



Workshop Manual Tiguan 2016 ➤ Tiguan RUS 2017 ➤

Heating, air conditioner

Edition 06.2017



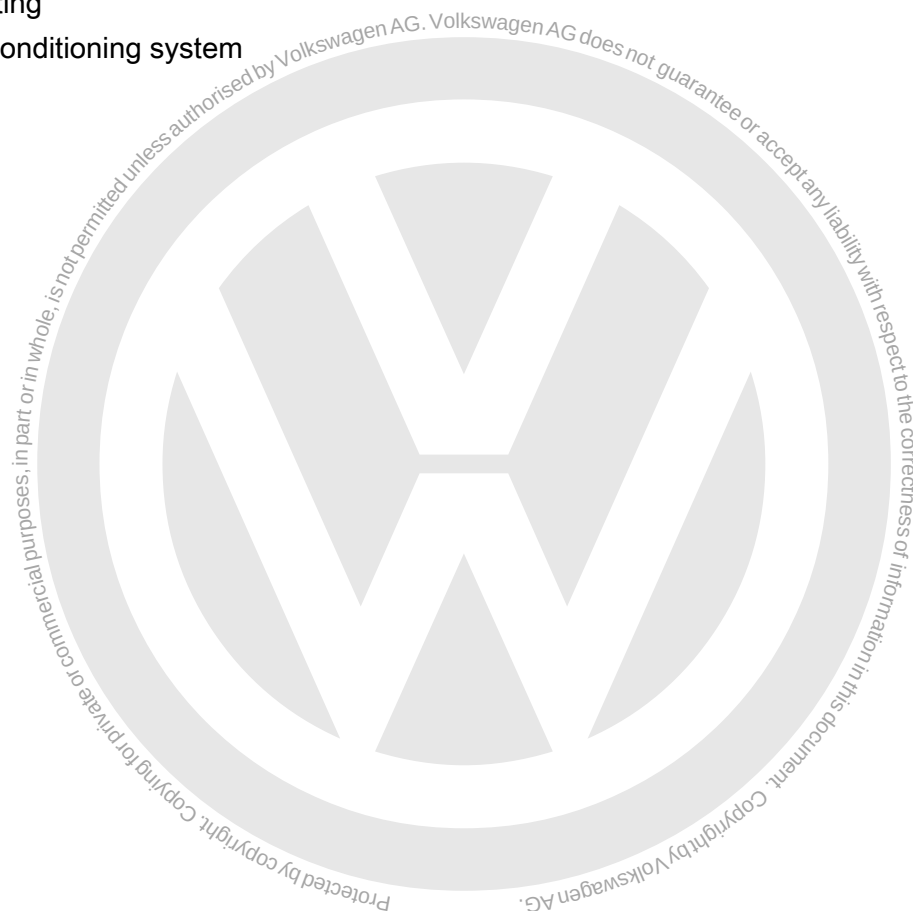
List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

80 - Heating

87 - Air conditioning system



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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00 – Technical data

1 Safety information

(VRL010527; Edition 06.2017)

⇒ [“1.1 Safety precautions when working on air conditioning systems”, page 1](#)

⇒ [“1.2 Safety precautions when handling refrigerants”, page 1](#)

⇒ [“1.3 Safety measures when working on vehicles with a start/stop system”, page 2](#)

⇒ [“1.4 Safety precautions when working on the cooling system”, page 2](#)

⇒ [“1.5 Safety precautions when working on vehicles with auxiliary/supplementary heater”, page 2](#)

1.1 Safety precautions when working on air conditioning systems

Risk of fatal injury and explosion from sources of ignition

Risk of fatal injury and explosion from sources of ignition in the vicinity of air conditioning systems and refrigerant tanks. Escaping refrigerant could ignite and cause an explosion. Risk of explosion leading to loss of life or serious injuries.

- Never bring sources of ignition close to air conditioning systems and refrigerant tanks.
- Avoid electrostatic discharge, sparks from tools striking surfaces and hot surfaces.

Risk of damage to refrigerant lines

There is a risk of damage to the refrigerant lines due to rupture of the inner foil.

- Never bend refrigerant lines to a radius less than 100 mm.

1.2 Safety precautions when handling refrigerants

Risk of suffocation and poisoning from refrigerant

Coughing and nausea leading to suffocation and poisoning from refrigerant vapours possible.

- Never inhale refrigerant vapours.
- Only work on the refrigerant circuit and refrigerant tanks in well ventilated areas.
- Never work in or near cellars or other low lying areas.
- Switch on the extraction system.



Risk of freezing injury from refrigerant

When working on the air conditioning system, there is a risk of highly pressurised refrigerant escaping from the system. There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

1.3 Safety measures when working on vehicles with a start/stop system

Risk of injury due to unexpected motor start

If the vehicle's start/stop system is activated, the engine can start unexpectedly. A message in the dash panel insert indicates whether the start/stop system is activated.

- Deactivate start/stop system by switching off the ignition.

1.4 Safety precautions when working on the cooling system

Danger of scalding by hot coolant

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.

1.5 Safety precautions when working on vehicles with auxiliary/supplementary heater

Danger of fire and explosion from auxiliary/supplementary heater

In fire and explosion-endangered areas, a spark or the high temperature of the auxiliary/supplementary heater can cause a fire or an explosion. Risk of burns.

- Switch the auxiliary/supplementary heater off in fire and explosion-endangered areas.

Danger of poisoning from exhaust fumes

auxiliary/supplementary heaters produce poisonous exhaust fumes. Risk of poisoning and injuries to respiratory system.



- In closed areas, only switch on the auxiliary/supplementary heater when it is exclusively connected to an exhaust extractor system.
- In closed areas without an exhaust extractor system, switch off the auxiliary/supplementary heater.

Risk of damage when starting the engine

If components of the fuel system or coolant circuit of the auxiliary/supplementary heater are removed or opened, there is a possibility of causing damage to the auxiliary/supplementary heater.

- Never attempt to start the engine when components are removed or opened.

Malfunction caused by air in the fuel supply system

Upon repair work on the fuel tank or the fuel delivery unit, air will be drawn in by the metering pump and conveyed to the auxiliary/supplementary heater. Air in the fuel supply system may cause malfunction of the auxiliary/supplementary heater.

- Fill fuel take-off pipe with fuel.

Risk of accidents and risk of injury due to activated timer of auxiliary/supplementary heater

If the vehicle's timer for the auxiliary/supplementary heater is active, the heater may switch on unexpectedly. This poses a risk of poisoning from exhaust gases, a risk of burns caused by hot auxiliary/supplementary heater components as well as a risk of fire and explosions caused by high temperatures.

- Deactivate timer for auxiliary/supplementary heater.



2 Identification

⇒ **"2.1 Identification of heater and air conditioning unit",
page 4**

2.1 Identification of heater and air conditioning unit

⇒ **"2.1.1 Identification of Valeo heater and air conditioning unit",
page 4**

⇒ **"2.1.2 Identification of Denso heater and air conditioning unit",
page 4**

2.1.1 Identification of Valeo heater and air conditioning unit

Determining manufacturer of heater and air conditioning unit

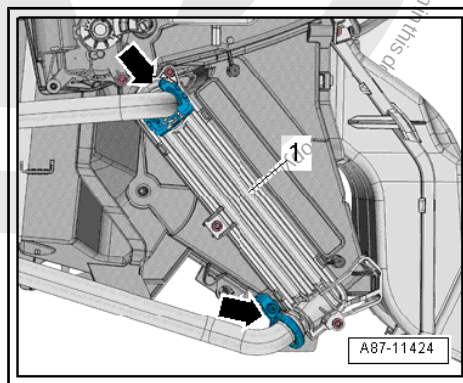
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

A heater and air conditioning unit of the manufacturer Valeo is installed when the coolant pipes are routed as in the figure.



Note

- ♦ *The combined fitting of different makes of component is not permissible.*
- ♦ *Allocate components correctly when installing ⇒ Electronic parts catalogue (ETKA) .*



2.1.2 Identification of Denso heater and air conditioning unit

Determining manufacturer of heater and air conditioning unit

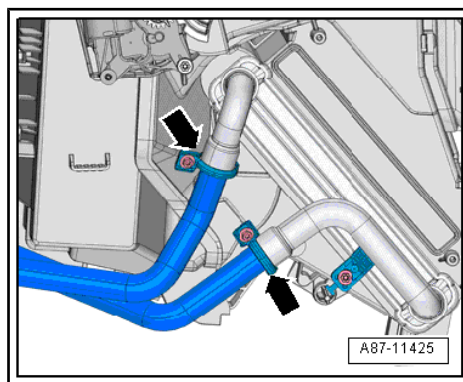
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

A heater and air conditioning unit of the manufacturer Denso is installed when the coolant pipes are routed as in the figure.



Note

- ♦ *The combined fitting of different makes of component is not permissible.*
- ♦ *Allocate components correctly when installing ⇒ Electronic parts catalogue (ETKA) .*





3 General information

⇒ [“3.1 Notes concerning odours in air conditioned vehicles”, page 5](#)

⇒ [“3.2 Notes for vehicles with start-stop system”, page 5](#)

⇒ [“3.3 Type plates”, page 6](#)

3.1 Notes concerning odours in air conditioned vehicles

- ◆ If the evaporator emits unpleasant odours, clean the evaporator.
- ◆ Volkswagen has tested and approved the ultrasound A/C cleaner - VAS 6189A- as well as the suction feed spray-gun - V.A.G 1538- with the appropriate spray probe.
- ◆ Instructions on cleaning the evaporator are supplied with the equipment.
- ◆ As soon as Volkswagen releases new procedures, corresponding information is found in the workshop manual ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Refrigerant circuit; Possible complaints or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Complaints; Odours from heater and air conditioner unit

3.2 Notes for vehicles with start-stop system

The following abort conditions deactivate the start-stop-function:

- ◆ The start-stop system has been switched off via the start-stop mode button.
- ◆ The charge status of the battery - - is insufficient to restart the engine (starting voltage prediction).
- ◆ The defrost function is active.
- ◆ The windscreen heater function is active.
- ◆ The temperature set on the operating and display unit varies by more than 8°C from the actual interior temperature.
- ◆ The engine speed is greater than 1200 rpm.
- ◆ The alternator - C- is defective, i.e. poly V-belt broken.
- ◆ The coolant temperature is not within specifications of 25°C - 100°C.
- ◆ Blower speed increase by more than 4 stages.



3.3 Type plates

⇒ "3.3.1 Identification plates, refrigerant R1234yf", page 6

⇒ "3.3.2 Identification plates, refrigerant R134a", page 6

3.3.1 Identification plates, refrigerant R1234yf

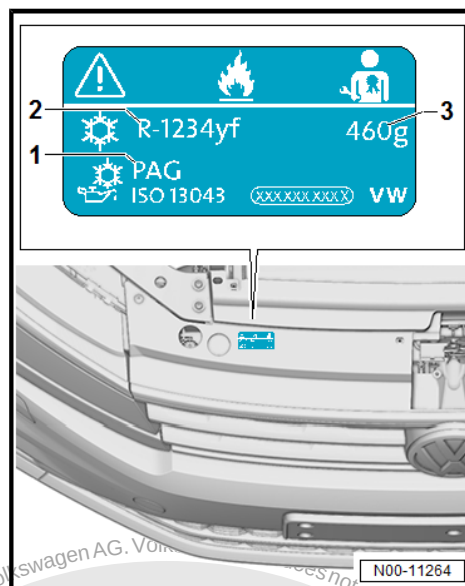
Identification plate with capacities for refrigerant R1234yf and refrigerant oil

- 1 - Designation of refrigerant oil
- 2 - Name of refrigerant
- 3 - Refrigerant capacity



Note

- ◆ A tolerance of 460 ± 15 g is permissible although not indicated on the identification plate.
- ◆ Capacities for refrigerant R1234yf and refrigerant oil
⇒ "5 Technical data", page 9.



3.3.2 Identification plates, refrigerant R134a

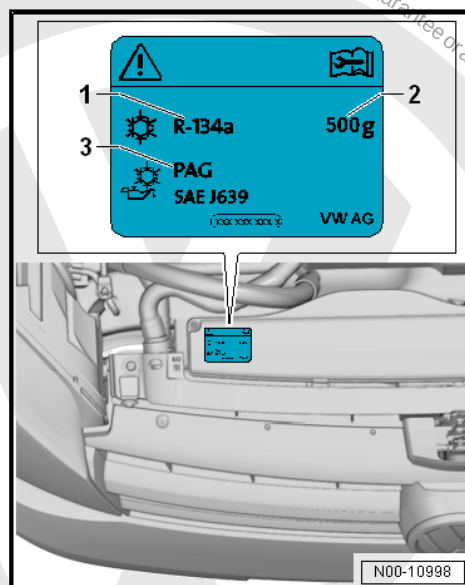
Identification plate with capacities for refrigerant R134a and refrigerant oil

- 1 - Name of refrigerant
- 2 - Refrigerant capacity
- 3 - Designation of refrigerant oil



Note

- ◆ A tolerance of 500 ± 15 g is permissible although not indicated on the identification plate.
- ◆ Capacities for refrigerant R134a and refrigerant oil
⇒ "5 Technical data", page 9.





4 Repair notes

⇒ [“4.1 Working on refrigerant circuit”, page 7](#)

⇒ [“4.2 General repair instructions”, page 7](#)

⇒ [“4.3 Refrigerant circuit seals”, page 8](#)

4.1 Working on refrigerant circuit

In some countries special qualifications are required for any work for which the refrigerant circuit needs to be opened.

Additional information

- ◆ For notes on repair work on vehicles equipped with an air conditioning system and for handling refrigerant, refer to ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 00 ; Safety instructions or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; General information on the air conditioning system; Safety precautions when working on vehicles equipped with an air conditioning system and for handling refrigerant R134a .
- ◆ For notes on working with air conditioner service station on vehicles equipped with an air conditioning system, refer to ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Working with air conditioner service station or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Working with air conditioner service station .
- ◆ Conditions and procedure for flushing with refrigerant R1234yf ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Refrigerant circuit; Cleaning refrigerant circuit or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Removing contamination from refrigerant circuit; Flushing refrigerant circuit with refrigerant R134a (cleaning) .
- ◆ Notes on testers and tools for repairs to vehicles with air conditioning can be found in ELSA under ⇒ Air conditioning systems with refrigerant R1234yf - General information or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Testing equipment and tools .
- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components .
- ◆ In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .

4.2 General repair instructions

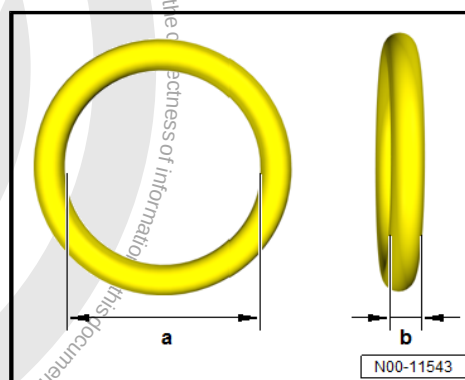
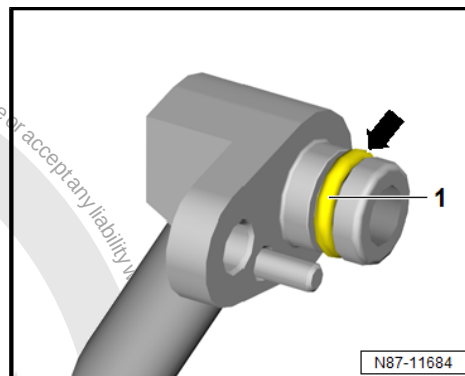
Never attempt to repair any heating and air conditioning system components. Defective components must be replaced with Genuine parts.



4.3 Refrigerant circuit seals

- ◆ Renew seals after removal.
- ◆ Moisten seals with refrigerant oil before installing.
- ◆ Ensure proper seating of seal -1- in groove -arrow- of respective refrigerant line.
- ◆ Make sure connections of refrigerant lines in question are clean.
- ◆ Install only seals resistant to refrigerant R134a/R1234yf and respective refrigerant oil ⇒ Electronic parts catalogue (ETKA) .

The dimensions -a- and -b- depend on the fitting location of the seal ⇒ Electronic parts catalogue (ETKA) .





5 Technical data

⇒ ["5.1 Refrigerant capacity", page 9](#)

⇒ ["5.2 Refrigerant oil", page 9](#)

⇒ ["5.3 Oil distribution", page 9](#)

5.1 Refrigerant capacity

⇒ ["5.1.1 Capacities for refrigerant R1234yf", page 9](#)

⇒ ["5.1.2 Capacities for refrigerant R134a", page 9](#)

5.1.1 Capacities for refrigerant R1234yf

Total capacity
460 ± 15 grammes



Note

A tolerance of ± 15 g is permissible although not indicated on the identification plate.

5.1.2 Capacities for refrigerant R134a

Total capacity
500 ± 15 g



Note

A tolerance of ± 15 g is permissible although not indicated on the identification plate.

5.2 Refrigerant oil

Depending on the manufacturer, different refrigerant oils are used; part number ⇒ Electronic parts catalogue (ETKA) .

Refrigerant oil is very hygroscopic. Therefore refrigerant oils from containers which have been open for a longer period of time are unusable.

- Reseal open containers immediately to protect against ingress of moisture.

Model	Total capacity ¹⁾
6SES14C; Denso	110 ± 10 cm ³
6SAS14; Denso	110 ± 10 cm ³
11PXE14; Sanden	75 ± 10 cm ³
6CVC140; Mahle/Delphi	110 ± 10 cm ³

1) This quantity of refrigerant oil is contained in a replacement air conditioner compressor and corresponds to the total capacity.

5.3 Oil distribution

- ◆ During operation of the air conditioner, the refrigerant oil in the air conditioner compressor prior to initial operation is distributed throughout the refrigerant circuit.
- ◆ The distribution of the refrigerant oil depends on the operating mode of the air conditioner when it was switched off, the am-



bient temperatures etc. Consequently, it is not possible to make a general statement about how the refrigerant oil is distributed within the refrigerant circuit. Observe notes on replacing refrigerant circuit components ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Renewing components (Air conditioning system with refrigerant R134a, Renewing refrigerant circuit components) or ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Refrigerant circuit; Renewing components .



80 – Heating

1

Heating



Note

- ◆ *At the moment, the only heating system available for the Tiguan is a heating system integrated in the air conditioning system.*
- ◆ *For information on repairs, refer to ⇒ g r.87 "Air conditioning system", page 12.*



87 – Air conditioning system

1 Overview of fitting locations - air conditioning system

⇒ "1.1 Overview of fitting locations - components not located in passenger compartment", page 12

⇒ "1.2 Overview of fitting locations - components located in front section of passenger compartment", page 14

1.1 Overview of fitting locations - components not located in passenger compartment

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.



Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components .*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .*



1 - Forced ventilation of passenger compartment

- ☐ Checking ➔ [page 175](#)
- ☐ Removing and installing ➔ [page 175](#)

2 - Humidity sender for air conditioning system - G260-

- ☐ Check via onboard supply control unit - J519- using ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ☐ Removing and installing ➔ [page 189](#)

3 - Expansion valve

- ☐ Removing and installing ➔ [page 23](#)
- ☐ Specified torques ➔ [page 17](#)

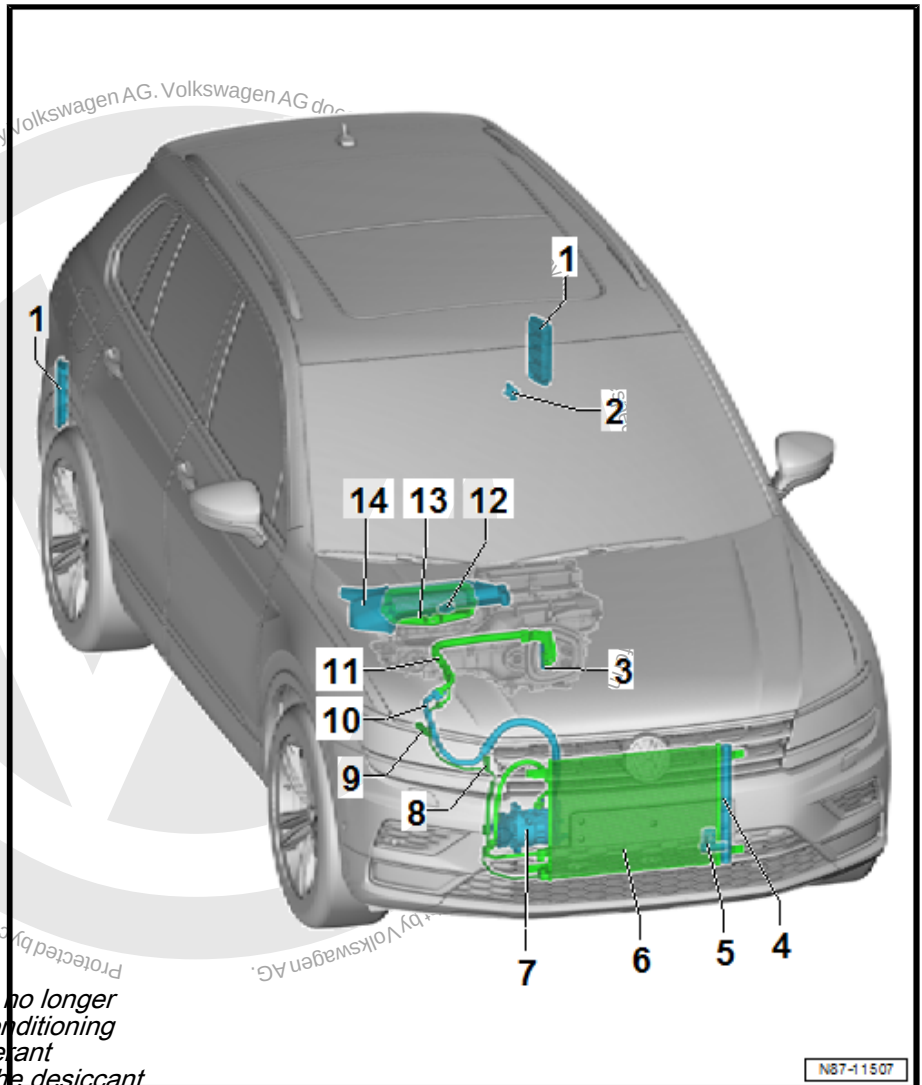
4 - Desiccant bag

- ☐ Assembly overview ➔ [page 20](#)
- ☐ Removing and installing ➔ [page 30](#)



Note

- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ➔ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components .
- ◆ In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ➔ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .



5 - Ambient temperature sensor - G17-

- ☐ Check via onboard supply control unit - J519- using ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- ☐ Removing and installing ➔ [page 188](#)

6 - Condenser

- ☐ With integrated receiver
- ☐ Assembly overview ➔ [page 20](#)
- ☐ Removing and installing ➔ [page 27](#)



Note

Under certain conditions, the fluid reservoir with desiccant bag no longer has to be renewed each time the refrigerant circuit is opened ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87; Refrigerant circuit; Renewing components or ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00; Renewing components.

7 - Air conditioner compressor

- ☐ Assembly overview ⇒ [page 54](#)
- ☐ Removing and installing ⇒ [page 59](#)
- ☐ Removing from and installing on bracket ⇒ [page 58](#)

8 - Evacuating and charging valve, high-pressure side

- ☐ Removing and installing ⇒ [page 40](#)

9 - Pressure sender for refrigerant circuit - G805-

- ☐ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ⇒ [page 22](#)
- ☐ 8 Nm

10 - Evacuating and charging valve, low-pressure side

- ☐ Removing and installing ⇒ [page 40](#)

11 - Refrigerant line with internal heat exchanger

- ☐ From condenser and air conditioner compressor
- ☐ Removing and installing ⇒ [page 43](#)

12 - Air quality sensor - G238-

- ☐ Only vehicles with Climatronic.
- ☐ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ⇒ [page 187](#)

13 - Fresh air intake

- ☐ Removing and installing ⇒ [page 167](#)

14 - Cover for fresh air intake

- ☐ Removing and installing ⇒ [page 169](#)

1.2 Overview of fitting locations - components located in front section of passenger compartment

⇒ ["1.2.1 Overview of fitting locations - components located in front section of passenger compartment", page 14](#)

1.2.1 Overview of fitting locations - components located in front section of passenger compartment

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.



The illustration shows the Climatronic version.

1 - Left vent temperature sender - G150-

- ☐ Only vehicles with Climatronic.
- ☐ An incorrectly installed vent temperature sender will cause flow noise
- ☐ Check with ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ➔ [page 189](#)

2 - Footwell vent on driver side

- ☐ Assembly overview ➔ [page 166](#)
- ☐ Removing and installing ➔ [page 171](#)

3 - Footwell vent temperature sender - G192-

- ☐ Only vehicles with Climatronic.
- ☐ Check with ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ➔ [page 192](#)

4 - Front air distribution flap control motor - V426- with air distribution flap control motor - V428-

- ☐ Fitting location overview ➔ [page 67](#)
- ☐ Removing and installing ➔ [page 96](#)

5 - Left temperature flap control motor - V158- or temperature flap control motor - V68-

- ☐ Fitting location overview ➔ [page 67](#)
- ☐ Removing and installing ➔ [page 83](#)

6 - Sunlight penetration photosensor - G107-

- ☐ Only vehicles with Climatronic.
- ☐ Removing and installing ➔ [page 186](#)

7 - Evaporator

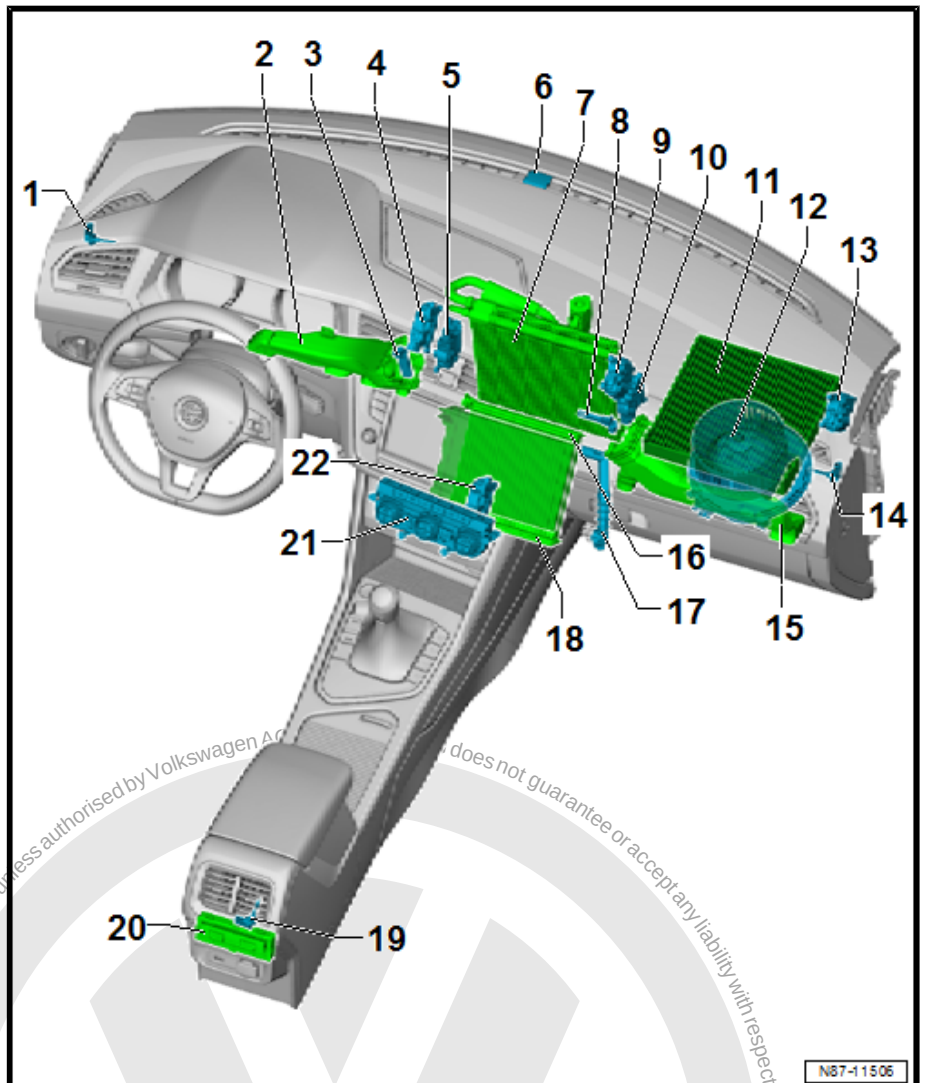
- ☐ Removing and installing ➔ [page 129](#)

8 - Evaporator temperature sensor - G308-

- ☐ Check with ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ➔ [page 158](#)

9 - Defroster flap control motor - V107-

- ☐ Only vehicles with Climatronic.





- ☐ Fitting location overview ➤ [page 67](#)
- ☐ Removing and installing ➤ [page 75](#)
- 10 - Right temperature flap control motor - V159-**
 - ☐ Only vehicles with Climatronic.
 - ☐ Fitting location overview ➤ [page 67](#)
 - ☐ Removing and installing ➤ [page 87](#)
- 11 - Dust and pollen filter**
 - ☐ Removing and installing ➤ [page 132](#)
- 12 - Fresh air blower - V2- with fresh air blower control unit - J126-**
 - ☐ Removing and installing fresh air blower - V2- ➤ [page 134](#) .
 - ☐ Removing and installing fresh air blower control unit - J126- ➤ [page 131](#)
- 13 - Air recirculation flap control motor - V113- or fresh air/recirculated air, air flow flap control motor - V425-**
 - ☐ Fitting location overview ➤ [page 67](#)
 - ☐ Removing and installing air recirculation flap control motor - V113- ➤ [page 79](#)
 - ☐ Removing and installing fresh air/recirculated air, air flow flap control motor - V425- ➤ [page 91](#)
- 14 - Right vent temperature sender - G151-**
 - ☐ Only vehicles with Climatronic.
 - ☐ An incorrectly installed vent temperature sender will cause flow noise
 - ☐ Check with ➤ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➤ Current flow diagrams, Electrical fault finding and Fitting locations
 - ☐ Removing and installing ➤ [page 190](#)
- 15 - Footwell vent on front passenger side**
 - ☐ Assembly overview ➤ [page 166](#)
 - ☐ Removing and installing ➤ [page 172](#)
- 16 - Auxiliary air heater element - Z35- with auxiliary air heater control unit - J604-**
 - ☐ Checking ➤ [page 135](#)
 - ☐ Removing and installing ➤ [page 137](#)
- 17 - Condensation drain hose**
 - ☐ Checking ➤ [page 160](#)
 - ☐ Removing and installing ➤ [page 161](#)
- 18 - Heat exchanger**
 - ☐ Removing and installing ➤ [page 139](#)
- 19 - Rear vent temperature sender - G174-**
 - ☐ Removing and installing ➤ [page 191](#)
- 20 - Rear Climatronic operating and display unit**
 - ☐ Removing and installing ➤ [page 184](#)
- 21 - Operating and display unit**
 - ☐ Removing and installing ➤ [page 183](#)
- 22 - Rear temperature flap motor - V137-**
 - ☐ Removing and installing ➤ [page 90](#)



2 Refrigerant circuit

⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)

⇒ [“2.2 Assembly overview - condenser”, page 20](#)

⇒ [“2.3 Removing and installing refrigerant circuit pressure sender G805”, page 22](#)

⇒ [“2.4 Removing and installing expansion valve”, page 23](#)

⇒ [“2.5 Removing and installing condenser”, page 27](#)

⇒ [“2.6 Removing and installing desiccant bag or cartridge”, page 30](#)

⇒ [“2.7 Removing and installing damper weight for refrigerant line, low-pressure side”, page 40](#)

⇒ [“2.8 Removing and installing evacuating and charging valves on low and high-pressure side”, page 40](#)

⇒ [“2.9 Removing and installing refrigerant line with internal heat exchanger”, page 43](#)

⇒ [“2.10 Removing and installing refrigerant line between condenser and evaporator”, page 45](#)

⇒ [“2.11 Removing and installing refrigerant line between condenser and air conditioner compressor”, page 48](#)

⇒ [“2.12 Removing and installing refrigerant line between air conditioner compressor and evaporator”, page 51](#)

2.1 System overview - refrigerant circuit



Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87; Refrigerant circuit; Renewing components .*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00; Renewing components .*



1 - Condenser

- ❑ Different versions ⇒
Electronic parts catalogue (ETKA)
- ❑ Assembly overview
⇒ [page 20](#)
- ❑ Removing and installing
⇒ [page 27](#)



Note

- ◆ In some cases, it is necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant Rep. gr. 87 ; Refrigerant Renewing components
- ◆ In some cases, it is necessary on air conditioning systems with R134a to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant Rep. gr. 00 ; Refrigerant Renewing components

2 - Refrigerant line

- ❑ To condenser

3 - Refrigerant line, high-pressure side

- ❑ Leads to refrigerant line with internal heat exchanger

4 - Service connection, high-pressure side

- ❑ Removing and installing ⇒ [page 40](#)
- ❑ Protective cap: 0.4 ± 0.1 Nm
- ❑ Valve: 2 ± 0.2 Nm

5 - Refrigerant line, low-pressure side

- ❑ Leads to refrigerant line with internal heat exchanger
- ❑ Depending on the vehicle model, type of refrigerant lines and production period, an additional damper weight may be installed on the refrigerant line ⇒ Electronic parts catalogue (ETKA) .
- ❑ Removing and installing damper weight (if fitted) ⇒ [page 40](#)

6 - Pressure sender for refrigerant circuit - G805-

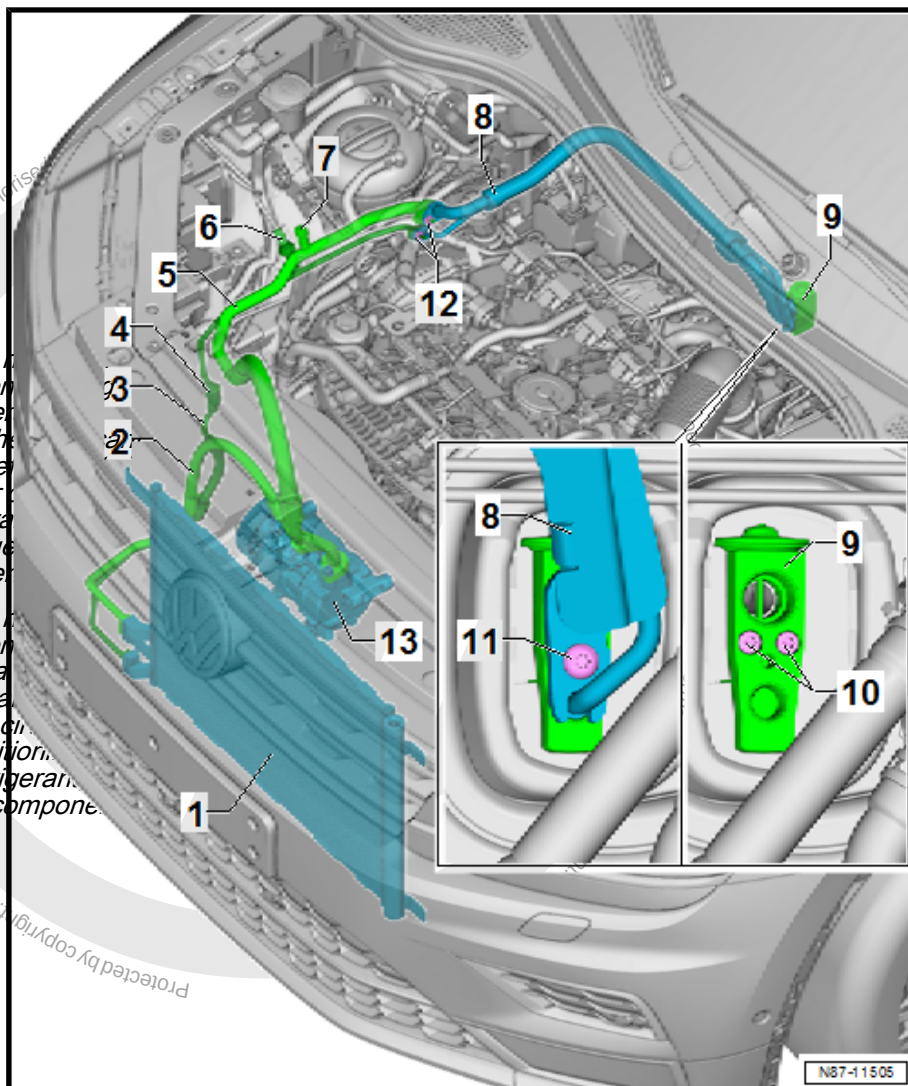
- ❑ Removing and installing ⇒ [page 22](#)
- ❑ 5 ± 1 Nm

7 - Service connection, low-pressure side

- ❑ Removing and installing ⇒ [page 40](#)
- ❑ Protective cap: 0.4 ± 0.1 Nm
- ❑ Valve: 2 ± 0.2 Nm

8 - Refrigerant line with internal heat exchanger

- ❑ The warm liquid refrigerant flowing through the internal heat exchanger on the high pressure side releases energy to the cold gaseous refrigerant flowing on the low pressure side, thus enhancing the efficiency of the air conditioner.





☐ From condenser and air conditioner compressor

☐ Removing and installing ⇒ [page 43](#)

9 - Expansion valve

☐ Removing and installing ⇒ [page 23](#)

10 - Bolts

☐ 10 Nm

11 - Bolt

☐ 8 Nm

12 - Nut

☐ 8 Nm

13 - Air conditioner compressor

☐ Assembly overview ⇒ [page 54](#)

☐ Removing and installing ⇒ [page 59](#)

☐ Removing from and installing on bracket ⇒ [page 58](#)



2.2 Assembly overview - condenser

Condenser, receiver



Note

- ◆ The illustration shows the Modine condenser.
- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87; Refrigerant circuit; Renewing components .
- ◆ In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00; Renewing components .

1 - Condenser

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Removing and installing ⇒ [page 27](#)

2 - Seal

- ☐ Renew after removal
- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Moisten with refrigerant oil before installation

3 - Refrigerant line

- ☐ To internal heat exchanger

4 - Bolt

- ☐ 8 Nm

5 - Bolt

- ☐ 8 Nm

6 - Refrigerant line

- ☐ From air conditioner compressor

7 - Seal

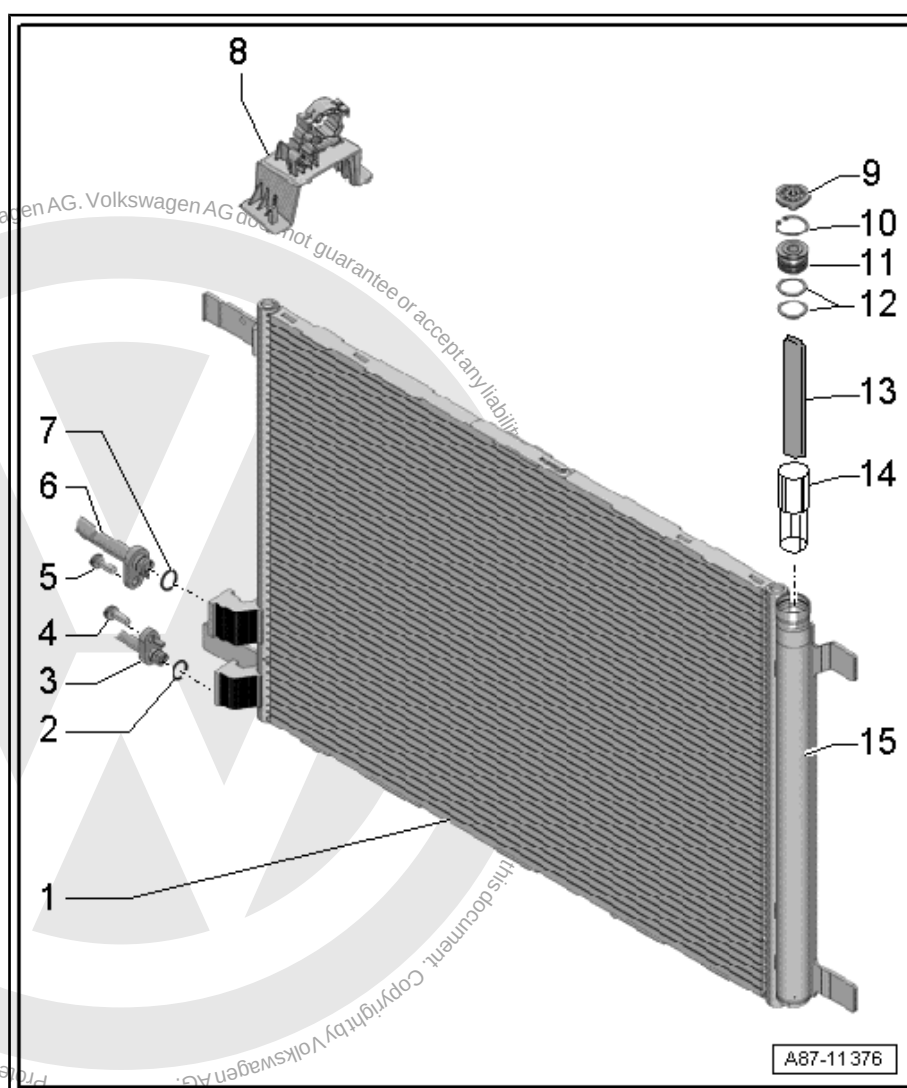
- ☐ Renew after removal
- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Moisten with refrigerant oil before installation

8 - Bracket

- ☐ For refrigerant lines

9 - Cap

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Modine: 3 Nm





10 - Circlip

11 - Sealing cover

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Renew if damaged

12 - Seal

- ☐ Renew after removal
- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Moisten with refrigerant oil before installation

13 - Desiccant bag

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Removing and installing:

- ◆ Denso condenser ⇒ [page 30](#)
- ◆ Modine condenser ⇒ [page 33](#)
- ◆ Keihin condenser ⇒ [page 37](#)



Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components.*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components.*

14 - Strainer

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Removing and installing

- ◆ Denso condenser ⇒ [page 30](#)
- ◆ Modine condenser ⇒ [page 33](#)
- ◆ Keihin condenser ⇒ [page 37](#)

15 - Receiver

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Integrated in condenser on this version



Note

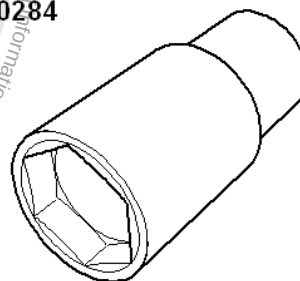
Under certain conditions, the fluid reservoir with desiccant bag no longer has to be renewed each time the refrigerant circuit is opened ➔ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87; Refrigerant circuit; Renewing components or ➔ Air conditioning system with refrigerant R134a; Rep. gr. 00; Renewing components.

2.3 Removing and installing refrigerant circuit pressure sender - G805-

Special tools and workshop equipment required

- ◆ Socket 24 mm - T40284-

T40284



W00-11077

- ◆ Torque wrench - V.A.G 1410-

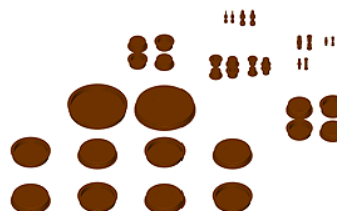
V.A.G 1410



W00-11174

- ◆ Engine bung set - VAS 6122-

VAS 6122



W00-11228



Removing

- Separate electrical connector -2-.

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- If, when detaching the pressure sender, refrigerant escapes from the refrigerant line for longer than 1 second, tighten the pressure sender and renew the non-return valve that is defective.

Extract refrigerant and open the refrigerant circuit immediately afterwards.

If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- Counterhold refrigerant line using a suitable tool.

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant. If handled incorrectly, union could break off and refrigerant could escape.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Counterhold refrigerant lines using a suitable tool.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- While doing so, detach pressure sender for refrigerant circuit - G805- -1- using socket, 24 mm - T40284- .

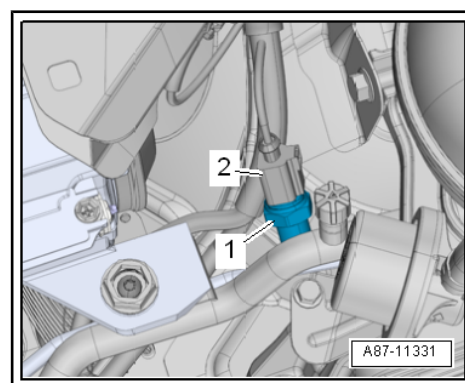
Installing

Install in reverse order of removal, observing the following:

- Renew seal for pressure sender for refrigerant circuit - G805- -1-.

Specified torques

- ◆ Pressure sender for refrigerant circuit - G805-
⇒ [Item 6 \(page 18\)](#)

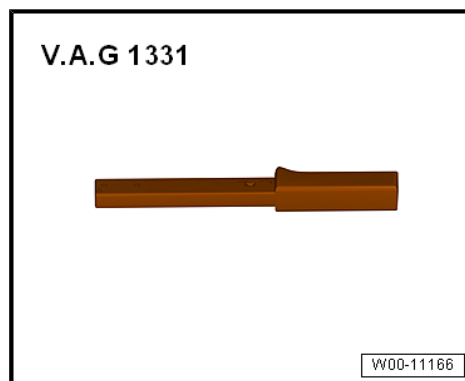


2.4 Removing and installing expansion valve

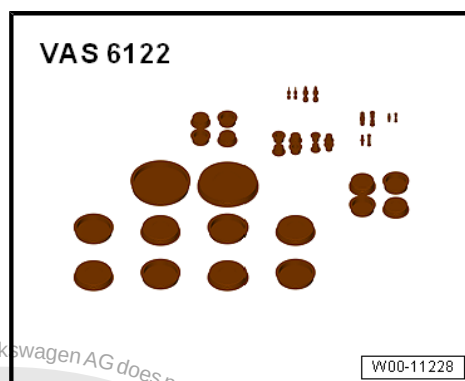
Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



Removing

Vehicles with 176 kW TDI bi-turbo engine

- Remove low-pressure turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Removing and installing turbocharger .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .



Continued for all vehicles

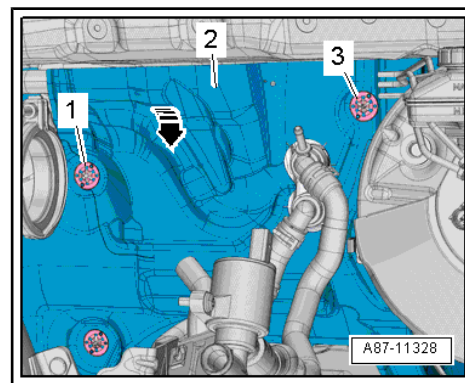
- Remove nuts -1- and -3-.
- Fold heat shield -2- as far as possible in -direction of arrow-.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .



Continued for all vehicles

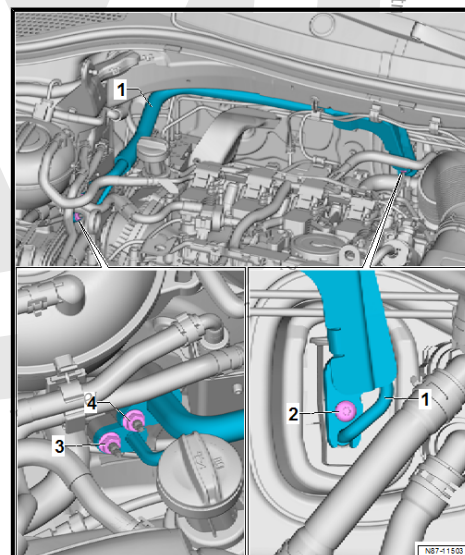
CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

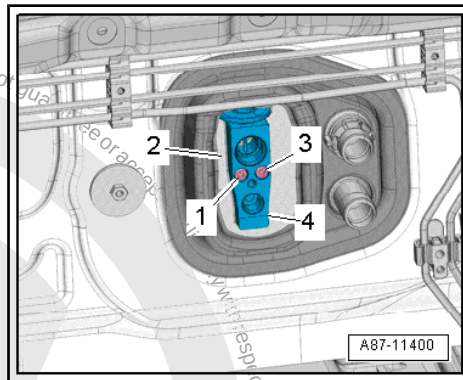
- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Unscrew nuts -3- and -4- of refrigerant line with internal heat exchanger -1-.
- Unscrew bolt -2-.
- Pull refrigerant line with internal heat exchanger -1- off expansion valve.





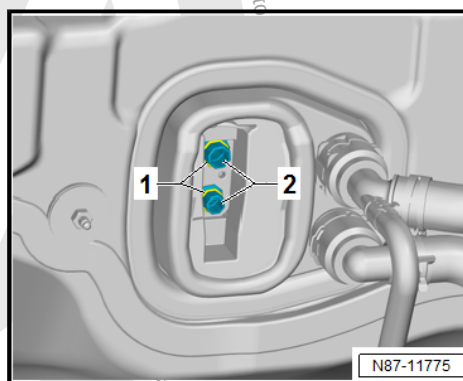
- Unscrew bolts -1- and -3-.
- Pull expansion valve -4- out of heat insulation -2-.



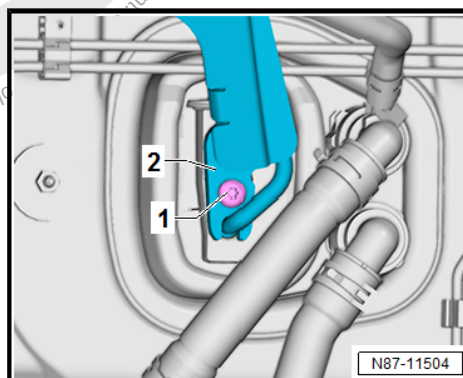
Installing

Install in reverse order of removal, observing the following:

- Moisten new seals -1- with refrigerant oil before installing.
- Press new seals -1- on connecting pipes -2-.
- Check refrigerant lines for dirt and damage.



- Push refrigerant lines -2- into expansion valve by hand.
- Screw bolt -1- in by hand.
- Tighten bolt -1-.





Note

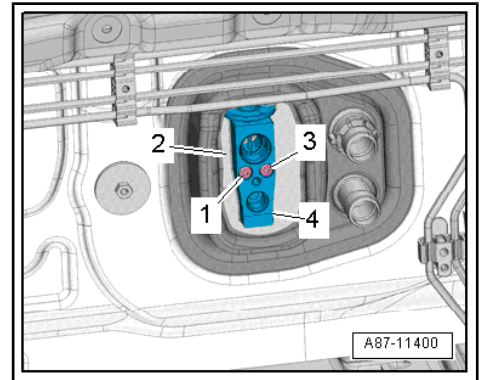
- ◆ Disregard items -1, 3- and -4-.
- ◆ If heat insulation -2- is missing or improperly installed, it may lead to reduced performance of the air conditioning system (due to changes in the set mapped values through heat radiation).



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.



Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ◆ ⇒ ["2.1 System overview - refrigerant circuit", page 17](#)
- ◆ Charge air system; Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

2.5 Removing and installing condenser

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

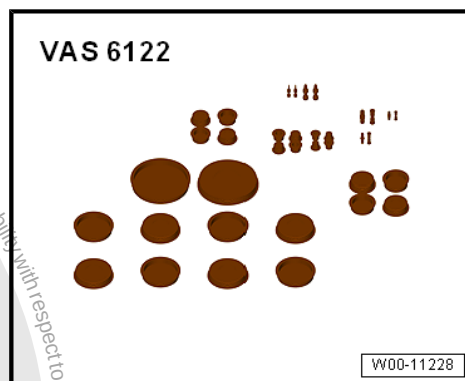
V.A.G 1331



W00-11166



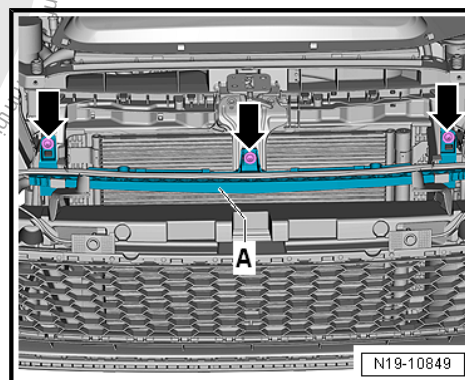
♦ Engine bung set - VAS 6122-



Removing

- Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover .

Remove centre guide profile -A- from lock carrier -arrows-.





- Press retainer -4- down and pull air ducts -2- forwards slightly.
- Release air ducts -2- from lower mountings -arrows-.
- Remove air ducts -2- downwards.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .

Continued for all vehicles

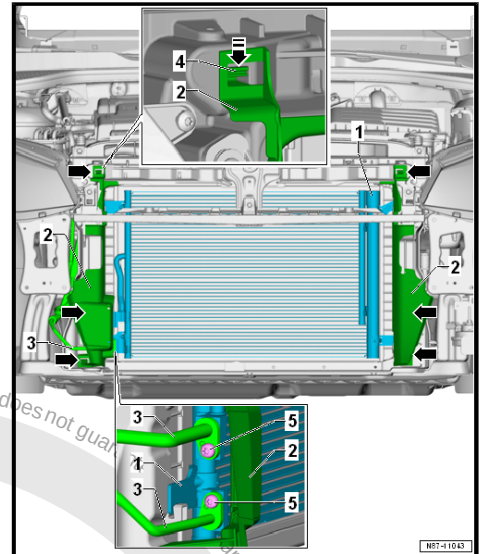
CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Unscrew bolts -5-.
- Remove refrigerant lines -3- from connection on condenser.





- Have a second mechanic release retaining clips -1- on left and right in -direction of arrow A-. While doing this, remove condenser -3- from mountings upwards in direction of -arrows B-.
- Remove condenser -3- downwards.

Installing

Install in reverse order of removal, observing the following:

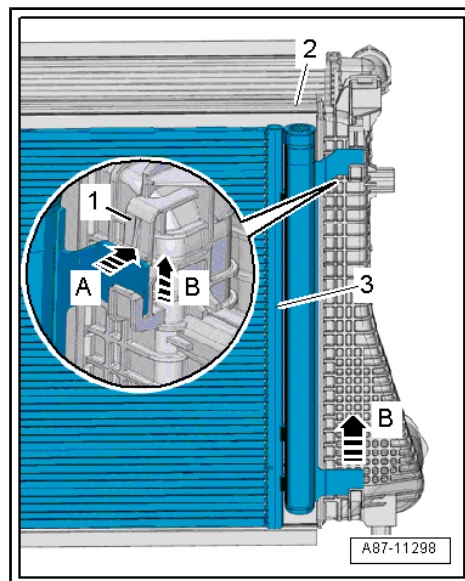
- If the condenser has been renewed, 10% of the total quantity of refrigerant oil specified for the fitted air conditioning compressor must be filled into the refrigerant circuit
⇒ [“5 Technical data”, page 9](#) .
- Moisten new seals with refrigerant oil before installing refrigerant line.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.



Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ♦ ⇒ [“2.2 Assembly overview - condenser”, page 20](#)
- ♦ Front bumper; Assembly overview - front bumper ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Assembly overview - front bumper cover .

2.6 Removing and installing desiccant bag or cartridge

⇒ [“2.6.1 Removing and installing desiccant bag or cartridge, Denso condenser”, page 30](#)

⇒ [“2.6.2 Removing and installing desiccant bag or cartridge, Modine condenser”, page 33](#)

⇒ [“2.6.3 Removing and installing desiccant bag or cartridge, Showa/Keihin condenser”, page 37](#)

2.6.1 Removing and installing desiccant bag or cartridge, Denso condenser

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1410-

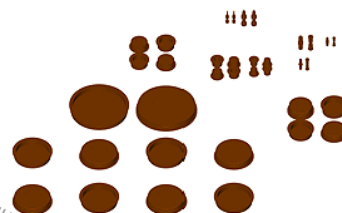
V.A.G 1410



W00-11174

- ◆ Engine bung set - VAS 6122-

VAS 6122



W00-11228

- ◆ Commercially available claw grip

Removing

- If necessary, remove parts of charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .
- Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Removing and installing radiator grille .



- Have a second mechanic release retaining clips -1- on left and right in -direction of arrow A-. While doing this, remove condenser -3- from mountings upwards in direction of -arrows B-.
- Tip condenser as far forwards as possible.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ➔ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ➔ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit

Continued for all vehicles

⚠ CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- Unscrew plug -A-.
- Pull dryer mount -C- with desiccant bag -D- upwards out of receiver.
- Use a claw grip, for example, to pull filter element -E- upwards out of receiver.
- Immediately seal open receiver with clean plugs from engine bung set - VAS 6122- .

Installing

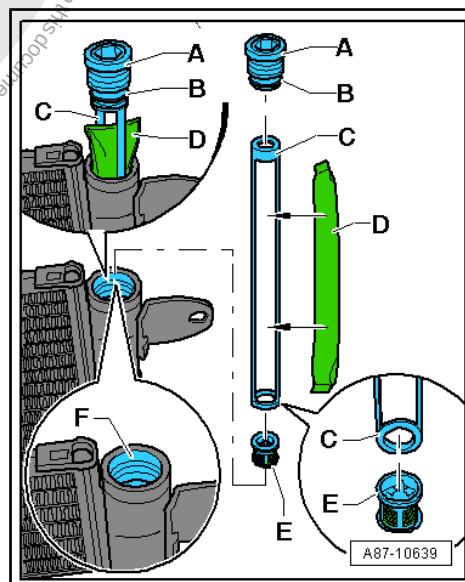
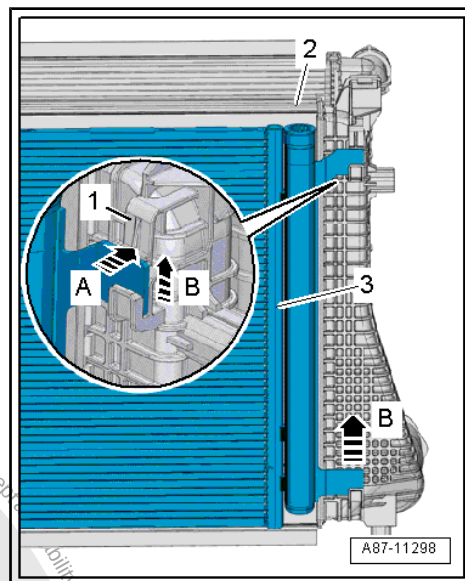
Install in reverse order of removal, observing the following:



Note

The plug, seals and desiccant bag must be renewed every time the receiver has been opened ➔ Electronic parts catalogue (ET-KA) .

- Through the opening, check threads and sealing surfaces of receiver on condenser for contamination or damage.





- Insert filter element -E- in correct installation position into receiver of condenser.
- Take desiccant bag -D- out of transport bag and insert it into dryer mount -C-.
- Insert dryer mount together with desiccant bag into receiver of condenser.
- Fit and screw in the screw plug -A-.

! NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

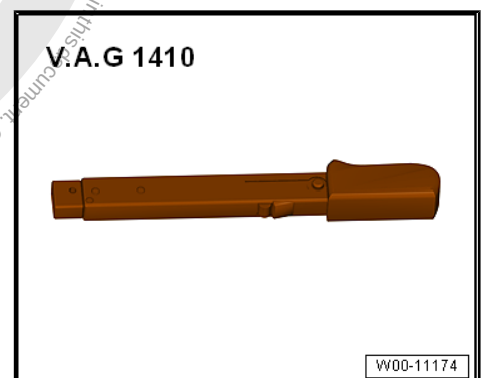
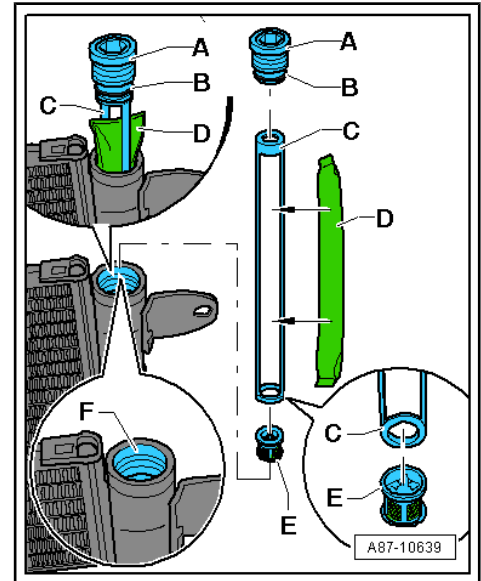
Specified torques

- ◆ ⇒ [2.2 Assembly overview - condenser", page 20](#)
- ◆ Radiator grille/front trim; Assembly overview - radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Assembly overview - radiator grille

2.6.2 Removing and installing desiccant bag or cartridge, Modine condenser

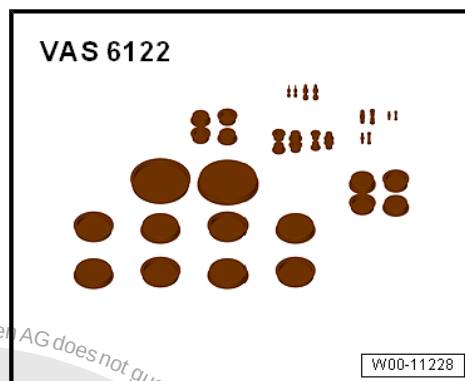
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-





◆ Engine bung set - VAS 6122-



◆ Socket T50

Removing

- If necessary, remove parts of charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .
- Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Removing and installing radiator grille .
- Have a second mechanic release retaining clips -1- on left and right in -direction of arrow A-. While doing this, remove condenser -3- from mountings upwards in direction of -arrows B-.
- Tip condenser as far forwards as possible.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .

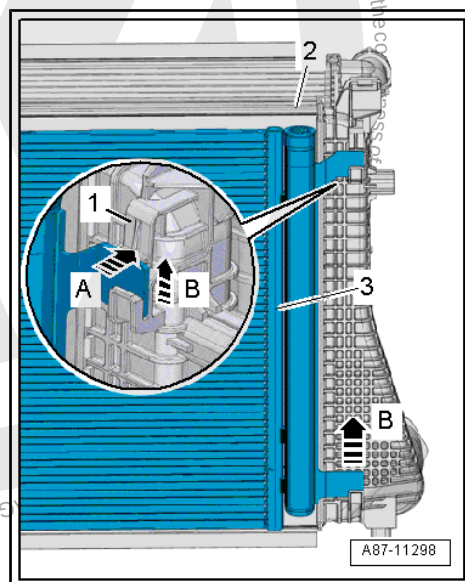
Continued for all vehicles

⚠ CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

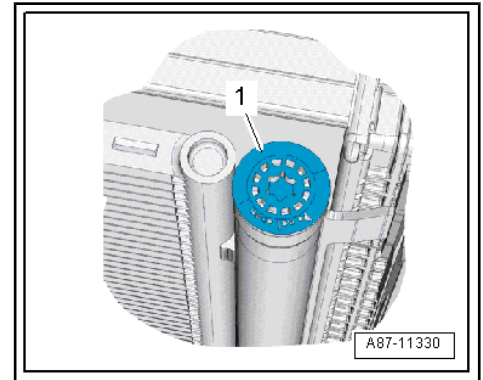
There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

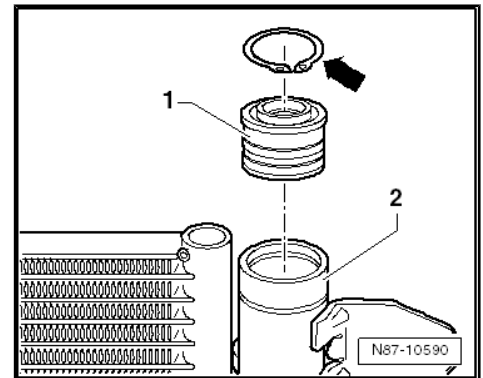




- Unscrew protective cap -1- using socket insert T50 .



- Press sealing cap -1- in slightly.
- Remove circlip -arrow-.
- Screw an M12 bolt into cap and pull it carefully out of receiver -2-.
- Pull desiccant bag out of receiver using a commercially available pick-up tool.

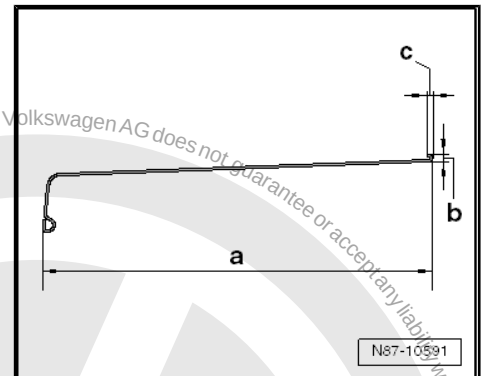


- Manufacture tool from welding wire (2 mm Ø) according to following dimensions.

a - 380 mm

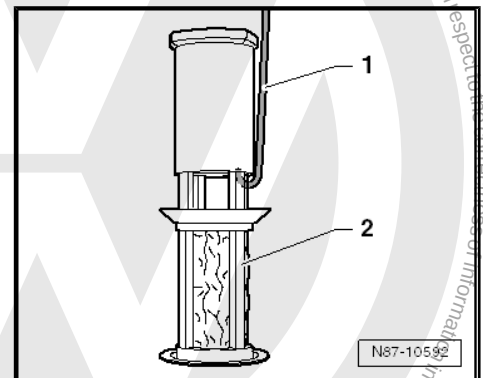
b - max. 7 mm

c - max. 6 mm



To prevent damage to the receiver, it is essential to hook the welding wire on the strainer as shown in the illustration.

- Carefully pull strainer -2- with welding wire -1- out of receiver.





- If repair work is interrupted, seal open receiver with plug -1- to prevent ingress of dirt and moisture.
- Seal open receiver immediately with plug -1- to prevent ingress of dirt and moisture.

Installing

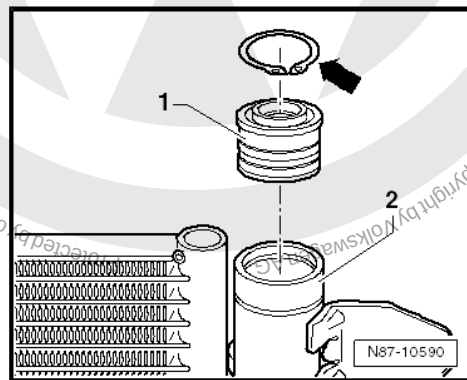
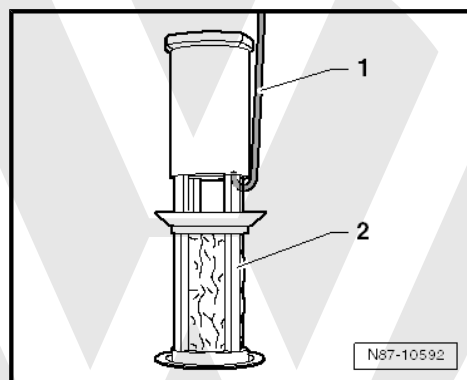
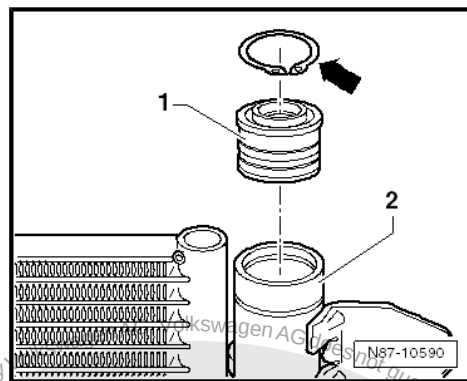
Install in reverse order of removal, observing the following:



Note

The protective cap, seals and desiccant bag must always be renewed after opening the receiver ⇒ Electronic parts catalogue (ETKA).

- Moisten new seals with refrigerant oil before installing refrigerant line.
- Through the opening, check threads and sealing surfaces of receiver on condenser for contamination or damage.
- Insert filter element (with strainer) -2- in correct installation position into receiver of condenser.
- The filter element must be inserted as far as stop.
- Take desiccant bag out of transport bag and insert it into receiver of condenser.
- Insert sealing cap -1- and press it downwards until circlip -arrow- can engage in groove.





- Screw in protective cap -1- using socket insert T50 .

! NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

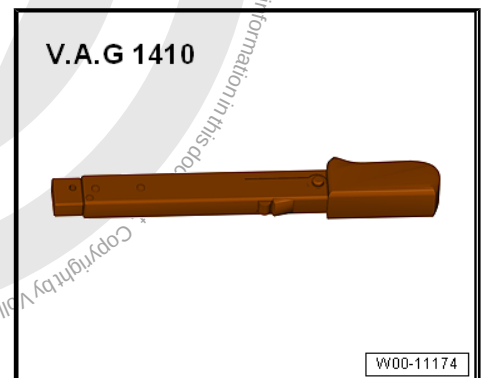
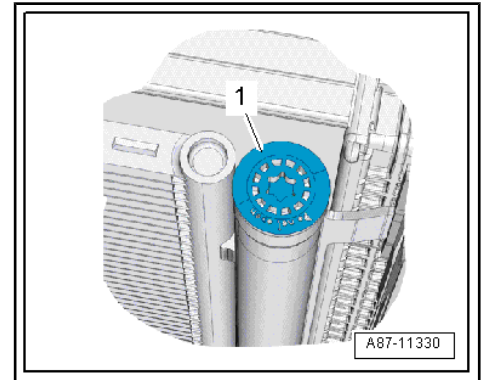
Specified torques

- ◆ ⇒ [“2.2 Assembly overview - condenser”, page 20](#)
- ◆ Radiator grille/front trim; Assembly overview - radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Assembly overview - radiator grille

2.6.3 Removing and installing desiccant bag or cartridge, Showa/Keihin condenser

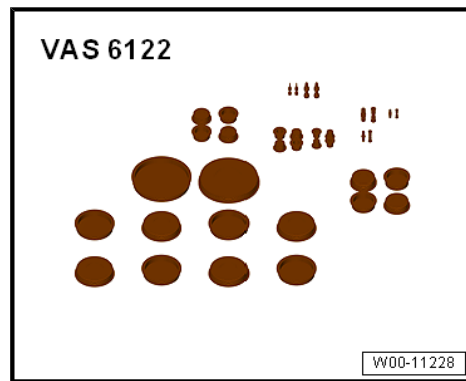
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-





♦ Engine bung set - VAS 6122-



♦ Socket T50

Removing

- Depending on engine fitted, remove parts of charge air system
⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .
- Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Removing and installing radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Removing and installing radiator grille .
- Have a second mechanic release retaining clips -1- on left and right in direction of -arrow A- and remove condenser -3- upwards out of mountings in direction of -arrow B-.
- Tip condenser as far forwards as possible.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .

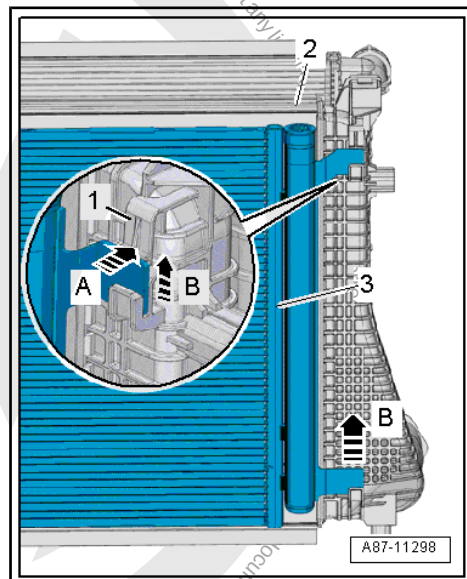
Continued for all vehicles

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.





- Unscrew plug -A-.
- Pull desiccant cartridge -E- upwards out of receiver of condenser.
- Seal open receiver immediately with plug -A- to prevent ingress of dirt and moisture.

Installing

Install in reverse order of removal, observing the following:



Note

The protective cap, seals and desiccant bag must always be renewed after opening the receiver ➔ Electronic parts catalogue (ETKA) .

- Moisten new seals with refrigerant oil before installing.
- Through the opening, check threads and sealing surfaces of receiver on condenser for contamination or damage.
- Assemble plug -A- with seals -B- and -C-.
- Remove dryer cartridge -E- from transport bag and insert it in receiver.
- Install plug -A-.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**

Vehicles with R134a refrigerant

- Charge refrigerant circuit ➔ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ➔ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

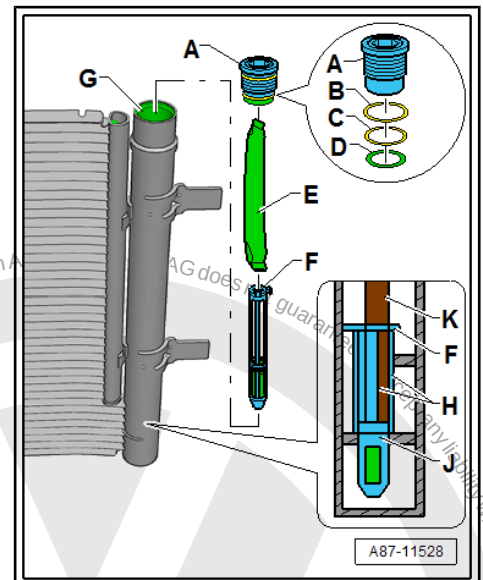
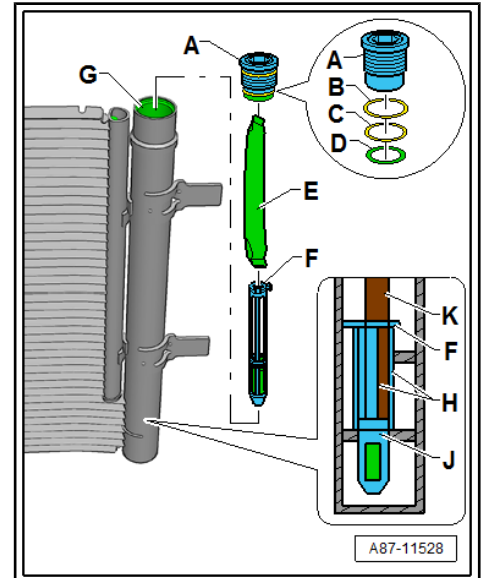
- Charge refrigerant circuit ➔ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ➔ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ◆ ➔ **"2.2 Assembly overview - condenser", page 20**

- ◆ Radiator grille/front trim; Assembly overview - radiator grille ➔ General body repairs, exterior; Rep. gr. 66 ; Radiator grille/front trim; Assembly overview - radiator grille

Component	Specified torque
Plug	5 Nm





2.7 Removing and installing damper weight for refrigerant line, low-pressure side

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



Removing

- Unscrew bolts -3-.
- Remove damper weight -2- from refrigerant line on low-pressure-side -1-.

Installing

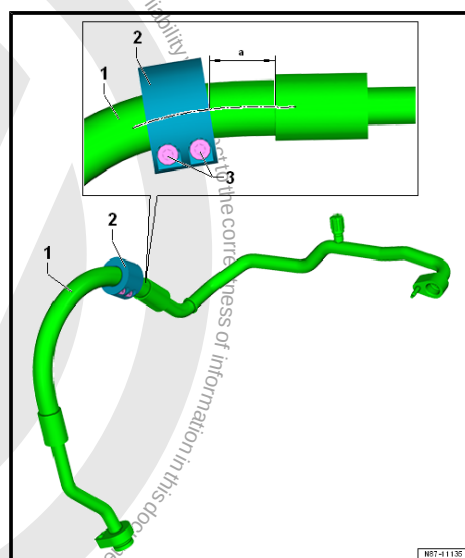
Install in reverse order of removal, observing the following:

- Fit damper weight -2- on refrigerant line on low-pressure-side -1-. Take specified dimension -a- = 30 ± 5 mm into account while doing so.



Note

- ◆ Ensure that the damper weight -2- is firmly seated on the refrigerant line and that it won't make contact with any other components during any condition.
- ◆ The refrigerant line on the low-pressure side -1- must not be pinched by the additional weight -B-.



Specified torques

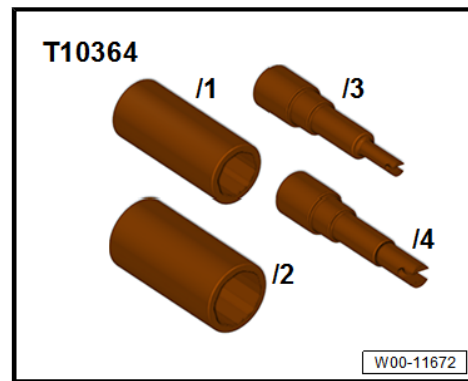
Component	Specified torque
Bolts on damper weight	10 Nm

2.8 Removing and installing evacuating and charging valves on low and high-pressure side

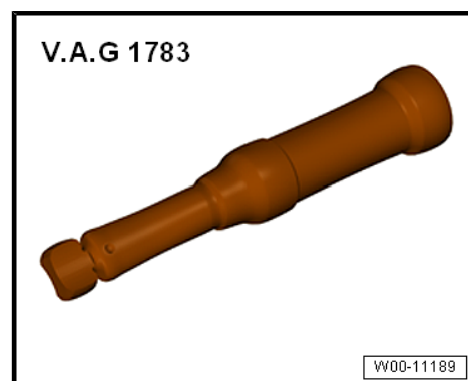
Special tools and workshop equipment required



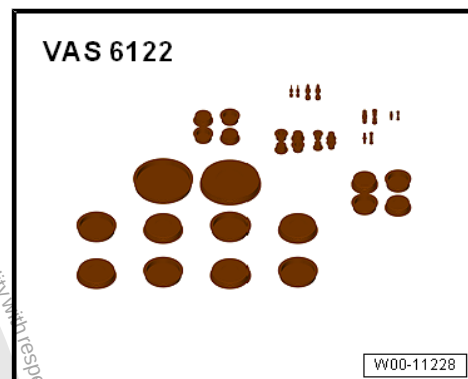
◆ Adapter set for service connections - T10364-



◆ Torque wrench - V.A.G 1783-



◆ Engine bung set - VAS 6122-



Removing

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .



Continued for all vehicles

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .



Note

Disregard items -1- and -3-.

- Unscrew valve core -2- with adapter set for service connections - T10364- .

Installing

Install in reverse order of removal, observing the following:

NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.

Vehicles with R134a refrigerant

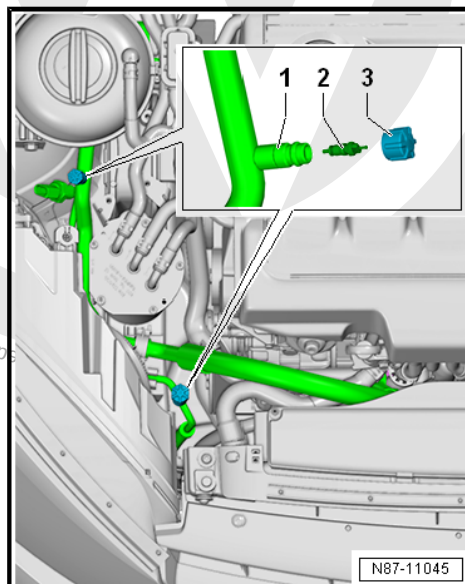
- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ♦ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)





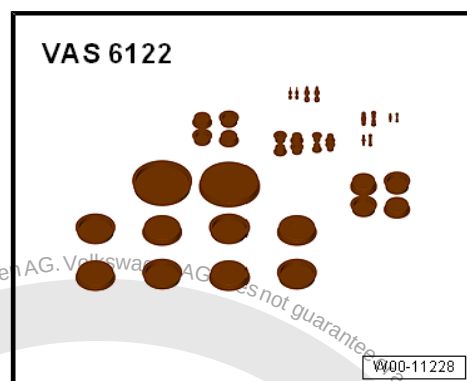
2.9 Removing and installing refrigerant line with internal heat exchanger

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



Removing

Vehicles with 176 kW TDI bi-turbo engine

- Remove low-pressure turbocharger ⇒ Rep. gr. 21 ; Turbo-charger; Removing and installing turbocharger .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .



Continued for all vehicles

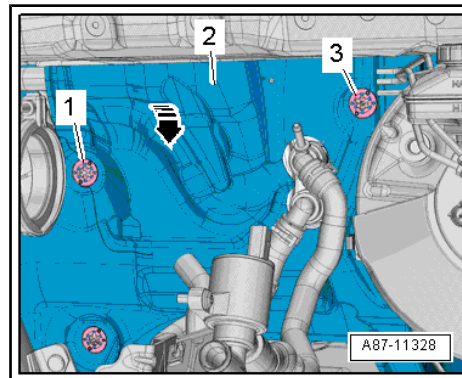
- Remove nuts -1- and -3-.
- Fold heat shield -2- as far as possible in -direction of arrow-.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .



Continued for all vehicles

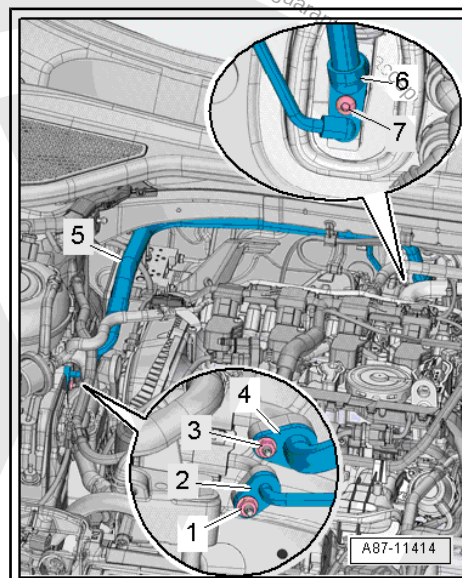
⚠ CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122-.
- Unscrew bolt -7-.
- Pull off refrigerant line -6- with internal heat exchanger from expansion valve.
- Unscrew nuts -1- and -3- and pull off refrigerant lines -2- and -4-.
- Remove refrigerant line -5- with internal heat exchanger.





Installing

Install in reverse order of removal, observing the following:

- Clean the connections on the expansion valve -2- and internal heat exchanger -4-, and check for damage.
- Thoroughly clean connections of refrigerant lines and check lines for damage.



Note

Ensure proper seating of seals in the groove of the respective refrigerant line.

- Insert seals -1- and -3- into groove on connection of internal heat exchanger.
- Insert internal heat exchanger on expansion valve.
- Tighten bolt -5-.
- Connect refrigerant lines -2- and -4- with internal heat exchanger to connections.
- Screw on nuts -1- and -3- and tighten them.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

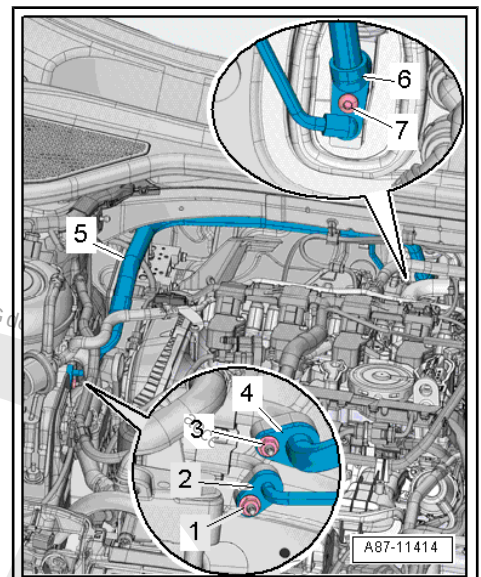
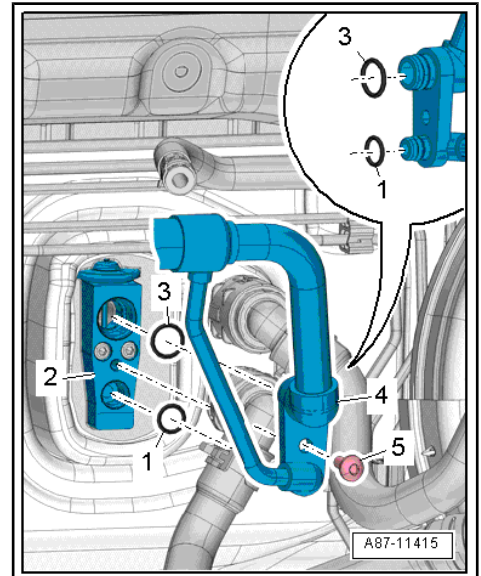
- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf -general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf -general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ◆ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)
- ◆ Charge air system; Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

2.10 Removing and installing refrigerant line between condenser and evaporator

Special tools and workshop equipment required





◆ Torque wrench - V.A.G 1331-

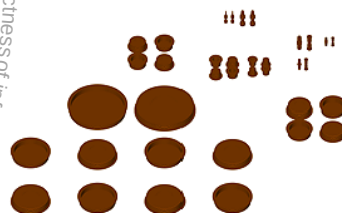
V.A.G 1331



W00-11166

◆ Engine bung set - VAS 6122-

VAS 6122



W00-11228

Removing

- Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover .
- Remove right engine mounting ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings .

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .

Continued for all vehicles

⚠ CAUTION

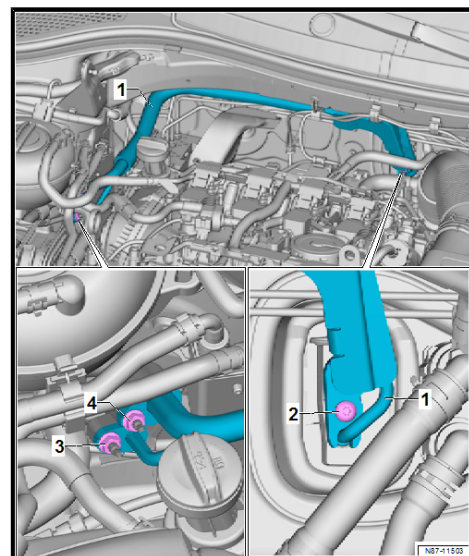
Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.



- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122-.
- Unscrew nut -3-.
- Separate refrigerant lines.





- Unscrew bolt -5- of lower refrigerant line -3-.
- Remove refrigerant line -3- from condenser -1-.
- Unclip refrigerant line -3- from retainers, and remove it.

Installing

Install in reverse order of removal, observing the following:



Note

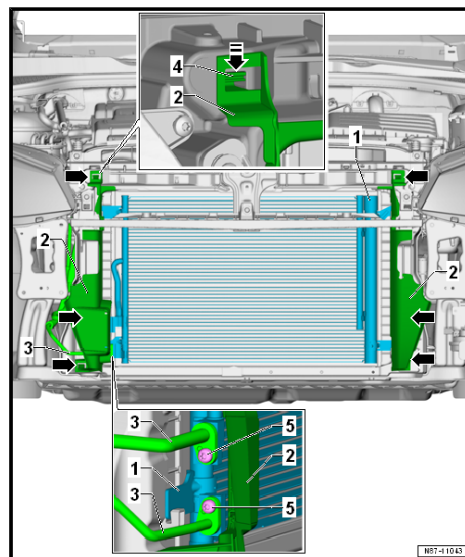
Ensure proper seating of seals in the groove of the respective refrigerant line.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.



Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

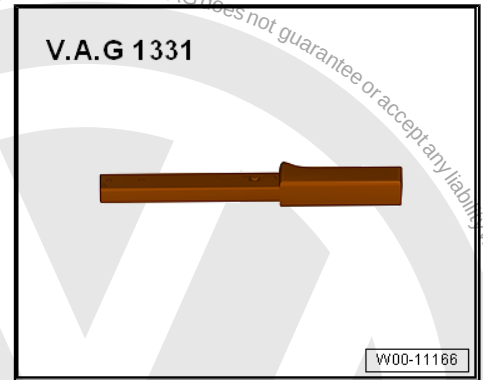
- ♦ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)
- ♦ Assembly mountings; Assembly overview - assembly mountings ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings .

2.11 Removing and installing refrigerant line between condenser and air conditioner compressor

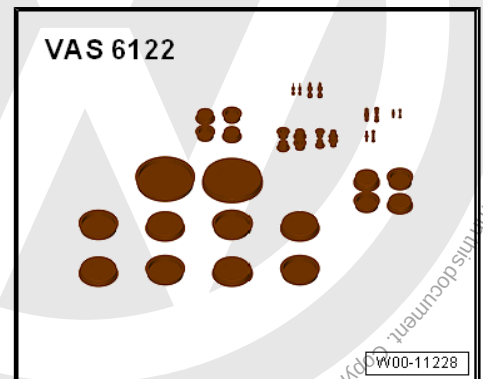
Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



Removing

If necessary, remove parts of the air filter ⇒ Rep. gr. 24 ; Air filter;
Assembly overview - air filter housing or ⇒ Rep. gr. 23 ; Air filter;
Assembly overview - air filter housing .

If necessary, remove parts of the air ducting ⇒ Rep. gr. 24 ; Intake
manifold; Assembly overview - intake manifold or ⇒ Rep. gr. 23 ;
Intake manifold; Assembly overview - intake manifold .

If necessary, remove parts of charge air system air ducting ⇒
Rep. gr. 21 ; Charging; charge air system .

- Remove front bumper cover ⇒ General body repairs, exterior;
Rep. gr. 63 ; Front bumper; Removing and installing bumper
cover .
- If fitted, remove noise insulation ⇒ General body repairs, ex-
terior; Rep. gr. 66 ; Noise insulation; Removing and installing
noise insulation .

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a
refrigerant; Rep. gr. 00 ; Working with air conditioner service
station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with re-
frigerant R1234yf - general information; Rep. gr. 87 ; Working
with air conditioner service station; Draining refrigerant circuit .



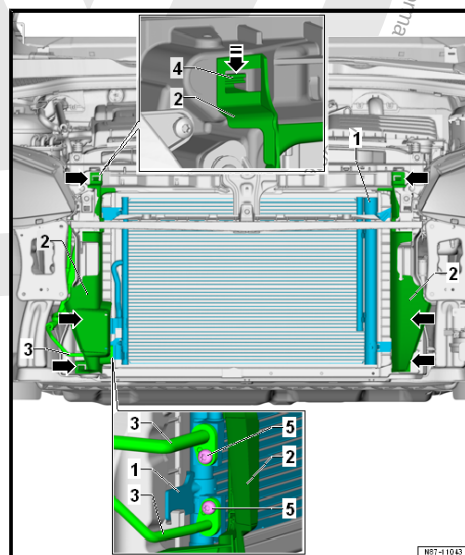
Continued for all vehicles

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
 - Wear protective goggles.
 - Extract refrigerant and open the refrigerant circuit immediately afterwards.
 - If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.
-
- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
 - Unscrew bolt -5- of upper refrigerant line -3-.
 - Remove refrigerant line -3- from condenser -1-.





- Unscrew bolt -3- of refrigerant line -2-.
- Remove refrigerant line -2-.

Installing

Install in reverse order of removal, observing the following:



Note

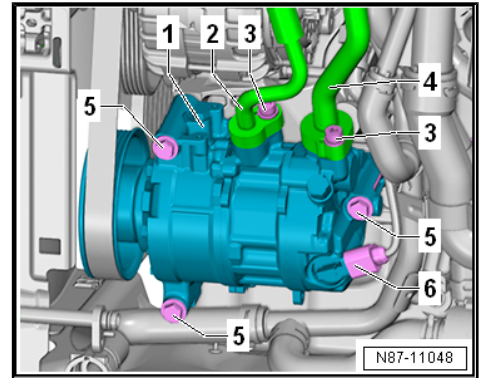
Ensure proper seating of seals in the groove of the respective refrigerant line.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- Never start the engine if the refrigerant circuit is empty.



Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

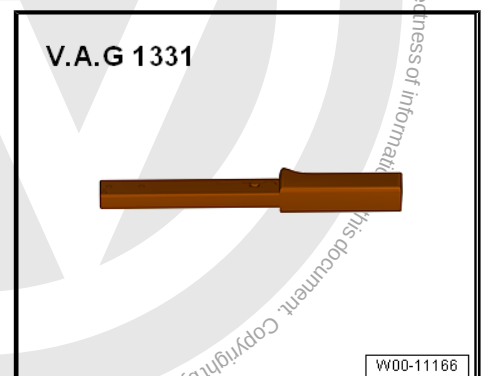
Specified torques

- ◆ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#) .
- ◆ ⇒ [“3.1 Assembly overview - drive unit of air conditioner compressor”, page 54](#)

2.12 Removing and installing refrigerant line between air conditioner compressor and evaporator

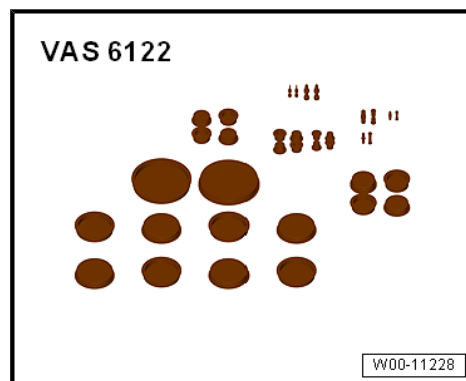
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-





♦ Engine bung set - VAS 6122-



Removing

If necessary, remove parts of the air filter ⇒ Rep. gr. 24 ; Air filter; Assembly overview - air filter housing or ⇒ Rep. gr. 23 ; Air filter; Assembly overview - air filter housing .

If necessary, remove parts of the air ducting ⇒ Rep. gr. 24 ; Intake manifold; Assembly overview - intake manifold or ⇒ Rep. gr. 23 ; Intake manifold; Assembly overview - intake manifold .

If necessary, remove parts of charge air system air ducting ⇒ Rep. gr. 21 ; Charging; charge air system .

- If fitted, remove noise insulation beneath engine ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing Noise insulation .
- Detach coolant expansion tank and place to one side.

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .

Continued for all vehicles

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

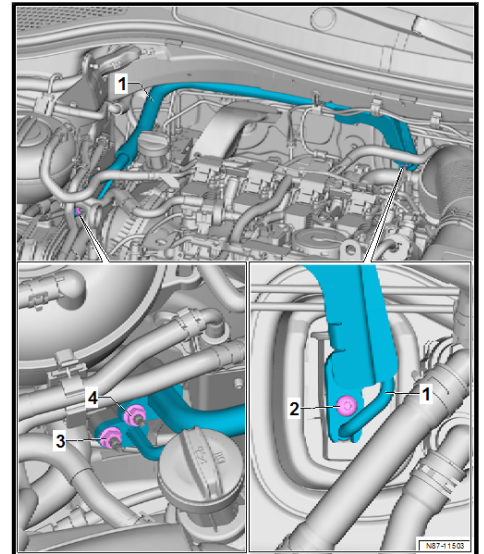
There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .



- Unscrew nut -3-.
- Separate refrigerant lines.



- Unscrew bolt -3- of refrigerant line -4-.
- Unclip refrigerant lines from retainers, and remove them.

Installing

Install in reverse order of removal, observing the following:



Note

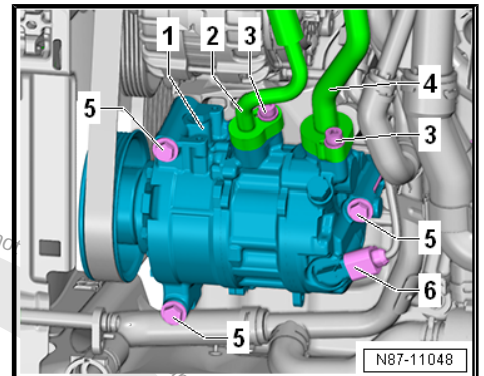
Ensure proper seating of seals in the groove of the respective refrigerant line.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**



Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ◆ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)
- ◆ ⇒ [“3.1 Assembly overview - drive unit of air conditioner compressor”, page 54](#)



3 Air conditioner compressor

⇒ "3.1 Assembly overview - drive unit of air conditioner compressor", page 54

⇒ "3.2 Assembly overview - pulley", page 56

⇒ "3.3 Removing air conditioning compressor from and installing on bracket", page 58

⇒ "3.4 Removing and installing air conditioner compressor", page 59

⇒ "3.5 Checking high-pressure safety valve on air conditioner compressor", page 64

⇒ "3.6 Removing and installing pulley", page 65

3.1 Assembly overview - drive unit of air conditioner compressor



Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components .*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .*
- ◆ *The illustration shows a different version.*



1 - Air conditioner compressor

- ☐ Different versions ➔ Electronic parts catalogue (ETKA)
- ☐ Removing and installing ➔ [page 59](#)
- ☐ Removing from and installing on bracket ➔ [page 58](#)

2 - Seal

- ☐ Renew after removal
- ☐ Different versions ➔ Electronic parts catalogue (ETKA)
- ☐ Moisten with refrigerant oil before installation

3 - Refrigerant line, high-pressure side

4 - Bolt

- ☐ 22 Nm

5 - Refrigerant line, low-pressure side

6 - Seal

- ☐ Renew after removal
- ☐ Different versions ➔ Electronic parts catalogue (ETKA)
- ☐ Moisten with refrigerant oil before installation

7 - High-pressure safety valve

- ☐ Checking ➔ [page 64](#)

8 - Air conditioner compressor regulating valve - N280-

- ☐ Check with ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➔ Current flow diagrams, Electrical fault finding and Fitting locations

9 - Bolt

- ☐ Qty. 3
- ☐ 25 Nm

10 - Belt pulley with overload protection

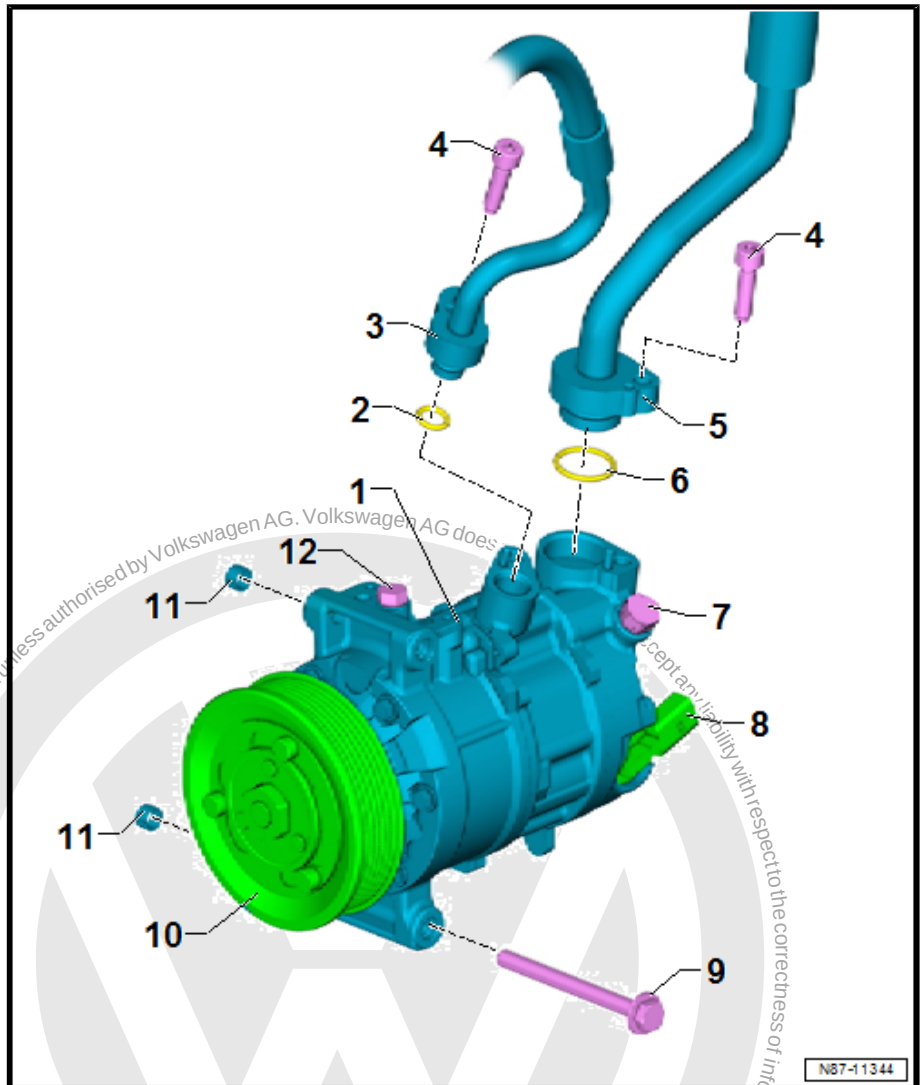
- ☐ Different versions ➔ Electronic parts catalogue (ETKA)
- ☐ Assembly overview ➔ [page 56](#)

11 - Dowel sleeve

- ☐ Qty. 2

12 - Oil drain plug

- ☐ Do not remove unless refrigerant circuit is empty.
- ☐ Renew oil drain plug/seal after each removal
- ☐ Different versions ➔ Electronic parts catalogue (ETKA)
- ☐ Denso air conditioner compressor - 30 Nm
- ☐ Mahle/Delphi air conditioner compressor - 20 ± 1 Nm
- ☐ Sanden air conditioner compressor: 15 ± 1 Nm





3.2 Assembly overview - pulley

⇒ [“3.2.1 Assembly overview - pulley, Denso air conditioner compressor”, page 56](#)

⇒ [“3.2.2 Assembly overview - belt pulley, Sanden air conditioner compressor”, page 57](#)

3.2.1 Assembly overview - pulley, Denso air conditioner compressor

1 - Bolt

- ☐ Qty. 3
- ☐ 4.5 Nm

2 - Sealing cover

3 - Nut

- ☐ 25 Nm
- To loosen and tighten the hexagon nut, hold the pulley in position with a commercially available oil filter strap wrench.

4 - Drive plate

- ☐ With overload protection. Deploys in the event of excessive torque (e.g. if the air conditioner compressor cannot rotate freely). The pulley then rotates without driving the air conditioner compressor.

5 - Retaining ring

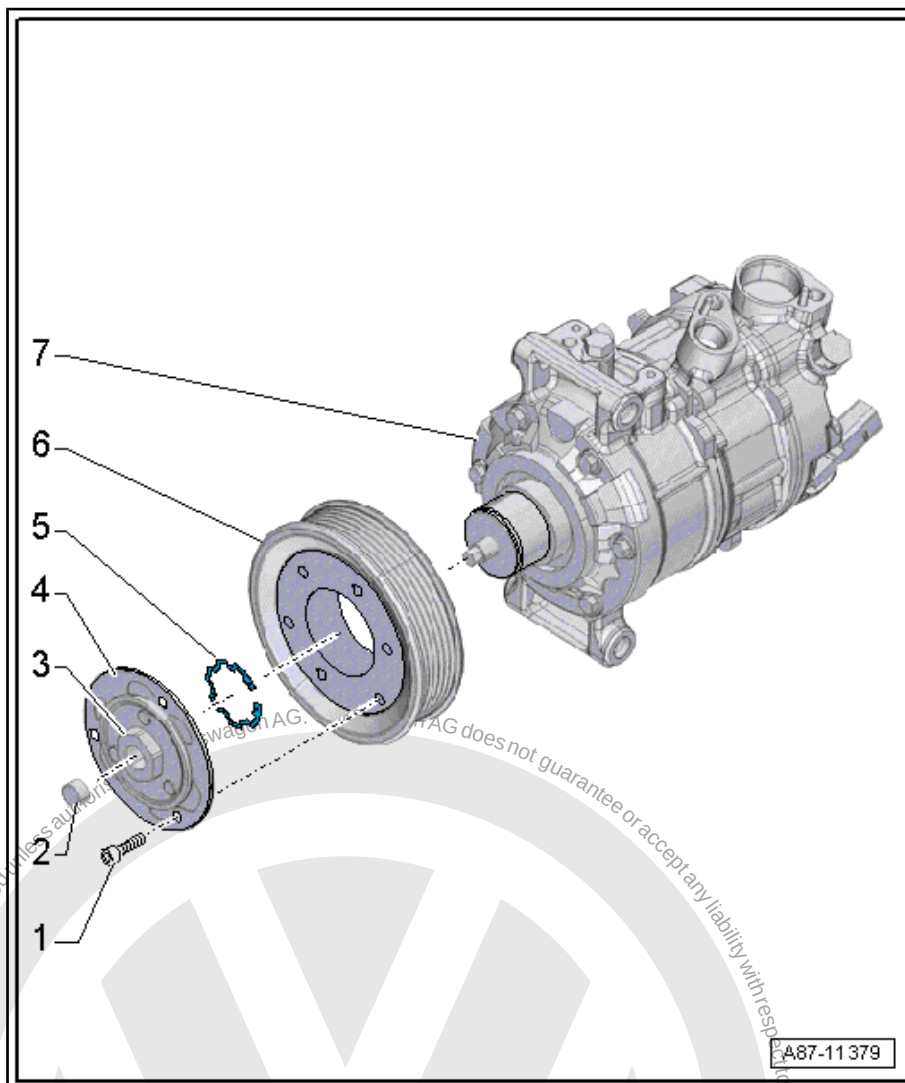
- ☐ Renew after removal
- ☐ Do not reverse when installing (flat side faces air conditioner compressor)

6 - Pulley

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Sensitive to impact, handle with care
- ☐ Removing and installing ⇒ [page 65](#)

7 - Air conditioner compressor

- ☐ Clean the drive shaft of air conditioner compressor before fitting the pulley.





3.2.2 Assembly overview - belt pulley, Sanden air conditioner compressor

1 - Nut

- ☐ 25 Nm



Note

To protect the thread of the air conditioner compressor drive shaft, an additional plastic cap is fitted (not shown in illustration).

- To loosen and tighten the hexagon nut, hold the pulley in position with a commercially available oil filter strap wrench.
- Clean thread of nut, which was tightened with locking fluid (e.g. with a thread tap). If it is not cleaned, the drive shaft may be torn off when it is removed the next time.
- Clean thread of air conditioner compressor drive shaft using a wire brush.
- Install nut with locking fluid. Locking fluid ⇒ Electronic parts catalogue (ETKA) .

2 - Bolt

- ☐ 12 Nm

- To loosen and tighten bolts, hold pulley in position with a commercially available oil filter strap wrench.
- Threaded holes must be cleaned (e.g. with a thread tap) if self-locking bolts or bolts coated with locking fluid are screwed into them. Otherwise there is a danger that the bolts will shear off when refitted.
- Clean threads of bolts which are to be installed with locking fluid using a wire brush. Then install bolts with locking fluid. Locking fluid ⇒ Electronic parts catalogue (ETKA)

3 - Drive plate

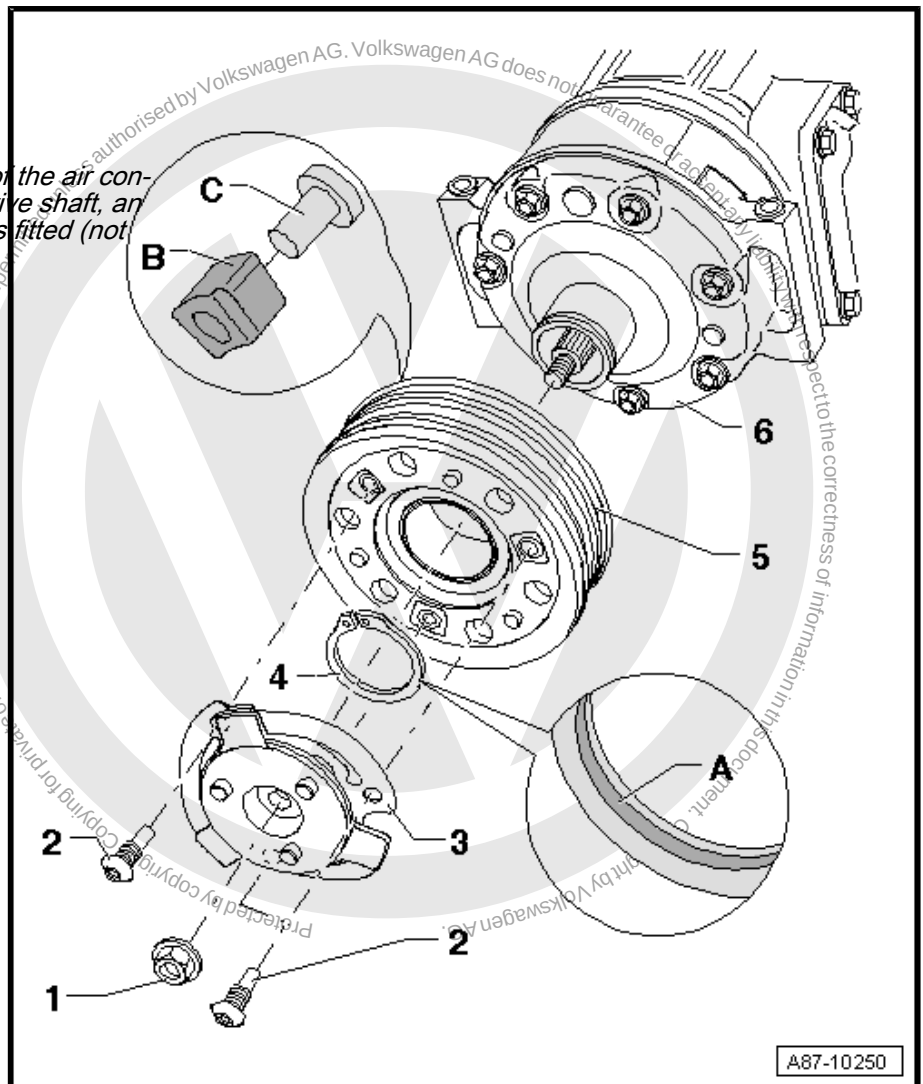
- ☐ With overload protection (mountings of spring elements). Deploys in the event of excessive torque (e.g. if the air conditioner compressor cannot rotate freely). The belt pulley then rotates without driving the air conditioner compressor.
- ☐ The spring elements of the drive plate absorb vibrations and noise.

4 - Retaining ring

- ☐ Renew after removal
- ☐ Do not reverse when installing; chamfer -A- faces away from air conditioner compressor (flat side towards air conditioner compressor).

5 - Pulley

- ☐ With rubber elements -B- and threaded plates -C- for decoupling belt pulley from air conditioner drive shaft (absorb vibrations and noise).





Note

- ◆ Depending on design, the threaded plates may also be connected by means of a ring.
- ◆ "Cold country" vehicles (e.g. central and northern Europe) may be fitted with air conditioner compressors with a smaller capacity. On these air conditioner compressors, the pulley is slightly different to the version shown here (e.g. no rubber elements -B-) ⇒ Electronic parts catalogue (ETKA).

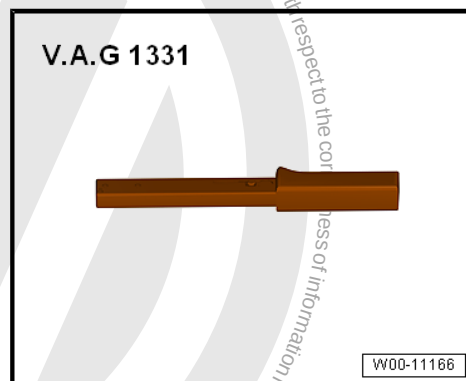
6 - Air conditioner compressor

- ❑ Clean the drive shaft of air conditioner compressor before fitting the pulley.

3.3 Removing air conditioning compressor from and installing on bracket

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



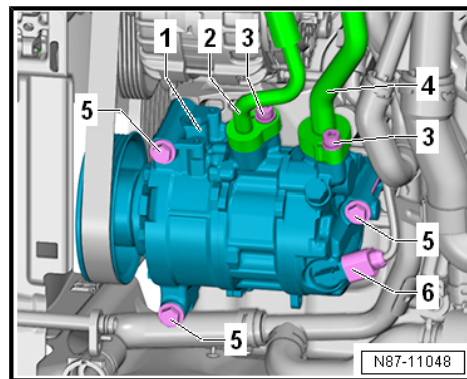
Removing

- Remove noise insulation under engine ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation .
- If necessary, remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Removing and installing front wheel housing liner .
- Remove poly V-belt ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .
- Disconnect connector -6- on air conditioner compressor -1-.
- Unscrew bolts -5- and remove air conditioner compressor -1-.



Note

If only the ancillary bracket is to be removed, the refrigerant lines on the air conditioner compressor must not be released.



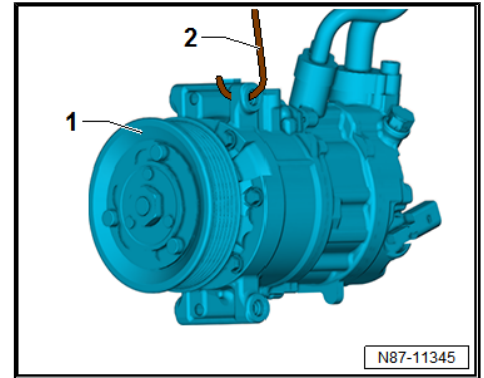


- Secure air conditioner compressor -1- to body with suitable material (e.g. welding wire -2-).

Installing

The installation is carried out in reverse order of removal. Observe the following:

- Thoroughly clean contact surfaces on air conditioner compressor and bracket.



- Insert dowel sleeves -1- into air conditioner compressor.



Note

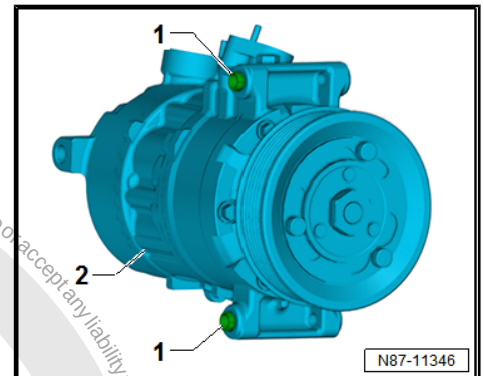
Ensure that dowel sleeves are properly seated and that contact surfaces are clean. Improperly fitted dowel sleeves or dirty or damaged contact surfaces can cause deviations in alignment of air conditioner compressor and engine. In the course of operation, misalignment will result in damage to the air conditioner compressor.



NOTICE

Risk of damage to air conditioner compressor. Refrigerant oil may accumulate in the compression chamber of a removed air conditioner compressor.

- After installing a new air conditioner compressor or adding new refrigerant oil, fully turn the air conditioner compressor 10 times by hand before the poly V-belt is fitted.



Specified torques

- ◆ ➔ ["3.1 Assembly overview - drive unit of air conditioner compressor", page 54](#)

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

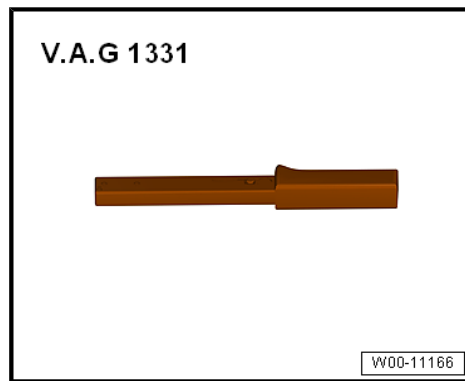
- Observe notes on commissioning the air conditioning system after installing the air conditioner compressor ➔ Air conditioning system with refrigerant R134a or ➔ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Refrigerant circuit; Renewing components .

3.4 Removing and installing air conditioner compressor

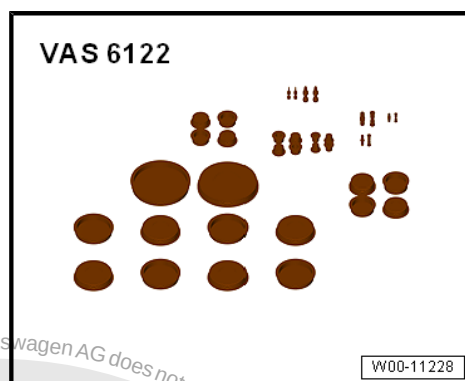
Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



- ◆ Vehicle diagnostic tester



Note

- ◆ *If a new air conditioner compressor is installed, a compressor run-in must be carried out using ⇒ Vehicle diagnostic tester.*
- ◆ *If only ancillary bracket is to be removed, refrigerant lines on air conditioner compressor must not be loosened ⇒ [page 58](#).*

Removing

- If fitted, remove noise insulation beneath engine ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation .

If necessary, remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Removing and installing front wheel housing liner .

- Remove poly V-belt ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .

Vehicles with R134a refrigerant

- Drain refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Vehicles with R1234yf refrigerant

- Drain refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Draining refrigerant circuit .



Continued for all vehicles

CAUTION

Risk of freezing injury caused by escaping pressurised refrigerant.

There is a risk of injury to the skin and parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Extract refrigerant and open the refrigerant circuit immediately afterwards.
- If more than 10 minutes have passed since the refrigerant was extracted, repeat the extraction process before opening the refrigerant circuit. Pressure could build up in the refrigerant circuit from continued evaporation.

For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .

Unscrew bolts -3-.

Disconnect refrigerant lines -2- and -4- from air conditioner compressor -1-.

Disconnect electrical connector -6-.

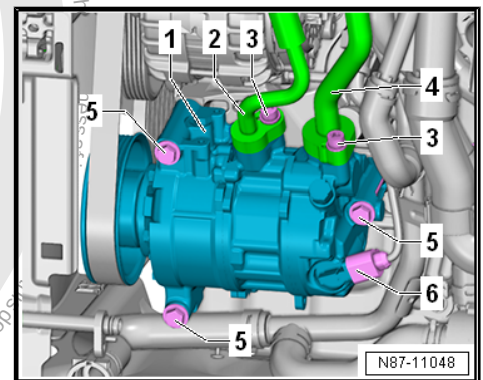
Unscrew bolts -5-.

Remove air conditioner compressor -1-.

Installing

Install in reverse order of removal, observing the following:

- If air conditioner compressor has been renewed, check poly-V belt for damage and renew as needed ⇒ Rep. gr. 13 ; Cylinder block, belt end; Removing and installing poly-V belt .
- Carry out function "Compressor first run" in Guided Fault Finding using ⇒ Vehicle diagnostic tester.
- Clean contact surfaces of air conditioner compressor and holder.



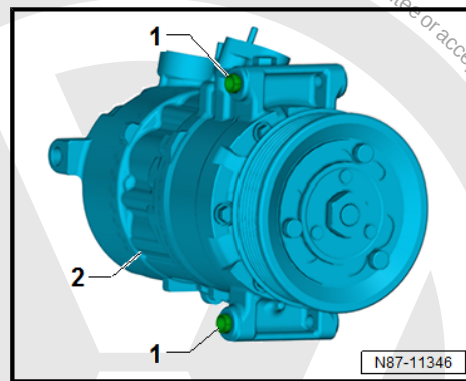


- Insert dowel sleeves -1- into air conditioner compressor -2-.



Note

- ◆ *Improperly fitted dowel sleeves or dirty or damaged contact surfaces can cause deviations in alignment of air conditioner compressor and engine. Deviations in alignment will eventually damage the air condition compressor.*
- ◆ *If the air conditioner compressor is renewed on account of problems (e.g. internal damage), the refrigerant circuit must be cleaned ⇒ Air conditioning systems with refrigerant R1234yf - General information; Rep. gr. 87 ; Refrigerant circuit; Renewing components or ⇒ Air conditioning system - with R134a refrigerant .*
- ◆ *When it is removed, the air conditioner compressor contains an indeterminate amount of refrigerant oil. For this reason it is important to observe the notes on renewing the air conditioner compressor ⇒ Air conditioning systems with R1234yf refrigerant - General information; Rep. gr. 87 ; Refrigerant circuit; Renewing components or ⇒ Air conditioning system - with R134a refrigerant .*



On air conditioning systems with R1234yf refrigerant

If the air conditioner compressor is replaced, the following table gives an indication as to whether the refrigerant circuit needs to be flushed before the new air conditioner compressor is installed.

The necessity for flushing depends on the supplier and the refrigerant oil that it uses.

		Supplier of replacement compressor		
		Denso	Mahle/Delphi	Sanden
Supplier of air conditioner compressor installed in vehicle	Denso	Do not flush	Flush	Flush
	Mahle/Delphi	Flush	Do not flush	Do not flush
	Sanden	Flush	Do not flush	Do not flush

- If necessary according to table, flush refrigerant circuit ⇒ Air conditioning systems with R1234yf refrigerant - General information; Rep. gr. 87 ; Refrigerant circuit; Cleaning refrigerant circuit .

Continued for all vehicles



NOTICE

Risk of damage to air conditioner compressor. Refrigerant oil may accumulate in the compression chamber of a removed air conditioner compressor.

- **After installing a new air conditioner compressor or adding new refrigerant oil, fully turn the air conditioner compressor 10 times by hand before the poly V-belt is fitted.**



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

- Observe notes on bringing air conditioning system into operation after installing air conditioner compressor ⇒ Air conditioning systems with R1234yf refrigerant - General information; Rep. gr. 87 ; Refrigerant circuit; Renewing components or ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .
- Start engine with air conditioner compressor switched off (control lamp in **A/C** button is off) and wait until idling speed is stable.
- Open dash panel vents.
- Set temperature to “Lo” on heater and air conditioning controls - EX21- or on temperature preselection.
- Switch on air conditioner compressor (control lamp in **A/C** button lights up) and let it run for at least 5 minutes with engine at idling speed.



Note

- ◆ *The air conditioner compressor is driven by the poly V-belt pulley (not fitted with a magnetic clutch).*
- ◆ *If an air conditioner compressor seizes, the overload protection separates from the air conditioner compressor shaft. The seizure can normally be detected by the bulges in the poly V-belt pulley. Another indication of a seizure is abraded rubber material around the poly V-belt pulley.*
- ◆ *The air conditioner compressor has an internal oil circuit to ensure that the air conditioner compressor is not damaged when the refrigerant circuit is empty. This means that approx. 40 to 50 cm³ of refrigerant oil remain in the air conditioner compressor.*
- ◆ *Only start engine when refrigerant circuits are charged.*
- ◆ *Only start engine when refrigerant circuit has been correctly installed. If, for example, the refrigerant lines are not connected to the air conditioner compressor and the engine is running, the compressor may heat up so much through internal warming that it will be damaged beyond repair.*
- ◆ *The air conditioner compressor regulating valve - N280- is not activated when the refrigerant circuit is empty and the air conditioner compressor idles with the engine.*
- ◆ *If it is necessary to start engine with an empty refrigerant circuit:*
- ◆ *The refrigerant circuit must be fully assembled.*
- ◆ *At least ¼ of the quantity of refrigerant oil specified for this refrigerant circuit must be in the air conditioner compressor.*
- ◆ *The engine speed must not exceed 2000 rpm.*
- ◆ *Run engine only as long as absolutely necessary, max. 10 min.*
- Moisten new seals with refrigerant oil before installing refrigerant line.



! NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .

Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .

- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Specified torques

- ♦ ⇒ [“3.1 Assembly overview - drive unit of air conditioner compressor”, page 54](#)

3.5 Checking high-pressure safety valve on air conditioner compressor

Check

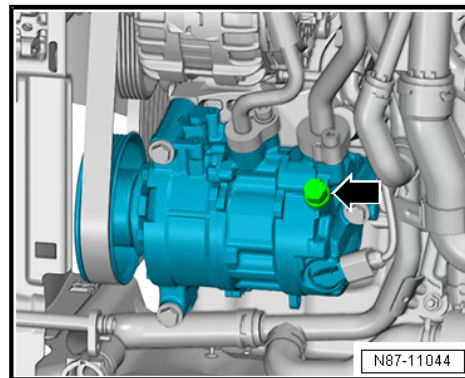
- ♦ Function: protects refrigerant circuit against excessive pressures.

! CAUTION

Risk of freezing injury caused by refrigerant. The high-pressure safety valve releases refrigerant when the engine is running and the pressure in the refrigerant circuit is too high.

There is a risk of injury on hands and other parts of the body due to freezing.

- Wear protective gloves.
- Wear protective goggles.
- Switch off engine.



High-pressure safety valve on Denso air conditioner compressor

- ♦ The high-pressure safety valve -arrow- has been activated when refrigerant oil is found in the immediate vicinity.
- ♦ In this case, entrust a suitable workshop to perform the work ⇒ [page 7](#) .



Note

On air conditioner compressors from other manufacturers the high-pressure safety valve is located in a similar position.



3.6 Removing and installing pulley

⇒ **"3.6.1 Removing and installing belt pulley, Denso air conditioner compressor", page 65**

3.6.1 Removing and installing belt pulley, Denso air conditioner compressor



Note

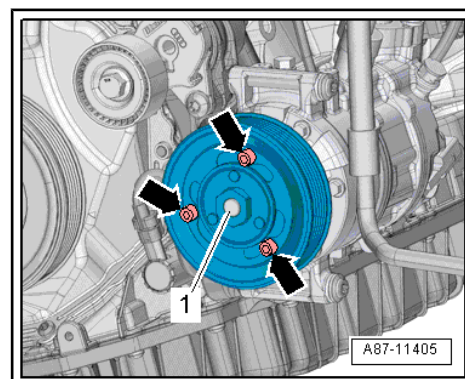
- ◆ *Handle belt pulley with care. The belt pulley is sensitive to impact.*
- ◆ *If the belt pulley overload protection has deployed, check freedom of movement of air conditioner compressor before renewing belt pulley. If air conditioner compressor does not rotate freely, it must be renewed.*
- ◆ *If the drive plate overload protection device has been triggered, the pulley can rotate with the outer section of the drive plate without the air conditioner compressor shaft and the hexagon flats attached to the drive plate (inner section of drive plate) also rotating.*

Special tools and workshop equipment required

- ◆ Commercially available oil filter strap wrench

Removing

- Remove poly V-belt ⇒ Rep. gr. 13 ; Cylinder block, pulley end; Removing and installing poly V-belt .
- Pull off sealing cap -1-.
- Counterhold belt pulley with oil filter strap wrench and remove bolts -arrows-.

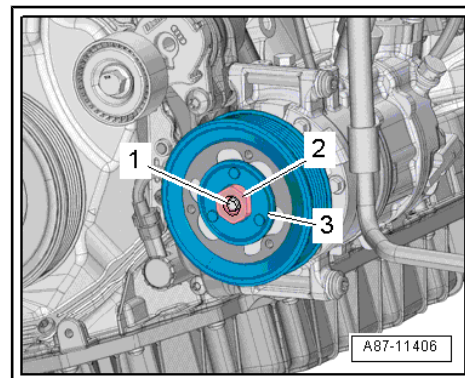


- Counterhold drive shaft -1- of air conditioner compressor and remove nut -2-.
- Detach drive plate -3- with nut.



Note

- ◆ *The bolts of the drive plate transmit the torque to the air conditioner compressor shaft to drive the air conditioner compressor.*
- ◆ *When the drive plate has become screwed onto the air conditioner compressor shaft so firmly that it can no longer be loosened (the 7 mm hexagon flats can no longer transmit the necessary torque), renew air conditioner compressor.*



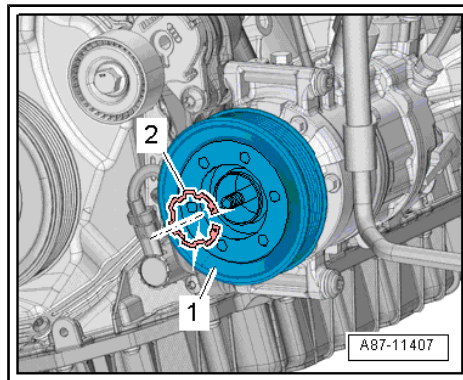


- Detach retaining ring -2-.
- Remove pulley -1-.

Installing

Install in reverse order of removal. Observe the following:

- Clean drive shaft of air conditioner compressor.
- Fit pulley onto drive shaft of air conditioner compressor. The belt pulley must be fitted without excessive force being applied.
- Insert retaining ring. Flat side faces air conditioner compressor.
- Clean thread of air conditioner compressor drive shaft.



Note

The thread of the new drive plate is greased with a specified amount of a grease by the manufacturer.

Specified torques

- ◆ ⇒ [“3.2.1 Assembly overview - pulley, Denso air conditioner compressor”, page 56](#)
- ◆ ⇒ [“3.2.2 Assembly overview - belt pulley, Sanden air conditioner compressor”, page 57](#)



4 Control motors

⇒ [“4.1 Overview of fitting locations - front control motors”, page 67](#)

⇒ [“4.2 Removing and installing temperature flap control motor V68 with potentiometer G92”, page 72](#)

⇒ [“4.3 Removing and installing defroster flap control motor V107 with potentiometer G135”, page 75](#)

⇒ [“4.4 Removing and installing air recirculation flap control motor V113”, page 79](#)

⇒ [“4.5 Removing and installing left temperature flap control motor V158 with potentiometer G220”, page 83](#)

⇒ [“4.6 Removing and installing right temperature flap control motor V159 with potentiometer G221”, page 87](#)

⇒ [“4.7 Removing and installing rear temperature flap control motor V137”, page 90](#)

⇒ [“4.8 Removing and installing fresh air/air recirculation, air flow flap control motor V425 with potentiometer G644”, page 91](#)

⇒ [“4.9 Removing and installing front air distribution flap control motor V426 with potentiometer for front air distribution flap control motor G642”, page 96](#)

⇒ [“4.10 Removing and installing air distribution flap control motor V428 with potentiometer G645”, page 101](#)

⇒ [“4.11 Removing and installing air distribution flap actuation unit”, page 105](#)

4.1 Overview of fitting locations - front control motors

⇒ [“4.1.1 Overview of fitting locations - front control motors, air conditioning system with electric/manual controls, left-hand drive vehicles”, page 67](#)

⇒ [“4.1.2 Overview of fitting locations - front control motors, air conditioning system with electric/manual controls, right-hand drive vehicles”, page 69](#)

⇒ [“4.1.3 Overview of fitting locations - front control motors, Climatronic, left-hand drive vehicles”, page 70](#)

⇒ [“4.1.4 Overview of fitting locations - front control motors, Climatronic, right-hand drive vehicles”, page 71](#)

4.1.1 Overview of fitting locations - front control motors, air conditioning system with electric/manual controls, left-hand drive vehicles



1 - Temperature flap control motor - V68-

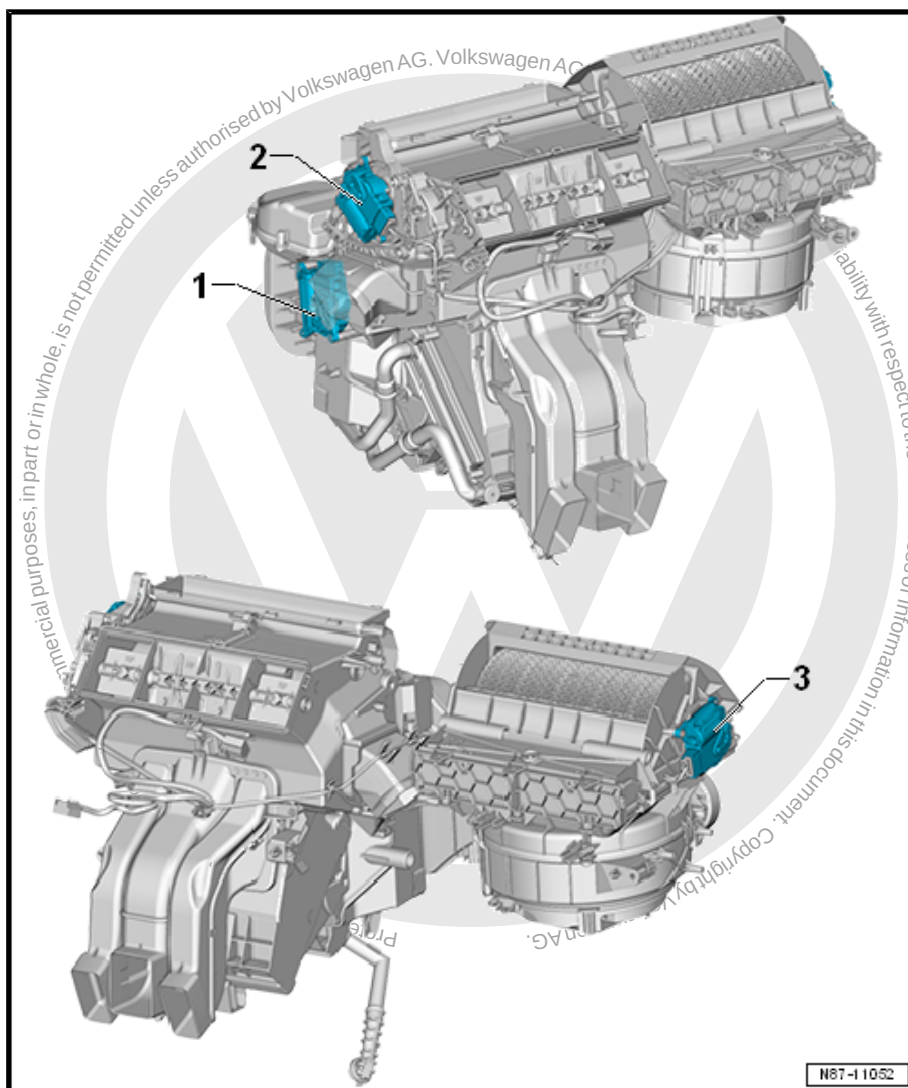
- ☐ With potentiometer for temperature flap control motor - G92-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 72](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

2 - Air distribution flap control motor - V428-

- ☐ With potentiometer for air distribution flap control motor - G645-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 101](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

3 - Air recirculation flap control motor - V113-

- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 79](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester





4.1.2 Overview of fitting locations - front control motors, air conditioning system with electric/manual controls, right-hand drive vehicles

1 - Temperature flap control motor - V68-

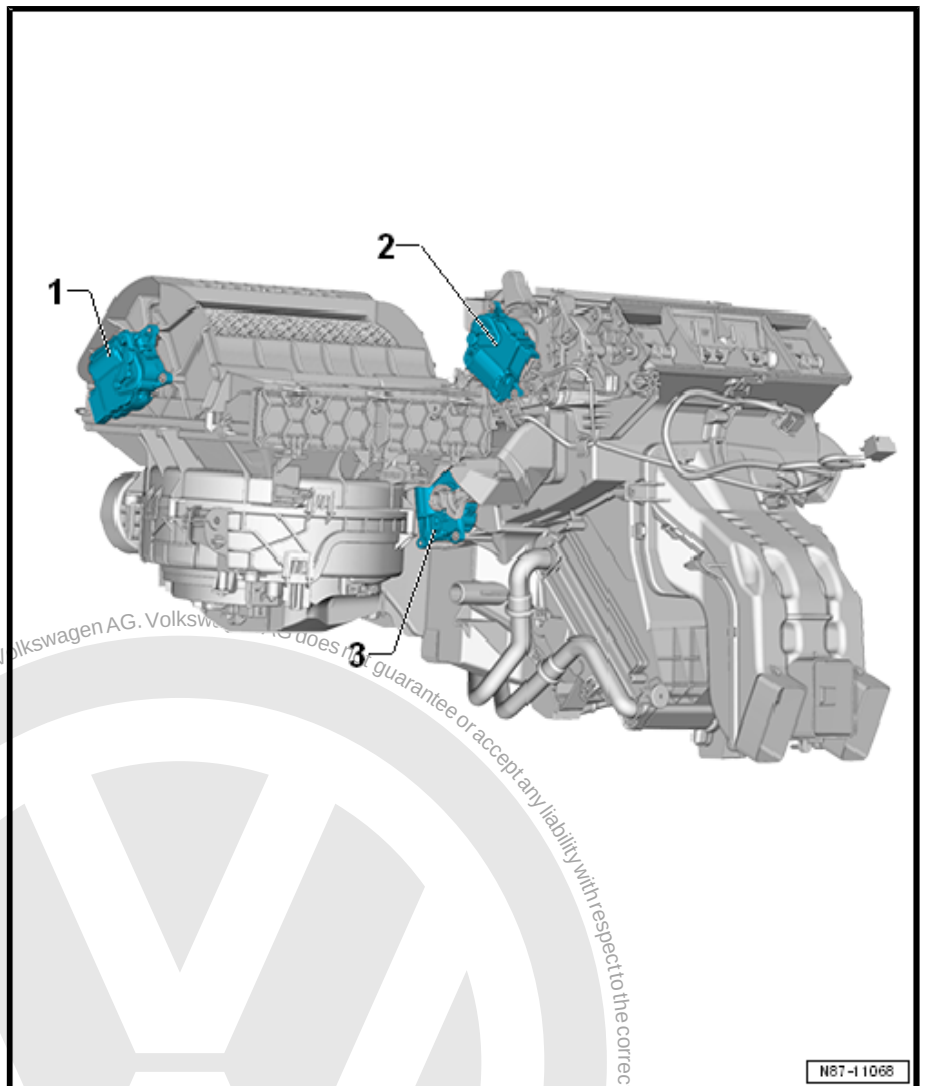
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 73](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

2 - Air distribution flap control motor - V428-

- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 102](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

3 - Air recirculation flap control motor - V113-

- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 79](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester



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4.1.3 Overview of fitting locations - front control motors, Climatronic, left-hand drive vehicles

1 - Left temperature flap control motor - V158-

- ☐ With potentiometer for left temperature flap control motor - G220-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 83](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

2 - Front air distribution flap control motor - V426- with potentiometer for front air distribution flap control motor - G642-

- ☐ With potentiometer for front air distribution flap control motor - G642-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 96](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

3 - Defroster flap control motor - V107-

- ☐ With potentiometer for defroster flap control motor - G135-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 75](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

4 - Fresh air/air recirculation, air flow flap control motor - V425-

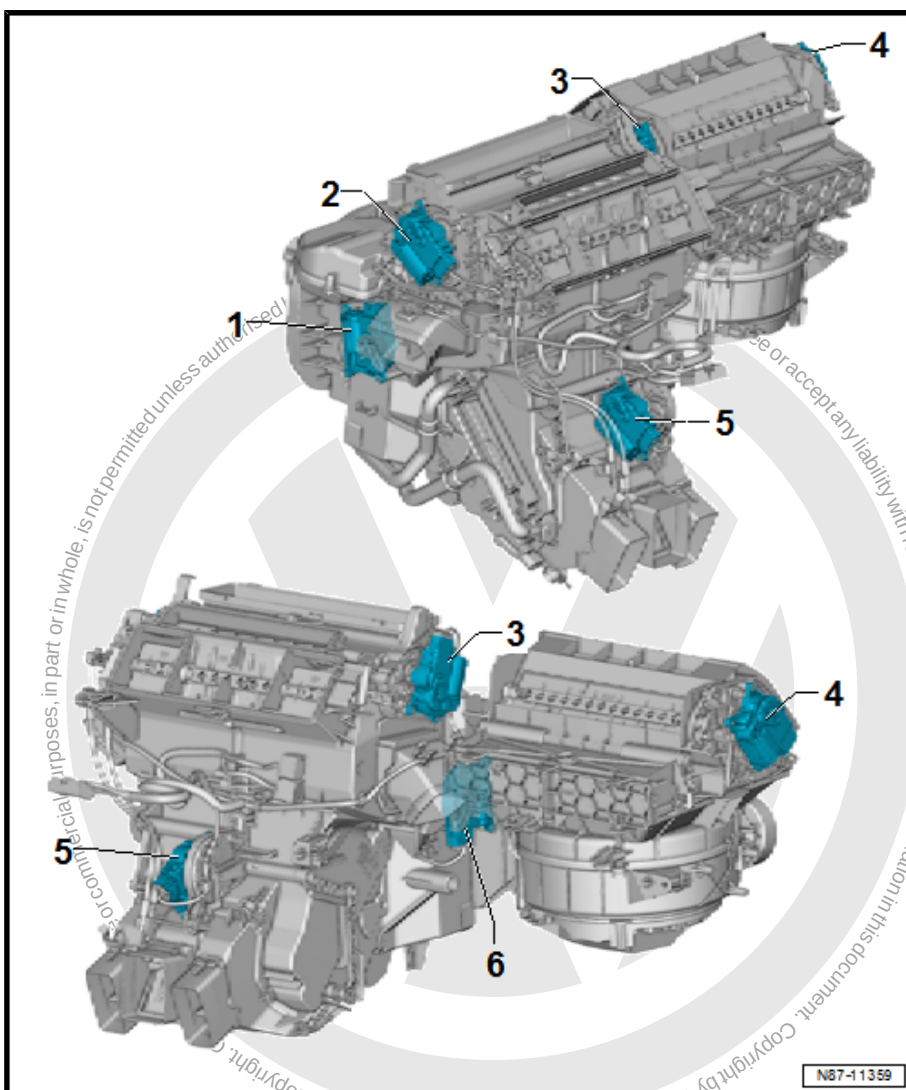
- ☐ With potentiometer for fresh air/recirculated air and air flow flap control motor - G644-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 91](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

5 - Rear temperature flap motor - V137-

- ☐ With potentiometer for rear temperature flap control motor - G479-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 90](#)
- ☐ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

6 - Right temperature flap control motor - V159-

- ☐ With potentiometer for right temperature flap control motor - G221-
- ☐ Checking: ⇒ Vehicle diagnostic tester
- ☐ Removing and installing ⇒ [page 87](#)





- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester

4.1.4 Overview of fitting locations - front control motors, Climatronic, right-hand drive vehicles

1 - Fresh air/air recirculation, air flow flap control motor - V425-

- ☐ With potentiometer for fresh air/recirculated air and air flow flap control motor - G644-
- ☐ Checking: ➔ Vehicle diagnostic tester
- ☐ Removing and installing ➔ [page 93](#)
- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester

2 - Front air distribution flap control motor - V426- with potentiometer for front air distribution flap control motor - G642-

- ☐ With potentiometer for front air distribution flap control motor - G642-
- ☐ Checking: ➔ Vehicle diagnostic tester
- ☐ Removing and installing ➔ [page 98](#)
- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester

3 - Defroster flap control motor - V107-

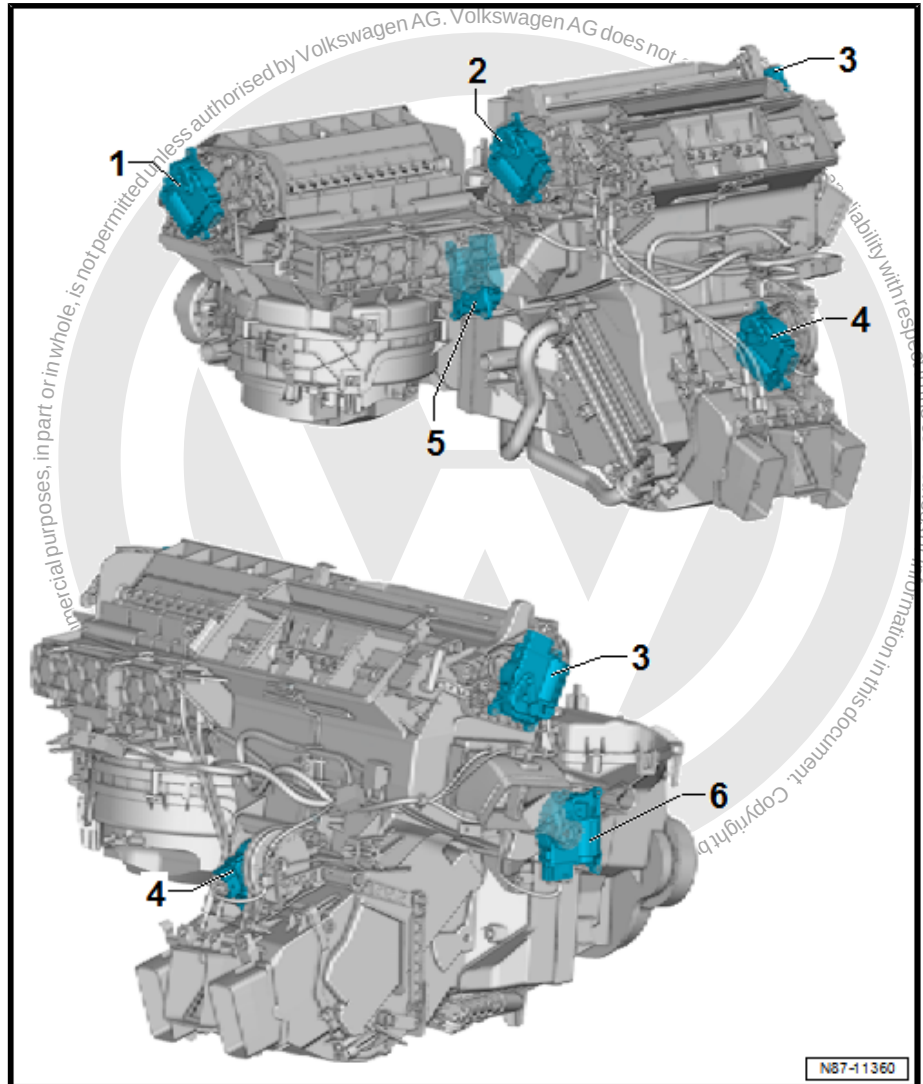
- ☐ With potentiometer for defroster flap control motor - G135-
- ☐ Checking: ➔ Vehicle diagnostic tester
- ☐ Removing and installing ➔ [page 77](#)
- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester

4 - Rear temperature flap motor - V137-

- ☐ With potentiometer for rear temperature flap control motor - G479-
- ☐ Checking: ➔ Vehicle diagnostic tester
- ☐ Removing and installing ➔ [page 90](#)
- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester

5 - Left temperature flap control motor - V158-

- ☐ With potentiometer for left temperature flap control motor - G220-
- ☐ Checking: ➔ Vehicle diagnostic tester
- ☐ Removing and installing ➔ [page 84](#)
- ☐ Renewing: initiate basic setting using ➔ Vehicle diagnostic tester



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6 - Right temperature flap control motor - V159-

- ❑ With potentiometer for right temperature flap control motor - G221-
- ❑ Checking: ⇒ Vehicle diagnostic tester
- ❑ Removing and installing ⇒ [page 88](#)
- ❑ Renewing: initiate basic setting using ⇒ Vehicle diagnostic tester

4.2 Removing and installing temperature flap control motor - V68- with potentiometer - G92-

⇒ [“4.2.1 Removing and installing temperature flap control motor V68 , left-hand drive vehicles”, page 72](#)

⇒ [“4.2.2 Removing and installing temperature flap control motor V68 , right-hand drive vehicles”, page 73](#)

4.2.1 Removing and installing temperature flap control motor - V68- , left-hand drive vehicles

Electrical/manual air conditioning system

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

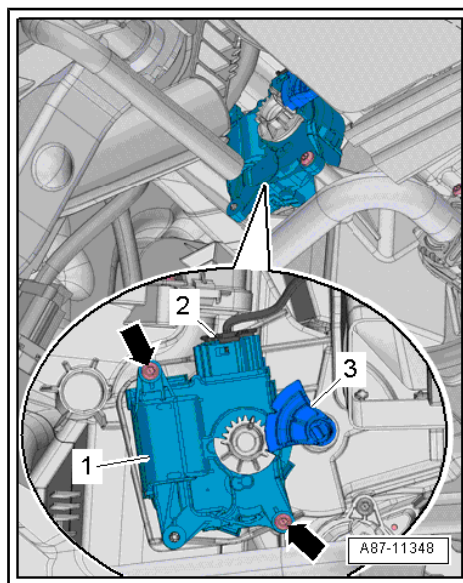
- Switch off ignition.
- Equipment version with ignition lock: withdraw ignition key.
- Remove footwell vent on driver side ⇒ [page 171](#) .
- Pull actuating lever -3- off heater unit.



Note

The upper bolt can be accessed with a commercially available bit ratchet.

- Unscrew bolts -arrows-.
- Disconnect connector -2-.
- Remove temperature flap control motor - V68- -1-.





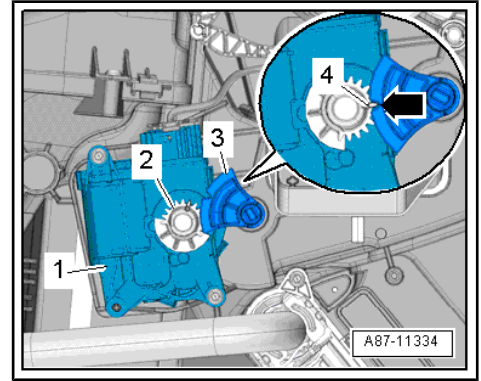
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Fit control motor -1- on air distribution housing. Gear wheel -2- on control motor must engage in the gear wheel -3- on actuating lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

4.2.2 Removing and installing temperature flap control motor - V68- , right-hand drive vehicles

Electrical/manual air conditioning system

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Switch off ignition.
- Remove baffle plate ⇒ [page 165](#) .
- Remove centre console trim in footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console trim in front footwell .



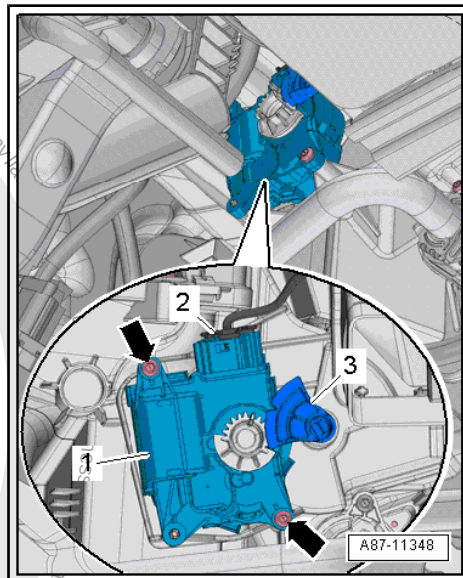
- Pull actuating lever -3- off heater unit.



Note

The upper bolt can be accessed with a commercially available bit ratchet.

- Unscrew bolts -arrows-.
- Disconnect connector -2-.
- Remove temperature flap control motor - V68- -1-.





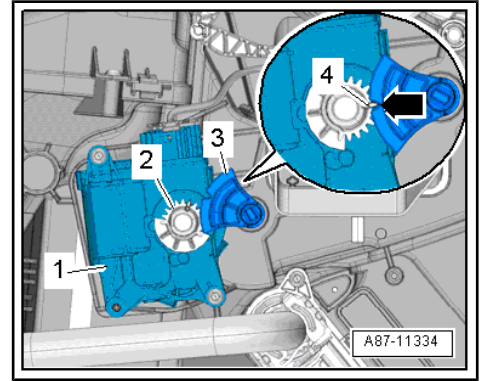
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Fit control motor -1- on air distribution housing. Gear wheel -2- on control motor must engage in the gear wheel -3- on actuating lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Centre console trim in footwell ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Assembly overview - centre console.

4.3 Removing and installing defroster flap control motor - V107- with potentiometer - G135-

⇒ ["4.3.1 Removing and installing defroster flap control motor V107 with potentiometer G135, left-hand drive vehicles", page 75](#)

⇒ ["4.3.2 Removing and installing defroster flap control motor V107 with potentiometer G135, right-hand drive vehicles", page 77](#)

4.3.1 Removing and installing defroster flap control motor - V107- with potentiometer - G135- , left-hand drive vehicles

Special tools and workshop equipment required



- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove glove compartment ⇒ General body repairs, interior;
Rep. gr. 68 ; Compartments/covers; Removing and installing
glove compartment .
- Unscrew bolts -arrows-.
- Remove defroster flap control motor - V107--1-.
- Separate connector -2-.

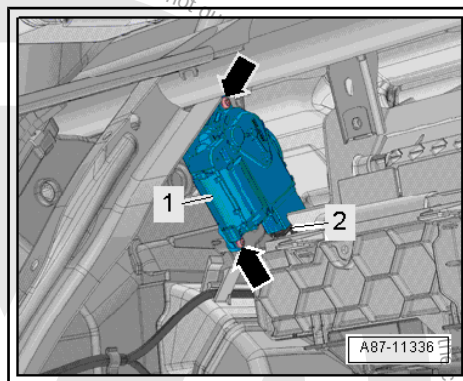
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.



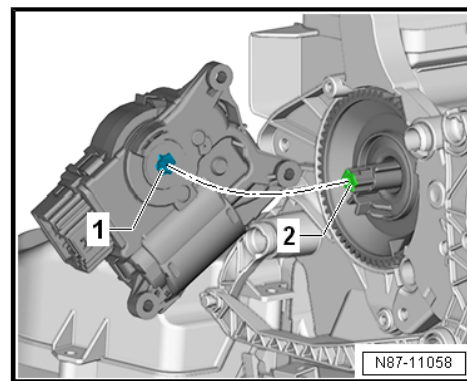


- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.



- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.
- There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" → Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .

4.3.2 Removing and installing defroster flap control motor - V107- with potentiometer - G135- , right-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .



- Unscrew bolts -2-.
- Remove defroster flap control motor - V107--1-.
- Separate connector -3-.

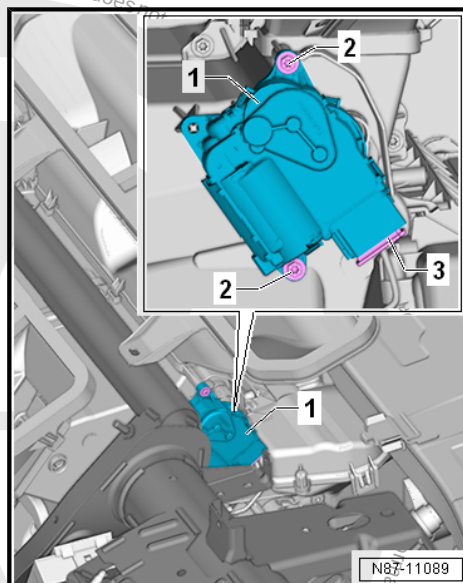
Installing

Install in reverse order of removal. Observe the following:



Note

- ♦ Check operation of flaps and hinge mechanism before fitting.
- ♦ Make sure levers and shafts are properly fitted in the mounts.
- ♦ The illustration shows a left-hand drive vehicle.

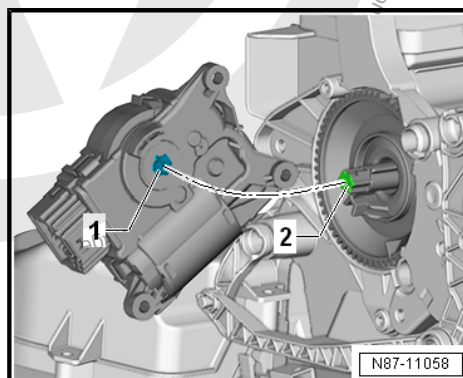


- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.



- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.
- There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Dash panel ⇒ General body repairs, interior; Rep. gr. 70 ;
Dash panel; Removing and installing dash panel .



4.4 Removing and installing air recirculation flap control motor - V113-

⇒ ["4.4.1 Removing and installing air recirculation flap control motor V113 , left-hand drive vehicles", page 79](#)

⇒ ["4.4.2 Removing and installing air recirculation flap control motor V113 , right-hand drive vehicles", page 80](#)

4.4.1 Removing and installing air recirculation flap control motor - V113- , left-hand drive vehicles

Electrical/manual air conditioning system

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester



Note

The control motor has end stops with integrated limit switches instead of a potentiometer.

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Unscrew bolts -arrows-.
- Remove air recirculation flap control motor - V113- -3- from air intake duct -2-.
- Separate electrical connector -1-.

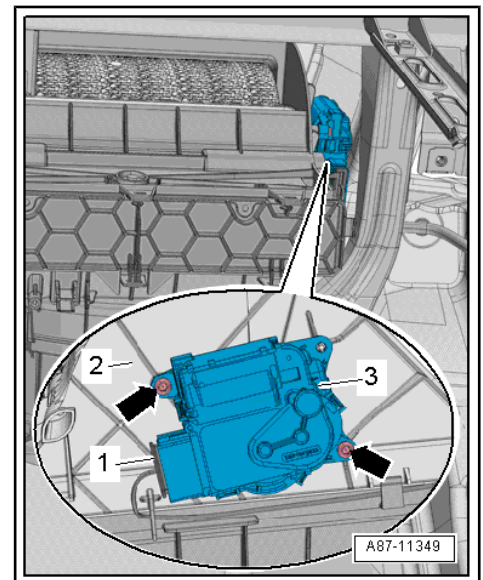
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.





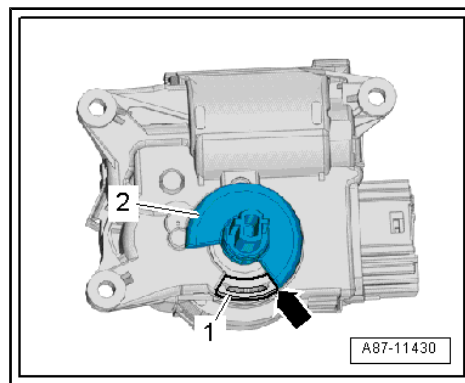
- Fresh air flap must be set to "closed" position to allow for installation of air recirculation flap control motor - V113- .
- The operating shaft -2- must be on the stop -1- -arrow- as shown.



Note

If the control motor operating shaft is not at the "fresh air mode" stop, rotate the receptacle in the control motor.

- Fresh air flap must be set to "open" position to allow fresh air to flow into the vehicle.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Position the control motor against the air intake box. The operating shaft must engage in the mount.
- There must not be any play in the connection between the operating shaft and mount.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .

4.4.2 Removing and installing air recirculation flap control motor - V113- , right-hand drive vehicles

Electrical/manual air conditioning system

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester



Note

The control motor has end stops with integrated limit switches instead of a potentiometer.

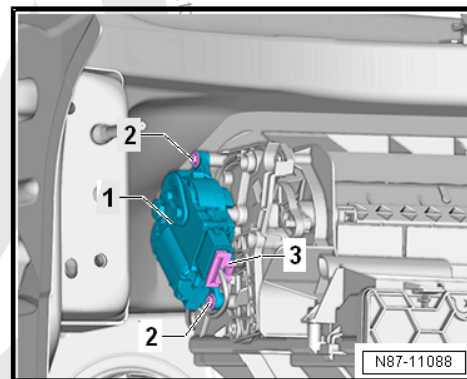


Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Unscrew bolts -2-.
- Remove air recirculation flap control motor - V113- -1- from air intake duct.
- Separate connector -3-.

Installing

Install in reverse order of removal. Observe the following:



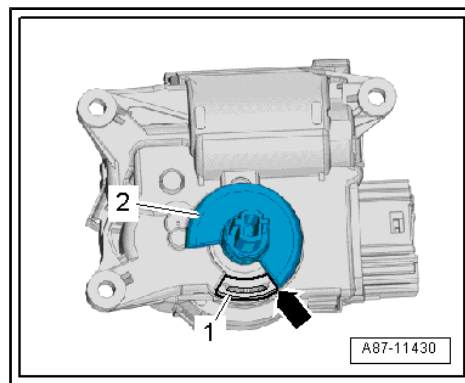


- Fresh air flap must be set to "closed" position to allow for installation of air recirculation flap control motor - V113- .



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Fresh air flap must be set to "open" position to allow fresh air to flow into the vehicle.
- The operating shaft -2- must be on the stop -1- -arrow- as shown.



Note

If the control motor operating shaft is not at the "fresh air mode" stop, rotate the receptacle in the control motor.

- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Position the control motor against the air intake box. The operating shaft must engage in the mount.
- There must not be any play in the connection between the operating shaft and mount.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Assembly overview - dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Assembly overview - dash panel central tube
- ◆ Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel



4.5 Removing and installing left temperature flap control motor - V158- with potentiometer - G220-

⇒ "4.5.1 Removing and installing left temperature flap control motor V158 , left-hand drive vehicles", page 83

⇒ "4.5.2 Removing and installing left temperature flap control motor V158 , right-hand drive vehicles", page 84

4.5.1 Removing and installing left temperature flap control motor - V158- , left-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

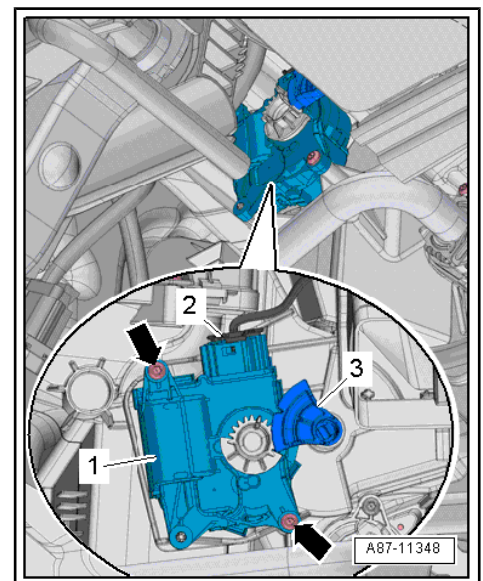
- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove footwell vent on driver side ⇒ [page 171](#) .
- Pull actuating lever -3- off heater unit.



Note

The upper bolt can be accessed with a commercially available bit ratchet.

- Unscrew bolts -arrows-.
- Disconnect connector -2-.
- Remove left temperature flap control motor - V158- -1-.





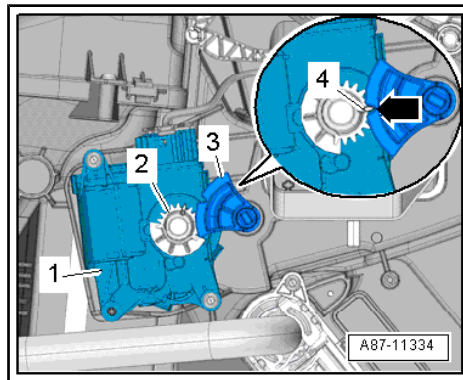
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Position control motor -1- on air distribution housing. Gear wheel -2- of control motor must engage in gear wheel -3- of temperature flap lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- ◆ Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

4.5.2 Removing and installing left temperature flap control motor - V158- , right-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove baffle plate ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .

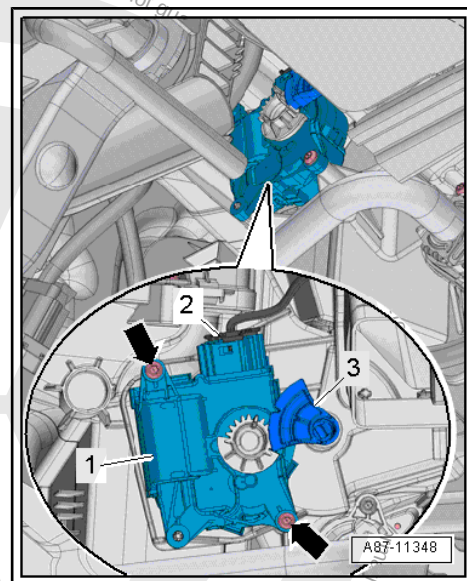


- Remove centre console trim in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Pull actuating lever -3- off heater unit.



Note

- ◆ *The upper bolt can be accessed with a commercially available bit ratchet.*
- ◆ *The illustration shows a left-hand drive vehicle. However, the procedure is analogous.*
- Unscrew bolts -arrows-.
- Disconnect connector -2-.
- Remove left temperature flap control motor - V158- -1-.





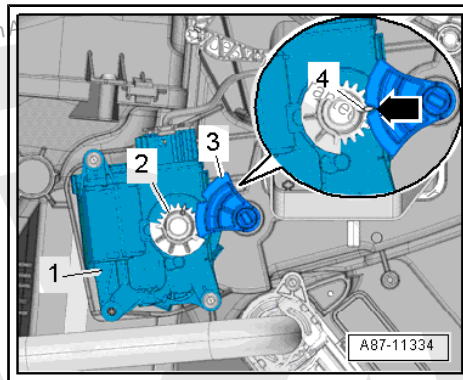
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Position control motor -1- on air distribution housing. Gear wheel -2- of control motor must engage in gear wheel -3- of temperature flap lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- ◆ Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform “basic setting” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Centre console trim in footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .



4.6 Removing and installing right temperature flap control motor - V159- with potentiometer - G221-

⇒ ["4.6.1 Removing and installing right temperature flap control motor V159 , left-hand drive vehicles", page 87](#)

⇒ ["4.6.2 Removing and installing right temperature flap control motor V159 , right-hand drive vehicles", page 88](#)

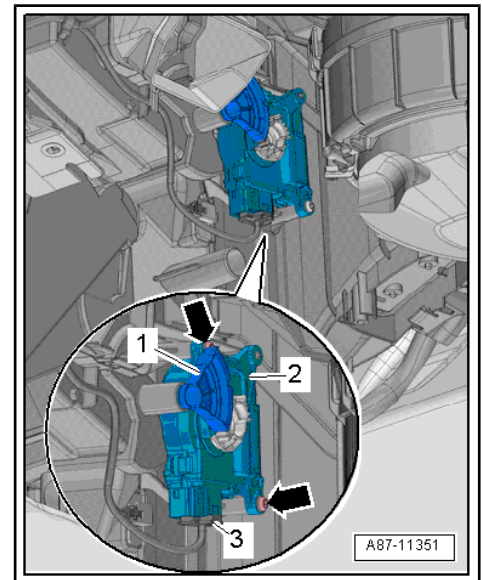
4.6.1 Removing and installing right temperature flap control motor - V159- , left-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove baffle plate ⇒ [page 165](#) .
- Pull off actuating lever -1- for temperature flap.
- Unscrew bolts -arrows-.
- Remove right temperature flap control motor - V159- -2-.
- Separate connector -3-.





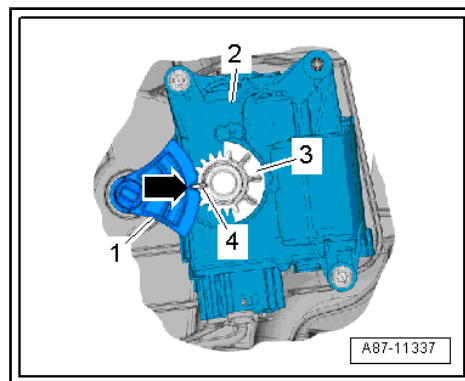
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanisms.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Position control motor -2- on air distribution housing. Gear wheel -3- of control motor must engage in gear wheel -1- of temperature flap lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

4.6.2 Removing and installing right temperature flap control motor - V159- , right-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Bit ratchet

Removing

- Switch all electrical consumers off.
- Switch off ignition.



- Withdraw ignition key.



Note

- ◆ *Evaporator temperature sensor - V159- is accessible from footwell.*
 - ◆ *The illustration shows a left-hand drive vehicle. However, the procedure is analogous.*
 - ◆ *The bolts can be accessed with a small commercially available bit ratchet.*
- Observe safety precautions for working on airbags ⇒ General body repairs, interior; Rep. gr. 00 ; Safety information; Safety precautions for working with pyrotechnic components .

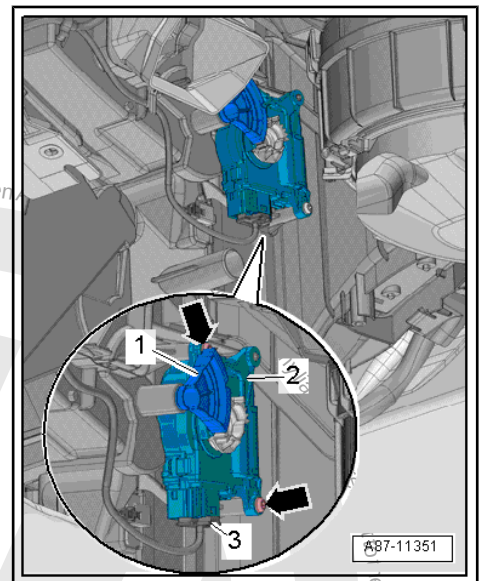


CAUTION

Pyrotechnic components can trigger unintentionally.
Risk of injury.

- **Discharge any static charge in your body by briefly touching the door striker plate.**

- Pull off actuating lever -1- for temperature flap.
- Unscrew bolts -arrows-.
- Remove right temperature flap control motor - V159- -2-.
- Separate connector -3-.





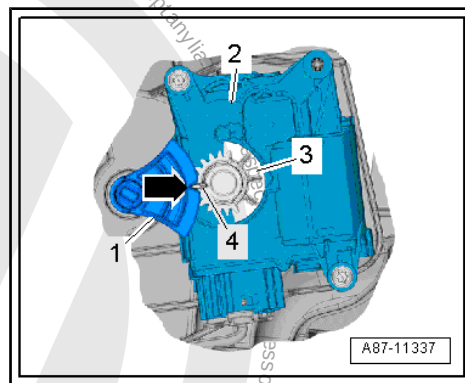
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanisms.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Position control motor -2- on air distribution housing. Gear wheel -3- of control motor must engage in gear wheel -1- of temperature flap lever.
- The long tooth -4- must engage in recess -arrow- on actuating lever.



Note

- ◆ If the gear wheels on the control motor and temperature flap lever do not align, rotate the receptacle in the control motor.
- ◆ If the bolts cannot be fitted, the control motor is not completely seated on the housing.
- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

4.7 Removing and installing rear temperature flap control motor - V137-

Special tools and workshop equipment required

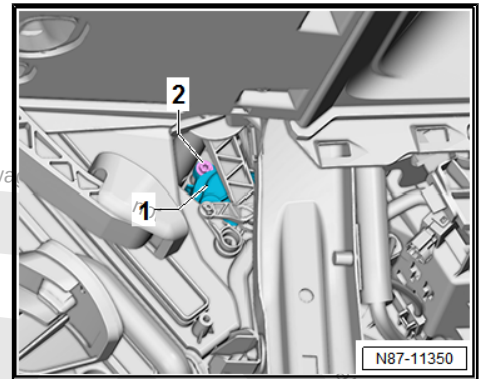
- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.



- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Remove bolt -2- from rear temperature flap control motor - V137- -1-.



- Unscrew bolts -3-.
- Separate connector -2-.
- Remove rear temperature flap control motor - V137- -1-.

Installing

Install in reverse order of removal. Observe the following:

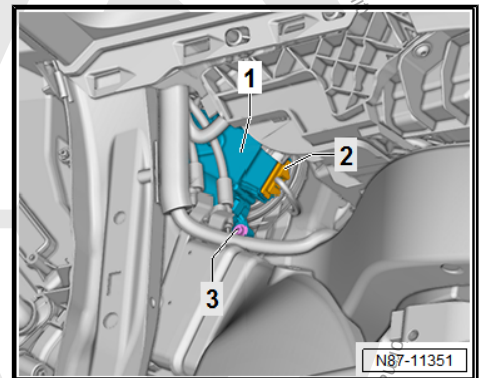


Note

- ◆ Check operation of flaps and hinge mechanisms.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ Assembly overview - centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console



4.8 Removing and installing fresh air/air recirculation, air flow flap control motor - V425- with potentiometer - G644-

⇒ [“4.8.1 Removing and installing fresh air/air recirculation, air flow flap control motor V425 , left-hand drive vehicles”, page 91](#)

⇒ [“4.8.2 Removing and installing fresh air/air recirculation, air flow flap control motor V425 , RHD vehicles”, page 93](#)

4.8.1 Removing and installing fresh air/air recirculation, air flow flap control motor - V425- , left-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.



- Remove glove compartment ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Unclip wiring harness.
- Unscrew bolts -arrows-.
- Remove fresh air/air recirculation, air flow flap control motor - V425- -1- from air intake duct -2-.
- Separate connector -3-.

Installing

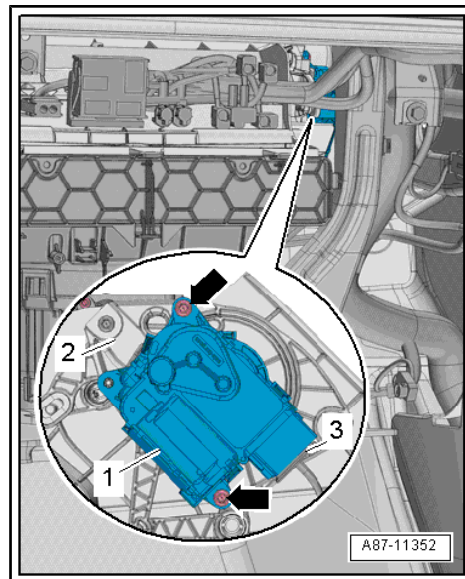
Install in reverse order of removal. Observe the following:

- Fresh air flap must be set to "closed" position to allow for installation of air recirculation flap control motor - V113- .



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.

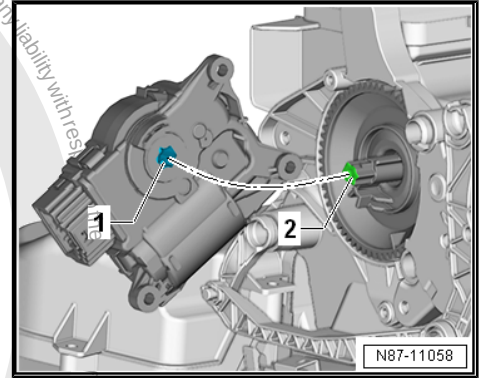




- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.

Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.



- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.
- There must not be any play in the connection between control motor and actuating lever.

Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).

Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .

4.8.2 Removing and installing fresh air/air re-circulation, air flow flap control motor - V425- , RHD vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester



Note

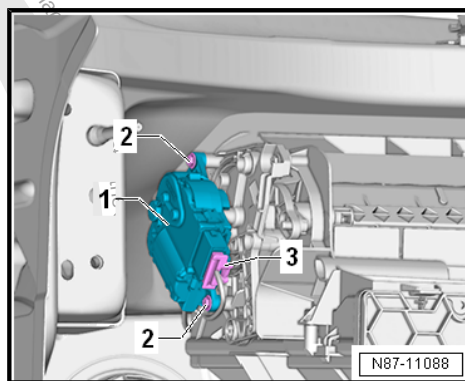
The control motor has end stops with integrated limit switches instead of a potentiometer.

Removing

- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Unscrew bolts -2-.
- Remove fresh air/air recirculation air flow flap control motor - V425- -1- from air intake duct.
- Separate connector -3-.

Installing

Install in reverse order of removal. Observe the following:

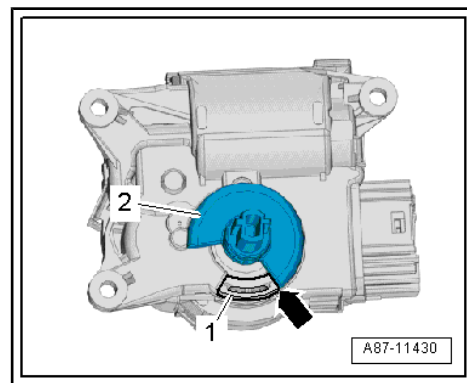




- Fresh air flap must be set to “closed” position to allow for installation of air recirculation flap control motor - V113- .

i Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.
- Fresh air flap must be set to “open” position to allow fresh air to flow into the vehicle.
- The operating shaft -2- must be on the stop -1- -arrow- as shown.



i Note

If the control motor operating shaft is not at the “fresh air mode” stop, rotate the receptacle in the control motor.

- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Position the control motor against the air intake box. The operating shaft must engage in the mount.
- There must not be any play in the connection between the operating shaft and mount.

i Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).
- Read event memory and erase any entries displayed. Then perform “basic setting” ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Assembly overview - dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Assembly overview - dash panel central tube
- ◆ Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel



4.9 Removing and installing front air distribution flap control motor - V426- with potentiometer for front air distribution flap control motor - G642-

⇒ "4.9.1 Removing and installing front air distribution flap control motor V426 , left-hand drive vehicles", page 96

⇒ "4.9.2 Removing and installing front air distribution flap control motor V426 , right-hand drive vehicles", page 98

4.9.1 Removing and installing front air distribution flap control motor - V426- , left-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

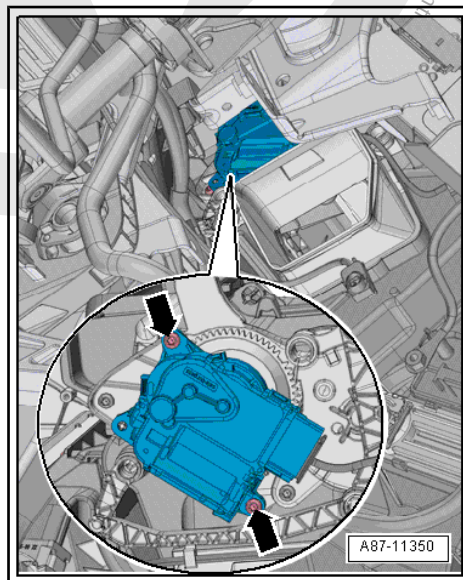
- Switch all electrical consumers off.
- Switch off ignition.
- Withdraw ignition key.
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- If fitted, remove entry and start authorisation control unit - J518- ⇒ Electrical system; Rep. gr. 94 ; Entry and start authorisation system; Overview of fitting locations - entry and start authorisation system .
- Remove footwell vent on driver side ⇒ [page 171](#) .
- Unscrew bolts -arrows-.



Note

- ◆ *The bolts are accessible from underneath behind the central tube.*
- ◆ *Use a magnetic screwdriver to unscrew the bolts or have a second mechanic hold a magnet over the bolt. If the bolt drops out it will fall out of reach into the duct trough. Retrieval then involves removing the dash panel.*
- Pull off front air distribution flap control motor - V426- -4- and remove it.
- Separate electrical connector -1-.

Installing



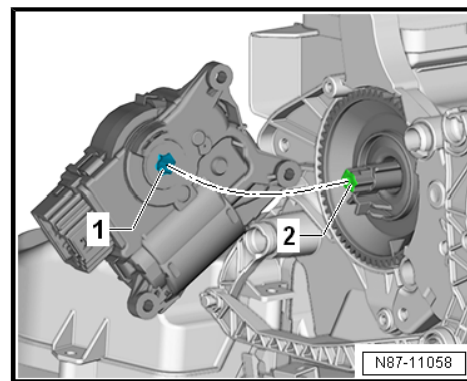


Install in reverse order of removal. Observe the following:



Note

- ◆ *Check operation of flaps and hinge mechanism before fitting.*
- ◆ *Make sure levers and shafts are properly fitted in the mounts.*



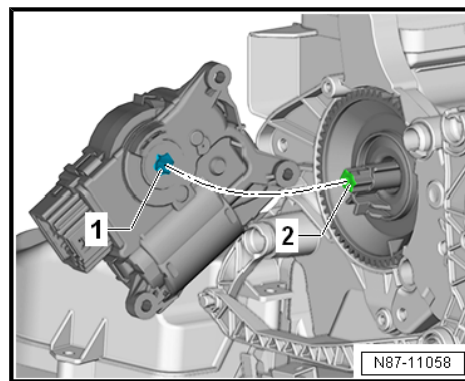


- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.



- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.
- There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .

4.9.2 Removing and installing front air distribution flap control motor - V426- , right-hand drive vehicles

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.



- Withdraw ignition key.
- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Unscrew bolts -2-.
- Pull off front air distribution flap control motor - V426- -1- and remove.
- Separate connector -3-.

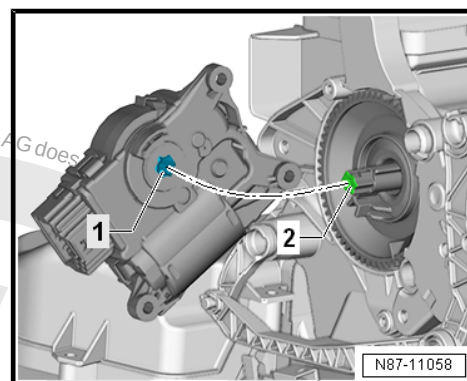
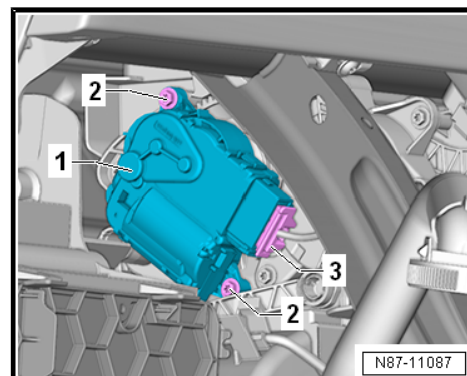
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ *Check operation of flaps and hinge mechanism before fitting.*
- ◆ *Make sure levers and shafts are properly fitted in the mounts.*





- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.

- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.
- There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



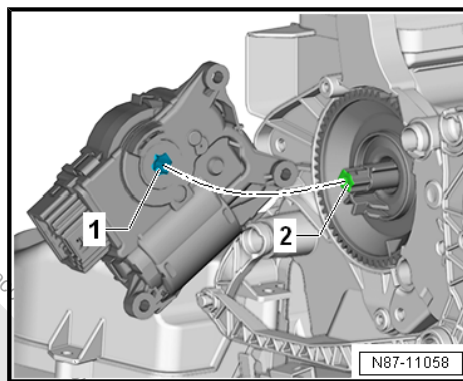
Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .





4.10 Removing and installing air distribution flap control motor - V428- with potentiometer - G645-

⇒ "4.10.1 Removing and installing air distribution flap control motor V428 , left-hand drive vehicles", page 101

⇒ "4.10.2 Removing and installing air distribution flap control motor V428 , right-hand drive vehicles", page 102

4.10.1 Removing and installing air distribution flap control motor - V428- , left-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- If fitted, remove entry and start authorisation control unit - J518- ⇒ Electrical system; Rep. gr. 94 ; Entry and start authorisation system; Overview of fitting locations - entry and start authorisation system .
- Remove footwell vent on driver side ⇒ page 171 .
- Unscrew bolts -arrows-.



Note

- ◆ *The bolts are accessible from underneath behind the central tube.*
- ◆ *Use a magnetic screwdriver to unscrew the bolts or have a second mechanic hold a magnet over the bolt. If the bolt drops out it will fall out of reach into the duct trough.*
- Pull off air distribution flap control motor - V428- -4- and remove it.
- Separate electrical connector -1-.

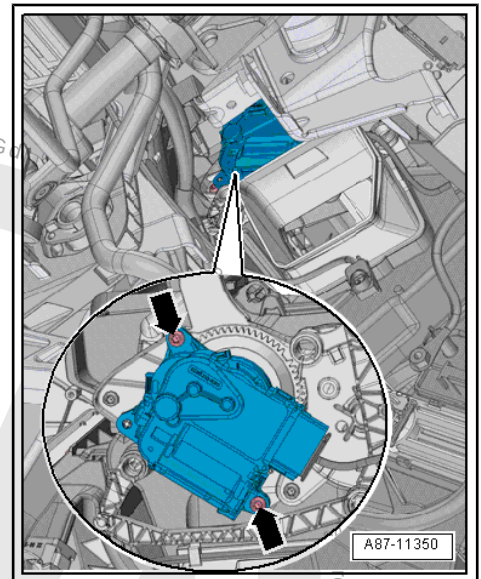
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ *Check operation of flaps and hinge mechanism before fitting.*
- ◆ *Make sure levers and shafts are properly fitted in the mounts.*



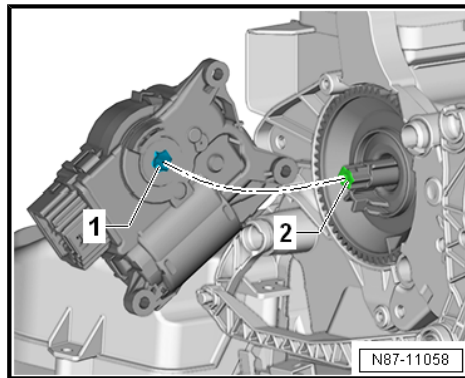


- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.



- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.
- Fit control motor on air intake box. The actuating arm -2- must engage in mounting -1- while doing so.
- There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .

4.10.2 Removing and installing air distribution flap control motor - V428- , right-hand drive vehicles

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester

Removing

- Switch all electrical consumers off.
- Switch off ignition.



- Withdraw ignition key.
- Remove glove compartment ➔ General body repairs, interior;
Rep. gr. 68 ; Compartments/covers; Removing and installing
glove compartment .
- Unscrew bolts -2-.
- Pull off front air distribution flap control motor - V426- -1- and
remove.
- Separate connector -3-.

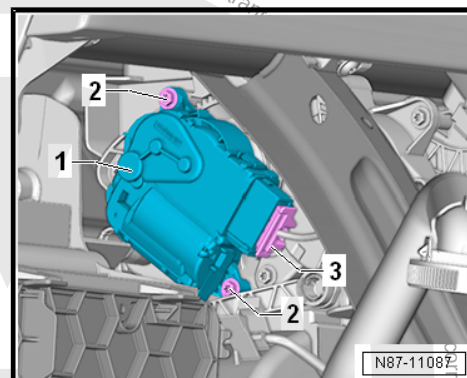
Installing

Install in reverse order of removal. Observe the following:



Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.





- Receptacle of control motor -1- can be fitted on actuating arm -2- in only one position.
- The receptacle of the control motor must align with the actuating arm as shown in illustration.



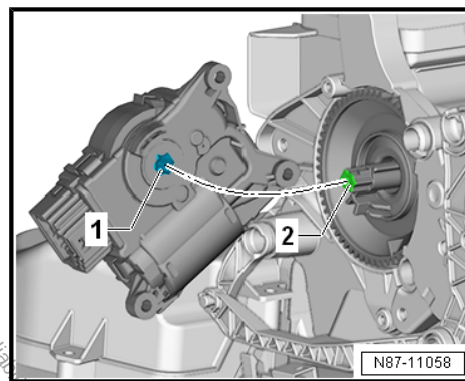
Note

Rotate the receptacle in the control motor if the mount and actuating arm do not align.

- Switch on ignition.
- Connect respective control motor to vehicle wiring harness and select a setting on operating and display unit to set control motor to desired position (e.g. middle position). Wait until control motor has moved to desired position and switch off ignition.

Fit control motor on air intake box. The actuating arm must engage in receptacle -1- -arrow- while doing so.

There must not be any play in the connection between control motor and actuating lever.



Note

If the bolts cannot be fitted, the control motor is not completely seated on the housing.

- Route wiring harness so that it cannot come into contact with any moving parts (e.g. actuating arm on control motor).



Note

Rotate control motor until it reaches a convenient position for installation. The direction of rotation can be changed by changing polarities.

- Read event memory and erase any entries displayed. Then perform "basic setting" ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .



4.11 Removing and installing air distribution flap actuation unit

⇒ [“4.11.1 Removing and installing front air distribution flap actuator, electric/manual air conditioning system, left-hand drive vehicles”, page 105](#)

⇒ [“4.11.2 Removing and installing front air distribution flap actuator, electric/manual air conditioning system, right-hand drive vehicles”, page 106](#)

⇒ [“4.11.3 Removing and installing front air distribution flap actuation unit, Climatronic”, page 107](#)

⇒ [“4.11.4 Removing and installing front air distribution flap actuator, Climatronic, right-hand drive vehicles”, page 109](#)

4.11.1 Removing and installing front air distribution flap actuator, electric/manual air conditioning system, left-hand drive vehicles

Removing

- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Remove air duct for defroster vent ⇒ [page 176](#) .
- Unbolt air distribution flap control motor ⇒ [page 101](#) .
- Carefully press off actuating lever -7- -arrow-.
- Carefully press off actuating lever -3- from defroster flap lever -2-.
- Remove bolts -1-, -4- and -8-.
- Remove actuation unit -9- upwards.

Installing

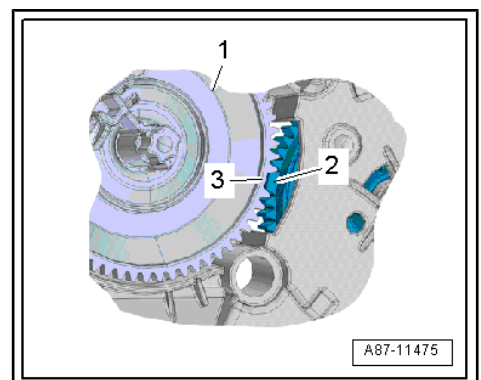
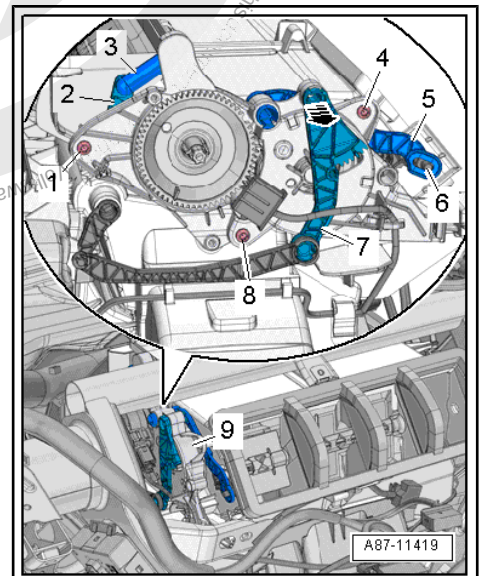
Install in reverse order of removal. Observe the following:



Note

- ◆ *Check operation of flaps and hinge mechanism before fitting.*
- ◆ *Make sure levers and shafts are properly fitted in the mounts.*

- Check that the two gear wheels are correctly aligned.
- The rectangular tooth -2- must engage in the gap -3- of the gear wheel -1-.

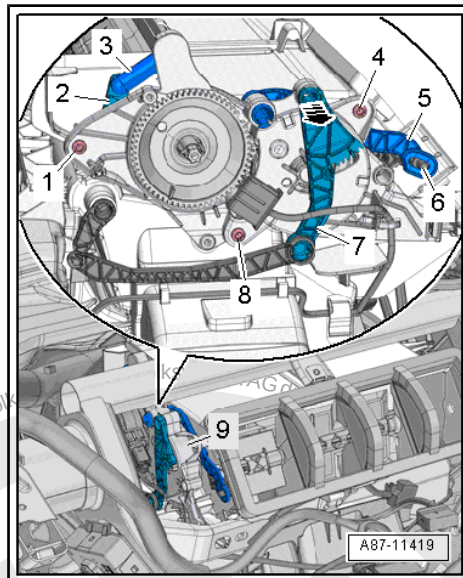




- When fitting actuation unit, actuating lever -5- must engage in lever -6- of centre vent flap.

Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .



4.11.2 Removing and installing front air distribution flap actuator, electric/manual air conditioning system, right-hand drive vehicles

Removing

- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Remove air duct for defroster vent ⇒ [page 176](#) .
- Unbolt air distribution flap control motor ⇒ [page 101](#) .
- Carefully press off actuating lever -7- -arrow-.
- Carefully press off actuating lever -3- from defroster flap lever -2-.
- Remove bolts -1-, -4- and -8-.
- Remove actuation unit -9- upwards.

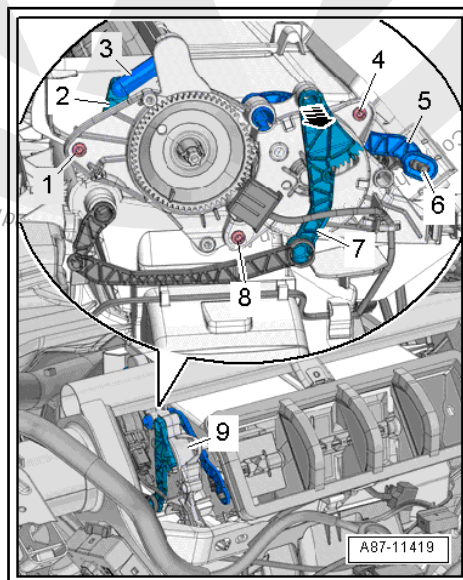
Installing

Install in reverse order of removal. Observe the following:



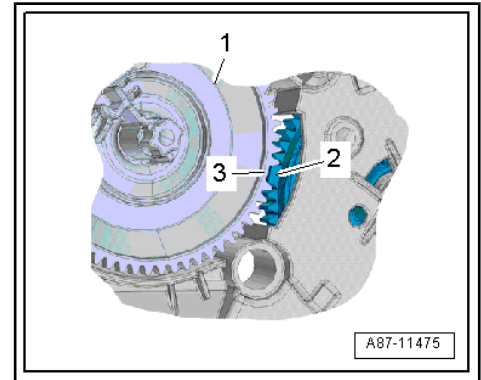
Note

- ◆ *Check operation of flaps and hinge mechanism before fitting.*
- ◆ *Make sure levers and shafts are properly fitted in the mounts.*





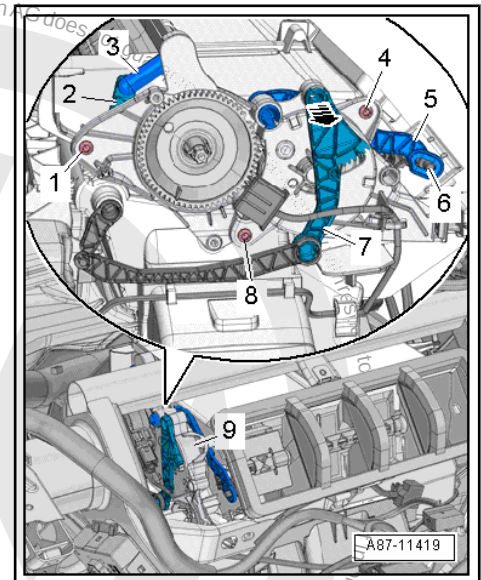
- Check that the two gear wheels are correctly aligned.
- The rectangular tooth -2- must engage in the gap -3- of the gear wheel -1-.



- When fitting actuation unit, actuating lever -5- must engage in lever -6- of centre vent flap.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Assembly overview - dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Assembly overview - dash panel central tube



4.11.3 Removing and installing front air distribution flap actuation unit, Climatronic

Removing

- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Remove air duct for defroster vent ⇒ [page 176](#)
- Unbolt air distribution flap control motor ⇒ [page 96](#) .



- Carefully press off actuating lever -5- -arrow-.
- Remove bolts -1-, -2- and -6-.
- Remove actuation unit -7- upwards.

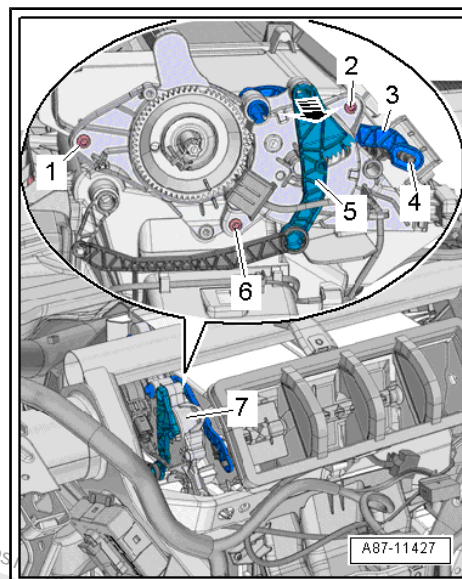
Installing

Install in reverse order of removal. Observe the following:

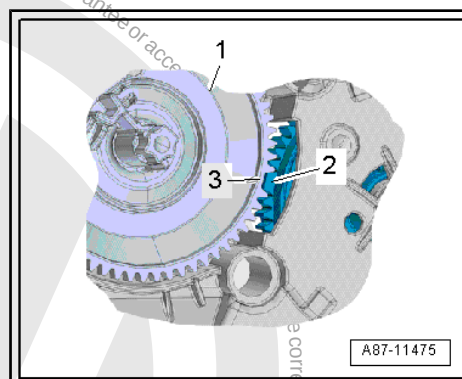


Note

- ♦ Check operation of flaps and hinge mechanism before fitting.
- ♦ Make sure levers and shafts are properly fitted in the mounts.



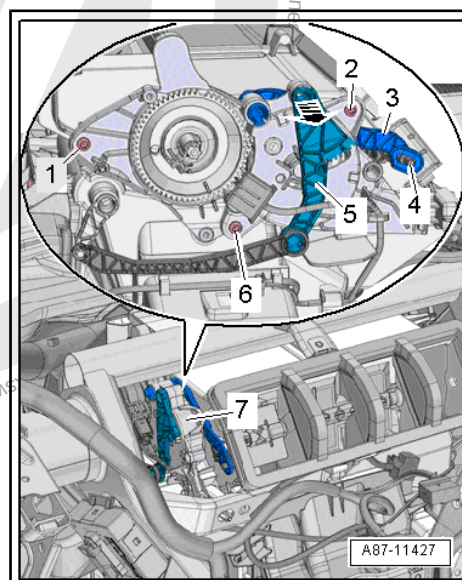
- Check that the two gear wheels are correctly aligned.
- The rectangular tooth -2- must engage in the gap -3- of the gear wheel -1-.



- When fitting actuation unit, actuating lever -3- must engage in lever -4- of centre vent flap.

Specified torques

- ♦ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ♦ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .





4.11.4 Removing and installing front air distribution flap actuator, Climatronic, right-hand drive vehicles

Removing

- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Remove air duct for defroster vent ⇒ [page 176](#) .
- Unbolt air distribution flap control motor ⇒ [page 96](#) .
- Carefully press off actuating lever -5- -arrow-.
- Remove bolts -1-, -2- and -6-.
- Remove actuation unit -7- upwards.

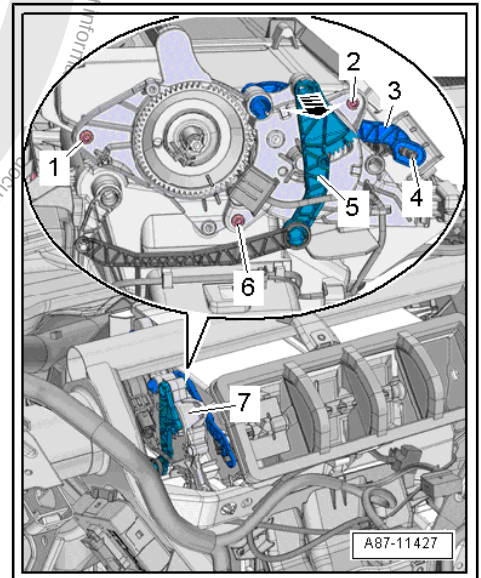
Installing

Install in reverse order of removal. Observe the following:

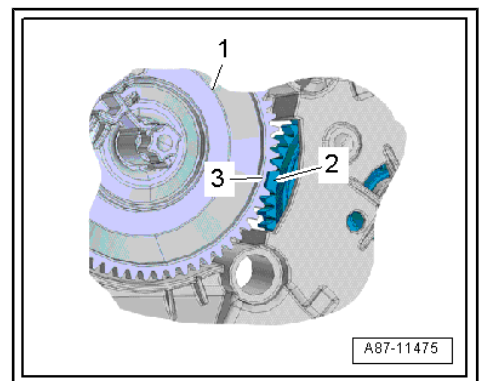


Note

- ◆ Check operation of flaps and hinge mechanism before fitting.
- ◆ Make sure levers and shafts are properly fitted in the mounts.



- Check that the two gear wheels are correctly aligned.
- The rectangular tooth -2- must engage in the gap -3- of the gear wheel -1-.

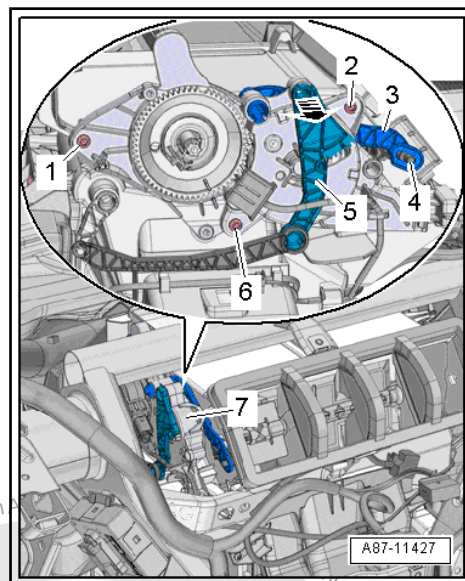




- When fitting actuation unit, actuating lever -3- must engage in lever -4- of centre vent flap.

Specified torques

- ♦ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ♦ Assembly overview - dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Assembly overview - dash panel central tube





5 Front heater and air conditioning unit

⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

⇒ ["5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box", page 116](#)

⇒ ["5.3 Assembly overview - evaporator housing", page 118](#)

⇒ ["5.4 Assembly overview - flaps and partitions in air distribution housing", page 119](#)

⇒ ["5.5 Removing and installing heater and air conditioning unit", page 122](#)

⇒ ["5.6 Dismantling and assembling heater and air conditioning unit", page 126](#)

⇒ ["5.7 Removing and installing air distribution housing", page 128](#)

⇒ ["5.8 Removing and installing holder for heater and air conditioning unit", page 128](#)

⇒ ["5.9 Removing and installing evaporator", page 129](#)

⇒ ["5.10 Removing and installing fresh air blower control unit J126", page 131](#)

⇒ ["5.11 Removing and installing dust and pollen filter", page 132](#)

⇒ ["5.12 Removing and installing fresh air blower V2", page 134](#)

⇒ ["5.13 Checking auxiliary air heater element Z35 with auxiliary air heater control unit J604", page 135](#)

⇒ ["5.14 Removing and installing auxiliary air heater element Z35 with auxiliary air heater control unit J604", page 137](#)

⇒ ["5.15 Removing and installing heat exchanger", page 139](#)

⇒ ["5.16 Removing and installing coolant pipes on heat exchanger", page 156](#)

⇒ ["5.17 Removing and installing evaporator temperature sensor G308", page 158](#)

⇒ ["5.18 Checking condensation drain", page 160](#)

⇒ ["5.19 Removing and installing condensation drain", page 161](#)

⇒ ["5.20 Removing and installing baffle plate", page 165](#)

5.1 Assembly overview - heater and air conditioning unit

⇒ ["5.1.1 Assembly overview - heater and air conditioning unit, Climatronic", page 111](#)

5.1.1 Assembly overview - heater and air conditioning unit, Climatronic

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.



Note

- ◆ There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical. The combined fitting of different makes of component is therefore not permissible ⇒ Electronic parts catalogue (ETKA) .
- ◆ The following illustrations show a "Valeo" heater/air conditioning unit, distinguishing features with respect to other makes ⇒ [page 4](#) .

Assembly overview - heater and air conditioning unit, flap control (left side)

1 - Air distribution flap control motor

- ❑ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

Electrical/manual air conditioning system

Air distribution flap control motor - V428- with potentiometer for air distribution flap control motor - G645-

- ❑ Removing and installing ⇒ [page 101](#)

Climatronic

- ❑ Front air distribution flap control motor - V426- with potentiometer for front air distribution flap control motor - G642-
- ❑ Removing and installing ⇒ [page 96](#)

2 - Bolt

- ❑ Qty. 9
- ❑ 1 Nm

3 - Defroster and air distribution flap actuation unit

- ❑ Only on vehicles with air conditioning system with electric/manual controls

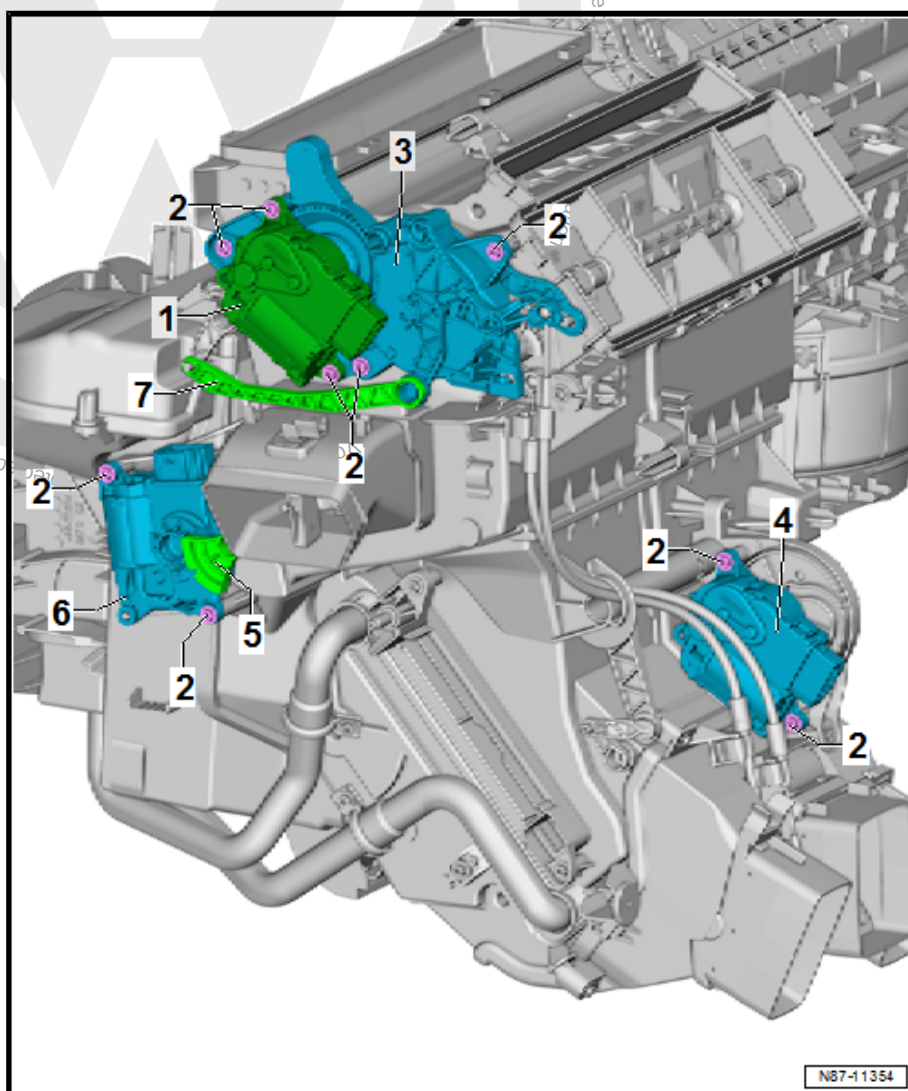
- ❑ Removing and installing ⇒ [page 105](#)

4 - Rear temperature flap motor - V137-

- ❑ Removing and installing ⇒ [page 90](#)
- ❑ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations

5 - Operating lever

- ❑ For warm air flap





6 - Temperature flap control motor

- ☐ Check with ➤ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➤ Current flow diagrams, Electrical fault finding and Fitting locations

Electrical/manual air conditioning system

- ☐ Temperature flap control motor - V68- with potentiometer for temperature flap control motor - G92-
- ☐ Removing and installing ➤ [page 72](#)

Climatronic

- ☐ Left temperature flap control motor - V158- with potentiometer for left temperature flap control motor - G220-
- ☐ Removing and installing ➤ [page 83](#)

7 - Operating lever

- ☐ For actuation of defroster and air distributor flap

Assembly overview - heater and air conditioning unit, flap control (right side)

1 - Heater and air conditioning unit

- ☐ Removing and installing ➤ [page 122](#)

2 - Operating lever

- ☐ For defroster flap

3 - Bolt

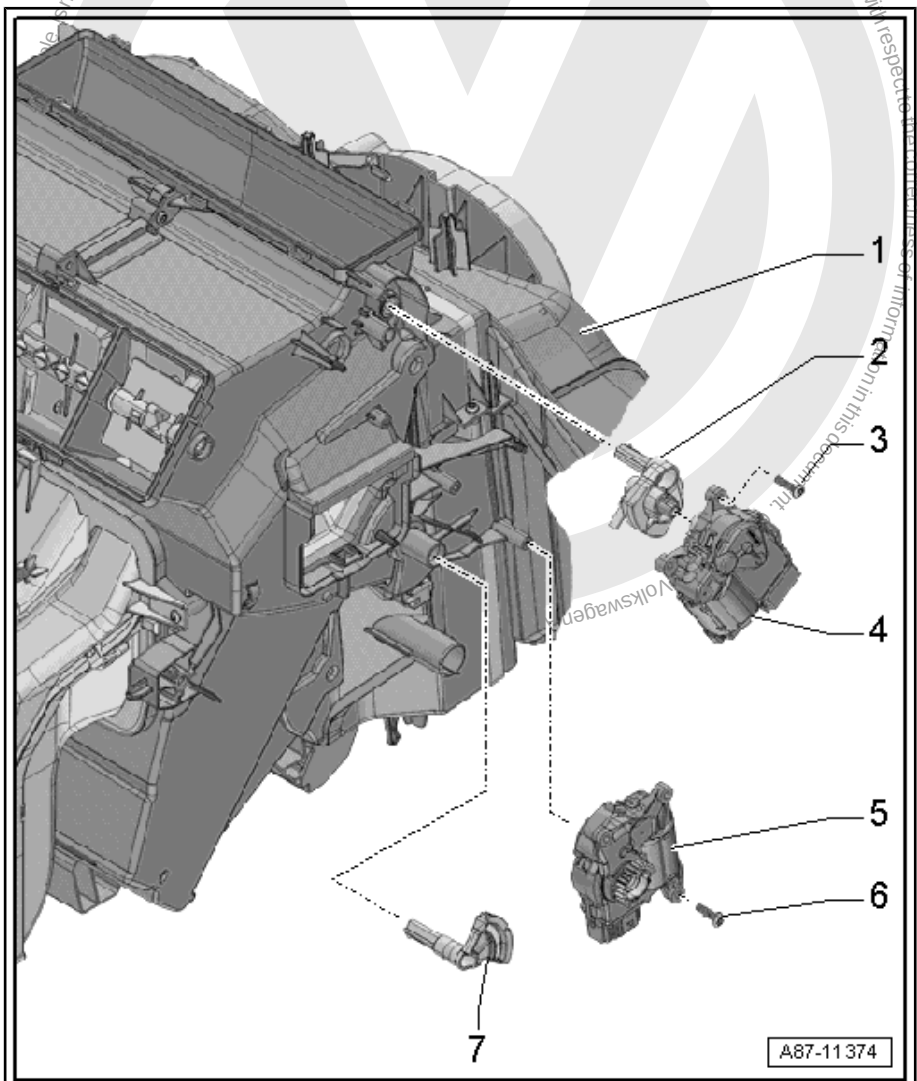
- ☐ Qty. 2
- ☐ 1 Nm

4 - Defroster flap control motor - V107-

- ☐ With potentiometer for defroster flap control motor - G135-
- ☐ Only vehicles with Climatronic.
- ☐ Check with ➤ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➤ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ➤ [page 75](#)

5 - Right temperature flap control motor - V159-

- ☐ With potentiometer for right temperature flap control motor - G221-
- ☐ Only vehicles with Climatronic.
- ☐ Check with ➤ Vehicle diagnostic tester in "Guided Fault Finding" mode and ➤ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ➤ [page 87](#)





6 - Bolt

- ☐ Qty. 2
- ☐ 1 Nm

7 - Operating lever

- ☐ For warm air flap

Assembly overview - heater and air conditioning unit, heat exchanger, auxiliary air heater element



Note

- ♦ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87; Refrigerant circuit; Renewing components .
- ♦ In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00; Renewing components .

The illustration shows a Valeo heater unit in a left-hand drive vehicle.

1 - Bolt

- ☐ 6 Nm

2 - Coolant pipe with heat exchanger

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Coolant supply from engine
- ☐ Removing and installing ⇒ [page 139](#)

3 - Clip

4 - Coolant pipe with heat exchanger

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Coolant return to the engine
- ☐ Removing and installing ⇒ [page 139](#)

5 - Seal

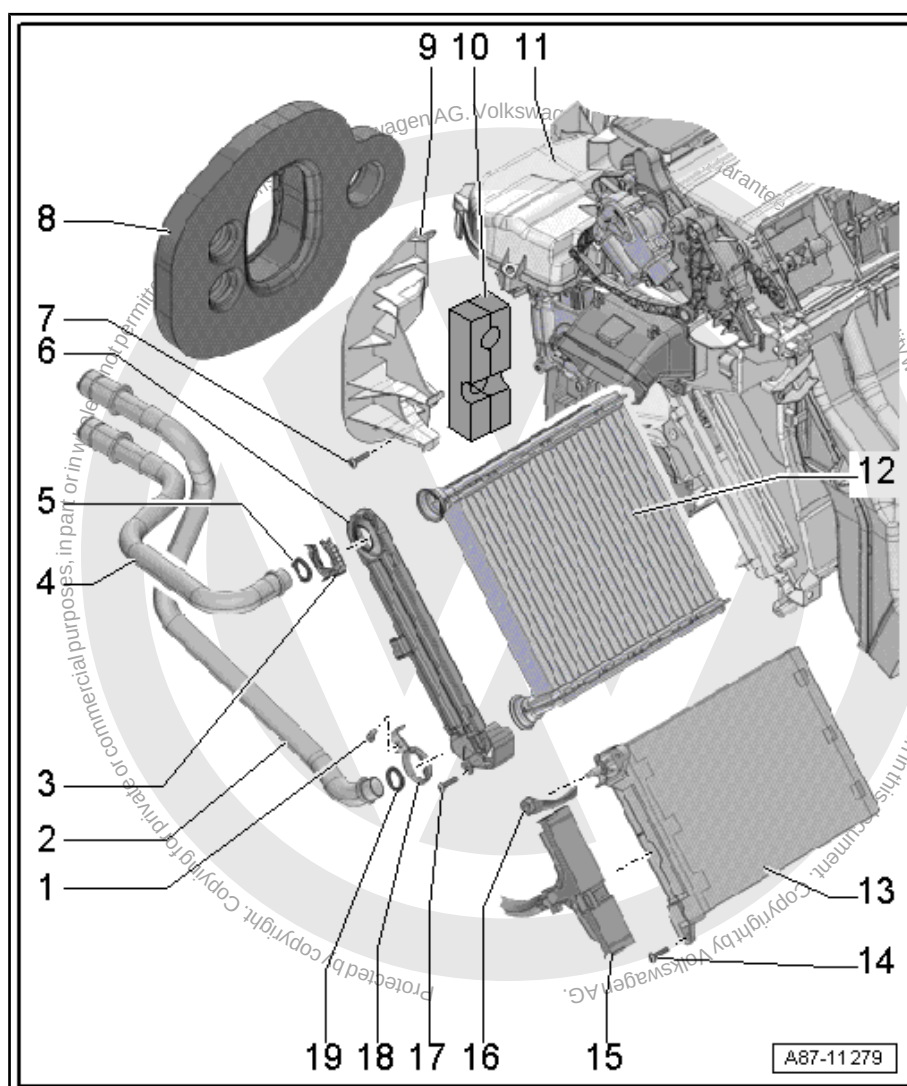
- ☐ Renew after removal
- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)

6 - Cover

- ☐ For heat exchanger

7 - Bolt

- ☐ 2 Nm





8 - Foam spacer

- ☐ For sealing and insulation
- ☐ Observe installation position

9 - Bracket

- ☐ For coolant pipes

10 - Foam

- ☐ For insulation
- ☐ Observe installation position

11 - Heater and air conditioning unit

- ☐ On vehicles without auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- the opening for the auxiliary air heater element - Z35- is closed.
- ☐ Removing and installing ⇒ [page 122](#)
- ☐ Dismantling and assembling ⇒ [page 126](#)

12 - Heat exchanger

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Removing and installing ⇒ [page 139](#)

13 - Auxiliary air heater element - Z35- with auxiliary air heater control unit - J604-

- ☐ Checking activation ⇒ [page 135](#)
- ☐ Removing and installing ⇒ [page 137](#)

14 - Bolt

- ☐ Qty. 2
- ☐ 2 Nm

15 - Wire

- ☐ For auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- .

16 - Earth cable

- ☐ For auxiliary heater
- ☐ Nut 9 ± 1 Nm

17 - Bolt

- ☐ Qty. 3
- ☐ 2 Nm

18 - Screw-type clamp

19 - Seal

- ☐ Renew after removal
- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)



5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box



Note

- ◆ There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical. The combined fitting of different makes of component is therefore not permissible ⇒ *Electronic parts catalogue (ETKA)*.
- ◆ The following illustration shows a "Valeo" air intake box, distinguishing features with respect to other makes of heater and air conditioning unit ⇒ [page 4](#).

1 - Plastic bolt or plug depending on version

- ☐ Qty. 2
- ☐ 0.3 Nm

2 - Plate

- ☐ Removing and installing
⇒ [page 165](#)

3 - Upper part of housing for fresh air blower

4 - Bolt

- ☐ Qty. 2
- ☐ 1 Nm

5 - Air intake duct

- ☐ With fresh air and air recirculation flap
- ☐ Different versions ⇒ *Electronic parts catalogue (ETKA)*
- ☐ Removing and installing
⇒ [page 170](#)
- ☐ Do not dismantle.

6 - Fresh air and air recirculation flap actuation unit

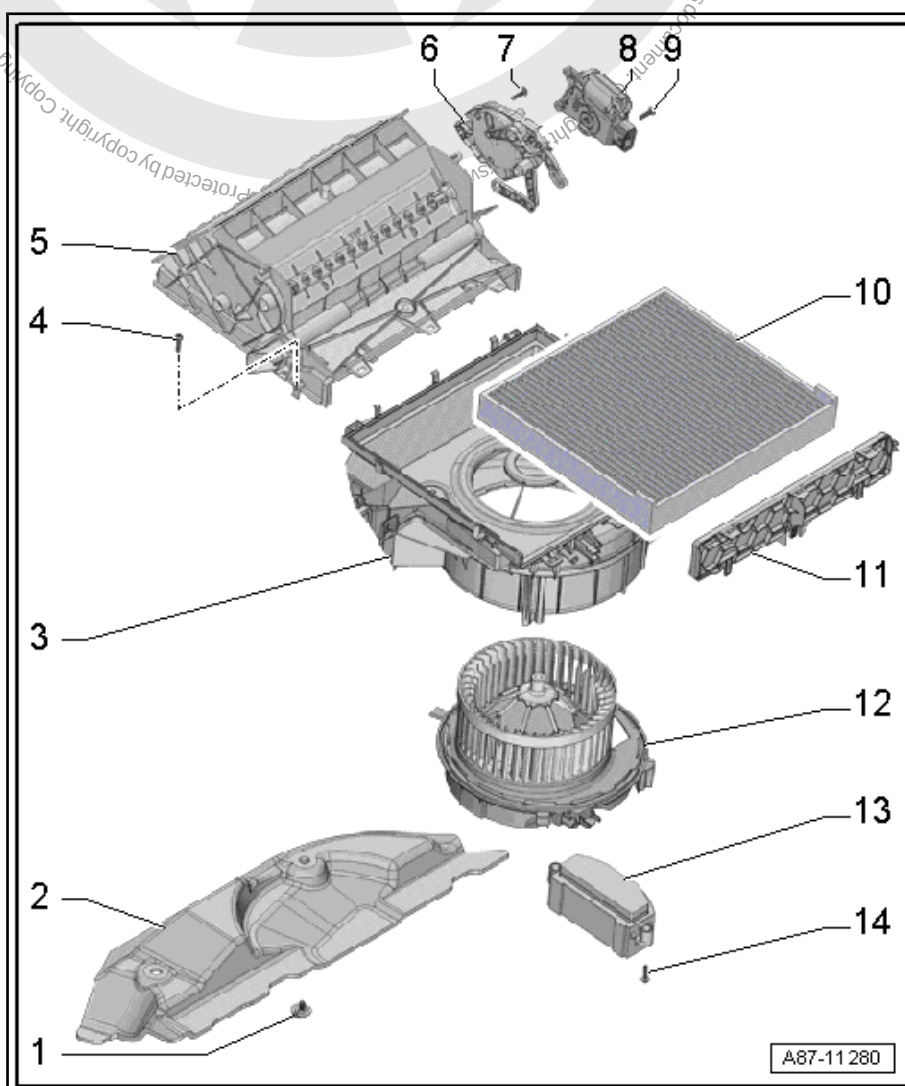
- ☐ Only vehicles with Climatronic.
- ☐ Removing and installing
⇒ [page 105](#)

7 - Bolt

- ☐ Only vehicles with Climatronic.
- ☐ Qty. 2
- ☐ 1 Nm

8 - Servo motor

- ☐ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations





Electrical/manual air conditioning system

- ☐ Air recirculation flap control motor - V113- without potentiometer; with limit switches at end stops ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ⇒ [page 79](#)

Climatronic

- ☐ Control motor for fresh air/air recirculation flap and air flow flap - V425- with potentiometer for fresh air/recirculated air, air flow flap control motor - G644-
- ☐ Removing and installing ⇒ [page 91](#)

9 - Bolt

- ☐ Qty. 2
- ☐ 1 Nm

10 - Dust and pollen filter

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Change interval ⇒ Maintenance tables
- ☐ Removing and installing ⇒ [page 132](#)

11 - Cover

- ☐ For dust and pollen filter

12 - Fresh air blower - V2-

- ☐ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ⇒ [page 134](#)

13 - Fresh air blower control unit - J126-

- ☐ Check with ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Removing and installing ⇒ [page 131](#)

14 - Bolt

- ☐ Qty. 2
- ☐ 1 Nm



5.3 Assembly overview - evaporator housing



Note

- ◆ *There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical. The combined fitting of different makes of component is therefore not permissible ⇒ Electronic parts catalogue (ETKA) .*
- ◆ *The following illustration shows a "Valeo" evaporator housing, distinguishing features with respect to other makes of heater and air conditioning unit ⇒ [page 4](#) .*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with refrigerant R1234yf; Rep. gr. 87 ; Refrigerant circuit; Renewing components .*
- ◆ *In some cases, it is no longer necessary on air conditioning systems with R134a refrigerant to renew the desiccant bag each time the refrigerant circuit is opened ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Renewing components .*
- ◆ *The illustration shows a left-hand drive vehicle.*





1 - Sealing and insulation

- ☐ Heat insulation for expansion valve

2 - Sealing and insulation

- ☐ Heat insulation for expansion valve

3 - Bolt

- ☐ Qty. 2
- ☐ 10 Nm

4 - Expansion valve

- ☐ Removing and installing
⇒ [page 23](#)

5 - Retainer

- ☐ Only with air conditioning system
- ☐ For securing refrigerant lines and expansion valve

6 - Evaporator housing, upper part

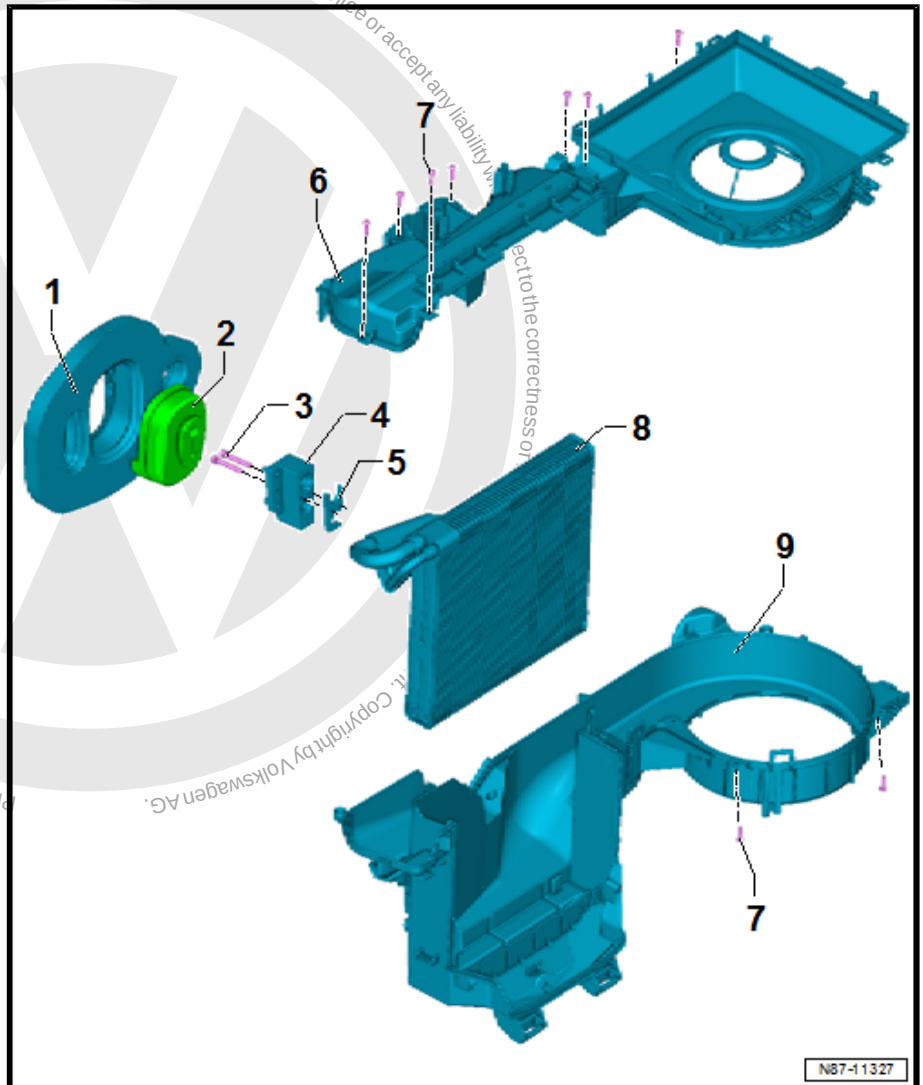
7 - Bolts

- ☐ 1.5 Nm

8 - Evaporator

- ☐ Check foam seals for damage and proper attachment
- ☐ Removing and installing
⇒ [page 129](#)

9 - Evaporator housing, lower part



5.4 Assembly overview - flaps and partitions in air distribution housing

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

View from front



Note

- ◆ -Arrow- = direction of travel
- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#).



1 - Right heated air flap

- ☐ From heat exchanger
- ☐ Actuated via right cold air flap

2 - Operating lever

- ☐ For flap control

3 - Right cold air flap

- ☐ From evaporator
- ☐ Various versions

Electrical/manual air conditioning system

- ☐ Actuated jointly via shaft of left cold air flap by temperature flap control motor -V68- via left actuating lever

Climatronic

- ☐ Actuated by temperature flap control motor - V159- via right actuating lever

4 - Actuating lever on right of temperature control flap

- ☐ Only vehicles with Climatronic.
- ☐ Equipment version
- ☐ Actuated by temperature flap control motor - V159-

5 - Actuating lever of flap for "defrost".

- ☐ Only vehicles with Climatronic.
- ☐ To windscreen and door windows
- ☐ Equipment version
- ☐ Actuated by defroster flap control motor -V107-

6 - Actuating lever of flap for "defrost".

- ☐ Only on vehicles with air conditioning system with electric/manual controls
- ☐ To windscreen and door windows
- ☐ Equipment version
- ☐ Actuated by air distribution flap control motor -V428- via defroster and air distribution actuation unit

7 - Air distribution flap actuating lever

Electrical/manual air conditioning system

- ☐ Actuated by air distribution flap control motor -V428- via defroster and air distribution actuation unit

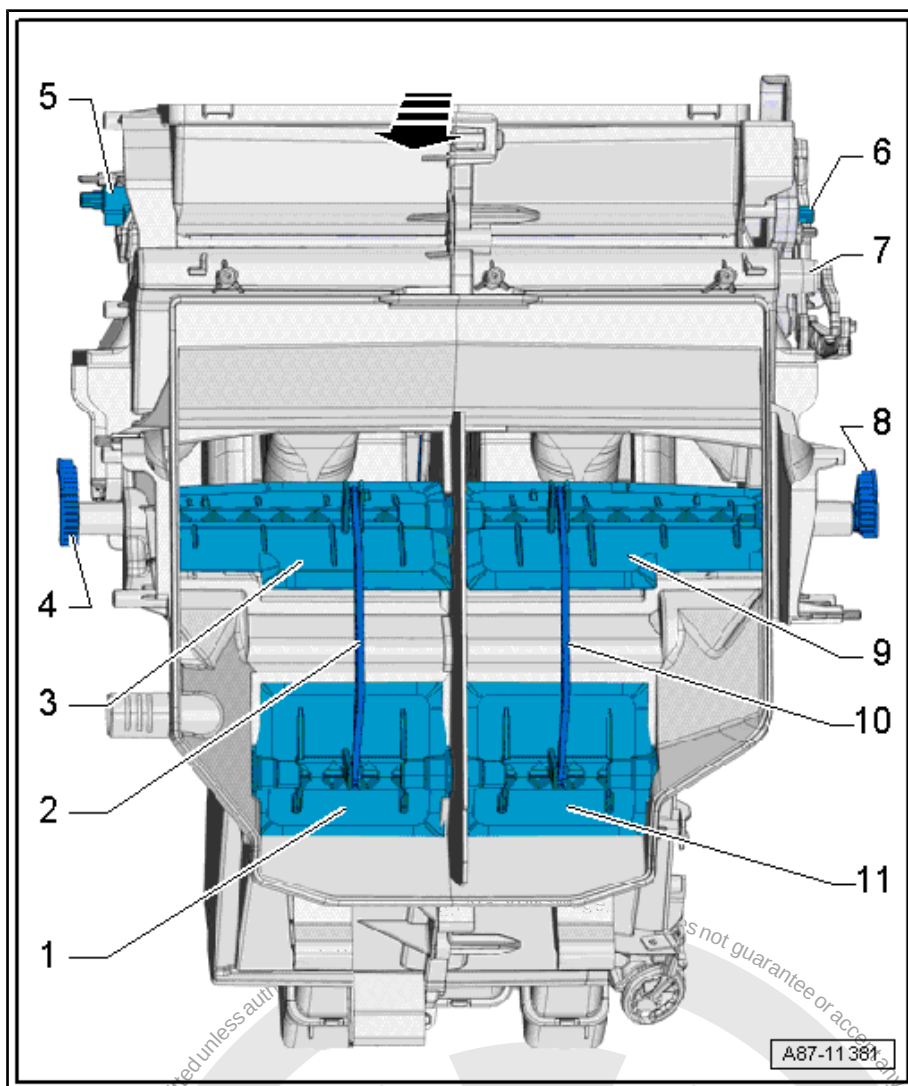
Climatronic

- ☐ Actuated by front air distribution flap control motor -V426- via defroster and air distribution actuation unit

8 - Left actuating lever

Electrical/manual air conditioning system

- ☐ Actuated by temperature flap control motor -V68-





Climatronic

- ☐ Actuated by temperature flap control motor -V158-

9 - Left cold air flap

- ☐ From evaporator
- ☐ Various versions

Electrical/manual air conditioning system

- ☐ Actuated by temperature flap control motor -V68- via left actuating lever

Climatronic

- ☐ Actuated by temperature flap control motor -V158- via left actuating lever

10 - Operating lever

- ☐ For flap control

11 - Left heated air flap

- ☐ From heat exchanger
- ☐ Actuated via left cold air flap

View from rear



Note

- ◆ -Arrow- = direction of travel
- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#) .



1 - Flap for rear air duct

- ☐ Equipment version

Electrical/manual air conditioning system

- ☐ The air duct is sealed with a plug
- ☐ Dependant on manufacture, not always fitted for electrically/manually controlled air conditioning systems (not needed as air duct is sealed off)

Climatronic (depending on vehicle)

- ☐ For rear vent in centre console.

2 - Operating lever

- ☐ For flap control
- ☐ Equipment version with Climatronic
- ☐ -1- not always fitted on electric/manual air conditioning systems.

3 - Left flap for left dash panel vent

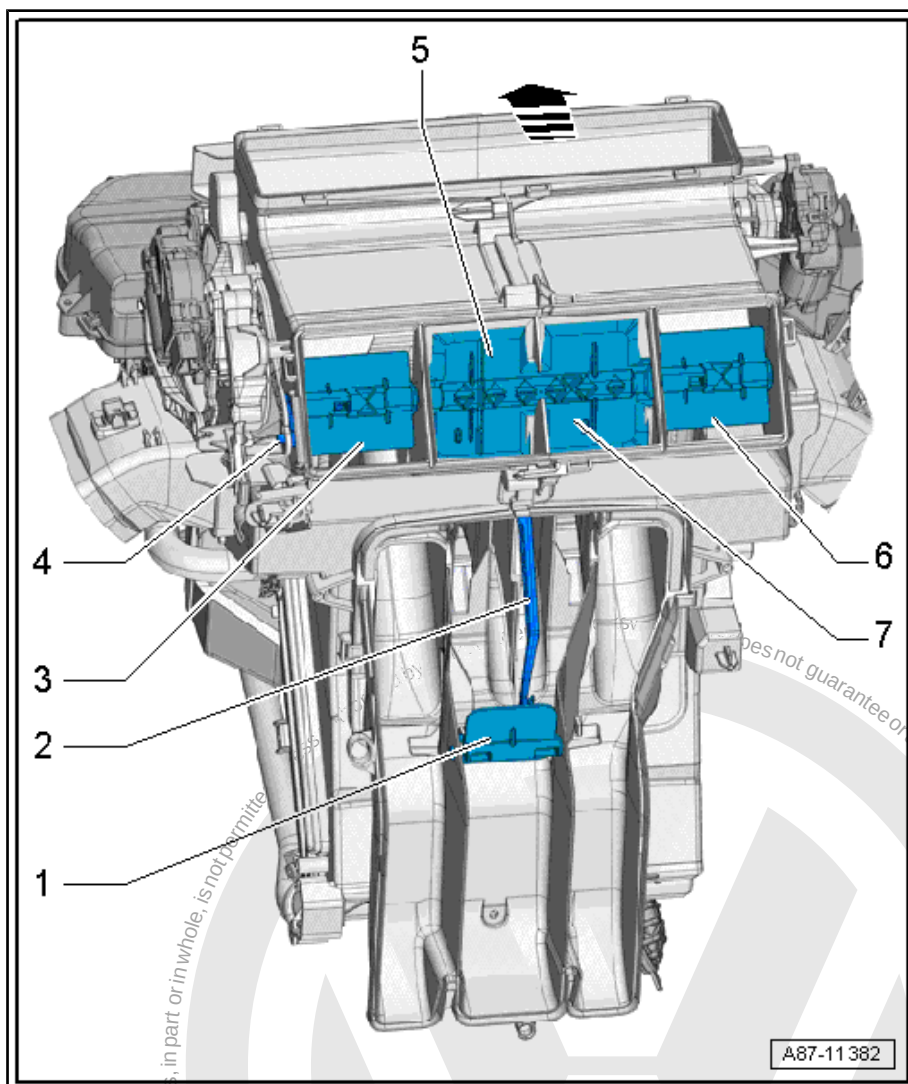
4 - Operating lever

- ☐ For actuation of vent flaps
- ☐ Actuated via actuation unit
⇒ [Item 3 \(page 112\)](#) .

5 - Left flap for centre dash panel vent

6 - Right flap for right dash panel vent

7 - Right flap for centre dash panel vent



5.5 Removing and installing heater and air conditioning unit

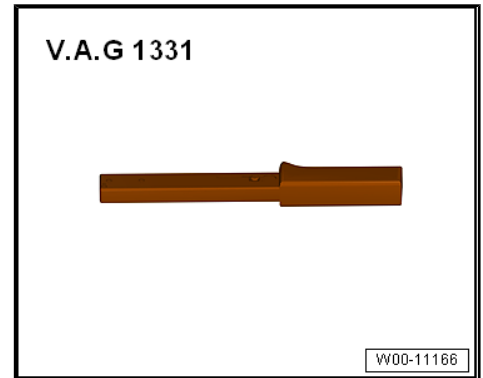
Special tools and workshop equipment required

- ◆ Hose clamps to 25 mm - 3094-

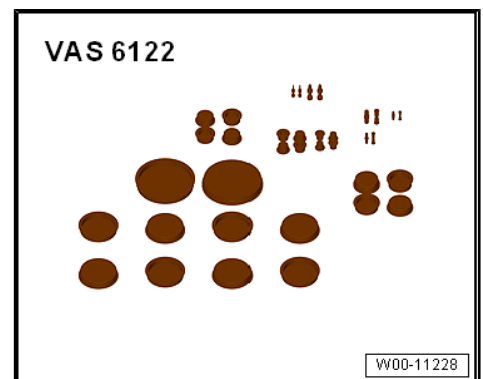




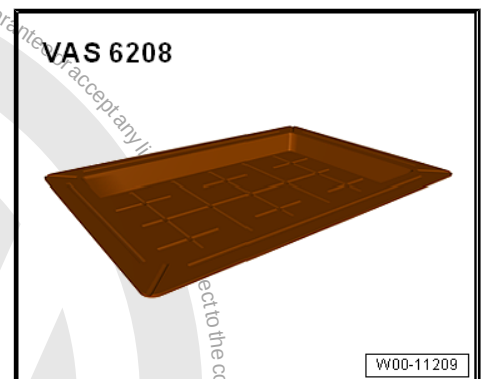
- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Compressed air gun

Removing

Vehicles with 176 kW TDI bi-turbo engine

- Remove low-pressure turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Removing and installing turbocharger .

All vehicles

- If necessary, remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- If necessary, remove air filter housing ⇒ Rep. gr. 23 ; Air filter; Assembly overview - air filter housing .
- Disconnect the refrigerant line with internal heat exchanger at the expansion valve ⇒ [page 43](#) .
- For any further work, immediately seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Place drip tray for workshop hoist - VAS 6208- beneath engine.



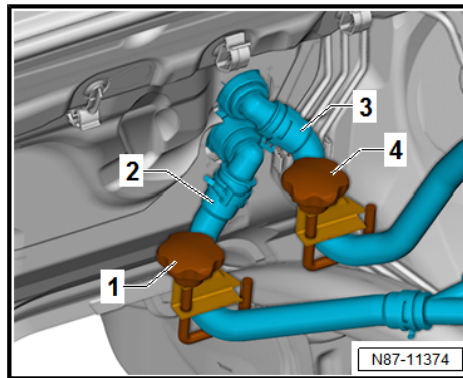
- Mark coolant hoses -2- and -3- so that they can be reconnected to proper sides again later. The heat exchanger is designed for a certain direction of coolant flow only.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094-1- and -4-.

⚠ CAUTION

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

Skin and other parts of the body may be scalded.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.



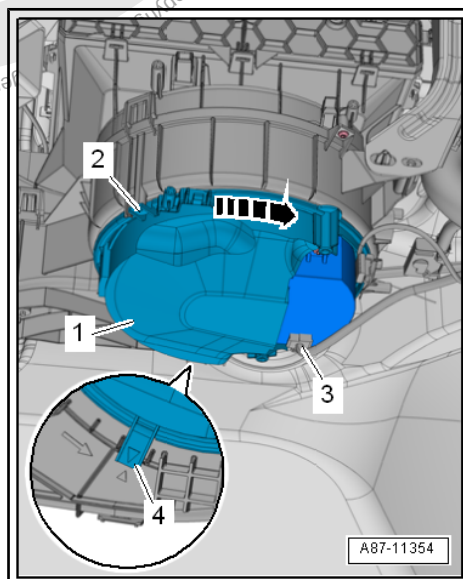
- Lift up retaining clips.
- Remove coolant hoses.
- Push a piece of hose onto upper union.
- Insert compressed air gun into end of hose.
- Place a container under the lower union and carefully blow coolant out of the heat exchanger with a compressed air pistol.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 - Dash panel central tube; Removing and installing dash panel central tube .
- If necessary, remove the air duct to the rear vent ⇒ [page 174](#) .
- Lift rear footwell vents under front seats and pull them towards rear to ease removal of footwell vents from heater and air conditioning unit.
- Remove rear footwell vents from heater and air conditioning unit.
- Remove baffle plate ⇒ [page 165](#) .



Note

Disregard items -1- and -2-.

- Disconnect electrical connector -3-.





Note

Disregard items -1, 2, 3- and -4-.

- Disconnect electrical connector -5-.
- Cover floor covering and airbag control unit - J234- in interior of vehicle with a waterproof sheet and absorbent paper.
- If fitted, detach cable ties around condensation drain -2-.
- Carefully pull condensation drain hose -2- off heater and air conditioning unit -1-.
- Pull heater and air conditioning unit -1- off retainers on plenum chamber bulkhead.
- Unhook electrical wiring harness -1- -arrows-.
- Remove wiring duct -2- from mountings -arrows-.
- Disconnect connectors on heater and air conditioner unit.



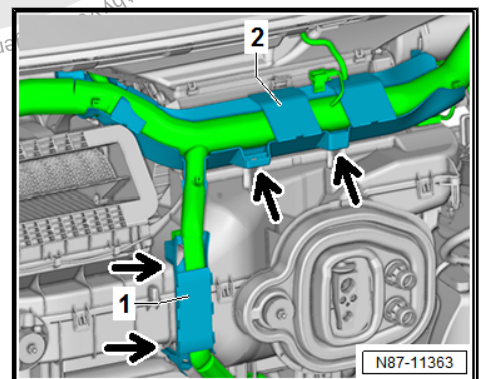
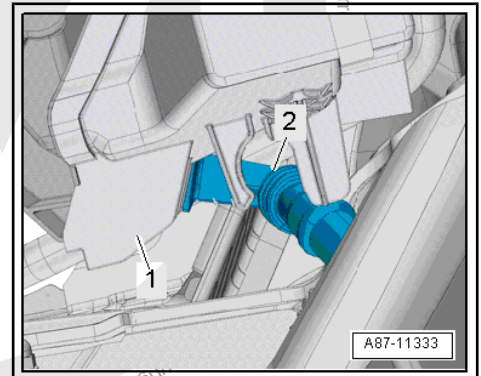
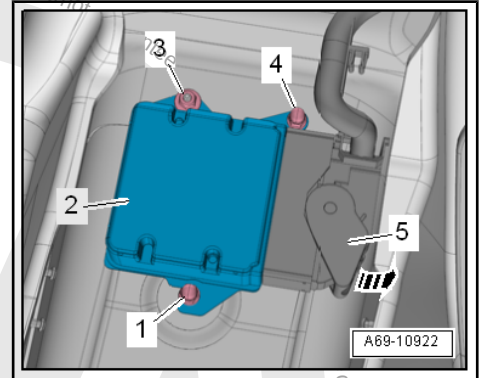
Note

The following work steps must be performed by a second mechanic.

- Remove heater and air conditioning unit to the side.

Installing

Install in reverse order of removal, observing the following:





- Ensure that the condensation drain hose -3- is properly seated.
- Coding -2- and -arrow- must align with heater and air conditioning unit -1-.
- If a commercially available cable tie was installed to retain the condensation drain -3-, then renew it.
- The condensation drain hose must be routed below the wiring harness of the airbag control unit - J234- -4- in the figure.
- Moisten new seals with refrigerant oil before installing refrigerant line.

NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Continued for all vehicles

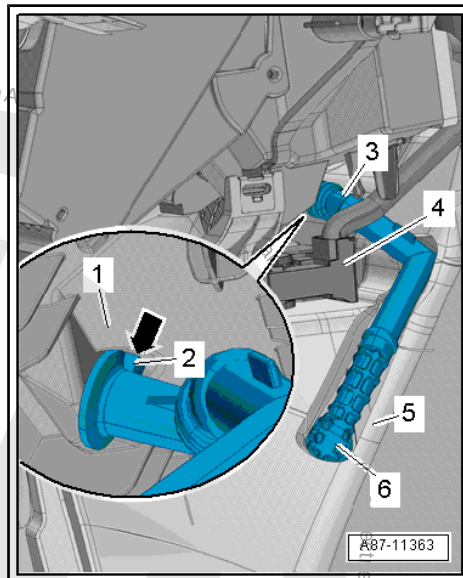
- Fill up with coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling coolant .
- Check operation of heater and air conditioning system.

Specified torques

- ♦ ⇒ [“2.1 System overview - refrigerant circuit”, page 17](#)
- ♦ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ♦ Air filter; Assembly overview - air filter housing ⇒ Rep. gr. 23 ; Air filter; Assembly overview - air filter housing
- ♦ Dash panel central tube; Assembly overview - dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Assembly overview - dash panel central tube .

5.6 Dismantling and assembling heater and air conditioning unit

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.





Note

- ◆ There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical. The combined fitting of different makes of component is therefore not permissible ⇒ Electronic parts catalogue (ETKA) .
- ◆ The following illustrations show a "Valeo" heater/air conditioning unit, distinguishing features with respect to other makes ⇒ [page 4](#) .

1 - Air distribution housing

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)
- ☐ Depending on vehicle equipment with or without auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- .

2 - Electrical wiring harness

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)

3 - Evaporator housing

4 - Bolt

- ☐ Qty. 3
- ☐ 1 Nm

5 - Left bracket

- ☐ For heater and air conditioning unit
- ☐ Removing and installing ⇒ [page 128](#)

6 - Nut

- ☐ 4.5 Nm

7 - Nut

- ☐ 4.5 Nm

8 - Right bracket

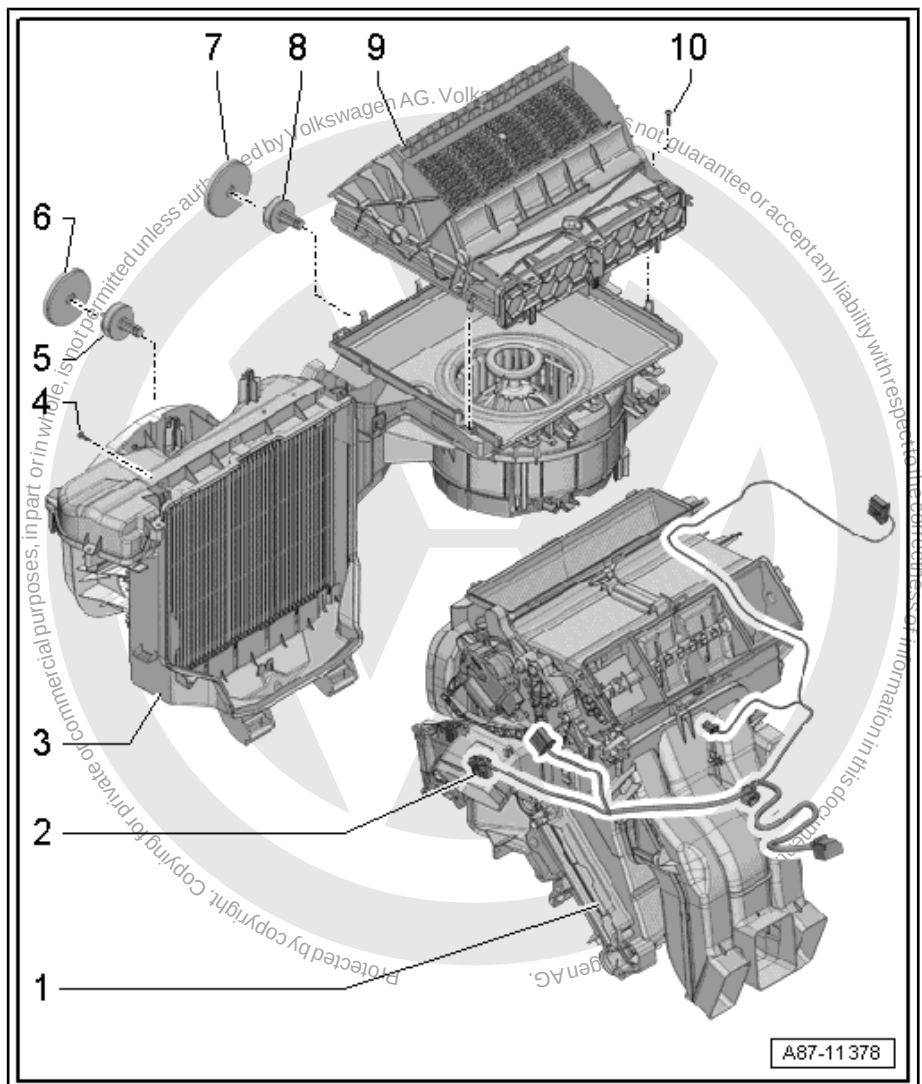
- ☐ For heater and air conditioning unit
- ☐ Removing and installing ⇒ [page 128](#)

9 - Air intake box

- ☐ Different versions ⇒ Electronic parts catalogue (ETKA)

10 - Bolt

- ☐ Qty. 2
- ☐ 1 Nm





5.7 Removing and installing air distribution housing

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

- Remove heater and air conditioning unit ➔ [page 122](#) .
- Remove coolant pipes on heat exchanger ➔ [page 156](#) .
- Separate electrical connector on fresh air and air recirculation flap control motor and lay wiring harness aside.
- Unscrew bolts -2-.
- Release retaining tabs -1- and -3-.
- Swivel air distribution housing -4- to rear -arrow- and disengage.

Installing

Install in reverse order of removal. Observe the following:

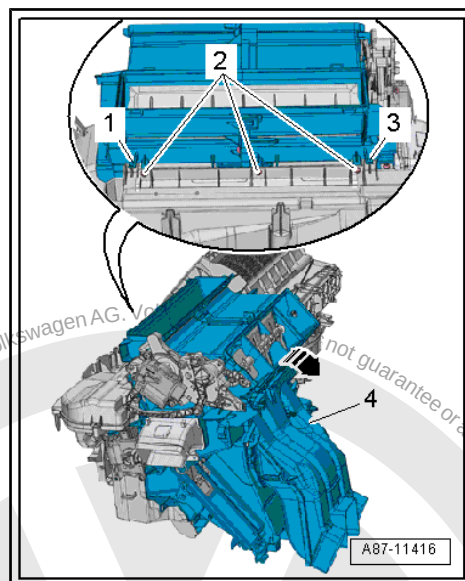


Note

The smallest leakage at the tongue-and-groove joint between the air distribution housing and the evaporator housing can lead to whistling noise from escaping air. Therefore lightly coat joints e.g. with silicone grease to fully seal the joints. Silicone grease ➔ Electronic parts catalogue (ETKA) .

Specified torques

- ♦ ➔ ["5.6 Dismantling and assembling heater and air conditioning unit", page 126](#)



5.8 Removing and installing holder for heater and air conditioning unit

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.



Note

Leave the holders in the vehicle on removing the heater and air conditioning unit.



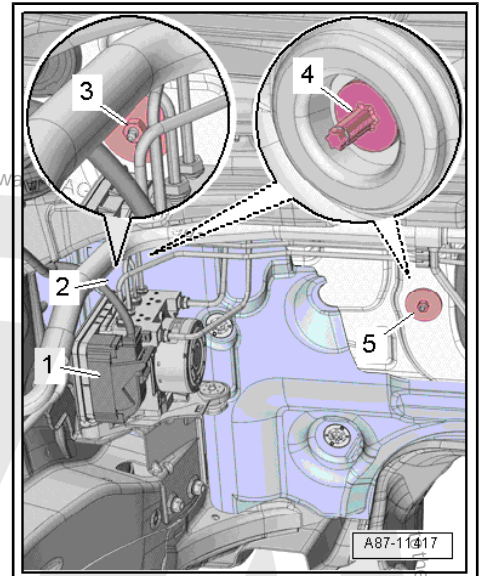
Removing

- Remove heater and air conditioning unit ➔ [page 122](#) .
- Separate electrical connector -1-.
- Fold aside heat shield -2- behind ABS unit.
- Unscrew nuts -3- and -5-.
- Detach holder -4- in interior.



Note

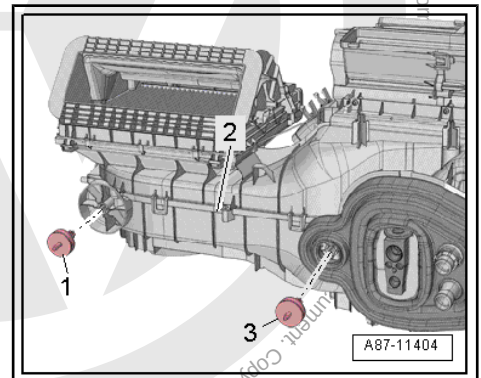
The refrigerant pipe with the internal heat exchanger must be removed if the nut above the ABS unit is not accessible as described ➔ [page 43](#) .



Installing

Install in reverse order of removal. Observe the following:

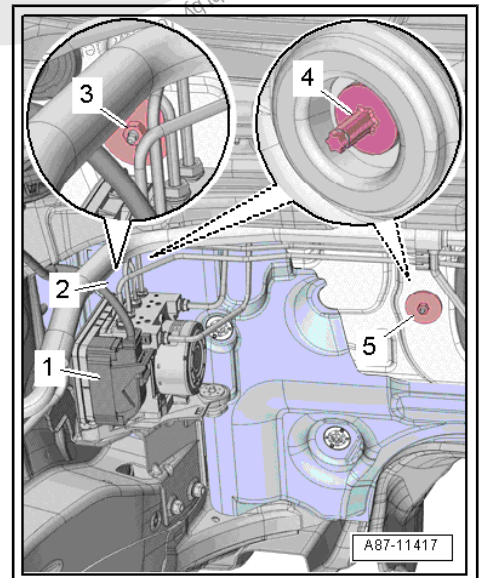
- Insert holders -1- and -3- into mounting on heater and air conditioning unit -2- and place heater and air conditioning unit in installation position.
- Install heater and air conditioning unit ➔ [page 122](#) .



- Tighten nuts -3- and -5- on holders.
- Install remaining components.
- Read event memory and clear any entries displayed using ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

Component	Specified torque
Nut	4.5 Nm



5.9 Removing and installing evaporator

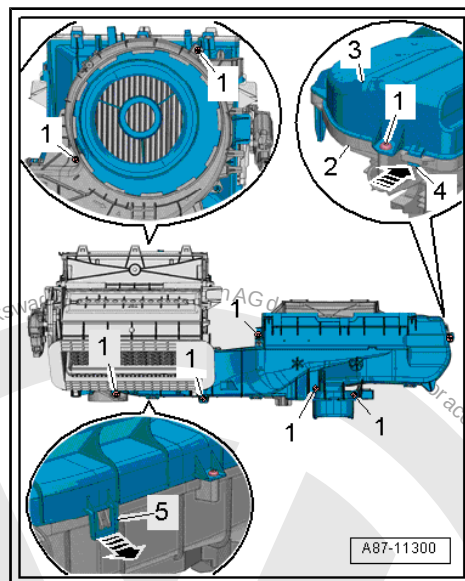
The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

- Remove heater and air conditioning unit ➔ [page 122](#) .



- Unscrew bolts -1-.
- Release retaining tabs -4- and -5- -arrows-.
- Detach the top part of the evaporator housing -3- from the bottom part -2-.

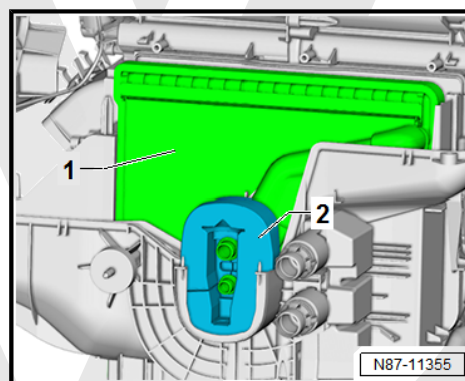


- Pull evaporator -1- out of lower part of evaporator housing.
- Remove seal/insulation -2-.
- Remove expansion valve ➔ [page 23](#) .
- Remove retaining plate for refrigerant lines.

Installing

Install in reverse order of removal, observing the following:

- If the new evaporator is not equipped with an expansion valve, the expansion valve from the old evaporator must be installed ➔ [page 23](#) .



Note

- ◆ *Even minute leakage at the tongue-and-groove joint between the top and bottom part of the evaporator housing can lead to whistling noise as a result of escaping air. Therefore lightly coat joints e.g. with silicone grease to fully seal the joints. Silicone grease ➔ Electronic parts catalogue (ETKA) .*
- ◆ *Before inserting evaporator, check condensate drain and clean if necessary.*
- ◆ *Before inserting, clean evaporator housing and, if necessary, evaporator.*

Specified torques

- ◆ ➔ [“5.3 Assembly overview - evaporator housing”, page 118](#)



5.10 Removing and installing fresh air blower control unit - J126-

⇒ [“5.10.1 Removing and installing fresh air blower control unit J126 , left-hand drive vehicles”, page 131](#)

⇒ [“5.10.2 Removing and installing fresh air blower control unit J126 , right-hand drive vehicles”, page 131](#)

5.10.1 Removing and installing fresh air blower control unit - J126- , left-hand drive vehicles

Removing

- Remove baffle plate ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .
- Disconnect electrical connectors -3- and -2-.
- Unscrew bolts -1-.

CAUTION

Risk of burns when touching hot cooling surface of control unit.
Risk of burns to the hands.
– Wear protective gloves.

- Remove fresh air blower control unit - J126- -4- from fresh air blower - V2- .

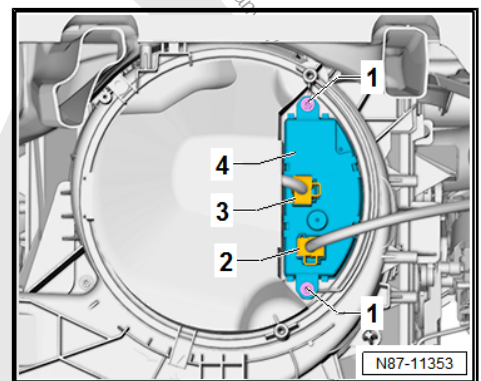
Installing

Install in reverse order of removal. Observe the following:

- Check operation of fresh air blower - V2- .

Specified torques

- ◆ ⇒ [“5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box”, page 116](#)



5.10.2 Removing and installing fresh air blower control unit - J126- , right-hand drive vehicles

Removing

- Remove baffle plate ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .

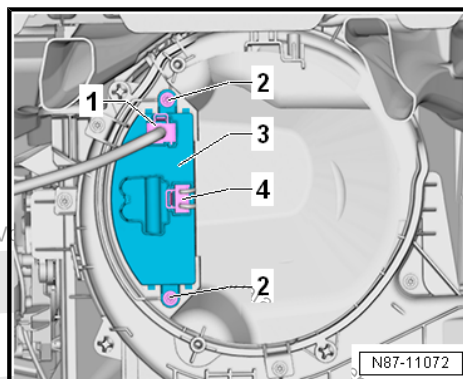


- Separate connectors -1- and -4-.
- Unscrew bolts -2-.

⚠ CAUTION

Risk of burns when touching hot cooling surface of control unit.
Risk of burns to the hands.

- Wear protective gloves.



- Remove control unit -3- from fresh air blower -V2- .

Installing

Install in reverse order of removal. Observe the following:

- Check operation of fresh air blower -V2- .

Specified torques

- ♦ ⇒ [“5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box”, page 116](#)

5.11 Removing and installing dust and pollen filter

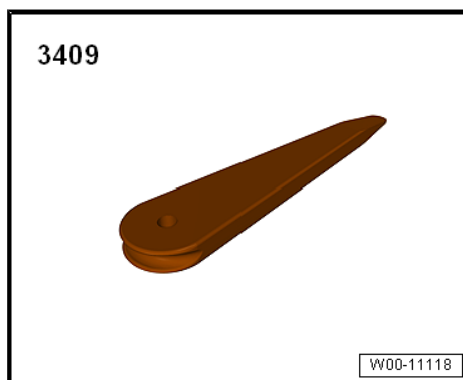
The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Special tools and workshop equipment required

- ♦ Commercially available vacuum cleaner
- ♦ Cover plate - T10532-



- ♦ Removal wedge - 3409-

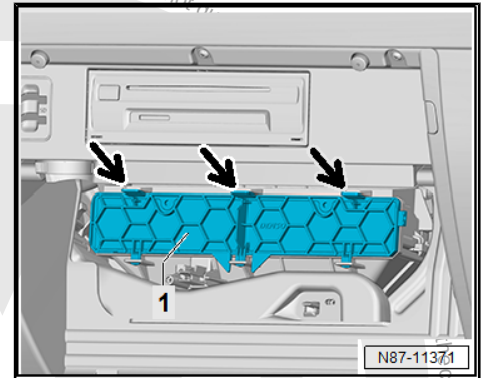


Removing

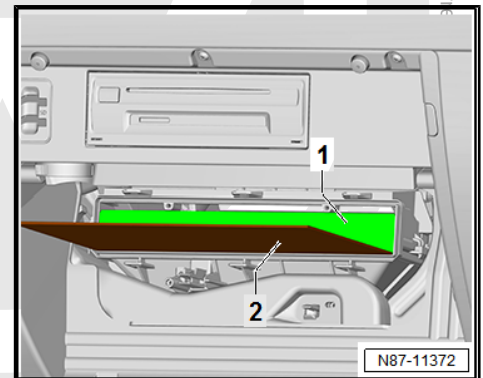
- Move glove compartment lid to service position ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments and covers; Glove compartment lid, service position .



- If necessary, remove insulation.
- Release cover -1- -arrows-.
- Take off cover -1-.



- Push cover plate - T10532- -2- under pollen filter -1-.



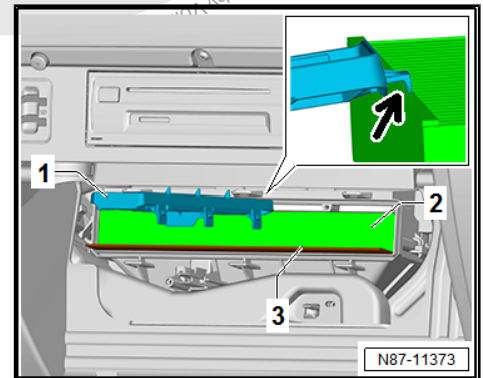
- Use cover -1- as a tool and hook the hooks on the side of the cover -arrow- into the dust and pollen filter -2-.



NOTICE

Risk of damage to fresh air blower caused by dirt dropping out of the dust and pollen filter when the cover plate is not seated properly.

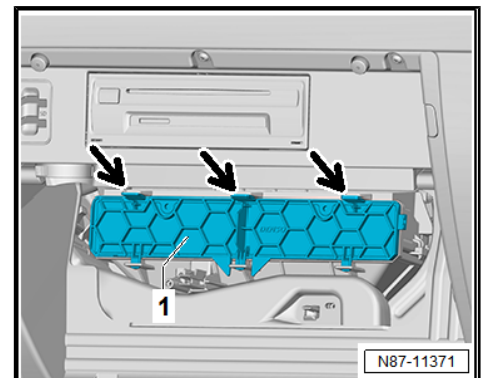
- Carefully pull out dust and pollen filter.
- Keep dust and pollen filter covered by cover plate.
- Pull out dust and pollen filter -2- with cover -1-. Do not pull out cover plate - T10532- -3-.
- Remove dirt and foliage from cover plate - T10532- with a commercially available vacuum cleaner.
- Remove cover plate - T10532- -2-.



Installing

Install in reverse order of removal, observing the following:

- Insert dust and pollen filter noting installation position.
- Attach and engage cover -1- -arrows-.
- Install insulation, if there is one.
- Move glove compartment lid back from service position ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments and covers; Glove compartment lid, service position .





5.12 Removing and installing fresh air blower - V2-

⇒ [“5.12.1 Removing and installing fresh air blower V2 , left-hand drive vehicles”, page 134](#)

⇒ [“5.12.2 Removing and installing fresh air blower V2 , right-hand drive vehicles”, page 134](#)

5.12.1 Removing and installing fresh air blower - V2- , left-hand drive vehicles



Note

If only the fresh air blower - V2- is defective, remove and install fresh air blower control unit - J126- ⇒ [page 131](#) .

Removing

The fresh air blower - V2- is accessible from the footwell on the front passenger side.

- Remove baffle plate ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .
- Separate connector -3-.
- If fitted, unscrew bolt -2- from footwell vent.
- Lift the locking lug -4- and turn the fresh air blower -1- clockwise -arrow-.
- Pull the fresh air blower out of the bottom part of the evaporator housing.

CAUTION

Risk of burns when touching hot cooling surface of control unit.
Risk of burns to the hands.

- Wear protective gloves.

Installing

Install in reverse order of removal.

- Read event memory and clear any entries displayed using
⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of fresh air blower - V2- .

Specified torques

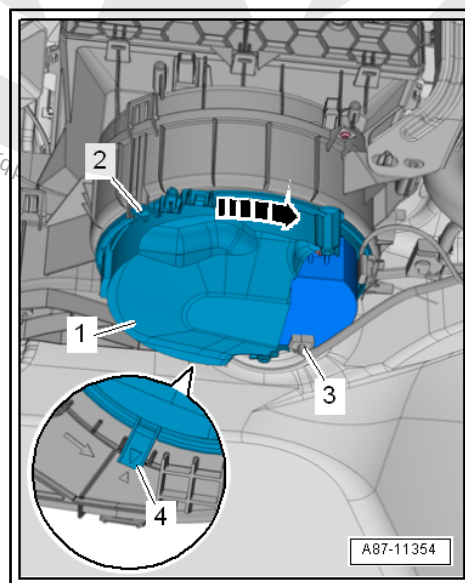
- ♦ ⇒ [“5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box”, page 116](#)

5.12.2 Removing and installing fresh air blower - V2- , right-hand drive vehicles



Note

If only the fresh air blower - V2- is defective, remove and install fresh air blower control unit - J126- ⇒ [page 131](#) .





Removing

- Remove baffle plate ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .
- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Remove footwell vent on front passenger side ⇒ [page 172](#) .
- Separate electrical connectors.
- Unscrew bolts -2-.
- Unclip retaining tabs -arrows-.
- Remove fresh air blower - V2- -1- downwards -in direction of arrow-.

CAUTION

Risk of burns when touching hot cooling surface of control unit.
Risk of burns to the hands.
– Wear protective gloves.

Installing

Install in reverse order of removal. Observe the following:

- Push fresh air blower - V2- onto centring pins -3-.
- Read event memory and clear any entries displayed using ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of fresh air blower - V2- .

Specified torques

- ◆ ⇒ [“5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box”, page 116](#)

5.13 Checking auxiliary air heater element - Z35- with auxiliary air heater control unit - J604-

⇒ [“5.13.1 Checking auxiliary air heater element Z35 with auxiliary air heater control unit J604 , left-hand drive vehicles”, page 135](#)

⇒ [“5.13.2 Checking auxiliary air heater element Z35 with auxiliary air heater control unit J604 , right-hand drive vehicles”, page 136](#)

5.13.1 Checking auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- , left-hand drive vehicles

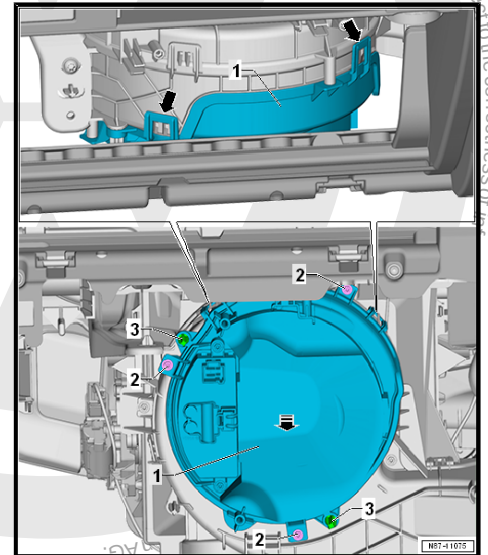
Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester with 100 A pick-up clamp - VAS 5051B/7-

Check

Test conditions:

- Ambient temperature lower than 5°C
- Coolant temperature less than 80°C





- Passenger compartment temperature approx. 20°C
- Battery voltage greater than 11 V
- Alternator load not greater than 50% (terminal DF)
- Engine speed greater than 450 rpm and stable
- Turn rotary knob for interior temperature to highest temperature (> 90%; on vehicles with Climatronic select highest level).
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Use ⇒ Vehicle diagnostic tester and 100 A pick-up clamp - VAS 5051B/7- to measure current draw on earth wire -1- of auxiliary air heater element - Z35- -2- -arrow-.

3-level -Z35- 1000 W

Low heat output: ≈ 30 amps

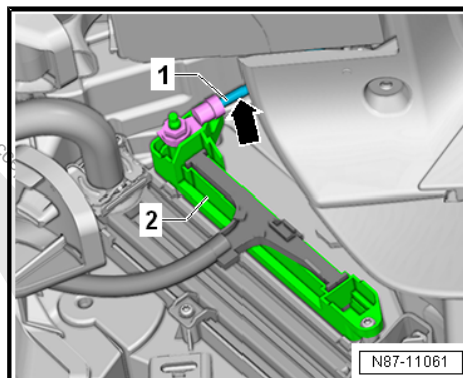
Medium heat output: ≈ 60 amps

High heat output: ≈ 80 amps

Stepless -Z35- 1400 W

- Run -Z35- at maximum output without steps.

Maximum current value ≈ 100 A



5.13.2 Checking auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- , right-hand drive vehicles

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester with 100 A pick-up clamp - VAS 5051B/7-

Check

Test conditions:

- Ambient temperature lower than 5°C
- Coolant temperature less than 80°C
- Passenger compartment temperature approx. 20°C
- Battery voltage greater than 11 V
- Alternator load not greater than 50% (terminal DF)
- Engine speed greater than 450 rpm and stable
- Turn rotary knob for interior temperature to highest temperature (> 90%; on vehicles with Climatronic select highest level).
- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Detach dash board in vicinity of glove compartment far enough that dash board can be pulled away sufficiently to pull out auxiliary air heater element - Z35- .



- Use ⇒ Vehicle diagnostic tester and 100 A pick-up clamp - VAS 5051B/7- to measure current draw on earth wire -1- of auxiliary air heater element - Z35- -2- -arrow-.

3-level -Z35- 1000 W

Low heat output: ≈ 30 amps

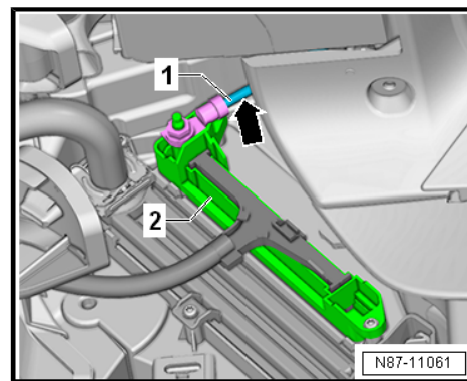
Medium heat output: ≈ 60 amps

High heat output: ≈ 80 amps

Stepless -Z35- 1400 W

- Run -Z35- at maximum output without steps.

Maximum current value ≈ 100 A



5.14 Removing and installing auxiliary air heater element - Z35- with auxiliary air heater control unit - J604-

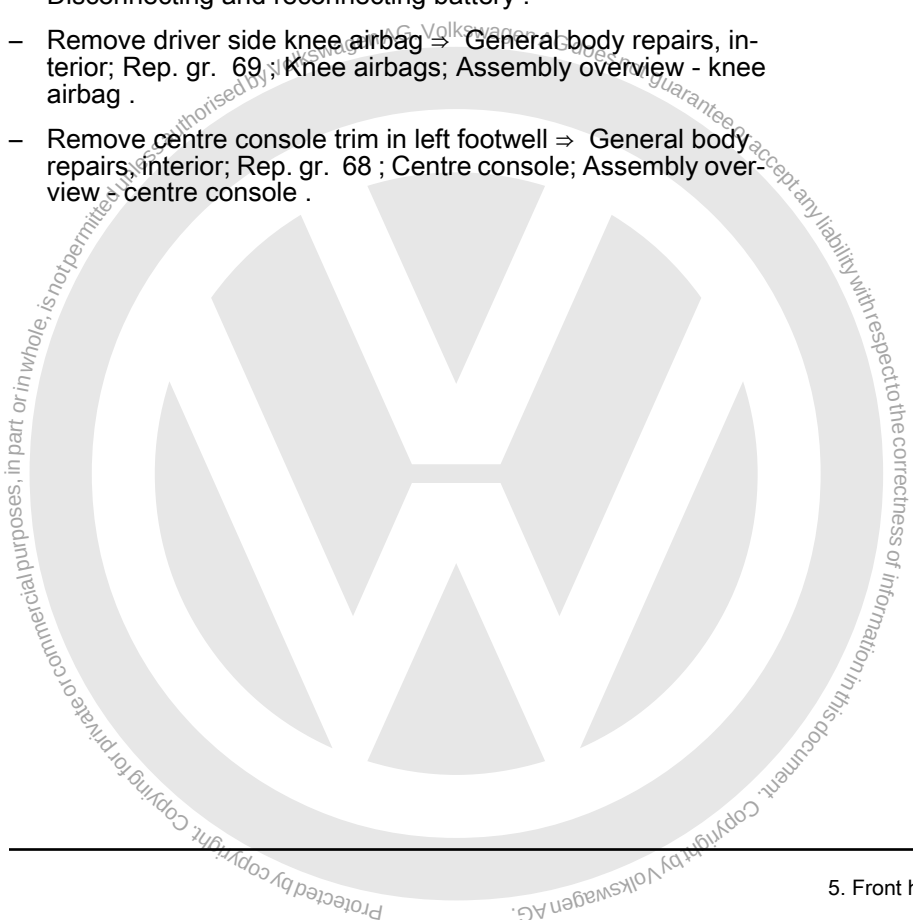
⇒ [“5.14.1 Removing and installing auxiliary air heater element Z35 with auxiliary air heater control unit J604 , left-hand drive vehicles”, page 137](#)

⇒ [“5.14.2 Removing and installing auxiliary air heater element Z35 with auxiliary air heater control unit J604 , right-hand drive vehicles”, page 138](#)

5.14.1 Removing and installing auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- , left-hand drive vehicles

Removing

- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and reconnecting battery .
- Remove driver side knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .





- Loosen nut -3- and remove earth wire -4-.

⚠ CAUTION

Risk of burns on metal surfaces of auxiliary air heater element.
The heater elements may become very hot.

Risk of burns to the skin.

- Wear protective gloves.
- Never touch the metal surfaces of the heater element.

- Separate electrical connector -2- by sliding locking element -5- upwards and pressing catch inwards.
- Unscrew bolts -arrows-.
- Pull auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- -1- leftwards out of heater and air conditioning unit -6-.

Installing

Install in reverse order of removal. Observe the following:



Note

Ensure that the earth wire is in proper position and bolted on correctly.

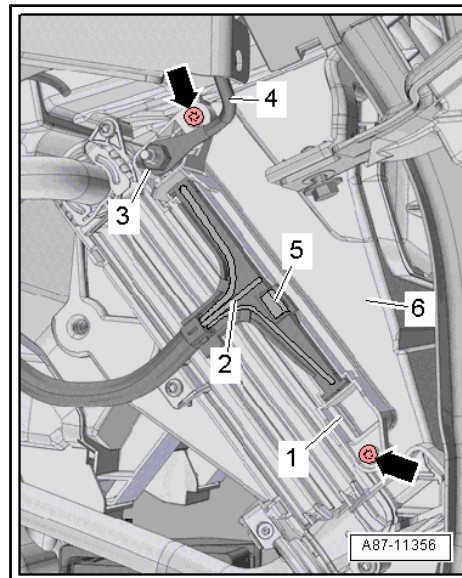
Specified torques

- ➔ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)

5.14.2 Removing and installing auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- , right-hand drive vehicles

Removing

- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and reconnecting battery .
- Loosen central tube for dash panel and pull it forwards until the auxiliary air heater element - Z35- can be pulled out ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .





- Loosen nut -3- and remove earth wire -4-.

⚠ CAUTION

**Risk of burns on metal surfaces of auxiliary air heater element.
The heater elements may become very hot.**

Risk of burns to the skin.

- Wear protective gloves.
- Never touch the metal surfaces of the heater element.

- Separate electrical connector -2- by sliding locking element -5- upwards and pressing catch inwards.
- Unscrew bolts -arrows-.
- Pull auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- -1- leftwards out of heater and air conditioning unit -6-.

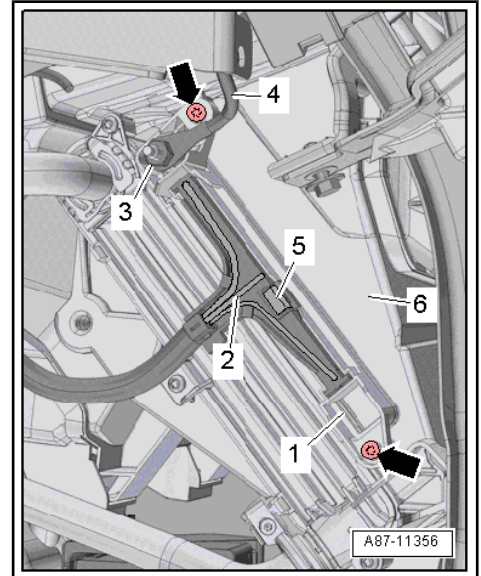
Installing

Install in reverse order of removal. Observe the following:



Note

Ensure that the earth wire is in proper position and bolted on correctly.



Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Install central tube for dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube

5.15 Removing and installing heat exchanger

⇒ [“5.15.1 Removing and installing Valeo heat exchanger, left-hand drive vehicles”, page 139](#)

⇒ [“5.15.2 Removing and installing Valeo heat exchanger, right-hand drive vehicles”, page 143](#)

⇒ [“5.15.3 Removing and installing Denso heat exchanger, left-hand drive vehicles”, page 147](#)

⇒ [“5.15.4 Removing and installing Denso heat exchanger, right-hand drive vehicles”, page 152](#)

5.15.1 Removing and installing Valeo heat exchanger, left-hand drive vehicles

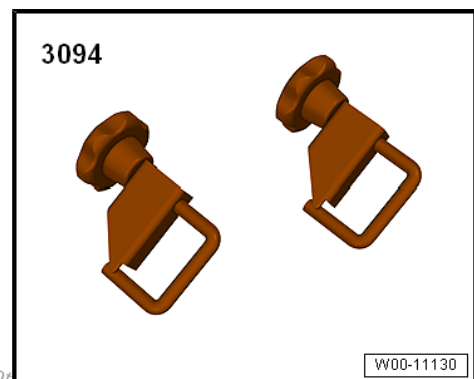
Special tools and workshop equipment required



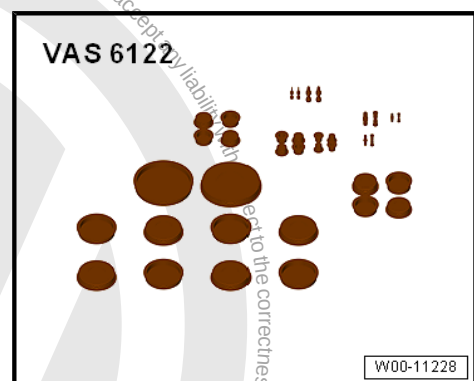
- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clamps to 25 mm - 3094-



- ◆ Commercially available compressed air pistol
- ◆ Engine bung set - VAS 6122-



Removing

- If necessary, remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

Continued for all vehicles

- Place drip tray for workshop hoist - VAS 6208- beneath engine.



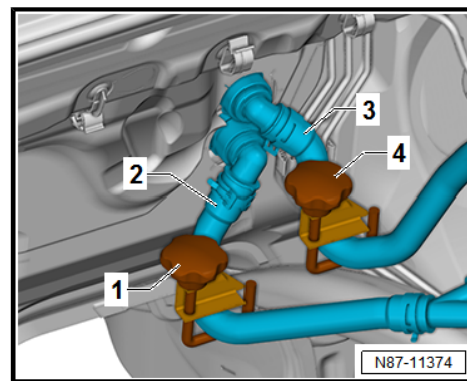
- Mark coolant hoses -2- and -3- so that they can be reconnected to proper sides again later. The heat exchanger is designed for a certain direction of coolant flow only.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094-1- and -4-.

CAUTION

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

Skin and other parts of the body may be scalded.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.



- Lift up retaining clips.
- Remove coolant hoses.
- Push a piece of hose onto upper union.
- Insert compressed air gun into end of hose.
- Place a container under the lower union and carefully blow coolant out of the heat exchanger with a compressed air pistol.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove driver side knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

Vehicles with auxiliary air heater

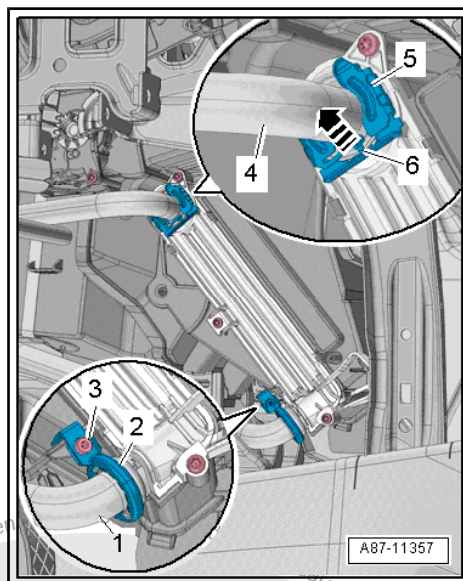
- Remove auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- ⇒ [page 137](#) .

Continued for all vehicles

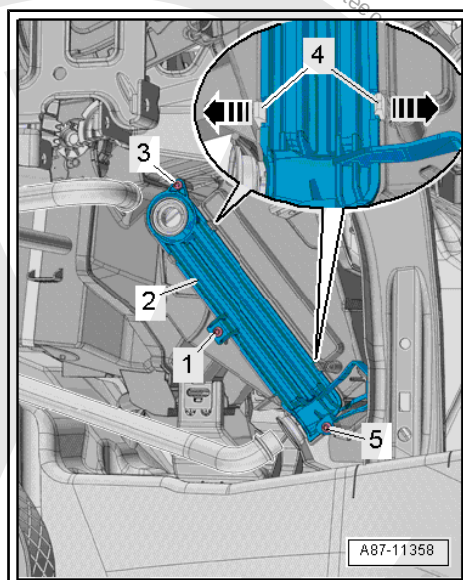
- Cover the area beneath the connections for the coolant hoses in the plenum chamber with impermeable sheeting and absorbent paper, for example.
- Lift locking element -6- in -direction of arrow- and pull off clip -5-



- Pull coolant line -4- off heat exchanger.
- Unscrew bolt -3-.
- Remove screw-type clip -2-.
- Pull off coolant hoses -1- from heat exchanger.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .



- Remove bolts -1-, -3- and -5-.
- Release retainer tabs -4- -arrows- and detach cover -2-.



- If noise insulation cannot be pulled out, cut open tabs on cover -arrows-.
- Remove heat exchanger to left.

Installing

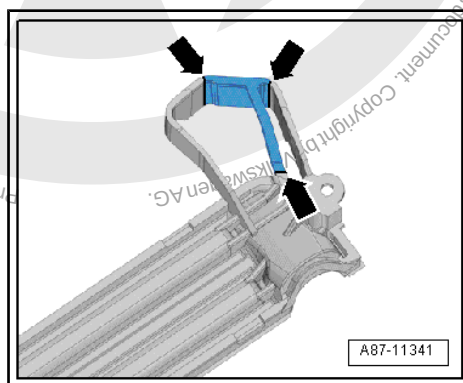
Install in reverse order of removal. Observe the following:

- Check heater slot for dirt with heat exchanger removed.
- If necessary, remove dirt or residue of leaked coolant.

Vehicles with TDI engine

- With auxiliary air heater element removed, check the heating element slot for dirt and clean if necessary.

Continued for all vehicles



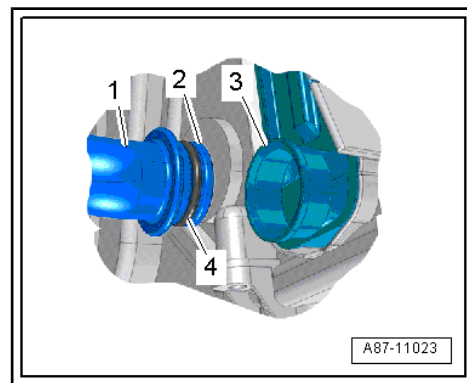


- Check connection -3- of heat exchanger and connection -2- of coolant pipes for damage or contamination.
- Clean and smooth sealing surface for seals.
- Moisten new seals -4- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe -1-.
- Carefully slide heat exchanger into heater and air conditioning unit to stop.



Note

When sliding in the heat exchanger, make sure not to damage the connections and coolant pipes.



- Push coolant pipes into heat exchanger as far as stop.



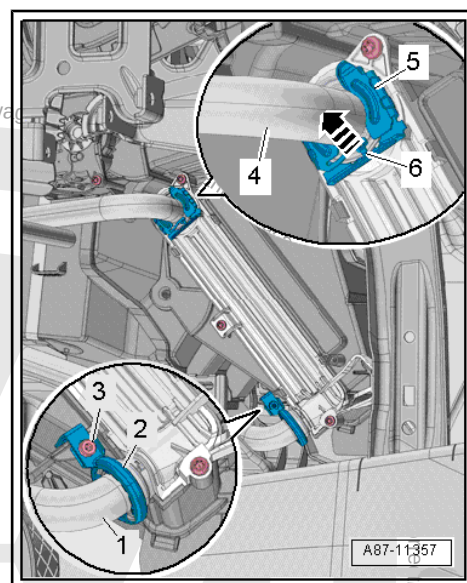
NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- **Never pinch seals.**
- **Never cant coolant pipes.**
- **Slide on coolant pipes completely.**
- Fit new clip -5- or screw-type clip -2- onto joint of coolant pipe and heat exchanger.
- Tighten bolt -3-.
- Check clip and screw-type clip for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not contact air distribution housing or any other components.
- Fill up with coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling coolant .
- Read event memory and clear any entries displayed using ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ ["5.1 Assembly overview - heater and air conditioning unit", page 111](#)
- ◆ Turbocharger; Assembly overview - turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Assembly overview - turbocharger .
- ◆ Centre console; Assembly overview – centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console
- ◆ Knee airbags; Assembly overview - knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- ◆ Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system

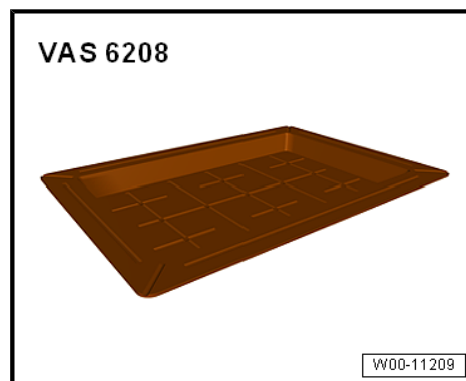


5.15.2 Removing and installing Valeo heat exchanger, right-hand drive vehicles

Special tools and workshop equipment required



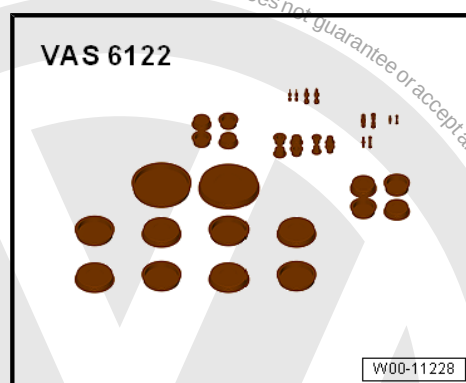
- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clamps to 25 mm - 3094-



- ◆ Commercially available compressed air pistol
- ◆ Engine bung set - VAS 6122-



Removing

Removing

- If necessary, remove engine cover panel ➤ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ➤ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

Continued for all vehicles

- Place drip tray for workshop hoist - VAS 6208- beneath engine.



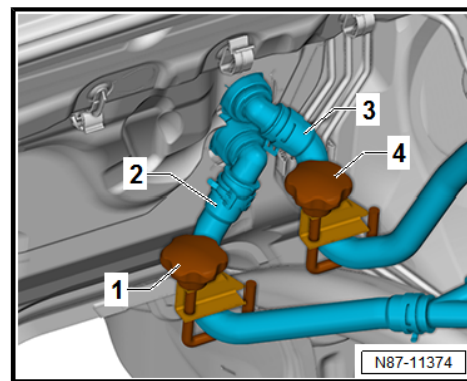
- Mark coolant hoses -2- and -3- so that they can be reconnected to proper sides again later. The heat exchanger is designed for a certain direction of coolant flow only.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094-1- and -4-.

CAUTION

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

Skin and other parts of the body may be scalded.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.



- Lift up retaining clips.
- Remove coolant hoses.
- Push a piece of hose onto upper union.
- Insert compressed air gun into end of hose.
- Place a container under the lower union and carefully blow coolant out of the heat exchanger with a compressed air pistol.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove baffle plate ➔ [page 165](#) .
- Remove glove compartment ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Remove footwell vent on front passenger side ➔ [page 172](#) .
- Remove centre console trim in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

Vehicles with auxiliary air heater

- Remove auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- ➔ [page 137](#) .

Continued for all vehicles

- Cover the area beneath the connections for the coolant hoses in the plenum chamber with impermeable sheeting and absorbent paper, for example.



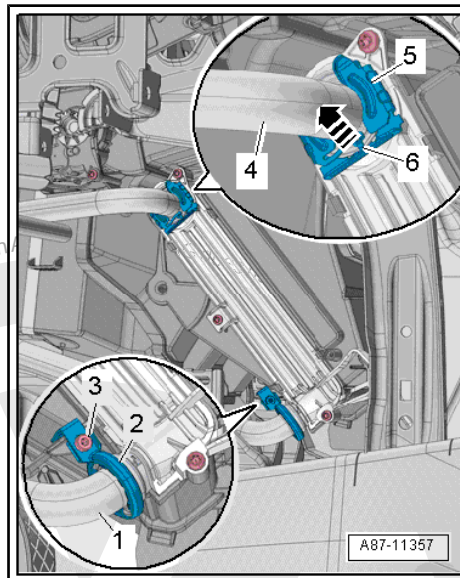
- Lift locking element -6-, remove clip -5- and pull coolant line -4- off heat exchanger.



Note

The illustration shows a left-hand drive vehicle.

- Unscrew bolt -3-.
- Remove screw-type clip -2- and pull coolant line -1- off heat exchanger.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .



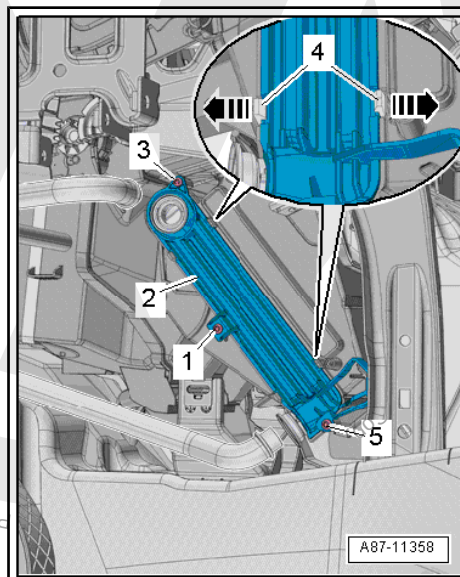
- Remove bolts -1-, -3- and -5-.



Note

The illustration shows a left-hand drive vehicle.

- Release retainer tabs -4- -arrows- and detach cover -2-.



- If noise insulation cannot be pulled out, cut open tabs on cover -arrows-.
- Remove heat exchanger to left.

Installing

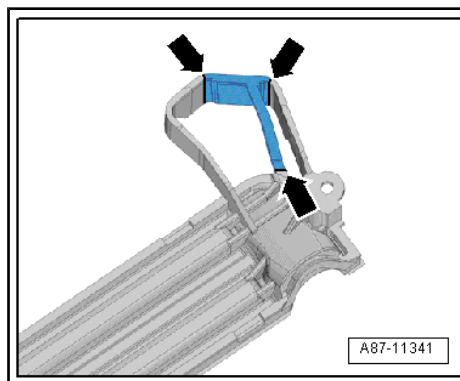
Install in reverse order of removal. Observe the following:

- Check heater slot for dirt with heat exchanger removed.
- If necessary, remove dirt or residue of leaked coolant.

Vehicles with TDI engine

- With auxiliary air heater element removed, check the heating element slot for dirt and clean if necessary.

Continued for all vehicles



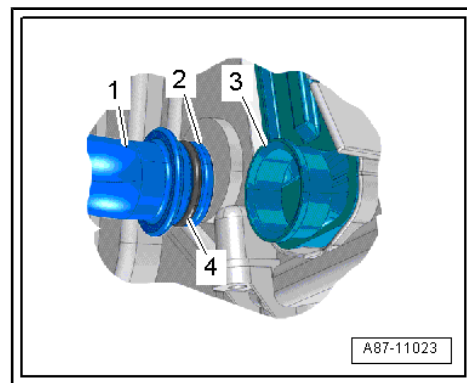


- Check connection -3- of heat exchanger and connection -2- of coolant pipes for damage or contamination.
- Clean and smooth sealing surface for seals.
- Moisten new seals -4- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe -1-.
- Carefully slide heat exchanger into heater and air conditioning unit as far as stop.



Note

When sliding in the heat exchanger, make sure not to damage the connections and coolant pipes.



- Push coolant pipes into heat exchanger as far as stop.



NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- **Never pinch seals.**
- **Never cant coolant pipes.**
- **Slide on coolant pipes completely.**

Fit new clip -5- or screw-type clip -2- onto joint of coolant pipe and heat exchanger.

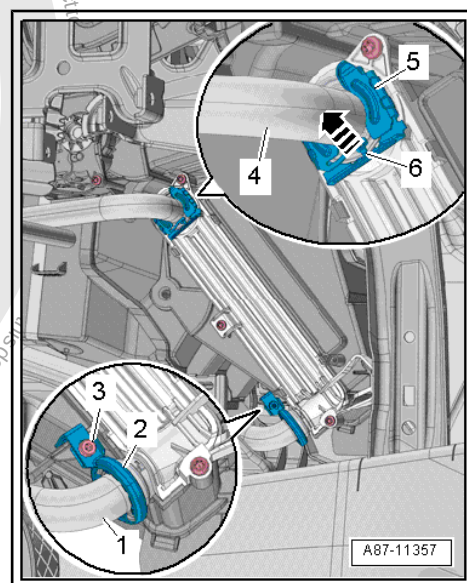
Tighten bolt -3-.

Check clip and screw-type clip for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not contact air distribution housing or any other components.

- Fill up with coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling coolant .
- Read event memory and clear any entries displayed using ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Turbocharger; Assembly overview - turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Assembly overview - turbocharger .
- ◆ Centre console; Assembly overview – centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console
- ◆ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .
- ◆ Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system

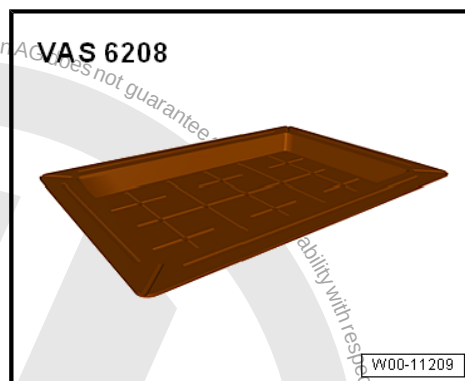


5.15.3 Removing and installing Denso heat exchanger, left-hand drive vehicles

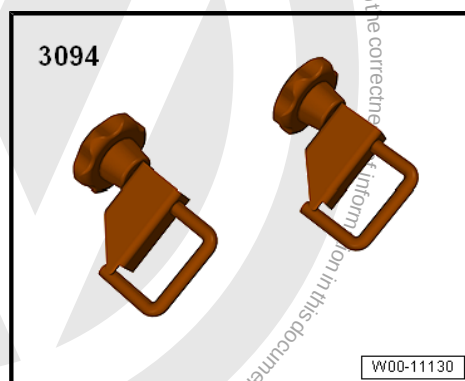
Special tools and workshop equipment required



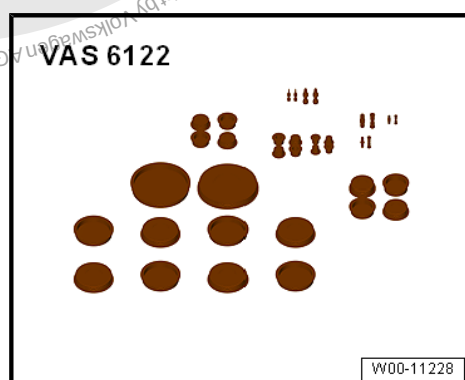
- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clamps to 25 mm - 3094-



- ◆ Commercially available compressed air pistol
- ◆ Engine bung set - VAS 6122-



Removing

- If necessary, remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

Continued for all vehicles

- Place drip tray for workshop hoist - VAS 6208- beneath engine.



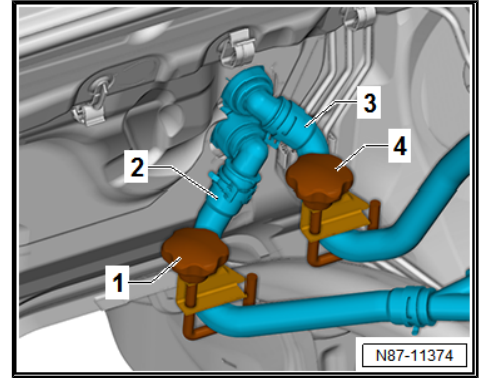
- Mark coolant hoses -2- and -3- so that they can be reconnected to proper sides again later. The heat exchanger is designed for a certain direction of coolant flow only.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094-1- and -4-.

⚠ CAUTION

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

Skin and other parts of the body may be scalded.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.



- Lift up retaining clips.
- Remove coolant hoses.
- Push a piece of hose onto upper union.
- Insert compressed air gun into end of hose.
- Place a container under the lower union and carefully blow coolant out of the heat exchanger with a compressed air pistol.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove driver side knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- Remove centre console trim in left footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

Vehicles with auxiliary air heater

- Remove auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- ⇒ [page 137](#) .

Continued for all vehicles

- Cover area beneath connections for coolant hoses in plenum chamber as well as airbag control unit - J234- with, for example, impermeable sheeting and absorbent paper.



- Remove bolts -2- and detach screw-type clamps -3-.
- Separate coolant pipes.



Note

- ◆ *If the coolant pipes cannot be separated because the seals are gummed up, cut through them at the marked locations -arrows- using pliers - T40147- .*
- ◆ *Pull the cut coolant pipes -4- and -7- of heat exchanger off coolant pipes -1- and -11- leading to the engine.*
- Remove bolt -10- and detach heat exchanger bracket -9-.
- Pull out heat exchanger -6- to left.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .

Installing

Install in reverse order of removal. Observe the following:

- Check heater slot for dirt with heat exchanger removed.
- If necessary, remove dirt or residue of leaked coolant.

Vehicles with TDI engine

- With auxiliary air heater element removed, check the heating element slot for dirt and clean if necessary.

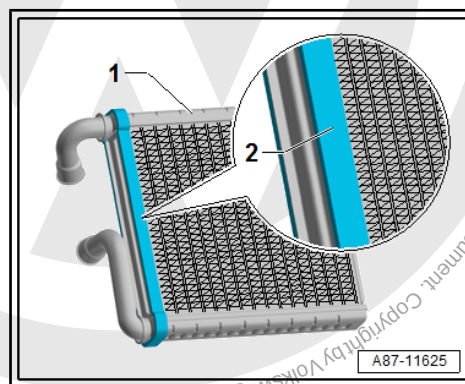
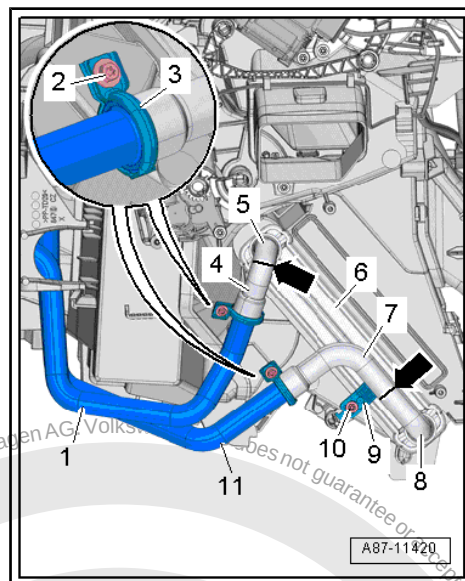
Continued for all vehicles

- Check foam seals -2- attached to heat exchanger -1- for damage and replace if necessary.



Note

- ◆ *If the foam seal is not properly bonded in, it may roll up when the heat exchanger is fitted.*
- ◆ *If the foam seal is damaged or improperly fitted, cold air can flow past the heat exchanger.*

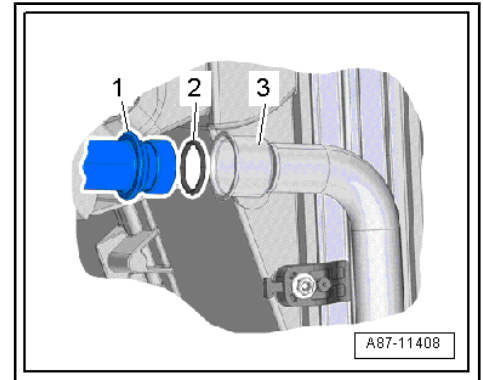




- Check connection -3- of heat exchanger and connection of coolant pipes -1- for damage or dirt.
- Clean and smooth sealing surface for seals.
- Moisten new seals -1- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe.
- Carefully slide heat exchanger into heater and air conditioning unit as far as stop.

i Note

When sliding in the heat exchanger, make sure not to damage the connections and coolant pipes.



- Push coolant pipes into heat exchanger as far as stop.

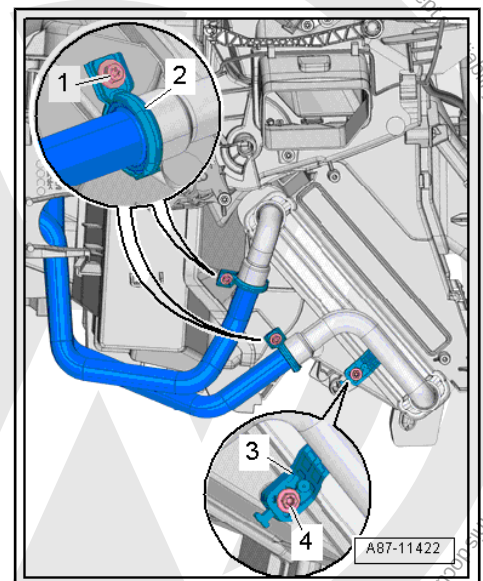
! NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- **Never pinch seals.**
- **Never cant coolant pipes.**
- **Slide on coolant pipes completely.**
- Fit heat exchanger bracket -3- on air distribution housing and tighten bolt -4-.
- Fit new clip -2- to joint between coolant pipe and heat exchanger.
- Tighten bolt -1-.
- Check clip and screw-type clip for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not contact air distribution housing or any other components.
- Fill up with coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling coolant .
- Read event memory and clear any entries displayed using ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ **“5.1 Assembly overview - heater and air conditioning unit”, page 111**
- ◆ Turbocharger; Assembly overview - turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Assembly overview - turbocharger
- ◆ Centre console; Assembly overview – centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console
- ◆ Knee airbags; Assembly overview - knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- ◆ Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system

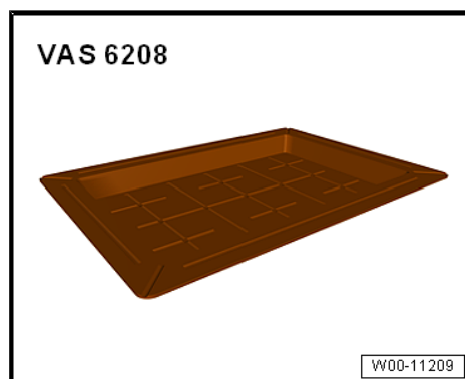




5.15.4 Removing and installing Denso heat exchanger, right-hand drive vehicles

Special tools and workshop equipment required

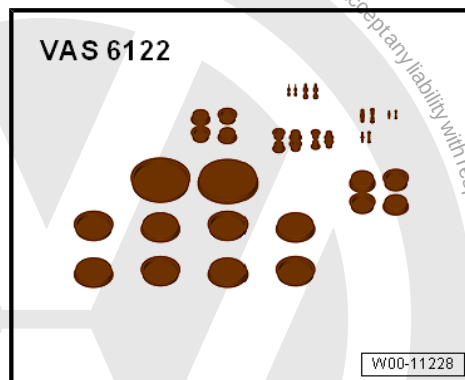
- ♦ Drip tray for workshop hoist - VAS 6208-



- ♦ Hose clamps to 25 mm - 3094-



- ♦ Commercially available compressed air pistol
- ♦ Engine bung set - VAS 6122-



Removing

Removing

- If necessary, remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Vehicles with TDI engine

- Remove charge air cooler connecting pipe ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system .

Continued for all vehicles

- Place drip tray for workshop hoist - VAS 6208- beneath engine.



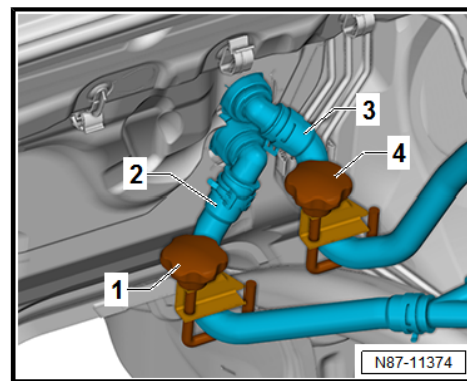
- Mark coolant hoses -2- and -3- so that they can be reconnected to proper sides again later. The heat exchanger is designed for a certain direction of coolant flow only.
- Clamp off coolant hoses with hose clamps up to 25 mm - 3094-1- and -4-.

CAUTION

On a warm engine, the cooling system is under high pressure. Danger of scalding by steam and hot coolant.

Skin and other parts of the body may be scalded.

- Wear protective gloves.
- Wear protective goggles.
- Reduce excess pressure by covering cap of coolant expansion tank with cloths and opening it carefully.



- Lift up retaining clips.
- Remove coolant hoses.
- Push a piece of hose onto upper union.
- Insert compressed air gun into end of hose.
- Place a container under the lower union and carefully blow coolant out of the heat exchanger with a compressed air pistol.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove baffle plate ➔ [page 165](#) .
- Remove glove compartment ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Remove footwell vent on front passenger side ➔ [page 172](#) .
- Remove centre console trim in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .

Vehicles with auxiliary air heater

- Remove auxiliary air heater element - Z35- with auxiliary air heater control unit - J604- ➔ [page 137](#) .

Continued for all vehicles

- Cover area beneath connections for coolant hoses in plenum chamber as well as airbag control unit - J234- with, for example, impermeable sheeting and absorbent paper.



- Remove bolts -2- and detach screw-type clamps -3-.
- Separate coolant pipes.



Note

- ◆ *If the coolant pipes cannot be separated because the seals are gummed up, cut through them at the marked locations -arrows- using pliers - T40147- .*
- ◆ *Pull the cut coolant pipes -4- and -7- of heat exchanger off coolant pipes -1- and -11- leading to the engine.*
- Remove bolt -10- and detach heat exchanger bracket -9-.
- Pull out heat exchanger -6- to left.
- Seal open lines and connections with clean plugs from engine bung set - VAS 6122- .

Installing

Install in reverse order of removal. Observe the following:

- Check heater slot for dirt with heat exchanger removed.
- If necessary, remove dirt or residue of leaked coolant.

Vehicles with TDI engine

- With auxiliary air heater element removed, check the heating element slot for dirt and clean if necessary.

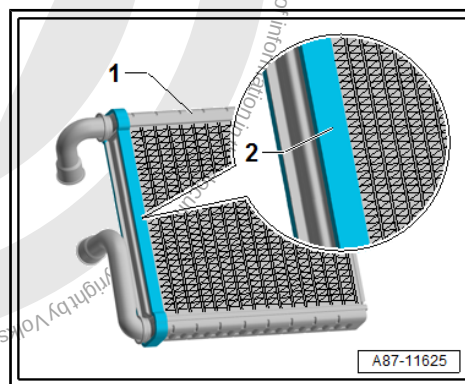
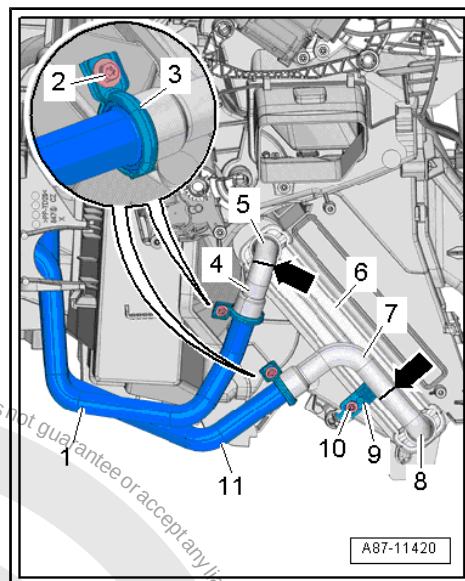
Continued for all vehicles

- Check foam seals -2- attached to heat exchanger -1- for damage and replace if necessary.



Note

- ◆ *If the foam seal is not properly bonded in, it may roll up when the heat exchanger is fitted.*
- ◆ *If the foam seal is damaged or improperly fitted, cold air can flow past the heat exchanger.*

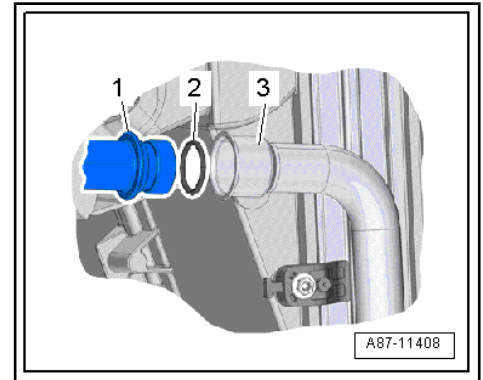




- Check connection -3- of heat exchanger and connection of coolant pipes -1- for damage or dirt.
- Clean and smooth sealing surface for seals.
- Moisten new seals -1- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe.
- Carefully slide heat exchanger into heater and air conditioning unit as far as stop.

Note

When sliding in the heat exchanger, make sure not to damage the connections and coolant pipes.



- Push coolant pipes into heat exchanger as far as stop.

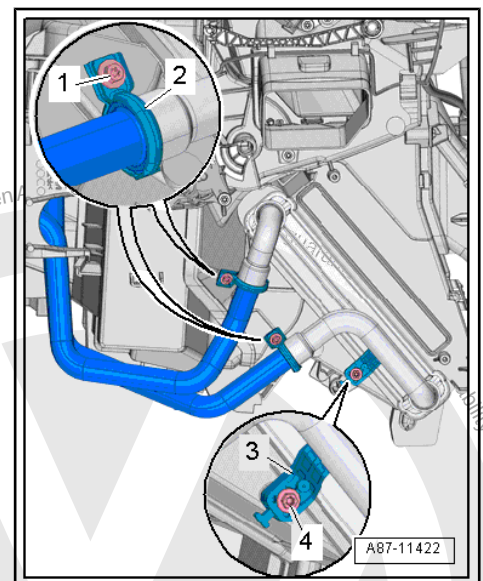
NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- **Never pinch seals.**
 - **Never cant coolant pipes.**
 - **Slide on coolant pipes completely.**
-
- Fit heat exchanger bracket -3- on air distribution housing and tighten bolt -4-.
 - Fit new clip -2- to joint between coolant pipe and heat exchanger.
 - Tighten bolts -1-.
 - Check clip and screw-type clip for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not contact air distribution housing or any other components.
 - Fill up with coolant ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling coolant .
 - Read event memory and clear any entries displayed using ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.
 - Check operation of heater and air conditioning system.

Specified torques

- ◆ ⇒ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)
- ◆ Turbocharger; Assembly overview - turbocharger ⇒ Rep. gr. 21 ; Turbocharger; Assembly overview - turbocharger .
- ◆ Centre console; Assembly overview - centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console
- ◆ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .
- ◆ Assembly overview - charge air system ⇒ Rep. gr. 21 ; Charge air system; Assembly overview - charge air system





5.16 Removing and installing coolant pipes on heat exchanger

⇒ ["5.16.1 Removing and installing coolant pipes at heat exchanger \(Valeo\)", page 156](#)

⇒ ["5.16.2 Removing and installing coolant pipes at heat exchanger \(Denso\)", page 157](#)

5.16.1 Removing and installing coolant pipes at heat exchanger (Valeo)

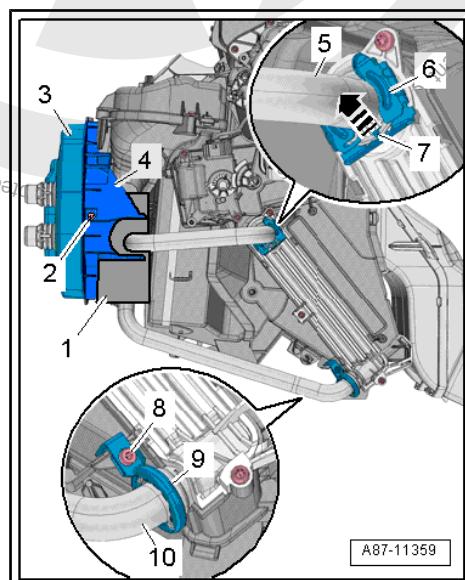


Note

*There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical (distinguishing features ⇒ [page 4](#)). The combined fitting of different makes of component is therefore not permissible ⇒ *Electronic parts catalogue (ETKA)* .*

Removing

- Remove heater and air conditioning unit ⇒ [page 122](#) .
- Detach the sealing collar -3- to the plenum chamber bulkhead.
- Unscrew bolt -2-.
- Detach the coolant pipe holder -4- to the left.
- Detach the foam -1-.
- Lift locking element -7- and pull off clip -6-.
- Pull coolant pipe -5- off heat exchanger.
- Unscrew bolt -8-.
- Remove screw-type clip -9- and pull coolant pipe -10- off heat exchanger.
- Detach the coolant pipes.



Installing

Install in reverse order of removal. Observe the following:

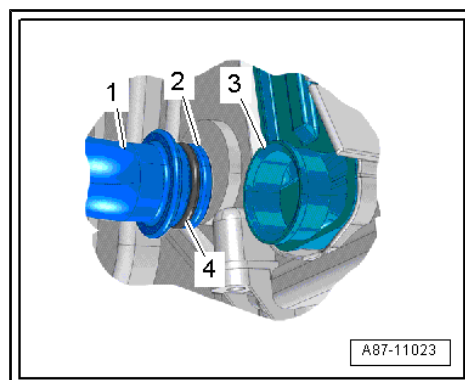
- Check connection -3- of heat exchanger and connection -2- of coolant pipes for damage or contamination.
- Clean and smooth sealing surface for seals.
- Moisten new seals -4- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe -1-.
- Push coolant pipes into heat exchanger as far as stop.



NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- Never pinch seals.
- Never cant coolant pipes.
- Slide on coolant pipes completely.

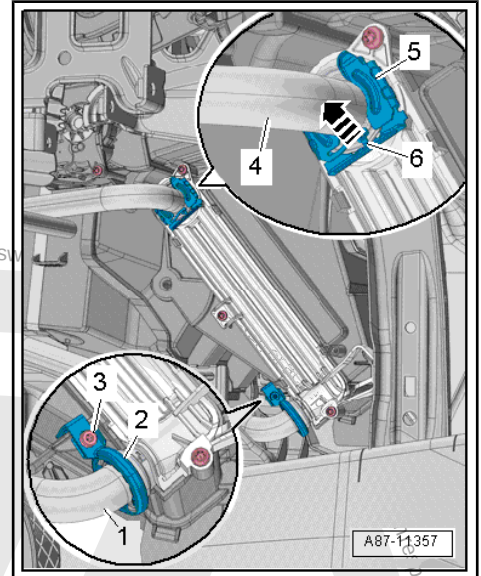




- Fit new clip -5- or screw-type clip -2- onto joint of coolant pipe and heat exchanger.
- Tighten bolt -3-.
- Check clip and screw-type clip for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not contact air distribution housing or any other components.
- Install heater and air conditioning unit ➔ [page 122](#).
- Read event memory and clear any entries displayed using ➔ Vehicle diagnostic tester in “Guided Fault Finding” mode.
- Check operation of heater and air conditioning system.

Specified torques

- ◆ ➔ [“5.1 Assembly overview - heater and air conditioning unit”, page 111](#)



5.16.2 Removing and installing coolant pipes at heat exchanger (Denso)

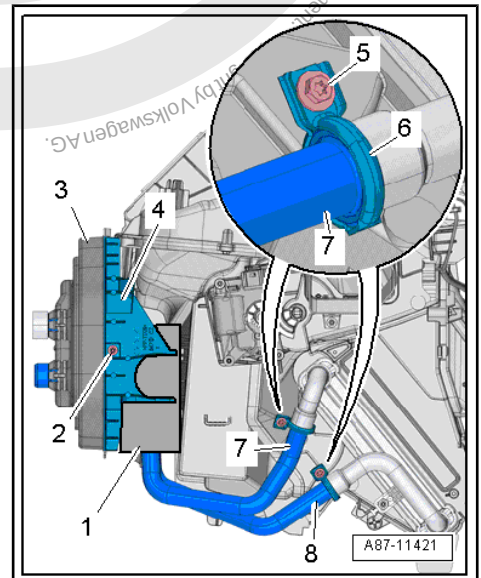


Note

There are different designs and makes of heater and air conditioning unit. The individual components of the various heaters and air conditioning units are similar but not identical (distinguishing features ➔ [page 4](#)). The combined fitting of different makes of component is therefore not permissible ➔ Electronic parts catalogue (ETKA).

Removing

- Remove heater and air conditioning unit ➔ [page 122](#).
- Detach the sealing collar -3- to the plenum chamber bulkhead.
- Unscrew bolt -2-.
- Detach the coolant pipe holder -4- to the left.
- Detach the foam -1-.
- Remove bolts -5- and detach screw-type clamps -6-.
- Pull coolant pipes -7- and -8- off heat exchanger.





Installing

Install in reverse order of removal. Observe the following:

- Check connection -3- of heat exchanger and connection of coolant pipes -1- for damage or dirt.
- Clean and smooth sealing surface for seals.
- Moisten new seals -2- with coolant (or lubricate lightly with silicone grease) and fit them to coolant pipe -1-.
- Push coolant pipes into heat exchanger as far as stop.

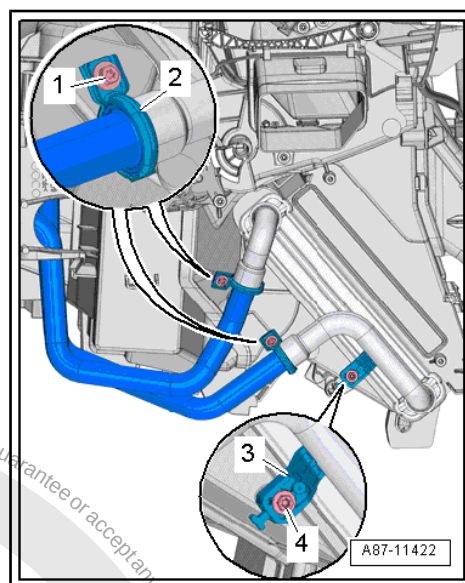
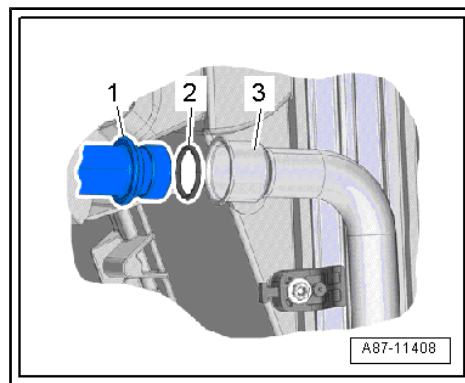
NOTICE

Risk of heat exchanger malfunction due to defective seals and leaks.

- Never pinch seals.
 - Never cant coolant pipes.
 - Slide on coolant pipes completely.
-
- Fit new screw-type clamps -2- on coolant pipe/heat exchanger joint.
 - Tighten bolts -1-.
 - Check screw-type clips -2- for proper seating on connections of heat exchanger and check coolant pipes. The coolant pipes must not rest against air distribution housing or any other components.
 - Install heater and air conditioning unit ➔ [page 122](#) .
 - Read event memory and clear any entries displayed using ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.
 - Check operation of heater and air conditioning system.

Specified torques

- ♦ ➔ ["5.1 Assembly overview, heater and air conditioning unit", page 111](#)



5.17 Removing and installing evaporator temperature sensor - G308-

➔ ["5.17.1 Removing and installing evaporator temperature sensor G308, left-hand drive vehicles", page 158](#)

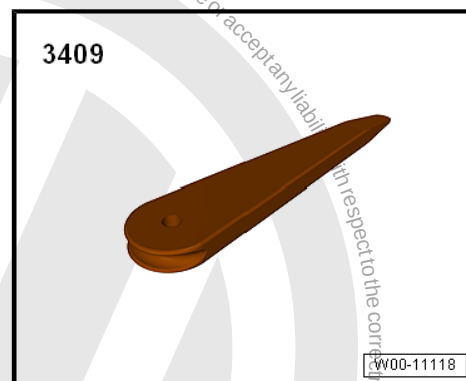
➔ ["5.17.2 Removing and installing evaporator temperature sensor G308, right-hand drive vehicles", page 159](#)

5.17.1 Removing and installing evaporator temperature sensor - G308- , left-hand drive vehicles

Special tools and workshop equipment required



◆ Removal wedge - 3409-



Removing

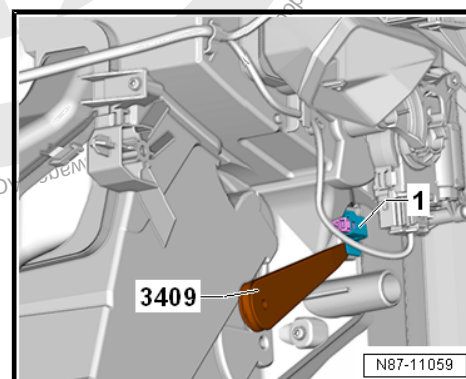
- Remove baffle plate ➔ [page 165](#) .
- Remove glove compartment ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Release evaporator temperature sensor - G308- using removal wedge - 3409- .
- Pull evaporator temperature sensor - G308- -1- out of housing.
- Separate electrical connector.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Compartments/covers; Assembly overview - glove compartment ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .



5.17.2 Removing and installing evaporator temperature sensor - G308- , right-hand drive vehicles

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



Removing



Note

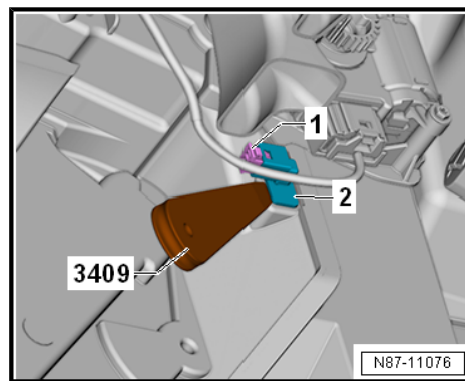
Evaporator temperature sensor - G308- is accessible from footwell.



- Release evaporator temperature sensor - G308- -2- using removal wedge - 3409- .
- Pull evaporator temperature sensor - G308- -2- out of housing.
- Separate electrical connector -1-.

Installing

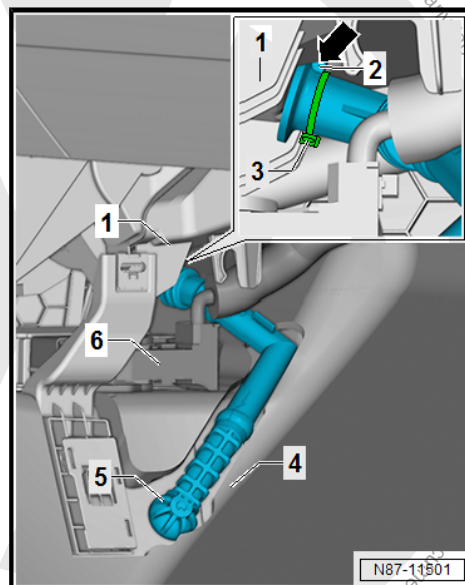
Install in reverse order of removal.



5.18 Checking condensation drain

Check

- Remove right centre console trim in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Carefully fold back floor covering in area of condensation drain hose so that condensation drain hose is visible.
- Lug -arrow- on connecting piece must engage in guide -2-.





- Insert condensation drain hose -1- in body opening -2- until it is heard to engage.

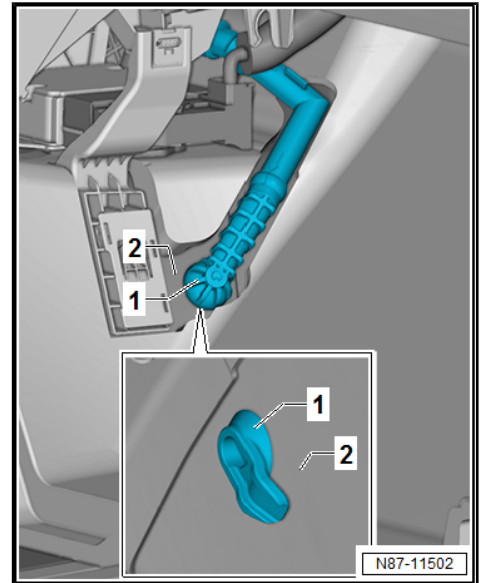


Note

- ◆ *It must be possible to push condensation drain hose -1- onto the heater and air conditioning unit connection without tension.*
- ◆ *The condensation drain hose must be fitted securely to the condensation drain connection on the tunnel.*
- ◆ *The sealing lip must not be seated loosely on body aperture -2-.*

Specified torques

- ◆ Centre console; Assembly overview – centre console ➤ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console



5.19 Removing and installing condensation drain

⇒ [“5.19.1 Removing and installing condensation drain, left-hand drive vehicles”, page 161](#)

⇒ [“5.19.2 Removing and installing condensation drain, right-hand drive vehicles”, page 163](#)

5.19.1 Removing and installing condensation drain, left-hand drive vehicles

Removing

- Remove right centre console trim in footwell ➤ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .



NOTICE

Risk of damage to airbag control unit. Connectors may corrode if moisture enters.

- After disconnecting, cover or seal off connectors to prevent the ingress of moisture.

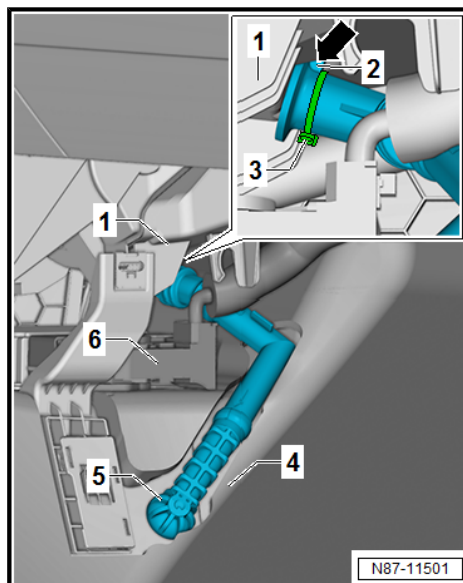


- Pull off connector from airbag control unit - J234- -6-.
- Cover airbag control unit - J234- and connector -6- with waterproof sheet.
- Carefully push floor covering aside and cover it in area under condensation drain hose with impermeable sheeting and water absorbing paper.
- Carefully pull condensation drain hose off heater and air conditioner unit -1- and body -5-.

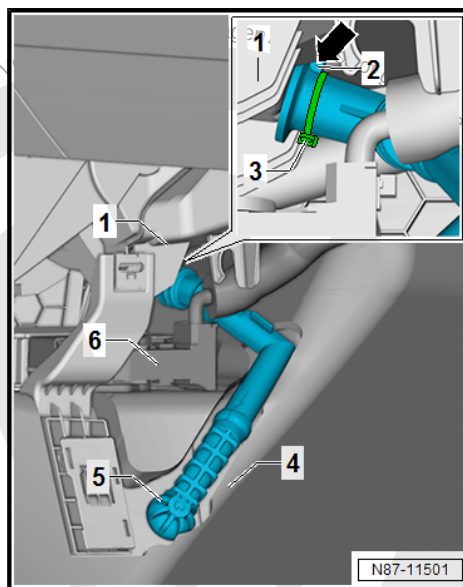
Installing

Install in reverse order of removal. Observe the following:

- The condensation drain hose can be properly pushed onto heater and air conditioner unit -1- to stop in only one position.



- Lug -arrow- on connecting piece must engage in guide -2-.
- If a commercially available cable tie -3- was installed to retain the condensation drain -5-, renew it.
- The condensation drain hose must be routed below the wiring harness of the airbag control unit - J234- -6- in the figure.
- Insert condensation drain hose -1- in body opening until it is heard to engage.

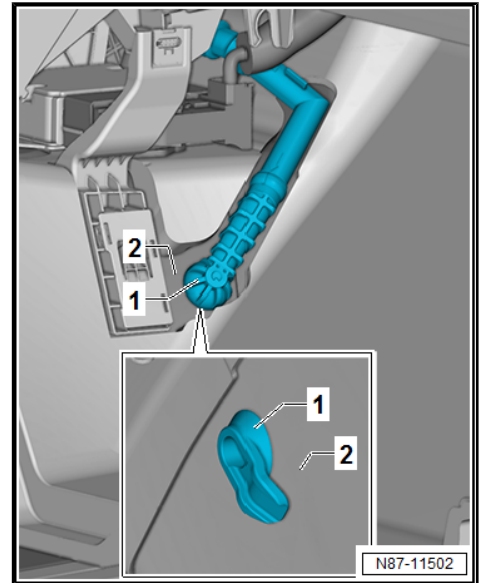




- The condensation drain hose -1- must be properly clipped in (pre-tensioned) at the body opening -2-.
- The sealing lip must not be loose on the body aperture.
- The retaining tabs must be fully engaged.
- If the tension is insufficient, seal joint between body and bracket using, e.g., silicone adhesive sealant ➔ Electronic parts catalogue (ETKA) .

i Note

- ◆ *Install the condensation drain hose so that it is not twisted or pinched.*
- ◆ *When installing floor covering, ensure that the condensation drain hose is not pinched by the floor covering.*
- ◆ *If the condensation drain hose is loose on the heater and air conditioning unit connection, secure it e.g. with a hose clip to prevent it from slipping. Hose clip ➔ Electronic parts catalogue (ETKA) .*



Specified torques

- ◆ Centre console; Assembly overview – centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console

5.19.2 Removing and installing condensation drain, right-hand drive vehicles

Removing

- Remove right centre console trim in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview - centre console .
- Carefully push floor covering aside and cover it in area under condensation drain hose with impermeable sheeting and water absorbing paper.
- Remove footrest ➔ General body repairs, interior; Rep. gr. 70 ; Trims, interior; Removing and installing footrest .

! NOTICE

Risk of damage to airbag control unit. Connectors may corrode if moisture enters.

- After disconnecting, cover or seal off connectors to prevent the ingress of moisture.
- Pull off connector from airbag control unit - J234- -5-.

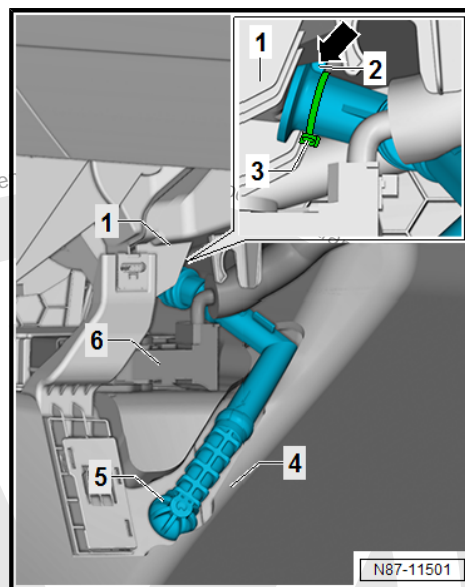
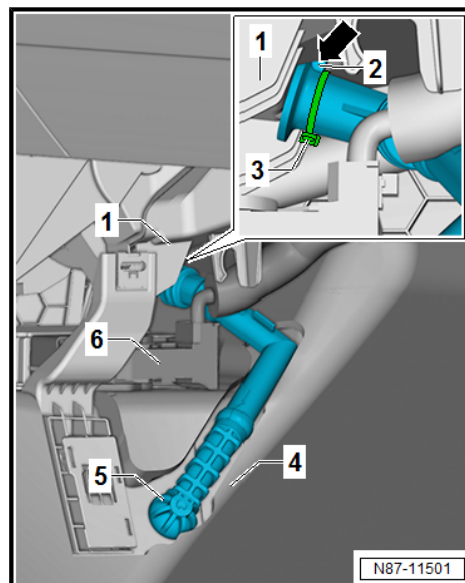


- Cover airbag control unit - J234- and connector -5- with impermeable sheeting.
- Carefully push floor covering aside and cover it in area under condensation drain hose with impermeable sheeting and water absorbing paper.
- Carefully pull condensation drain hose -3- off heater and air conditioning unit -1- and off body -4-.

Installing

Install in reverse order of removal. Observe the following:

- The condensation drain hose -3- can be properly pushed onto heater and air conditioning unit -1- to stop in only one position.
- Lug -arrow- on connecting piece must engage in guide -2-.
- If a commercially available cable tie was installed to retain the condensation drain -3-, renew it.
- The condensation drain hose must be routed below the wiring harness of the airbag control unit - J234- -5- in the figure.

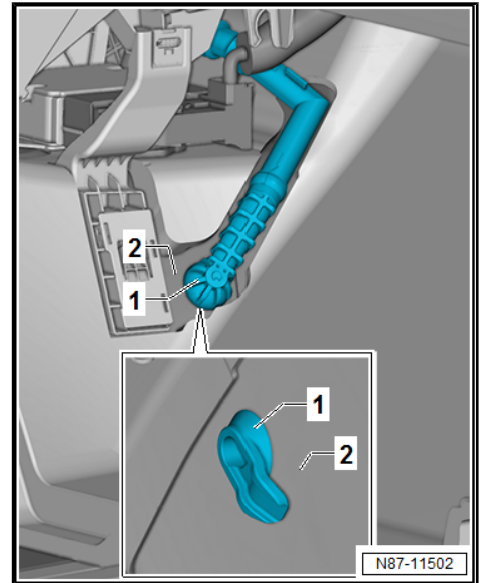




- The bracket -1- for the condensation drain hose must be properly clipped into the aperture in the body -2- under tension.
- The sealing lip must not be loose on the body aperture.
- The retainer tabs -arrows- must be fully engaged.
- If the tension is insufficient, seal joint between body and bracket using, e.g., silicone adhesive sealant ➔ Electronic parts catalogue (ETKA) .

i Note

- ◆ *Install the condensation drain hose so that it is not twisted or pinched.*
- ◆ *When installing floor covering, ensure that the condensation drain hose is not pinched by the floor covering.*
- ◆ *If the condensation drain hose is loose on the heater and air conditioning unit connection, secure it e.g. with a hose clip to prevent it from slipping. Hose clip ➔ Electronic parts catalogue (ETKA) .*



Specified torques

- ◆ Centre console; Assembly overview – centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console

5.20 Removing and installing baffle plate

Removal and installation is described in ELSA, see ➔ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing footwell cover on front passenger side .



6 Air duct

⇒ [“6.1 Assembly overview - air duct and air distribution in passenger compartment”, page 166](#)

⇒ [“6.2 Removing and installing fresh air intake”, page 167](#)

⇒ [“6.3 Removing and installing cover for fresh air intake”, page 169](#)

⇒ [“6.4 Removing and installing air intake duct”, page 170](#)

⇒ [“6.5 Removing and installing driver side footwell vents”, page 171](#)

⇒ [“6.6 Removing and installing front passenger side footwell vents”, page 172](#)

⇒ [“6.7 Removing and installing rear footwell vent”, page 173](#)

⇒ [“6.8 Removing and installing air duct for rear vent”, page 174](#)

⇒ [“6.9 Removing and installing rear centre console vent duct”, page 174](#)

⇒ [“6.10 Checking forced ventilation for passenger compartment”, page 175](#)

⇒ [“6.11 Removing and installing forced ventilation for passenger compartment”, page 175](#)

⇒ [“6.12 Removing and installing air duct for defroster vent”, page 176](#)

⇒ [“6.13 Removing and installing air duct for centre dash panel vent”, page 177](#)

6.1 Assembly overview - air duct and air distribution in passenger compartment

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.



1 - Footwell vent on driver side

- ☐ Removing and installing
⇒ [page 171](#)

2 - Air duct for centre dash panel vent

- ☐ Removing and installing
⇒ [page 177](#)

3 - Air duct for defroster vent

- ☐ Removing and installing
⇒ [page 176](#)

4 - Footwell vent on front passenger side

- ☐ Removing and installing
⇒ [page 172](#)

5 - Removing and installing rear footwell vent

- ☐ Removing and installing
⇒ [page 173](#)

6 - Air duct for rear vent

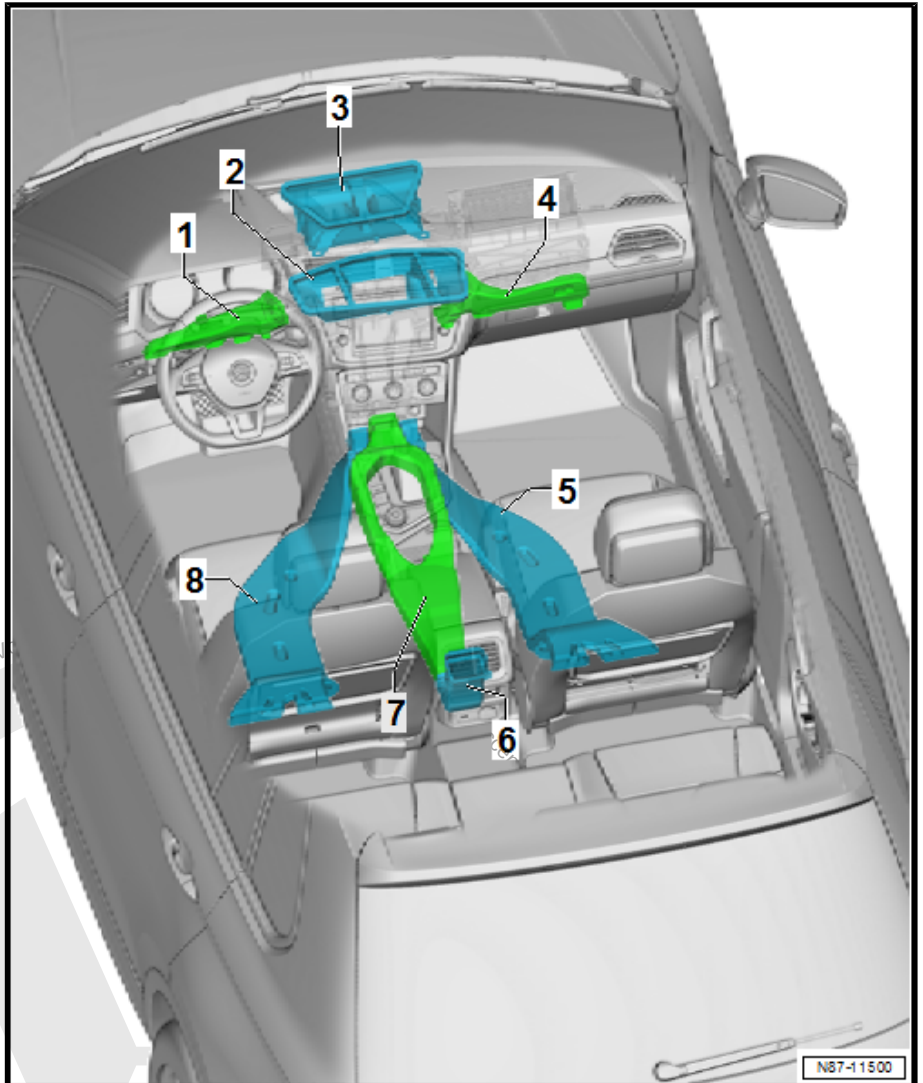
- ☐ Removing and installing
⇒ [page 174](#)

7 - Air duct for rear of centre console

- ☐ Installed depending on vehicle equipment. On vehicles without air duct for rear vent in centre console a respective cover is fitted on heater unit instead.
- ☐ Removing and installing
⇒ [page 174](#)

8 - Removing and installing rear footwell vent

- ☐ Removing and installing ⇒ [page 173](#)



6.2 Removing and installing fresh air intake

⇒ [“6.2.1 Removing and installing fresh air intake, left-hand drive vehicles”, page 167](#)

⇒ [“6.2.2 Removing and installing fresh air intake, right-hand drive vehicles”, page 168](#)

6.2.1 Removing and installing fresh air intake, left-hand drive vehicles

Removing

- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover .
- Remove cover for fresh air intake ⇒ [page 169](#) .
- Remove air quality sensor - G238- (only on vehicles with Climatronic) ⇒ [page 187](#) .



- Unscrew nuts -arrows-.
- Remove fresh air intake -1- from plenum chamber.

Installing

Install in reverse order of removal. Observe the following:

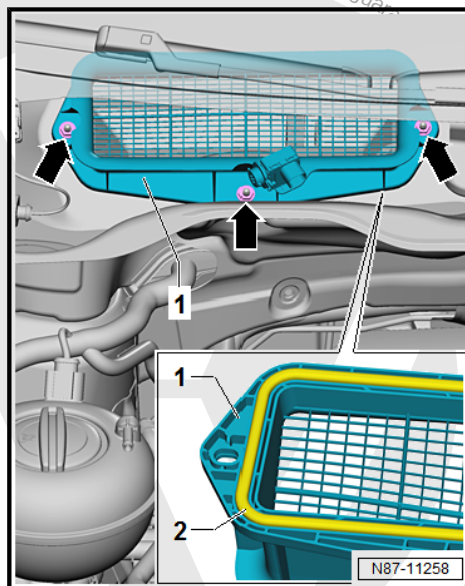
Assembly sequence:

- Align air intake grille on metal collar.
- Hold air intake grille and screw on outer nut half-way onto welded stud.
- Screw on nut on opposite side.
- Tighten outer nut.
- Tighten centre nut.



Note

- ♦ *The seal -2- must be properly seated on the air intake grille.*
- ♦ *Water may enter the fresh air intake if the grille is damaged or not properly fitted. This may result in complaints about odours from the air conditioning system and/or about moisture in the vehicle.*



Specified torques

Component	Specified torque
Nut	3 Nm

6.2.2 Removing and installing fresh air intake , right-hand drive vehicles

Removing

- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover .
- Remove cover for fresh air intake ⇒ [page 169](#) .
- Remove air quality sensor - G238- (only on vehicles with Climatronic) ⇒ [page 187](#) .



- Unscrew nuts -arrows-.
- Remove fresh air intake -1- from plenum chamber.

Installing

Install in reverse order of removal. Observe the following:

Assembly sequence:

- Align air intake grille on metal collar.
- Hold air intake grille and screw on outer nut half-way onto welded stud.
- Screw on nut on opposite side.
- Tighten outer nut.
- Tighten centre nut.



Note

- ◆ *The seal -2- must be properly seated on the air intake grille.*
- ◆ *Water may enter the fresh air intake if the grille is damaged or not properly fitted. This may result in complaints about odours from the air conditioning system and/or about moisture in the vehicle.*

Specified torques

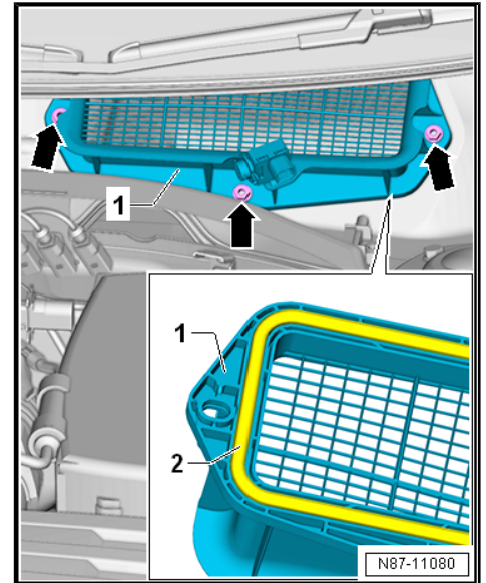
Component	Specified torque
Nut	3 Nm

6.3 Removing and installing cover for fresh air intake

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

- Remove right plenum chamber cover ➔ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead; Removing and installing plenum chamber cover .



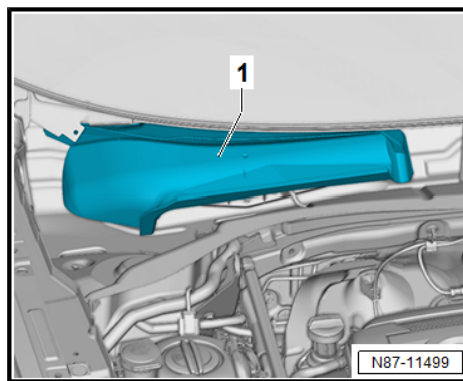


- Detach wiring from cover for fresh air intake -1- as necessary.
- Remove cover -1-.



Note

- ♦ *Water could enter the fresh air intake if the cover for fresh air intake is damaged or not properly fitted. This may result in complaints about odours from the air conditioning system and/or about moisture in the vehicle.*
- ♦ *If the plenum chamber cover is damaged or not properly fitted, water may likewise enter the fresh air intake via the cover for fresh air intake.*



Installing

Install in reverse order of removal.

Specified torques

- ♦ Right plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead; Removing and installing plenum chamber cover

6.4 Removing and installing air intake duct

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

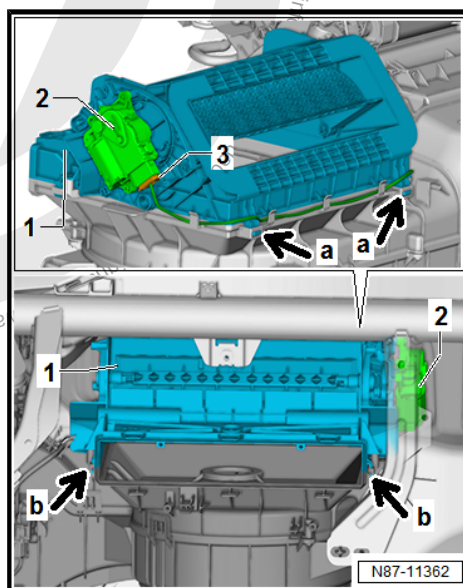
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Remove dust and pollen filter ⇒ [page 132](#) .
- Loosen heater and air conditioning unit and pull it slightly towards front.
- Separate electrical connector -3- from control motor -2-.
- Release retainers -arrows b-.
- Swivel air intake duct -1- upwards and out of mountings -arrows a-.

Installing

Install in reverse order of removal.

Specified torques

- ♦ ⇒ ["5.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box", page 116](#)





6.5 Removing and installing driver side footwell vents

⇒ [“6.5.1 Removing and installing driver side footwell vents, left-hand drive vehicles”, page 171](#)

⇒ [“6.5.2 Removing and installing driver side footwell vents, right-hand drive vehicles”, page 171](#)

6.5.1 Removing and installing driver side footwell vents, left-hand drive vehicles

Removing

- Remove driver side knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- Unscrew bolt -1-.
- Remove footwell vent on driver side -2-.

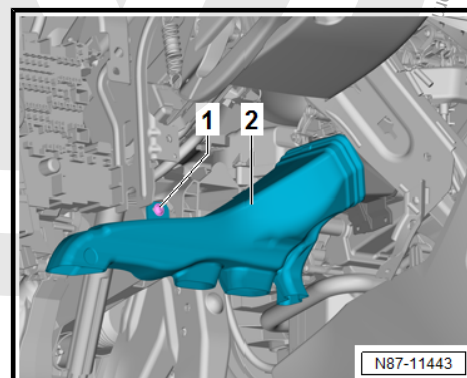
Installing

Install in reverse order of removal, observing the following:

Specified torques

Component	Specified torque
Bolt 4.2 x 16	1.5 Nm

- ◆ Knee airbags; Assembly overview - knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .



6.5.2 Removing and installing driver side footwell vents, right-hand drive vehicles

Removing

- Remove driver side knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .
- Unscrew bolt -2-.
- Remove footwell vent on driver side -1-.

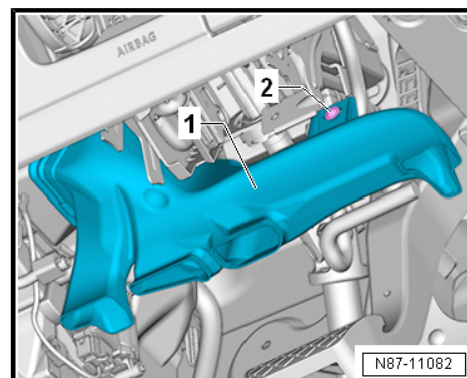
Installing

Install in reverse order of removal.

Specified torques

Component	Specified torque
Bolt 4.2 x 16	1.5 Nm

- ◆ Knee airbags; Assembly overview - knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Knee airbags; Assembly overview - knee airbag .





6.6 Removing and installing front passenger side footwell vents

⇒ "6.6.1 Removing and installing front passenger side footwell vents, left-hand drive vehicles", page 172

⇒ "6.6.2 Removing and installing front passenger side footwell vents, right-hand drive vehicles", page 172

6.6.1 Removing and installing front passenger side footwell vents, left-hand drive vehicles

Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- If fitted, unscrew bolt -2-.
- Unscrew bolts -arrow A-.
- Pull out dash panel frame slightly.
- Push clip upwards in direction of -arrow B- and unhook footwell vent on front passenger side.
- Remove footwell vent on front passenger side -1-.

Installing

Install in reverse order of removal. Observe the following:



Note

If the vehicle has glove compartment cooling, ensure that the cooling hose is properly seated.

Specified torques

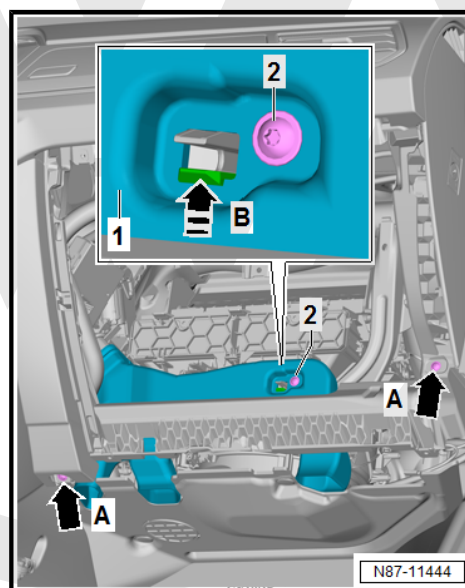
Component	Specified torque
Bolt 4.2 x 16	1.5 Nm

- ♦ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .

6.6.2 Removing and installing front passenger side footwell vents, right-hand drive vehicles

Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .





- Unscrew bolts -4-.
- Unscrew bolt -2-.
- Unhook clip -3- of footwell vent on front passenger side -1-.
- Pull dash panel frame forwards slightly.
- Remove footwell vent on front passenger side -1-.

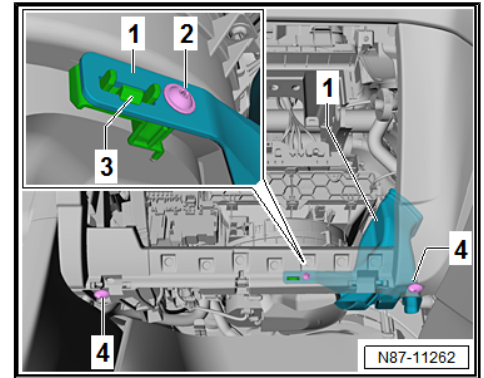
Installing

Install in reverse order of removal. Observe the following:



Note

If the vehicle has glove compartment cooling, ensure that the cooling hose is properly seated.



Specified torques

Component	Specified torque
Bolt 4.2 x 16	1.5 Nm

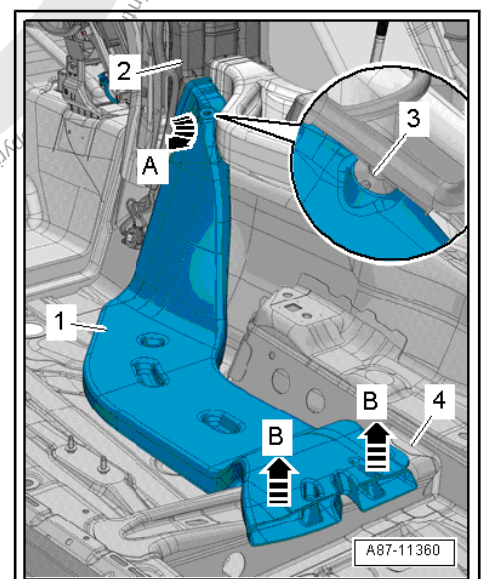
- ◆ Compartments/covers; Assembly overview - glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Assembly overview - glove compartment .

6.7 Removing and installing rear footwell vent

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

- Remove sill panel trim ⇒ General body repairs, interior; Rep. gr. 70 ; Trims, interior; Removing and installing sill panel trim .
- Remove the front seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Lift the floor covering in the area of the vent.
- Prise off the cable clip -3-.
- Lift up the rear footwell vent -1- -arrows B-, detach from the heater and air conditioning unit -2- -arrow A- and take out to the side.

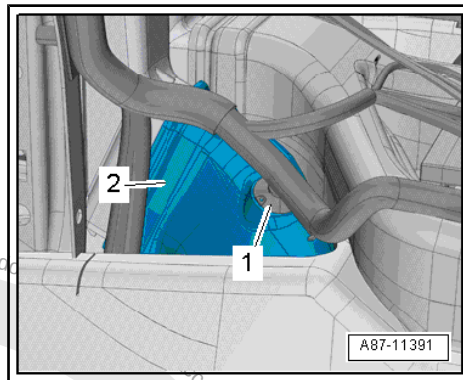




Installing

Install in reverse order of removal. Observe the following:

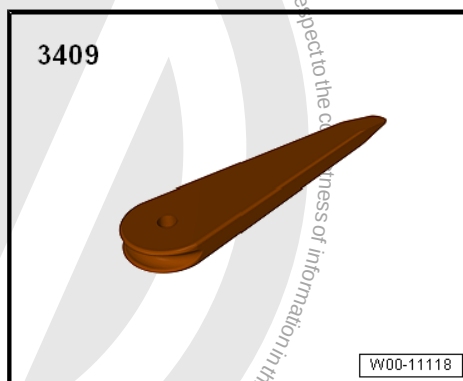
- Check the cable clip -1- for damage before pressing on at footwell vent -2-. A loose cable clip or damaged seal can lead to flow noise.



6.8 Removing and installing air duct for rear vent

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



Removing

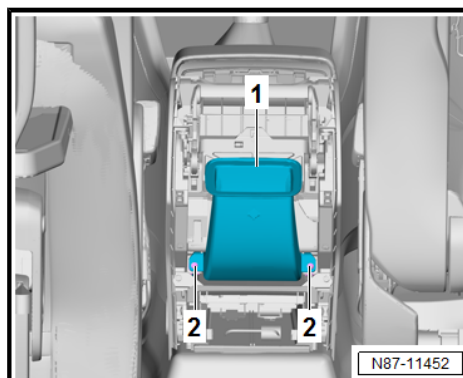
- Remove trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console .
- Remove rear vent temperature sender - G174- ⇒ [page 191](#)
- Unscrew bolts -2-.
- Remove air duct for rear vent -1-.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Install trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console .



6.9 Removing and installing rear centre console vent duct

The following information applies to left-hand drive vehicles. A right-hand drive vehicle is similar.

Removing

- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .



Note

If the vehicle is not provided with rear vents, a cap is fitted on the air distribution housing. The cap is removed in -direction of arrow A-.

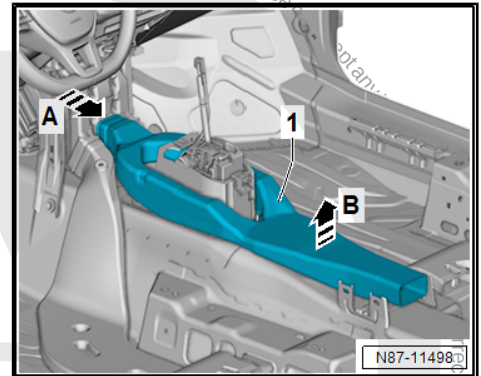
- Remove air duct -1-.
- Swing air duct -1- upwards in -direction of arrow B-.
- Remove air duct -1- in direction of -arrow A-.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .



6.10 Checking forced ventilation for passenger compartment



Note

- ◆ *The stale air escapes via ventilation outlets in the luggage compartment trim.*
- ◆ *The ventilation openings must not be covered if the ventilation is to function properly.*
- ◆ *The ventilation frames are located in the rear side panels behind the bumper.*

The ventilation can be checked through the luggage compartment.

Additional units may have to be removed.

- Remove luggage compartment side trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage compartment trims; Overview of fitting locations - luggage compartment side trim .
- Sealing lips in ventilation frames on both sides of vehicle must be free to move and close by themselves.

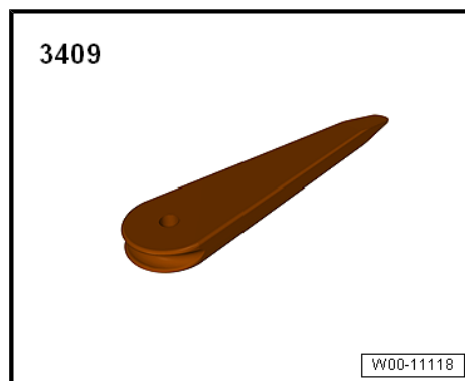
6.11 Removing and installing forced ventilation for passenger compartment

The figure shows a saloon.

Special tools and workshop equipment required



◆ Removal wedge - 3409-



Removing

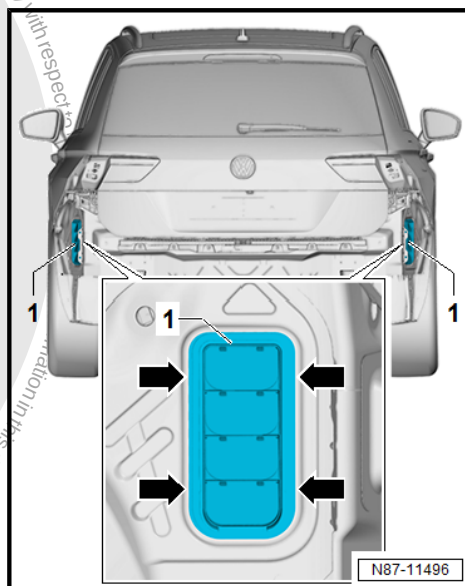
- Remove rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper; Removing and installing bumper cover .
- Use removal wedge - 3409- to release locking lugs -arrows-.
- Pull ventilation frame -1- out of side panel.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Rear bumper; Assembly overview - rear bumper ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper; Assembly overview - bumper cover .



6.12 Removing and installing air duct for defroster vent

Removing

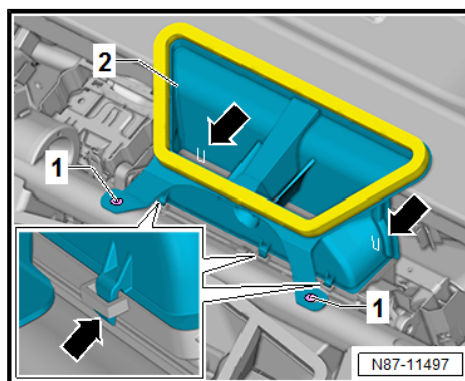
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove clips -1-.
- Disengage retaining tabs -arrows-.
- Remove air duct for defroster vent -2- upwards from heater and air conditioning unit.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .





6.13 Removing and installing air duct for centre dash panel vent

Removing

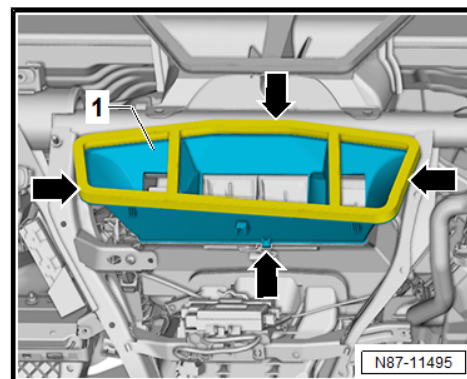
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Disengage retaining tabs -arrows-.
- Remove air duct for centre dash panel vent -1- from heater and air conditioning unit.

Installing

Install in reverse order of removal.

Specified torques

- ◆ Dash panel; Assembly overview - dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Assembly overview - dash panel .





7 Operating and display unit

⇒ [“7.1 Overview of operating and display unit”, page 178](#)

⇒ [“7.2 Removing and installing operating and display unit”, page 183](#)

7.1 Overview of operating and display unit

⇒ [“7.1.1 Overview of control and display unit, air conditioning system with electric/manual controls”, page 178](#)

⇒ [“7.1.2 Overview of operating and display unit, Climatronic”, page 180](#)

⇒ [“7.1.3 Overview of operating and display unit, rear”, page 183](#)

7.1.1 Overview of control and display unit, air conditioning system with electric/manual controls



Note

- ◆ A warning lamp in the instrument panel controls will indicate that the selected function is active.
- ◆ If the indicator lamp does not light up after the **A/C** button is pressed, a fault may be stored in the control unit. Read the event memory using the ⇒ *Vehicle diagnostic tester*. If the entry “Compressor first run not performed” is stored in the event memory, a “Compressor first run” adaptation must be carried out in *Guided Fault Finding* or *Guided Functions*.



1 - Button for left seat heating - E653-

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.

2 - A/C button

- ☐ If the A/C button is deactivated, the air conditioner compressor will be set to almost zero delivery.

3 - Heated rear window button

- ☐ Depending on ambient temperature, rear window heating will remain on from 4 to 20 minutes.

4 - Air recirculation button



Note

Air recirculation mode changes to fresh air mode when ignition is switched off.

5 - Instant heat button for switching auxiliary heater ON/OFF or OFF button for switching heater and air conditioning unit ON/OFF

- ☐ Depending on equipment
- ☐ OFF button activated, air conditioning not working. There is no heating and ventilation.

6 - Button for right seat heating - E654-

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.

7 - Rotary knob for setting air distribution

8 - Display for air distribution

9 - Rotary knob for setting blower speed

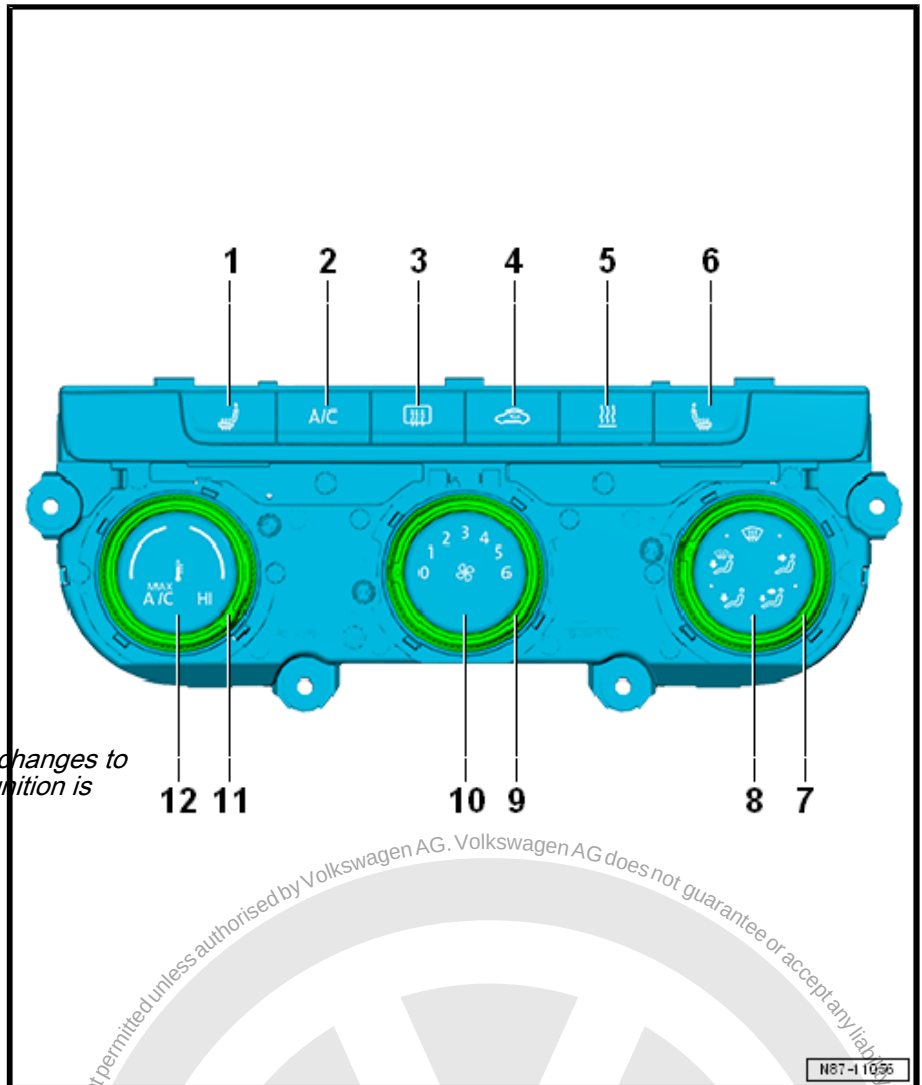
- ☐ Anticlockwise: reduces blower speed
- ☐ Clockwise: increases speed

10 - Display for blower speed

11 - Rotary knob for setting temperature

- ☐ Anticlockwise: lowers temperature
- ☐ Clockwise: increases temperature

12 - Temperature setting display



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7.1.2 Overview of operating and display unit, Climatronic



Note

- ◆ A warning lamp in the instrument panel controls will indicate that the selected function is active. In addition, the display of the radio or of the radio navigation system will indicate the selected function for a short time when a button is pressed or a regulator is operated.
- ◆ You can switch between °C and °F in the radio or radio navigation system display via the main menu in the dash panel insert. Press rocker switch in windscreen wiper lever (or in multifunction steering wheel) to call up main menu. Then, select Settings, Units and Temperature.
- ◆ If new heater and air conditioning controls - EX21- with Climatronic control unit - J255- are installed, the basic setting and an adaptation ("Compressor first run") must be carried out in Guided Fault Finding or in Guided Functions.
- ◆ If the indicator lamp does not light up after the **A/C** button is pressed, a fault may be stored in the control unit. Read the event memory using the ⇒ Vehicle diagnostic tester. If the event entry "Compressor first run not performed" is stored, an adaption ("Compressor first run") must be carried out in the "Guided Fault Finding".
- ◆ Pressing the **AUTO** button will cancel all settings which deviate from automatic mode.
- ◆ Deviations from automatic mode ⇒ respective operating instructions.
- ◆ **OFF** button activated, Climatronic out of operation. There is no heating and ventilation.
- ◆ **OFF** button deactivated, Climatronic in operation.
- ◆ **A/C** button activated, air conditioner compressor switched on. The heating and ventilation operations continue to be controlled electronically.
- ◆ **A/C** button deactivated, air conditioner compressor will be switched to almost zero delivery. The heating and ventilation operations continue to be controlled electronically.



1 - Left temperature indicator

- ☐ Indicates temperature setting on driver side.

2 - Button for left seat heating - E653-

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.

3 - Windscreen air distribution button

- ☐ LED lights up when settings are active.

4 - Centre air distribution button

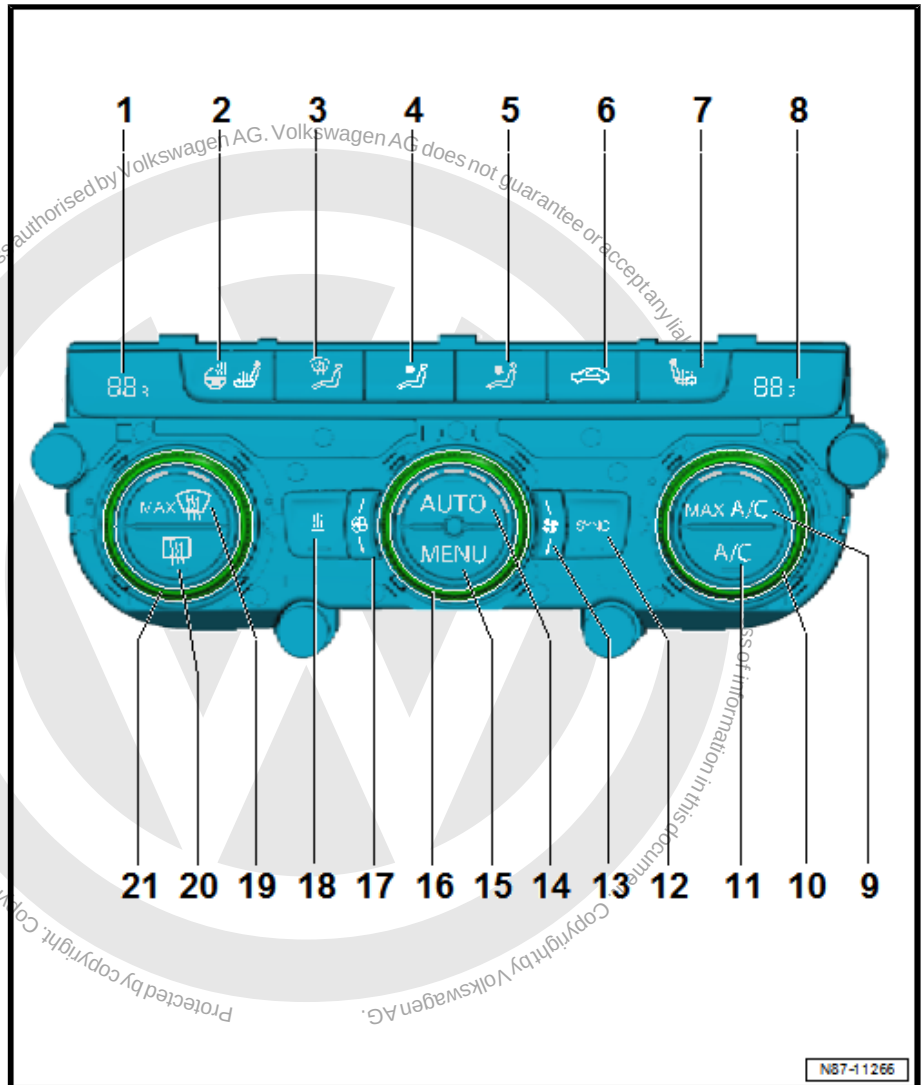
- ☐ Air distributed to upper body via middle vents.
- ☐ LED lights up when settings are active.

5 - Lower air distribution button

- ☐ Air distributed to footwell.
- ☐ LED lights up when settings are active.

6 - Air recirculation button

- ☐ LED lights up when settings are active.
- ☐ Manual and automatic air recirculation mode.
- ☐ Pressing the air recirculation button will prevent polluted air from entering the interior.



Air recirculation is switched on automatically under the following conditions:

- if the windscreen washer system is operated,
- if the air quality sensor - G238- is active,
- if reverse gear is engaged (this function is active only for first 2 minutes after starting engine),
- if the blower speed on heater and air conditioning controls - EX21- is off, or
- if the heater and air conditioning controls - EX21- "OFF".

7 - Button for right seat heating - E654-

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.

8 - Right temperature indicator

- ☐ Indicates temperature setting on front passenger side.

9 - **A/C** button

- ☐ LED lights up when settings are active.
- ☐ Air conditioning system is operated with maximum cooling output.

10 - **A/C** button

- ☐ LED lights up when settings are active.



- ☐ If the **A/C** button is deactivated, the air conditioner compressor will be set to almost zero delivery. If the **AUTO** button is activated, heating and ventilation mode will continue to be controlled electronically.

11 - Rotary knob for setting right temperature

- ☐ Set temperature is indicated in display.

12 - **Sync** button

- ☐ LED lights up when settings are active.
- ☐ Synchronisation of climate zones to driver value.

13 - Reduce blower speed

- ☐ Display only, no function.

14 - **AUTO** function button

- ☐ LED lights up when settings are active.
- ☐ In automatic mode, the Climatronic maintains the selected interior temperature automatically. With this setting, the vent air temperature, the blower speed and the air distribution are controlled automatically.

15 - **MENU** button

- ☐ When **MENU** button is pressed, the menu for setting e.g. recirculation mode, auxiliary heater mode etc. is displayed.

16 - Rotary knob for blower adjustment

- ☐ Turning the rotary knob enables individual adjustment of the blower speed.
- ☐ If the fan speed is changed individually, the **AUTO** function is deactivated automatically.

17 - Increase blower speed

- ☐ Display only, no function.

18 - Instant heating button for switching auxiliary heater on/off or **OFF** button for switching air conditioning system on/off or **REST** button

- ☐ Depending on equipment
- ☐ **OFF** button activated, Climatronic out of operation. There is no heating and ventilation.

19 - Max. defrost function button

- ☐ Air drawn in from the outside is channelled to the windscreen and air recirculation mode, if activated, is automatically switched off.
- ☐ To demist the windscreen as quickly as possible, the air is dried at temperatures above approx. +1.5°C (+35°F). The air conditioner compressor is switched on and the blower is set to a high speed.

20 - Heated rear window button

- ☐ LED lights up when settings are active.
- ☐ Works only while engine is running and switches off automatically after 10 minutes at the latest.

21 - Rotary knob for setting left temperature

- ☐ Set temperature is indicated in display.



7.1.3 Overview of operating and display unit, rear

1 - Button for seat heating

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.

2 - Button to regulate temperature

- ☐ Set temperature is indicated in display.

3 - Temperature display

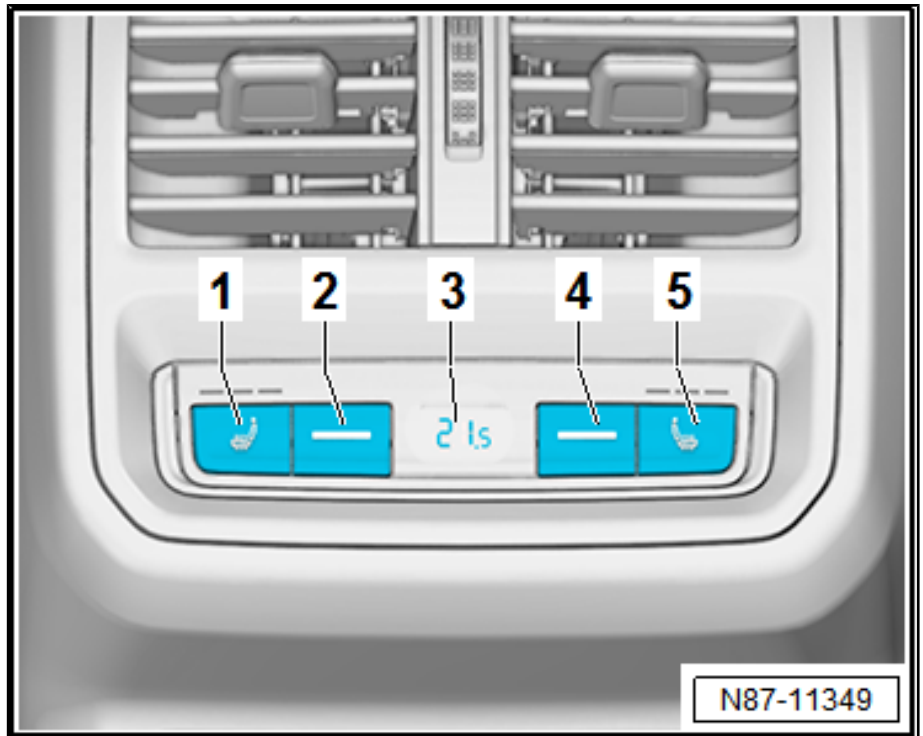
- ☐ Indicates temperature setting.

4 - Button to regulate temperature

- ☐ Set temperature is indicated in display.

5 - Button for seat heating

- ☐ Optional
- ☐ The seat heater has 3 heat settings. Current setting is shown by LED.
- ☐ If no LED is lit, seat heating is switched off.



7.2 Removing and installing operating and display unit

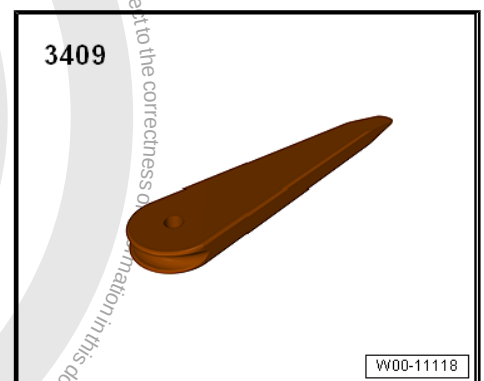
⇒ ["7.2.1 Removing and installing operating and display unit, front", page 183](#)

⇒ ["7.2.2 Removing and installing rear operating and display unit", page 184](#)

7.2.1 Removing and installing operating and display unit, front

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-





Note

If a new Climatronic control unit - J255- or air conditioning system control unit - J301- is installed, the function "Renew control unit", the basic setting and an adaption ("Compressor first run") must be carried out in the "Guided Fault Finding" or in the "Guided Functions".

Removing



Note

The picture shows a vehicle with Climatronic. The removal and installation for vehicles with manual electronic air conditioning is identical.

- Remove trim for operating and display unit ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for operating and display unit .
- Press operating and display unit in direction of the dash panel to release the expansion rivets.
- Pull out spreader rivets -2- in direction of -arrow A-.
- Remove operating and display unit -1- in direction of -arrow B-.

Installing

- Install in reverse order of removal.



Note

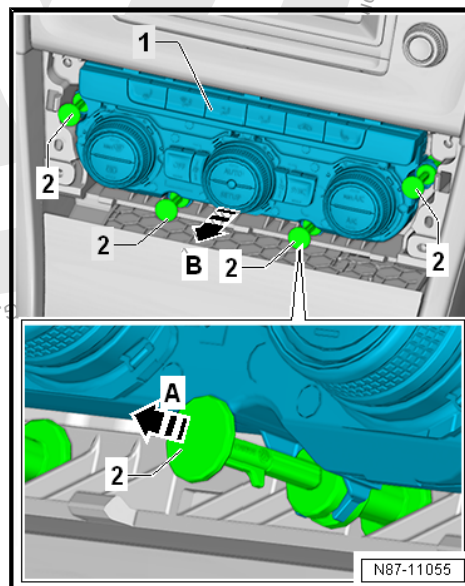
If a new Climatronic control unit - J255- or air conditioning system control unit - J301- is installed, the function "Renew control unit", the basic setting and an adaption ("Compressor first run") must be carried out in the "Guided Fault Finding" or in the "Guided Functions".

Specified torques

- ◆ Removing and installing trim for operating and display unit ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for operating and display unit

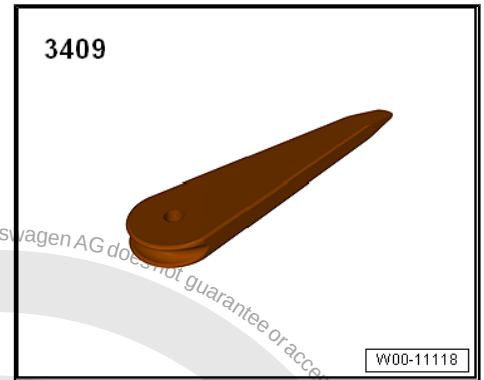
7.2.2 Removing and installing rear operating and display unit

Special tools and workshop equipment required





◆ Removal wedge - 3409-



Note

If a new rear Climatronic operating and display unit - E265- is installed, the function Renewing control unit as well as the basic settings must be performed in Guided Fault Finding or in Guided Functions.

Removing

- Remove trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console
- Unclip operating and display unit -1- from retainers -arrows-.

Installing

- Insert operating and display unit into trim and engage.
- Further installation is performed in the reverse order.

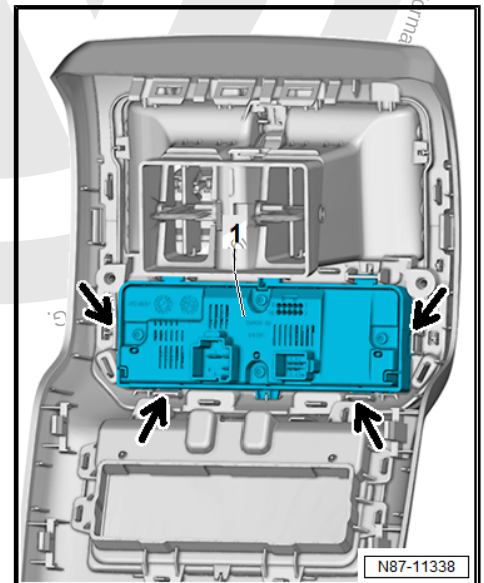


Note

If a new rear air conditioning system operating and display unit - E265- is installed, the function Renewing control unit as well as the basic settings must be performed in Guided Fault Finding or in Guided Functions.

Specified torques

- ◆ Removing and installing trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console





8 Other controlling and regulating components

⇒ ["8.1 Removing and installing sunlight penetration photosensor G107", page 186](#)

⇒ ["8.2 Removing and installing air quality sensor G238", page 187](#)

⇒ ["8.3 Removing and installing ambient temperature sensor G17", page 188](#)

⇒ ["8.4 Removing and installing humidity sender for air conditioning system G260", page 189](#)

⇒ ["8.5 Removing and installing left vent temperature sender G150", page 189](#)

⇒ ["8.6 Removing and installing right vent temperature sender G151", page 190](#)

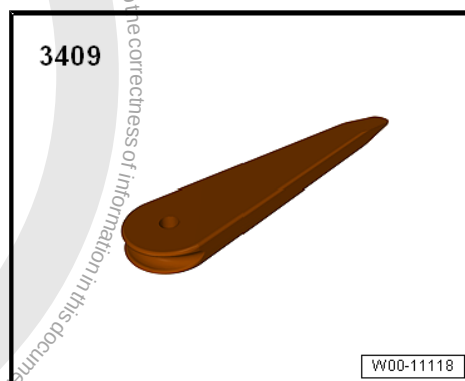
⇒ ["8.7 Removing and installing rear vent temperature sender G174", page 191](#)

⇒ ["8.8 Removing and installing footwell vent temperature sender G192", page 192](#)

8.1 Removing and installing sunlight penetration photosensor - G107-

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

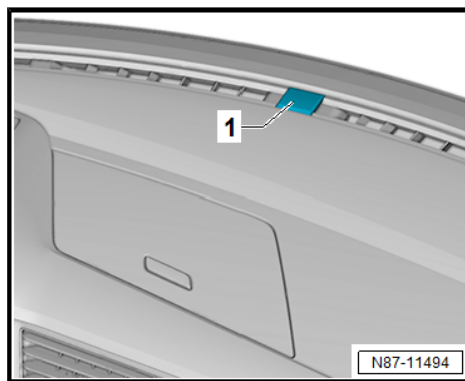


Removing

- Unclip sunlight penetration photosensor - G107- -1- upwards out of dash panel.
- Separate connector.

Installing

Install in reverse order of removal.





8.2 Removing and installing air quality sensor - G238-

⇒ ["8.2.1 Removing and installing air quality sensor G238 , left-hand drive vehicles", page 187](#)

⇒ ["8.2.2 Removing and installing air quality sensor G238 , right-hand drive vehicles", page 188](#)

8.2.1 Removing and installing air quality sensor - G238- , left-hand drive vehicles



Note

- ◆ The air quality sensor - G238- is installed on the front right (in direction of travel) of the air intake grille in the plenum chamber.
- ◆ The air quality sensor - G238- is a highly sensitive electronic component which could be destroyed by direct contact with solvents, fuels and certain chemical compounds.
- ◆ Do not install a sensor that has been kept e.g. in a tool box.
- ◆ Do not place a removed sensor in an area where it can come into contact with solvents, fuels and certain chemical compounds.
- ◆ The air quality sensor - G238- is installed only in vehicles with Climatronic.

Removing

- Remove cover for fresh air intake ⇒ [page 169](#) .
- Release retaining tab -2- downwards.
- Pull air quality sensor - G238- -1- in -direction of arrow-.
- Separate electrical connector.

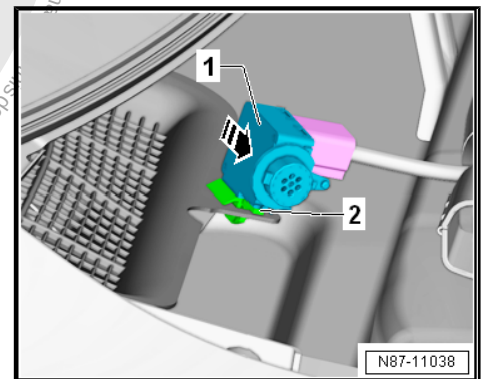
Installing

Install in reverse order of removal. Observe the following:

- Read event memory and erase any entries ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Specified torques

- ◆ Plenum chamber bulkhead; Assembly overview - plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead; Assembly overview - plenum chamber cover





8.2.2 Removing and installing air quality sensor - G238- , right-hand drive vehicles



Note

- ♦ The air quality sensor - G238- is installed on the air intake grille in the front left (from the driver's perspective) of the plenum chamber.
- ♦ The air quality sensor - G238- is a highly sensitive electronic component which could be destroyed by direct contact with solvents, fuels and certain chemical compounds.
- ♦ Do not install a sensor that has been kept, for example, in a tool box.
- ♦ Do not place a removed sensor in an area where it can come into contact with solvents, fuels and certain chemical compounds.
- ♦ The air quality sensor - G238- is installed only in vehicles with Climatronic.

Removing

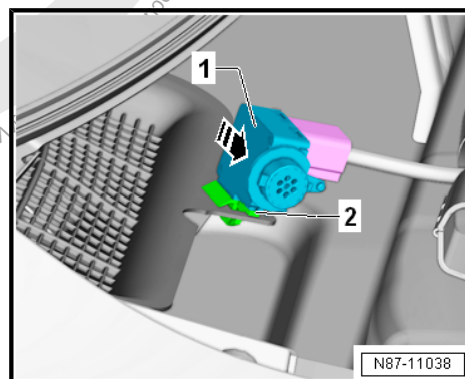
- Remove cover for fresh air intake ➔ [page 169](#) .



Note

The illustration shows a left-hand drive vehicle. Removal is analogous.

- Release retaining tab -2- downwards.
- Pull air quality sensor - G238- -1- in -direction of arrow-.
- Separate electrical connector.



Installing

Install in reverse order of removal. Observe the following:

- Read event memory and erase any entries ➔ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Specified torques

- ♦ Plenum chamber bulkhead; Assembly overview - plenum chamber cover ➔ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead; Assembly overview - plenum chamber cover

8.3 Removing and installing ambient temperature sensor - G17-

Removing



Note

- ♦ Different bumper versions.
- ♦ The bumper must only be removed on vehicles where the ambient temperature sensor - G17- cannot be removed by reaching through the bumper.



- If necessary, remove front bumper cover ➔ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing bumper cover .
- Release retaining clip -arrow-.
- Pull ambient temperature sensor - G17- -1- downwards off retainer.
- Separate connector -2-.

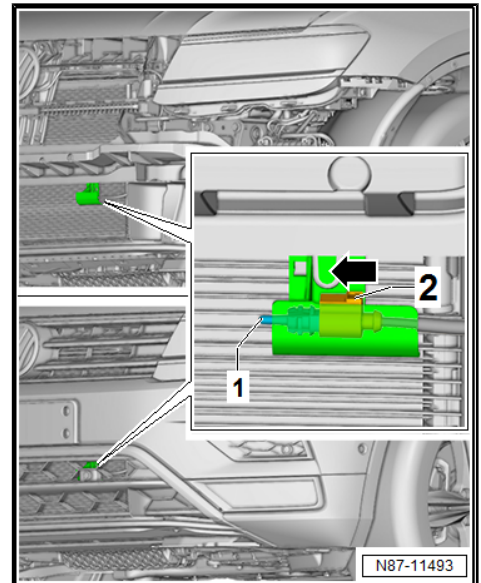
Installing

- Fit connector -2-.
- Engage retaining clip -arrow-.



Note

Ensure electrical wiring connector is properly seated to prevent ingress of water.



8.4 Removing and installing humidity sender for air conditioning system - G260-

The humidity sender for air conditioning system - G260- and the light and rain sensor - G397- form one component and are installed depending on vehicle equipment.

- Removal and installation procedure is described in ➔ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing light/rain sensor - G397- .



Note

Diagnosis is carried out via onboard supply control unit - J519- .

8.5 Removing and installing left vent temperature sender - G150-

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester

Removing



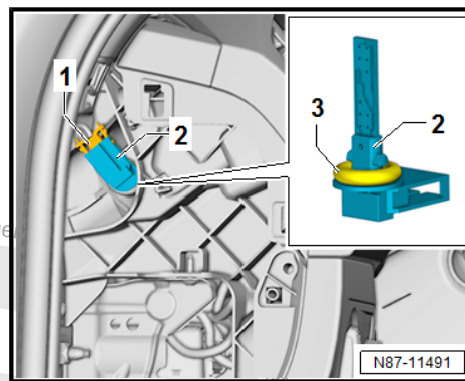
Note

Only on vehicles with Climatronic. On vehicles with air conditioning system with electric/manual controls, the apertures in the air ducts are sealed with plugs.

- Remove gap cover on A-pillar ➔ General body repairs, interior; Rep. gr. 70 ; Trims, interior; Removing and installing gap cover on A-pillar .



- Turn left vent temperature sender - G150- -2- 90°, and pull it out of mounting.
- Separate electrical connector -1-.



Installing

- Renew seal -1- if damaged or defective.
- Attach electrical connector -3-.
- Insert left vent temperature sender - G150- -2- into mounting and turn it 90°.



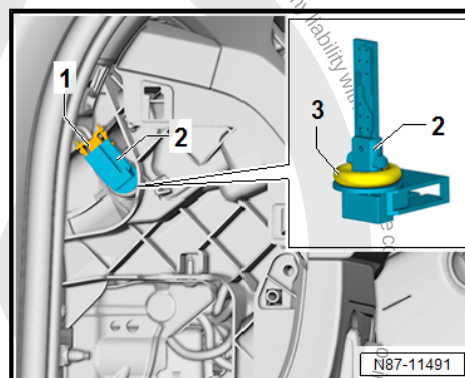
Note

An incorrectly installed vent temperature sender will cause flow noise

- Read event memory and erase any entries ⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Specified torques

- ◆ Dash panel end cover ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel: Removing and installing dash panel end cover .



8.6 Removing and installing right vent temperature sender - G151-

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing



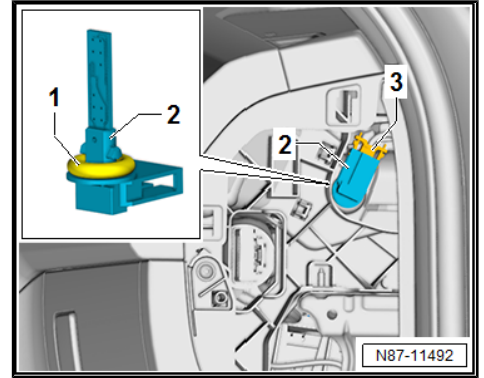
Note

Only on vehicles with Climatronic. On vehicles with air conditioning system with electric/manual controls, the apertures in the air ducts are sealed with plugs.

- Remove gap cover on A-pillar ⇒ General body repairs, interior; Rep. gr. 70 ; Trims, interior; Removing and installing gap cover on A-pillar .



- Turn right vent temperature sender - G151- -2- 90°, and pull it out of mounting.
- Separate connector -3-.



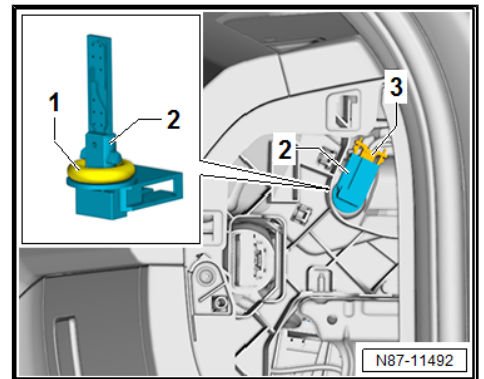
Installing

- Renew seal -1- if damaged or defective.
- Attach electrical connector -3-.
- Insert right vent temperature sender - G151- -2- into mounting, and turn it 90°.



Note

An incorrectly installed vent temperature sender will cause flow noise



- Read event memory and erase any entries ⇒ Vehicle diagnostic tester in “Guided Fault Finding” mode.

Specified torques

- ◆ Dash panel; Removing and installing dash panel end cover ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel end cover

8.7 Removing and installing rear vent temperature sender - G174-

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Removing



Note

Only on vehicles with Climatronic. On vehicles with air conditioning system with electric/manual controls, the apertures in the air ducts are sealed with plugs.

- Remove trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console .



- Separate connector -2-.
- Turn vent temperature sender -1- in -direction of arrow- and pull it out of mounting.

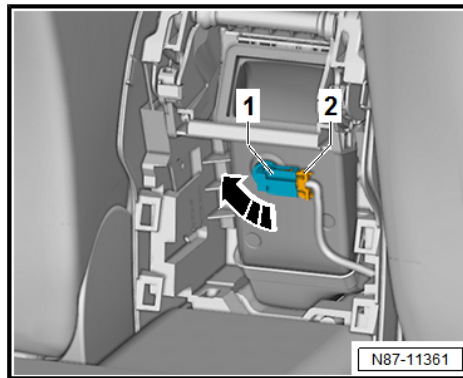
Installing

Install in reverse order of removal. Observe the following:



Note

An incorrectly installed vent temperature sender will cause flow noise



- Read event memory and clear any entries displayed using
⇒ Vehicle diagnostic tester in "Guided Fault Finding" mode.

Specified torques

- Install trim for rear centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing trim for rear centre console .

8.8 Removing and installing footwell vent temperature sender - G192-

Special tools and workshop equipment required

- ♦ Removal wedge - 3409-



- ♦ Vehicle diagnostic tester

Removing



Note

Only on vehicles with Climatronic. On vehicles with air conditioning system with electric/manual controls, the apertures in the air ducts are sealed with plugs.

- Remove footwell vent on driver side ⇒ [page 171](#) .



- Slightly lift footwell vent temperature sender - G192- -2-.
- Release retaining tabs -arrows- using removal wedge - 3409- .
- Pull out footwell vent temperature sender - G192- -2- upwards.
- Separate electrical connector -1-.

Installing

Install in reverse order of removal.

