigerant Circuit



### Note

- ◆ *Only start engine after refrigerant circuit has been assembled.*
- ◆ *If possible start engine only with a filled refrigerant circuit.*
- ◆ *Do not start the engine while evacuating the refrigerant circuit or when the circuit is already evacuated (the A/C compressor could be damaged). Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation (A/C Service Station).*
- ◆ *The A/C compressor is always driven by the pulley or by the driveshaft (there is no magnetic clutch). To prevent damage when the compressor is idling, it is lubricated by an "internal oil circuit".*
- ◆ *The compressor has an "internal oil circuit" to ensure the A/C compressor is not damaged when refrigerant circuit is empty. Prerequisite for the internal lubrication is residual refrigerant oil in A/C compressor.*
- ◆ *The engine may only be started when the refrigerant circuit is installed correctly. For example; if the refrigerant lines are not connected to A/C compressor, when the engine is running the A/C compressor may heat up (via internal heat generation) so much that the A/C compressor will be damaged.*
- ◆ *A/C Compressor Regulator Valve -N280- is not activated when the refrigerant circuit is empty and the A/C compressor idles with the engine. If there is no refrigerant, then the refrigerant oil, which is needed to lubricate the A/C compressor, will be not be transported (the A/C compressor will be lubricated by an "internal oil circuit").*

### If it is necessary to start the engine with a discharged refrigerant circuit

- ◆ Refrigerant circuit must be fully assembled.
- ◆ There must be no vacuum in the refrigerant circuit.
- ◆ At least 1/4 of the prescribed refrigerant oil must be in the A/C compressor.
- ◆ Do not rev engine higher than 2500 rpm.
- ◆ The engine should only run as long as is absolutely necessary.

### Note the following when starting engine for first time after filling refrigerant circuit

- ◆ All removed parts are installed once again.
- ◆ The refrigerant circuit is filled with refrigerant. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00; Specifications .
- ◆ Follow the information on servicing the A/C system after installing the compressor. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation (A/C Service Station).
- Start engine with the A/C compressor switched off ("Econ" operating mode set, indicator light in  button does not light up), and wait until engine idle speed has stabilized.
- Open all instrument panel vents.
- Set the temperature preset on the Climatronic control module -J255- to "cold".

- Press the  button to switch on the A/C compressor (“Auto“ mode selected and the indicator light in the  button is on) and let the engine and A/C compressor idle for at least 5 minutes.

## 1.5 A/C and Refrigerant Safety Precautions

The assemblies and piping system of the air conditioner are filled with the following refrigerant:

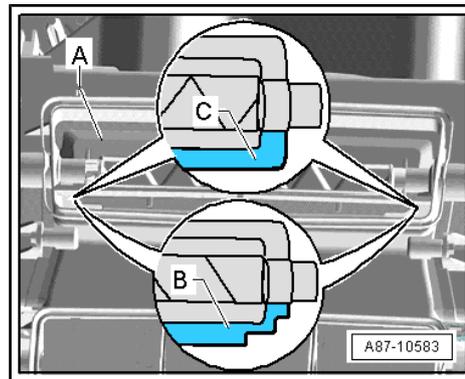
### 1.1.1.2 Tetrafluoroethane(CF<sub>3</sub>-CH<sub>2</sub>F or CH<sub>2</sub>F-CF<sub>3</sub>)

Currently, this refrigerant is known under the following trade names R134a, H-FKW 134a, SUVA 134a and KLEA 134a (other trade names may be used in other countries).

- ◆ Safety precautions. Refer to [⇒ “1.20 Refrigerant Safety Precautions“, page 41](#) .
- ◆ Discharge refrigerant circuit. Refer to [⇒ “1.17 Refrigerant Circuit, Draining“, page 36](#) .
- ◆ Working on refrigerant circuit. Refer to [⇒ “1.18 Refrigerant Circuit, Repairs“, page 37](#) .
- ◆ Vehicles with A/C, painting. Refer to [⇒ “1.15 Painting Vehicles with A/C“, page 36](#) .
- ◆ A/C System, additional information. Refer to [⇒ “1.19 Refrigerant Circuit, Servicing“, page 38](#) .

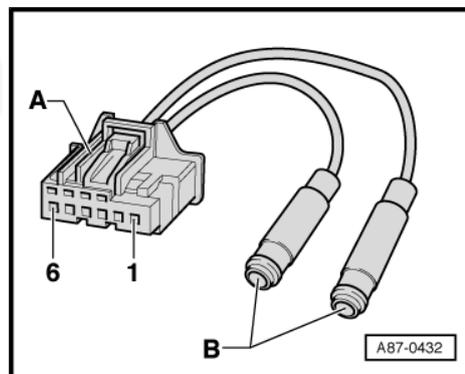
## 1.6 A/C Air Distribution Housing Defroster Outlet Door

- ◆ Beginning May 2007, a heater air distribution housing with a door -A- (in the air outlet to the defroster vents in the instrument panel) without a side cut-out -C- is gradually being installed. On vehicles without A/C, the change to the door has no influence on the heater control (the door is controlled only by adjusting the Climatronic control module -J255- ).
- ◆ Beginning May 2007, a A/C distribution housing with a door -A- (in the air outlet to the defroster vents in the instrument panel) without a side cut-out -C- is gradually being installed. With the introduction of the door with the side cut-out -C- the Climatronic control module -J255- is changed (the door must be opened further by the heater control due to the missing cut-out -B-, in order to direct the same amount of air to the windshield). Refer to the Electronic Parts Catalog (ETKA).
- ◆ The Climatronic control module, part number "8J0 820 043" through index "AA" may be installed only in vehicles which have an A/C air distribution housing with a door in the air outlet to the defroster vents in the instrument panel with a side cut-out -B- that has been or will be installed (exception: vehicles that will only be driven in tropical regions).
- ◆ On vehicles, which will be driven in tropical areas only, to prevent the windshield from fogging up on the outside in the area of the "Defrost" outlet, a door in the air outlet to the defroster vent in the instrument panel without a side cut-out -C- has already been installed since March 2007. Since, under these conditions (no winter operation) the windshield does not fog up from the inside, a Climatronic control module part number "8J0 820 043" through index "AA" can be installed in these vehicles.
- ◆ With the Climatronic control module part number "8J0 820 043" from index "AB" the "adaptation" function (in adaptation channel "30") the door -A- (in the air outlet for the defroster in the instrument panel) can be entered (Climatronic control module adapting) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



## 1.7 Adapter Cable for Activating Control Motors

- Connect one wire with a cross section greater than 0.25 mm<sup>2</sup> (for example, repair wires 000 979 009) each to terminals 5 and 6 of one connector -A- (for example, part number 6Q0 972 706). Refer to Electronic Parts Catalog (ETKA).
- Connect the other end of each wire to a commercially available banana connector -B-.



## 1.8 Checking Electrical Components

### Note

- ◆ *The function "electrical testing" is not described in this Repair Manual. Perform the electronic test with "Guided Fault Finding". This also contains information on the functions that should be tested using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *The temperature-dependent resistance values for the various temperature sensors are in the table. They can be accessed with the "Guided Fault Finding" function using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ Wires and Components, Testing with Test Box - V.A.G 1598 A- , refer to [⇒ "4.12 Wiring and Component Testing with Test Box VAG 1598A", page 101](#) .

## 1.9 Climatronic Control Module -J255-

- Climatronic control module, removing and installing, refer to [⇒ "5.7 Climatronic Control Module J255", page 124](#) .

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## Note

- ◆ *On vehicles with heating (without A/C system), a Climatronic control module is installed instead of the A/C control head. There is no Instrument Panel Interior Temperature Sensor - G56- and no Interior Temperature Sensor Fan -V42- installed in the Climatronic control module heater control head.*
- ◆ *The Climatronic control module, can currently be exchanged as usual, component protection is not active at this time. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *If a Climatronic control module with active component protection (anti-theft system) is installed in a different vehicle, only the functions necessary for vehicle safety can be selected, comfort functions can no longer be selected. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *Component protection (anti-theft system, introduction not yet finalized) can only be cancelled by entering specific vehicle data using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *When replacing a Climatronic control module, observe exact allocation. Refer to Electronic Parts Catalog (ETKA). Different versions, with or without seat heating switch, with different temperature unit (°C or °F) on temperature setting rotary switch, rotary switches with black or silver surface.*
- ◆ *If a new Climatronic control module was installed and basic setting was not performed, A/C system regulation is limited and this is displayed in the DTC memory as a malfunction. After installing the Climatronic control module, perform a basic setting to the A/C (heater) according to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *The Climatronic control module buttons and rotary switches are lit with light diodes (LEDs, that cannot be replaced).*
- ◆ *The function and indicator lights in the buttons and in the rotary switches cannot be replaced separately.*
- ◆ *If the Instrument Panel Interior Temperature Sensor -G56- measurement is incorrect, check Climatronic control module intake grille trim (it must not be closed) and function of the Interior Temperature Sensor Fan -V42- using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *The selected functions are displayed when the function lights in the various Climatronic control module buttons, rotary switches or display fields light up.*
- ◆ *From May 2007, a A/C air distribution housing with a door in the air outlet to the defroster vents in the instrument panel without a side cut-out is gradually being installed. With the introduction of the door without the side cut-out, the Climatronic control module -J255- is also changed (due the missing cut-out, the door must be open wider to direct the same amount of air to the windshield). Refer to the Electronic Parts Catalog. The Climatronic control module, part number "8J0 820 043" through index "AA" only may be installed only in vehicles which have a A/C air distribution housing with a door in the air outlet to the defroster vents in the instrument panel without a side cut-out (exception: vehicles that will only be driven in tropical regions). Refer to [⇒ "1.6 A/C Air Distribution Housing Defroster Outlet Door", page 30](#). With the Climatronic control module part number "8J0 820 043" from index "AB" the "adaptation" function, the version of the door in the air outlet to the defroster vents in the instrument panel can be entered (Climatronic control module adapting) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*
- ◆ *5 cylinder vehicle may only have heater controls, part number*

- ◆ A/C (heater) control head, removing and installing, refer to ⇒ [“5.7 Climatronic Control Module J255”, page 124](#).

## 1.10 Contact Corrosion

Contact corrosion can occur if inappropriate fasteners (bolts, nuts, washers, rivets, plugs, grommets, adhesives etc.) are used.

For this reason, the manufacturer only installs fasteners with a special surface coating. Also, rubber and plastic parts and adhesive consist of materials that do not conduct electricity. These parts, which have been tested and are aluminum compatible, are also available as replacement parts. Refer to Electronic Parts Catalog (ETKA).

### Note:

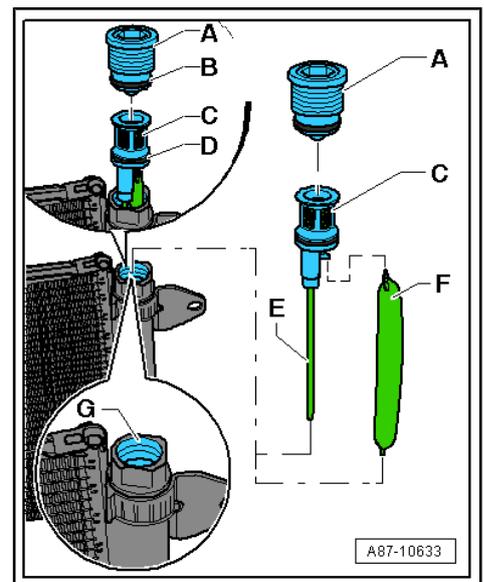
- ◆ Always install new parts if there is any doubt as to whether parts can be reused.
- ◆ Original equipment replacement parts are recommended. They have been tested and are compatible with aluminum. Refer to the Electronic Parts Catalog (ETKA).
- ◆ Audi accessories are recommended. Refer to Electronic Parts Catalog (ETKA).
- ◆ Damage due to contact corrosion is not covered by warranty.

## 1.11 Dryer Cartridge



### Note

- ◆ There are various versions of the condenser and the installed dryer cartridge -F- (the illustration shows the version installed on a 5 cylinder vehicle with a Denso condenser): Refer to the Electronic Parts Catalog (ETKA).
- ◆ The dryer cartridge -F- and the O-ring -B- are the same in all condenser versions. Should a repair set is not be available, either replace the condenser completely or use the parts from the repair set from another condenser (in this example, from the repair set from the condenser installed in the Audi A4 from MY 2008). Refer to the Electronic Parts Catalog (ETKA). Clean the plastic screw -A- and the filter -C- (with the tube-E-) before using them again. The O-ring -D- only seal inside the circuit and can be used again in this single case if it is not damaged.
- ◆ ⇒ [“5.18.6 Dryer Cartridge On Condenser”, page 166](#)
- ◆ ⇒ [“5.18.7 Dryer Cartridge On Modine Condenser”, page 168](#)
- ◆ ⇒ [“5.18.8 Dryer Cartridge, On Denso Condenser”, page 171](#).



## 1.12 Dust and Pollen Filter with Activated Charcoal Insert

- ◆ There are different versions of the dust and pollen filter (with and without an activated charcoal insert). Refer to the Electronic Parts Catalog (ETKA). An Audi TT with A/C has a dust and pollen filter with an activated charcoal insert installed. An Audi TT without A/C has a dust and pollen filter without the activated charcoal insert.
- ◆ The activated charcoal filter element functions as a dust and pollen filter, however in addition the activated charcoal filter can also filter out gaseous pollutants, for example, ozone, benzene, nitrogen dioxide from the air flow. The basic task of



the activated charcoal layer in the dust and pollen filter is to keep load peaks out of the passenger compartment.

- ◆ The activated charcoal also has the task of removing certain gaseous contaminants from the air flowing through. The activated charcoal layer in the dust and pollen filter reacts differently to various pollutants in the air.
- Certain pollutants bond permanently in the active-carbon layer.
- Others are converted into noxious bonds like in a catalytic converter.
- For the rest, the activated charcoal works as a condenser (capacitor). With increasing load pollutants are absorbed, until a certain saturation is reached. If the amount of pollutants decreases, the activated charcoal layer continuously releases the absorbed particles.
- ◆ Because a portion of the gaseous pollutant particles as well as dust and pollen bond permanently to the activated charcoal layer, it may be necessary for the following reasons to change the dust and pollen filter earlier than planned on vehicles that operate in areas with high levels of pollution:
  - the activated charcoal layer in the dust and pollen filter is saturated faster than planned.
  - a saturated filter can no longer absorb pollutants and the pollutants can flow through freely.

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### 1.13 Evaporator, Cleaning with Ultrasound A/C Cleaner

#### Tools required

- ◆ Ultrasound A/C Cleaner -VAS 6189- .
- ◆ Cleaning Fluid -VAS 6189/1-



#### Note

- ◆ *There are many different methods for cleaning the evaporator offered on the market. Currently Audi offers the -VAS 6189- which has been approved and released for cleaning the evaporator. If in the course of time additional procedures are tested and approved by Audi, related information will be found in "Audi ServiceNet".*
- ◆ *Odors from the air conditioning system can be caused by various things, only a portion of these odors come from the evaporator and can be corrected by cleaning it with, for example, the -VAS 6189- .*

Causes of Odor, refer to ⇒ ["4.3 Causes of Odor", page 89](#) .

#### Preparation

- Check whether odor is actually in A/C evaporator by switching from fresh air to recirculation.



#### Note

*The odor can only be removed by cleaning with the -VAS 6189- if it originates in the evaporator.*

- Check plenum chamber and water drain valves installed there and clean them if necessary. Refer to

⇒ ["4.10 Plenum Chamber Water Drain, Checking and Cleaning", page 100](#) .

- Remove dust and pollen filter and check it for odor and contamination. Refer to ["5.9 Dust and Pollen Filter", page 138](#) .

 **Note**

*On this vehicle, the dust and pollen filter is installed between Fresh Air Blower -V2- and evaporator, therefore it must be removed for the cleaning.*

- Clean the installation compartment for dust and pollen filter of heating and A/C unit of leaves, dust and other contaminants. Refer to ["5.9 Dust and Pollen Filter", page 138](#) .
- Reseal opening on A/C unit through which dust and pollen filter was removed.
- Start the engine.
- Adjust the Climatronic control module -J255- to "recirculation mode", and switch the A/C compressor off (the indicator lamp in the  is off).
- Open instrument panel vents and set the lowest temperature possible on the Climatronic control module -J255- ("Cold" temperature setting).
- Close the windows and the sunroof.
- Set Climatronic control module to lowest fresh air blow level and select "Instrument panel vent" for air flow direction.

**Cleaning**

- Shake the bottle of -VAS 6189/1- and then fill the -VAS 6189- . Be sure to read the Operating Instructions that come with the -VAS 6189- .
- Place -VAS 6189- in passenger side footwell.
- Start -VAS 6189- (according to operating instructions) and route outlet hose belonging to it so vapor escaping via A/C unit recirculated air opening (in passenger footwell behind glove compartment) is drawn in by Fresh Air Blower -V2- .
- Close vehicle doors.

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*The cleaning process takes about 15 to 20 minutes. It is complete when vapor no longer comes out of outlet hose.*

**Finishing steps**

- Switch -VAS 6189- off.
- Open vehicle doors and air out vehicle at least 10 minutes.
- Remove -VAS 6189- from vehicle and clean it according to operating instructions.
- Switch off ignition.
- Install dust and pollen filter. Refer to ["5.9 Dust and Pollen Filter", page 138](#) .

## 1.14 Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-



### Note

*Different versions. At the start of production, a Fresh Air Blower was installed, with Fresh Air Blower Control Module cast on the blower -V2- (cannot be replaced individually). In model year 2007, Fresh Air Blower Control Module and Fresh Air Blower that are bolted together (each can be replaced separately) will be introduced as a running change. Refer to Electronic Parts Catalog (ETKA).*

- ◆ Fresh air blower control module and fresh air blower, removing and installing, refer to  
⇒ ["5.11 Fresh Air Blower Control Module J126 and Fresh Air Blower V2", page 141](#) .
- ◆ Fresh Air Blower Control Module, removing and installing, refer to  
⇒ ["5.10 Fresh Air Blower Control Module J126", page 140](#) .

## 1.15 Painting Vehicles with A/C

When performing paint work repairs, object temperatures of 80° C are not to be exceeded in drying booths or their pre-heating areas.

### Reason:

Exposure to heat creates considerable pressure in the system, which could cause it to burst.

## 1.16 Performing Guided Fault Finding

- ◆ There are different versions of the Climatronic control module -J255- . Pay attention to precise assignment on replacement. Refer to Electronic Parts Catalog (ETKA).  
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- ◆ A/C system OBD is performed in the "Guided Fault Finding" function with the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ The Climatronic control module, can currently be exchanged as usual, component protection is not active at this time. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ If the Climatronic control module is supposed to be replaced, check the coding and adaptation before removing it using the "Replace Control Module" function, starting with Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

## 1.17 Refrigerant Circuit, Draining

Refrigerant is never to be allowed to escape into the atmosphere, but rather it is to be extracted from the refrigerant circuit using an extractor or A/C service station. The drained refrigerant will be locally recycled or is sent to an environment-recycling place to the manufacturer (different or additional laws may apply in individual companies). Transfer the vehicle to a workshop that has the necessary tools and equipment and where the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information (A/C Service Station).

**Reason:**

If refrigerant R134a is released into the environment, it enhances the green house effect.

 **Note**

- ◆ *Refrigerant R134a has far less of a greenhouse effect than R12.*
- ◆ *Because R-134a does not contain chlorine atoms, the major catalyst in ozone depletion, refrigerant R-134a has no ozone depletion potential. Depletion of the ozone layer in the upper atmosphere is however only brought about by the splitting of carbon-chlorine bonds (as is the case, for example, with refrigerant R12).*

After discharging the air conditioner, disconnect harness connector from A/C Compressor Regulator Valve -N280- or from the High Pressure Sensor -G65- .

**Reason:**

The A/C compressor regulator valve -N280- is no longer activated and the A/C compressor runs at idle. The A/C compressor is designed so the lubrication of the A/C compressor components at idle is guaranteed by an internal oil circuit (as long as there is enough refrigerant oil in the A/C compressor).

## 1.18 Refrigerant Circuit, Repairs

 **WARNING**  

*Before working on electrical system (wiring), remove relevant fuse(s).*

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 **Note**

*Disconnect battery before starting electric welding work on vehicle. Refer to⇒ Electrical Equipment; Rep. Gr. 27; Removal and Installation .*

The A/C refrigerant system may be drained and opened only if it is for safety reasons. Refer to ⇒ ["1.5 A/C and Refrigerant Safety Precautions", page 29](#) or if components of the A/C refrigerant system must be replaced. Refer to ⇒ ["1.17 Refrigerant Circuit, Draining", page 36](#) .

When performing all other usual vehicle repair work, the refrigerant circuit of the A/C system should remain closed.

 **Note**

*The connections for the senders/switches described in this Workshop Manual are fitted with a valve which closes automatically when the switches are unscrewed. These switches can thus be replaced in any Audi and Volkswagen workshop even though the refrigerant circuit is fully charged.*

Service work on the A/C system that require the refrigerant circuit to be discharged and thus cannot be performed in every Audi and VW workshop are described in ⇒ ["2.3 Refrigerant Circuit Components Overview", page 49](#) .



Certain tools are required to discharge the refrigerant circuit, these work procedures must only be performed by trained personnel as well. Therefore, bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel if necessary. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information .

Work on refrigerant system should only be performed in a ventilated rooms (workshops). Ensure that with in 5 meters circumference are no working-pits, basement staircases or shafts. Extraction systems are to be switched on.

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The refrigerant emerging is not only colorless and odorless, but also heavier than air and thus displaces oxygen. If refrigerant gas does escape even though all the safety precautions have been followed, there is a risk of suffocating in poorly ventilated areas and in workshop pits - even if it is not noticeable.

**Note**

*The escaping refrigerant/air mixture should not be inhaled, but should be sucked out via an existing exhaust ventilation system.*

Do not attempt repair on filled air conditioning systems by soldering, brazing or welding. This pertains also for welding and soldering work on the vehicle, in the event that parts of the climate control system may heat up

**Reason:**

Exposure to heat creates considerable pressure in the system, which could cause it to burst.

**Corrective action:**

Discharge refrigerant circuit. Refer to ⇒ ["1.17 Refrigerant Circuit, Draining"](#), page 36 .

**Note**

*Damaged or leaking parts of the air conditioner are never to be repaired by welding or soldering them; they are always to be replaced.*

When servicing air conditioner, all open components and pipe connections are to be immediately re-sealed.

**Reason:**

Moisture will enter into air conditioner components if they are left open for a lengthy period. If this is the case, air conditioners cannot be refilled without having to replace parts of the system.

## 1.19 Refrigerant Circuit, Servicing

**WARNING**

*Before working on electrical system (wiring), remove relevant fuse(s).*

 **Note**

*Disconnect battery before starting electric welding work on vehicle. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27](#); [Removal and Installation](#)*

The A/C refrigerant system may be drained and opened only if it is for safety reasons. Refer to ⇒ [“1.5 A/C and Refrigerant Safety Precautions”, page 29](#) or if components of the A/C refrigerant system must be replaced. Refer to ⇒ [“1.17 Refrigerant Circuit, Draining”, page 36](#) .

When performing all other usual vehicle repair work, the refrigerant circuit of the A/C system should remain closed.

Servicing operations that can be performed on the heating and air conditioning system without opening the refrigerant circuit are described in this Repair Manual. Refer to ⇒ [“1.2 A/C System Control and Regulation Components Outside Passenger Compartment”, page 25](#) .

 **Note**

*The connections for the senders/switches described in this Workshop Manual are fitted with a valve which closes automatically when the switches are unscrewed. These switches can thus be replaced in any Audi and Volkswagen workshop even though the refrigerant circuit is fully charged.*

Service work on the A/C system that require the refrigerant circuit to be discharged and thus cannot be performed in every Audi and VW workshop are described in

⇒ [“2.3 Refrigerant Circuit Components Overview”, page 49](#) .

Certain tools are required to discharge the refrigerant circuit, these work procedures must only be performed by trained personnel as well. Therefore, bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel if necessary. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00](#) ; [General Information](#) .

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**erWin**

**Note**

- ◆ *Refrigerant in refrigerant circuit is never to be topped up (drain, evacuate and refill circuit). Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation .*
- ◆ *Compressor is always driven when engine is running; there is no magnetic clutch. Engine is not to be started unless refrigerant circuit has been properly assembled. For example; if the refrigerant lines are not connected to A/C compressor, when the engine is running the A/C compressor may heat up (via internal heat generation) so much that the A/C compressor will be damaged. Such internal heat generation results from the fact that, even with delivery near 0%, the compressor is confronted with a fixed resistance (sealed circuit).*
- ◆ *To stop the A/C compressor from destroyed when the refrigerant circuit is empty, it is designed such that delivery is reduced to roughly 0% and lubrication is maintained by way of an internal oil circuit with the oil left in the A/C compressor.*
- ◆ *The entire amount of refrigerant oil to be added to the refrigerant circuit is in the replacement compressor. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .*
- ◆ *Different refrigerant oils are required for compressors made by Denso, Sanden and Zexel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .*
- ◆ *Beginning the production year 2006, the name of the "Zexel" A/C compressor was changed from "Zexel" to "Valeo".*
- ◆ *Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) .*
- ◆ *The specified diameters for O-rings and the tightening torque pertain also to the threaded connections of the refrigerant lines or refrigerant hoses between the separate components.*
- ◆ *Only install O-rings that have been approved to be used with refrigerant R134a. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) , ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation and to the Electronic Parts Catalog (ETKA).*
- ◆ *Check cooling performance; refer to ⇒ ["4.2 A/C Unit, Checking Cooling Output", page 79](#) .*
- ◆ *Check pressures in refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Diagnosis and Testing .*
- ◆ *All refrigerant circuit servicing and test procedures not described in this repair manual are covered in ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information .*
- ◆ *Appropriate current flow diagrams can be found in Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- ◆ *A data plate in engine compartment indicates the refrigerant used and capacity.*
- ◆ *Additional information for repairs on vehicles with an A/C system and for handling refrigerant can be found in ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information .*
- ◆ *Contact corrosion. Refer to ⇒ ["1.10 Contact Corrosion", page 33](#) .*

- ◆ Notes for performing Guided Fault Finding on the A/C system, refer to ⇒ [“1.16 Performing Guided Fault Finding”, page 36](#)
- ◆ Checking the electrical components on the A/C system, refer to ⇒ [“1.8 Checking Electrical Components”, page 31](#)
- ◆ Components Actuated by A/C System, Electrical Test. Refer to ⇒ [“4.4 Components Actuated by A/C System, Electrical Test”, page 91](#).
- ◆ Refrigerant circuit, servicing, refer to ⇒ [“2.11 Refrigerant Circuit, Servicing”, page 63](#).

## 1.20 Refrigerant Safety Precautions

The following safety measures should be observed for these refrigerants (additional guidelines apply in individual countries).

If is necessary to open the refrigerant circuit during service work, discharge the refrigerant circuit first. Refer to ⇒ [“1.17 Refrigerant Circuit, Draining”, page 36](#). In doing so, the utmost care is to be taken to avoid contact with liquid refrigerant or refrigerant vapors. Should refrigerant nevertheless escape, avoid inhaling the resultant refrigerant/air mixture.

Extraction systems are therefore to be switched on and use made of both rubber gloves and protective goggles.

### Reason:

Intensive exposure to refrigerant on unprotected parts of the body will result in frostbite.

 **WARNING**

*Keep an eye bath on hand.*

*If liquid refrigerant has come in contact with your skin and eyes, immediately flush with cool water for 15 minutes.*

*Then apply eye drops and consult a doctor immediately even if no pain is felt.*

*The doctor must be informed, which type of refrigerant caused the freezing.*

Should refrigerant come into contact with other parts of the body despite compliance with all the pertinent safety measures, these are similarly to be rinsed thoroughly in cold water without delay for at least 15 minutes.

Although refrigerant does not represent a fire hazard, smoking, welding, soldering and brazing are not permitted in areas exposed to refrigerant.

### Reason:

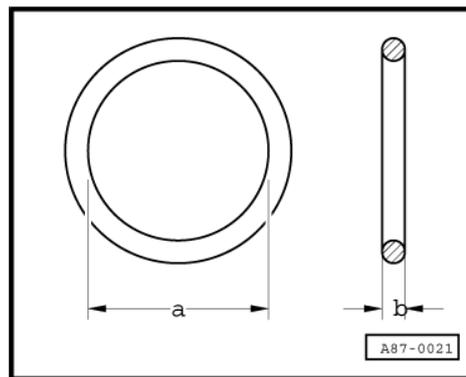
The high temperature of a naked flame or hot objects causes decomposition of refrigerant gas. Inhalation of the resultant toxic decomposition products leads to dry coughing and nausea.

## 1.21 Refrigerant Circuit O-rings

- ◆ Always use O-rings only once, replace.
- ◆ Coat O-ring seals with refrigerant oil before inserting.
- ◆ Make sure O-rings are seated properly on pipe or in groove.
- ◆ Perform the work under clean conditions (even the smallest deposit such as a hair may cause a leak).

**Note**

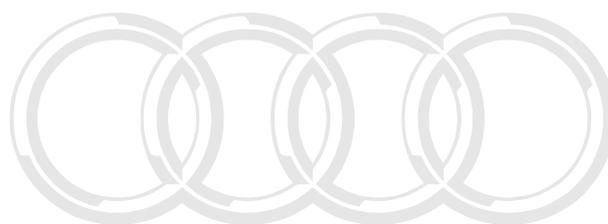
- ◆ Install only O-rings that are resistant to refrigerant R134a and corresponding refrigerant oil. The O-rings are color-coded to avoid mistakes (currently "red", "light purple" and "dark purple"). Refer to the Electronic Parts Catalog (ETKA).
- ◆ The O-ring dimensions -a- and -b- are different depending on installation location. Refer to the Electronic Parts Catalog (ETKA).
- ◆ In addition to the color-coded O-ring seals, use is also made at the factory of black O-ring seals for certain connections.



## 1.22 Refrigerant R134a

Refrigerant R134a and refrigerant oil capacities, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .

- Bleed, evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .



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Note

- ◆ Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- ◆ Depending on time period of production and on engine, compressor construction type may vary. Refer to Electronic Parts Catalog (ETKA).
- ◆ The R134a capacity will be different depending on the condenser version. A condenser on a 4 cylinder has a slightly lower capacity than a 6 cylinder. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .
- ◆ At start of production, A/C compressors manufactured by "Denso" (type "6 SEU 14") were installed. At a later point in time A/C compressors from other manufacturers (for example "Sanden", type "PXE 16" or "ZJX") can be installed. Refer to the Electronic Parts Catalog (ETKA) and to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .
- ◆ Depending on the type of A/C compressor, different refrigerant oil capacities are intended for the refrigerant circuit. Refer to Electronic Parts Catalog (ETKA) and ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .
- ◆ Compressor as replacement part has different oil fill capacities, therefore note the exact part number. Refer to Electronic Parts Catalog (ETKA) and ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications . The reason for the different oil capacities in the compressor is the design of the compressor itself, note these oil capacities. Too much oil in the circuit leads to higher pressures and reduces cooling performance of the system. Too little oil may lead to lubrication problems in the compressor.
- ◆ Always fill refrigerant circuit as far as upper tolerance limit (some refrigerant remains in filler hoses).
- ◆ The refrigerant circuit may only be filled with approved refrigerant oils. Refer to Electronic Parts Catalog (ETKA)
- ◆ Different refrigerant oils are required for A/C compressors made by Denso, Sanden and Zexel/Valeo. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications and to Electronic Parts Catalog (ETKA).
- ◆ Use only the specified oil from a sealed container and always reseal oil container immediately after use (PAG oil absorbs moisture). Do not use oil if it is contaminated with moisture or if oil container has been left open.
- ◆ Additional information, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .

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## 2 Description and Operation

⇒ [“2.1 Air Routing and Distribution in Passenger Compartment”, page 44](#)

⇒ [“2.2 A/C Unit Components”, page 46](#)

⇒ [“2.3 Refrigerant Circuit Components Overview”, page 49](#)

⇒ [“2.4 Belt Pulley, Denso A/C Compressor, Version 1”, page 52](#)

⇒ [“2.5 Belt Pulley, Denso A/C Compressor, Version 2”, page 53](#)

⇒ [“2.6 Components Outside of Passenger Compartment, Group 1”, page 55](#)

⇒ [“2.7 Components Outside of Passenger Compartment, Group 2”, page 57](#)

⇒ [“2.8 A/C Components Inside Passenger Compartment, Left Side”, page 59](#)

⇒ [“2.9 A/C Components Inside Passenger Compartment, Right Side”, page 61](#)

⇒ [“2.10 Air Flow Door Motor V71 , Function”, page 62](#)

⇒ [“2.11 Refrigerant Circuit, Servicing”, page 63](#)

⇒ [“2.12 Air Intake and Outlet Openings”, page 67](#)

⇒ [“2.13 Air Guide In Evaporator Housing”, page 68](#)

⇒ [“2.14 Air Guide In Air Distribution Housing”, page 69](#)

⇒ [“2.15 High Pressure Sensor G65 Signal”, page 72](#)

### 2.1 Air Routing and Distribution in Passenger Compartment



#### Note

- ◆ *Air intake apparatus, air outlet and air guide in A/C unit, refer to ⇒ [“2.12 Air Intake and Outlet Openings”, page 67](#), ⇒ [“2.13 Air Guide In Evaporator Housing”, page 68](#), and ⇒ [“2.14 Air Guide In Air Distribution Housing”, page 69](#).*
- ◆ *Component locations of individual components. Refer to ⇒ [“1.3 A/C System Control and Regulation Components Inside Passenger Compartment”, page 27](#), ⇒ [“1.3 A/C System Control and Regulation Components Inside Passenger Compartment”, page 27](#), ⇒ [“1.3 A/C System Control and Regulation Components Inside Passenger Compartment”, page 27](#) and ⇒ [“2.2 A/C Unit Components”, page 46](#).*
- ◆ *The ventilation of the passenger compartment occurs via two air extraction outlets (in luggage compartment right and left near the bumper). Refer to ⇒ [“4.9 Passenger Compartment Forced Air Extraction, Checking”, page 98](#).*
- ◆ *The air ducts and air distribution in the passenger compartment are identical in vehicles with and without A/C (equipped with heater only).*

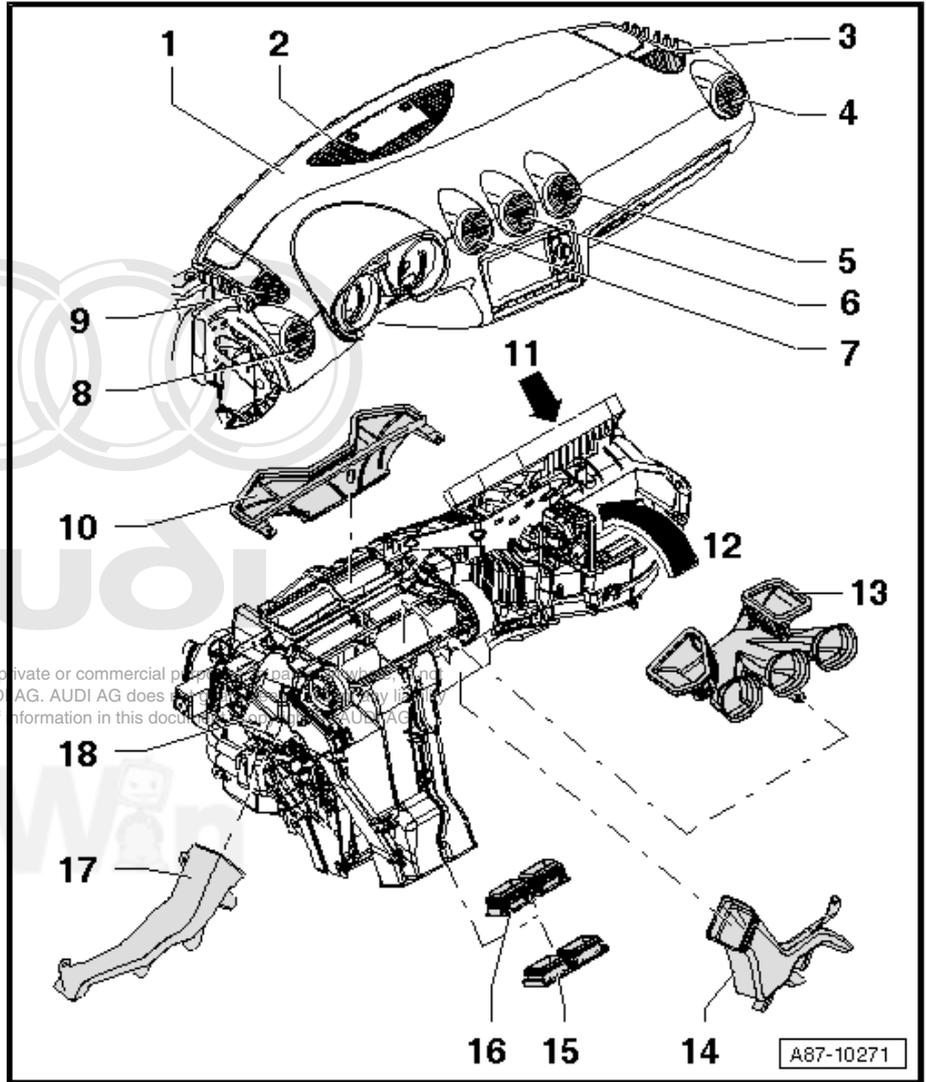
**1 - Instrument Panel**

- ❑ With air ducts to defroster vents and various instrument panel vents.
- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**2 - Defroster Vent/Front Window**

- ❑ Air duct to windshield.
- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- ❑ If the Intermediate piece between air conditioner (heater) and air duct in the instrument panel has been pinched during installation, the air guide to the front windshield is uneven or insufficient. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

- ❑ From May 2007, an A/C air distribution housing with a defroster door in the air outlet to the defroster vents in the instrument panel without a side cut-out is gradually being installed. With the introduction of the door with the side cut-out, the Climatronic control module -J255- is changed. Refer to ⇒ ["1.6 A/C Air Distribution Housing Defroster Outlet Door"](#), page 30 and to the Electronic Parts Catalog (ETKA). Make sure the correct Climatronic control module is installed and then check the adaptation using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.. On vehicles without A/C, the change to the door has no influence on the heater control (the door is controlled only by adjusting the Climatronic control module).



**3 - Defroster Vent/Right Side Window**

- ❑ Air duct to door window.
- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**4 - Instrument Panel Vent, Right**

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents"](#), page 152 and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**5 - Right Center Instrument Panel Vent**

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents"](#), page 152 and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**6 - Instrument Panel Vent, Center**

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents"](#), page 152 and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**7 - Left Center Instrument Panel Vent**

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents"](#), page 152 and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 8 - Instrument Panel Vent, Left

- Removing and installing instrument panel vents, refer to ⇒ [“5.16 Instrument Panel Vents“, page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- On vehicles with A/C, the Left Front Upper Body Outlet Temperature Sensor -G385- is installed in the air guide channel leading to the left instrument panel vent.

### 9 - Defroster Vent/Left Side Window

- Air duct to door window.
- Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 10 - Air Duct/Defrost Intermediate Piece

- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Installed between defroster vent and air conditioner (heater) outlet to defroster vent.
- If the Intermediate piece between air conditioner (heater) and air duct in the instrument panel has been pinched during installation, the air guide to the front windshield is uneven or insufficient. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 11 - Fresh Air Intake

- The air is extracted out of the plenum chamber. Refer to ⇒ [“5.12 Fresh Air Intake Cover“, page 142](#) .

### 12 - Removing Air From The Passenger Compartment (In Recirculating Air Mode)

- The air is taken from the passenger footwell under the glove compartment.

### 13 - Air Duct/Instrument Panel Vent Intermediate Piece

- To the three instrument panel vents in the center and to the left and right instrument panel vents.
- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- The air duct must engage in the A/C unit (heater) mount.

### 14 - Right Front Footwell Vent

- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 15 - Sealing Cap

- The outlet openings are always sealed, there is no vent installed in the rear center console.

### 16 - Sealing Cap

- The outlet openings are always sealed, there are no vents installed in the rear footwell.

### 17 - Left Front Footwell Vent

- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation

### 18 - A/C Unit (Heater)

- A/C unit (heater), removing and installing, refer to ⇒ [“5.3 A/C Unit“, page 108](#)
- Air intake, air outlet and air duct in A/C unit (in heater), refer to ⇒ [“2.12 Air Intake and Outlet Openings“, page 67](#) .

## 2.2 A/C Unit Components

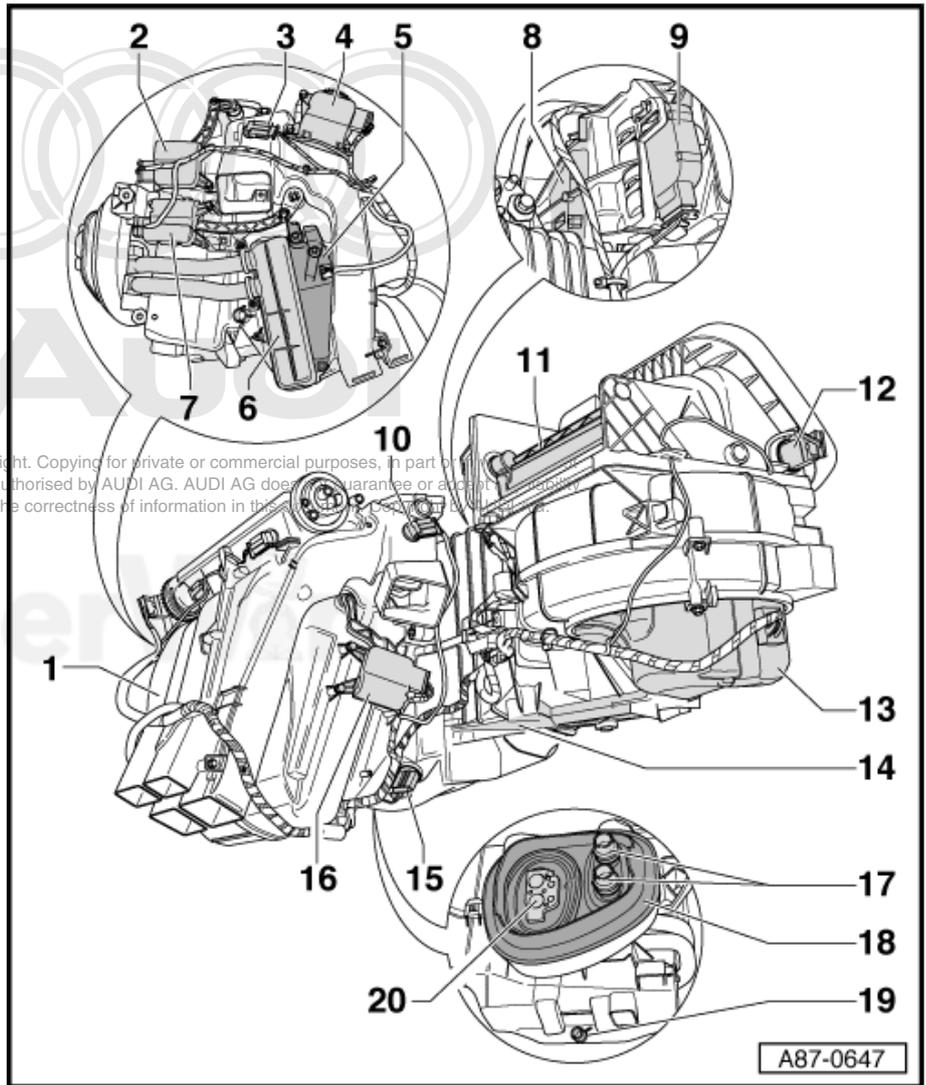
Observe notes for control and regulation of components in passenger compartment. Refer to ⇒ [“1.3 A/C System Control and Regulation Components Inside Passenger Compartment“, page 27](#) .

**i** Note

- ◆ *Air guide in air conditioner and in vehicle; refer to ⇒ ["2.13 Air Guide In Evaporator Housing", page 68](#) and ⇒ ["2.14 Air Guide In Air Distribution Housing", page 69](#).*
- ◆ *Heating & A/C unit, removing and installing; refer to ⇒ ["5.3 A/C Unit", page 108](#).*
- ◆ *The structure of the heater is basically the same as the A/C unit but there are differences because various components are not present ⇒ ["2.4 Heater Components", page 9](#).*

**1 - A/C Unit With Evaporator**

- ❑ May only be removed when refrigerant circuit has been discharged; bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Refer to⇒ [Refrigerant R134a Servicing; Rep. Gr. 00](#) ; General information .
- ❑ Heating and A/C unit, removing and installing, refer to ⇒ ["5.3 A/C Unit", page 108](#) .
- ❑ Heating and A/C unit, disassembling and assembling; refer to ⇒ ["6 Disassembly and Assembly", page 186](#) .
- ❑ Clean air conditioning system evaporator with Ultrasound A/C Cleaner -VAS 6189- . Refer to ⇒ ["1.13 Evaporator, Cleaning with Ultrasound A/C Cleaner", page 34](#) .



**2 - Defroster Door Motor - V107-**

- ❑ With Defroster Door Motor Position Sensor - G135- .
- ❑ Lever color identification: blue.
- ❑ Removing and Installing, refer to ⇒ ["5.8.3 Defroster Door Motor V107 ", page 131](#) .

**i** Note

**3 - Left Footwell Vent Temperature Sensor -G261-**

- ❑ Removing and installing, refer to ⇒ ["5.20.2 Left Footwell Vent Temperature Sensor G261 ", page 184](#) .

**4 - Central Air Door Motor -V70-**

- ❑ With Central Door Motor Position Sensor -G112- .

- Removing and installing, refer to ⇒ [“5.8.2 Central Air Door Motor V70 / V145 “, page 130](#) .

**Note****5 - Auxiliary Air Heater Heating Element -Z35-**

- Only intended for vehicles with Diesel engine.

**6 - Heater Core For Heater Unit**

- Removing and installing, refer to ⇒ [“5.14 Heater Core“, page 144](#) .

**7 - Left Temperature Door Motor -V158-**

- With Left Temperature Door Potentiometer/Actuator -G220- .
- Lever color identification: white.
- Removing and installing, refer to ⇒ [“5.8.4 Left Temperature Door Motor V158 “, page 133](#) .

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**8 - Back Pressure Door Motor -V71-**

- With Back Pressure Door Motor Position Sensor -G113- .
- Removing and installing, refer to ⇒ [“2.10 Air Flow Door Motor V71 , Function“, page 62](#) .

**9 - Recirculation Door Motor -V113-**

- With Recirculation Door Motor Position Sensor -G143- .
- Removing and installing, refer to ⇒ [“5.8.5 Recirculation Door Motor V113 “, page 135](#) .

**10 - Right Footwell Vent Temperature Sensor -G262-**

- Removing and installing, refer to ⇒ [“5.20.3 Right Footwell Vent Temperature Sensor G262 “, page 185](#) .

**11 - Intake Housing With Recirculating Air and Air Flow/Fresh Air Door**

- Removing and installing, refer to ⇒ [“5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door“, page 115](#) .

**12 - Temperature Sensor (Component Not Installed)**

- Depending on version of air intake shroud, there may be an opening here for installing the temperature sensor, the temperature sensor pictured is not installed on the Audi TT, if there is an opening in the air intake shroud, it is seal with a grommet if necessary.

**13 - Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-**

- Removing and installing, refer to ⇒ [“1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 “, page 36](#) .
- Different versions. At the start of production, a Fresh Air Blower was installed, with Fresh Air Blower Control Module cast on the blower -V2- (cannot be replaced individually). In model year 2007, Fresh Air Blower Control Module and Fresh Air Blower that are bolted together (each can be replaced separately) will be introduced as a running change. Refer to ⇒ [“1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 “, page 36](#) and Electronic Parts Catalog (ETKA).
- The Fresh Air Blower Control Module is installed in the Fresh Air Blower. Depending on the version, both of these components can be either replaced separately or only together.
- Checking, refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

**14 - Dust and Pollen Filter**

- Removing and installing, refer to ⇒ [“5.9 Dust and Pollen Filter“, page 138](#) .
- Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- With activated charcoal insert, refer to ⇒ [“1.12 Dust and Pollen Filter with Activated Charcoal Insert“, page 33](#) .

**15 - Evaporator Vent Temperature Sensor -G263-**

- Removing and installing, refer to ⇒ [“5.20.1 Evaporator Vent Temperature Sensor G263 “, page 184](#) .

### 16 - Right Temperature Door Motor -V159-

- With Right Temperature Door Potentiometer/Actuator -G221- .
- Removing and installing, refer to ⇒ [“5.8.6 Right Temperature Door Motor V159 “, page 137](#) .



Note

### 17 - Coolant Pipes To Heater Core

### 18 - Grommet

- For sealing any holes in the coolant/refrigerant lines through the plenum chamber bulkhead into the engine compartment.

### 19 - Condensation Water Drain Connection

- Condensation water drain valve, checking, removing and installing, refer to ⇒ [“4.5 Condensation Water Drain Hose, Checking“, page 92](#) .

### 20 - Expansion Valve

- Refrigerant lines, disconnecting and reconnecting, refer to ⇒ [“5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve“, page 180](#) .
- Removing and installing, refer to ⇒ [“5.18.10 Expansion Valve“, page 174](#) .



Note

## 2.3 Refrigerant Circuit Components Overview



Note

- ◆ *Repair work on refrigerant circuit, refer to ⇒ [“1.18 Refrigerant Circuit, Repairs“, page 37](#) .*
- ◆ *All work or components marked with <sup>1)</sup> can be repaired, replaced or performed in any workshop (work that does not pertain to refrigerant circuit).*
- ◆ *All parts or work on the refrigerant circuit not identified with <sup>1)</sup> as well as all refrigerant hoses and refrigerant lines can only be repaired or replaced in a workshop equipped with the necessary tools and where the procedures are performed by qualified personnel (the refrigerant circuit must be discharged). Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00; General Information .*

HD = High-pressure end

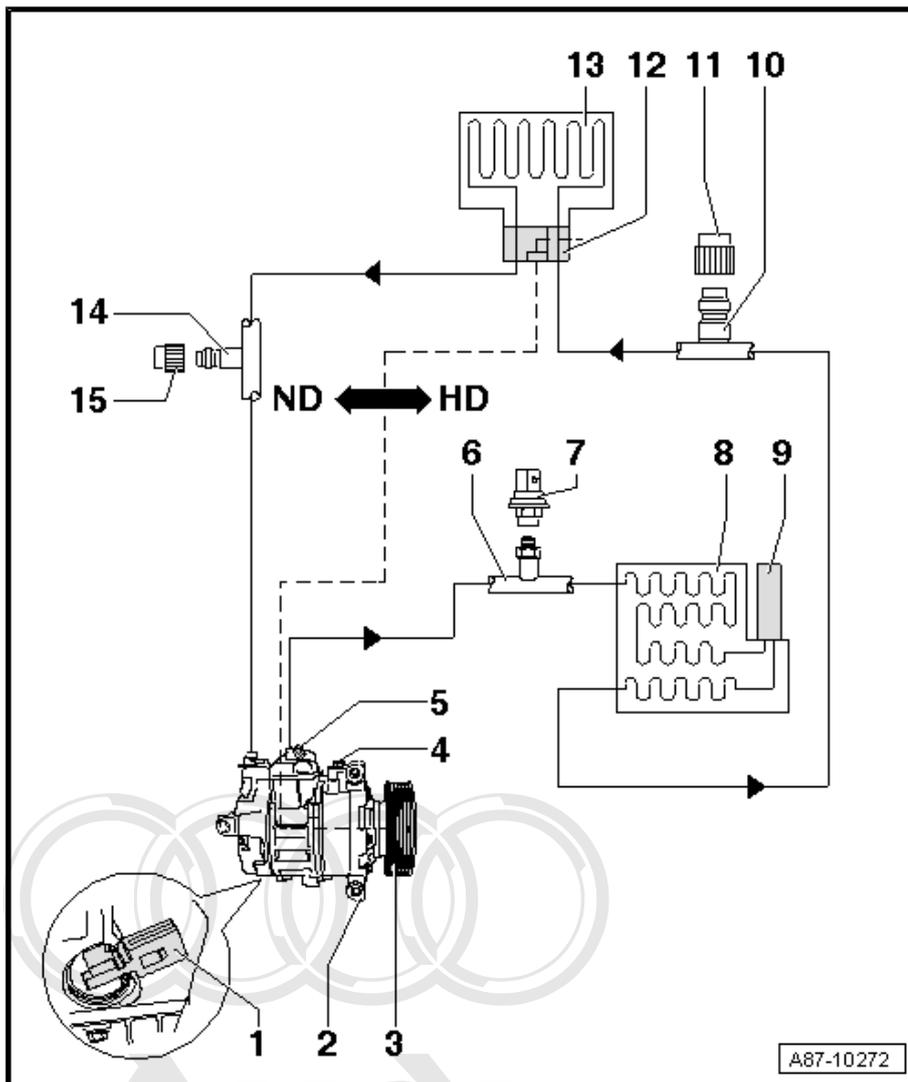
ND = Low-pressure end

### 1 - A/C Compressor Regulator Valve -N280-

- ❑ Checking activation and function. Refer to ⇒ [“4.1 A/C Compressor Regulator Valve N280, Checking Switch-On Signal”, page 76](#) <sup>1)</sup>.

### 2 - A/C Compressor

- ❑ Remove A/C compressor from and reinstall onto the bracket (4 or 6 cylinder engine). Refer to ⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#) <sup>1)</sup>.
- ❑ A/C Compressor, 5 Cylinder, removing from and installing on bracket. Refer to ⇒ [“5.2 A/C Compressor, Removing From Bracket”, page 106](#) <sup>1)</sup>.
- ❑ When installing refrigerant lines/hoses and pertaining bracket, make sure there is a sufficient gap between belt, bracket and belt pulley.
- ❑ Depending on time period of production and on engine, compressor construction type may vary. Refer to Electronic Parts Catalog (ETKA).
- ❑ At the start of production, the A/C compressors manufactured by “Denso” (type “6 SEU 14”) were installed. A/C compressors from other manufacturers (for example “Sanden”, type “PXE 16” or “ZJX”) can be installed later. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications and Electronic Parts Catalog (ETKA).
- ❑ These A/C compressors are available as replacement parts with different oil fill capacities, therefore note capacity on the A/C compressor and the exact part number. Refer to the Electronic Parts Catalog.
- ❑ Depending on A/C compressor type, different refrigerant oil fill capacities may be designated for the refrigerant circuit. The reason for the different oil capacities in the A/C compressor for an otherwise identical refrigerant circuit is the design of the compressor. Observe these oil capacities. Too much oil in the circuit leads to higher pressures and reduces cooling performance of the system. Too little oil may lead to lubrication problems in the compressor.



### 3 - Belt Pulley

- ❑ Replace <sup>1)</sup>. Refer to ⇒ [“1.1 A/C Compressor Belt Pulley, Replacement”, page 24](#) .
- ❑ Ribbed belt, removing and installing <sup>1)</sup>. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .
- ❑ Ribbed Belt Routing. Refer to Electronic Parts Catalog (ETKA).



Note

4 - Oil Drain Plug

5 - Pressure Relief Valve

6 - Connection With Valve

7 - High Pressure Sensor -G65- 1)

- Removing and installing, refer to ⇒ [“5.15 High Pressure Sensor G65 “, page 151](#) .
- Checking signal, refer to ⇒ [“4.8 High Pressure Sensor G65 , Checking Pressure Signal“, page 96](#) .

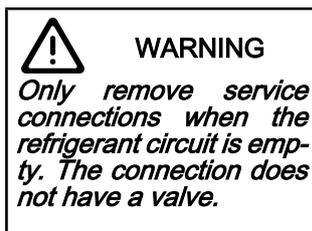
8 - Condenser

9 - Fluid Reservoir

- Fluid reservoir is mounted directly on the condenser.

10 - High Pressure Side Service Connection

- Different versions (with primary sealing valve or with Schrader valve) depending on refrigerant line, distinguishing characteristics, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (Refrigerant Circuit).
- For the A/C service station to measure pressures, to discharge and recharge the refrigerant circuit, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Diagnosis and Testing .
- Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.



11 - Sealing Cap

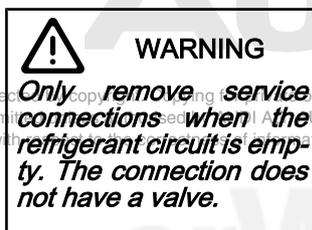
- With a seal
- Always screw on

12 - Expansion Valve

13 - Evaporator

14 - Low Pressure Side Service Connection

- Different versions (with primary sealing valve or with Schrader valve) depending on refrigerant line, distinguishing characteristics, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (Refrigerant Circuit).
- For the A/C service station to measure pressures and to discharge the refrigerant circuit, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Diagnosis and Testing .
- Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.



15 - Sealing Cap

- With seal
- Always screw on

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## 2.4 Belt Pulley, Denso A/C Compressor, Version 1



### Note

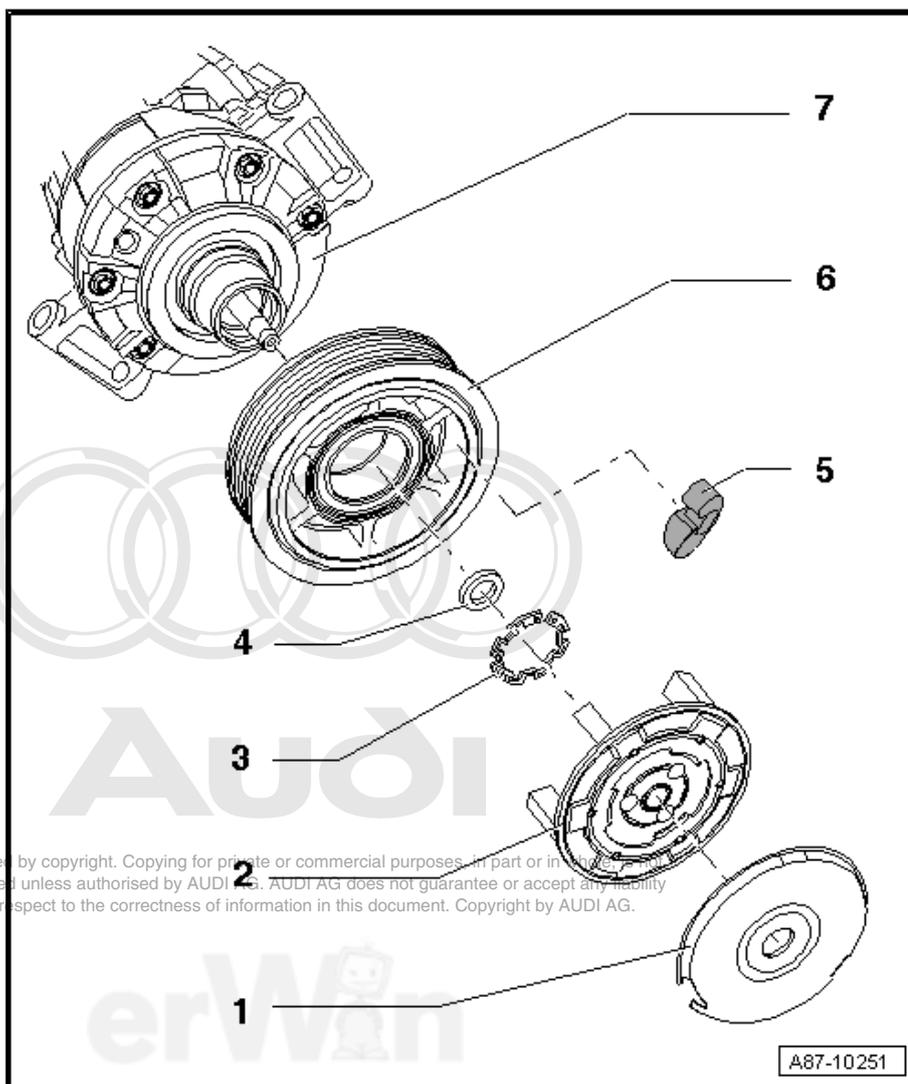
- ◆ If overload protection of pulley triggers, check the A/C compressor for ease of motion before replacing the pulley. If the A/C compressor creates friction, replace it completely.
- ◆ To remove belt pulley, it depends on engine version if it is necessary to remove A/C compressor from engine. Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket"](#), page 103.
- ◆ Different versions of the pulley may be installed, depending on A/C compressor construction type and engine version. Refer to Electronic Parts Catalog (ETKA).
- ◆ Belt Pulley, removing and installing, refer to ⇒ ["5.6.1 Denso A/C Compressor \(Version 1\)"](#), page 117.

### 1 - Circlip With Rubber Disc

- Remove carefully using a small screwdriver or needle-nose pliers (especially note belt pulley when doing this).
- Removing and installing, refer to ⇒ ["5.6.1 Denso A/C Compressor \(Version 1\)"](#), page 117.
- The rubber disc that is vulcanized on serves as noise insulation during low compressor output when engine is idling.

### 2 - Drive Plate

- Attached to the A/C compressor input shaft.
- Different versions. Refer to Electronic Parts Catalog (ETKA).
- The overload protection takes over when the torque is excessive (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- Removing and installing, refer to ⇒ ["5.6.1 Denso A/C Compressor \(Version 1\)"](#), page 117.
- Tightening specification 35 Nm.



### 3 - Circlip

- Replace
- Install on correct side (flat side toward A/C compressor).

- Removing and installing, refer to ⇒ [“5.6.1 Denso A/C Compressor \(Version 1\)”, page 117](#) .

#### 4 - Spacer

- Dimension: 17.5 x 10 x 3 mm

#### 5 - Rubber Elements

- 6x, install on proper side. Refer to ⇒ [“5.6.1 Denso A/C Compressor \(Version 1\)”, page 117](#) .
- Decouples belt pulley from compressor driveshaft, damps vibrations and noise.
- For installation, lightly coat rubber elements, for example, with tire mounting paste or a soap solution (as a lubricant).

#### 6 - Belt Pulley

- Belt pulley is made of plastic and is sensitive to impact, therefore handle it with especial care.
- Different versions. Refer to Electronic Parts Catalog (ETKA).
- Removing and installing, refer to ⇒ [“5.6.1 Denso A/C Compressor \(Version 1\)”, page 117](#) .

#### 7 - A/C Compressor

- Different versions may be installed, depending on engine version and country version of vehicle. Refer to Electronic Parts Catalog (ETKA).
- Clean A/C compressor flange before sliding on pulley.

## 2.5 Belt Pulley, Denso A/C Compressor, Version 2



### Note

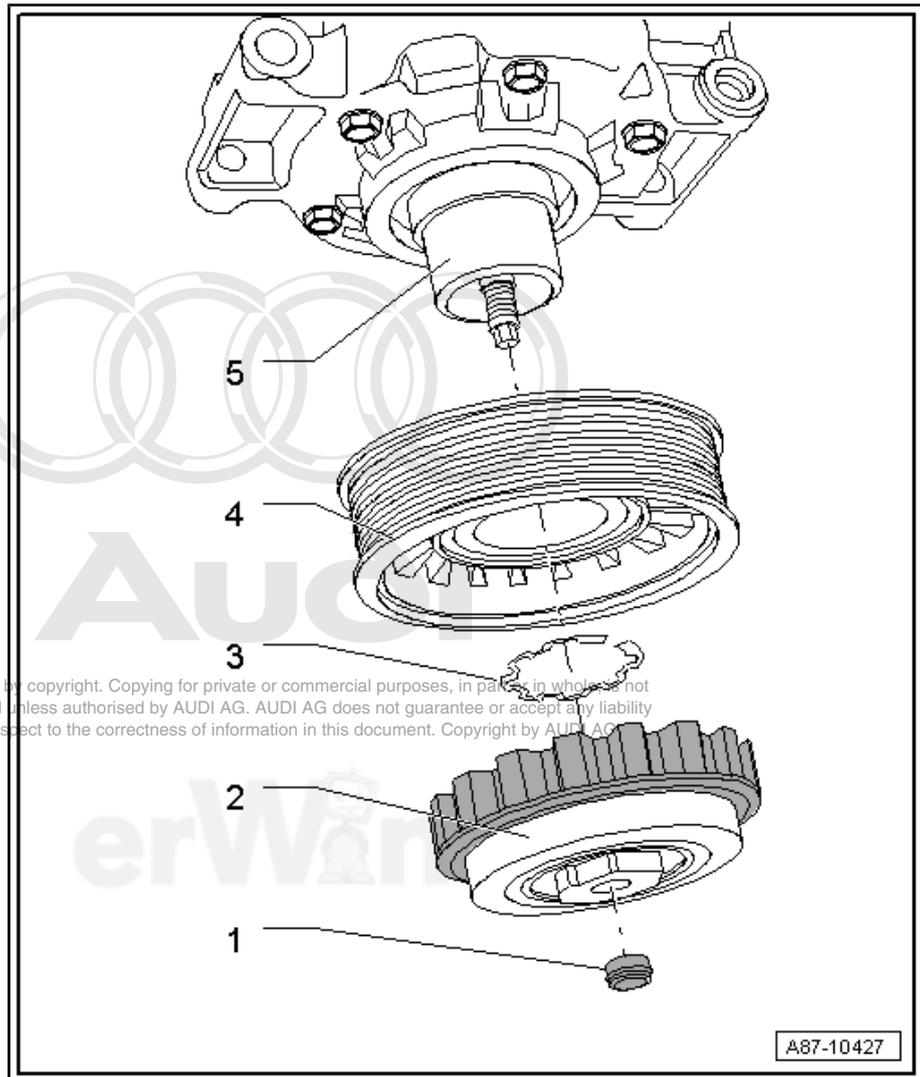
- ◆ *If overload protection of pulley triggers, check the A/C compressor for ease of motion before replacing the pulley. If the A/C compressor creates friction, replace it completely.*
- ◆ *To remove belt pulley, it depends on engine version if it is necessary to remove A/C compressor from engine. Refer to ⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#) .*
- ◆ *Different versions of the pulley may be installed, depending on A/C compressor construction type and engine version. Refer to Electronic Parts Catalog (ETKA).*
- ◆ *As a replacement part, the pulley with the drive plate and cap come under one part number. The belt pulley and the drive plate are held together with one bolt (when the bolt is no longer needed, dispose of it). When the bolt was manufactured, a predetermined amount of a specific grease was applied to the threads in the drive plate; this amount is sufficient for bolting the drive plate to the compressor one time (a drive plate, which has been removed, cannot be reused). Refer to Electronic Parts Catalog (ETKA).*
- ◆ *Belt pulley, removing and installing, refer to ⇒ [“5.6.2 Denso A/C Compressor \(Version 2\)”, page 119](#) .*

**1 - Cap****2 - Drive Plate**

- Replace
- Bolted with the A/C compressor driveshaft, clean the compressor shaft thread before mounting the drive plate.

**Note**

- Different versions. Refer to Electronic Parts Catalog (ETKA).
- The overload protection takes over when the torque is excessive (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- With rubber elements for decoupling belt pulley from A/C compressor input shaft, dampens vibrations and noise.
- For installation, lightly coat rubber elements, e.g. with tire mounting paste or a soap solution (as a lubricant)
- Removing and installing, refer to [⇒ "5.6.1 Denso A/C Compressor \(Version 1\)", page 117](#) .
- Tightening specification 30 Nm

**3 - Circlip**

- Replace
- install on correct side (flat side toward A/C compressor).
- Removing and installing, refer to [⇒ "5.6.1 Denso A/C Compressor \(Version 1\)", page 117](#) .

**4 - Belt Pulley**

- Belt pulley is made of plastic and is sensitive to impact, therefore handle it with especial care.
- Different versions (depending, for example, on the type of engine). Refer to Electronic Parts Catalog (ETKA).
- Removing and installing, refer to [⇒ "5.6.2 Denso A/C Compressor \(Version 2\)", page 119](#) .

**5 - A/C Compressor**

- Different versions may be installed, depending on engine version and country version of vehicle. Refer to Electronic Parts Catalog (ETKA).
- Clean A/C compressor flange before sliding on pulley.
- Clean the compressor shaft thread before installing the drive plate and lightly coat it the lubricant.

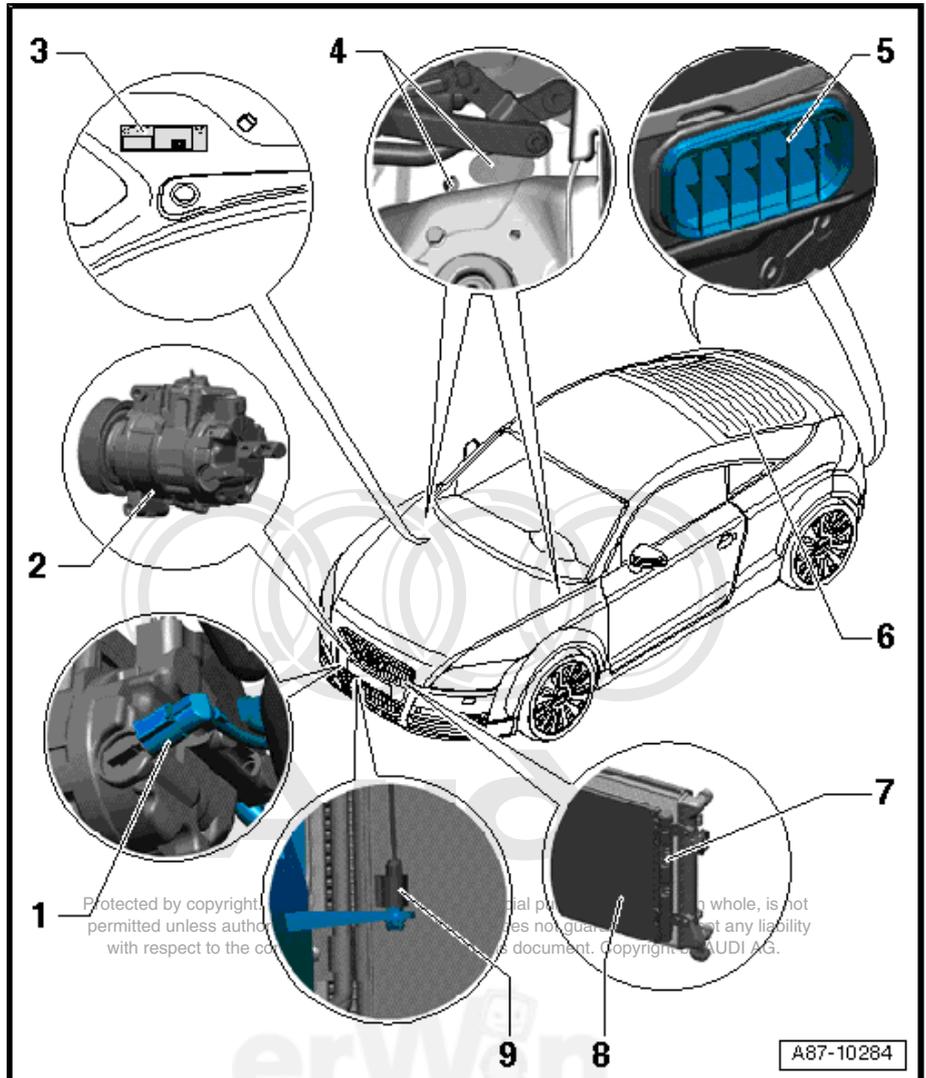
## 2.6 Components Outside of Passenger Compartment, Group 1

### 1 - A/C Compressor Regulator Valve -N280-

- ❑ For checking activation and functionality, refer to  
 ⇒ [“4.1 A/C Compressor Regulator Valve N280, Checking Switch-On Signal”, page 76](#) .

### 2 - A/C Compressor

- ❑ Remove A/C compressor from and reinstall onto the bracket (4 or 6 cylinder engine). Refer to  
 ⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#) .
- ❑ A/C Compressor, 5-Cylinder, removing from and installing on bracket). Refer to  
 ⇒ [“5.2 A/C Compressor, Removing From Bracket”, page 106](#) .
- ❑ A/C compressor refrigerant line, disconnecting and reconnecting, refer to  
 ⇒ [“5.18.1 A/C Compressor Refrigerant Lines”, page 154](#) .
- ❑ A/C compressor, removing and installing, refer to  
 ⇒ [“5.18.2 A/C Compressor”, page 157](#) .
- ❑ Depending on time period of production and on engine, compressor construction type may vary. Refer to  
 ⇒ [“2.3 Refrigerant Circuit Components Overview”, page 49](#) and Electronic Parts Catalog (ETKA).
- ❑ Ribbed belt, removing and installing. Refer to⇒ Engine, Mechanical; Rep. Gr. 13 ; Removal and Installation .



#### Note

- ❑ Replace the belt pulley. Refer to ⇒ [“1.1 A/C Compressor Belt Pulley, Replacement”, page 24](#) .

### 3 - Label

- ❑ With specifications for type of refrigerant and designated fill capacity. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications .

### 4 - Plenum Chamber Water Drains

- ❑ A water drain is installed at left and right in plenum chamber.
- ❑ Removing and installing, checking and cleaning. Refer to  
 ⇒ [“4.10 Plenum Chamber Water Drain, Checking and Cleaning”, page 100](#) .

### 5 - Forced Air Extractor

- ❑ A forced air extraction vent is installed at left and right under rear bumper.
- ❑ Sealing doors on air extraction vent must be able to move freely and close automatically.

- In order for the passenger compartment ventilation to function properly, the air ducts that run through the luggage compartment trim must be unobstructed.
- Checking, refer to ⇒ [“4.9 Passenger Compartment Forced Air Extraction, Checking”, page 98](#) .

#### 6 - Heated Rear Window -Z1-

- The command to heat the rear window is sent by the Climatronic control module -J255- via the Comfort databus system. The Heated Rear Window is controlled by the Vehicle electrical system control module -J519- . Refer to ⇒ Electrical Equipment; Rep. Gr. 97 ; General Information and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- Notes on function of heated rear window. Refer to ⇒ [“4.11 Rear Window Defogger, Checking”, page 101](#) .
- Removing and installing rear window. Refer to ⇒ Body Exterior; Rep. Gr. 64 ; Removal and Installation .



#### Note

#### 7 - Fluid Reservoir

- May be removed only after draining refrigerant circuit. Bring vehicle to a workshop that has the necessary tools and where the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information .
- Removing and installing, refer to ⇒ [“5.18.11 Fluid Reservoir”, page 175](#) .



#### Note

- Dryer cartridge (on a condenser with an integrated fluid reservoir), removing and installing, refer to ⇒ [“1.11 Dryer Cartridge”, page 33](#) .

#### 8 - Condenser

- May be removed only after draining refrigerant circuit. Bring vehicle to a workshop that has the necessary tools and where the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information .
- Different versions (depending on vehicle equipment level), refer to the Electronic Parts Catalog (ETKA).
- Refrigerant lines, disconnecting and reconnecting, refer to ⇒ [“5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser”, page 178](#) .
- Condenser, removing and installing, refer to ⇒ [“5.18.3 Condenser”, page 159](#) or ⇒ [“5.18.4 Condenser”, page 161](#) .

#### 9 - Outside Air Temperature Sensor -G17-

- Measured value of Outside Air Temperature Sensor -G17- is evaluated by Instrument Cluster Control Module -J285- and transmitted via Comfort CAN-Bus system to Climatronic control module -J255- . Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

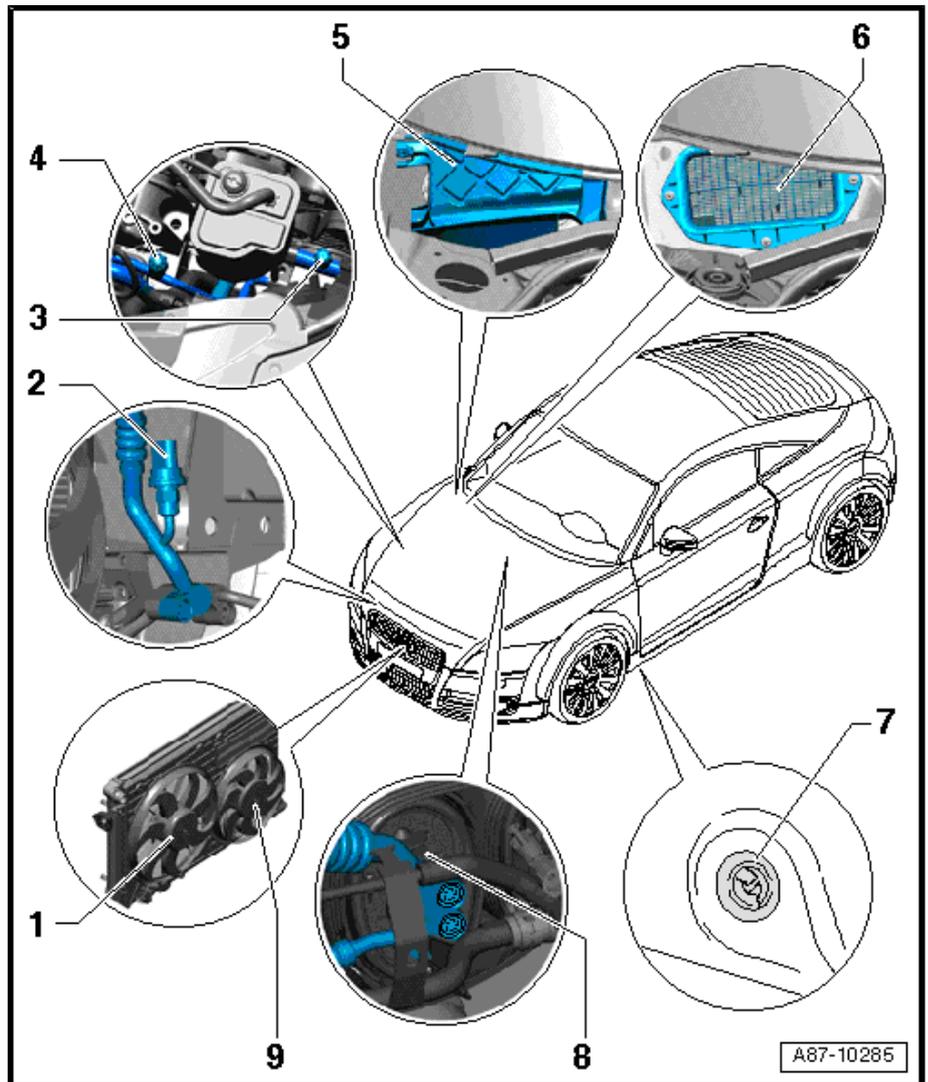
#### Removing and Installing

- Remove the bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .
- Disconnect connector on temperature sensor and unclip from mount in air duct.

## 2.7 Components Outside of Passenger Compartment, Group 2

### 1 - Coolant Fan -V7-

- ❑ Different versions of the Coolant Fan -V7- and Coolant Fan 2 -V177- are installed depending on vehicle equipment. Refer to Electronic Parts Catalog (ETKA).
- ❑ The request to switch on the Coolant Fan is sent by the Climatronic control module -J255- via the databus to the engine control module. The engine control module controls the (coolant fan and coolant fan 2) directly or by the Coolant fan control module -J293-. Refer to ⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ Check the radiator fan control by the Climatronic control module using the Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ The respective engine control modules switches, for example, the Coolant Fan and Coolant Fan 2 (directly via the Coolant Fan Control Control Module -J293- ) continuously to the desired output (depending on engine type). Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" and ⇒ Wiring diagrams, Troubleshooting & Component locations.



### 2 - High Pressure Sensor -G65-

- ❑ Function, removing and installing, refer to ⇒ ["5.15 High Pressure Sensor G65 ", page 151](#) .
- ❑ The High Pressure Sensor measured value is displayed in "Read measured value block" by the Climatronic control module -J255-. Refer to ⇒ ["4.8 High Pressure Sensor G65 , Checking Pressure Signal", page 96](#) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

### 3 - High Pressure Side Service Connection

- ❑ For measuring and discharging the refrigerant circuit, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation .
- ❑ Cap with seal, always install.
- ❑ Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.

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### 4 - Low Pressure Side Service Connection

- ❑ For measuring and discharging refrigerant circuit, refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation .
- ❑ Cap with seal, always install.



- Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.

#### 5 - Fresh Air Intake Cover

- Check the bonded seal for damage and proper seating. This seal prevents water from entering between window crossmember and cover and running into A/C unit air intake shroud.
- Removing and installing, refer to ⇒ [“5.12 Fresh Air Intake Cover”, page 142](#) and ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

#### 6 - Intake Grille For Fresh Air Intake

- Check for proper seating, prevents foreign objects (such as leaves) entering the A/C intake housing.
- Check the bonded seal for damage and proper seating. This seal prevents water from flowing through beneath the intake grille into heating & A/C unit intake housing.
- Removing and installing, refer to ⇒ [“5.12 Fresh Air Intake Cover”, page 142](#) .

#### 7 - Condensation Drain

- Checking, removing and installing, refer to ⇒ [“4.5 Condensation Water Drain Hose, Checking”, page 92](#) .

#### 8 - Expansion Valve

- Refrigerant lines, disconnecting and reconnecting, refer to ⇒ [“5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve”, page 180](#) .
- Removing and installing, refer to ⇒ [“5.18.10 Expansion Valve”, page 174](#) .



#### Note

#### 9 - Coolant Fan 2 -V177-

- Different versions of the coolant fan -V7- and coolant fan 2 -V177- are installed, depending on vehicle equipment. Refer to the ⇒ [Item 1 \(page 57\)](#) and Electronic Parts Catalog (ETKA).
- Additional information on function and activation ⇒ [Item 1 \(page 57\)](#) .



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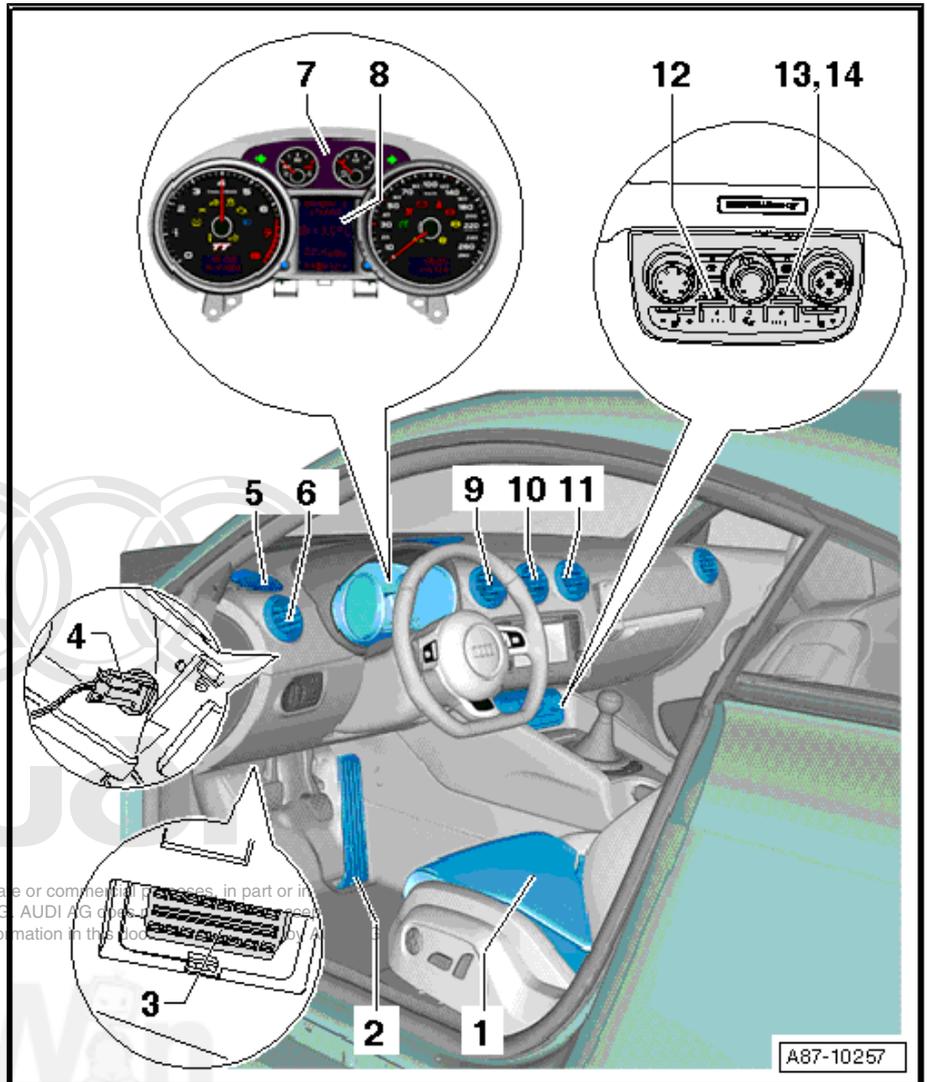
## 2.8 A/C Components Inside Passenger Compartment, Left Side

### 1 - Left Front Seat Temperature Sensor -G344- and Left Front Heated Seat -Z45-

- ❑ Seat heater is not installed in all vehicles (optional equipment).
- ❑ Activation of seat heater is displayed in Climatronic control module -J255-, checking use Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ Seat heating, servicing, refer to ⇒ Body Interior; Rep. Gr. 74 ; Removal and Installation .

### 2 - Accelerator Mechanism

- ❑ The kick-down switch-off for the A/C compressor by Climatronic control module -J255- (via the Compressor Regulator Valve -N280- ) is performed by request from the engine control module (data is exchanged over the CAN-Bus system). You can read the current activation status for the Compressor Regulator Valve on the measured values block for the A/C system of the Climatronic control module -J255- using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".



### 3 - Diagnostic Connection

- ❑ Perform On Board Diagnostic (OBD) on A/C system using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

### 4 - Left Front Upper Body Outlet Temperature Sensor -G385- ( Right Front Upper Body Outlet Temperature Sensor -G386- )

- ❑ Removing and installing, refer to ⇒ ["5.13 Front Upper Body Outlet Temperature Sensors G385 / G386 ", page 143](#) .
- ❑ This temperature sensor is always installed on the driver's side. The Left Front Upper Body Outlet Temperature Sensor -G385- is installed in the air guide channel leading to the left instrument panel vent.

### 5 - Defroster Vent/Left Side Window

- ❑ Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 6 - Instrument Panel Vent, Left

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 7 - Instrument Cluster Control Module -J285-

- ❑ With Outside Air Temperature Display -G106- .
- ❑ The Instrument Cluster Control Module evaluates the measured value of the Outside Air Temperature Sensor -G17- and then transmits it via the Comfort databus to the Climatronic control module -J255- .

Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

### 8 - Outside Air Temperature Display -G106-

- ❑ The Outside Air Temperature Display is a component of the Instrument Cluster Control Module -J285- .
- ❑ Measured value of Outside Air Temperature Sensor -G17- is evaluated by Instrument Cluster Control Module -J285- and transmitted via Comfort CAN-Bus to the Climatronic control module -J255- . Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ Check the temperature sensor measured values if the temperature display is incorrect using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".

### 9 - Left Center Instrument Panel Vent

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 10 - Instrument Panel Vent, Center

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 11 - Right Center Instrument Panel Vent

- ❑ Removing and installing instrument panel vents, refer to ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 12 - Climatronic Control Module -J255-

- ❑ Different versions, with or without seat heating switch, with different temperature unit (°C or °F) on temperature setting rotary switch, rotary switches with black or silver surface. For the allocation refer to the Electronic Parts Catalog (ETKA).
- ❑ 5 cylinder vehicle may only have A/C controls, part number 8J0 820,043 starting with index "D". Refer to the Electronic Parts Catalog (ETKA) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ Starting with model year 2011, A/C system control heads—part number 8J0 820,043, beginning with index "BA"—shall be gradually installed. These control modules possess an added function for the expanded change indicator that is part of the efficiency indicator for the on-board computer. Therefore, no A/C system control head with part number 8J0 820,043 up through index "G" may be installed in a vehicle containing an expanded change indicator in the on-board computer. Refer to Electronic Parts Catalog (ETKA), Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" and the owner's manual.
- ❑ Removing and installing, refer to ⇒ ["1.9 Climatronic Control Module J255 ", page 31](#) .
- ❑ The Instrument Panel Interior Temperature Sensor -G56- is integrated in the Climatronic control module (cannot be replaced separately).
- ❑ Interior Temperature Sensor Fan -V42- is installed in Climatronic control module -J255- , however it cannot be replaced individually. Refer to ⇒ ["5.17 Interior Temperature Sensor Fan V42 ", page 153](#) .
- ❑ Also observe additional notes for Climatronic control module. Refer to ⇒ ["1.9 Climatronic Control Module J255 ", page 31](#) .
- ❑ On Board Diagnostic (OBD) of Climatronic control module is to be performed as described in Guided Fault Finding using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ The buttons and rotary switches have LEDs, they cannot be replaced individually.
- ❑ The function and indicator lights in the buttons and in the rotary switches cannot be replaced separately.

### 13 - Interior Temperature Sensor Fan -V42-

- ❑ Climatronic control module -J255- installed.
- ❑ Interior Temperature Sensor Fan, removing and installing, refer to ⇒ ["5.17 Interior Temperature Sensor Fan V42 ", page 153](#) .

### 14 - Instrument Panel Interior Temperature Sensor -G56-

- ❑ Integrated in Climatronic control module -J255- , cannot be replace separately

## 2.9 A/C Components Inside Passenger Compartment, Right Side

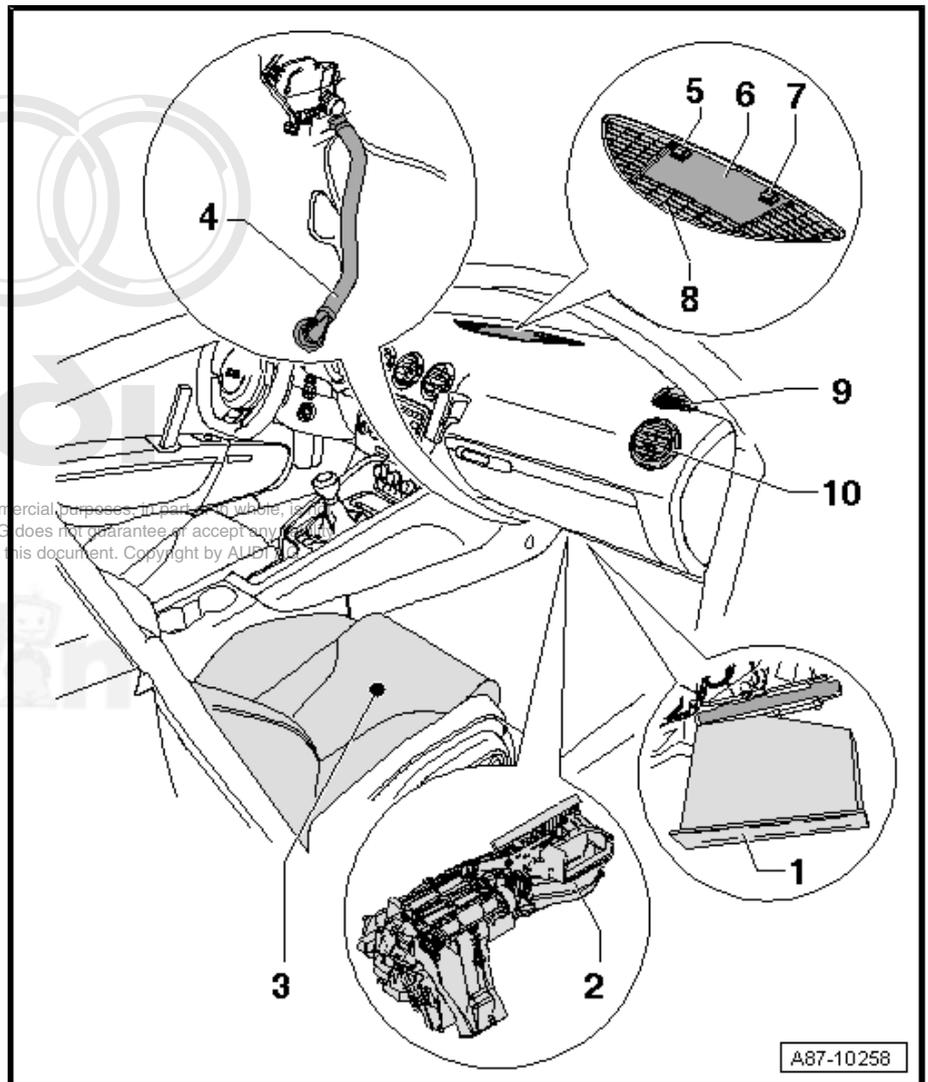
### 1 - Dust and Pollen Filter

- ❑ Removing and installing, refer to ⇒ ["5.9 Dust and Pollen Filter", page 138](#) .
- ❑ Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- ❑ With activated charcoal insert, refer to ⇒ ["1.12 Dust and Pollen Filter with Activated Charcoal Insert", page 33](#) .

### 2 - A/C Unit With Evaporator and Add-On Components

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- ❑ Air guide in air conditioner and in vehicle, refer to ⇒ ["2.13 Air Guide In Evaporator Housing", page 68](#) and ⇒ ["2.14 Air Guide In Air Distribution Housing", page 69](#) .
- ❑ Heating & A/C unit components, refer to ⇒ ["2.2 A/C Unit Components", page 46](#) .
- ❑ Clean air conditioning system evaporator with Ultrasound A/C Cleaner -VAS 6189- Refer to ⇒ ["1.13 Evaporator, Cleaning with Ultrasound A/C Cleaner", page 34](#) .



- ❑ Heating and A/C unit, removing and installing, refer to ⇒ ["5.3 A/C Unit", page 108](#) .

### 3 - Right Front Seat Temperature Sensor -G345- and Right Front Heated Seat -Z46-

- ❑ Seat heater is not installed in all vehicles (optional equipment).
- ❑ Activation of seat heater is displayed in Climatronic control module -J255- , checking use Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".
- ❑ Seat heating, servicing, refer to ⇒ Body Interior; Rep. Gr. 74 ; Removal and Installation .

### 4 - Condensation Drain

- ❑ Checking, removing and installing, refer to ⇒ ["4.5 Condensation Water Drain Hose, Checking", page 92](#) .

### 5 - Sunlight Photo Sensor -G107-

- ❑ Removing and installing, refer to ⇒ ["5.19 Sunlight Photo Sensor G107", page 183](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 6 - Cover For Loudspeaker In Center Instrument Panel

- ❑ Removing and installing cover, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

### 7 - Light Emitting Diode for Central Locking System

- ❑ Removing and installing, refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**8 - Defroster Vent/Front Window**

- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**9 - Defroster Vent/Right Side Window**

- Removing and installing, refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**10 - Instrument Panel Vent, Right**

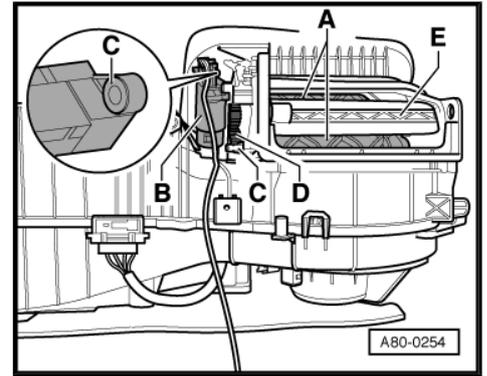
- Removing and installing instrument panel vents, refer ⇒ ["5.16 Instrument Panel Vents", page 152](#) and ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

**2.10 Air Flow Door Motor -V71- , Function****with Back Pressure Door Motor Position Sensor -G113-****Note**

- ◆ *You can check the adjustment motor's function via the "output diagnostic test mode" Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 volt DC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors", page 30](#) .*
- ◆ *Perform a basic setting on the A/C after installing a new motor. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".*
- ◆ *Use "output diagnostic test mode" and "basic setting" to test the activation of A/C (heater) electrical components, if necessary (for example, allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding".*

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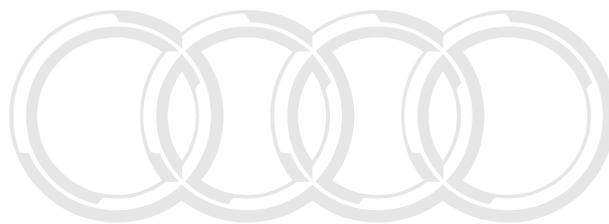
- ◆ The position of the back pressure door -A- is visible via the air intake opening in the plenum chamber when the recirculation door -E- is open (if necessary, remove plenum chamber cover and cover over fresh air intake. Refer to ⇒ ["5.12 Fresh Air Intake Cover"](#), page 142 ).
- ◆ For back pressure regulation (currently only intended on vehicles with A/C system), the fresh air intake channel is partially closed via the back pressure door -A- at high speeds (from approximately 80 km/h) by the Climatronic control module - J255- (position of recirculation door -E- is specified by the Climatronic control module).
- ◆ To reduce the change in noise from the fresh air blower -V2- due to different air intake when switching from fresh air to recirculation or vice versa, the airflow door motor -V71- and recirculation door motor -V113- are activated as follows:
  - When switching from fresh air to recirculation mode, the recirculation door -E- is first opened, then the fresh air intake channel is closed via the back pressure/fresh air door -A-.
  - When switching from recirculation to fresh air mode, the fresh air intake channel is first closed by the back pressure/fresh air door -A-, then the recirculation door -E- is closed.
  - In partial recirculation mode (currently only intended on vehicles with A/C system), the recirculation door -E- is opened and the back pressure/fresh air door -A- is brought into a center position by the Climatronic control module (fresh air and recirculation air channel are simultaneously opened slightly). This achieves improved cool-off in certain temperature ranges and simultaneously draws in a certain portion of fresh air as well.
- ◆ Airflow door motor -V71- , removing and installing, refer to ⇒ ["5.8.1 Air Flow Door Motor V71 "](#), page 126 .



## 2.11 Refrigerant Circuit, Servicing

HD = High-pressure end

ND = Low-pressure end



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### 1 - A/C Compressor Regulator Valve -N280-

- Do not remove.
- Check activation and function. Refer to ⇒ ["4.1 A/C Compressor Regulator Valve N280, Checking Switch-On Signal", page 76](#) .



#### Note

### 2 - A/C Compressor

- Remove A/C compressor from and reinstall onto the bracket (4 or 6 cylinder engine). Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) .
- A/C Compressor, 5 cylinder, removing from and installing on bracket, engine). Refer to ⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) .
- A/C compressor refrigerant line, disconnecting and reconnecting, refer to ⇒ ["5.18.1 A/C Compressor Refrigerant Lines", page 154](#) .



#### Note

- Remove ribbed belt. Refer to ⇒ Engine, Mechanical; Rep. Gr. 13 ; Removal and Installation .
- A/C compressor, removing and installing, refer to ⇒ ["5.18.2 A/C Compressor", page 157](#) .
- Depending on time period of production and on engine, compressor construction type may vary. Refer to Electronic Parts Catalog (ETKA).
- At the start of production, the A/C compressors manufactured by "Denso" (type "6 SEU 14") were installed. A/C compressors from other manufacturers (for example "Sanden", type "PXE 16" or "ZJX") can be installed later. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation and Electronic Parts Catalog (ETKA).
- These A/C compressors are available as replacement parts with different oil fill capacities, therefore note capacity on A/C compressor. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Specifications and the exact part number, refer to Electronic Parts Catalog (ETKA).

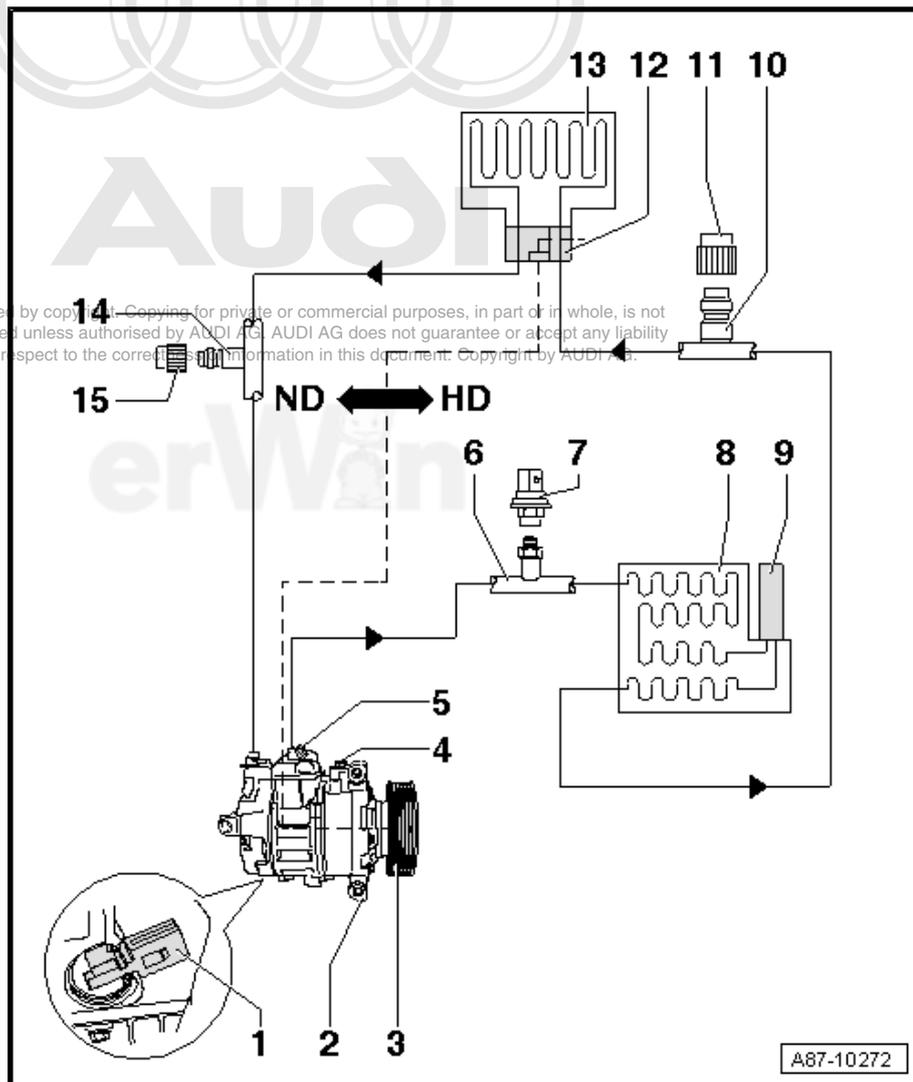


#### Note

- If a new compressor has been installed or new refrigerant oil has been put into the A/C compressor (for example, after blowing through the A/C system), the A/C compressor must be turned by hand approximately 10 revolutions. This ensures that the compressor is not damaged when activated.

### 3 - Belt Pulley

- Replacing, refer to ⇒ ["1.1 A/C Compressor Belt Pulley, Replacement", page 24](#) .
- Ribbed belt, removing and installing, refer to⇒ Engine, Mechanical; Rep. Gr. 13 ; Removal and Installation .
- Ribbed belt routing, refer to Electronic Parts Catalog (ETKA).



 Note

**4 - Oil Drain Plug**

- “Denso“ A/C compressors have sealing ring installed, always replace.
- “Sanden“ A/C compressors have an O-ring (8.8 mm x 1.5 mm) installed, always replace.
- “Denso“ A/C compressor tightening specification 30 Nm.
- Tightening specification for the “ Sanden“ A/C compressor: 10 Nm
- May only be removed to drain refrigerant oil with A/C compressor removed, (rotate the A/C compressor via belt pulley to accelerate refrigerant oil flowing out). Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .

**5 - Pressure Relief Valve**

- Do not remove.
- Tightening specification: “Sanden“- A/C compressor 14.5 Nm, “ Denso“- A/C compressor 10 Nm
- With O-ring gasket “Denso“- and “ Sanden“- A/C compressors each 8.5 mm x 1.75 mm, refer to ⇒ [“1.21 Refrigerant Circuit O-rings“, page 41](#) .

**6 - Connection With Valve**

- With the refrigerant circuit empty, use an adapter from the Socket for A/C Valves -T10364- to remove and install a valve insert.

 **WARNING**

*The valve insert may be removed only when the refrigerant circuit is empty.*

**7 - High Pressure Sensor -G65-**

- Removing and installing, refer to ⇒ [“5.15 High Pressure Sensor G65“, page 151](#) .
- Checking signal, refer to ⇒ [“4.8 High Pressure Sensor G65 , Checking Pressure Signal“, page 96](#) .

**8 - Condenser**

- Refrigerant lines, disconnecting and reconnecting, refer to ⇒ [“5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser“, page 178](#) .
- Condenser, removing and installing, refer to ⇒ [“5.18.3 Condenser“, page 159](#) or ⇒ [“5.18.4 Condenser“, page 161](#) .

**9 - Fluid Reservoir**

- Fluid reservoir is secured **directly onto condenser**.
- Coat O-ring seals lightly with refrigerant oil before installing. Refer to ⇒ [“1.21 Refrigerant Circuit O-rings“, page 41](#) .
- Replacing the O-ring seals. Refer to Electronic Parts Catalog (ETKA).
- Removing and installing, refer to ⇒ [“5.18.11 Fluid Reservoir“, page 175](#) .
- Different versions. Refer to Electronic Parts Catalog (ETKA).

 Note

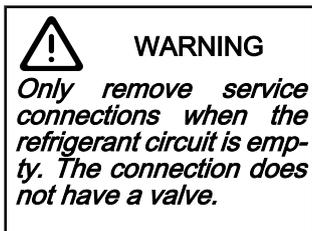
- Dryer cartridge (on a condenser with an integrated fluid reservoir), removing and installing, refer to ⇒ [“1.11 Dryer Cartridge“, page 33](#) .

**10 - High Pressure Side Service Connection**

- Different versions (with primary sealing valve or with Schrader valve) depending on refrigerant line, distinguishing characteristics. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (Refrigerant Circuit).
- For the A/C service station to measure pressures, to discharge and recharge the refrigerant circuit, refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- To remove and install the service connection or the valve insert with the refrigerant circuit empty, use, for example, an adapter from the Socket for A/C Valves -T10364- .



- Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.



#### 11 - Sealing Cap

- With seal
- Always screw on

#### 12 - Expansion Valve

- Refrigerant lines, disconnecting and reconnecting, refer to [⇒ "5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve", page 180](#).
- Removing and installing, refer to [⇒ "5.18.10 Expansion Valve", page 174](#).



#### Note

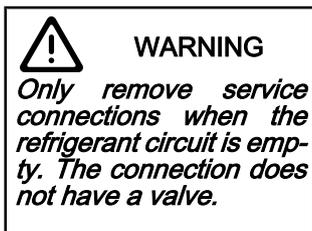
#### 13 - Evaporator

- A/C unit with evaporator, removing and installing, refer to [⇒ "5.3 A/C Unit", page 108](#).
- Removing and installing evaporator from heating & A/C unit, refer to [⇒ "5.18.9 Evaporator", page 172](#).

#### 14 - Low Pressure Side Service Connection

- Different versions (with primary sealing valve or with Schrader valve) depending on refrigerant line, distinguishing characteristics. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (Refrigerant Circuit).
- For the A/C service station to measure pressures and to discharge the refrigerant circuit, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- To remove and install the service connection or the valve insert with the refrigerant circuit empty, use, for example, an adapter from the Socket for A/C Valves -T10364-.
- Depending on engine version, it may be necessary to remove some components (for example, EVAP canister) in order to be able to connect to service coupling.

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#### 15 - Sealing cap

- With seal
- Always screw on

## 2.12 Air Intake and Outlet Openings

### 1 - Fresh Air Intake

- ❑ The air is extracted out of the plenum chamber. Refer to ["5.12 Fresh Air Intake Cover", page 142](#).

### 2 - Removing Air From The Passenger Compartment (In Recirculating Air Mode)

- ❑ The air is taken from the passenger footwell under the glove compartment.

### 3 - Outlet To Right Front Footwell Vent

### 4 - Outlet To Right Instrument Panel Vent

### 5 - Outlet To Center Instrument Panel Vents

### 6 - Outlet To Left Instrument Panel Vent

### 7 - Outlet To Left Front Footwell Vent

### 8 - Outlet To Instrument Panel Defroster Vents Instrument Panel

- ❑ From May 2007, an A/C air distribution housing with a defroster door in the air outlet to the defroster vents in the instrument panel without a side cut-out is gradually being installed. With the introduction of the door with the side cut-out, the Climatronic control module -J255- is changed. Refer to ["1.6 A/C Air Distribution Housing Defroster Outlet Door", page 30](#) and to the Electronic Parts Catalog (ETKA). Make sure the correct Climatronic control module installed and then check the adaptation using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding". On vehicles without A/C, the change to the door has no influence on the heater control (the door is controlled only by adjusting the Climatronic control module heater controls).

### 9 - Outlet To Right Rear Footwell Vent

- ❑ The outlet opening is always sealed with a sealing plug, there are no vents installed in the rear footwell.

### 10 - Outlet To Left Rear Footwell Vent

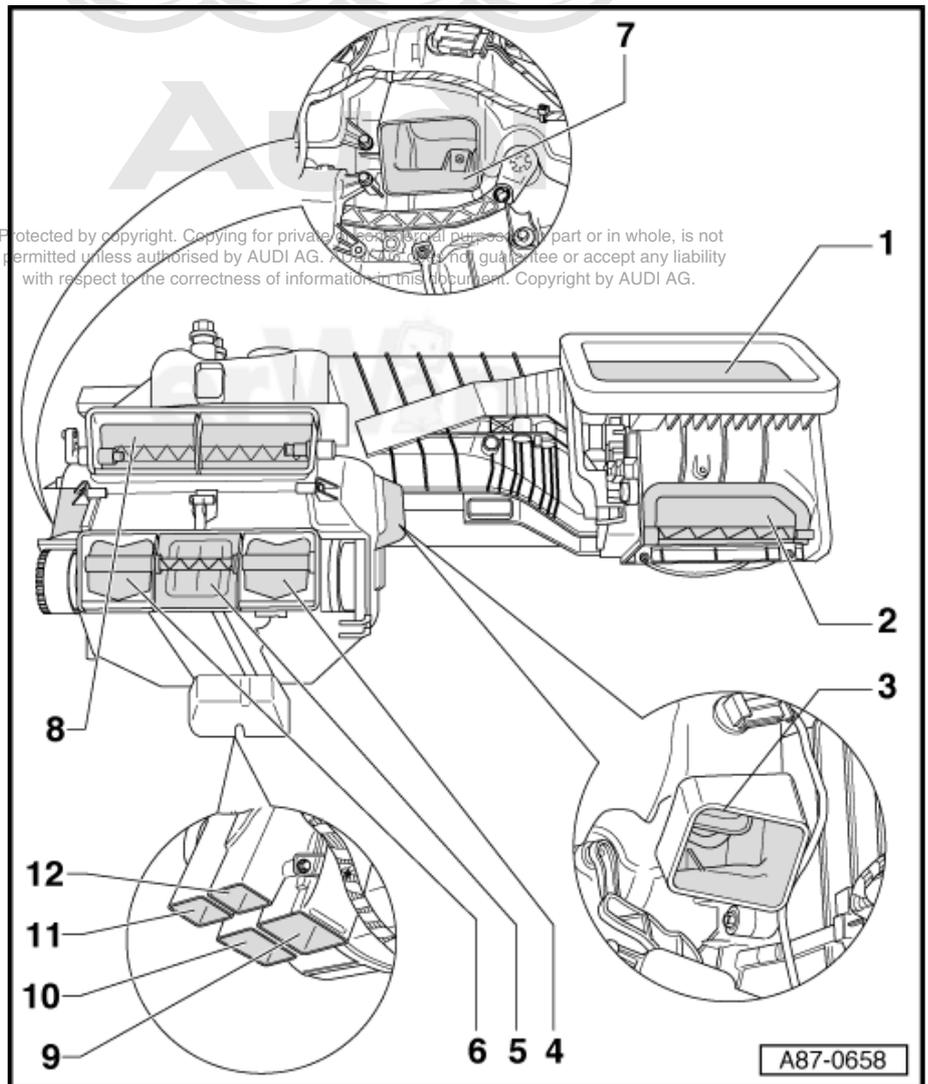
- ❑ The outlet opening is always sealed with a sealing plug, there are no vents installed in the rear footwell.

### 11 - Outlet To Vent In Rear Center Console

- ❑ The outlet openings are always sealed with a sealing cap, there is not vent installed in the rear center console.

### 12 - Outlet To Vent In Rear Center Console

- ❑ The outlet openings are always sealed with a sealing cap, there is not vent installed in the rear center console.



## 2.13 Air Guide In Evaporator Housing

(In Heater Air Guide Channel)

### 1 - Complete Evaporator Housing

- Air guide channel on vehicles without A/C (with heating only).

### 2 - Back Pressure/Fresh Air Door

- Shown in "open" position.
- Air conditioners (heaters) whose back pressure/fresh air door is operated by the Air Flow door Motor -V71- and whose recirculation door is operated by the Recirculation door Motor -V113- are installed.

### 3 - Recirculated Air Door

- Shown in "closed" position.
- Air conditioners (heaters) whose back pressure/fresh air door is operated by the Air Flow door Motor -V71- and whose recirculation door is operated by the Recirculation door Motor -V113- are installed.

### 4 - Fresh Air Blower -V2-

- With Fresh Air Blower Control Module -J126-

### 5 - Dust and Pollen Filter

- Follow the replacement intervals. Refer to Maintenance Intervals; Rep. Gr. 03.
- There are different versions of the dust and pollen filter (with and without an activated charcoal insert). Refer to the Electronic Parts Catalog (ETKA). An Audi TT with A/C has a dust and pollen filter with an activated charcoal insert installed. An Audi TT without A/C has a dust and pollen filter without the activated charcoal insert.

### 6 - Evaporator

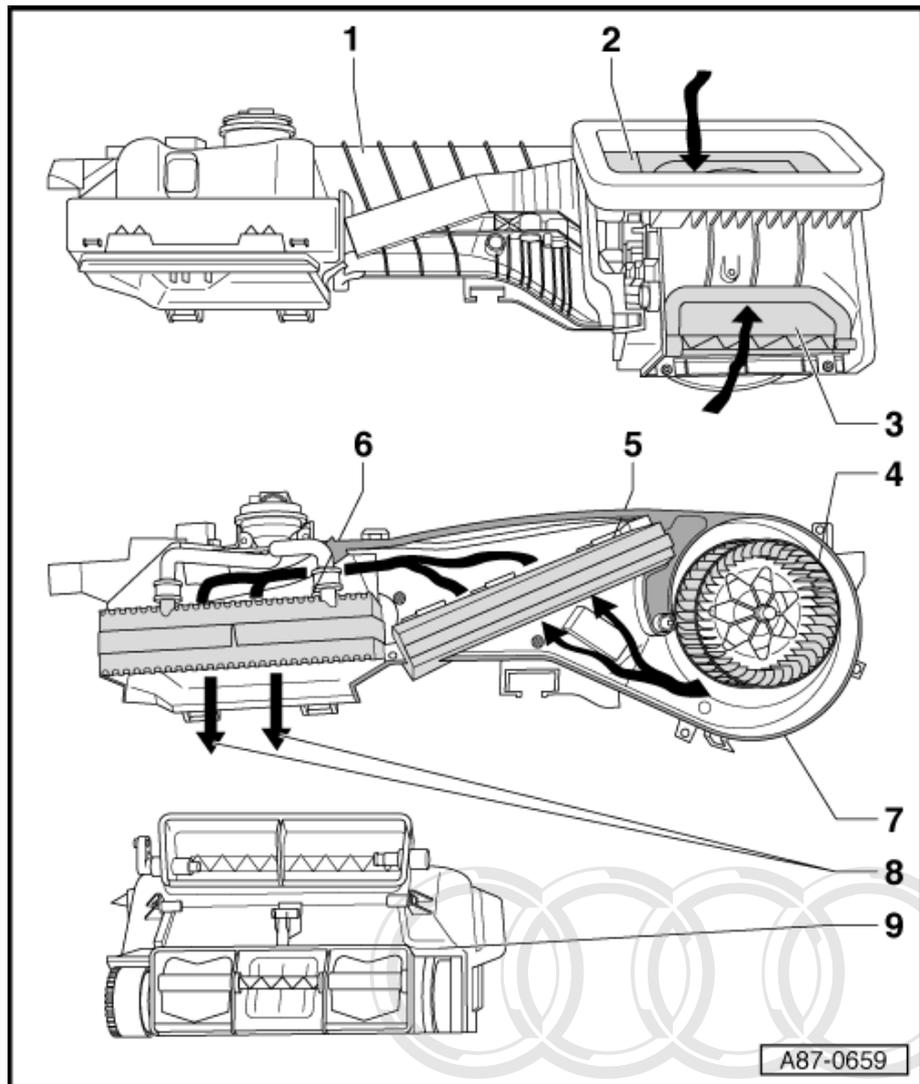
- In vehicles without A/C system (with heater only), a foam core piece is installed for noise insulation instead of evaporator.

### 7 - Lower Section Of Evaporator Housing (With Installed Components)

- Air guide channel lower section, vehicles without A/C (with heating only).

### 8 - Air Outlet To Air Distribution Housing

### 9 - Air Distribution Housing



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## 2.14 Air Guide In Air Distribution Housing



### Note

- ◆ *To illustrate air guide in the air distribution housing, it is shown in the form of sectional views "A" - "A" and "B" - "B".*
- ◆ *On the Audi TT with A/C system, both motors for left and right temperature doors are controlled via one characteristics curve, depending on the programmed end stops (only one temperature setting on the Climatronic control module - J255- ).*
- ◆ *Depending on the measured temperatures, the calculated sunlight intensity and setting on Climatronic control module, the calculated specified outflow temperature and therefore, the specified position of the temperature doors, may be different for the left and right side.*
- ◆ *On the Audi TT with A/C (heating only), only one temperature door motor is installed. Both temperature doors for the left and right sides are connected via a shaft and moved together by the Left Temperature door Motor -V158-.*
- ◆ *Vehicles without A/C do not have a temperature sensor. The outflow temperature is not controlled. The Left Temperature Door Motor -V158- is placed in a position calculated according to the temperature setting and the programmed motor stop values by the Climatronic control module.*

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**1 - Air Distribution Housing**

**2 - Left Temperature Door (Driver Side)**

- Shown in the cooling position

**3 - Air Duct To Center Instrument Panel Vents**

- The air channel to the vent in the rear center console is always sealed with a sealing plug, there is no vent installed in the rear center console. Refer to ["2.12 Air Intake and Outlet Openings"](#), page 67.

**4 - Air Duct To Center Instrument Panel Vents**

- The air channel to the vent in the rear center console is always sealed with a sealing plug, there is no vent installed in the rear center console. Refer to ["2.12 Air Intake and Outlet Openings"](#), page 67.

**5 - Right Temperature Door (Front Passenger Side)**

- Shown in center position.

**6 - Left Footwell Door (Driver Side)**

- Shown in closed position.
- Central doors (left, right and center) and both footwell doors are operated with each other via curved washers installed on control motor or on shaft.

**7 - Air Guide Channel In The Driver Side Footwell**

**8 - Air Distribution Housing Sectioned Above Line "A"- "A"**

**9 - Auxiliary Air Heater Heating Element -Z35-**

- Only intended for vehicles with Diesel engine.

**10 - Heat Exchanger For Heater Unit**

**11 - Air Outlet From Evaporator Housing**

- Air inlet from heater air duct housing (on vehicles without A/C system).

**12 - Right Temperature Door (Front Passenger Side)**

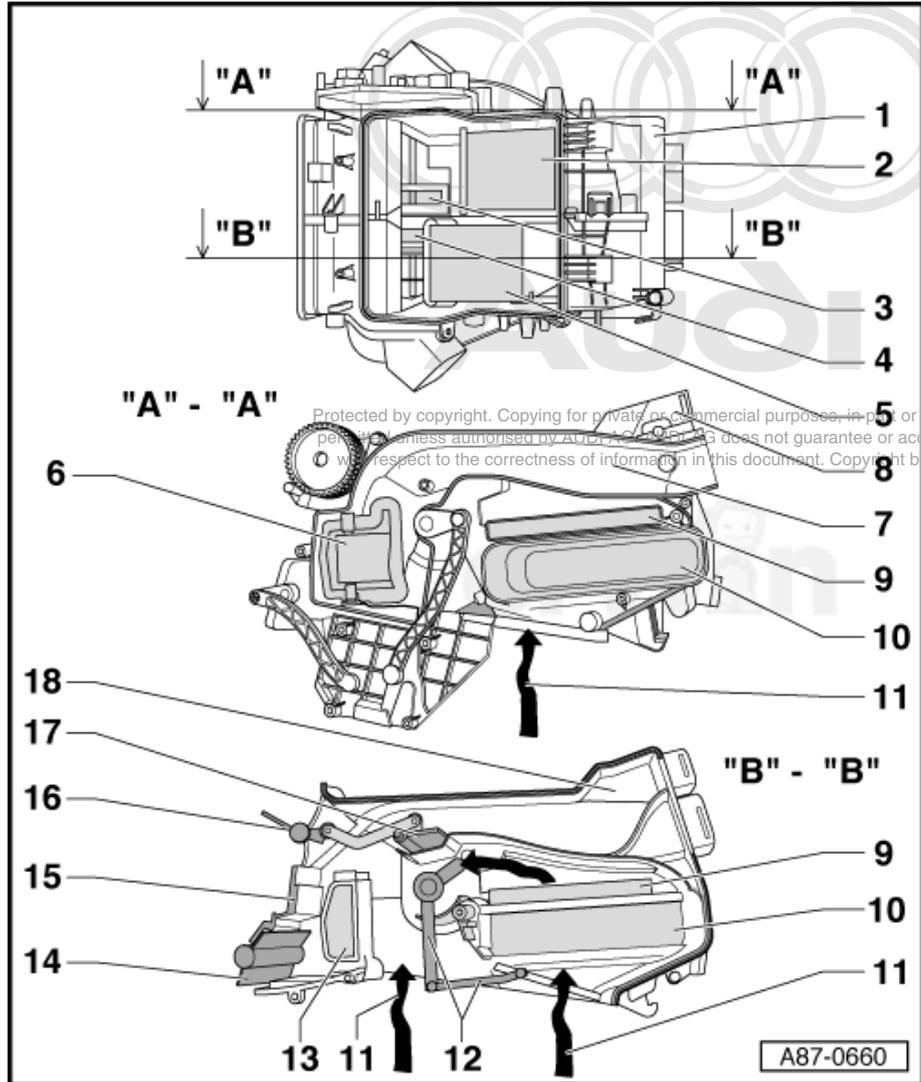
- Shown in center position.

**13 - Right Footwell Door (Front Passenger Side)**

- Shown in closed position.
- Central doors (left, right and center) and both footwell doors are operated with each other via curved washers installed on control motor or on shaft.

**14 - Defroster Door**

- Shown in closed position.
- From May 2007, an A/C air distribution housing with a defroster door in the air outlet to the defroster vents in the instrument panel without a side cut-out is gradually being installed. Refer to



⇒ [“1.6 A/C Air Distribution Housing Defroster Outlet Door”, page 30](#) . With the introduction of the door with the side cut-out, the Climatronic control module -J255- is changed. Refer to the Electronic Parts Catalog. Make sure the correct Climatronic control module installed and then check the adaptation using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding". On vehicles without A/C, the change to the door has no influence on the heater control (the door is controlled only by adjusting the Climatronic control module heater controls).

**15 - Air Distribution Housing Sectioned Above Line “B”-“B”**

**16 - Central Door “Center”**

- Shown in open position.
- Central doors (left, right and center) and both footwell doors are operated with each other via curved washers installed on control motor or on shaft.

**17 - Door In Air Guide Channel (To Vent In Rear Center Console)**

- This door is non-functional in the Audi TT, the air guide channel (to the vent in rear center console) is always sealed with a sealing plug, there is no vent installed in the rear center console. Refer to [“2.12 Air Intake and Outlet Openings”, page 67](#) .
- This door is operated via an actuating arm installed at center central door.

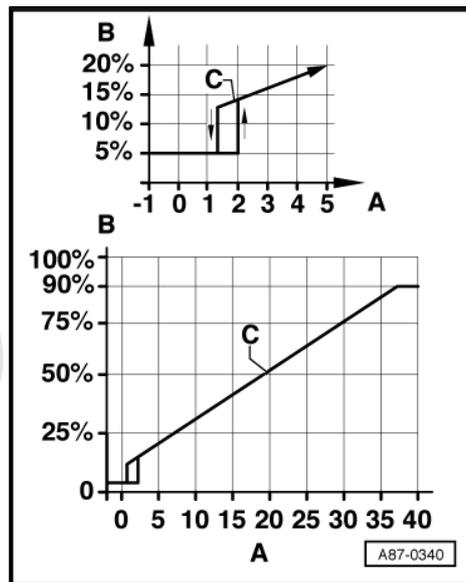
**18 - Air Guide Channel (To The Vent In The Rear Center Console)**

- This air guide channel leading to the vent in the rear center console is always sealed with a sealing plug, there is no vent installed in the rear center console. Refer to [“2.12 Air Intake and Outlet Openings”, page 67](#) .



## 2.15 High Pressure Sensor -G65- Signal

- A- Pressure on the high pressure side in the refrigerant circuit in bar (absolute pressure)
- B- square-wave signal duty cycle
- C- Characteristic curve.



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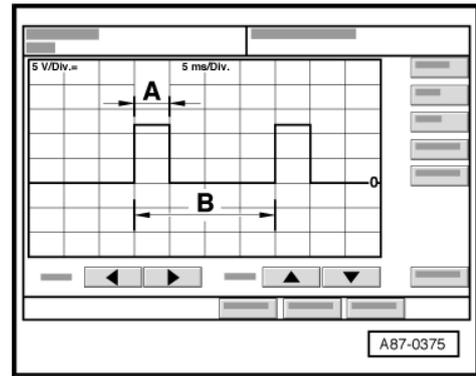


**Note**

- ◆ *As soon as there are no conditions for switching off the A/C compressor, the Climatronic control module -J255- switches the A/C compressor on (by activating the A/C compressor regulator valve -N280- ). Refer to Vehicle diagnosis, testing and information system -VAS5051B- in "Guided Fault Finding".*
- ◆ *The Climatronic control module switches the compressor on at a duty cycle larger than approximately 12% (corresponds to approximately 1.2 bar absolute pressure) and less than approximately 78% (corresponds to approximately 32 bar absolute pressure), if no other shut off criterion is in effect.*
- ◆ *The compressor is not switched on if the duty cycle is smaller than 12% or greater than 78% ( the Compressor Regulator Valve -N280- is not activated).*
- ◆ *The duty cycle and pressure calculated by the Climatronic control module is displayed in the measured value block. Refer to Vehicle diagnosis, testing and information system - VAS5051B- under "Guided Fault Finding".*
- ◆ *In terms of absolute pressure, 0 bar corresponds to an absolute vacuum. Normal ambient pressure equals approximately 1 bar absolute pressure. On the scales of most pressure gauges, 0 bar corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- ◆ *The Climatronic control module sends the calculated refrigerant circuit pressure via the Data bus. When the A/C compressor is activated, the coolant fan -V7- requests the engine control module for increased RPM's, and activates the coolant fan directly or via the Coolant fan control module -J293- . Depending on version with a certain pressure in the refrigerant circuit or not depending on pressure as soon as the A/C compressor is switched on. The request from the Climatronic control module is displayed in the measuring value block. Refer to Vehicle diagnosis, testing and information system - VAS5051B- under "Guided Fault Finding".*
- ◆ *The request to activate the coolant fan is currently only sent to the databus system by the Climatronic control module at a specified pressure in the refrigerant circuit. If the pressure in the refrigerant circuit is greater than approximately 9 bar (6 bar, if the pressure was previously greater than 9 bar) and less than 20 bar, a request from 30 to 100 % takes place, depending on pressure.*
- ◆ *If the pressure in the refrigerant circuit is less than 9 bar (6 bar if the pressure was greater than 9 bar before), there is no request at this time to activate the coolant fan from the Climatronic control module.*
- ◆ *If the pressure in the refrigerant circuit is greater than approximately 20 bar, there is no request at this time to activate the coolant fan from 100% from the Climatronic control module (depending on the version of the engine control module/ Coolant fan control module -J293- , the actual activation may be less than 100%).*
- ◆ *The signal generated from high pressure sensor is also used to control the engine. The Climatronic control module sends the information to the Engine Control Module (ECM) via the databus system (the necessary torque to drive the A/C compressor depends on the pressure in the refrigerant circuit). Depending on the version of the engine control module, the signal in the measured values block will be displayed as a duty cycle. Check using Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding", (the A/C system and, depending on engine, the fuel injection and ignition system or the diesel direct injection and glow plug system).*
- ◆ *Depending on the version of the high pressure sensor, an insufficient measuring value for the pressure in the refrigerant system will be sent by the high pressure sensor at low outside*

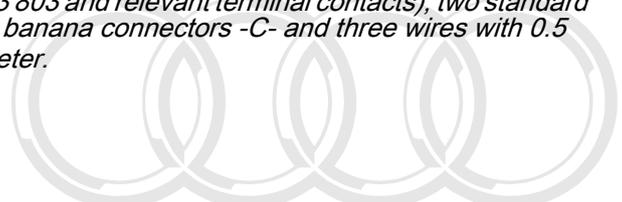
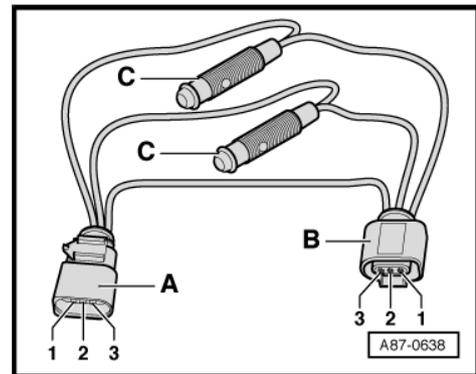
This pattern appears on oscilloscope screen (for example on Vehicle diagnosis, testing and information system -VAS5051B- ) when the following conditions are met.

- Ignition switched on (B+ at terminal 3 and Ground (GND) terminal 1 on high pressure sensor present)
- Making the adjustment on the oscilloscope: 5 volts/Division. = (5 volts per unit DC voltage) 5 ms / Div. (5 milliseconds per unit)
- Measuring lead (signal wire) connected to terminal 2 on high pressure sensor.
- Measuring lead (shielding) connected to terminal 1 (Ground - GND- on high pressure sensor).



### Note

- ◆ *The display shows a signal that is transferred when the pressure in the refrigerant circuit is approximately 7 bar, it corresponds to an approximate duty cycle of 25% (with compressor not engaged, an ambient temperature of 30 °C and properly filled refrigerant circuit).*
- ◆ *The impulse width -A- depends on the pressure in the refrigerant circuit (if pressure increases, area -A- gets wider).*
- ◆ *The signal distance -B- is always 20 milliseconds (corresponds to frequency of 50 Hertz).*
- ◆ *The duty cycle is determined by the ratio of impulse width -A- and signal distance -B-.*
- ◆ *Use the measuring leads from the Connector test set -V.A.G 1594/C- or an adapter lead for this test. To do this, for example, use one connector each -A- and -B- (part number 1J0 973,703 and 1J0 973 803 and relevant terminal contacts), two standard sockets for banana connectors -C- and three wires with 0.5 mm<sup>2</sup> diameter.*



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### 3 Specifications

⇒ **“3.1 Fastener Tightening Specifications”, page 75**

#### 3.1 Fastener Tightening Specifications

Component	Fastener Size	Nm
Air Intake Grille		3.5
Compressor Drive Plate		
Denso Version 1		35
Denso Version 2		30
Sanden Drive Plate		25
Compressor Mounting Bolts		25
Coolant Pipes to Heater Core		2.5
Expansion Valve to Evaporator Bracket		10
Fluid Reservoir On Condenser		10
High Pressure Sensor		8
Oil Drain Plug		
Denso		30
Sanden		10
Pressure Relief Valve		
Denso		10
Sanden		14.5
Refrigerant Lines to Compressor		25
Refrigerant Lines To Condenser		12
Refrigerant Lines to Expansion Valve		10

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## 4 Diagnosis and Testing

⇒ [“4.1 A/C Compressor Regulator Valve N280 , Checking Switch-On Signal”, page 76](#)

⇒ [“4.2 A/C Unit, Checking Cooling Output”, page 79](#)

⇒ [“4.3 Causes of Odor”, page 89](#)

⇒ [“4.4 Components Actuated by A/C System, Electrical Test”, page 91](#)

⇒ [“4.5 Condensation Water Drain Hose, Checking”, page 92](#)

⇒ [“4.6 Heating Performance Of A/C System, Checking”, page 93](#)

⇒ [“4.7 Heated Seats, Checking”, page 96](#)

⇒ [“4.8 High Pressure Sensor G65 , Checking Pressure Signal”, page 96](#)

⇒ [“4.9 Passenger Compartment Forced Air Extraction, Checking”, page 98](#)

⇒ [“4.10 Plenum Chamber Water Drain, Checking and Cleaning”, page 100](#)

⇒ [“4.11 Rear Window Defogger, Checking”, page 101](#)

⇒ [“4.12 Wiring and Component Testing with Test Box VAG 1598A”, page 101](#)

### 4.1 A/C Compressor Regulator Valve - N280- , Checking Switch-On Signal



#### Note

- ◆ *The test for an A/C compressor manufactured by “Denso” of type “6 SEU 14” is described in the following. Test is to be performed in the same way for vehicles with a different compressor type or a different manufacturer.*
- ◆ *Next, testing is described for vehicles equipped with a 2.0L TFSI and a 3.2L MPI engine. This procedure might be different for vehicles that have a different 4 or 6 cylinder engine, or a 5 cylinder engine.*

#### Preparation

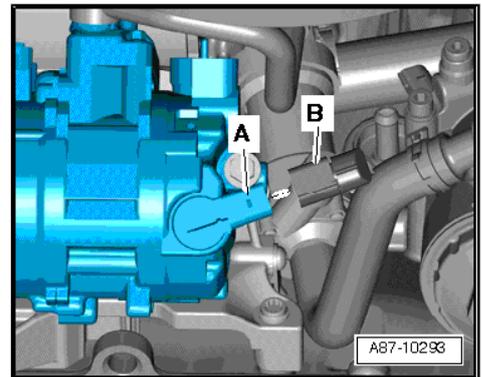
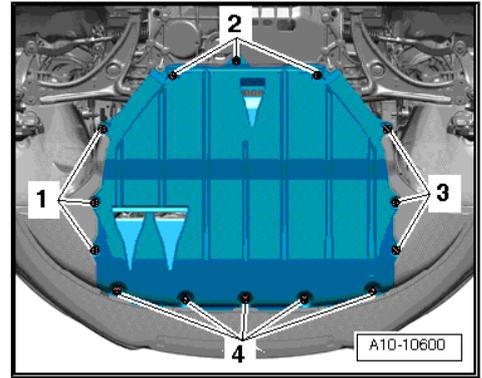
- Switch off ignition.
- Remove the engine cover (for example, on 4 cylinder vehicles, where the connector is accessible from the top; not necessary on a 2.0L TFSI vehicle). Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .

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- Remove the center noise insulation (for example, on 2.0L TFSI and 3.2L MPI vehicle, the connector is not accessible from the top). Refer to⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .

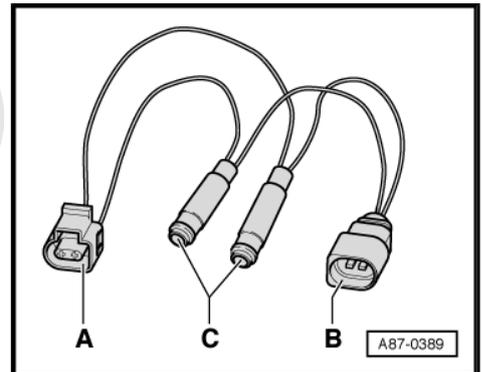
**Test Sequence**

- Disconnect electrical connector -B- on A/C Compressor Regulator Valve -N280- -A-.
- Re-establish the connection between connector -A- and connector -B- on A/C compressor regulator valve using an adapter cable from Connector test kit -V.A.G 1594 C- .



**i Note**

- ◆ The activation of the A/C compressor regulator valve and the current that flows through the A/C compressor regulator valve, and which the Climatronic control module -J255- measure, are displayed on the Climatronic control module measured values block. Check using Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- ◆ An adapter cable can also be used for this test. To do this, e.g. use one connector each -A- and -B- (part number 1J0 973 702 and 1J0 973 802 and relevant terminal contacts), two standard sockets for banana connectors -C- and two wires with 0.5 mm<sup>2</sup> diameter.



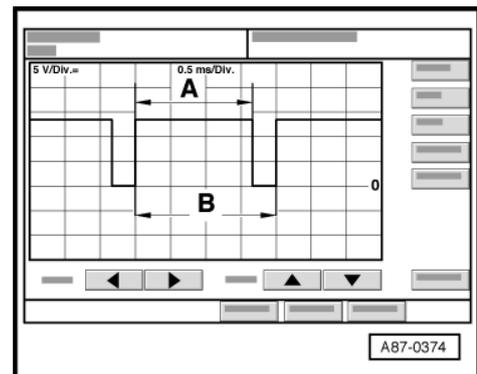
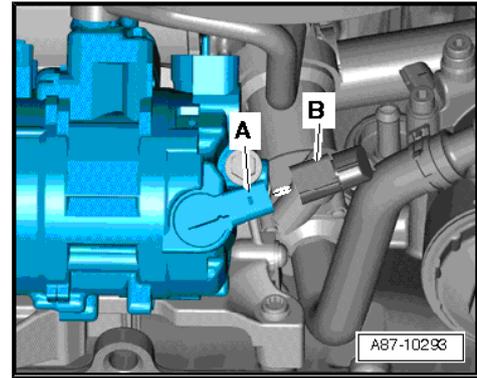
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- Connect DSO measuring leads 1 & 2 -VAS 5051/8- to the adapter leads.
- Measuring lead (signal wire) to terminal -2- of connector -B-
- Measuring lead (shielding, Ground) to terminal -1- of connector -B-
- Set operating mode Test Instruments DSO (Digital Storage Oscilloscope) on Vehicle diagnosis, testing and information system -VAS5051B- .
- Then select the 5 V/Div = 0.5 ms/Div (5V DC and 0.5 milliseconds per unit) setting.
- Start the engine.
- Set temperature preselect on Climatronic control module - J255- to "Cold" setting (maximum cooling performance)
- On Climatronic control module, switch activation of A/C Compressor Regulator Valve -N280- on and off by pressing the "AC" button (with indicator light when compressor is on).

Shown on screen of oscilloscope, depending on setting of Climatronic control module:

- In operating mode "OFF" or "AC off" (indicator light in "AC" button does not come on), no square wave signal (the A/C Compressor Regulator Valve is not activated).
- In operating mode "Auto" and "AC on" (indicator lights in buttons come on) and temperature preselect at "Cold" setting (maximum cooling output), a square wave signal with an impulse width -A- between 75% and 100% (the control valve is activated).

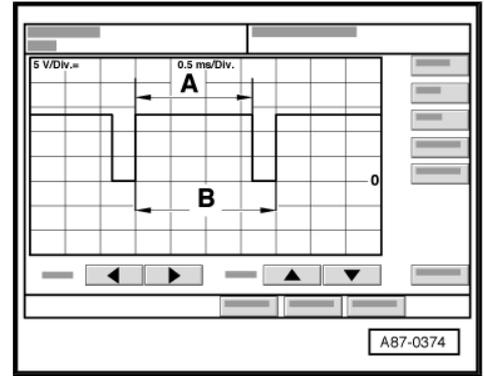


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**i** Note

- ◆ The Fig. shows a signal with a duty cycle of approximately 80%.
  - ◆ Impulse width -A- depends on the cooling performance desired, the electrical system voltage, etc. (over the width of region -A-; voltage is regulated via the A/C Compressor Regulator Valve by Climatronic control module).
  - ◆ The signal distance -B- is always 2 milliseconds (corresponds to frequency of 500 Hertz).
  - ◆ The duty cycle is determined by the ratio of impulse width -A- and signal distance -B-.
- The impulse width of the square wave signal changes (duty cycle between 100% and greater than 30%, regulator valve is activated so that required compressor output is obtained to reach the specified temperatures) depending on setting at Climatronic control module and measured surrounding conditions.



**i** Note

- ◆ Whenever the mode is adjusted to "Auto", and "AC On" (the indicator lamps on the buttons light up), and the temperature preset is set to stop "Cold", then the A/C compressor regulator valve is activated so that the maximum permissible current of approximately 0.65 A flows through the A/C compressor regulator valve (maximum A/C compressor output).
- ◆ In control mode, actuation time is governed by required cooling output and vehicle electrical system voltage, for example. It is however always of sufficient duration to achieve a mean current of 0.3 A.

## 4.2 A/C Unit, Checking Cooling Output

⇒ ["4.2.1 Cooling Performance Test Requirements", page 79](#)

⇒ ["4.2.2 Cooling Output, Checking", page 81](#)

⇒ ["4.2.3 Determining Malfunction if Specified Values Are Not Obtained", page 85](#)

⇒ ["4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction", page 88](#)

⇒ ["4.2.5 Ice Formation on Evaporator, Localizing Malfunction", page 88](#)

### 4.2.1 Cooling Performance Test Requirements

#### Special tools and workshop equipment required

- ◆ Vehicle diagnosis, testing and information system - VAS5051B- (or Vehicle Diagnosis and Service System -VAS 5052- ).
- ◆ A standard thermometer (for temperature measurements, if necessary a thermometer with 2 measuring probes for simultaneous measurement e.g. for temperature on the right and left)
- ◆ Ambient temperature greater than 15 °C



- ◆ Radiator and condenser are clean (if necessary clean)
- ◆ The ribbed belt, which drives the A/C compressor, is OK and is tensioned correctly. The ribbed belt is actually driving the A/C compressor.
- ◆ All air ducts, covers and seals OK and properly installed
- ◆ Air flow through dust and pollen filter not obstructed by dirt.
- ◆ Air intake apparatus (in fresh air and recirculating air mode) is not impaired by soiling or components installed as retrofit.
- ◆ Vehicle not exposed to sunlight
- ◆ Engine is warm
- ◆ Climatronic control module -J255- DTC memory was checked and erased, basic setting was performed and Climatronic control module coding was checked. Refer to -VAS5051B- under "Guided Fault Finding."
- ◆ The Climatronic control module was checked using -VAS5051B- under "Guided Fault Finding."
- ◆ All instrument panel vents open
- ◆ The hood is closed.
- ◆ Settings on Climatronic control module:
  - "Auto" operating mode (indicator light on the **AUTO** button lights up).
  - Turn the temperature rotary switch to "cold"
  - The A/C compressor is on (the indicator lamp on the **AC** button comes on).
  - Fresh air blower rotary switch in "maximum speed" stop.
- ◆ Functions with engine running:
  - The radiator fan ( Coolant fan -V7- and Coolant fan 2 -V177- ) run (activation and speed depend on pressure in coolant circuit and engine temperature).

**Note**

*Depending on the version of the Climatronic control module, the radiator fans (coolant fan and coolant fan 2) are only switched on at a certain pressure in the coolant circuit (currently, at a pressure of approximately 9 bar). The radiator fan(s) control is displayed in the measured values block using -VAS5051B- under "Guided Fault Finding."*

- Fresh Air Blower -V2- runs at maximum speed.
- The air conditioner goes in recirculation mode (approximately 1 minute after starting the vehicle, the back pressure/fresh air door is closed and the recirculation door is opened, Fresh Air Blower -V2- extracts the air from passenger compartment below instrument panel / glove compartment).

**Note**

*If one of these test requirements is not fulfilled, check the DTC memory, perform a final control diagnosis and read the measured values block using -VAS5051B- under "Guided Fault Finding."*

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## 4.2.2 Cooling Output, Checking

### Special tools and workshop equipment required

- ◆ Vehicle diagnosis, testing and information system - VAS5051B- (or Vehicle Diagnosis and Service System -VAS 5052- ).
- ◆ A standard thermometer (for temperature measurements, if necessary a thermometer with 2 measuring probes for simultaneous measurement e.g. for temperature on the right and left)

### Test requirements are met, refer to

⇒ **"4.2.1 Cooling Performance Test Requirements", page 79 .**

- Measure the ambient temperature (it must higher than 15 °C).
- Close doors, hood, windows and rear lid.
- Open all dash panel vents.
- Switch ignition on.
- Start the engine.
- Switch on "Econ" in the Climatronic control module -J255- (indicator light in  button does not light up).
- Initiate a Guided Fault Finding on the A/C system using - VAS5051B- under "Guided Fault Finding."
- Select "read measured values block", display group with the measured values for the A/C compressor control and the pressure inside the refrigerant circuit and read the measured values using -VAS5051B- under "Guided Fault Finding."
- Check the displayed measured values in the display fields with the values for the A/C compressor regulator valve -N280- control and the pressure inside the refrigerant circuit:
- ◆ The compressor is switched off, a current of 0 A (amps) to the A/C compressor regulator valve -N280- will be displayed.
- ◆ The pressure in the refrigerant circuit ( high pressure sensor - G65- measured value) is the same or greater than the valued listed in the table at the measured ambient temperature.

Ambient Temperature in °C	Pressure Display (in Bar Absolute)
15	4,0
20	5,0
25	6,0
30	7,0
35	8,0



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**Note**

- ◆ *In terms of absolute pressure, 0 bar corresponds to an absolute vacuum. Normal ambient pressure equals approximately 1 bar absolute pressure. On the scales of most pressure gauges, 0 bar corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- ◆ *At this time, only integer values are displayed for this vehicle in the measuring value block, if the pressure measured lies between two values the display alternates between the two values.*
- ◆ *Pressure in refrigerant circuit is governed by ambient temperature. On account of heat given off by components (e.g. radiator), pressure displayed with warm engine will be slightly higher than that given for the respective ambient temperature.*
- ◆ *If pressure displayed is lower than specified in the table, check the high pressure sensor signal. Refer to ⇒ ["4.8 High Pressure Sensor G65, Checking Pressure Signal", page 96](#). If there is no fault on the high pressure sensor, then there is not enough refrigerant in the circuit. Bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Inform the workshop of the fault (insufficient refrigerant in the circuit. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; General Information](#) .*

**Refrigerant circuit pressure OK**

- Switch the A/C compressor on by selecting "Auto" on the Climatronic control module -J255- (indicator lights in **AUTO** button and **AC** button light up).
- Turn the Climatronic control module temperature rotary switch to "cold".
- Adjust air output direction via the air distribution rotary switch on the Climatronic control module to "Instrument panel vents".
- In "read measured values" select the display group with the measured values for controlling the A/C compressor regulator valve -N280- and the measured value for the high pressure sensor using -VAS5051B- under "Guided Fault Finding."
- Check display in display zones:
  - ◆ A duty cycle greater than 30% is displayed (the A/C compressor regulator valve -N280- is controlled, A/C compressor is switched on).
  - ◆ A current greater than 0.3 A is displayed (current flows via A/C compressor regulator valve, compressor is switched on)

**Note**

*If no or very little current is displayed in display field, check actuation of A/C compressor regulator valve. Refer to ⇒ ["4.1 A/C Compressor Regulator Valve N280, Checking Switch On Signal", page 76](#) .*

- The displayed refrigerant circuit pressure increases above the value when the A/C compressor is switched off.

 Note

- ◆ *If the display pressure does not change and the A/C compressor activation is OK, then see if the A/C compressor is actually being driven. If the A/C compressor is being driven, then the fault is in the refrigerant circuit. Bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information (it is possible that A/C compressor regulation is not OK). Bring the problems determined to the attention of the workshop.*
- ◆ *A/C Compressor Regulator Valve is activated by Climatronic control module so that temperature of air downstream of evaporator reaches the specified value (approximately 2 to 5 °C):*
- ◆ *A value greater than 75% (0,55A) is displayed after vehicle start, depending on temperature, engine speed and vehicle voltage measured. As soon as the temperature measured by the evaporator vent temperature sensor -G263- nears the target value, the activation, and thus the compressor output, is reduced.*
- ◆ *Under certain operating conditions, moisture in the refrigerant circuit can lead to ice build-up on the A/C compressor regulator valve (and on the expansion valve). A/C compressor control is reduced by this ice build-up, evaporator is cooled too intensely and freezes. The ice on the evaporator may cause various customer concerns. Refer to ⇒ ["4.2.5 Ice Formation on Evaporator, Localizing Malfunction"](#), page 88 .*
- Press recirculation button on Climatronic control module (symbol for "recirculating air mode" lights up in recirculation button).
- Set engine speed of 2000 rpm (start of time measurement).
- In "read measured values block", select the display with the measured value from the evaporator vent temperature sensor -G263- using -VAS5051B- under "Guided Fault Finding."

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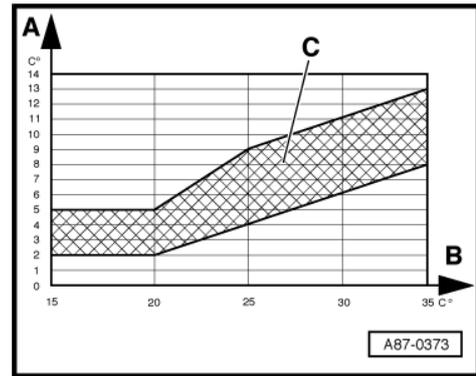
- Compare the displayed evaporator vent temperature sensor value with the values in the diagram.

A - Air temperature measured by the evaporator vent temperature sensor

B - Ambient temperature

C - Permissible tolerance range

Depending on ambient temperature, air temperature measured must be within stated tolerance range -C- after 5 minutes.



**Note**

- ◆ If the necessary values are not reached, check the measured values from the evaporator vent temperature sensor and the measured value from the left front upper body outlet temperature sensor -G385-. Compare the displayed measured values with each other:
- ◆ The measured value from the evaporator vent temperature sensor differs from the measured value from the left front upper body outlet temperature sensor by just a little. Perform ⇒ "4.2.3 Determining Malfunction if Specified Values Are Not Obtained", page 85.
- ◆ If the measured value from the evaporator vent temperature sensor is greater than the measured value from the left front upper body outlet temperature sensor -G385-, then make sure the evaporator vent temperature sensor is installed correctly and perform an electrical test on this sensor using -VAS5051B- under "Guided Fault Finding."
- ◆ The function of the air conditioning is recognizable, e.g. the refrigerant pipe on the low pressure side (thick line) cools off.

**If the measured value for the evaporator vent temperature sensor -G263- (and therefore the system output) is OK:**

- Adjust air output direction via the air distribution rotary switch on the Climatronic control module -J255- to "footwell".
- Compare the displayed value from the evaporator vent temperature sensor to the measured values from the left footwell vent temperature sensor -G261- and right footwell vent temperature sensor -G262-.

The center outlet temperature sensor and footwell outlet temperature sensor measured values may not be greater than maximum 3 °C after 5 minutes, than the evaporator vent temperature sensor measured value.



**Note**

- ◆ *If the required values are not reached, compare the displayed measured values for the left footwell vent temperature sensor and right footwell vent temperature sensor with each other:*
- ◆ *If the measured value from the left footwell vent temperature sensor or the right footwell vent temperature sensor is OK, check the actuation and the function of the left temperature door motor -V158- and the right temperature door motor -V159-. Refer to  
 ⇒ ["4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction", page 88](#),  
 ⇒ ["4.6 Heating Performance Of A/C System, Checking", page 93](#) and -VAS5051B- in "Guided Fault Finding."*
- ◆ *If the measured value from the left footwell vent temperature sensor and/or from the right footwell vent temperature sensor is lower than the measured value from the evaporator vent temperature sensor -G263-. Make sure the evaporator vent temperature sensor, left footwell vent temperature sensor and right footwell vent temperature sensor are installed correctly and check their electrical connectors for contact resistance. Replace the faulty sensor if necessary. Refer to -VAS5051B- in "Guided Fault Finding."*
- ◆ *If there is no fault found on the left footwell vent temperature sensor -G261-, right footwell vent temperature sensor -G262- and evaporator vent temperature sensor -G263- as well as on the left temperature door motor -V158- and right temperature door motor -V159-, then determine the malfunction with temperature increase downstream of the evaporator. Refer to  
 ⇒ ["4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction", page 88](#).*
- ◆ *The air temperature flowing out of the "center" instrument panel vents. A commercially available thermometer can also be used.*
- ◆ *If there is a complaint of a different temperature of air from vents in A/C system regulated mode as at the same setting in regulated mode, the causes for this may be temperature doors in the heating and A/C unit is not opening or closing completely, or is not quite reaching its end position). Refer to  
 ⇒ ["2.1 Air Routing and Distribution in Passenger Compartment", page 44](#) and -VAS5051B- in "Guided Fault Finding."  
 There is air in the heater core (fluctuating flow through heater core and heat is not distributed uniformly). Refer to  
 ⇒ ["4.6 Heating Performance Of A/C System, Checking", page 93](#). A foam seal has loosened during installation of heater core and air may flow past at heater core. The A/C system refrigerant circuit is not filled with the correct quantity of refrigerant.*

### 4.2.3 Determining Malfunction if Specified Values Are Not Obtained

The required cooling output is not reached during the cooling output test. Refer to ⇒ ["4.2.2 Cooling Output, Checking", page 81](#).



- Bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Refer to → Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information . Bring the problems determined to the attention of the workshop.
- Check the radiator fan actuation in "output diagnostic test mode". Refer to - VAS5051B- in "Guided Fault Finding."
- Repair the radiator fan activation.
- Repeat cooling performance test. Refer to → ["4.2 A/C Unit, Checking Cooling Output", page 79](#) .



**Note**

- ◆ *The pressure in the refrigerant circuit depends on several factors. However, in general, the pressure should not exceed 20 bar at an ambient temperature of 20 to 25 °C. Pressures up to 31 bar may occur due to extremely high performance under severe conditions (such as in southern countries with a hot climate, "stop and go" traffic and high humidity).*
- ◆ *At ambient temperatures below 25 °C, pressure in refrigerant circuit does not normally exceed 16 bar (coolant fans run and cool condenser).*
- ◆ *The Climatronic control module -J255- calculates the refrigerant circuit pressure using the duty cycle signal from the high pressure sensor -G65- (display in the measured values block). At a duty cycle less than 10% (corresponds to approximately 1.2 bar absolute pressure) and greater than 78% (corresponds to approximately 32 bar absolute pressure), Climatronic control module does not switch on the compressor ( A/C Compressor Regulator Valve -N280- is not activated). The A/C compressor is only switched on again after duty cycle has become greater than 12% (corresponds to 1.8 bar absolute pressure) or less than 74% (corresponds to 29 bar absolute pressure).*
- ◆ *If the pressure in the refrigerant circuit or the engine coolant temperature is too high, Climatronic control module regulates the A/C compressor performance (to avoid sudden A/C compressor cut-off). As soon as pressure in refrigerant circuit exceeds 30 bar (absolute pressure), full compressor performance is only enabled again after pressure has become less than 27 bar, or coolant temperature exceeds 115 °C (it is switched off completely at 118 °C).*
- ◆ *If the pressure in the refrigerant circuit was greater than 32 bar (duty cycle greater than 78%) the A/C compressor is switched on again by the Climatronic control module, if pressure drops below 29 bar (duty cycle is less than 74%).*
- ◆ *Additional information on pressure in the refrigerant circuit can be found in → ["4.8 High Pressure Sensor G65 , Checking Pressure Signal", page 96](#) and -VAS5051B- in "Guided Fault Finding."*

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### 4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction

The required cooling output is reached during the cooling output test however, the air leaving the evaporator is too warm. Refer to ⇒ ["4.2.2 Cooling Output, Checking", page 81](#)

<ul style="list-style-type: none"> <li>– Clamp off both coolant hoses from engine to heater core of A/C unit e.g. using Hose Clamps, Up to 40 mm -3093- . Refer to ⇒ <a href="#">"5.14 Heater Core", page 144</a> .</li> <li>– Repeat cooling performance test. Refer to ⇒ <a href="#">"4.2 A/C Unit, Checking Cooling Output", page 79</a> .</li> <li>– Read the measured values from the left footwell vent temperature sensor -G261- , from the right footwell vent temperature sensor -G262- and from the evaporator vent temperature sensor -G263- using -VAS5051B- under "Guided Fault Finding."</li> </ul>	<ul style="list-style-type: none"> <li>• The measured values from left footwell vent temperature sensor and right footwell vent temperature sensor differ by less than 3 °C from the measured value from the evaporator vent temperature sensor. Refer to -VAS5051B- under "Guided Fault Finding."</li> </ul>
↓ yes ↓	↓ no ↓
<ul style="list-style-type: none"> <li>Remove Hose Clamps, Up to 40 mm -3093- from both coolant hoses.</li> </ul>	<ul style="list-style-type: none"> <li>– Check the sensor at which the measure value deviates for correct installation and its electrical connections for contact resistance using -VAS5051B- in "Guided Fault Finding" and ⇒ Wiring diagrams, Troubleshooting &amp; Component locations.</li> </ul>
↓	↓
<ul style="list-style-type: none"> <li>Check activation and function of Left Temperature Door Motor -V158- and of Right Temperature Door Motor -V159- . Refer to ⇒ <a href="#">"4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction", page 88</a> and ⇒ <a href="#">"4.6 Heating Performance Of A/C System, Checking", page 93</a> .</li> </ul>	<ul style="list-style-type: none"> <li>– Eliminate the cause of incorrect measured value, replace defective sender.</li> </ul>
↓	↓
<ul style="list-style-type: none"> <li>• If the actuation and the function of the left temperature door motor -V158- and the right temperature door motor -V159- OK.</li> </ul>	
↓ yes ↓	↓ no ↓
<ul style="list-style-type: none"> <li>Check operation of temperature door for side of air distribution housing responsible for temperature increase. Refer to ⇒ <a href="#">"2.1 Air Routing and Distribution in Passenger Compartment", page 44</a> .</li> </ul>	<ul style="list-style-type: none"> <li>– Repair cause of malfunction. Refer to -VAS5051B- in "Guided Fault Finding" and ⇒ Wiring diagrams, Troubleshooting &amp; Component locations.</li> </ul>
↓	↓
<ul style="list-style-type: none"> <li>Replace air distribution housing if necessary. Refer to ⇒ <a href="#">"5.3 A/C Unit", page 108</a> .</li> </ul>	<ul style="list-style-type: none"> <li>– Repeat cooling performance test. Refer to ⇒ <a href="#">"4.2 A/C Unit, Checking Cooling Output", page 79</a> .</li> </ul>
↓	↓
<ul style="list-style-type: none"> <li>Repeat cooling performance test. Refer to ⇒ <a href="#">"4.2 A/C Unit, Checking Cooling Output", page 79</a> .</li> </ul>	

### 4.2.5 Ice Formation on Evaporator, Localizing Malfunction

- ◆ A/C Compressor Regulator Valve -N280- is activated by Climatronic control module -J255- so that temperature of air

downstream of evaporator reaches the specified value (approximately 2 to 5° C):

- ◆ A value greater than 75% (0.55 A) will be displayed in the measured values block for the A/C compressor regulator valve Climatronic control module after starting the vehicle, depending on the measured temperature, engine RPM and the electrical system voltage. As soon as temperature measured by the evaporator vent temperature sensor -G263- approximates the specified value, the activation is rescinded and thus the compressor output is reduced. Refer to -VAS5051B- under "Guided Fault Finding."
- ◆ Under certain operating conditions, residual moisture in refrigerant circuit can lead to an ice build-up at A/C Compressor Regulator Valve -N280- (and at expansion valve). A/C compressor control is reduced by this ice build-up, evaporator is cooled too intensely and freezes. The freeze-up of the evaporator can be the cause for the following customer complaints.
  - After a long drive, A/C system repeatedly or sporadically fails (no cooling or heating performance), after switching off vehicle and after a short time, A/C function is OK again.
  - After a long drive, windows fog up from inside, windows are also not cleared by then pressing the "Defrost" button, after switching off vehicle and after a short time, A/C function is OK again.

Corrective action:

- Check the measured value from the evaporator vent temperature sensor -G263- with the "Read measuring value block" function using -VAS5051B- under "Guided Fault Finding."
- If the sensor measured is too high under the operating conditions reported by the customer (even though the A/C system is operating without difficulty at greater than e.g. 10° C, depending on ambient temperature), check the evaporator vent temperature sensor (an incorrect measured value may cause evaporator the ice up).
- When the measured value from the sensor is below the operating condition described by the customer (at a temperature above 0° C, longer when it is lower than 0° C). Bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information . Bring the problems determined to the attention of the workshop.
- Check refrigerant line from evaporator (from expansion valve) to A/C compressor (thick tube, low pressure side) with engine running. If this line is thickly iced-up when a problem occurs (a very thin layer of ice is permitted), this indicates that the temperature in the evaporator is too low. Bring vehicle to a workshop that has the necessary tools and in which the work can be performed accordingly by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information . (it is possible that A/C compressor regulation is not OK). Bring the problems determined to the attention of the workshop.

### 4.3 Causes of Odor

- ◆ Smells like burnt oil.
  - Mostly forms in the engine compartment due to leaks on the engine or transmission.
- ◆ Sulphurous smell similar to exhaust.
  - Due to leaks in the exhaust system.



- Through exhaust fumes, which get into the passenger compartment, for example, when driving in reverse through an exhaust gas cloud.
- ◆ Fishy smell like coolant.
- From leak at cooling system of engine or of A/C system heater core.

**Note**

*If fishy odor occurs depending on temperature setting (weaker with temperature setting "Cold" than with temperature setting "Warm"), check A/C unit heat exchanger for leaks (air does not flow constantly through heat exchanger).*

- ◆ Smells like a burned clutch.
- ◆ Evaporation from floor mats, decorative seat covers, etc.
- ◆ Rotten, mildewy, moldy or musty smell from plenum chamber.
- Due to various contaminants, such as leaves, pine needles, etc. collecting.
- Due to water that cannot drain out of the plenum chamber.

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**Note**

*Check plenum chamber water drains. Refer to ["4.10 Plenum Chamber Water Drain, Checking and Cleaning"](#), page 100.*

- ◆ Smell from air conditioner.

**Note**

- ◆ *Odors originating in the heating and A/C unit can mainly be detected in fresh air mode and recirculated air mode. If a smell occurs only in fresh air or recirculation mode, the cause is probably not the A/C unit.*
- ◆ *In the case of a leaking heat exchanger, the odor of the escaping coolant mostly depends on the temperature setting. With "Cold" temperature setting, air does not flow through the heat exchanger and the odor is not as strong.*
- Due to too much condensation water in A/C unit.

**Note**

*Check condensation drain. Refer to ["4.5 Condensation Water Drain Hose, Checking"](#), page 92.*

- Due to an old or heavily contaminated dust and pollen filter.

**Note**

*Check dust and pollen filter. Refer to ["5.9 Dust and Pollen Filter"](#), page 138.*

- Due to deposits on evaporator fins.

 Note

*Clean evaporator with Ultrasound A/C Cleaner -VAS 6189- . Refer to ["1.13 Evaporator, Cleaning with Ultrasound A/C Cleaner", page 34](#) .*

#### 4.4 Components Actuated by A/C System, Electrical Test

 Note

*Various vehicle electrical components (for example, Heated Rear Window -Z1- and heated seats) that do not belong to the heater are activated by the Climatronic control module -J255- . Perform an electrical test as described in Guided Fault Finding using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.*

- ◆ Checking the heated rear window -Z1- , refer to ["4.11 Rear Window Defogger, Checking", page 101](#) .
- ◆ Heated seats, checking, refer to ["4.7 Heated Seats, Checking", page 96](#) .



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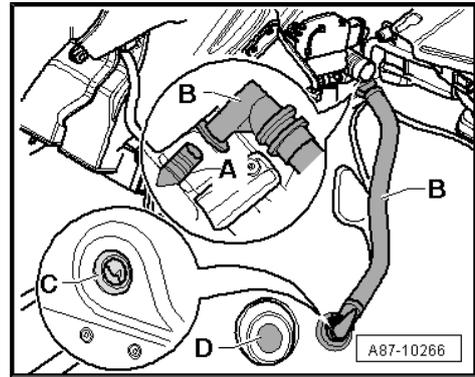


## 4.5 Condensation Water Drain Hose, Checking



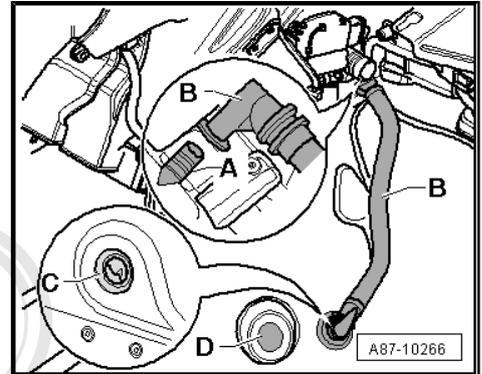
### Note

- ◆ Only one condensation water drain hose is installed in this vehicle.
- ◆ On vehicles with heating (without A/C system), a sealing plug is installed to seal the opening on the body center tunnel (no condensation water hose is present).
- ◆ There is no valve and no door at the end of the condensation water hose -C-.
- ◆ For complaints of moisture in passenger compartment, check the following as well as condensation water drain:
  - Plenum chamber water drain. Refer to ⇒ ["4.10 Plenum Chamber Water Drain, Checking and Cleaning", page 100](#) .
  - Plenum chamber cover and cover for fresh air intake housing for correct installation and damage. Refer to ⇒ ["5.12 Fresh Air Intake Cover", page 142](#) .
  - Dust and pollen filter for soiling and correct installation. Refer to ⇒ ["5.9 Dust and Pollen Filter", page 138](#) .
  - Forced air extraction vents in luggage compartment. Refer to ⇒ ["4.9 Passenger Compartment Forced Air Extraction, Checking", page 98](#) .
  - Activation and function of back pressure door. Refer to ⇒ ["2.10 Air Flow Door Motor V71 , Function", page 62](#) and recirculating air door ⇒ ["5.8.5 Recirculation Door Motor V113 ", page 135](#) and Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- ◆ Also, if there is a complaint about moisture in the passenger compartment that only occurs when the is A/C compressor is switched on and under certain environmental conditions, check the output temperature of air from the evaporator using Vehicle diagnosis, testing and information system - VAS5051B- under "Guided Fault Finding".
- Guided Fault Finding, in "read measured values block", select the measured value for evaporator vent temperature sensor - G263- .
- Check output temperature of air at evaporator under conditions reported by customer or at the following setting on the Climatronic control module -J255- , "Auto" operating mode, A/C compressor switched on (control light in [A/C](#) button lights up), temperature setting "Cold", middle fresh air blower speed at a voltage of approximately 7 volts on the Fresh Air Blower -V2- , fresh air mode (indicator light "recirculation button" does not light up) and open instrument panel vents, the air vent temperature at the evaporator.
- If the evaporator vent temperature sensor -G263- measured value is too low (colder than 0 °C for a long period of time when the ambient temperature is above 0 °C) or too high (even though the A/C is working correctly, for example: higher than 10 °C), correct the cause for the difference. Follow the procedure for checking the cooling output. Refer to ⇒ ["4.2 A/C Unit, Checking Cooling Output", page 79](#) .



### Condensation water hose, removing, checking

- Remove left and right center console trim and front center console. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Carefully fold back the carpet near the condensate drain hose just enough until the drain is visible. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Make sure the condensation water drain -B- is routed correctly and is not block with dirt or constricted.
- Cover area beneath opening -D- for condensation water drain -C-) with absorbent paper (so that any water present does not flow under carpet).
- Remove condensation water drain -B-.
- Check condensation water drain of A/C unit -A- for soiling (e.g. using a piece of wire).
- Check the distance between the insulation mat installed in the center tunnel and the end of the drain hose -B - for the condensation water -C- above the opening -D- in the floor panel. There must be enough distance so that the water can drain out of the hose -C-.



### Installing

Installation is carried out in the reverse order while observing the following.

- Install the condensation water drain -B- so that it is not twisted or pinched.
- When installing the carpet, take special care that it does not compress the condensation water drain -B-.

## 4.6 Heating Performance Of A/C System, Checking

⇒ [“4.6.1 Heating Performance, General Information”, page 93](#)

⇒ [“4.6.2 Heat Output Test Requirements”, page 94](#)

⇒ [“4.6.3 Heating Performance, Checking”, page 94](#)

### 4.6.1 Heating Performance, General Information

#### Special tools and workshop equipment required

- ◆ Diagnostic operation system -VAS 5051 A- (or Vehicle Diagnosis and Service System -VAS 5052- ).



#### Note

*If coolant circuit is not completely bled after filling, air may accumulate in heater core of A/C unit, thus reducing heating performance of A/C system, additional noises may occur or customer may complain of different air temperatures flowing out of vents at driver's side and front passenger's side at the same setting.*

Corrective action:

- Perform long road test at increased engine speed (at least 10 minutes, engine speed greater than 2500 RPM). Select a low gear during the test to prevent excessive vehicle speed.



- If customer complains of poor heating performance at specific engine speeds, check incorporation of heater core in A/C system in the coolant circuit. If both coolant hoses (supply and return) of engine are interchanged, coolant is flowing in the wrong direction through the heater core. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation .
- ◆ Requirements for performing the heat output test, refer to ⇒ ["4.6.2 Heat Output Test Requirements", page 94](#) .
- ◆ Heating performance, checking ⇒ ["4.6.3 Heating Performance, Checking", page 94](#) .

## 4.6.2 Heat Output Test Requirements

- ◆ Coolant circuit has been bled according to specifications. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .
- ◆ All air ducts, covers and seals OK and properly installed
- ◆ Air flow through dust and pollen filter not obstructed by dirt.
- ◆ Engine is warm
- ◆ Climatronic control module -J255- DTC memory was checked and erased, basic setting was performed and Climatronic control module coding was checked. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- ◆ The Climatronic control module was checked. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- ◆ Vehicle not exposed to sunlight.

## 4.6.3 Heating Performance, Checking

The heat output test requirements are met. Refer to ⇒ ["4.6.2 Heat Output Test Requirements", page 94](#) .

- Close hood.
- Close doors, windows and rear lid.
- Open all dash panel vents.
- Perform OBD on the A/C system. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- Start engine and let it run a few minutes with maximum cooling output (A/C compressor is switched on, indicator light on AC button lights up):  
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- In "read measured values block" read the display for the A/C compressor regulator valve -N280- actuation and refrigerant circuit pressure. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding" (the A/C compressor will be actuated and the refrigerant circuit pressure is OK. Refer to ⇒ ["4.2.2 Cooling Output, Checking", page 81](#) .
- Turn the Climatronic control module -J255- temperature rotary switch to "cold".
- Adjust air output direction via the air distribution rotary switch on the Climatronic control module to "footwell".
- Read the measured values from the left footwell vent temperature sensor -G261- , from the right footwell vent temperature sensor -G262- and from the evaporator vent temperature sensor -G263- . Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".

- Check and compare the displayed values from the left footwell vent temperature sensor, from the right footwell vent temperature sensor and from the evaporator vent temperature sensor with each other.
- ◆ Temperature maximum 12 °C (depending on ambient temperature), deviation between measured values less than 3 °C.
- Adjust air output direction via the air distribution rotary switch on the Climatronic control module to "Instrument panel vents".
- Check and compare the measured values from the left front upper body outlet temperature sensor -G385- and from the evaporator vent temperature sensor.
- ◆ Temperature maximum 12 °C (depending on ambient temperature), deviation between measured values less than 3 °C.
- Place Climatronic control module temperature rotary switch in "Warm" stop.
- Place fresh air blower rotary switch in "maximum speed" stop.
- Adjust air outlet direction (using air distribution rotary switch on Climatronic control module) so an approximately equal portion of air comes out of "instrument panel vents" and "footwell vents".

 **Note**

*The air distribution rotary switch can also be adjusted so air only comes out of "instrument panel vents" or "footwell vents". In that case, only the measured value from the temperature sensor installed in the selected vent may be used (if necessary, adjust air output direction so it alternates between "instrument panel vents" and "footwell vents").*

- Check and compare the displayed values from the left front upper body outlet temperature sensor, from the left footwell vent temperature sensor and from the right footwell vent temperature sensor with each other.

Target values:

- ◆ The temperature goes above 55 °C (depending on the engine temperature) in the display fields with the measured values from the left front upper body outlet temperature sensor, from the left footwell vent temperature sensor and from the right footwell vent temperature sensor.

If the specified values are not reached, check the following:

- Ventilation of coolant circuit. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation .
- The integration of the heater core in the coolant circuit. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Description and Operation .
- Activation and function of Left Temperature Door Motor -V158- and of Right Temperature Door Motor -V159- , refer to ⇒ ["4.2.4 Temperature Increase Downstream from Evaporator, Determining Malfunction", page 88](#) , ⇒ ["4.6 Heating Performance Of A/C System, Checking", page 93](#) and Vehicle diagnosis, testing and information system - VAS5051B- under "Guided Fault Finding".
- Foam seal on heater core for heater of A/C unit. Refer to ⇒ ["5.14 Heater Core", page 144](#) .
- Function of temperature doors in air distribution housing, refer to

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⇒ ["2.1 Air Routing and Distribution in Passenger Compartment", page 44](#) .

- Coolant regulator (engine coolant may not warm properly if regulator is malfunctioning). Refer to ⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .

## 4.7 Heated Seats, Checking



### Note

- ◆ *A condition exists, which does not allow the driver or passenger seat heating to switch on. Short circuit in the seat heating element connector, open circuit in the voltage supply to the Climatronic control module -J255- etc. If this is stored as a fault in the Climatronic control module, refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".*
- ◆ *The function test for the heated seat activation is described in A/C system Guided Fault Finding using -VAS5051B- in the "Guided Fault Finding function.*
- ◆ *If the voltage measured on terminal 30 falls below the value stored in the vehicle electrical system control module -J519- , then the heat seating power will be reduced to approximately 50%, or it will be switched off completely to take the load off the generator. The Climatronic control module reduces the duty cycle from 100% to less than 90 to 0%. Check using -VAS5051B- under "Guided Fault Finding".*
- ◆ *Climatronic control module measured value block indicates the front seat heater is switched on or why no activation is occurring despite a request. Check using -VAS5051B- in "Guided Fault Finding" function.*

## 4.8 High Pressure Sensor -G65- , Checking Pressure Signal

### Special tools and workshop equipment required

- ◆ Assembly Tool -T10118-

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 Note

- ◆ *The cooling output cannot be checked when the high pressure sensor is removed. The Climatronic control module -J255- will not switch on the A/C compressor. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".*
- ◆ *After switching off the A/C compressor in this vehicle, it may take a relatively long time for the pressure on the high pressure side to decrease. This is because the expansion valve is cold and the pressure on the low pressure side increases quickly after shutting the compressor off, then the expansion valve closes and the refrigerant flows slowly to the low pressure side.*
- ◆ *Depending on the version of the high pressure sensor, an insufficient measuring value for the pressure in the refrigerant system will be sent by the high pressure sensor at low outside temperatures (lower than 5 °C) (even though the A/C system is OK and the refrigerant circuit is properly filled). At lower outside temperatures (ambient temperature lower than 5 °C), A/C System control heads—the Climatronic control module with part number "8J0 820 043" through to index "AJ"—might therefore make an incorrect DTC memory entry (DTC memory entry: high pressure sensor ", and fall below the lower threshold"). If the fault is displayed as a sporadic fault at an outside temperature greater than 5 °C, calculated by the A/C system, and if the A/C function is OK, then clear the DTC memory (no additional steps are necessary). This error does not occur with—the Climatronic control module, part number "8J0 820 043" beginning with index "AK".*

**Test Sequence**

The High Pressure Sensor -G65- -item B- is at the right on the bottom of the condenser.

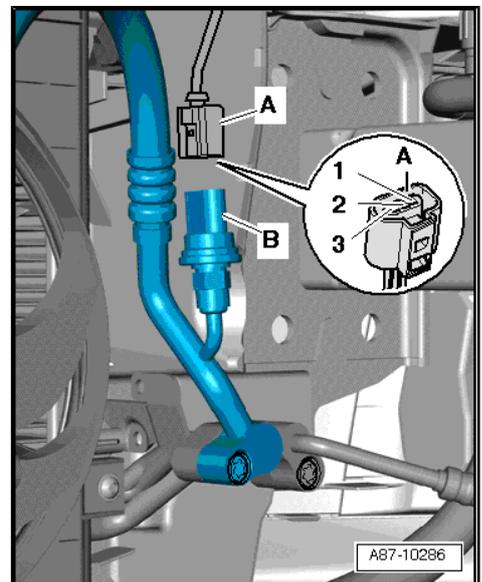
- Disconnect electrical connector -A-.

**Routing 3-pin connector on High Pressure Sensor -G65-**

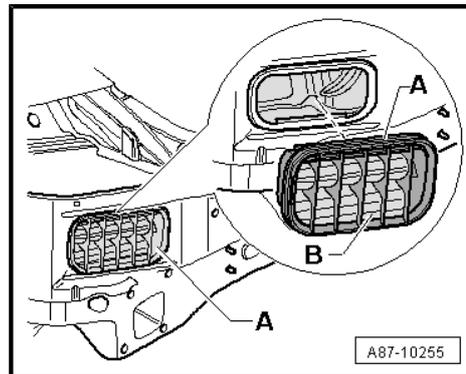
- 1 - Ground
- 2 - Signal output - Square wave signal to Climatronic control module -J255-
- 3 - Terminal 75 (positive)

 Note

- ◆ *With electrical connector -A- disconnected, the A/C compressor is not switched on.*
- ◆ *The high pressure sensor -G65- -B- is an electronic control module, which creates a square wave signal, the duty cycle ratio changes with pressure in the refrigerant circuit. Refer to ⇒ ["2.15 High Pressure Sensor G65 Signal", page 72](#) .*
- ◆ *Pressure signal from the high pressure sensor, refer to ⇒ ["2.15 High Pressure Sensor G65 Signal", page 72](#) .*

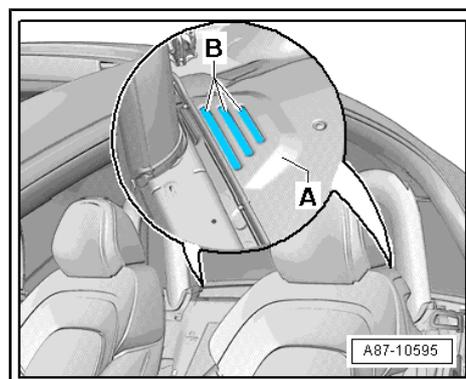


## 4.9 Passenger Compartment Forced Air Extraction, Checking



### Note

- ◆ For forced air extraction, one ventilation frame -A- each is installed on left and right.
- ◆ Forced air extraction vent frames -A- are removed and installed from the outside (with the bumper cover removed).
- ◆ On the Audi TT Roadster, the ventilation openings -B- in the rear lid trim -A- must not be covered by any objects when the rear lid is closed.



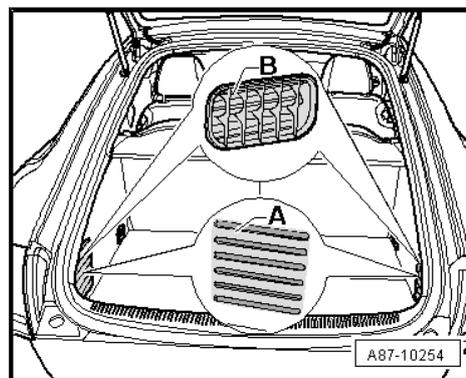
### Checking the ventilation openings in the luggage compartment trim panel

- Check air duct through left and right luggage compartment trim ventilation openings -A- to both vent frames -B- in luggage compartment (left and right) for throughput.



### Note

- ◆ To ensure proper function of passenger compartment ventilation, vent openings -A- in luggage compartment trim on left and right must not be sealed.
- ◆ Closed ventilation slits in luggage compartment trim -A- or plugged air ducts to vent frames -B- can cause windows to fog.
- ◆ This illustration shows the luggage compartment in an Audi TT Coupe. On the Audi TT Roadster, air is guided out of the passenger compartment to the ventilation openings -A-, through the convertible top compartment and via the vent slits that are installed in the upper left and right luggage compartment trim.



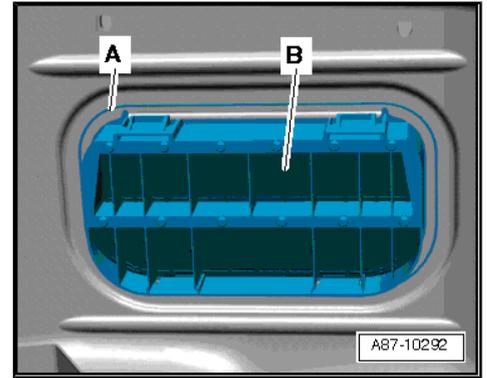
### Check forced air extraction vent frames from inside

- Remove luggage compartment trim (left and right). Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

- Check left and right vent frames -A- for throughput.

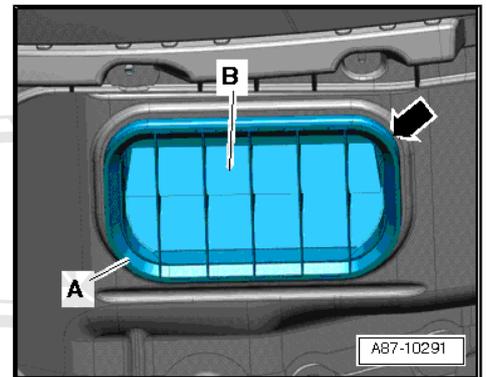
**i** Note

- ◆ Sealing lips -B- in vent frames -A- must move freely and close by themselves, stuck sealing lips -B- can cause windows to fog.
- ◆ Closed or plugged air ducts to the vent frames -A- can cause windows to fog.
- ◆ To ensure sealing lips -B- close correctly, vent frame -A- must be installed on the correct side.



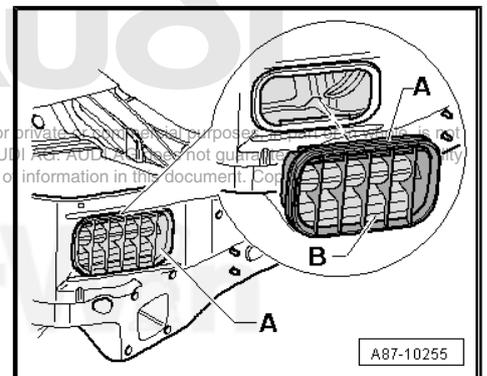
**Forced air extraction vent frames, checking from outside, removing and installing**

- Remove rear bumper cover. Refer to⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Check left and right vent frames -A- for throughput and sealing lips -B- for function.



**i** Note

- ◆ Stuck sealing lips -B- can cause windows to fog.
- ◆ In order for sealing lips -B- to close properly, vent frame -A- can only be installed in one position (smaller radius -arrow- is at top).
- ◆ In this illustration, ventilation frame -A- is depicted with rear bumper removed.
- ◆ When installing, vent frame -A- should be pressed into opening on the rear lid end piece until all retaining tabs engage securely.

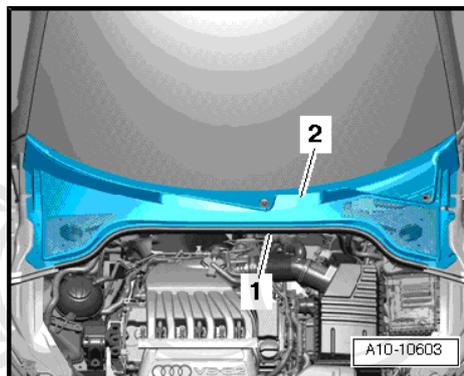


## 4.10 Plenum Chamber Water Drain, Checking and Cleaning

### Preparation

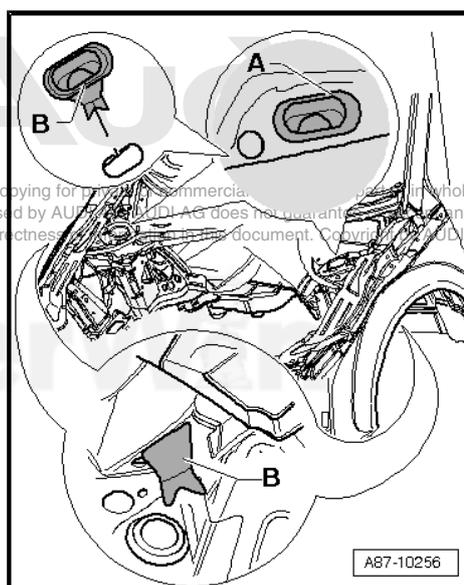
- Remove wiper arms. Refer to⇒ Electrical System; Rep. Gr. 92 ; Removal and Installation .
- Remove the rubber seal -1- and remove plenum chamber cover -2- by carefully pulling it off retainers on windshield. Refer to⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

### Checking



### Note

- ◆ *The draining of water from plenum chamber may be impaired by deposits (leaves, diverse tree needles etc.) accumulating in plenum chamber water drains -A-. The water level in the plenum chamber then rises if the vehicle is taken to an automatic car wash or in the event of heavy rain, water enters via intake housing into the A/C unit and is blown by the Fresh Air Blower -V2- onto the evaporator together with the air conveyed.*
- ◆ *If both water grommets -B- in water drains -A- (right and left in plenum chamber) are blocked by leaves and pine needles, it may cause the drains to freeze up in winter and water can no longer drain out. After a short drive, heat emitted from engine and exhaust system melts the ice in the drains again and water may drain off again before vehicle arrives at the workshop.*
- ◆ *The water drain grommets -B- are attached from the top into the openings in the mounts close to the suspension strut tower.*



### Cleaning

- Perform the preliminary work.
- Clean deposits (leaves, pine needles) and other contaminants from left and right water drains -A- and plenum chamber.

### Removing

- Perform the preliminary work.
- Remove the grommets -B- from the openings for the water drain opening -A- in the mount.

### Installing

- Install the grommets -B- from above into water drain openings -A- in the mount.
- Check the grommets -B- after installing to make sure they function correctly.
- Install all removed components again in reverse order.

## 4.11 Rear Window Defogger, Checking

### Note

- ◆ *There is a condition, which will not let the rear window defroster switch on. Short circuit in the rear window connector, open circuit in the voltage supply to the Climatronic control module -J255- etc.. If this is stored as a fault in the Climatronic control module, refer to -VAS5051B- under "Guided Fault Finding".*
- ◆ *If voltage measured at the Vehicle Electrical System Control Module -J519- at terminal 30 falls below a value stored in the control module, then the rear window heater will be completely switched off (or output is decreased), and thus the load on Generator is relieved (activation duty cycle of 100% reduced to 90% by the Climatronic control module). Refer to -VAS5051B- under "Guided Fault Finding".*
- ◆ *If heated rear window must be switched off due to insufficient voltage, indicator lamp in heated rear window button on Climatronic control module remains switched on. However, if switch-off is to last longer than approximately 150 seconds, Climatronic control module switches off the indicator lamp.*
- ◆ *Climatronic control module measured value block indicates that heater of Heated Rear Window is switched on or why no activation is occurring despite a request. Check using -VAS5051B- under "Guided Fault Finding".*
- ◆ *The function test for the heated rear window is described in Guided Fault Finding, vehicle electrical system control module -J519-. Refer to -VAS5051B- under "Guided Fault Finding". (Vehicle electrical system control module controls the heated rear window -Z1-).*
- ◆ *The heated rear window stays switched on at outside temperatures up to 0°C until ignition is switched off (heated rear window can be switched manually at anytime). If temperature becomes greater than 0 °C during a driving period, the heated rear window is switched off after operating time stored in Climatronic control module has elapsed (approximately 10 minutes).*
- ◆ *Heated rear window may be switched off automatically by the Climatronic control module at outside temperatures greater than 0 °C after the operating time (approximately 10 minutes) stored in control head has elapsed (time of activation depends on coding and version of control head). Check using -VAS5051B- under "Guided Fault Finding".*

## 4.12 Wiring and Component Testing with Test Box VAG 1598A

### Special Tools and Equipment

- ◆ Test Box (Basic Unit -V.A.G 1598/14- with Adapter -V.A.G 1598/11- and Adapter - 16 Terminals -V.A.G 1598/12-
- ◆ Vehicle diagnosis, testing and information system - VAS5051B- with multimeter leads -VAS 5051/7- , DSO measuring leads 1 & 2 -VAS 5051/8- and inductive pickup (50 amp) -VAS 5051/9-
- ◆ Voltage Tester -V.A.G 1527 B-
- ◆ Connector Test Set -V.A.G 1594 C-
- ◆ Temperature measuring device, for example, a commercially available thermometer.



- ◆ Wiring diagram for vehicle system to be tested, refer to⇒ Wiring diagrams, Troubleshooting & Component locations.



**Note**

*Perform an electrical test as described in Guided Fault Finding using -VAS5051B- under "Guided Fault Finding."*



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## 5 Removal and Installation

### 4 and 6 Cylinder

⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#)

### 5 Cylinder

⇒ [“5.2 A/C Compressor, Removing From Bracket”, page 106](#)

⇒ [“5.3 A/C Unit”, page 108](#)

⇒ [“5.4 Air Intake Grille”, page 114](#)

⇒ [“5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door”, page 115](#)

⇒ [“5.6 Belt Pulleys”, page 117](#)

⇒ [“5.7 Climatronic Control Module J255 “, page 124](#)

⇒ [“5.8 Door Motors”, page 126](#)

⇒ [“5.9 Dust and Pollen Filter”, page 138](#)

⇒ [“5.10 Fresh Air Blower Control Module J126 “, page 140](#)

⇒ [“5.11 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 “, page 141](#)

⇒ [“5.12 Fresh Air Intake Cover”, page 142](#)

⇒ [“5.13 Front Upper Body Outlet Temperature Sensors G385 / G386 “, page 143](#)

⇒ [“5.14 Heater Core”, page 144](#)

⇒ [“5.15 High Pressure Sensor G65 “, page 151](#)

⇒ [“5.16 Instrument Panel Vents”, page 152](#)

⇒ [“5.17 Interior Temperature Sensor Fan V42 “, page 153](#)

⇒ [“5.18 Refrigerant Circuit Components”, page 154](#)

⇒ [“5.19 Sunlight Photo Sensor G107 “, page 183](#)

⇒ [“5.20 Temperature Sensors”, page 184](#)

### 5.1 A/C Compressor, Removing From Bracket

#### Special tools and workshop equipment required

- ◆ Torque Wrench -V.A.G 1331/- (or 5-50 Nm equivalent)
- ◆ Locking Pin -T10060 A-

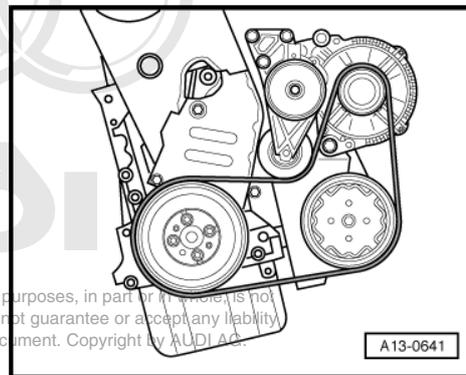
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**Note**

- ◆ *The A/C compressor can be removed and installed at the bracket without opening the refrigerant lines.*
- ◆ *The following describes removing and installing the compressor for a vehicles with a 2.0L TFSI engine and a 3.2L MPI engine, with a "Denso" compressor type "6 SEU 14". On vehicles with different engine or a different A/C compressor, slight changes may result (depending on engine, additional assemblies may need to be removed or loosened)*
- ◆ *Do not discharge the refrigerant circuit, do not remove refrigerant hoses and lines from the A/C compressor.*
- ◆ *Do not unfasten refrigerant pipes and corresponding clamps.*
- ◆ *After removing the A/C compressor, tie it to the vehicle with wire. Do not let it hang by the refrigerant lines. Refer to [page 107](#).*
- ◆ *Before removing, mark direction of operation of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.*
- ◆ *Different A/C compressors may be installed depending on engine and country variant. Refer to Electronic Parts Catalog (ETKA).*

**Removing**

- Remove upper engine cover. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation (for example, on a 2.0L TFSI vehicle)
- Mark running direction of ribbed belt (illustration shows arrangement for a 4 cylinder engine).
- Remove ribbed belt. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .
- Remove center noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .
- Remove the right noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation (for example, on a 2.0L TFSI vehicle).
- Remove the frame for the noise insulation, if equipped (for example, currently on the Audi TT Roadster). Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .
- Remove the right air guide hose (air guide pipe from the turbocharger to the charge air cooler) Refer to ⇒ Engine Mechanical; Rep. Gr. 21 ; Removal and Installation (for example, on a TFSI vehicle).



- Disconnect electrical connector -1- on A/C Compressor Regulator Valve -N280- .
- Remove compressor bolts -arrow-.
- Remove the A/C compressor and tie it to the vehicle with a wire. Refer to ⇒ [page 107](#) .

**Installing**

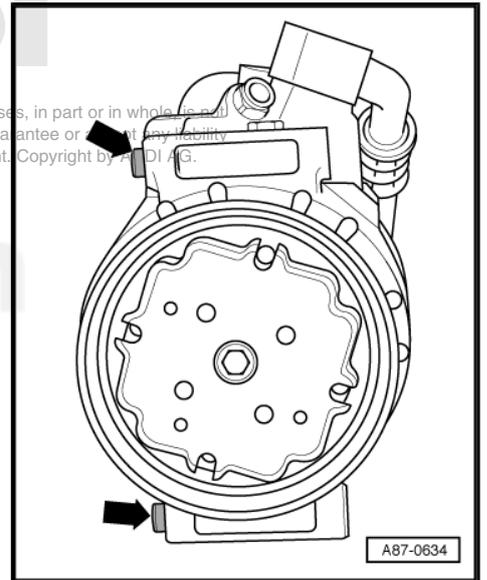
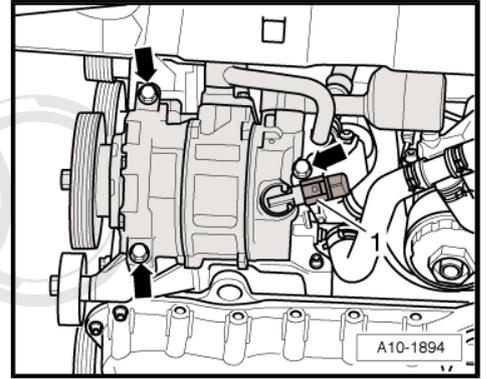
Installation is done in reverse order, observe the following:

- Before securing A/C compressor, check seating of both alignment bushings -arrows- in bracket or A/C compressor.

**i Note**

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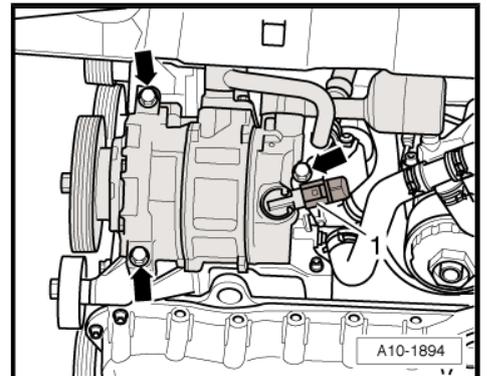
*This illustration shows the version of the A/C compressor with pulley that is installed on the Audi TT.*



- Tighten bolts -arrows- (tightening torque 25 Nm).
- Connect electrical connector -1- on A/C Compressor Regulator Valve -N280- .
- Mount the ribbed belt onto the pulley. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .

**i Note**

- ◆ *After fastening the A/C compressor, check installation position of refrigerant lines, lines must be engaged in bracket (if installed, depending on engine).*
- ◆ *Check refrigerant lines and their bracket to ensure there is enough distance to the other components. Ensure there is also enough distance between belts, bracket and pulley.*



## 5.2 A/C Compressor, Removing From Bracket



### Note

- ◆ *The A/C compressor can be removed from the subassembly bracket and installed again without opening the refrigerant lines.*
- ◆ *The subassembly bracket for the A/C compressor and its parts can be removed and installed without having to open the refrigerant line.*
- ◆ *Only on 5 cylinder engine with 2 ribbed belt attached to the A/C compressor. The A/C compressor has a belt pulley with a double belt guide. For removing the ribbed belt, refer to ⇒ [Engine Mechanical; Rep. Gr. 13 ; Removal and Installation](#) .*
- ◆ *For the belt routing for both ribbed belts, refer to ⇒ [Engine Mechanical; Rep. Gr. 13 ; Removal and Installation](#) and ⇒ [page 108](#) .*
- ◆ *The following describes removing and installing a “Sanden” A/C compressor on a 2.5L TFSI vehicle . On vehicles with different engine or a different A/C compressor, slight changes may result (depending on engine, additional assemblies may need to be removed or loosened)*
- ◆ *Do not discharge the refrigerant circuit, do not remove refrigerant hoses and lines from the A/C compressor.*
- ◆ *Do not unfasten refrigerant pipes and corresponding clamps.*
- ◆ *After removing the A/C compressor, tie it to the vehicle with wire. Do not let it hang by the refrigerant lines. Refer to ⇒ [page 107](#) .*
- ◆ *Before removing, mark direction of operation of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.*
- ◆ *Different A/C compressors may be installed depending on engine and country variant. Refer to [Electronic Parts Catalog \(ETKA\)](#).*

### Removing the A/C compressor from the subassembly bracket and installing it again

- Perform the preliminary work in the same way as described for the 4 or 6 cylinder engine. Refer to ⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#) .
- Remove the A/C compressor on a 5 cylinder vehicle in the same way as on a 4 or 6 cylinder engine. Refer to ⇒ [“5.1 A/C Compressor, Removing From Bracket”, page 103](#) .

Allocation, A/C compressor the subassembly bracket

### 1 - Subassembly Bracket For The Generator and A/C Compressor

- ◆ Be careful to use the correct version. Refer to the Electronic Parts Catalog.
- ◆ Subassembly bracket, removing and installing, refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .

#### Removing

- Loosen A/C compressor, unscrew hex-bolts -6-. Remove A/C compressor from the subauxiliary bracket and secure it to the body with wire. Refer to ⇒ [page 107](#) .
- Remove the screws from the subassembly bracket.

#### 2 - Internal Multi-Point Bolt

- 25 Nm

#### 3 - Internal Multi-Point Bolt

- 25 Nm

#### 4 - Hex Socket Head Bolt

- 25 Nm

#### 5 - A/C Compressor

- Removing and installing, refer to ⇒ ["5.18.2 A/C Compressor"](#), [page 157](#) .

#### 6 - Hex Bolts

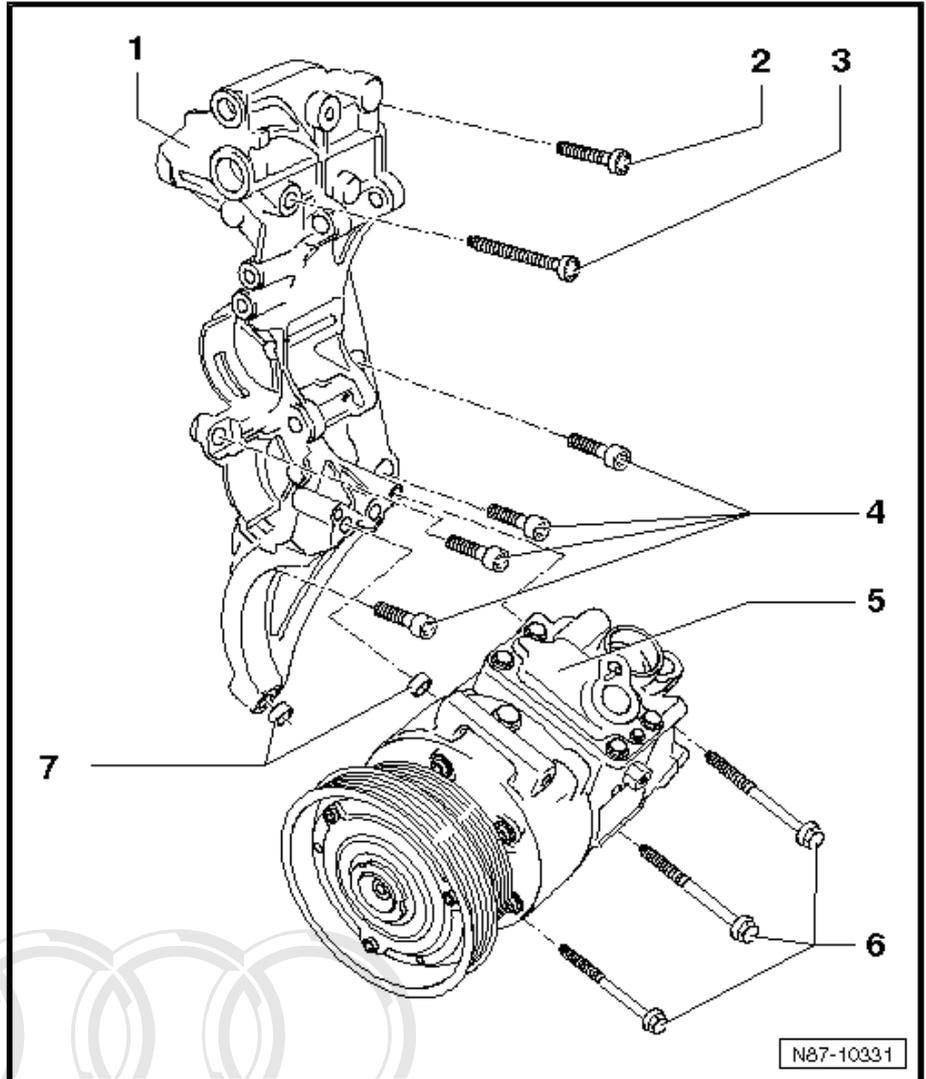
- 25 Nm

#### 7 - Dowel Sleeves

- Quantity: 2

- Be careful to use the correct version and make sure the subassembly bracket and A/C compressor fit correctly.

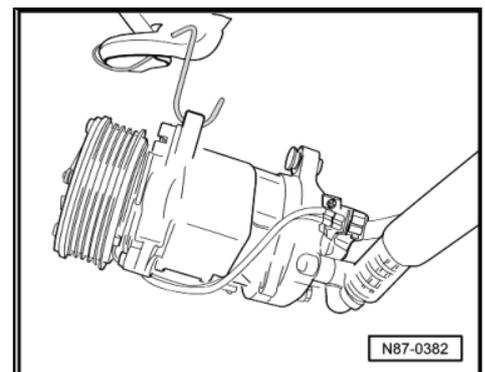
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#### Securing A/C compressor to body

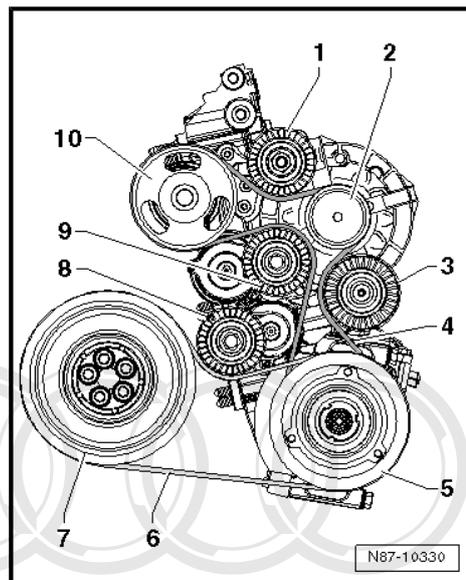
If A/C compressor is removed and refrigerant circuit not opened, A/C compressor must be secured to body using appropriate material, a welding wire for example.

Make sure the refrigerant lines on the A/C compressor remain free of tension.



### Routing for both ribbed belts

- 1 - Idler roller, top
- 2 - Ribbed belt pulley - generator
- 3 - Idler roller, bottom
- 4 - Ribbed belt for generator and coolant pump
- 5 - Ribbed belt pulley - A/C compressor
- 6 - Ribbed belt for A/C compressor
- 7 - Ribbed belt pulley - crankshaft
- 8 - Tensioning roller for ribbed belt - A/C compressor
- 9 - Tensioning roller for ribbed belt - generator and coolant pump
- 10 - Ribbed belt pulley - coolant pump



## 5.3 A/C Unit

### Special tools and workshop equipment required

- ◆ Hose Clamps, Up To 40 mm -3094- and Hose Clamps Up To 25 mm diameter -3093-
- ◆ Compressed air gun, commercially available
- ◆ Cooling System Tester -V.A.G 1274- (and corresponding adapter)

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### Note

*Remove the heater in the same way as the A/C unit. Naturally, the items that affect components that are only present on the A/C system are omitted.*

### Removal

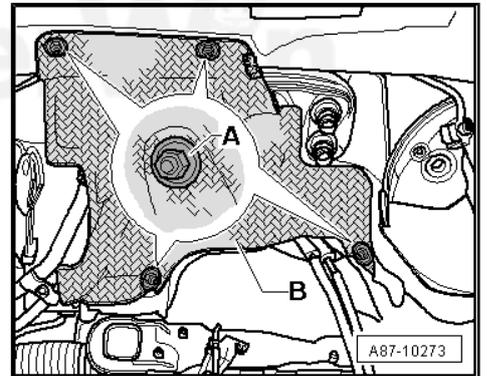
- Protect driver and front passenger seats using seat covers.
- Switch off ignition.
- Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Disconnect the battery. Refer to⇒ Electrical system; Rep. Gr. 27 ; Removal and Installation .

**i Note**

- ◆ Obtain radio code if necessary before disconnecting battery.
- ◆ On vehicles with seats that can be adjusted electrically, move them all the way back before disconnecting the battery. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Removal and Installation .
- ◆ On removal, note down bolt lengths and assignment for installation later.
- ◆ All cable ties opened or cut during removal of A/C (heater) must be reinstalled at the same locations during installation.
- ◆ Depending on vehicle equipment and on engine, heat insulation has been applied to coolant hoses and refrigerant lines, these must not be damaged and must be re-applied after installing.

- Release pressure in cooling circuit by opening the cap on coolant expansion tank. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .
- Remove components that hinder access to mounting points -A- on heat shield -B- and to coolant hoses to heater core in engine compartment. Refer to ⇒ ["5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve", page 180](#) .
- Loosen heat shield -B- from plenum chamber bulkhead (lay it aside or remove it completely).

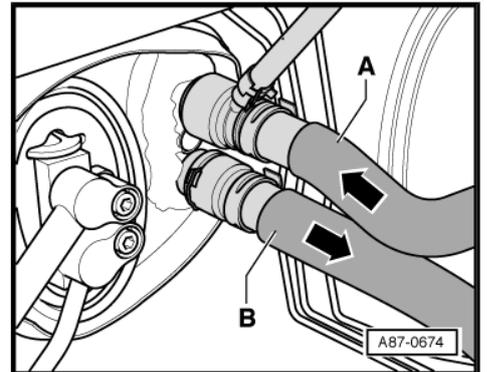
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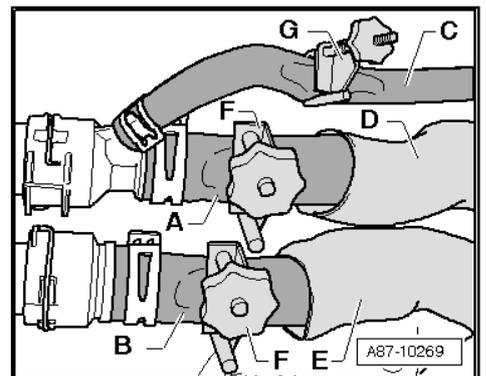
- Mark arrangement of coolant hoses -A- and -B-.

**i Note**

- ◆ The heater core is designed for a specific coolant flow direction. Therefore, coolant hoses must be connected on the correct sides.
- ◆ Bleed the coolant circuit. Refer to ⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .

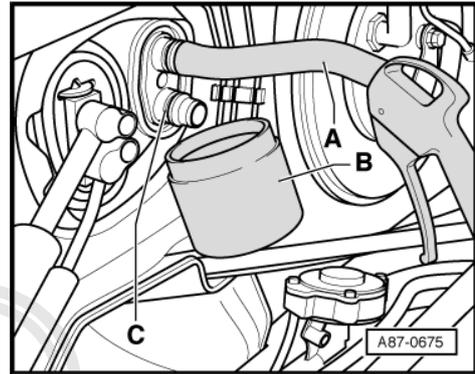


- Slide back thermal protective covers -D- and -E- far enough that -VAS 3093- -F- can be installed on the coolant hoses -A- and -B-.
- Clamp off coolant hoses -A- and -B-.
- Clamp off the ventilation hose -C- (to coolant expansion tank), with a -3094- -G-.
- Cover the area beneath connections for coolant hoses -A- and -B-, for example, with a paper towel.
- Remove coolant hoses -A- and -B- from connections to A/C unit heater core. Refer to ⇒ Engine, Mechanical; Rep. Gr. 19 ; Removal and Installation .





- Connect one section of hose -A- on to upper connection.
- Hold a container -B- under the lower connection -C-.
- Using a compressed air gun -D-, carefully blow coolant out of heater core (into container -B-).
- Disconnect refrigerant lines from expansion valve, refer to ⇒ ["5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve"](#), page 180 and secure (for example, with cable tie) so they do not interfere during installation.

**Note**

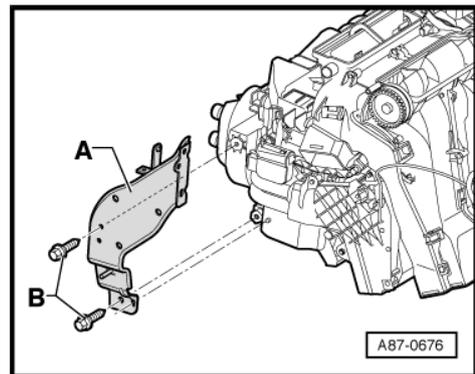
- ◆ Seal open pipe connections.
- ◆ To seal off all open connections on expansion valve or evaporator, sealing caps from a replacement expansion valve or a replacement evaporator can be used (preventing dirt and moisture from entering the system).
- Remove glove compartment, driver's side storage compartment, front part of center console and instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

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*To prevent the instrument panel shell from damage, instrument panel should be placed on a clean work bench which is covered with clean cardboard.*

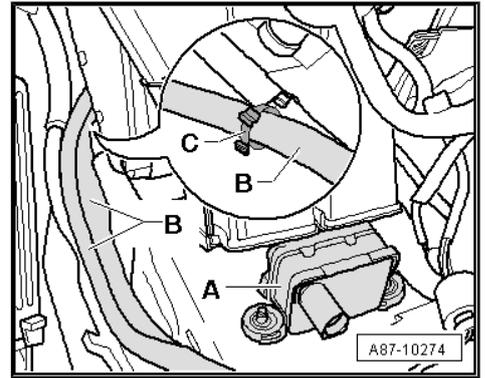
- Remove both left and right footwell vents.
- Remove the fresh air blower -V2- . Refer to ⇒ ["1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2"](#), page 36 .
- Remove instrument panel crossmember (central tube). Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Remove data bus on board diagnostic interface -J533- (secured to bracket -A- in area of steering column). Refer to ⇒ Electrical Equipment; Rep. Gr. 90 ; Removal and Installation .
- Remove bolts -B- and release bracket -A- from heater (bracket remains on wiring harness secured to vehicle).



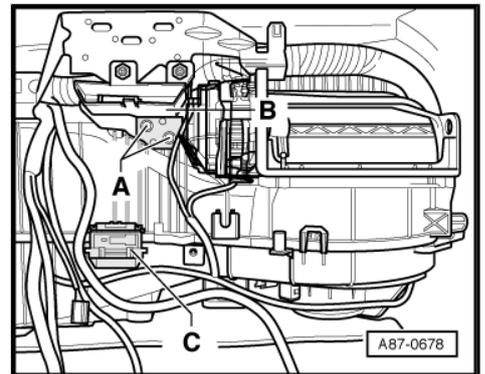
- Remove ESP Sensor Unit -G419- -A-. Refer to ⇒ Brake System; Rep. Gr. 45 ; Removal and Installation .
- Loosen vehicle wiring harness fasteners -B- (for example, cable ties -C-) on left of A/C unit.



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- Remove both bolts -A- on bracket for wiring harness -B-.
- Disconnect the connector -C-.
- Remove condensation drain from A/C unit. Refer to ⇒ "4.5 Condensation Water Drain Hose, Checking", page 92 .
- Loosen remaining vehicle wiring harness fasteners (for example with cable ties) at top of A/C unit.
- Disconnect all electrical connections between vehicle wiring harness and the electrical components of A/C (on heater) at harness connectors.



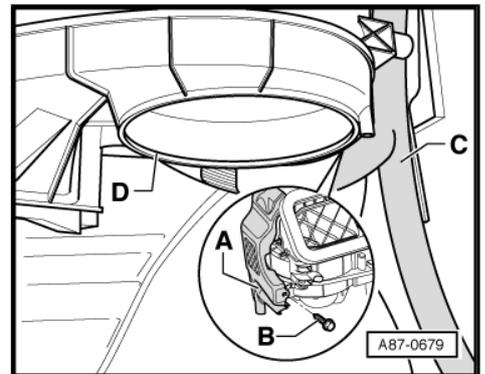
**i** Note

*The wiring harness air conditioner/heater is removed together with the A/C unit (with the heater).*

- Carefully pull right side of A/C (heater) unit slightly toward rear (far enough that bolt -B- on the right bracket -A- can be loosened).

**i** Note

- ◆ *Only pull carefully on the A/C (heater) so that bracket -A- does not break.*
- ◆ *To loosen bolt -B-, reach between A/C unit (heater) and floor mat on right wheel housing (to make this possible, Fresh Air Blower -V2- has been removed earlier).*



- Remove bolts -B- and release bracket -A- from heater (bracket remains on wiring harness secured to vehicle).
- Loosen securing ties of vehicle wiring harness on A/C (heater) on the right side.



- Disengage both flanges for coolant pipes to heater core -A- and for expansion valve (to evaporator) -B- from pass-throughs of grommet -C-.



**Note**

- ◆ *When removing A/C unit (heater), make sure the two coolant pipes of the heater core do not get caught and bent or damaged on plenum chamber or noise insulation mat.*
- ◆ *Observe wiring harness, individual electrical wiring connections may get damaged when pulling on harness.*

- Remove A/C unit (heater) -A- towards passenger side.

**Installation**

Installation is carried out in the reverse order while noting the following:

- Two technicians are needed to install the A/C unit (heater).



**Note**

- ◆ *Before installing, check all gaskets and seals on A/C (heater) for damage and replace if necessary.*
- ◆ *Check securing of coolant pipes to heater core.*

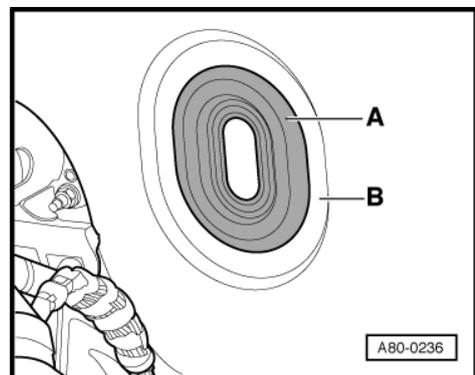
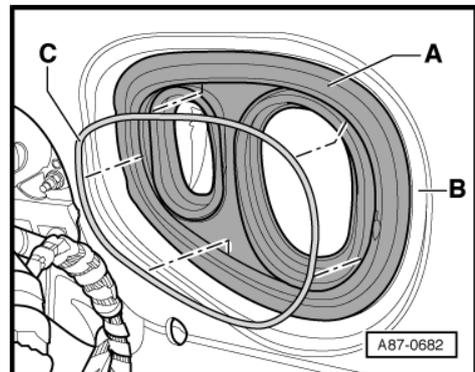
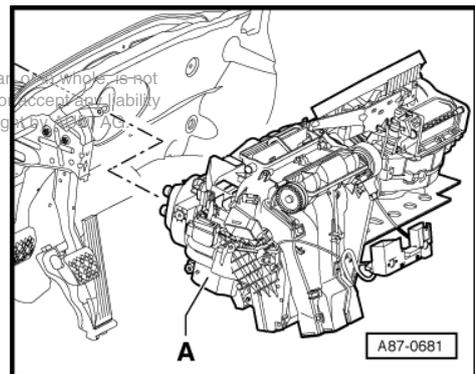
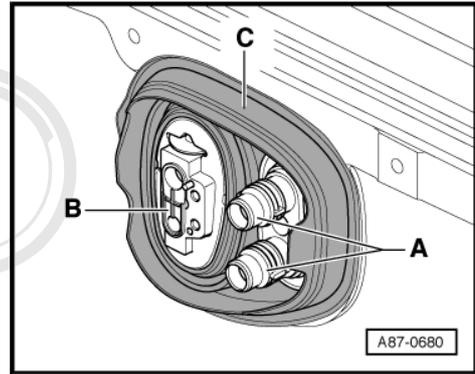
- Insert the molded seal -A- (working outward from the passenger compartment) into rear wall of the plenum chamber -B-, make sure that reinforcement -C- (wire bracket) is positioned correctly in the molded seal -A-.



**Note**

*On vehicles without A/C system (heater only), insert molded seal -A- (working from passenger compartment) into rear wall of the plenum chamber -B-; make sure that molded seal -A- is positioned properly in rear panel.*

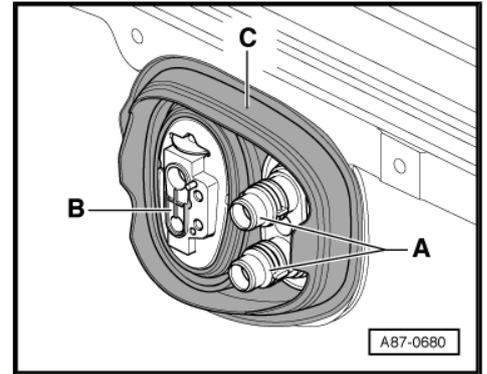
- Ask a colleague for assistance when installing the A/C unit (heater).



- Have the second mechanic (working from engine compartment) guide both flanges for coolant pipes to heater core -A- and for expansion valve (to evaporator) -B- through pass-throughs of grommet -C- when inserting heating & A/C unit.

**i** Note

- ◆ When installing A/C/heater, make sure the two coolant pipes of the heater core do not get caught and bent or damaged on plenum chamber or noise insulation mat.
- ◆ Observe wiring harness, individual electrical wiring connections may get damaged when pulling on harness.



- Connect condensation water drain to connection on A/C unit and check condensation water drain for correct seating. Refer to ⇒ ["4.5 Condensation Water Drain Hose, Checking", page 92](#) .
- Reinstall removed components in reverse order of removal except driver's side storage compartment.

**i** Note

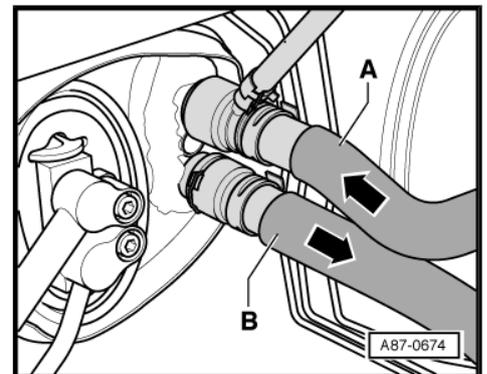
- ◆ When installing the instrument panel, make sure that the defrost intermediate piece fits properly on A/C unit (heater) and the defrost vent does not pinch the intermediate piece. Refer to ⇒ ["2.1 Air Routing and Distribution in Passenger Compartment", page 44](#) .
- ◆ After installing instrument panel, check output direction and distribution of air flow from defroster vent to windshield.

- Connect coolant hoses properly to heater core. Observe markings:

A - Supply hose from cylinder head

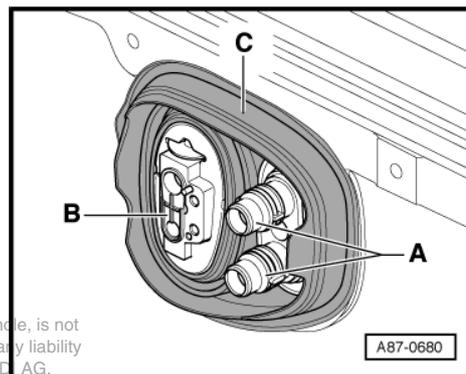
B - Return to the coolant pump

- Connect refrigerant lines to expansion valve. Refer to ⇒ ["5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve", page 180](#) .
- Check installation position of coolant hoses to heater cores (they must not contact components which grow hot) and position and state of heat protection insulation applied to coolant hoses if necessary (not installed on all engine types).
- Bleed cooling circuit. Refer to ⇒ Engine, Mechanical; Rep. Gr. 19 ; General Information .
- Check coolant circuit for leaks, pay particular attention to the connection between coolant hoses and heater core. Refer to ⇒ ["5.14 Heater Core", page 144](#) and ⇒ Engine Mechanical; Rep. Gr. 19 ; General Information .





- Make sure the grommet -C- fits correctly inside the rear panel of the plenum chamber.
- Seal flange for coolant pipes to heater core -A- and for expansion valve (to evaporator) -B- at pass-through of grommet -C- with silicon adhesive sealant if necessary (to prevent water from penetrating).
- Evacuate and re-charge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Reinstall driver side storage compartment and remaining removed components.
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- Perform a basic setting and output diagnostic test on the A/C (heater) and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ "1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28 .

**Note**

Note the information regarding operating the A/C system after filling. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).

- If necessary, check A/C (heater) system function, for example, via "Output diagnostic test mode" function (allocation test of electrical component function) using Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".

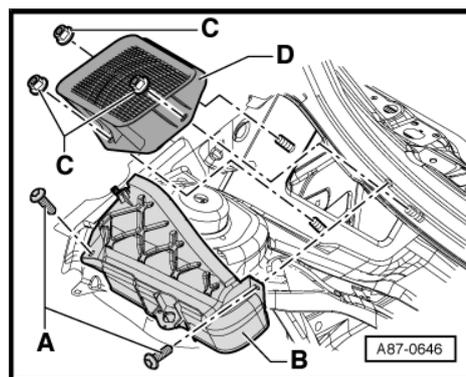
## 5.4 Air Intake Grille

- Remove the cover -B-. Refer to ⇒ "5.12 Fresh Air Intake Cover", page 142 .
- Remove nuts -C- (tightening torque 3.5 Nm).
- Remove the air intake grille -D-.

Installation is done in reverse order, observe the following:

**Note**

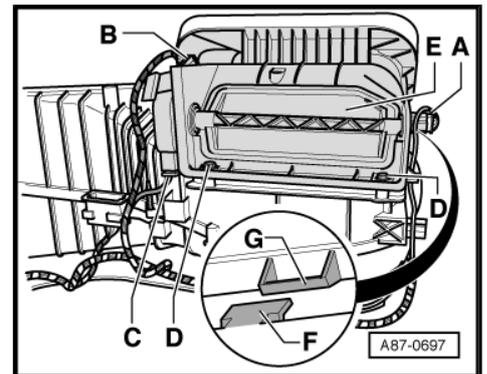
- ◆ Make sure the seal on the bottom of the air intake grille is not damaged. If it is, replace it. This seal prevents water from flowing through beneath the intake grille into heating & A/C unit intake housing.
- ◆ Make sure the air intake grille -D- is properly seated, water may flow into intake housing of A/C unit if cover grille is not installed correctly.



## 5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door

### Removing

- Remove the complete instrument panel and instrument panel crossmember. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Remove the A/C unit (heater). Refer to ⇒ ["5.3 A/C Unit", page 108](#) .
- Disconnect the connector -A-.
- Mark wire connection to connector -B- (to Air Flow Door Motor -V71- ) and disconnect it (danger of interchange since connectors -B- and -C- are of identical construction).
- Mark wire connection to connector -C- (to Recirculation Door Motor -V113- ) and disconnect it.



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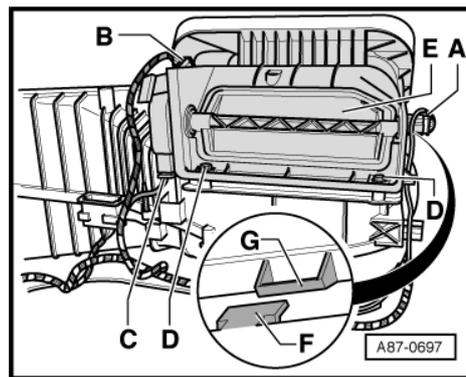




- Remove bolts -D-.
- Remove the air intake shroud from the A/C unit (heater).

**Note**

- ◆ *When replacing, ensure correct allocation. As a replacement part, there are different versions for vehicles with and without Fresh Air Intake Duct Temperature Sensor -G89-, with one or two motors and for operating the installed doors. Refer to the Electronic Parts Catalog.*
- ◆ *The Audi TT does have a fresh air intake duct temperature sensor. If necessary, seal off the installation opening with a grommet.*
- ◆ *Air intake shrouds with two positioning motors are installed on the Audi TT at this time.*

**Installing**

Reinstall all removed components in the opposite sequence while observing the following:

- When attaching air intake housing, make sure mounting points -F- and -G- are seated correctly.
- Install the wiring harness so that it cannot come in contact with any moving parts (for example, the motor actuating arm).
- Install the A/C unit (heater). Refer to [⇒ "5.3 A/C Unit", page 108](#)
- Install the complete instrument panel and instrument panel crossmember. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- under "Guided Fault Finding".
- Perform a basic setting and output diagnostic test on the A/C unit (heater) and check the DTC memory one more time using Vehicle diagnosis, testing and information system - VAS5051B- under "Guided Fault Finding".
- Operate the A/C system after filling the refrigerant circuit. Refer to [⇒ "1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .

**Note**

*Note the information regarding operating the A/C system after filling. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).*

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## 5.6 Belt Pulleys

⇒ [“5.6.1 Denso A/C Compressor \(Version 1\)”, page 117](#)

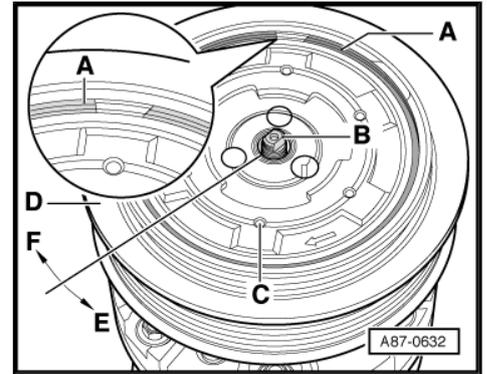
⇒ [“5.6.2 Denso A/C Compressor \(Version 2\)”, page 119](#)

⇒ [“5.6.3 Sanden A/C Compressor”, page 121](#)

### 5.6.1 Denso A/C Compressor (Version 1)

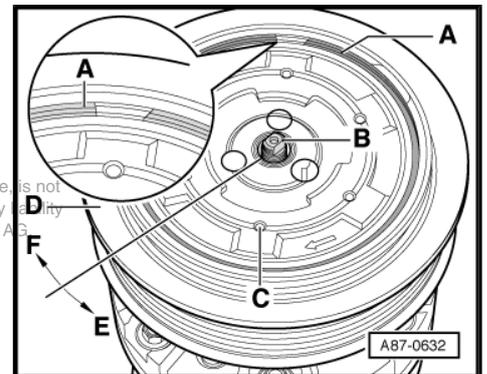
#### Note

- ◆ *Observe notes on replacing belt pulley. Refer to ⇒ [“2.4 Belt Pulley, Denso A/C Compressor, Version 1”, page 52](#).*
- ◆ *Perform preliminary work as for removing belt pulley. Refer to ⇒ [“1.1 A/C Compressor Belt Pulley, Replacement”, page 24](#).*
- ◆ *Belt pulley is made of plastic and is sensitive to impact, therefore handle it with special care.*
- ◆ *If overload safeguard of drive plate -C- has triggered, drive plate can be pried off from belt pulley -D- after removing circlip -A-*
- ◆ *To optimize noise reduction, a circlip -A- with a rubber disc vulcanized on it is installed. Refer to ⇒ [“2.4 Belt Pulley, Denso A/C Compressor, Version 1”, page 52](#) and Electronic Parts Catalog. This rubber disc can reduce a clapping (castanet-like) noise which occurs especially at belt pulley in vehicles with Diesel engine in A/C system operating mode “Econ” (“AC off”) (the noise is almost inaudible with A/C system operating at full output).*



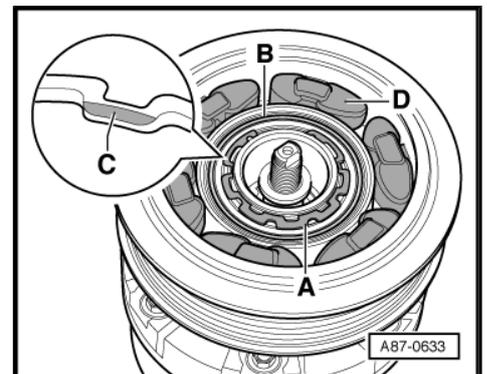
#### Removal

- Using a small screwdriver or needle-nose pliers, carefully remove circlip -A- (with rubber disc vulcanized on to it). Refer to ⇒ [“2.4 Belt Pulley, Denso A/C Compressor, Version 1”, page 52](#); take extreme care not to damage belt pulley when doing this.
- Hold the A/C compressor input shaft -B- securely with a standard socket wrench and turn drive plate -C- with pulley -D- in direction of arrow -E- (tightening torque 35 Nm).
- Remove drive plate -C-.



- Remove circlip -A-.
- Remove pulley -B-.

#### Installation



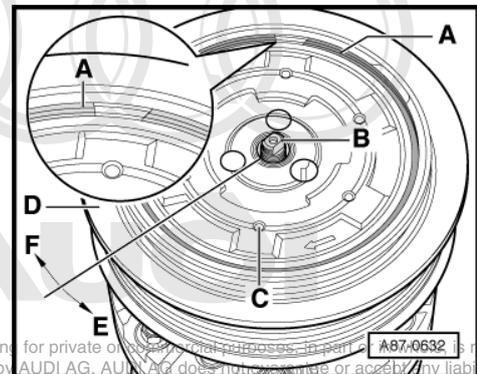
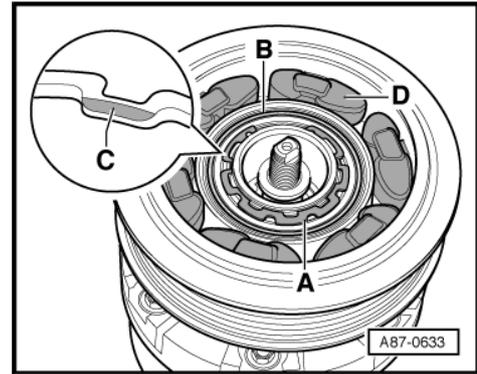
**Note**

Replace circlip -A-.

Clean the A/C compressor flange before sliding on the belt pulley.

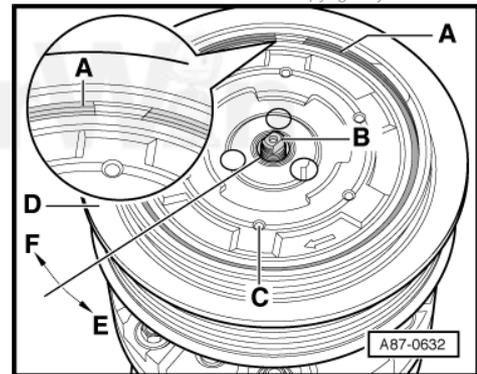
When installing the circlip -A-, note that it cannot be bent open more than is necessary for installation.

- Install belt pulley -B-.
- Insert circlip -A- on correct side, the side with beveled insertion edge -C- faces away from A/C compressor (install flat side facing compressor).
- Insert rubber element -D- in belt pulley -B- according to illustration.
- When installing drive plate, coat rubber element -D- lightly e.g. with tire mounting paste or soap solution (as sliding compound).
- Insert the drive plate -C- far enough into rubber elements -D- (see upper illustration) until it contacts A/C compressor shaft -B-.



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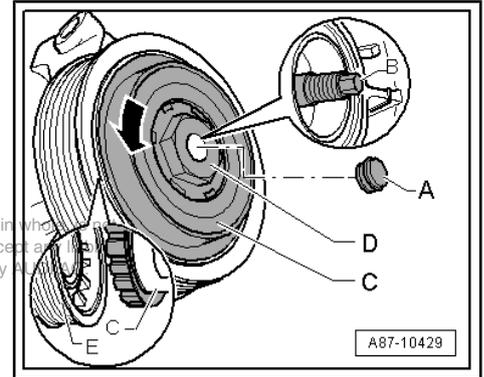
- Install the drive plate -C- on the compressor shaft -B- by rotating it in the direction of the arrow -F-.
- Tighten drive plate -C- (above pulley -D-) to 35 Nm by turning with a standard band wrench (with webbing) in direction of arrow -F-, hold compressor shaft -B- with a standard socket wrench.
- Install circlip -A- (with rubber disc vulcanized on).



## 5.6.2 Denso A/C Compressor (Version 2)

### Note

- ◆ Pay close attention to instructions for removing and installing the belt pulley -E-. Refer to ["2.4 Belt Pulley, Denso A/C Compressor, Version 1", page 52](#).
- ◆ Perform preliminary work as for removing belt pulley, refer to ["1.1 A/C Compressor Belt Pulley Replacement", page 24](#).
- ◆ Belt pulley is made of plastic and is sensitive to impact, therefore handle it with especial care.
- ◆ If the drive plate -C- overload protection activates, rotate the pulley -E- using the outer part of the drive plate -C- so that the compressor shaft -B- and the hexagon head on the drive plate -D- (inner part of the drive plate -C-) do not rotate.

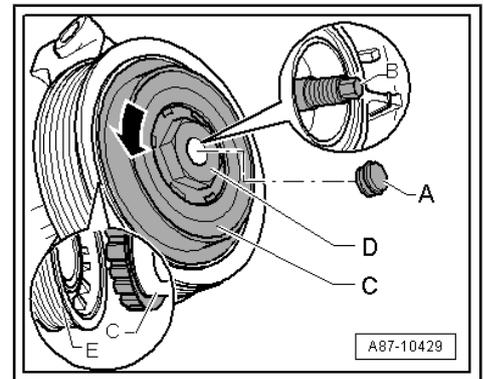


### Removal

- Remove the cap -A-.
- Hold the A/C compressor input shaft -B- for example, with a standard Allen wrench (7 mm) and turn the drive plate -C- together with the pulley -E- in the direction of the -arrow-.

### Note

The torque to drive the A/C compressor is transferred to the drive plate -C- via the threaded connection. If, while the A/C compressor is working, the drive plate -C- was attached to the A/C compressor shaft so tight, that it cannot be loosened (the 7 mm Allen wrench -B- cannot transmit the necessary torque) then the A/C compressor must be replaced.



- Remove drive plate -C-.



- Remove circlip -A-.
- Remove pulley -B-.

### Installation



#### Note

Replace circlip -A-.

Clean A/C compressor flange before sliding on belt pulley -B-.

When installing the circlip -A-, note that it cannot be bent open more than is necessary for installation.

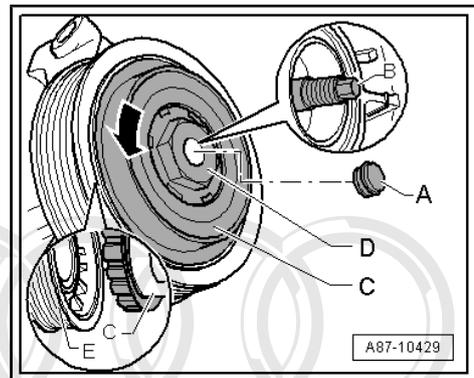
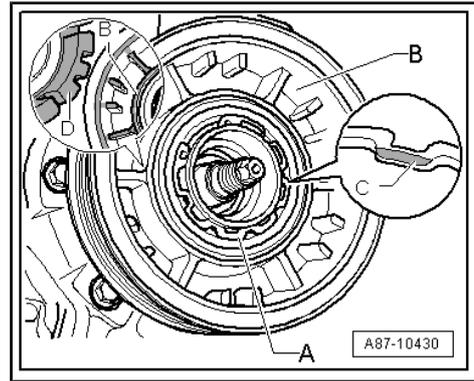
- Install belt pulley -B-.
- Insert circlip -A- on correct side, the side with beveled insertion edge -C- faces away from A/C compressor (install flat side facing compressor).
- Clean the compressor shaft thread before mounting the drive plate.



#### Note

The thread of the new drive plate has already been greased with a specific amount of a grease by the manufacturer.

- When installing drive plate, coat rubber element -D- lightly, for example, with tire mounting paste or soap solution (as sliding compound).
- Insert rubber element -D- in belt pulley -B- according to illustration.
- Press the drive plate rubber element -C- far enough into the pulley -E- until the drive plate -C- until it contacts A/C compressor shaft -B- .
- Install the drive plate -C- onto the compressor shaft -B- by rotating it opposite the direction of arrow -arrow-.
- Hold the compressor input shaft -B- for example, with a standard Allen wrench (7 mm) and turn the drive plate -C- together with the pulley -E- in the direction of the arrow -arrow-.



# Audi

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# erWin

### 5.6.3 Sanden A/C Compressor

#### Note

- ◆ *Belt pulley is sensitive to impact. Handle it with special care*
  - ◆ *If overload protection of pulley triggers, check the A/C compressor for ease of motion before replacing the pulley. If the A/C compressor creates friction, replace it completely.*
  - ◆ *To remove belt pulley, it depends on engine version if it is necessary to remove A/C compressor from engine. Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket"](#), page 103 .*
  - ◆ *Different versions of the belt pulley may be installed depending on the A/C compressor and engine. Make sure to use the correct allocation. Refer to the Electronic Parts Catalog.*
- Perform preliminary work as for removing belt pulley, refer to ⇒ ["1.1 A/C Compressor Belt Pulley, Replacement"](#), page 24 .

#### Replacing a version 1 belt pulley (installed in 5 cylinder TFSI vehicles)

##### 1 - Hex Head Nut

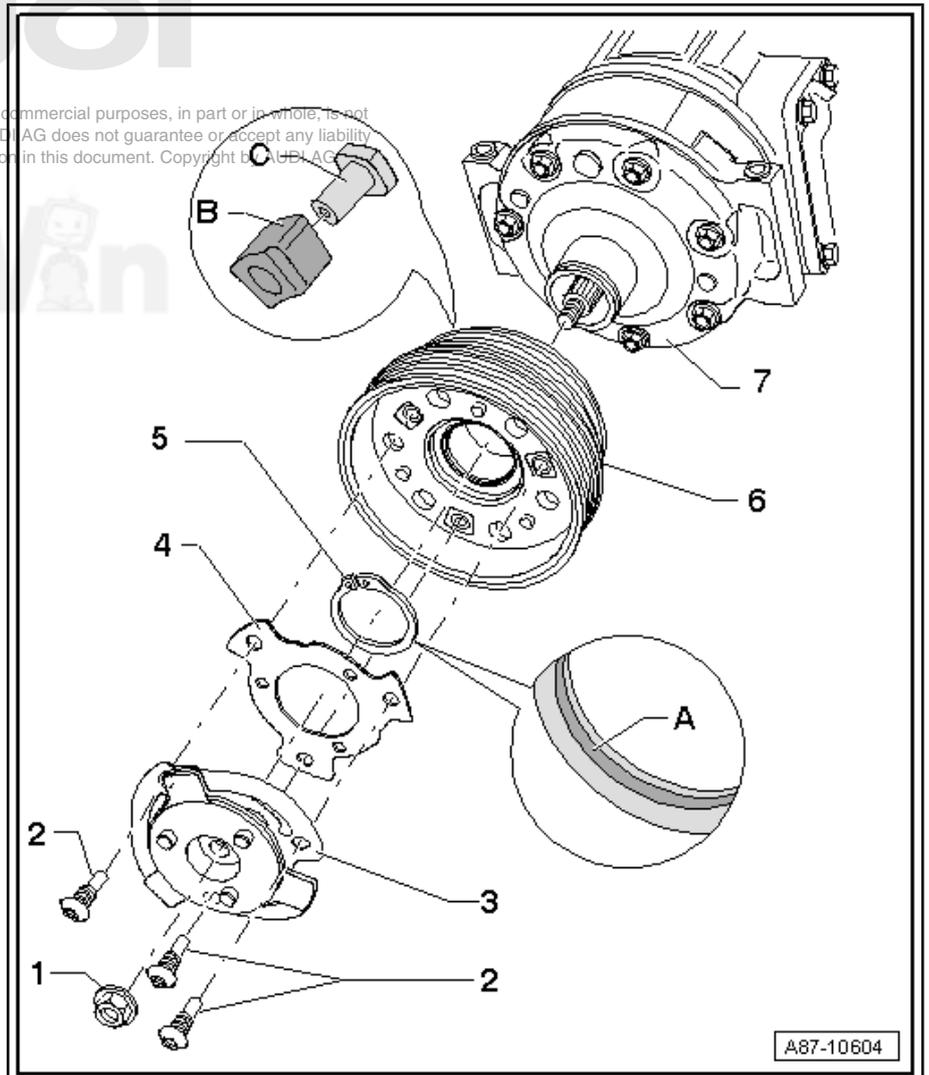
#### Note

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- ❑ **To loosen and tighten hex nut, hold belt pulley firmly in place using a standard band wrench (with webbing).**
- ❑ Clean threads of hex nut and threads of A/C compressor shaft of old thread locking compound before screwing on.
- ❑ Install the hex nut with thread locking compound (e.g. with D 000 600 A2). Refer to Electronic Parts Catalog (ETKA).
- ❑ Nut tightening specification: 25 Nm

##### 2 - Screw

- ❑ **To loosen and tighten bolts, hold belt pulley firmly in place using a standard band wrench (with webbing).**
- ❑ Tightening specification: 12 Nm
- ❑ Clean old bolt locking compound from thread of bolts and threads of belt pulley before screwing on.
- ❑ Install the bolts with thread locking compound (for example, D 000 600 A2). Refer to the Electronic Parts Catalog.





### 3 - Drive Plate

- The overload protection (securing spring elements), takes over when the torque is excessive (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- Drive plate spring elements damp vibrations and noise.

### 4 - Spacer

### 5 - Circlip

- Replace
- Install on proper side, beveled insertion edge -A- faces away from A/C compressor (install flat side facing the A/C compressor).
- When installing circlip, note that it cannot be bent open more than is necessary for installation.

### 6 - Belt Pulley With Double Belt Guide

- Clean A/C compressor flange before sliding on pulley.
- With rubber elements -B- and threaded plates -C- for decoupling belt pulley from A/C compressor input shaft (rubber elements damp vibrations and noise).



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### 7 - A/C Compressor

- Different versions may be installed, depending on engine version and country version of vehicle. Refer to Electronic Parts Catalog (ETKA).
- Clean A/C compressor flange before sliding on pulley.

### Replacing a version 2 belt pulley (installed in 4 or 6 cylinder engines)

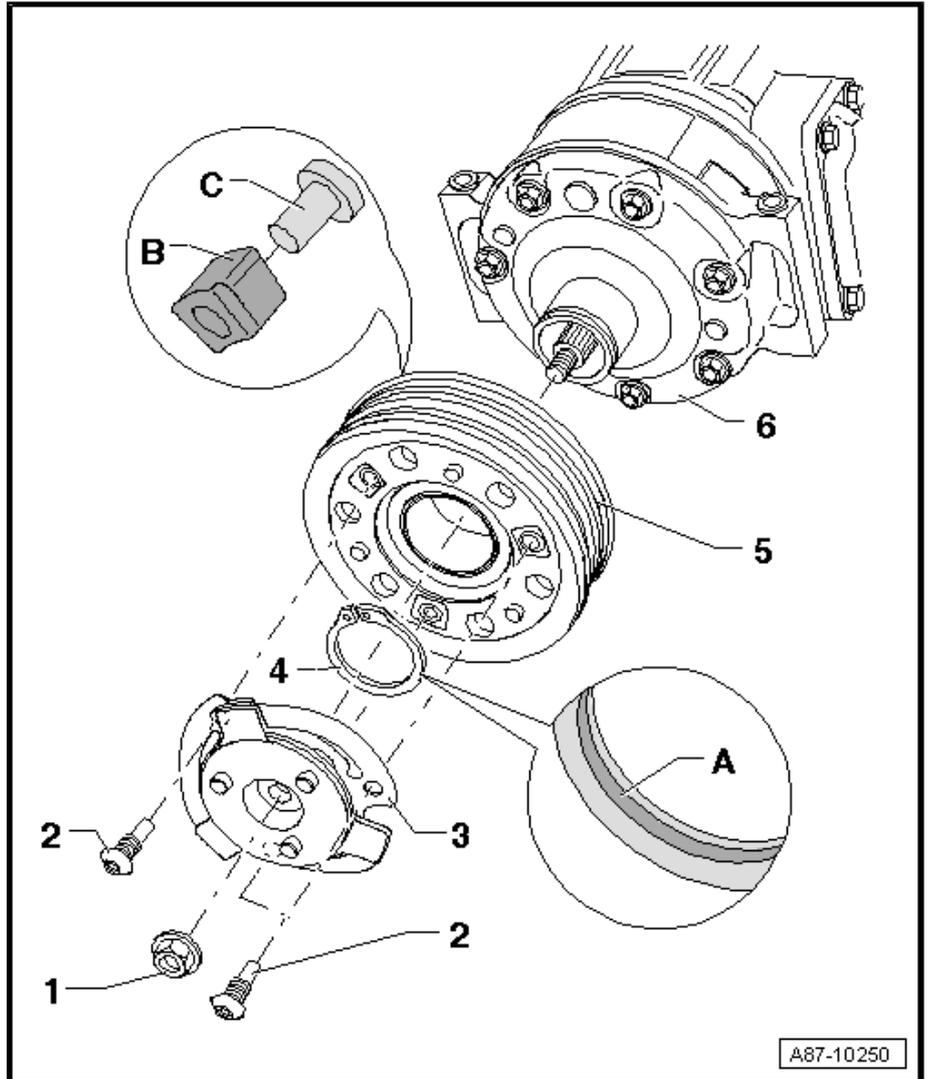
### 1 - Hex Head Nut

**i** Note

- To loosen and tighten hex nut, hold belt pulley firmly in place using a standard band wrench (with webbing).
- Clean threads of hex nut and threads of A/C compressor shaft of old thread locking compound before screwing on.
- Install the hex nut with thread locking compound (e.g. with D 000 600 A2). Refer to Electronic Parts Catalog.
- Nut tightening specification: 25 Nm

### 2 - Screw

- To loosen and tighten bolts, hold belt pulley firmly in place using a standard band wrench (with webbing).
- Tightening specification 12 Nm
- Clean old bolt locking compound from thread of bolts and threads of belt pulley before screwing on.
- Install the bolts with thread locking compound (for example, D 000 600 A2). Refer to the Electronic Parts Catalog.



### 3 - Drive Plate

- The overload protection (securing spring elements), takes over when the torque is excessive (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- Drive plate spring elements damp vibrations and noise.

### 4 - Circlip

- Replace
- Install on proper side, beveled insertion edge -A- faces away from A/C compressor (install flat side facing the A/C compressor).
- When installing circlip, note that it cannot be bent open more than is necessary for installation.

### 5 - Belt Pulley

- Clean A/C compressor flange before sliding on pulley.
- With rubber elements -B- and threaded plates -C- for decoupling belt pulley from A/C compressor input shaft (rubber elements damp vibrations and noise).

**i** Note

### 6 - A/C Compressor

- Different versions may be installed, depending on engine version and country version of vehicle. Refer to Electronic Parts Catalog (ETKA).

- ❑ Clean A/C compressor flange before sliding on pulley.

## 5.7 Climatronic Control Module -J255-

### Special tools and workshop equipment required

- ◆ Hook -3438-

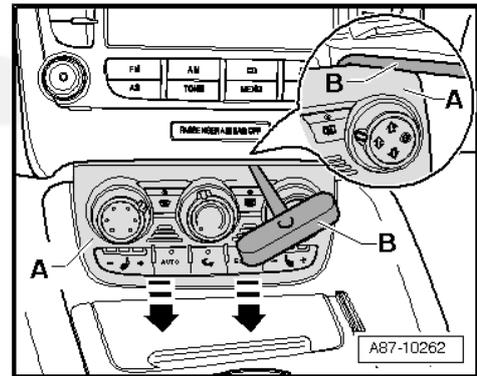
### Removing

- Check coding and adaptation of the Climatronic control module using the "Replace control module" function in Guided Fault Finding (if the Climatronic control module is to be replaced). Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the Guided Fault Finding function.
- Switch off ignition.
- Place -3438- -B- on Climatronic control module-A- according to illustration (left and right).
- Carefully pull Climatronic control module in -direction of arrow- out of center console.



### Caution

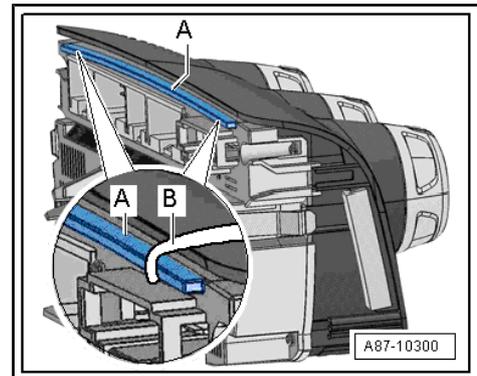
- ◆ To prevent damage to the Climatronic control module and center console, do not pull too hard.
- ◆ The Climatronic control module is held by the clips and brackets in the center console. If clips are stuck, they must be loosened from behind with a screwdriver. Refer to [⇒ page 124](#).
- ◆ Do not damage surface of center console when removing (cover it if necessary).



### Note

In model year 2007, Climatronic control modules with an additional strip -A- (for reinforcement) on the back side will be installed as a running change. Place -3438- -B- at left and right on this strip -A-.

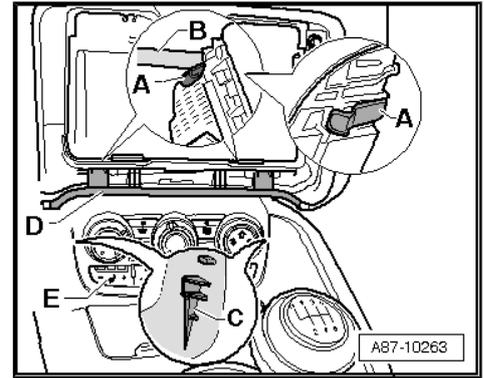
### Climatronic control module -J255- stuck in center console, removing



 **Note**

*At start of production, clips -A- are installed on the Climatronic control module -J255- that hold control head firmly in center console so that it cannot be removed without first loosening the retainer (a revised retainer will be introduced as a running change, the deadline is not yet finalized).*

- Remove radio or radio navigation system. Refer to⇒ Communication; Rep. Gr. 91 ; Removal and Installation .
- Remove trim -D-. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Using a small screwdriver -B-, reach in instrument panel opening and loosen clips retainer -A- (left and right on A/C / heater control head) from center console brackets -C-.
- Slide Climatronic control module-E- out of center console.



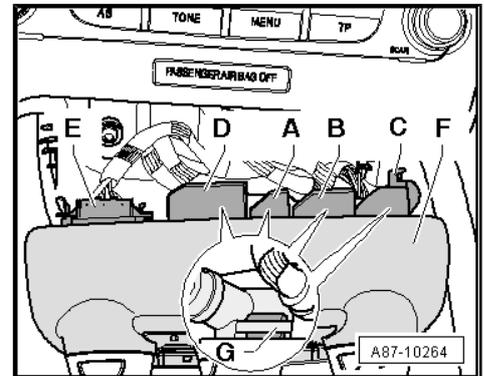
**Climatronic control module connectors, removing**

- Loosen retainers on connector -E- and remove.
- Carefully turn Climatronic control module -F- 180°.
- Release connectors -D-, -A- through -C- by pressing retaining tabs -G- and remove them.

**Installing**

Installation is carried out in the reverse order while observing the following.

- ◆ When replacing a Climatronic control module, observe exact allocation. Refer to Electronic Parts Catalog (ETKA). Different versions, with or without seat heating switch, with different temperature unit (°C or °F) on temperature setting rotary switch, rotary switches with black or silver (chrome-plated) surface.
- ◆ Heater control head, replacement part number 8J0 819 043 starting with index "D", may be installed on 5 cylinder vehicles. Refer to Electronic Parts Catalog (ETKA) and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ 5 cylinder vehicle may only have A/C controls, part number 8J0 820 043 starting with index "D". Refer to the Electronic Parts Catalog and Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ After replacing/installing Climatronic control module -J255- , always perform the following work using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function
  - Recode Climatronic control module (or check code).
  - Perform Climatronic control module basic setting.
  - Check Climatronic control module DTC memory (and correct cause of any possible malfunctions displayed).
  - If necessary, check Climatronic control module adaptation.
  - Perform Climatronic control module output diagnostic test mode.



## 5.8 Door Motors

⇒ [“5.8.1 Air Flow Door Motor V71 “, page 126](#)

⇒ [“5.8.2 Central Air Door Motor V70 / V145 “, page 130](#)

⇒ [“5.8.3 Defroster Door Motor V107 “, page 131](#)

⇒ [“5.8.4 Left Temperature Door Motor V158 “, page 133](#)

⇒ [“5.8.5 Recirculation Door Motor V113 “, page 135](#)

⇒ [“5.8.6 Right Temperature Door Motor V159 “, page 137](#)

### 5.8.1 Air Flow Door Motor -V71-



#### Note

- ◆ After the new motor is installed, make sure the Climatronic control module -J255- activates the motor and that the motor is working correctly (the recirculation and fresh air doors are in the correct position). Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Air Flow Door Motor can only be removed without difficulty in "fresh air mode stop" and installed only in this position. If the motor stops in a different position and can no longer be moved electrically into the "fresh air mode stop", replace it.

#### Removing

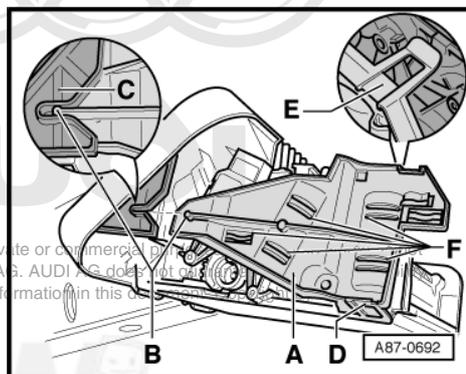
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- If necessary, switch on the ignition on and select "Defrost" on the Climatronic control module, and (press the **Defrost** button; the indicator lamp inside the "Defrost" button will illuminate).



#### Note

In the "Defrost" operating mode, the positioning motor is always placed in the "Fresh air operation" position.

- Wait until the motor reaches it end position "fresh air operation" (approximately 20 seconds).
- Switch off ignition.
- Disengage catches -D- and -E- for bracket -A- on intake housing and remove bracket -A-.
- Remove Recirculation Door Motor -V113- . Refer to ⇒ [“5.8.5 Recirculation Door Motor V113 “, page 135](#) .
- Mark connector to Recirculation Door Motor (to prevent interchange with connector to Air Flow Door Motor -V71- ).

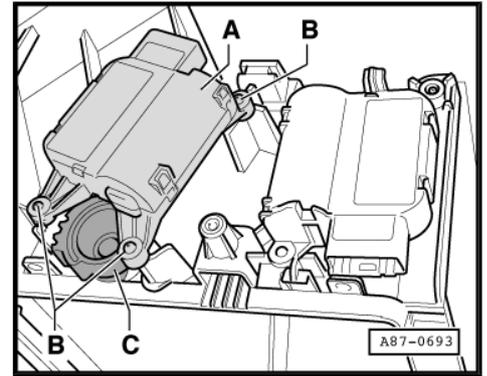


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- Remove Air Flow Door Motor -A- from air intake shroud.
- Mark connector to Air Flow Door Motor and remove it.

**i Note**

- ◆ *The connection between the airflow door motor gears and the gears on the back pressure door is designed so the airflow door motor can be removed easily only in the "fresh air operation" position.*
- ◆ *If motor is found in a different position and can no longer be moved, motor cannot be simply pulled off, rather it must be loosened first with great force from mounting points -B-, ensure that toothed gear -C- is not damaged when doing this.*

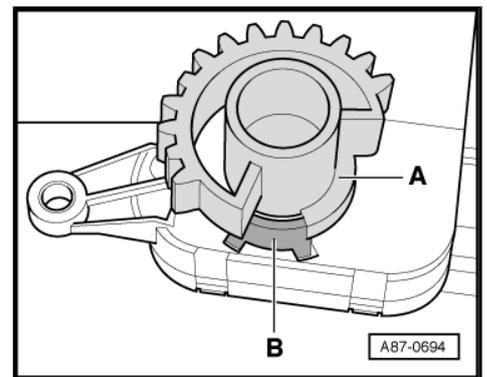


**Installing**

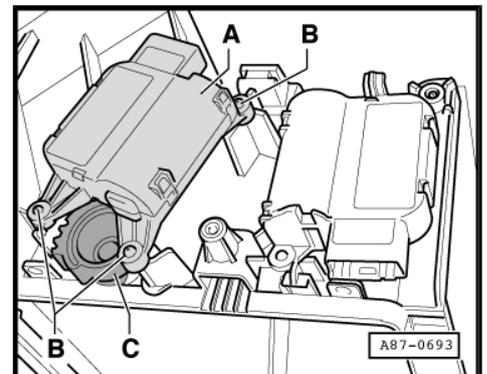
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**i Note**

- ◆ *The airflow door motor is delivered as a replacement part in "fresh air operation" position. It can only be placed on the back pressure door toothed gear when toothed gear -A- contacts stop -B-. If an airflow door motor was removed in a different position or activated in the removed state, it cannot be installed.*
- ◆ *If the gear -A- on the airflow door motor is not in -B- "fresh air operation", then connect motor via accompanying connector to the vehicle wiring harness. Then switch on ignition and select "Defrost" operating mode on the Climatronic control module -J255- A/C (heater) control head (positioning motor moves to "fresh air operation" stop -B-).*
- ◆ *If positioning motor terminals 5 and 6 are connected to via a 5 A fuse to a 12 volt battery, e.g. with an adapter cable => "1.7 Adapter Cable for Activating Control Motors", page 30 or line from the Connector Test Kit -V.A.G 1594 C-, it moves to stop in one direction. The direction of rotation is changed by exchanging the "positive" and "negative".*

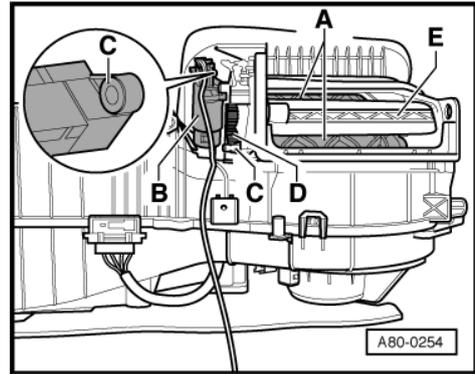


- Activate the motor until the toothed gear -A- reaches stop "fresh air mode" -B-.
- Switch off ignition if necessary.
- Before installing control motor, check back pressure door bearing in air intake shroud and position of toothed gear -C- (back pressure door is open, fresh air mode).
- Connect airflow door motor -V71- to vehicle wiring harness (make sure connectors are allocated correctly).

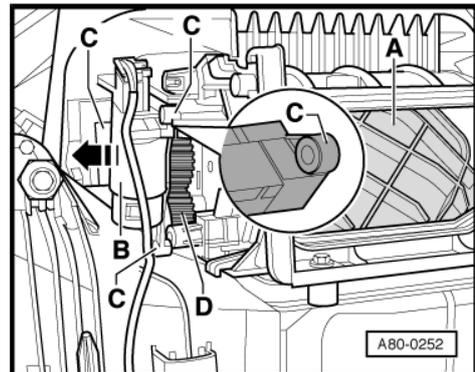




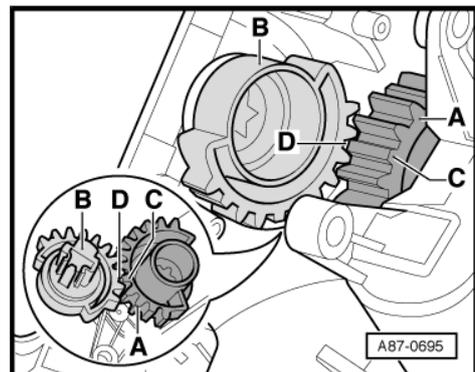
- Open the air recirculation door -E-.
- Reach into intake opening for recirculating air mode and bring air flow door -A- into "fresh air mode" position (intake opening for recirculating air mode is closed).



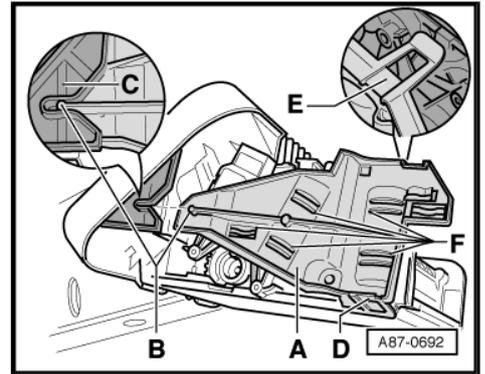
- Insert airflow door motor -B- opposite direction of arrow in mounts -C- and on toothed gear -D-.



- So that toothed gear on motor -A- can be slid on toothed gear of air flow door, short tooth -C- of motor toothed gear must align with short tooth interval -D- of toothed gear on shaft of air flow door -B-.
- Install Recirculation Door Motor -V113- . Refer to [⇒ "5.8.5 Recirculation Door Motor V113", page 135](#) .
- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).



- Install the bracket -A-, make sure the guides on the bracket -B- are inserted correctly into the intake housing mount -C- and that the bracket is engaged correctly in both catches -D- and -E-.
- Check both motors, it must be held in its position by bracket -A-, if it is not installed free of play, use some foam to rectify play if necessary, attaching it to inside of mounting points -F- of bracket -A-.



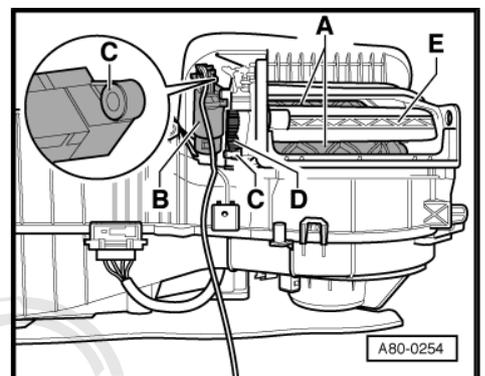
**i Note**

◆ The position of the airflow door motor and of the recirculation door motor -V113- is no longer visible when the glove compartment is installed. Make sure they are working correctly before installing the glove compartment.

◆ If both toothed gears (on airflow door motor -V71- and air flow door) assembled in the incorrect position, air flow door will not reach its two end positions (may be detected as a malfunction via "Basic Setting" function) or motor does not run cleanly and without hitching.

- Switch ignition on.
- Check A/C control head DTC memory and delete any malfunctions shown using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting on the A/C and then check the A/C DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

- Activate Airflow door motor -V71- and recirculation door motor via Climatronic control module -J255- as follows until toothed gear reaches stop "recirculating air mode" (this illustration depicts air flow door -A- at stop for "fresh air mode") and then check position of air flow door, it must be closed.
- Next, select "Recirculation mode" function on Climatronic control module.

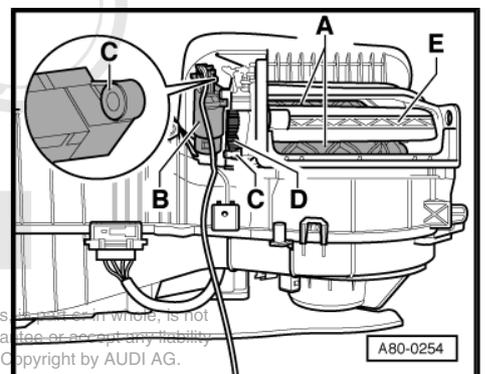


Recirculation door motor opens door -E- and Airflow door motor -V71- sets air flow door -A- into position "air intake opening for recirculating air mode open".

Wait until both motors have reached their end positions.

- Select "Defrost" operating mode on Climatronic control module -J255- (press **Defrost** button, indicator light in **Defrost** button lights up; positioning motors are always placed in "fresh air mode" position in this operating mode).

Airflow door motor sets air flow door -A- into "air intake opening for recirculating air mode closed" position. Recirculation door Motor -V113- sets door -E- into a position specified by Climatronic control module.



Wait until both motors have reached their end positions.

Install all remaining removed components in reversed order.

## 5.8.2 Central Air Door Motor -V70- / -V145- with Central Door Motor Position Sensor -G112-



### Note

- ◆ Depending on the version of the Climatronic control module -J255-, the Central Air Door Motor (with Central Door Motor Position Sensor -G112-) may be designated as Front Air Distribution Motor -V145- (with Front Air Distribution Motor Position Sensor -G470-) in On Board Diagnostic (OBD).
- ◆ You can check the adjustment motor's function via the "output diagnostic test mode" using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 volt DC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors"](#), page 30 .
- ◆ Perform a basic setting to the A/C (heating) system after installing a new motor using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Using the functions "Output diagnostic test mode" and "Basic setting", the activation of A/C system electrical components can be tested if necessary (e.g. allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

### Removing

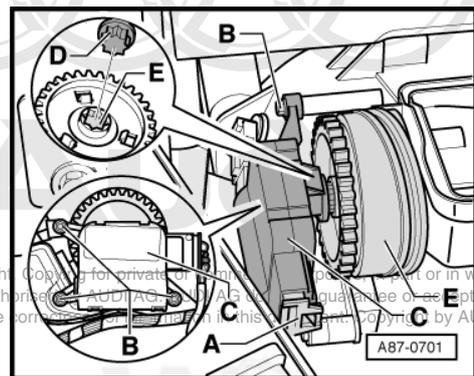
- Remove instrument panel (central tube remains installed). Refer to ⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Reach through opening between left side of A/C unit and central tube (instrument panel cross member) and disconnect connector -A-.
- Mark connector -A- if necessary (to rule out an interchange in the event several connectors are disconnected at the same time).
- Remove bolts -B-.
- Remove control motor -C-.

### Installing

- Insert stub -D- into socket -E-.

Reinstall all removed components in the opposite sequence while observing the following:

- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C (heater) and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



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### 5.8.3 Defroster Door Motor -V107- with Defroster Door Motor Position Sensor -G135-

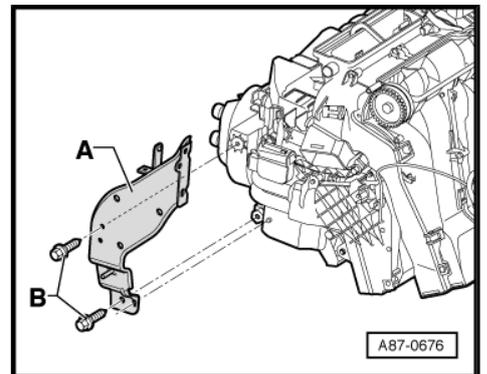
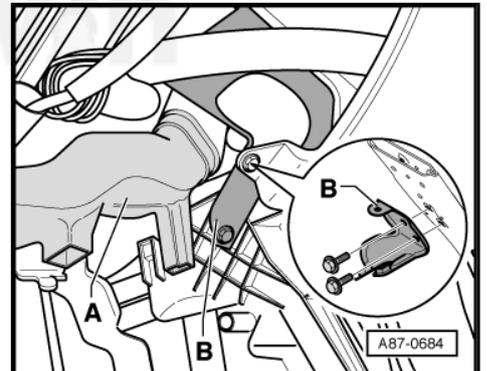
 **Note**

- ◆ You can check the adjustment motor's function via the "output diagnostic test mode" using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 volt DC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors"](#), page 30 .
- ◆ Perform a basic setting on the A/C after installing a new motor. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Use "output diagnostic test mode" and "basic setting" to test the activation of A/C electrical components, if necessary (for example, allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ This motor is fastened on the right on air distributor housing in vehicles with right-side steering.

#### Removing

- Remove the complete instrument panel and instrument panel cross-member. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Remove left footwell vent -A- (driver side). Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove Data bus on board diagnostic interface -J533- (secured to bracket -A- in area of steering column). Refer to⇒ Electrical Equipment; Rep. Gr. 90 ; Removal and Installation .
- Remove bracket -A-. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .

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- Mark connector -C- to Defroster Door Motor -V107- (danger of interchange with other connectors of same construction).
- Disconnect connector -C- from defroster door motor.
- Remove bolts -A-.
- Remove control motor -B-.
- Loosen lever -E- on defroster door motor from the connecting rod -D-.

### Installing

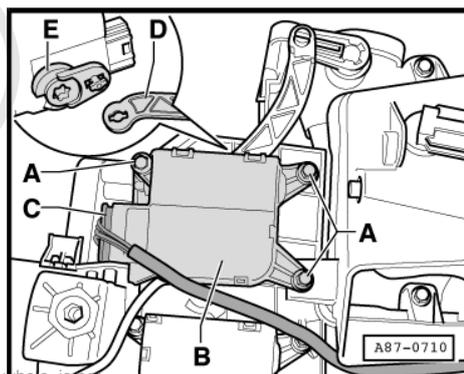
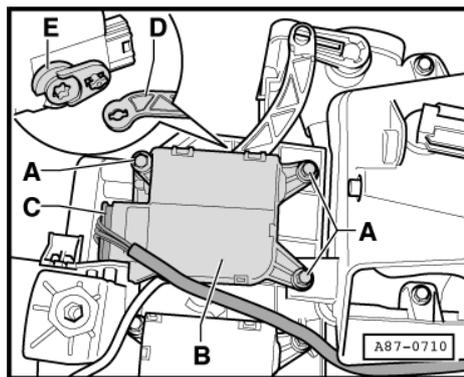


### Note

Lever -E- on control motor and connecting rod -D- are color-coded, they are colored blue for defroster door motor.

Reinstall all removed components in the opposite sequence while observing the following:

- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



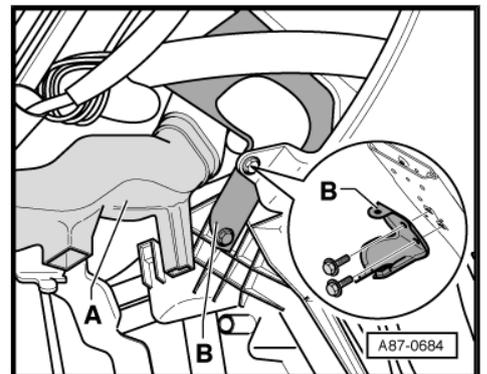
## 5.8.4 Left Temperature Door Motor -V158- with Left Temperature Door Potentiometer/Actuator -G220-

### Note

- ◆ You can check the adjustment motor's function via the "output diagnostic test mode" using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 volt DC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors"](#), page 30 .
- ◆ Perform a basic setting on the A/C after installing a new motor. Refer to Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.
- ◆ Use "output diagnostic test mode" and "basic setting" to test the activation of A/C (heater) electrical components, if necessary (for example, allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ On the Audi TT with A/C system, both motors for left and right temperature doors are controlled via one characteristics curve, depending on the programmed end stops (only one temperature setting on the Climatronic control module - J255- ).
- ◆ Depending on the measured temperatures, the calculated sunlight intensity and setting on Climatronic control module, the calculated specified outflow temperature and therefore, the specified position of the positioning motor, may be different for the left and right side.
- ◆ On the Audi TT with heater (without A/C system), only one temperature door motor is installed. Both temperature doors for the left and right sides are connected via a shaft and moved together by the Left Temperature door Motor -V158- .

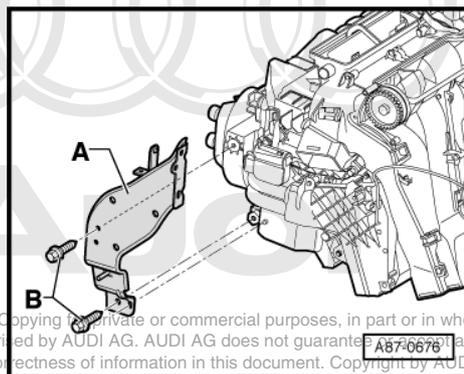
### Removing

- Remove the complete instrument panel and instrument panel cross-member. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- Remove left footwell vent -A- (driver side). Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



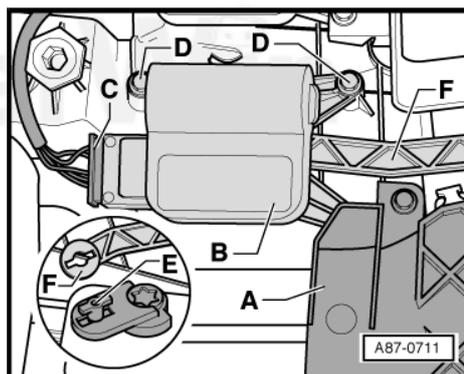


- Remove Data bus on board diagnostic interface -J533- (secured to bracket -A- in area of steering column). Refer to→ Electrical Equipment; Rep. Gr. 90 ; Removal and Installation .
- Remove bracket -A-. Refer to→ Body Interior; Rep. Gr. 70 ; Removal and Installation .



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- Mark connector -C- to Left Temperature Door Motor -V158- (danger of interchange with other connectors of same construction).
- Disconnect connector -C- from Left Temperature Door Motor.
- Remove cover (on heater core) -A-.
- Remove bolts -D-.
- Remove Left Temperature Door Motor -B-.
- Loosen lever -E- on Left Temperature Door Motor from connecting rod -F-.



**Installing**

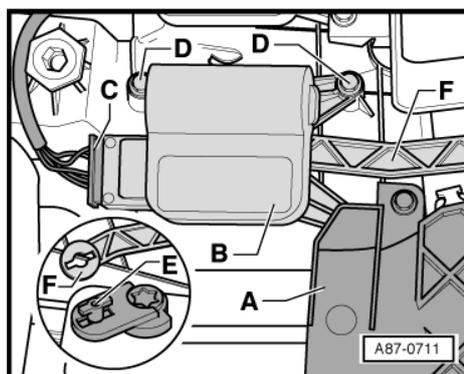


**Note**

Currently the lever -E- on the motor is "gray" and the connecting rod -F- "black".

Reinstall all removed components in the opposite sequence while observing the following:

- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



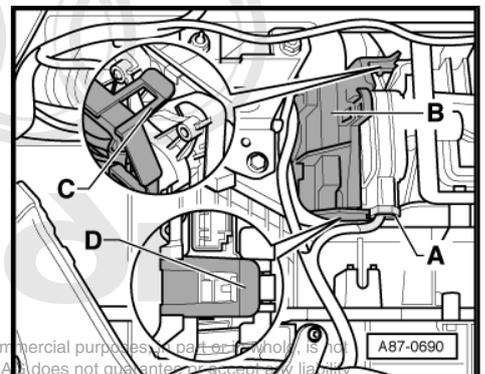
## 5.8.5 Recirculation Door Motor -V113- with Recirculation Door Motor Position Sensor -G143-

### Note

- ◆ You can check the adjustment motor's function via the "output diagnostic test mode" using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 VDC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors"](#), page 30 .
- ◆ Perform Basic Setting of A/C system after installing a new control motor using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Using the functions "Output diagnostic test mode" and "Basic setting", the activation of A/C system electrical components can be tested if necessary (e.g. allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.

### Removing

- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Mark connector -A- if necessary (to rule out an interchange in the event several connectors are disconnected at the same time).
- Disconnect the connector -A-.
- Disengage catches -C- and -D- for bracket -B- on intake housing and remove bracket -B- (toward rear).

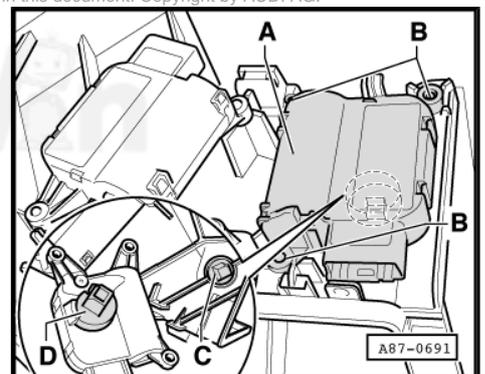


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- Remove positioning motor -A- from air intake shroud.

### Installing

- Check shaft of recirculation door -C- before installing control motor -A-.
- Set shaft -C- so that connecting element of control motor -D- can be inserted.
- Insert control motor with connecting element -D- into shaft -C- and mounts at intake housing -B-.

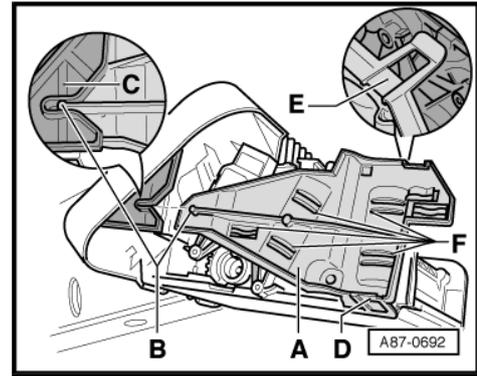




- Install the bracket -A-, make sure the guides on the bracket -B- are inserted correctly into the intake housing mount -C- and that the bracket is engaged correctly in both catches -D- and -E-.
- Check both motors, it must be held in its position by bracket -A-, if it is not installed free of play, use some foam to rectify play if necessary, attaching it to inside of mounting points -F- of bracket -A-.

Reinstall all removed components in the opposite sequence while observing the following:

- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C (heater) and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.



Note

*In the event of problems with moisture in passenger compartment, additionally check recirculated-air door (must close completely).*

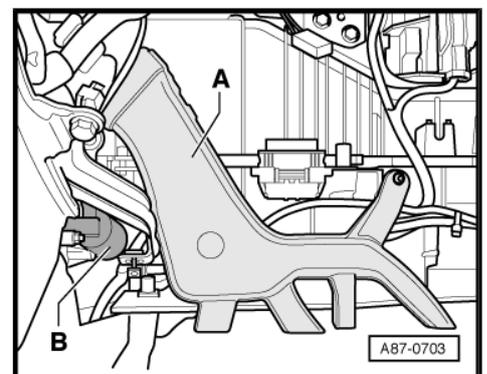
## 5.8.6 Right Temperature Door Motor -V159- with Right Temperature Door Potentiometer/Actuator -G221-

### Note

- ◆ You can check the adjustment motor's function via the "output diagnostic test mode" using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function or check it without a tester as follows: if not using a tester, connect both contacts 5 and 6 on the adjustment motor's connector to a 12 volt DC source. The adjustment motor will move in one direction up until the stop, and will reverse direction if the plus and minus contacts are switched. Use an adapter cable. Refer to ["1.7 Adapter Cable for Activating Control Motors", page 30](#).
- ◆ Perform a basic setting to the A/C (heating) system after installing a new motor using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ Using the functions "Output diagnostic test mode" and "Basic setting", the activation of A/C system electrical components can be tested if necessary (e.g. allocation test) using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- ◆ On the Audi TT with A/C system, both motors for left and right temperature doors are controlled via one characteristics curve, depending on the programmed end stops (only one temperature setting on the Climatronic control module -J255- is possible).
- ◆ Depending on the measured temperatures, the calculated sunlight intensity and setting on Climatronic control module, the calculated specified outflow temperature and therefore, the specified position of the positioning motor, may be different for the left and right side.
- ◆ On the Audi TT with heater (without A/C system), only one temperature door motor is installed. Both temperature doors for the left and right sides are connected via a shaft and moved together by the Left Temperature door Motor -V158-.

### Removing

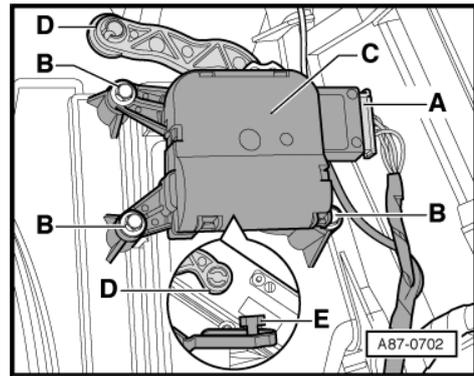
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove front passenger side footwell vent -A- (in order to improve accessibility to control motor -B-).





- Remove bolts -B-.
- Remove control motor -C-.
- Disengage control motor lever -E- from connecting rod -D-.
- Disconnect the connector -A-.

### Installing

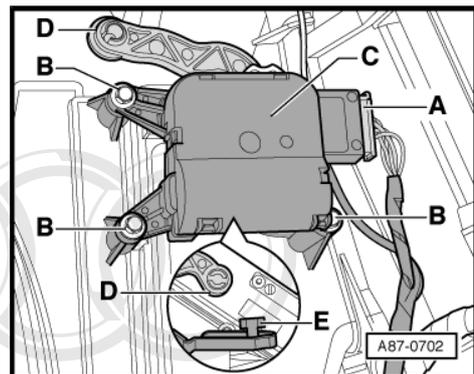


### Note

Lever -E- on control motor and connecting rod -D- are color-coded, they are colored black for Right Temperature Door Motor -V159-.

Reinstall all removed components in the opposite sequence while observing the following:

- Install the wiring harness so that it cannot come in contact with any moving parts (e.g. the actuating arm of the control motor).
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



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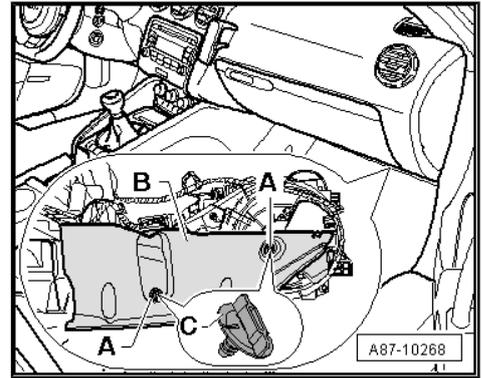
## 5.9 Dust and Pollen Filter



### Note

- ◆ *Dust and pollen filter change interval, refer to Maintenance Intervals Rep. Gr. 03.*
- ◆ *There are different versions of the dust and pollen filter (with and without an activated charcoal insert). Refer to the Electronic Parts Catalog. An Audi TT with A/C has a dust and pollen filter with an activated charcoal insert installed. An Audi TT without A/C has a dust and pollen filter without the activated charcoal insert.*
- ◆ *Clean area of dust and pollen filter in housing of A/C (heater) unit before installing a new filter.*
- ◆ *On vehicles with driving school equipment, pedals of driving school equipment must be removed if necessary (depending on version, service disconnect points are present on driving school pedals. Refer to driving school equipment).*

- Remove screw clips -A- and remove insulating mat -B-.
- Cover the carpet with paper in the area under the dust and pollen filter.



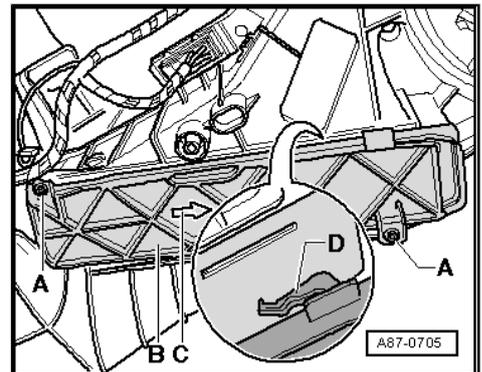
- Slide the cover -B- in direction of arrow -C- and remove it.

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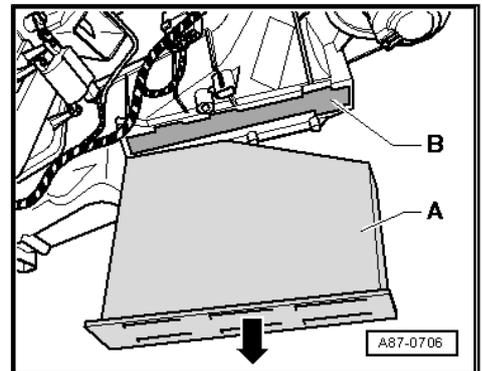


**Note**

*If retainers -D- no longer hold, cover -B- may be secured with bolts -A-.*



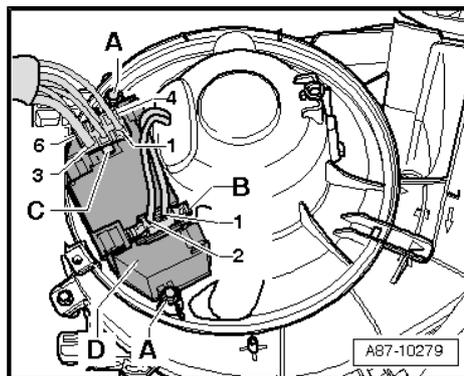
- Remove dust and pollen filter -A- out of shaft -B- of air conditioner (heating).
- Clean heating and A/C unit via shaft -B- (for example, using a vacuum cleaner) after removing dust and pollen filter.



## 5.10 Fresh Air Blower Control Module -J126-

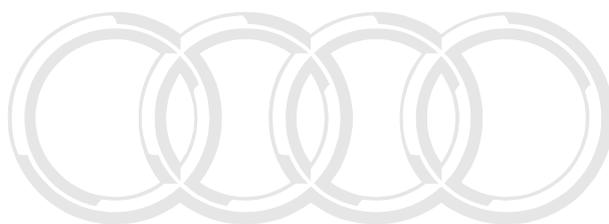
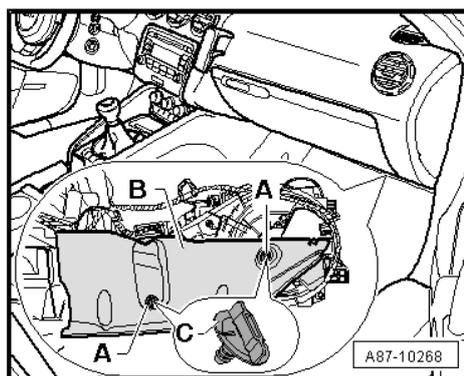
### Note

- ◆ *Fresh Air Blower Control Module can be replaced separately only on the version on which the two components are no longer cast with each other (running change in production in model year 2007). Refer to the Electronic Parts Catalog.*
- ◆ *The fresh air blower control module replacement part is available in different versions. Be sure to use the right one. Refer to the Electronic Parts Catalog.*
- ◆ *With ignition switched on and Fresh Air Blower -V2- actuated, fresh air blower control module connects "Positive" from terminal 4 of connector -C- to terminal 1 of connector -B-. Fresh Air Blower speed is regulated by fresh air blower control module via the ground connection between terminal 2 connector -B- and terminal 3 of connector -C-. Check using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function and => Wiring diagrams, Troubleshooting & Component locations.*



### Removing

- Remove the glove compartment. Refer to => Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove screw clips -A- and remove insulating mat -B-.



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- Disconnect connectors -B- and -C-.

**WARNING**  
*Heat sink on Fresh Air Blower Control Module may be hot.*

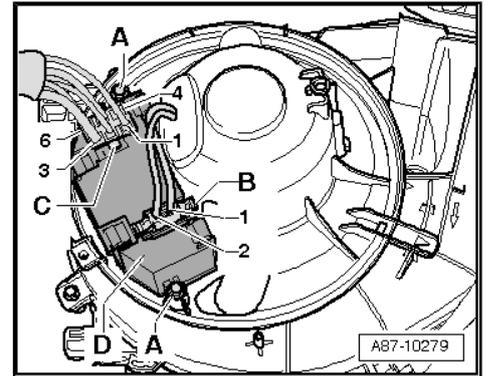
- Remove bolt -A-.
- Remove Fresh Air Blower Control Module -J126- -D- from mount in Fresh Air Blower -V2- .

**Installing**

Reinstall all removed components in the opposite sequence while observing the following:

**Note**

- ◆ *When installing, make sure the fresh air blower control module -D- fits correctly inside the fresh air blower mount.*
- ◆ *Make sure the fresh air blower control module and fresh air blower are working properly after they are installed.*
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
- Perform a basic setting and output diagnostic test on the A/C (heater) and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.

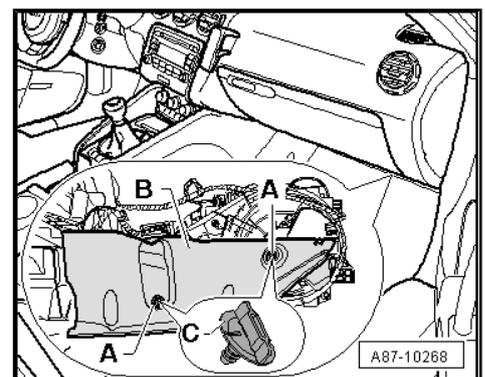


**5.11 Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-**

**Caution**  
*Do not grasp fan wheel of Fresh Air Blower, force against the fan wheel or shifting the balancing weights fastened to fan wheel may cause imbalance and then problems during operation.*

**Removing**

- Remove the glove compartment. Refer to => Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove screw clips -A- and remove insulating mat -B-.

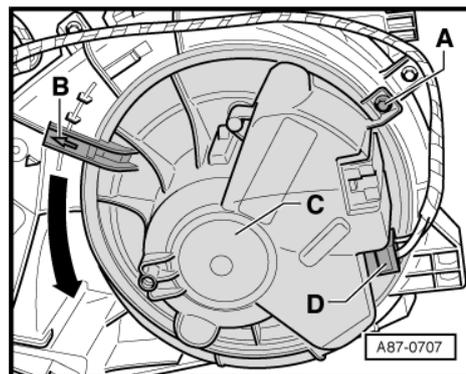




- Remove bolt -A-.
- If necessary, remove cable ties which bind wiring harness to fresh air blower housing -C-
- Disengage the locking mechanism -B- and rotate the fresh air blower housing -C- in direction of arrow.

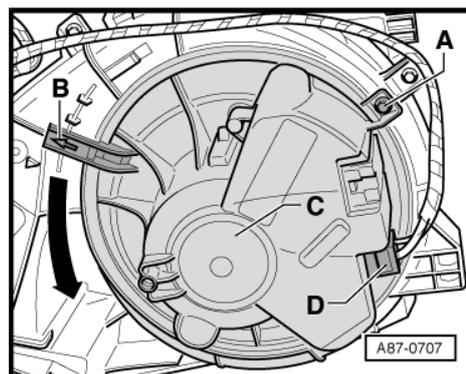
**WARNING**

*Heat sink on Fresh Air Blower Control Module may be hot.*

**Note**

- ◆ *Connection between fresh air blower housing -C- and A/C unit may be sealed with sealing compound, in this case a great use of force is required for rotating.*
- ◆ *Fresh Air Blower Control Module and fresh air blower are installed in housing -C-. On the version that was installed at the start of production, both components were cast with each other and thus cannot be replaced separately. Refer to Electronic Parts Catalog (ETKA).*

- Remove the fresh air blower housing -C- from A/C unit.
- Disconnect connector -D-.

**Installing**

Reinstall all removed components in the opposite sequence while observing the following:

**Note**

- ◆ *When installing, ensure fresh air blower is seated correctly in A/C unit.*
  - ◆ *After installing, check seating of fresh air blower housing in A/C unit and function of Fresh Air Blower Control Module.*
- Check Climatronic control module -J255- DTC memory and erase any possible displayed malfunctions using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.
  - Perform a basic setting and output diagnostic test on the A/C (heater) and check the DTC memory one more time. Refer to Vehicle diagnosis, testing and information system - VAS5051B- in the "Guided Fault Finding" function.

**5.12 Fresh Air Intake Cover****Removal**

- Remove windshield wiper arm. Refer to **Electrical system**; Rep. Gr. 92 ; Removal and Installation .

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- Remove the rubber seal -1- and remove plenum chamber cover -2- by carefully pulling it off retainers on windshield. Refer to⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .

**Checking**

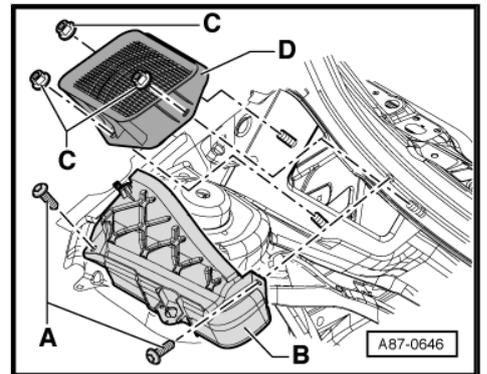
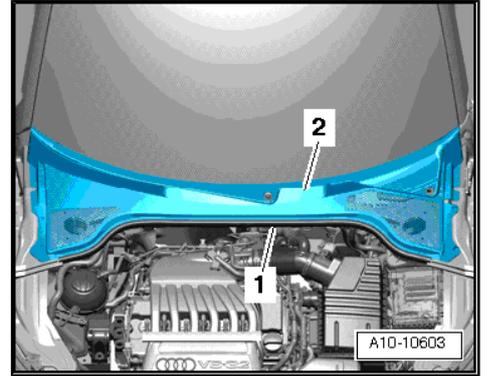
- Ensure fresh air intake cover -B- is installed correctly and is not damaged.
- Remove bolts -A- (tightening torque 2.5 Nm).
- Remove cover -B-.

**Installation**

Installation is done in reverse order, observe the following:

**Note**

- ◆ Before installing, check bonded seal and cover -B-, replace a damaged seal or cover.
- ◆ When installing, ensure cover -B- and accompanying seal are seated correctly. If cover is not installed correctly, water can run into the A/C unit air intake shroud.
- ◆ If the fresh air intake cover is damaged, it must be replaced.



**5.13 Front Upper Body Outlet Temperature Sensors -G385 - / -G386-**

**Left Front Upper Body Outlet Temperature Sensor -G385 - / Right Front Upper Body Outlet Temperature Sensor -G386-**

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**Note**

- ◆ This temperature sensor is always installed on the driver's side. The Left Front Upper Body Outlet Temperature Sensor -G385- is installed in the air guide channel leading to the left instrument panel vent.
- ◆ On vehicles with heating (without A/C system), no upper body outlet temperature sensor is installed (depending on version, mounting opening in air guide channel is not present or is sealed with a sealing plug).

**Removing**

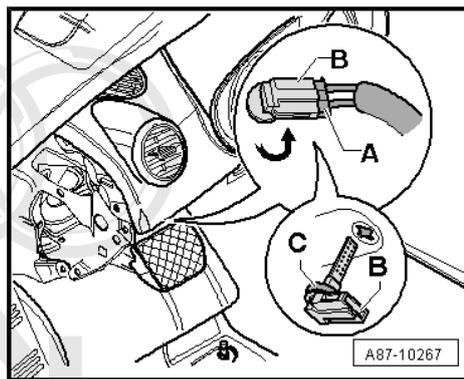
- Switch off ignition.
- Remove the driver side storage compartment. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .



- Disconnect harness connector -A- from temperature sensor.
- Turn temperature sensor -B- approximately 90°.
- Remove temperature sensor -B- from air guide.

#### Installing

- Install in reverse order of removal.
- Check seal -C- for proper seating when installing.



## 5.14 Heater Core

### Special tools and workshop equipment required

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- ◆ Hose Clamps, Up to 40 mm -3094- and
- ◆ Hose Clamps Up to 25 mm Diameter -3093-
- ◆ Compressed air gun, commercially available
- ◆ Cooling System Tester -V.A.G 1274- (and corresponding adapter)
- Switch off ignition.
- Dissipate pressure in coolant circuit by opening cap at coolant expansion tank. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; General Information .



#### Note

*Depending on the engine and type of vehicle, it may be necessary to loosen or remove various engine components in order to be able to remove the coolant hoses.*

#### Components, that must be removed on 4 cylinder engines



#### Note

*The following describes removal and installation on a 2.0L TFSI vehicle. The procedure may be different on 4 cylinder vehicles.*

- Disconnect electrical connector -3- on Mass Air Flow (MAF) Sensor -G70- .
- Open spring clips -1- and -2- and remove air guide hose from mass airflow sensor.
- Remove the air intake from lock carrier -4-.
- Remove engine cover.

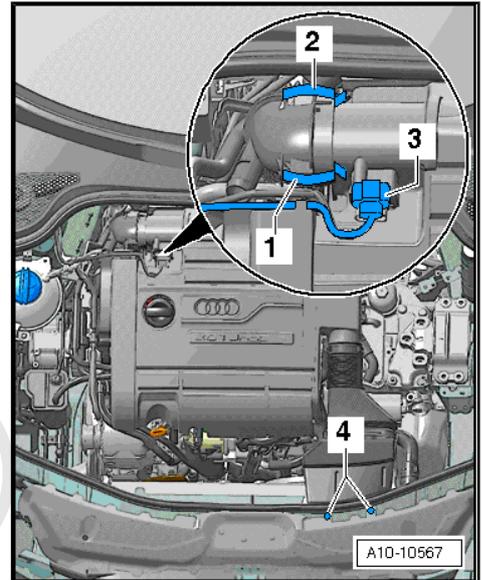
**Components, that must be removed on 5 cylinder engines**

- Remove the air guide pipe (from the air filter to the turbo-charger). Refer to ⇒ Fuel Injection and Ignition System; Rep. Gr. 24 ; Removal and Installation .

**Components, that must be removed on 6 cylinder vehicles**

**i Note**

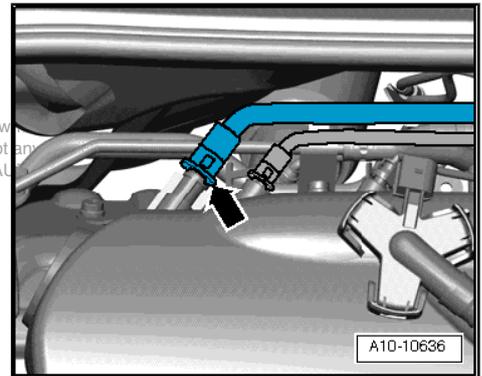
*The following describes removal and installation on a 3.2L MPI vehicle. The procedure may be different on other 6 cylinder vehicles.*



- Remove vacuum hose to brake booster -arrow-.

**Procedure continued for all vehicles**

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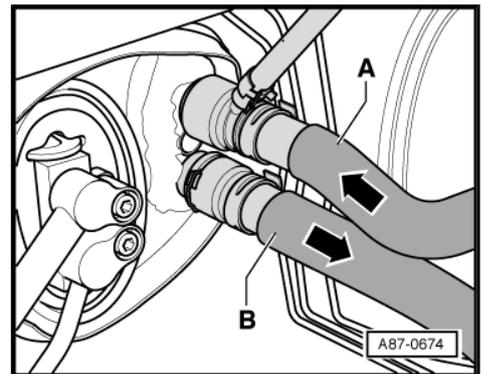


- Remove components that block access to the coolant hoses -A- and -B- in engine compartment. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .

**i Note**

*Depending on the engine and version of the vehicle, it may be necessary to loosen or remove the following components: upper engine cover, pressurized air pipe to throttle valve part, for coolant hose and expansion valve connection area heat shield, etc.).*

- Mark the arrangement of coolant hoses -A- (supply to cylinder head) and -B- (return to coolant pump).

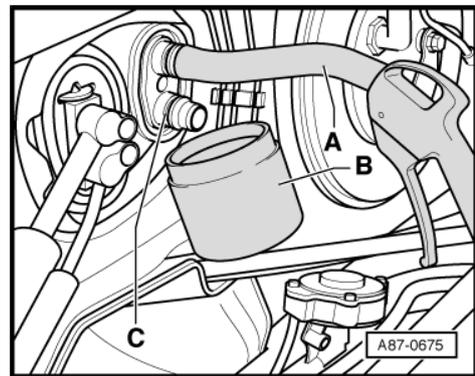
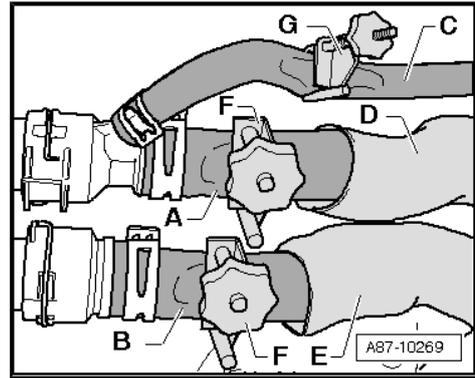


**i Note**

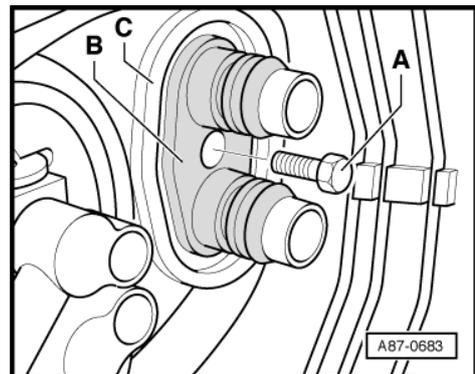
- ◆ *The heater core is designed for a specific coolant flow direction. Therefore, coolant hoses must be connected on the correct sides.*
- ◆ *Bleed the coolant circuit. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; General Information .*



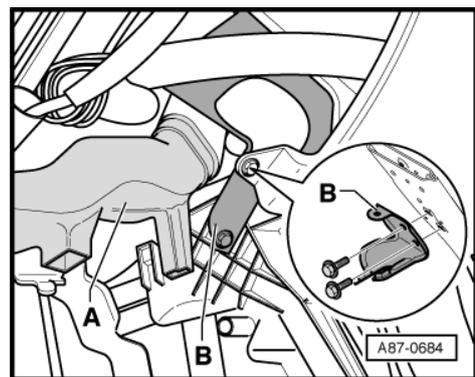
- Slide back thermal protective covers -D- and -E- far enough that -VAS 3093- -F- can be installed on the coolant hoses -A- and -B-.
- Clamp off coolant hoses -A- and -B-.
- Clamp off the ventilation hose -C- (to coolant expansion tank), with a -3094- -G-.
- Cover the area beneath connections for coolant hoses -A- and -B-, for example, with a paper towel.
- Remove coolant hoses -A- and -B- from connections to A/C unit heater core. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .
- Connect a section of hose -A- onto upper connection.
- Hold a container -B- under the lower connection -C-.
- Using a compressed air gun, carefully blow coolant out of heater core (into container -B-).



- Remove bolt -A- from connector flange -B- (so that coolant pipes can be moved to remove heater core).
- Remove storage compartment on driver side. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Remove front part of center console. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



- Remove left footwell vent -A- (driver side). Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



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- Remove the bracket -B-. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .



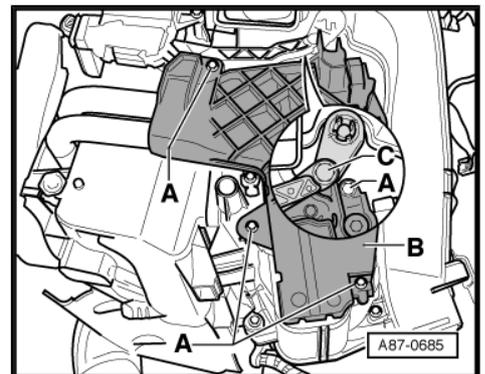
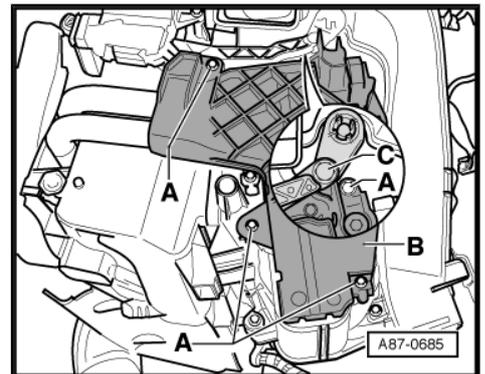
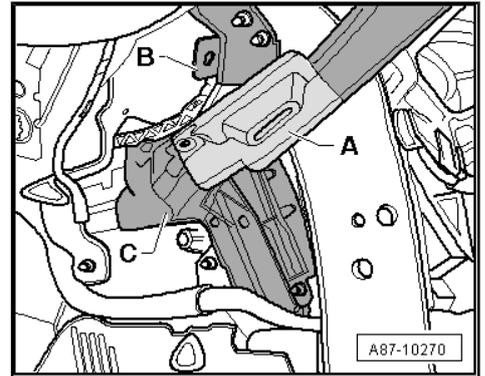
**Caution**

*If it is necessary, bend lower part of instrument panel -A- to the side to remove the bracket -B-, cover -C- and heater core. Carefully bend it only as far as necessary for removal so that the instrument panel is not damaged.*

**Removing**

- Remove 4 bolts -A- and remove cover -B-.

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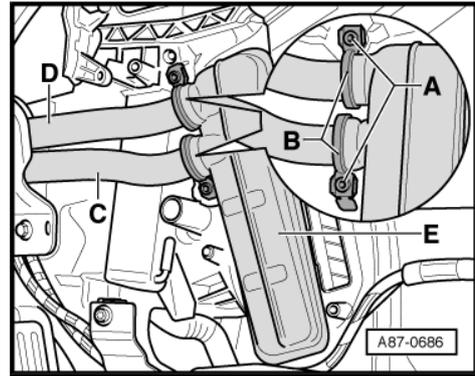


**Note**

- ◆ This illustration shows an A/C unit with an auxiliary air heater heating element -Z35- .
  - ◆ There are different versions of the cover -B- (for vehicles without or with auxiliary air heater heating element -Z35- ). Refer to Electronic Parts Catalog (ETKA).
  - ◆ If the lever -C- to the left temperature door is located unfavorably so that the upper bolt -A- is not accessible, switch ignition on and set another temperature setting on the Climatronic control module -J255- (for example, turn temperature adjuster to "Warm" end position).
- Cover carpet in area under heat exchanger with waterproof foil and absorbent paper towel.



- Remove bolts -A- and remove clamps -B- from connections of coolant pipes -C- and -D- at heater core -E-.
- Disconnect coolant pipes -C- and -D- from heater core -E- (slide coolant pipes toward the bulkhead).
- Pull heater core -E- out of heating and A/C unit.



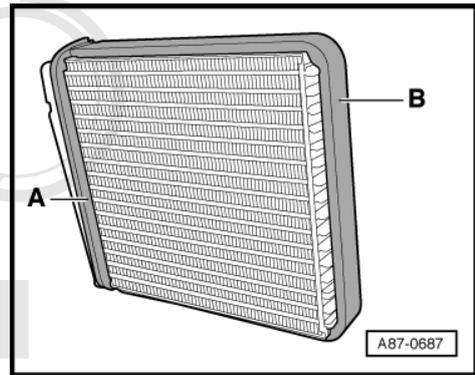
Caution

*If it is necessary, bent lower part of instrument panel -A- to side to remove heater core -E-. Carefully bend it only as far as necessary for removal so that the instrument panel is not damaged.*

Installing

Installation is carried out in the reverse order while noting the following:

- Check the heater core seals -A- and -B-.

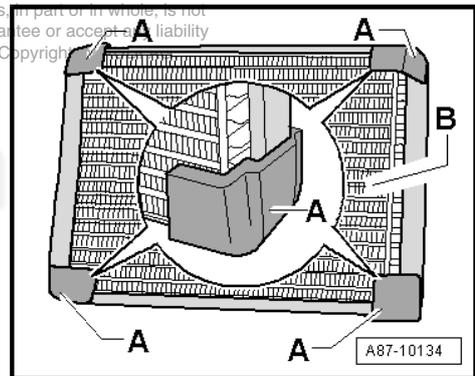


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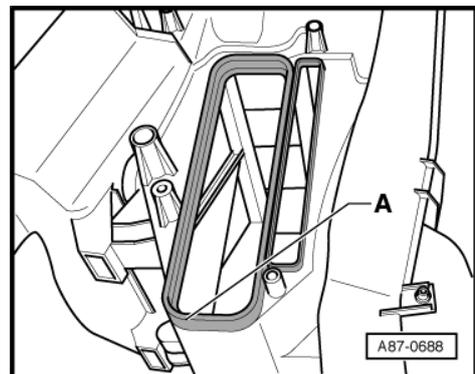


Note

- ◆ Seal may curl up on insertion if not correctly bonded on.
- ◆ Cold air may flow past heater core if seal is damaged or not properly fitted.
- ◆ Additional foam strips -A- are attached to the corners of the heater core -B-. The foam strips -A- are supposed to stop any rattling noises, which are common on diesel vehicles. Install the strips on all heat exchangers (use self-adhesive foam strips, part number 191 819 069, refer to the Electronic Parts Catalog).



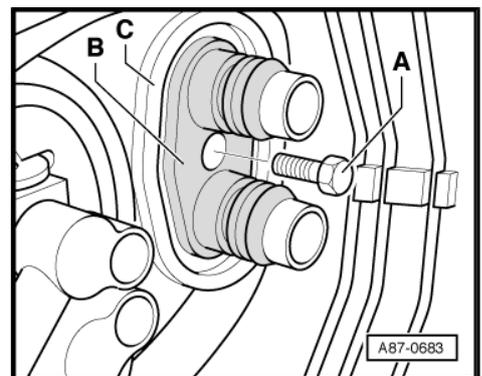
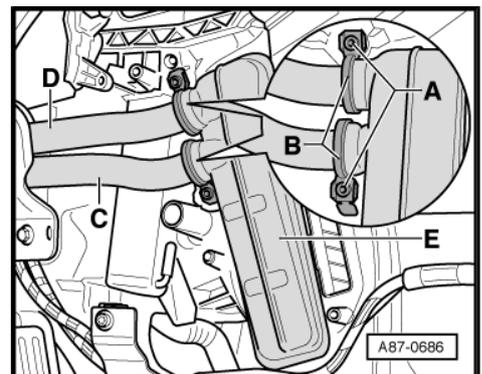
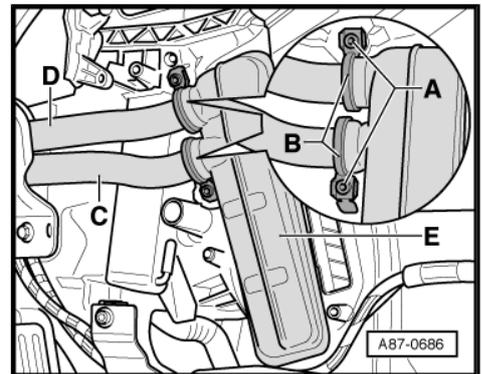
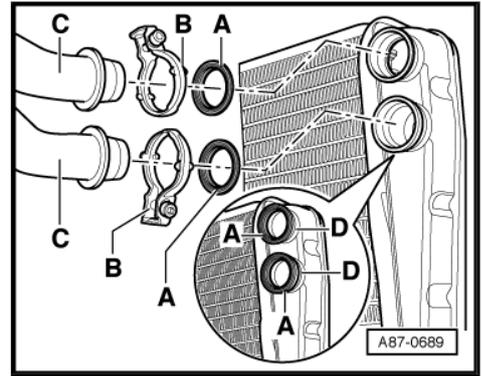
- With the heater core removed, check heating and A/C unit for soiling (via heater core opening -A-).
- Remove any dirt or coolant still inside the A/C unit (heater) after the heat exchanger is removed.
- Slide heater core into A/C (heating) unit.



- Remove old clamps -B- from both coolant pipes -C-.
- Install new clamps -B- (delivered with heater core) on both coolant pipes for heater core according to illustration.
- Moisten new seals -A- (included in heater core delivery casing) lightly with coolant.
- Insert new seals -A- into connections of heater core -D-.
- Push both coolant pipes -C- into heater core connections -D-.
- Check seating of seals -A- again between coolant pipes -C- and connections of heater core -D-.
- Secure both coolant pipes -C- and -D- with clamps -B- on heater core.
- Tighten bolts on clamps -A- to 2.5 Nm.

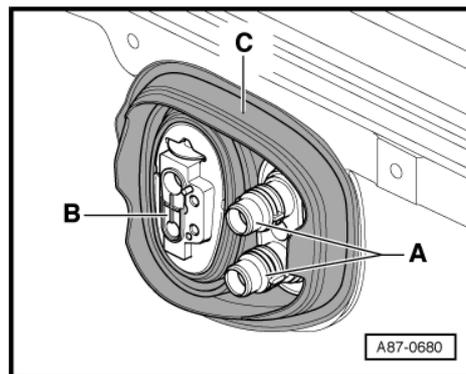
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- Check seating of both clamps -B- after tightening bolts -A-, clamps must enclose the flange on heater core and coolant pipe completely and must not touch other components.
- Thread bolt -A- into connector flange -B- (while doing this make sure bolt is actually threaded into the mounting point intended for it).

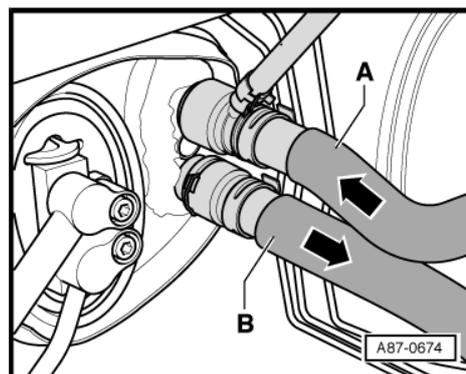




- Make sure the grommet -C- fits correctly inside the bulkhead.
- Seal flange for coolant pipes to heater core -A- and for expansion valve (to evaporator) -B- at pass-through of grommet -C- with silicon adhesive sealant if necessary (to prevent water from penetrating).



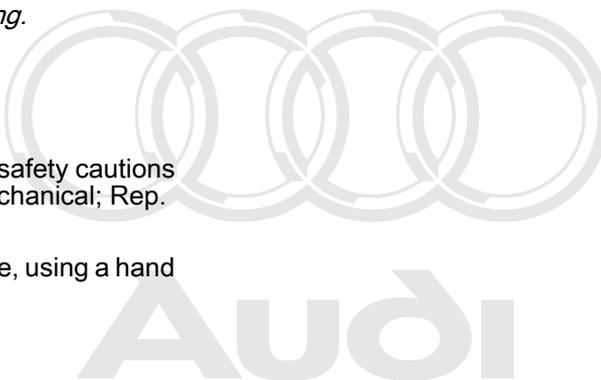
- Connect coolant hoses properly to heater core. Observe markings:
  - A - Supply hose from cylinder head
  - B - Return to the coolant pump
- Reinstall all components removed in reverse order, with the exception of cover for connections on heater core and driver's side storage compartment.
- Check installation position of coolant hoses to heater cores (they must not contact components which grow hot) and position and state of heat protection insulation applied to coolant hoses if necessary (not installed on all engine types).
- Bleed cooling circuit. Refer to => Engine Mechanical; Rep. Gr. 19 ; General Information .

**Note**

- ◆ *When bleeding coolant circuit, take special care to ensure complete bleeding of heater cores. If there are still air bubbles in the heater core, it may cause the customer to complain of insufficient heating performance in winter or different air temperature from vents at same setting in regulated mode. Refer to ["4.6 Heating Performance Of A/C System, Checking", page 93](#)*
- ◆ *Depending on vehicle equipment and on engine, heat insulation has been applied to coolant hoses, these must not be damaged and must be re-applied after installing.*

**Check the cooling system for leaks**

- Bleed coolant circuit.
- Carefully open coolant reservoir cap (observe safety cautions when opening the cap). Refer to=> Engine Mechanical; Rep. Gr. 19 ; General Information .
- Increase pressure in coolant circuit, for example, using a hand pump -V.A.G 1274/- .

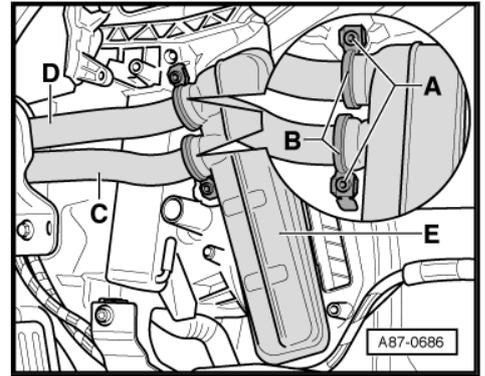


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- Check the cooling system for leaks. Pay close attention to the connections between the coolant pipes and the heater core. Refer to ⇒ Engine Mechanical; Rep. Gr. 19 ; Diagnosis and Testing .
- Reinstall cover for connections on heater core, driver's side storage compartment and the remaining components that were removed.

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## 5.15 High Pressure Sensor -G65-

### Special tools and workshop equipment required

- ◆ Assembly Tool -T10118-

#### Note

- ◆ *Cooling performance cannot be checked with high pressure sensor removed, Climatronic control module -J255- does not switch on the A/C compressor.*
- ◆ *The refrigerant circuit remains closed, connection with valve.*
- ◆ *Checking function of high pressure sensor and signal sent. Refer to ⇒ "2.15 High Pressure Sensor G65 Signal", page 72 .*
- ◆ *The following describes removal and installation on a vehicle with a 2.0L TFSI engine and with a 3.2L MPI engine. On vehicles with another 4 or 6 cylinder engine, the procedure may differ.*
- ◆ *After switching off the A/C compressor in this vehicle, it may take a relatively long time for the pressure on the high pressure side to decrease. This is because the expansion valve is cold and the pressure on the low pressure side increases quickly after shutting the compressor off, then the expansion valve closes and the refrigerant flows slowly to the low pressure side.*
- ◆ *Depending on the version of the high pressure sensor, an insufficient measuring value for the pressure in the refrigerant system will be sent by the high pressure sensor at low outside temperatures (lower than 5 °C) (even though the A/C system is OK and the refrigerant circuit is properly filled). At lower outside temperatures (ambient temperature lower than 5 °C), the Climatronic control module -J255- with part number "8J0 820 043" through to index "AJ"—might therefore make an incorrect DTC memory entry (DTC memory entry: high pressure sensor, and fall below the lower threshold). If the fault is displayed as a sporadic fault at an outside temperature greater than 5 °C, calculated by the A/C system, and if the A/C function is OK, then clear the DTC memory (no additional steps are necessary). This error does not occur with the Climatronic control module, part number "8J0 820 043" beginning with index "AK".*

### Removing

The high pressure sensor is at the right below the condenser.

 **Note**

Depending on the version, it is installed directly on the condenser or on the refrigerant line.

- Remove the ribbed belt from generator. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation (only on 4 cylinder vehicles).



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**The coolant fan -V7- can come on when the engine is warm and cause serious personal injury.**

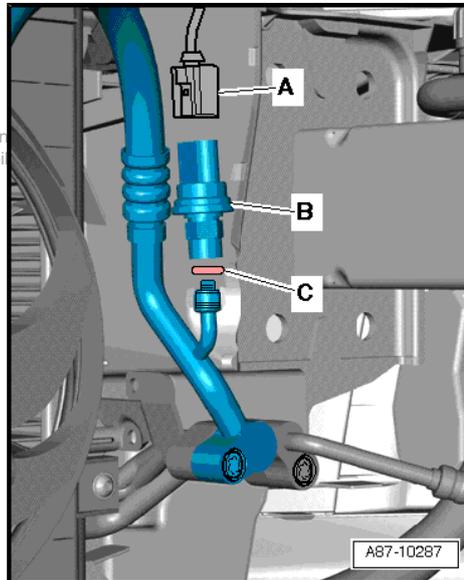
- Disconnect electrical connector -A-.
- Remove the high pressure sensor -G65- -B- from the connection on the condenser on the refrigerant line.

**Installing**

- High Pressure Sensor -G65- tightening torque: 8 Nm.

Installation is done in reverse order, observe the following:

- Replace O-ring seal -C-. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) . Allocation, refer to Electronic Parts Catalog.
- Tighten high pressure sensor.
- Mount the ribbed belt on the belt pulley. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation (4 cylinder vehicles only).



**5.16 Instrument Panel Vents**

**Special tools and workshop equipment required**

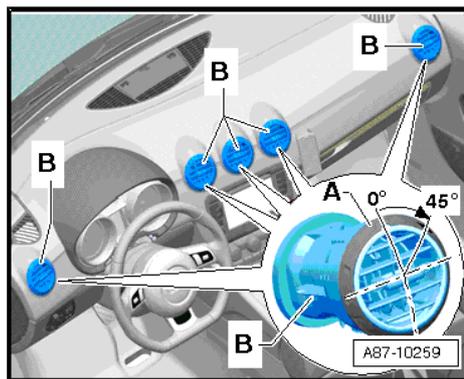
- ◆ Hook -3438-

 **Note**

◆ *Instrument panel vents -B- can only be removed and installed when control ring -A- stands in the "45°" position. Control lever of vent is located only in this position so that vent can be removed and installed at instrument panel without being damaged.*

◆ *Instrument panel vents -B- can only be installed in a certain position, therefore not the position of the control ring -A- when installing.*

- Set control ring -A- of instrument panel vent -B- to be removed to 45° position

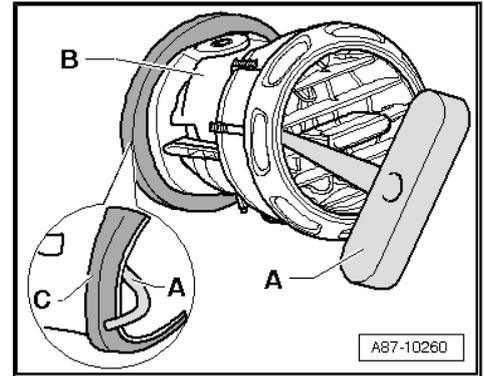


- Attach, for example, -3438- -A- on rear end -C- of instrument panel vent -B-.

**Caution**

◆ *So that instrument panel vent is not damaged when removed, -3438- -A- must not be engaged on to fins of instrument panel vent -B-.*

- Carefully pull the applicable instrument panel vent -B- out of instrument panel.



## 5.17 Interior Temperature Sensor Fan -V42-

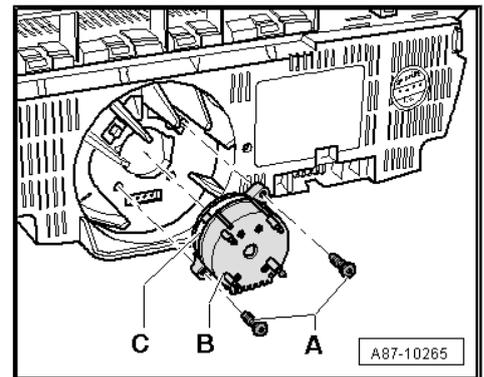
**Note**

*There is no Instrument Panel Interior Temperature Sensor -G56- and no Interior Temperature Sensor Fan installed in the Climatronic control module -J255- for heater only.*

- Remove Climatronic control module for A/C. Refer to ["1.9 Climatronic Control Module J255", page 31](#).
- Remove bolts -A-.
- Pull Interior Temperature Sensor Fan -B- out of Climatronic control module.

**Note**

*When installing Interior Temperature Sensor Fan, do not press on fan wheel -C- but rather hold blower firmly on housing.*



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## 5.18 Refrigerant Circuit Components

⇒ [“5.18.1 A/C Compressor Refrigerant Lines”, page 154](#)

⇒ [“5.18.2 A/C Compressor”, page 157](#)

4 Cylinder ⇒ [“5.18.3 Condenser”, page 159](#)

5 Cylinder ⇒ [“5.18.4 Condenser”, page 161](#)

6 Cylinder ⇒ [“5.18.5 Condenser”, page 164](#)

4 or 6 Cylinder

⇒ [“5.18.6 Dryer Cartridge On Condenser”, page 166](#)

4 or 6 Cylinder

⇒ [“5.18.7 Dryer Cartridge On Modine Condenser”, page 168](#)

5 or 6 Cylinder

⇒ [“5.18.8 Dryer Cartridge, On Denso Condenser”, page 171](#)

⇒ [“5.18.9 Evaporator”, page 172](#)

⇒ [“5.18.10 Expansion Valve”, page 174](#)

⇒ [“5.18.11 Fluid Reservoir”, page 175](#)

⇒ [“5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser”, page 178](#)

⇒ [“5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve”, page 180](#)

### 5.18.1 A/C Compressor Refrigerant Lines



#### Note

- ◆ *Compressor is always driven when engine is running; there is no magnetic clutch. Engine is therefore not to be started unless refrigerant circuit has been properly assembled. For example; if the refrigerant lines are not connected to A/C compressor, when the engine is running the A/C compressor may heat up (via internal heat generation) so much that the A/C compressor will be damaged.*
- ◆ *The following illustration depicts an A/C compressor for a vehicle with 4 cylinder engine, the allocation may deviate slightly for vehicles with other engines, however the refrigerant lines are disconnected in the same way.*
- ◆ *Close all open lines and connections on A/C compressor with suitable caps (avoid dirt and moisture from entering the system).*

#### Removing

- Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove upper engine cover (not necessary on all vehicles, depending on engine). Refer to⇒ Engine Mechanical; Rep. Gr. 10 ; Removal and Installation ).
- Remove center noise insulation (not necessary on all vehicles, depends on engine).⇒ Body Exterior; Rep. Gr. 66 ; Removal and Installation .
- Remove the frame for the noise insulation, if equipped (for example, currently on the Audi TT Roadster). Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .
- Remove the A/C compressor from the bracket (not necessary on all vehicles; for example, necessary on a 3.2L MPI vehicle).

Refer to  
 ⇒ ["5.1 A/C Compressor, Removing From Bracket"](#),  
 page 103 .

**i** Note

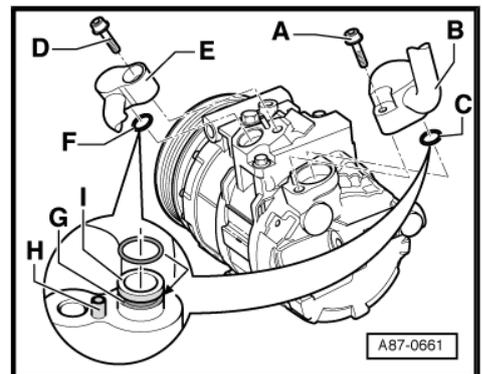
- ◆ On 4 and 5 cylinder gasoline vehicles, the refrigerant lines are accessible from the top. The center noise insulation does not have to be removed on these vehicles.
  - ◆ On vehicles with a 6 cylinder gasoline engine, for example, refrigerant lines are not accessible from above. On vehicles with this engine, center noise insulation does need to be removed.
  - ◆ On vehicles, where the screws on the refrigerant line connection are not accessible when the A/C compressor is installed, remove the A/C compressor from the bracket (for example, on 3.2L MPI vehicles). Refer to  
 ⇒ ["5.1 A/C Compressor, Removing From Bracket"](#),  
 page 103 .
  - ◆ Remove this bracket for vehicles in which the refrigerant lines are secured by additional brackets.
- Remove bolts -A- and -D-.
  - Disconnect refrigerant lines -B- and -E-.

**i** Note

Close all open lines and connections on A/C compressor with suitable caps (to prevent dirt and moisture from entering the system).

**Installing**

Installation is the reverse of removal, noting the following:



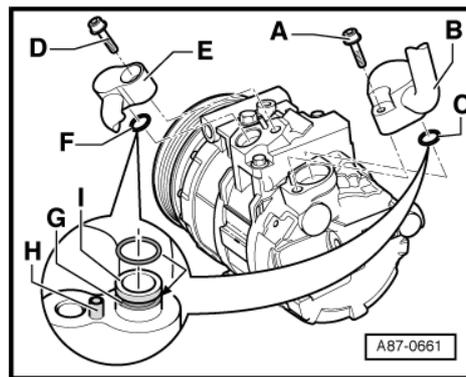


- Replace O-rings seals -C- and -F-. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) . Version, refer to Electronic Parts Catalog (ETKA).
- Check fitted pin -H- (not installed at all connections) and sleeve -J- for damage and proper seating.
- Tighten bolts -A- and -D- to 25 Nm.



**Note**

- ◆ *Do not use the O-rings from the caps that are installed on the connections in the replacement compressor when installing the lines.*
  - ◆ *Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) .*
  - ◆ *Make sure the O-ring seals are seated properly in the groove -G- on the respective refrigerant line.*
  - ◆ *Following attachment of refrigerant pipes to compressor (and installation of compressor) check routing of pipes. They must be inserted in holders provided and not make contact with other components.*
- Evacuate refrigerant circuit and recharge again. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
  - Install remaining components.
  - Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .



**Note**

*Note the information regarding operating the A/C system after filling. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).*



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## 5.18.2 A/C Compressor

### Note

- ◆ Depending on time period of production and on engine, compressor construction type may vary. Refer to *Electronic Parts Catalog (ETKA)*.
- ◆ At the start of production, the A/C compressors manufactured by "Denso" (type "6 SEU 14") were installed. At a later point in time A/C compressors from other manufacturers (for example "Sanden", type "PXE 16" or "ZJX") can be installed. Refer to the *Electronic Parts Catalog* and to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation (Refrigerant Circuit)*.
- ◆ These A/C compressors are available as replacement parts with different oil fill capacities, therefore note capacity on A/C compressor. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00; Specifications* and the exact part number. Refer to the *Electronic Parts Catalog*.
- ◆ Depending on A/C compressor type, different refrigerant oil fill capacities are designated for the refrigerant circuit. The reason for the different oil capacities in the A/C compressor for an otherwise identical refrigerant circuit lies in the design of the A/C compressor itself, note these oil capacities. Too much oil in the circuit leads to higher pressures and reduces cooling performance of the system. Too little oil may lead to lubrication problems in the compressor.
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If a new compressor has been installed or new refrigerant oil has been put into the A/C compressor (for example, after flushing refrigerant circuit), the A/C compressor must be turned by hand approximately 10 revolutions. This ensures that the A/C compressor is not damaged when activated. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00; Removal and Installation*

### Removing

- Discharge the refrigerant circuit. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation (A/C Service Station)*.
- Disconnect refrigerant lines from A/C compressor. Refer to ⇒ ["5.18.1 A/C Compressor Refrigerant Lines", page 154](#) .

### Note

The sequence is different and depends on the engine. On vehicles with a 3.2L MPI engine, the A/C compressor must first be removed from the bracket before refrigerant lines can be removed. It is possible to remove the refrigerant lines with the A/C compressor still installed on 2.0L TFSI vehicles.

- Remove the A/C compressor from the bracket. Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) or ⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) .

### Installing

Installation is carried out in the reverse order while noting the following:



Before installing the A/C compressor, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .

**Note**

- ◆ Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#) .
- ◆ An uncertain quantity of refrigerant oil remains in a removed A/C compressor. Therefore, observe the notes for replacing the A/C compressor. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .
- ◆ Tightening torque; vehicles with a 4 or 6 cylinder engine. Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) . Vehicles with 5 cylinder engine, refer to ⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) . Attach the refrigerant lines to the A/C compressor. Refer to ⇒ ["5.18.1 A/C Compressor Refrigerant Lines", page 154](#) .
- ◆ Replace the O-ring seals on opened connection points, version, refer to Electronic Parts Catalog.
- Remove the A/C compressor from the bracket. Refer to ⇒ ["5.1 A/C Compressor, Removing From Bracket", page 103](#) or ⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) .
- After installing a new A/C compressor (or after charging compressor with cold refrigerant oil, such as, after flushing refrigerant circuit) run the A/C compressor through 10 rotations by hand after installing and before routing the ribbed belt.

**Note**

*The A/C compressor on 5 cylinder vehicles have 2 ribbed belts. The A/C compressor has a belt pulley with a double belt guide. Refer to*  
⇒ ["5.2 A/C Compressor, Removing From Bracket", page 106](#) .

- Mount the ribbed belt(s) on the ribbed belt pulley. Refer to ⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .
- Discharge and fill the refrigerant circuit. Refer to⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .

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 Note

- ◆ Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- ◆ Rotating will prevent damage to the A/C compressor when starting the engine for the first from refrigerant oil that may be located in the compression chamber.
- ◆ Only start engine after refrigerant circuit has been assembled.
- ◆ If possible start engine only with a filled refrigerant circuit.
- ◆ Different A/C compressors, depending on production time period and on engine. Refer to ⇒ ["2.3 Refrigerant Circuit Components Overview", page 49](#) and Electronic Parts Catalog (ETKA).
- ◆ The A/C compressor is always driven by pulley (there is no magnetic clutch). To prevent damage when the compressor is idling, it is lubricated by an internal oil circuit.
- ◆ The compressor has an internal oil circuit to ensure the A/C compressor is not damaged when refrigerant circuit is empty. Prerequisite for the internal lubrication is residual refrigerant oil in A/C compressor.
- ◆ The engine may only be started when the refrigerant circuit is installed correctly. For example; if the refrigerant lines are not connected to A/C compressor, when the engine is running the A/C compressor may heat up (via internal heat generation) so much that the A/C compressor will be damaged.
- ◆ A/C Compressor Regulator Valve -N280- is not activated when the refrigerant circuit is empty and the A/C compressor idles with the engine. As there is no refrigerant in the circuit the oil required to lubricate is not fed to the A/C compressor.

### 5.18.3 Condenser

 Note

- ◆ The radiator and condenser may have small indentations on the fins even when installed correctly. It is not damage. Do not replace the radiator or condenser because of those small indentations.
- ◆ Condenser is available in different versions, depending on version of vehicle. Refer to Electronic Parts Catalog (ETKA).
- ◆

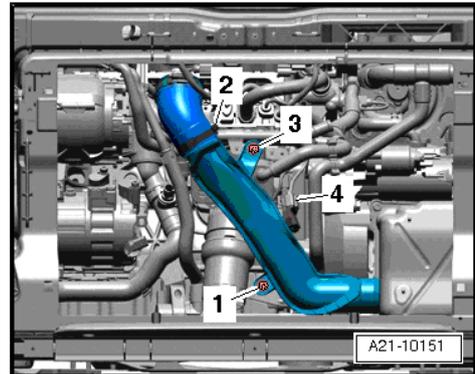
 Note

The following describes removal and installation on a 2.0L TFSI vehicle. The procedure may be different on other 4 cylinder vehicles.

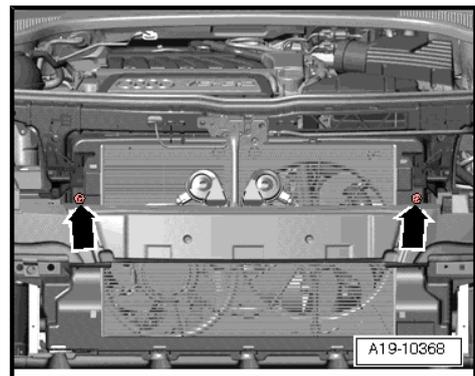
#### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).

- Remove fan shroud. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Removal and Installation .
- Disconnect refrigerant lines from condenser. Refer to ⇒ [“5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser”](#), page 178 .
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Remove left and right air guide hose to charge air cooler by loosening spring clips and hose clamps. Refer to⇒ Engine Mechanical; Rep. Gr. 21 ; Removal and Installation .
- Loosen clamp -2-
- Disconnect electrical connector -4-
- Remove nut -3- and bolt -1-.
- Remove intake downward.



- Remove bolts -arrows- by releasing air ducts at left and right and tipping in direction of head lamps.
- Tip top edge of charge air cooler back slightly.
- Disengage charge air cooler from lower mounting points by raising it.
- Slide charge air cooler in direction of engine.
- Support charge air cooler from below so that it cannot sink.

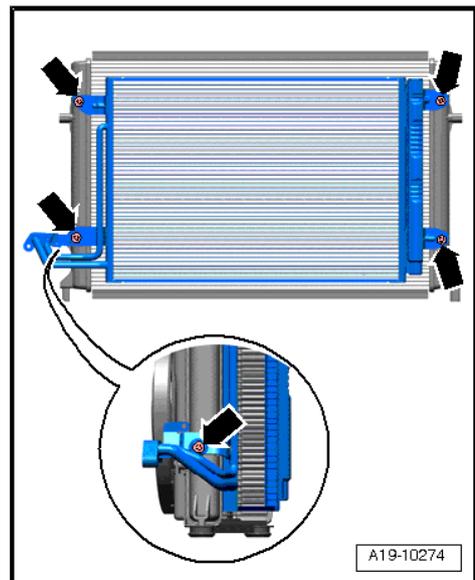


**Note**

*Do not bend or stretch lines or hoses as compressor and refrigerant lines/hoses may be damaged.*

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- **Remove bolts -arrows-**
- Remove condenser from charge air cooler.
- Remove condenser -A- downward.



## Installing

- Tightening specification: bolts for securing compressor (to charge air cooler) - 5 Nm.

Installation is done in reverse order, observe the following:

### Note

The removed condenser contains refrigerant oil that must be returned to the refrigerant circuit (with the new condenser). Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Removal and Installation](#).

- Ensure sealing strips -arrows- have adhered correctly to condenser -A-.
- Tighten bolts on condenser in -A, B- sequence.
- Attach refrigerant lines. Refer to ⇒ ["5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser"](#), page 178.
- Install lower intake and charge air hoses. Refer to ⇒ Engine Mechanical; Rep. Gr. 21; Removal and Installation.
- Install fan shroud. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Removal and Installation.
- Install front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Removal and Installation.
- Evacuate and fill refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit"](#), page 28.

### Note

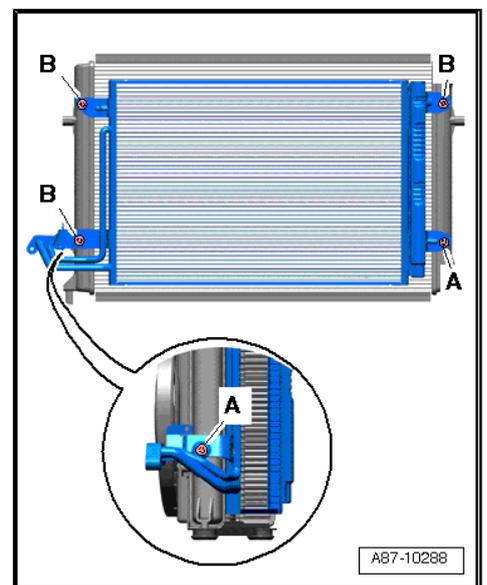
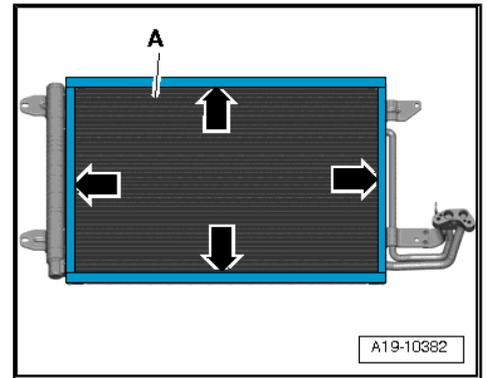
Note the information regarding operating the A/C system after filling. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation \(A/C Service Station\)](#).

## 5.18.4 Condenser



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- ◆ The radiator and condenser may have small indentations on the fins even when installed correctly. It is not damaged. Do not replace the radiator or condenser because of those small indentations.
- ◆ Condenser is available in different versions, depending on version of vehicle. Refer to [Electronic Parts Catalog \(ETKA\)](#).

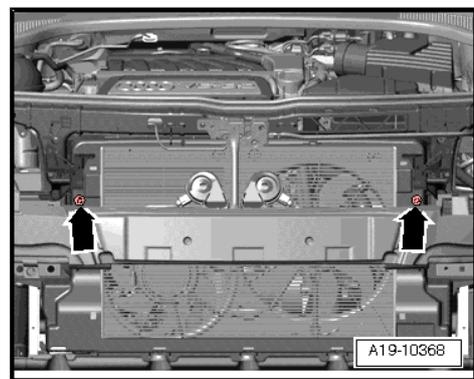
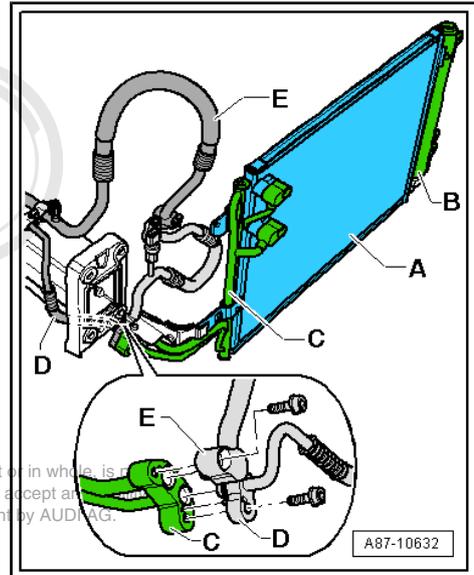


**Note**

- ◆ *The following describes removal and installation on a 2.5L TFSI vehicle. The procedure may be different on 5 cylinder vehicles.*
- ◆ *5 cylinder vehicles have a condenser -A- that has an additional double pipe -C- bolted on to the condenser -A-. The double pipe -C- is currently not supplied with the condenser. Refer to the Electronic Parts Catalog. To loosen or screw the double pipe -C- on to the condenser -A-, use the same tightening specification for the screws on the connections as for the screws on the refrigerant lines -D- and -E-.*

**Removing**

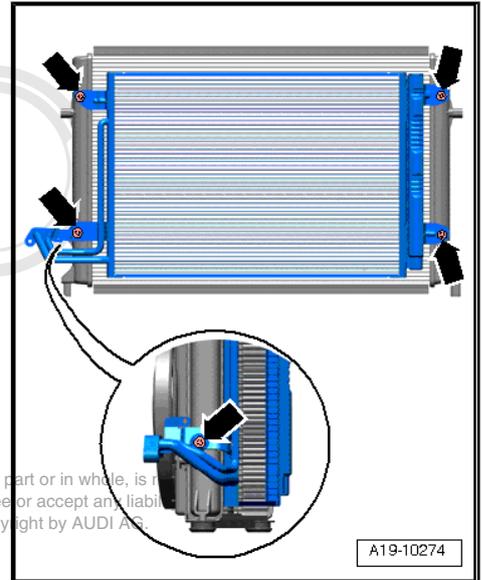
- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove the air intake leading to the air filter housing. Refer to ⇒ Injection and Ignition System; Rep. Gr. 24 ; Removal and Installation .
- Remove fan shroud. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Removal and Installation .
- Disconnect refrigerant lines from condenser. Refer to ⇒ ["5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser"](#), page 178 .
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Remove bolts -arrows- by releasing air ducts at left and right and tipping in direction of head lamps.
- Tip top edge of cooler back slightly. Refer to⇒ Engine Mechanical; Rep. Gr. 21 ; Removal and Installation .
- Disengage cooler from lower mounting points by raising it.
- Slide cooler in direction of engine.
- Support cooler from below so that it cannot sink.



**i** Note

*Do not bend or stretch lines or hoses as compressor and refrigerant lines/hoses may be damaged.*

- Remove bolts -arrows-.
- Remove condenser from cooler.
- Remove condenser -A- downward.



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**Installing**

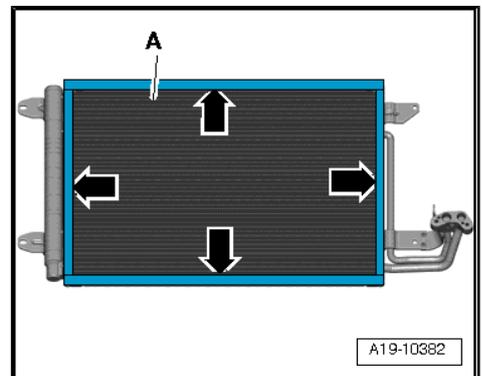
- Tightening specification: bolts for securing compressor (to charge radiator) - 5 Nm.

Installation is done in reverse order, observe the following:

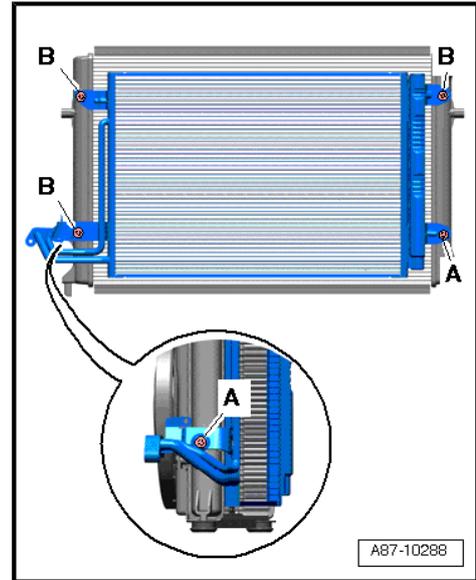
**i** Note

*The removed condenser contains refrigerant oil that must be returned to the refrigerant circuit (with the new condenser). Refer to → Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .*

- Ensure sealing strips -arrows- have adhered correctly to condenser -A-.



- Tighten bolts on condenser in -A, B- sequence.
- Attach refrigerant lines. Refer to [⇒ "5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser", page 178](#) .
- Install lower intake and charge air hoses. Refer to⇒ Engine Mechanical; Rep. Gr. 21 ; Removal and Installation .
- Install fan shroud. Refer to⇒ Engine Mechanical; Rep. Gr. 19 ; Removal and Installation .
- Install front bumper cover. Refer to⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to [⇒ "1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .

**Note**

*Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing, Rep. Gr. 00 ; Description and Operation (A/C Service Station).*

## 5.18.5 Condenser

**Note**

*The following describes removal and installation on a 3.2L MPI vehicle. The procedure may be different on other 6 cylinder vehicles.*

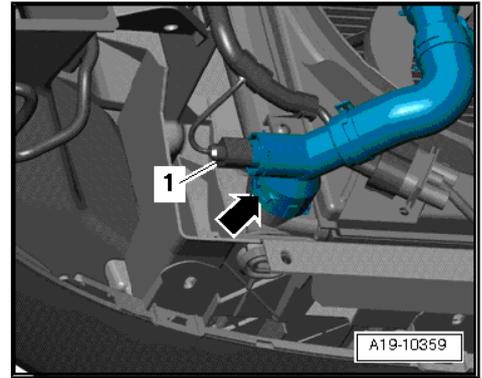
### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation .
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Remove fan shroud. Refer to ⇒ Engine Mechanical; Rep. Gr. 19 ; Removal and Installation .
- Detach refrigerant lines. Refer to [⇒ "5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser", page 178](#) .

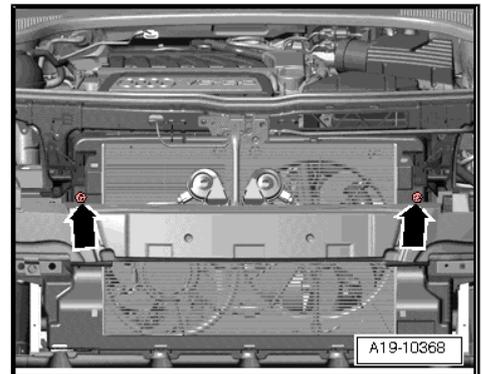
- Disconnect electrical connector -1- on Engine Coolant Temperature (ECT) Sensor (on Radiator) -G83- .

**i** Note

*Ignore -arrow-.*



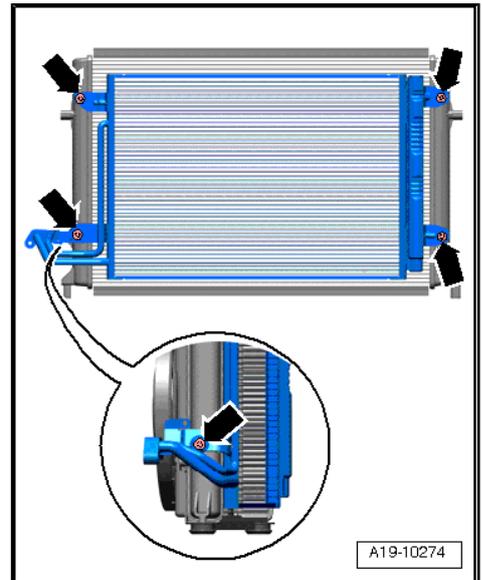
- Remove bolts -arrows- by releasing air ducts at left and right and tipping in direction of head lamps.
- Tip top edge of cooler back slightly.
- Disengage cooler from lower mounting points by raising it.
- Slide cooler in direction of engine.
- Support cooler from below so that it cannot sink.



**i** Note

*Do not bend or stretch lines or hoses as compressor and refrigerant lines/hoses may be damaged.*

- Remove bolts -arrows-.
- Remove condenser from cooler.
- Remove condenser downward.



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### Installing

- Tightening specification: bolts for securing compressor (to charge air cooler) - 5 Nm.

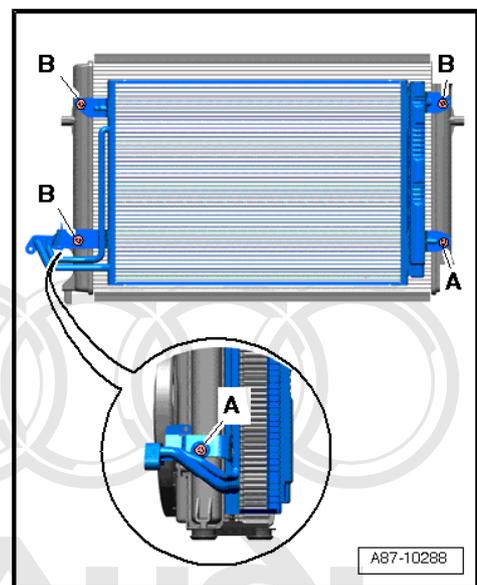
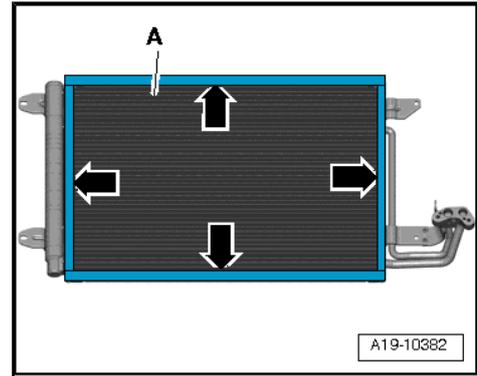
Installation is done in reverse order, observe the following:



#### Note

The removed condenser contains refrigerant oil that must be returned to the refrigerant circuit (with the new condenser). Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Removal and Installation](#).

- Ensure sealing strips -arrows- have adhered correctly to condenser -A-.
- Tighten bolts on condenser in -A, B- sequence.
- Attach refrigerant lines. Refer to ⇒ ["5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser", page 178](#).
- Install fan shroud. Refer to ⇒ [Engine Mechanical; Rep. Gr. 19; Removal and Installation](#).
- Install front bumper cover. Refer to ⇒ [Body Exterior; Rep. Gr. 63; Removal and Installation](#).
- Evacuate and fill refrigerant circuit. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation \(A/C Service Station\)](#).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#).



#### Note

Note the information regarding operating the A/C system after filling. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation \(A/C Service Station\)](#).

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## 5.18.6 Dryer Cartridge On Condenser



#### Note

The reservoir on a 4 or 6 cylinder vehicle can either be attached to the condenser or integrated in it, depending on the condenser version. Replace an attached reservoir, refer to ⇒ ["5.18.11 Fluid Reservoir", page 175](#).

### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ [Refrigerant R134a Servicing; Rep. Gr. 00; Description and Operation \(A/C Service Station\)](#).
- Remove the condenser. Refer to 4 cylinder ⇒ ["5.18.3 Condenser", page 159](#) or 6 cylinder ⇒ ["5.18.5 Condenser", page 164](#).

- Remove the plastic screw -A- (tightening specification: 2 Nm).
- Remove the dryer carrier -C- and the dryer cartridge -D- from the condenser.
- Pull the filter -E- out of the condenser using, for example, a commercially available pick-up tool.

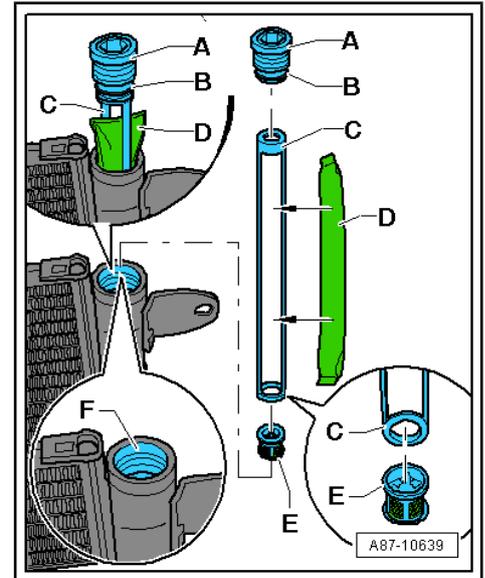
**i Note**

Seal the open connection on the condenser with the plastic screw -A- to prevent dirt and moisture from getting in.

**Installing**

Installation is done in reverse order, observe the following:

- ◆ Check the reservoir on the condenser above the opening -F- for dirt.
- ◆ Make sure the reservoir thread -F- on the condenser is not dirty or damaged.
- ◆ Replace the plastic screw -A-, the dryer carrier -C-, the dryer cartridge -D-, the filter -E- and the O-ring -B-.
- ◆ Coat the O-ring -C- lightly with refrigerant before installing. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#).
- ◆ Make sure the O-ring -B- fits correctly inside the groove on the plastic screw -A-.
- ◆ Keep the dryer cartridge -D- sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge into the condenser. The dryer cartridge absorbs moisture in a very short time and become unusable.
- Install the filter -E- with the correct side into the condenser reservoir.
- Take the dryer cartridge -D- out of its package and install it into the dryer carrier -C-.
- Install the dryer cartridge -D- and dryer carrier -C- into the condenser reservoir.
- Install the plastic screw -A- (tightening specification: 2 Nm).
- Install the condenser. Refer to 4 cylinder ⇒ ["5.18.3 Condenser", page 159](#) or 6 cylinder ⇒ ["5.18.5 Condenser", page 164](#).
- Install remaining components.
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#).



**i Note**

Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).

## 5.18.7 Dryer Cartridge On Modine Condenser

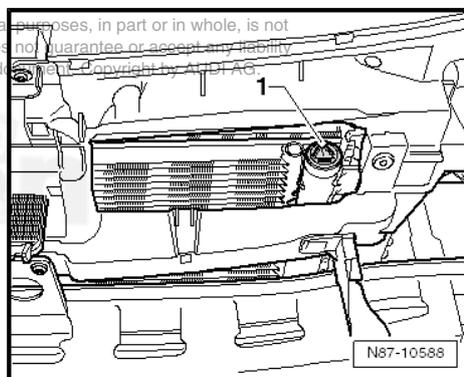


### Note

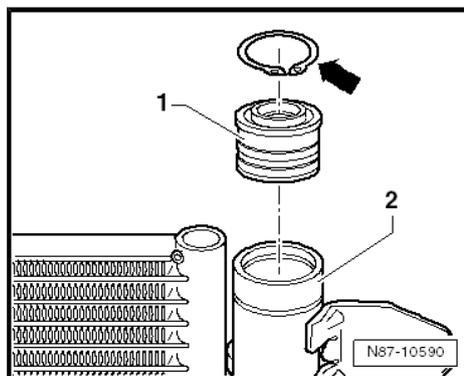
The reservoir on a 4 or 6 cylinder vehicle can either be attached to the condenser or integrated in it, depending on the condenser version. Replace an attached reservoir, refer to ⇒ ["5.18.11 Fluid Reservoir", page 175](#).

### Removing

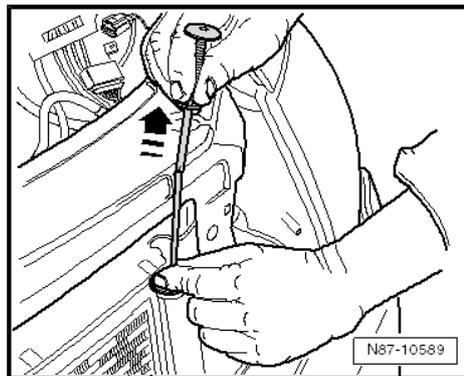
- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove the condenser. Refer to 4 cylinder ⇒ ["5.18.3 Condenser", page 159](#) or 6 cylinder ⇒ ["5.18.5 Condenser", page 164](#).
- Remove the adhesive sticker from the cap -1-.
- Remove the cap -1-.



- Remove the Seeger ring -arrow- and pull the cap -1- off the condenser -2- using an M12. screw.



- Remove the dryer bag using a commercially available pick-up tool -in direction of arrow- from the condenser.

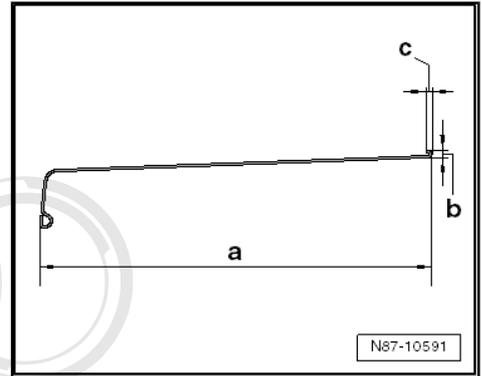


– Make a welding wire ( 2 mm) to the following dimensions.

a - 380 mm

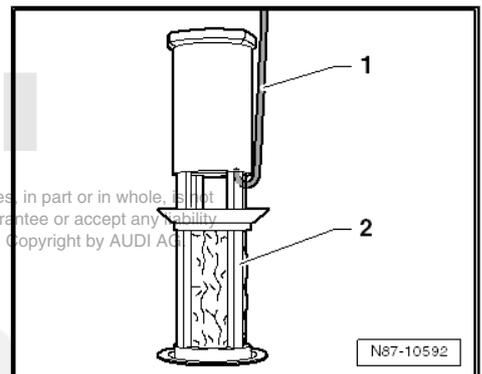
b - maximum 7 mm

c - maximum 6 mm



Hook the welding wire to the strainer exactly as illustrated to prevent damaging the condenser.

– Carefully remove the filter (strainer) -2- from the condenser with the welding wire -1-.



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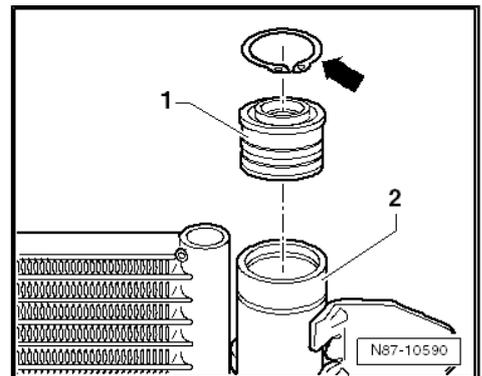
**i Note**

Seal the open connection on the condenser with the cap -A- to prevent dirt and moisture from getting in.

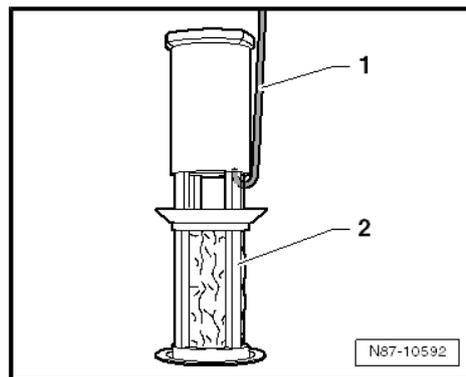
**Installing**

Installation is done in reverse order, observe the following:

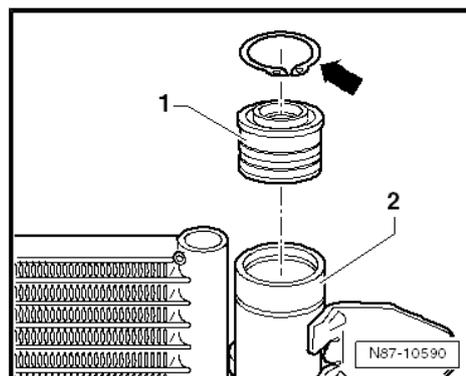
- ◆ Check the reservoir on the condenser -2- above the opening for dirt or damage to the sealing surfaces.
- ◆ Replace the cap -1- and its seal, the dryer cartridge and the filter (strainer).
- ◆ Coat the seal on the cap -1- lightly with refrigerant before installing. Refer to [⇒ "1.21 Refrigerant Circuit O-rings", page 41](#) .
- ◆ Make sure the seal fits correctly inside the cap -1-.
- ◆ Keep the dryer cartridge sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge into the condenser. The dryer cartridge absorbs moisture in a very short time and become unusable.



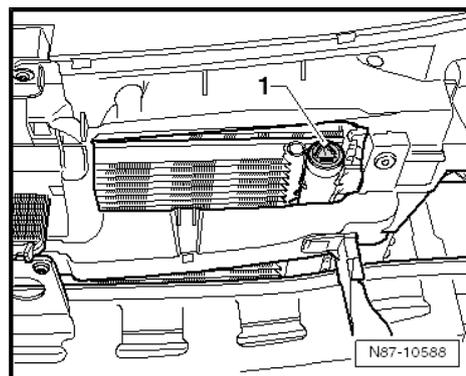
- Install the filter (with the strainer) -2- with the correct side into the condenser reservoir.
- Remove the dryer cartridge from its original package.



- Insert the dryer cartridge into the condenser reservoir.
- Install the cap -A-.
- Install the Seeger ring -arrow-.



- Install the cap -1-.
- Install the condenser. Refer to 4 cylinder  
⇒ ["5.18.3 Condenser", page 159](#) or 6 cylinder  
⇒ ["5.18.5 Condenser", page 164](#) .
- Install remaining components.
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Operate the A/C system after filling the refrigerant circuit. Refer to  
⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#) .

**Note**

*Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).*

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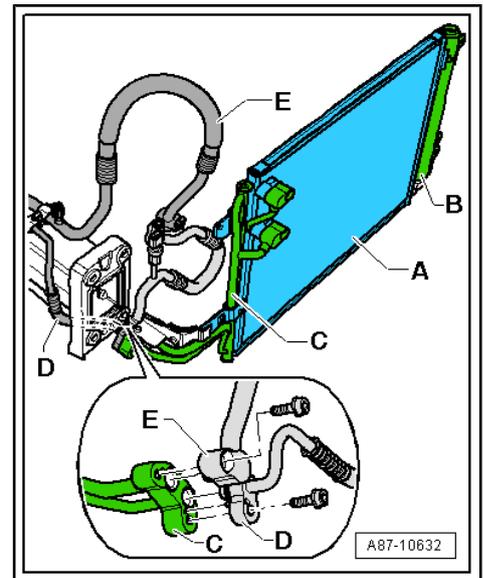
## 5.18.8 Dryer Cartridge, On Denso Condenser

### Note

*A condenser will be a different version on 5 cylinder engine only, as opposed to a 6 cylinder engine). This condenser -A- has an integrated reservoir -B-. This reservoir -B- has a dryer cartridge installed in it, which currently is not available as a replacement part. Therefore, with this kind of customer complaint about this vehicle, where the dryer cartridge has to be replaced, be sure to check whether the dryer cartridge can be used from some other repair kit (for example, whether the cartridge from the Audi A4 2008 > condenser repair kit has been installed). If it hasn't, replace the entire condenser. Refer to Electronic Parts Catalog (ETKA) and => Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .*

### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to => Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove the condenser. Refer to [=> "5.18.4 Condenser", page 161](#) .



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- Remove the plastic screw -A- (tightening specification: 2 Nm).
- Remove the filter element -C- and the dryer cartridge -F- upward and out of the condenser.

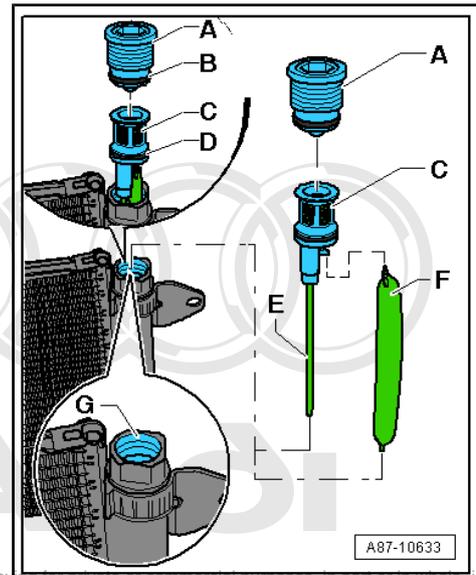

**Note**

Seal the open connection on the condenser with the plastic screw -A- to prevent dirt and moisture from getting in.

**Installing**

Installation is done in reverse order, observe the following:

- ◆ Check the fluid reservoir on the condenser above opening -G- for dirt.
- ◆ Make sure the reservoir thread -G- on the condenser is not dirty or damaged.
- ◆ Replace plastic screw -A-, filter element -C- (with riser pipe -E-) and both O-ring seals -B- and -D-.
- ◆ Coat O-ring seals -B- and -D- lightly with refrigerant oil prior to installation. Refer to ⇒ [“1.21 Refrigerant Circuit O-rings”, page 41](#) .
- ◆ Check O-ring seals for proper seating in grooves of respective components.
- ◆ Keep dryer cartridge -F- sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge into the condenser. The dryer cartridge absorbs moisture in a very short time and become unusable.
- Take the dryer cartridge -F- out of its package and engage it on the filter element's hook -C-.
- Install the dryer cartridge -F- and filter element -C- in the condenser reservoir.
- Install the plastic screw -A- (tightening specification: 2 Nm).
- Install the compressor. Refer to ⇒ [“5.18.4 Condenser”, page 161](#) .
- Install remaining components.
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ [“1.4 A/C System, Operating After Filling Refrigerant Circuit”, page 28](#) .



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**Note**

Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).

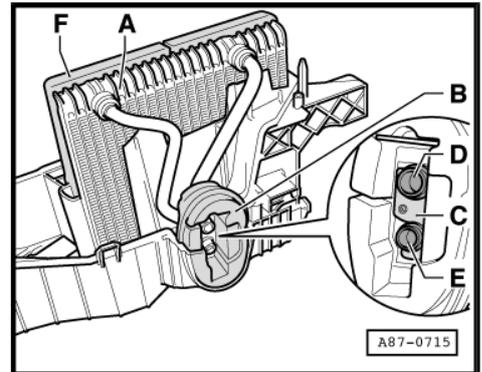
## 5.18.9 Evaporator

- Remove A/C unit. Refer to ⇒ [“5.3 A/C Unit”, page 108](#) .
- Remove electrical components from A/C unit. Refer to ⇒ [“6.1 Electrical Components of A/C unit”, page 186](#) .

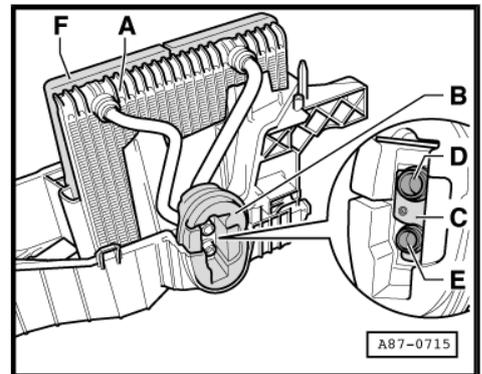
- Disassemble the A/C unit. Refer to ⇒ "6.2 A/C Unit", page 188 .
- Disassemble evaporator housing. Refer to ⇒ "6.3 Evaporator Housing", page 190 .
- Remove evaporator -A- from lower section of evaporator housing.

**i Note**

- ◆ Before inserting evaporator, check condensation water drain, clean if necessary.
- ◆ Before inserting evaporator, clean evaporator housing (and the evaporator if necessary).



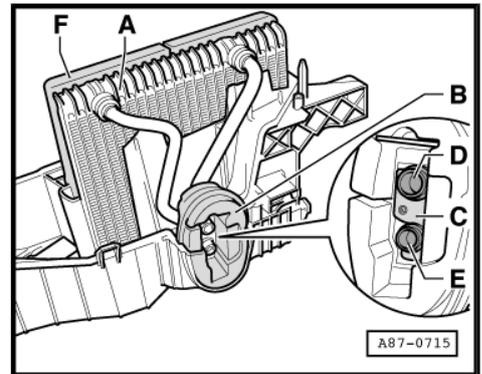
- When inserting evaporator -A- into lower section of evaporator housing and when assembling both housing halves, make sure the seal -F- is not damaged.



- Check seal -F- (it must be glued all around) before inserting evaporator.
- Place bracket -C- and seal / insulation -B- onto connecting pipe of evaporator -D- and -E-.
- Insert evaporator -A- into lower section of evaporator housing according to illustration.

**i Note**

- ◆ After assembling both housing halves, check seal / insulation -B- for correct seating at pass-through for both refrigerant lines -D- and -E-.
- ◆ Check seating of bracket -C- on both refrigerant lines -D- and -E- for correct seating.
- ◆ If heat protection insulation -B- is missing or not installed correctly, it can cause reduced performance of the A/C system (change of adjusted control characteristics of expansion valve due to radiant heat).
- ◆ Removed evaporator contains refrigerant oil which must be restored to the refrigerant system (with new evaporator). Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation .

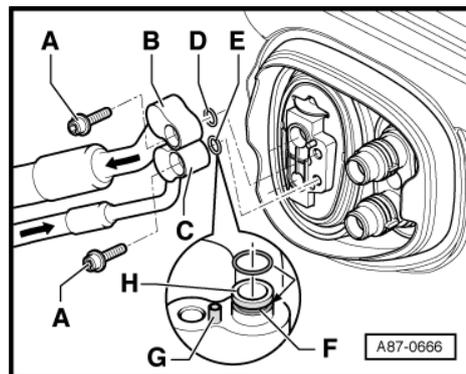


## 5.18.10 Expansion Valve



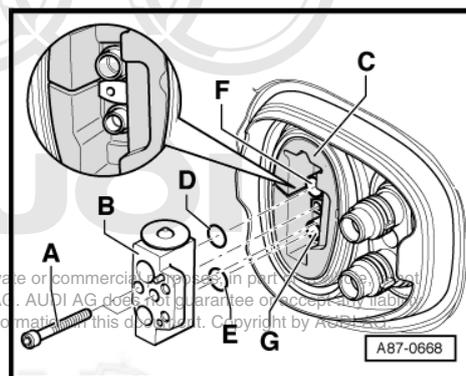
### Note

- ◆ After switching off the A/C compressor in this vehicle, it may take a relatively long time for the pressure on the high pressure side to decrease. This is because the expansion valve is cold and the pressure on the low pressure side increases quickly after shutting the compressor off, then the expansion valve closes and the refrigerant flows slowly to the low pressure side.
- ◆ In model year 2007, the hose piece in the refrigerant line on the high pressure side (thin line) -C- was discontinued as a running change. Bend a refrigerant line -C- carefully, and only as far as absolutely necessary to remove the expansion valve. If necessary, loosen a refrigerant line that has no flexible piece of tubing out of the bracket so that the refrigerant line does not get damaged.



### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Disconnect refrigerant lines from expansion valve. Refer to ⇒ ["5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve"](#), page 180 .
- Remove bolts -A-.
- Pull expansion valve -B- out of heat protection insulation -C-.



### Note

Seal all open lines and connections on evaporator with suitable caps (avoid dirt and moisture from entering the system).

### Installing

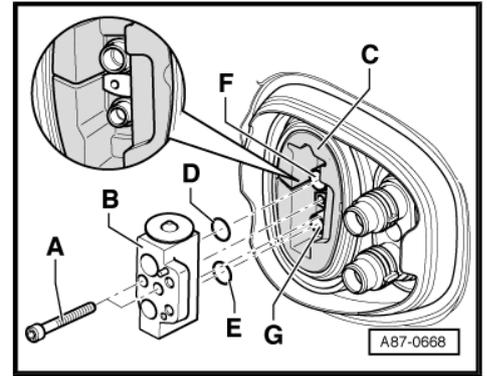
- Tightening specification: Bolts -A- (expansion valve to bracket on evaporator) - 10 Nm

Installation is carried out in the reverse order while noting the following:

- Replace O-rings -D- and -E-. Version, refer to Electronic Parts Catalog.
- Make sure that O-rings -D- and -E- are properly seated on connecting pipes to evaporator -F- and -G-.

**i** Note

- ◆ Expansion valve is available in different versions (same housing but a different control characteristic), therefore ensure the exact allocation. Refer to Electronic Parts Catalog (ETKA).
- ◆ Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#).
- ◆ If heat protection insulation -C- is missing or not installed correctly, it can cause reduced performance of the A/C system (change of adjusted control characteristic of expansion valve due to radiant heat).



- Install refrigerant lines on the A/C compressor. Refer to ⇒ ["5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve", page 180](#).
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#).

**i** Note

Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).

### 5.18.11 Fluid Reservoir

Does not apply to condensers, which have an attached reservoir.

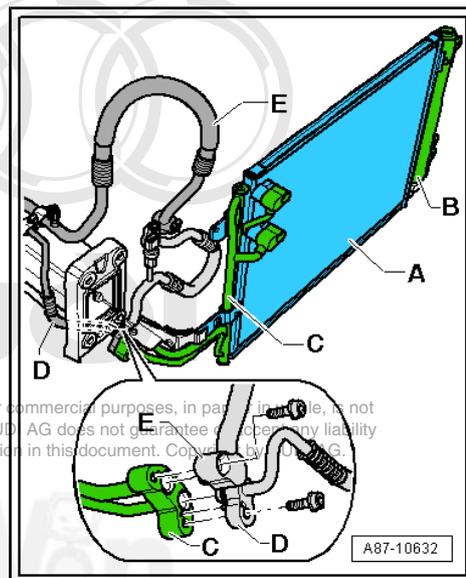
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**Note**

- ◆ There are different versions of the fluid reservoir and condenser, ensure correct allocation. Refer to *Electronic Parts Catalog (ETKA)*.
- ◆ The reservoir may be attached to or integrated in the condenser, depending on the version of the condenser. If the condenser has an integrated reservoir, replace the dryer cartridge. Refer to ⇒ ["1.11 Dryer Cartridge", page 33](#).
- ◆ A different version condenser will be installed on 5 cylinder engines, as opposed to vehicles with a 4 or 6 cylinder engine. This condenser -A- has an integrated reservoir -B-. This reservoir -B- has a dryer cartridge installed in it, which currently is not available as a replacement part. Therefore, it may be necessary to replace the complete condenser if there is a complaint about this vehicle. Refer to ⇒ ["1.11 Dryer Cartridge", page 33](#), *Electronic Parts Catalog* and to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation*.
- ◆ Dryer cartridge (on a condenser with an integrated fluid reservoir), removing and installing, refer to ⇒ ["1.11 Dryer Cartridge", page 33](#).
- ◆ The removed reservoir contains refrigerant oil that must be returned to the refrigerant circuit (with the new reservoir). Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation*. Adjustment of oil quantity depends on nature of complaint.
- If for example the fluid reservoir was damaged due to a vehicle accident (no refrigerant leaked out, no moisture and no dirt penetrated into refrigerant circuit), let refrigerant oil flow out of the removed fluid reservoir and add the drained quantity of refrigerant oil plus 10 cm<sup>3</sup> of fresh refrigerant oil to the refrigerant circuit (for example, condenser), this services the refrigerant circuit without extensive repair work. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00 ; Removal and Installation*.
- If a certain amount of refrigerant oil has leaked due to an accident or contaminants or moisture has entered the refrigerant circuit, circuit must be flushed. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00 ; General Information (Refrigerant Circuit and Components)*.

**Removing**

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ *Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station)*.
- Remove the front bumper cover. Refer to ⇒ *Body Exterior; Rep. Gr. 63 ; Removal and Installation*.



- Remove bolts -E-.
- Remove bolt -B- and remove bracket -C- downward.
- Pull fluid reservoir -D- upward out of condenser -A- -arrow-

**i** Note

Seal open connections on reservoir and condenser with suitable caps (to prevent dirt and moisture from entering).

**Installing**

**i** Note

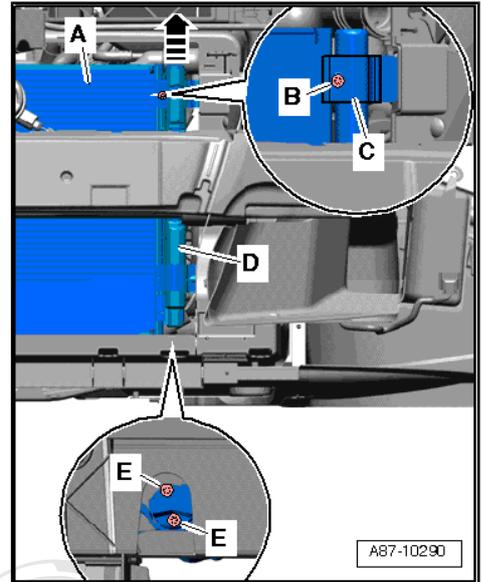
There are different versions of the condenser and bracket -C- depending on the production time period. As a running change in MY 2007, the mounting was changed from a metal bracket attached by screws to a plastic bracket held in place by a clip.

- Tightening specification: Bolts for securing fluid reservoir on condenser - 10 Nm.

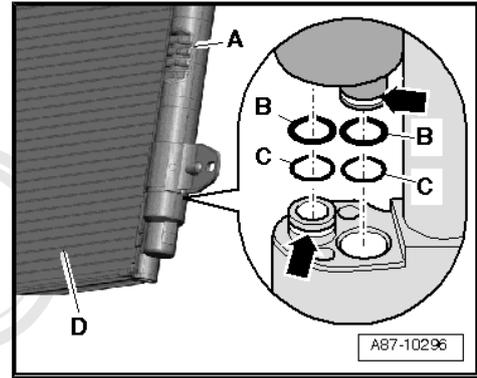
Installation is done in reverse order, observe the following:

**i** Note

- ◆ Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ["1.21 Refrigerant Circuit O-rings", page 41](#).
- ◆ Check O-ring seals for proper seating in grooves -arrows- on respective mount.
- ◆ **Keep fluid reservoir closed as long as possible; do not remove caps until just before installing. Fluid reservoir contains a dryer cartridge which will become saturated with moisture in a short time if accumulator is left open. This makes the accumulator unusable.**



- Clean contact surface of condenser -D-.
- Replace seals -B- and O-ring seals -C-. Version, refer to Electronic Parts Catalog.
- Place fluid reservoir -A- on condenser and tighten bolts.
- Install front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Removal and Installation .
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ "1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28 .



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*Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).*

### 5.18.12 Refrigerant Lines, Disconnecting and Connecting from Condenser

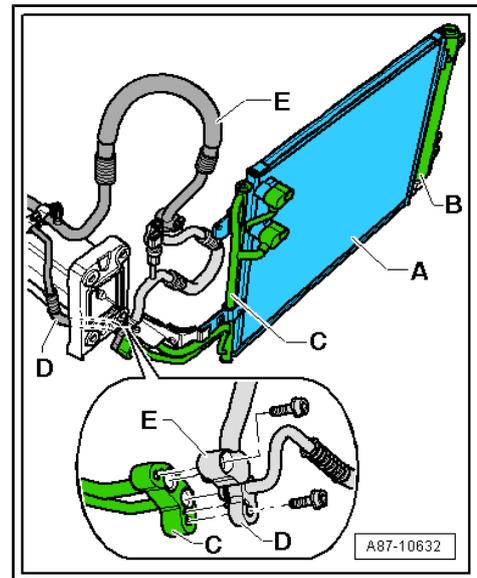


**Note**

- ◆ *Different versions of the condenser are available depending on the vehicle version. Refer to Electronic Parts Catalog (ET-KA).*
- ◆ *5 cylinder vehicles have a condenser -A- that has an additional double pipe -C- bolted on to the condenser -A-. The double pipe -C- is supplied with the condenser. Refer to the Electronic Parts Catalog. If it necessary to loosen the double pipe -C- from the condenser -A- use the same tightening specification for the screws on the connections as for the screws on the refrigerant lines -D- and -E-.*

**Removing**

- Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove center noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Removal and Installation .



- Disconnect the high pressure sensor -G65- connector -A-.
- Remove bolts -C-.
- Disconnect refrigerant lines -B- and -D- from condenser.

**i** Note

Close all open lines and connections on the condenser with suitable caps (to prevent dirt and moisture from entering the system).

**Installing**

Installation is the reverse of removal, noting the following:

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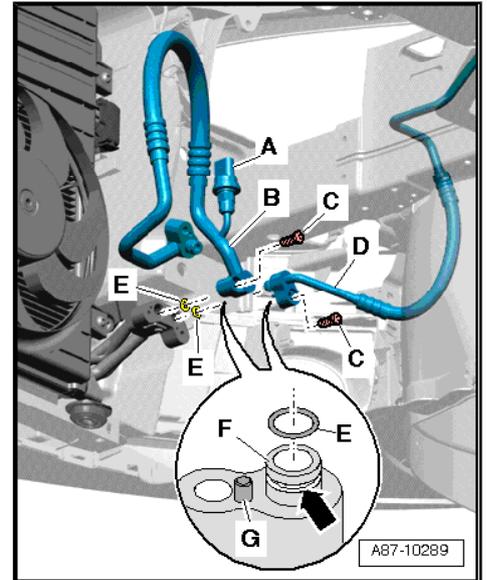
**i** Note

- ◆ Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings"](#), page 41 .
- ◆ Ensure O-ring seals -E- (different versions) are seated correctly in groove -arrow- on respective refrigerant line.
- ◆ Following attachment, check routing of refrigerant lines on condenser. They must be inserted in holders provided and not make contact with other components.

- Replace O-rings -E-. Version, refer to Electronic Parts Catalog.
- Check fitting pin -G- (not installed at all connections) and connection -F- for damage and proper seating.
- Tighten bolts -C-.
- Tightening specification: Bolts on refrigerant line connection on condenser - 12 Nm.
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Install remaining components.
- Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit"](#), page 28 .

**i** Note

Note the information regarding operating the A/C system after filling. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).



## 5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve

### Note

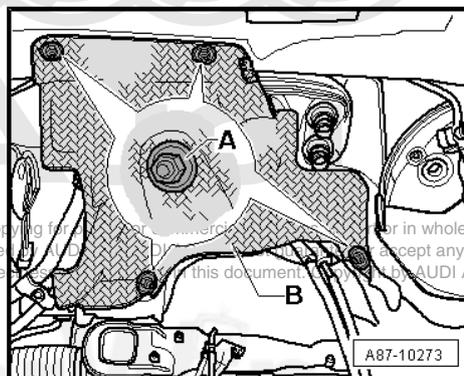
After switching off the A/C compressor in this vehicle, it may take a relatively long time for the pressure on the high pressure side to decrease. This is because the expansion valve is cold and the pressure on the low pressure side increases quickly after shutting the compressor off, then the expansion valve closes and the refrigerant flows slowly to the low pressure side.

### Removing

- Switch off ignition.
- Discharge refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
- Remove components which hinder access to mounting points -A- on heat shield -B- in engine compartment. Refer to⇒ Engine Mechanical; Rep. Gr. 13 ; Removal and Installation .

### Note

- ◆ For the sake of clarity, the illustration shows the heat shield -B- with the engine removed.
- ◆ Depending on the engine and type of vehicle, it may be necessary to loosen or remove various engine components.



### Components, that must be removed on 4 cylinder engines

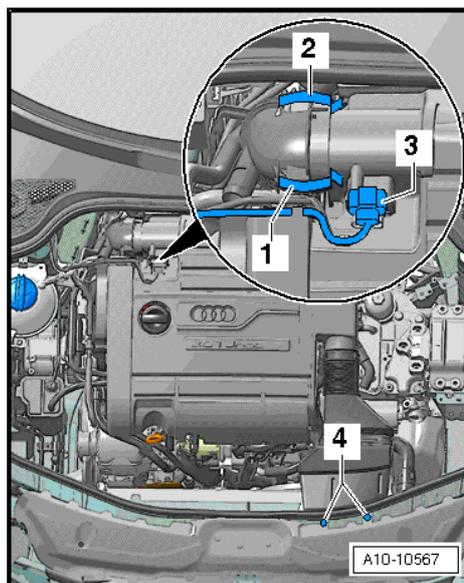
### Note

The following describes removal and installation on a 2.0L TFSI vehicle. The procedure may be different on other 4 cylinder vehicles.

- Disconnect electrical connector -3- on Mass Air Flow (MAF) Sensor -G70- .
- Open spring clips -1- and -2- and remove air guide hose from mass airflow sensor.
- Remove front air intake from lock carrier -4-.
- Remove engine cover.

### Components, that must be removed on 5 cylinder vehicles

- Remove the air guide pipe (from the air filter to the turbo-charger). Refer to ⇒ Fuel Injection and Ignition System; Rep. Gr. 24 .

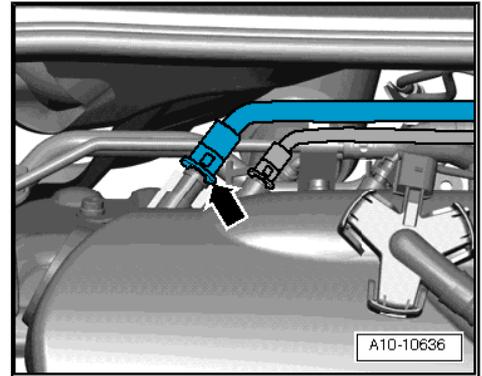


**Components, that must be removed on 6 cylinder vehicles**

**i Note**

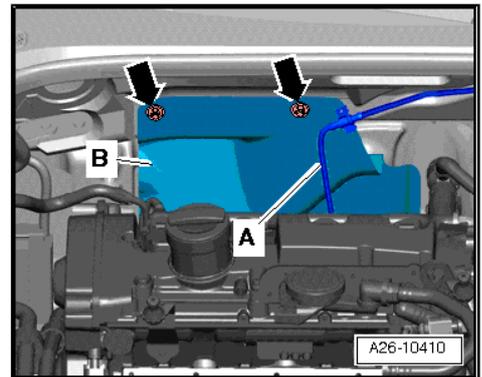
*The following describes removal and installation on a 3.2L MPI vehicle. The procedure may be different on other 6 cylinder vehicles.*

- Remove vacuum hose to brake booster -arrow-.

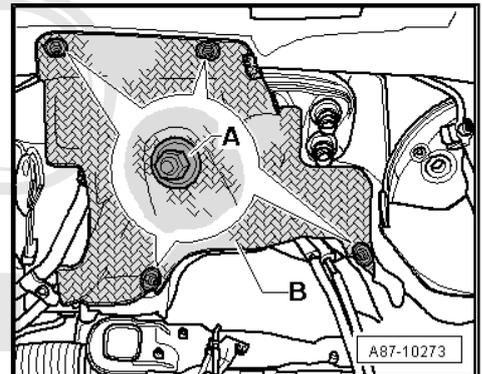


**Components that must be loosened or removed on all vehicles**

- Remove nuts-arrows-.
- If present, unclip line-A- from bracket.



- Remove remaining nuts-A-.
- Loosen heat shield -B- from mounting points (lay it aside or remove it completely).



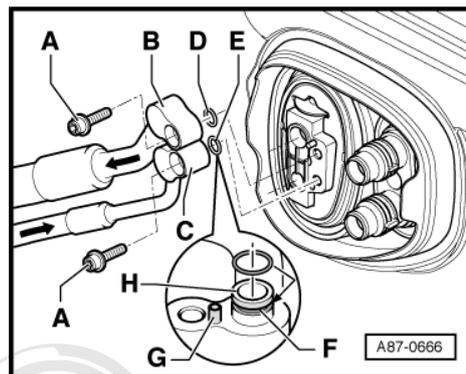
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- Remove bolts-A-.
- Disconnect refrigerant lines -B- and -C-.

**Note**

- ◆ Seal open lines and the connections on the expansion valve with suitable caps (to prevent dirt and moisture from entering).
- ◆ After switching off the A/C compressor in this vehicle, it may take a relatively long time for the pressure on the high pressure side to decrease. This is because the expansion valve is cold and the pressure on the low pressure side increases quickly after shutting the compressor off, then the expansion valve closes and the refrigerant flows slowly to the low pressure side.
- ◆ In model year 2007, the hose piece in the refrigerant line on the high pressure side (thin line) -C- was discontinued as a running change. Bend a refrigerant line -C- carefully, and only as far as absolutely necessary to remove the expansion valve. If necessary, loosen a refrigerant line that has no flexible piece of tubing out of the bracket so that the refrigerant line does not get damaged.

**Installing**

- Tightening specification: Bolts -A- (Refrigerant line expansion valve mounting screws) - 10 Nm

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Installation is carried out in the reverse order while noting the following:

- Replace O-ring seals -D- and -E-, version, refer to Electronic Parts Catalog (ETKA).
- Check fitted pin -G- (installed in connection or in expansion valve, not installed at all connections) and sleeve -H- for damage and proper seating.

**Note**

- ◆ Coat the O-ring seals lightly with refrigerant oil prior to installation. Refer to ⇒ ["1.21 Refrigerant Circuit O-rings", page 41](#).
  - ◆ Check the O-rings for proper seating within the groove -F- on the refrigerant line.
  - ◆ Install refrigerant pipes such that they are not strained.
  - ◆ Depending on vehicle equipment and on engine, heat insulation has been applied to refrigerant lines, these must not be damaged and must be re-applied after installing.
  - ◆ Check installation position of refrigerant lines to expansion valve (they must not contact other components) and position and state of heat protection insulation applied to refrigerant lines if necessary (not installed on all engine types).
- Discharge and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).
  - Install remaining components.
  - Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ ["1.4 A/C System, Operating After Filling Refrigerant Circuit", page 28](#).

**i** Note

*Note the information regarding operating the A/C system after filling. Refer to => Refrigerant R134a Servicing; Rep. Gr. 00 ; Description and Operation (A/C Service Station).*

## 5.19 Sunlight Photo Sensor -G107-

**i** Note

◆ *There are different versions of the sunlight photo sensor. Make sure the allocation is correct. Refer to the Electronic Parts Catalog. If a sunlight photo sensor is installed that is not intended for that vehicle (there is a different signal than the one intended in that Climatronic control module -J255- ), the Climatronic control module cannot evaluate the signal from the sunlight photo sensor and the A/C system is not regulated correctly.*

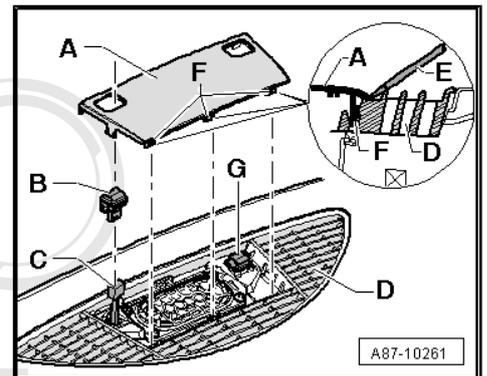
◆ *On vehicles with no A/C (heater only), there is no sunlight photo sensor installed. A cover cap is installed on these vehicles instead.*

- Switch off ignition.
- Carefully pry cover -A- out of windshield defroster vent -D-. Refer to=> Body Interior; Rep. Gr. 70 ; Removal and Installation .

**i** Note

*First carefully loosen retainers -F- from defroster vent -D- with a small screwdriver -E-. Do not damage surface of cover -A- or defroster vent -D- when doing so.*

- Carefully pry sunlight photo sensor -B- out of front windshield defroster vent -D-.
- Disconnect connector -C-.



**i** Note

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*Do not interchange Sunlight Photo Sensor -G107- -B- (4 electrical connections) with light emitting diode for central locking system and interior monitoring system -G- (2 electrical connections).*

## 5.20 Temperature Sensors

⇒ ["5.20.1 Evaporator Vent Temperature Sensor G263 "](#),  
[page 184](#)

⇒ ["5.20.2 Left Footwell Vent Temperature Sensor G261 "](#),  
[page 184](#)

⇒ ["5.20.3 Right Footwell Vent Temperature Sensor G262 "](#), [page 185](#)

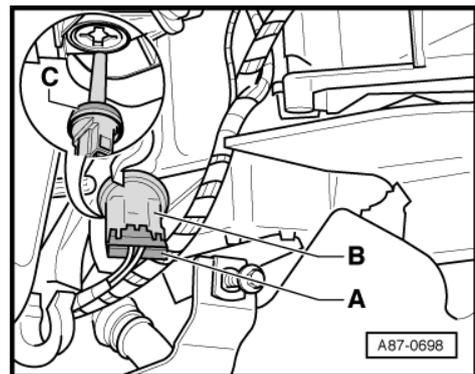
### 5.20.1 Evaporator Vent Temperature Sensor - G263-



#### Note

*On vehicles with heating (without A/C system), there is no Evaporator Vent Temperature Sensor installed (depending on version, mounting opening in air distribution housing is not present or is sealed with sealing plugs).*

- Remove right center console trim. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Disconnect the connector -A-.
- Turn sensor -B- 90° and pull it out of A/C unit.
- Check seal -C- for proper seating when installing.



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### 5.20.2 Left Footwell Vent Temperature Sensor -G261-

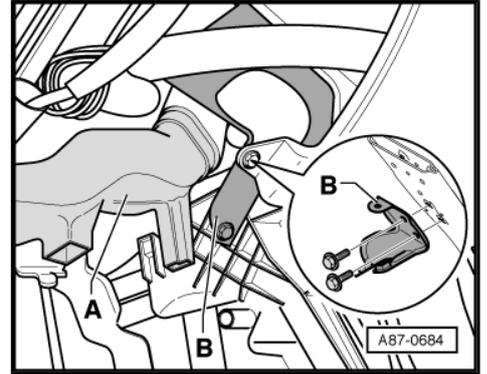


#### Note

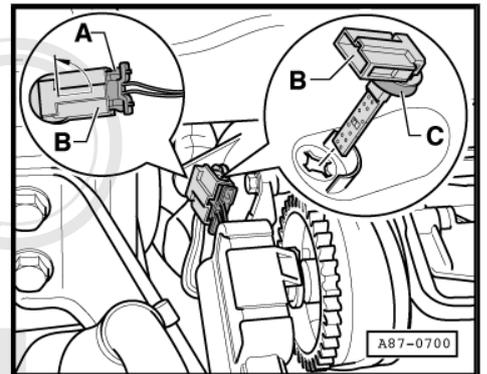
*On vehicles with heating (without A/C system), there is no Left Footwell Vent Temperature Sensor installed (depending on version, mounting opening in air guide channel is not present or is sealed with sealing plugs).*

- Remove driver side storage compartment. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .

- Remove left footwell vent -A- (driver side). Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Reach through opening between left side of A/C unit and central tube (instrument panel cross member) or support on left side of A/C unit and rotate sensor -B- into position in which connector -A- can be disconnected.



- Disconnect the connector -A- (for example, using needle-nose pliers)
- Turn sensor -B- 90° and pull it out of A/C unit.
- Check seal -C- for proper seating when installing.



**i** Note

- ◆ If the sensor -B- cannot be rotated, or is not accessible because of other components -B-, remove this component. Refer to⇒ Body Interior; Rep. Gr. 70 ; Removal and Installation .
- ◆ This illustration depicts sensor -B- with instrument panel removed. With instrument panel installed, the sensor -B- is visible from underneath when the footwell vent is removed (part of sensor with temperature sensor is visible in air guide channel).

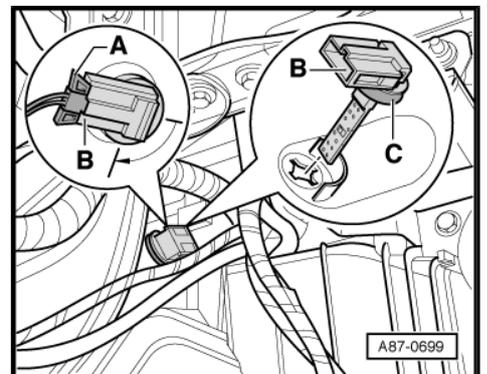
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### 5.20.3 Right Footwell Vent Temperature Sensor -G262-

**i** Note

*On vehicles with heating (without A/C), there is no Right Footwell Vent Temperature Sensor installed (depending on version, mounting opening in air guide channel is not present or is sealed with sealing plugs).*

- Remove the glove compartment. Refer to⇒ Body Interior; Rep. Gr. 68 ; Removal and Installation .
- Disconnect the connector -A-.
- Turn sensor -B- 90° and pull it out of A/C unit.
- Check seal -C- for proper seating when installing.



## 6 Disassembly and Assembly

⇒ ["6.1 Electrical Components of A/C unit", page 186](#)

⇒ ["6.2 A/C Unit", page 188](#)

⇒ ["6.3 Evaporator Housing", page 190](#)

### 6.1 Electrical Components of A/C unit

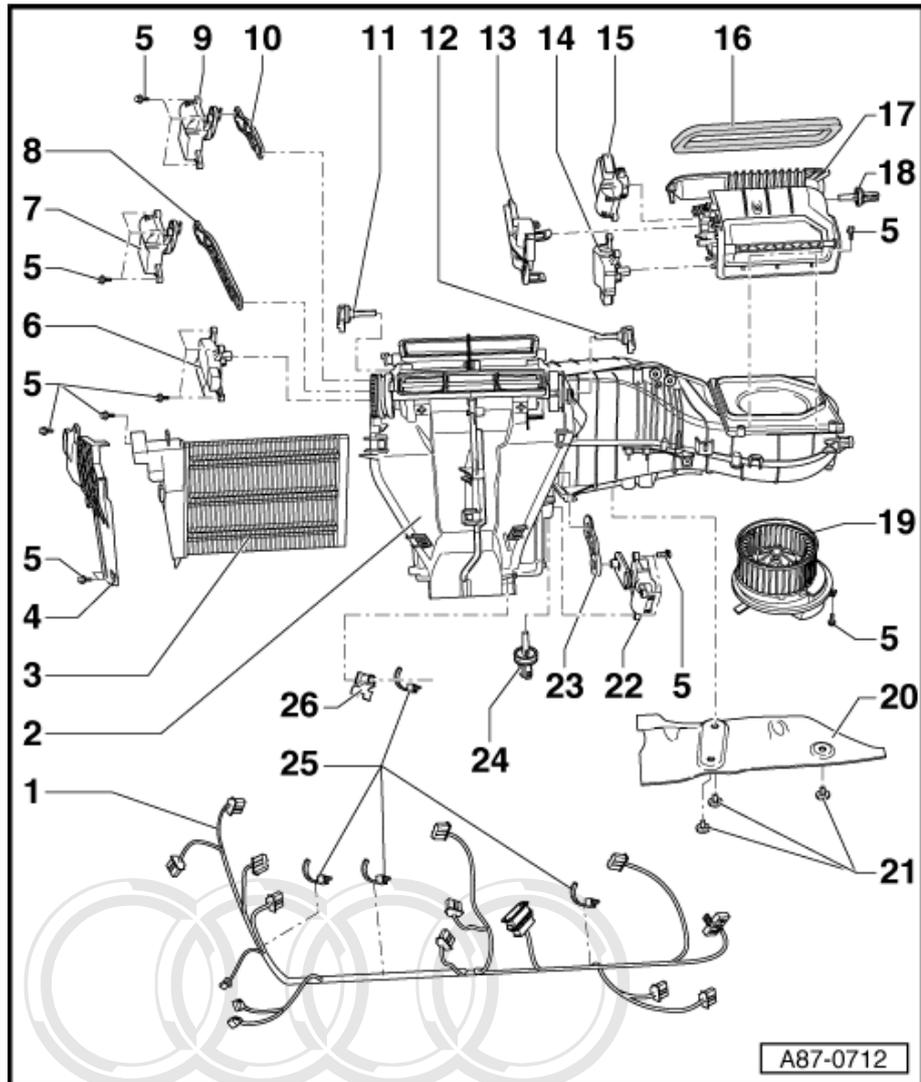
– Remove A/C unit. Refer to ⇒ ["5.3 A/C Unit", page 108](#) .

#### 1 - A/C System Wiring Harness

- ❑ Different versions, for example, with or without voltage supply to the auxiliary heater heating element -Z35- ) Refer to the Electronic Parts Catalog.
- ❑ Mark the allocation before disconnecting the connectors (danger of interchange, connectors of same shape for different control motors and temperature sensor).
- ❑ Secure wiring harness to mounting points provided on housing (using cable ties, or on mounts) so that it does not come into contact with moving components.

#### 2 - Air Conditioner Unit

- ❑ Removing and installing, refer to ⇒ ["5.3 A/C Unit", page 108](#) .
- ❑ Heating and A/C unit, disassembling and assembling, refer to ⇒ ["6.2 A/C Unit", page 188](#) .
- ❑ Disassembling and assembling evaporator housing, refer to ⇒ ["6.3 Evaporator Housing", page 190](#) .



#### 3 - Auxiliary Air Heater Heating Element -Z35-

- ❑ Only intended for vehicles with Diesel engine.

#### 4 - Cover For Coolant Pipes and Heater Core

- ❑ This illustration shows version for vehicles with Auxiliary Air Heater Heating Element -Z35- .
- ❑ Different versions for vehicles with or without Auxiliary Air Heater Heating Element -Z35- (opening for Auxiliary Air Heater Heating Element -Z35- is sealed by this cover in vehicles without Auxiliary Air Heater Heating Element -Z35- ). Refer to Electronic Parts Catalog (ETKA). Copyright by AUDI AG.

#### 5 - Screw

#### 6 - Central Air Door Motor -V70-

- ❑ With Central Door Motor Position Sensor -G112- .

- Removing and installing, refer to ⇒ [“5.8.2 Central Air Door Motor V70 / V145 “, page 130](#) .



**Note**

#### 7 - Left Temperature Door Motor -V158-

- With Left Temperature Door Potentiometer/Actuator -G220- .
- Lever color identification: white.
- Removing and installing, refer to ⇒ [“5.8.4 Left Temperature Door Motor V158 “, page 133](#) .



**Note**

#### 8 - Connecting Rod to Left Temperature Door Motor -V158-

- Color identification: black (longer than connecting rod to Right Temperature Door Motor -V159- ).

#### 9 - Defroster Door Motor -V107-

- With Defroster Door Motor Position Sensor -G135- .
- Lever color identification: blue.
- Removing and installing, refer to ⇒ [“5.8.3 Defroster Door Motor V107 “, page 131](#) .



**Note**

#### 10 - Connecting Rod to Defroster Door Motor -V107-

- Color identification: blue.

#### 11 - Left Footwell Vent Temperature Sensor -G261-

- Removing and installing, refer to ⇒ [“5.20.2 Left Footwell Vent Temperature Sensor G261 “, page 184](#) .

#### 12 - Right Footwell Vent Temperature Sensor -G262-

- Removing and installing, refer to ⇒ [“5.20.3 Right Footwell Vent Temperature Sensor G262 “, page 185](#) .

#### 13 - Cover and Bracket for Air Flow Door Motor -V71- and Recirculation Door Motor -V113-

- Removing and installing, refer to ⇒ [“5.8.5 Recirculation Door Motor V113 “, page 135](#) .
- After installing, check both control motors which must be held in position by this bracket, if they are not installed free of play, use some foam to rectify play if necessary, attaching it to inside of mounting points of bracket. Refer to ⇒ [“2.10 Air Flow Door Motor V71 , Function“, page 62](#) .

#### 14 - Recirculation Door Motor -V113-

- With Recirculation Door Motor Position Sensor -G143- .
- Removing and installing, refer to ⇒ [“5.8.5 Recirculation Door Motor V113 “, page 135](#) .

#### 15 - Airflow Door Motor -V71-

- With Back Pressure Door Motor Position Sensor -G113- .
- Removing and installing, refer to ⇒ [“5.8.1 Air Flow Door Motor V71 “, page 126](#) .

#### 16 - Foam Seal

- For sealing air intake housing of heating & A/C unit to vehicle.

#### 17 - Intake Housing With Recirculating Air and Air Flow/Fresh Air Door

- Do not disassemble further.
- Removing and installing, refer to ⇒ [“5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door“, page 115](#) .
- Can be obtained as a replacement part in various versions. Refer to ⇒ [“5.5 Air Intake Housing with Recirculating and Air Flow/Fresh Air Door“, page 115](#) .

#### 18 - Temperature Sensor (Component Not Installed)

- Depending on version of air intake shroud, there may be an opening here for installing the temperature sensor, the temperature sensor pictured is not installed on the Audi TT, if there is an opening in the air intake shroud, it is seal with a grommet if necessary.

**19 - Fresh Air Blower Control Module -J126- and Fresh Air Blower -V2-**

- Removing and installing, refer to [⇒ "1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 ", page 36](#) .
- Different versions. At the start of production, a Fresh Air Blower on which the Fresh Air Blower Control Module is cast with the blower -V2- (cannot be replaced individually) was installed. In model year 2007, Fresh Air Blower Control Module and Fresh Air Blower that are bolted together (each can be replaced separately) will be introduced as a running change. Refer to [⇒ "1.14 Fresh Air Blower Control Module J126 and Fresh Air Blower V2 ", page 36](#) and Electronic Parts Catalog.
- The Fresh Air Blower Control Module is installed in the Fresh Air Blower. Depending on the version, both of these components can be either replaced separately or only together.

**20 - Insulation Mat****21 - Screw Clips****22 - Right Temperature Door Motor -V159-**

- With Right Temperature Door Potentiometer/Actuator -G221- .
- Lever color identification: black.
- Removing and installing, refer to [⇒ "5.8.6 Right Temperature Door Motor V159 ", page 137](#) .
- For this positioning motor, observe note on Left Temperature Door Motor -V158- [⇒ Item 7 \(page 187\)](#) .

**23 - Connecting Rod to Right Temperature Door Motor -V159-**

- Color identification: black (shorter than connecting rod to Left Temperature Door Motor, left -V158- ).

**24 - Evaporator Vent Temperature Sensor -G263-**

- Removing and installing, refer to [⇒ "5.20.1 Evaporator Vent Temperature Sensor G263 ", page 184](#) .

**25 - Cable Ties****26 - Wiring Harness Bracket****6.2 A/C Unit**

- Remove A/C unit. Refer to [⇒ "5.3 A/C Unit", page 108](#) .
- Remove electrical add-on components from A/C unit. Refer to [⇒ "6.1 Electrical Components of A/C unit", page 186](#) .

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**erWin**

### 1 - Air Distribution Housing For A/C System

- ❑ Different version for heating and A/C. Refer to the Electronic Parts Catalog.
- ❑ From May 2007, an A/C air distribution housing with a door in the air outlet to the defroster vents in the instrument panel without a side cut-out is gradually being installed. With the introduction of the door with the side cut-out, the Climatronic control module - J255- is changed. Refer to [⇒ "1.6 A/C Air Distribution Housing Defroster Outlet Door", page 30](#) and to the Electronic Parts Catalog. Make sure the correct Climatronic control module - J255- installed and then check the adaptation using Vehicle diagnosis, testing and information system -VAS5051B- in the "Guided Fault Finding" function.



#### 2 - Screw

#### 3 - Air Guide Channel To Left Footwell Vent

- ❑ Different versions. Refer to Electronic Parts Catalog (ETKA).
- ❑ A/C system version (with an opening for installing a temperature sensor).

#### 4 - Heater Core For Heater Unit

- ❑ Removing and installing, refer to [⇒ "5.14 Heater Core", page 144](#).

#### 5 - Sealing Ring

- ❑ Replacing
- ❑ Coat thinly with coolant and insert on proper side. Refer to [⇒ "5.14 Heater Core", page 144](#).

#### 6 - Clip

- ❑ Replacing
- ❑ Ensure it is seated correctly.
- ❑ Removing and installing, refer to [⇒ "5.14 Heater Core", page 144](#).

#### 7 - Screw

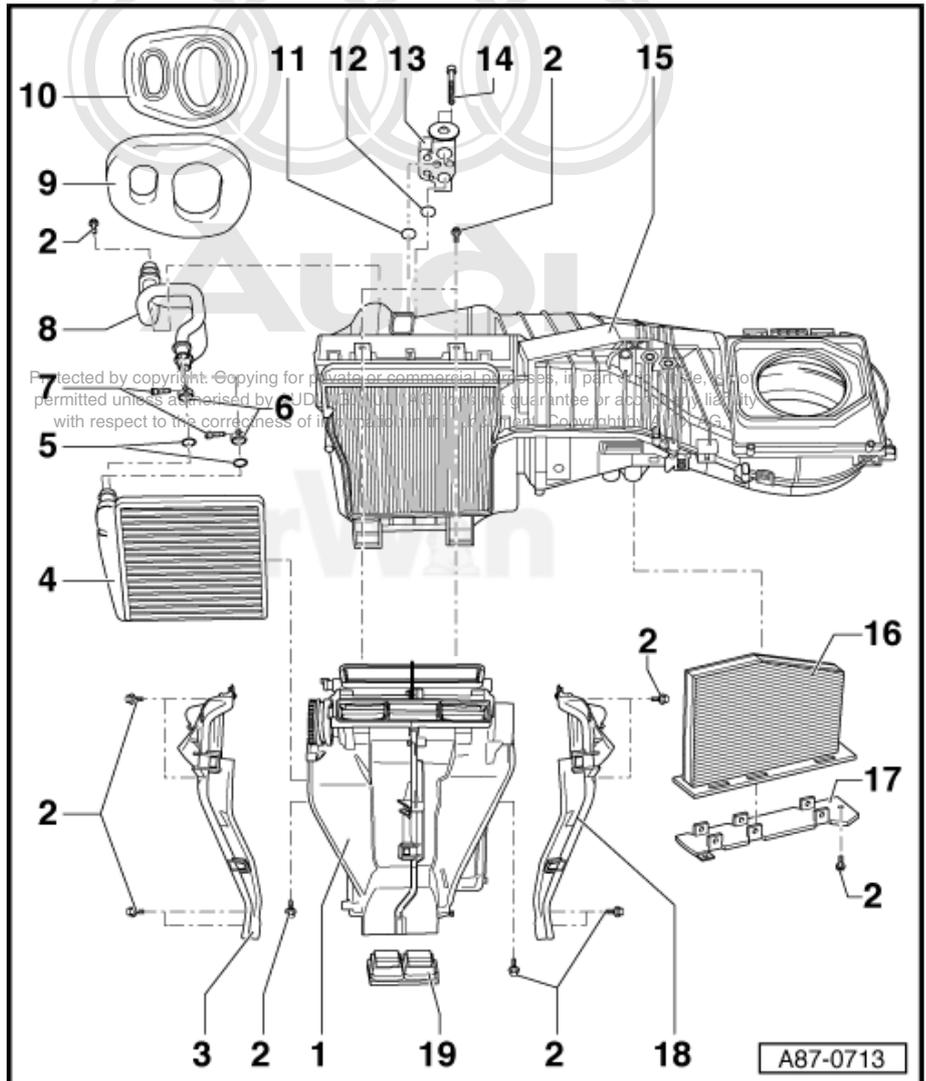
- ❑ Tightening specification 2.5 Nm

#### 8 - Coolant Pipes

- ❑ Disconnect and connect from heater core. Refer to [⇒ "5.14 Heater Core", page 144](#).

#### 9 - Foam Spacer

- ❑ Installed between grommet and A/C unit.





### 10 - Grommet

- Install in the back of the plenum chamber before installing the A/C unit. Refer to [⇒ "5.3 A/C Unit", page 108](#) .
- Installing, refer to [⇒ "5.3 A/C Unit", page 108](#) .

### 11 - O-ring

- Replacing, refer to [⇒ "1.21 Refrigerant Circuit O-rings", page 41](#) .
- Allocation, refer to Electronic Parts Catalog (ETKA).

### 12 - O-ring

- Replacing, refer to [⇒ "1.21 Refrigerant Circuit O-rings", page 41](#) .
- Allocation, refer to Electronic Parts Catalog (ETKA).

### 13 - Expansion Valve

- Refrigerant lines, disconnecting and reconnecting, refer to [⇒ "5.18.13 Refrigerant Lines, Disconnecting and Connecting From Expansion Valve", page 180](#) .
- Removing and installing, refer to [⇒ "5.18.10 Expansion Valve", page 174](#) .

### 14 - Screw

- Tightening specification 10 Nm
- Removing and installing, refer to [⇒ "5.18.10 Expansion Valve", page 174](#) .

### 15 - Evaporator Housing

- Disassembling and assembling, refer to [⇒ "6.3 Evaporator Housing", page 190](#) .

### 16 - Dust and Pollen Filter

- Removing and installing, refer to [⇒ "5.9 Dust and Pollen Filter", page 138](#) .
- Follow the replacement intervals. Refer to Maintenance Intervals, Rep. Gr. 03.
- With activated charcoal insert, refer to [⇒ "1.12 Dust and Pollen Filter with Activated Charcoal Insert", page 33](#) .

### 17 - Cover For Dust and Pollen Filter

- Removing and installing, refer to [⇒ "5.9 Dust and Pollen Filter", page 138](#) .

### 18 - Air Guide Channel To Right Footwell Vent

- Different versions. Refer to Electronic Parts Catalog (ETKA).
- A/C system version (with an opening for installing a temperature sensor).

### 19 - Plug

- Present two times in different version. Refer to [⇒ "2.1 Air Routing and Distribution in Passenger Compartment", page 44](#) .

## 6.3 Evaporator Housing

- Remove A/C unit. Refer to [⇒ "5.3 A/C Unit", page 108](#) .
- Remove electrical add-on components from A/C unit. Refer to [⇒ "6.1 Electrical Components of A/C unit", page 186](#) .
- Remove evaporator housing from A/C unit. Refer to [⇒ "6.2 A/C Unit", page 188](#) .

**1 - Lower Section Of Evaporator Housing**

**2 - Evaporator**

- ❑ Check insulation, it must be completely present. Refer to ⇒ ["5.18.9 Evaporator", page 172](#) .
- ❑ Removing and installing, refer to ⇒ ["5.18.9 Evaporator", page 172](#) .

**3 - Clip**

**4 - Upper Section Of Evaporator Housing**

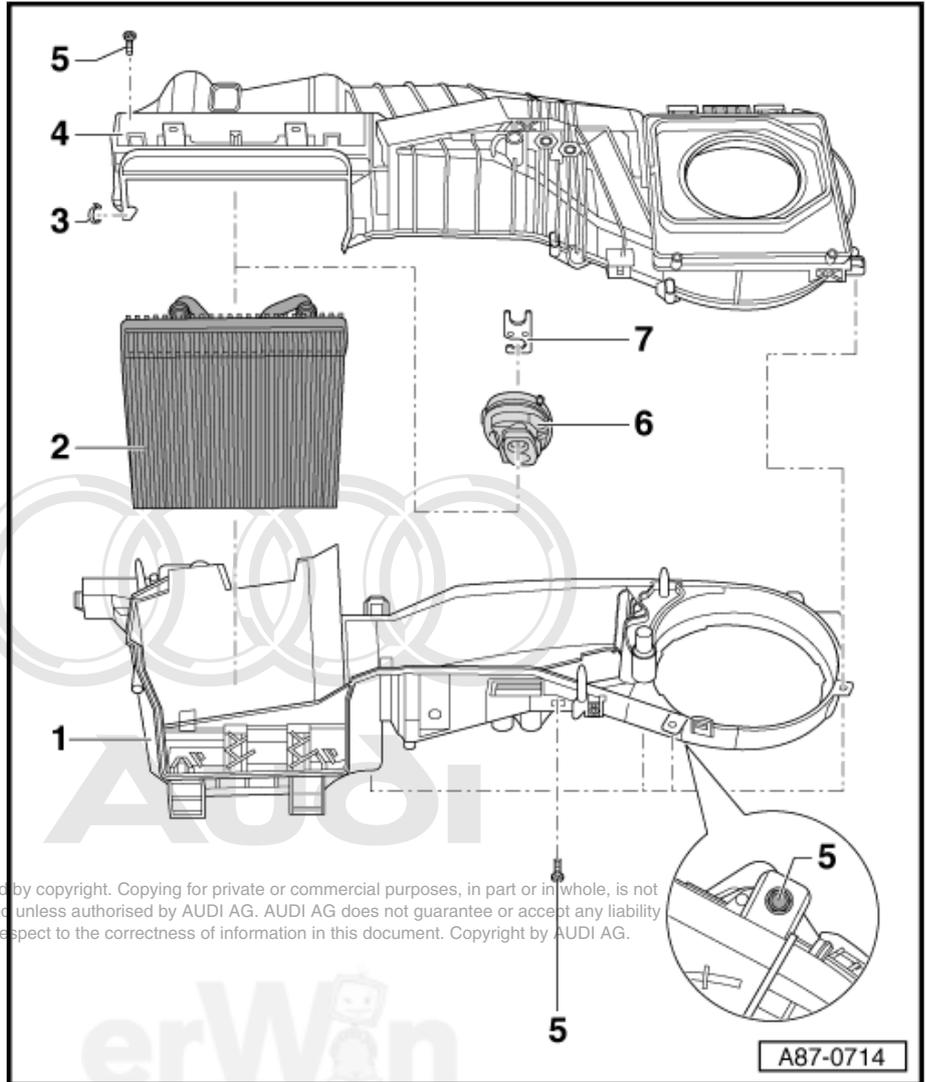
**5 - Screw**

**6 - Seal / Insulation**

- ❑ Heat insulation for expansion valve.
- ❑ Removing and installing, refer to ⇒ ["5.18.9 Evaporator", page 172](#) .

**7 - Bracket**

- ❑ Removing and installing, refer to ⇒ ["5.18.9 Evaporator", page 172](#) .

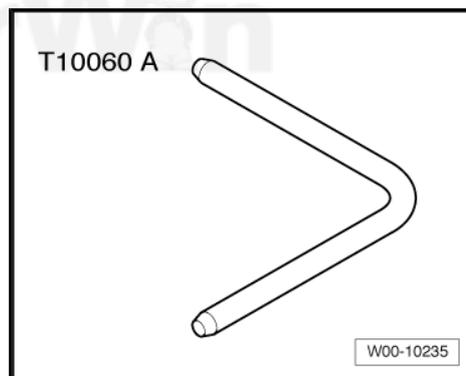
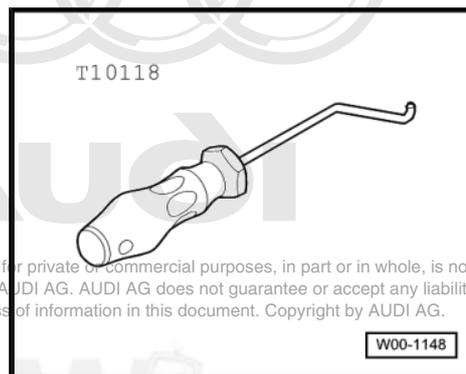


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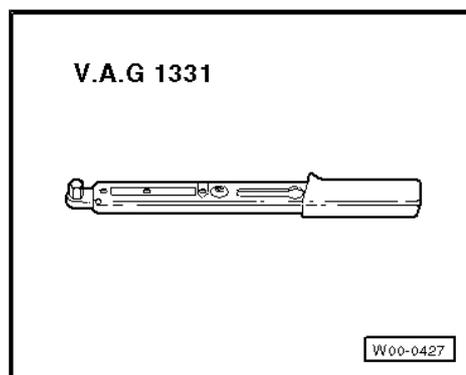
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## 7 Special Tools

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- ◆ Hose Clamps, Up to 40 mm -3094- and
- ◆ Hose Clamps Up to 25 mm diameter -3093-
- ◆ Compressed air gun, commercially available
- ◆ Cooling System Tester -V.A.G 1274- (and corresponding adapter)
- ◆ Hook -3438-
- ◆ Assembly Tool -T10118-
- ◆ Locking Pin -T10060 A-
- ◆ Torque wrench -V.A.G 1331/- (or 5-50 Nm equivalent)



Edition 04192011

# Cautions & Warnings

**Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.**

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Audi retailer or other qualified shop. We especially urge you to consult an authorized Audi retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Audi.

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- **Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.**
- Audi is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Audi retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

# Cautions & Warnings

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.
- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly, do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Audi specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.

# Cautions & Warnings

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Audi Service technicians should test, disassemble or service the airbag system.
- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Audi Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

**I have read and I understand these Cautions and Warnings.**