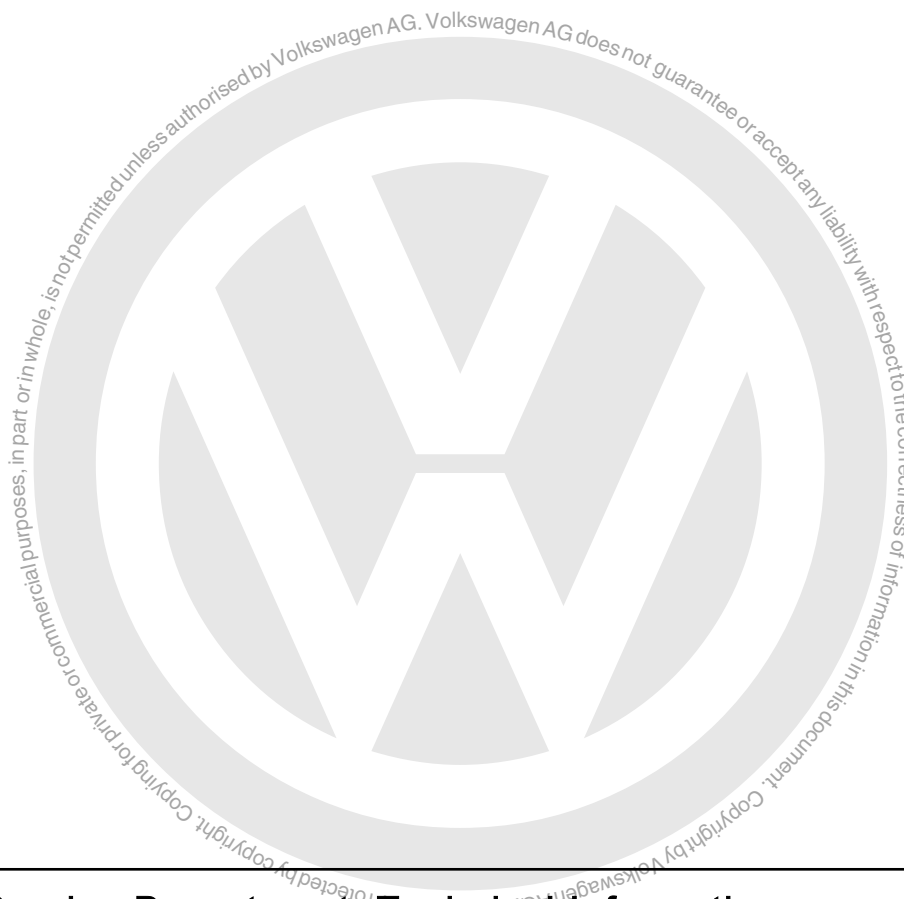




## Workshop Manual e-up! 2017 ➤

### 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

(VRL010531; 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 precautions when working on a high-voltage system”, page 2](#)

⇒ [“1.3 Safety precautions when working on a high-voltage system”, page 2](#)

⇒ [“1.4 Safety precautions when working in the vicinity of high-voltage components”, page 3](#)

⇒ [“1.5 Safety precautions when working on the cooling system”, page 3](#)

#### 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 precautions when working on a high-voltage system**

### **Danger to life from high voltage**

The high-voltage system is under high voltage. Severe or fatal injury from electric shock.

- Persons with life-preserving or other electronic medical devices in or on their body must not perform any work on the high-voltage system. Such medical devices include internal analgesic pumps, implanted defibrillators, pacemakers, insulin pumps and hearing aids.
- The high-voltage system must be de-energised by a suitably qualified technician.

### **Risk of injury due to unexpected motor start**

On electric and hybrid vehicles, it can easily be missed that the vehicle is in „ready“ mode. There is a risk of parts of the body becoming trapped or drawn in.

- Switch off ignition.
- Always store the ignition key outside the vehicle.

### **Risk of damage to high-voltage cables**

Improper handling of high-voltage cables or high-voltage connectors can result in damage to their insulation.

- Never support body weight on high-voltage cables or high-voltage connectors.
- Never support any tools on high-voltage cables or high-voltage connectors.
- Never kink or severely bend high-voltage cables.
- Always observe the coding when connecting high-voltage connectors.



## 1.4 Safety precautions when working in the vicinity of high-voltage components

### Danger to life from high voltage

The high-voltage system is under high voltage. Damage to high-voltage components can result in severe or fatal injury from electric shock.

- Perform visual check of high-voltage components and high-voltage cables.
- Never use cutting or forming tools, or any other sharp-edged tools.
- Never use heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.

## 1.5 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.



## 2 General information

⇒ [“2.1 Notes concerning odours in air conditioned vehicles”, page 4](#)

⇒ [“2.2 Type plates”, page 4](#)

### 2.1 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

### 2.2 Type plates

⇒ [“2.2.1 Identification plates, refrigerant R1234yf”, page 4](#)

⇒ [“2.2.2 Identification plates, refrigerant R134a”, page 5](#)

#### 2.2.1 Identification plates, refrigerant R1234yf

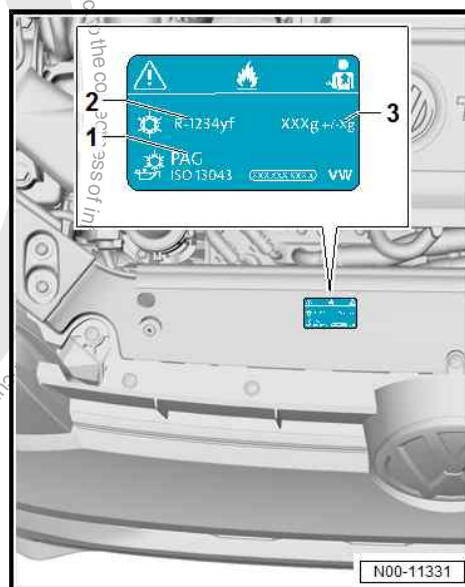
Identification plate with capacities for refrigerant R1234yf and refrigerant oil

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



#### Note

- ◆ A tolerance of  $\pm 15 \text{ g}$  is permissible although not indicated on the identification plate.
- ◆ Capacities for refrigerant R1234yf and refrigerant oil  
⇒ [“4 Technical data”, page 8](#).







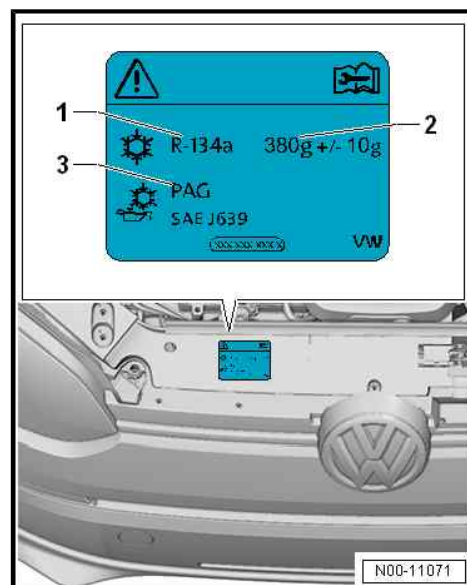
## 2.2.2 Identification plates, refrigerant R134a

Identification plate with capacities for refrigerant R134a and refrigerant oil

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

Contrary to the manufacturer's plate, a tolerance of  $380 \pm 15$  g is permissible.

Capacities for refrigerant R134a and refrigerant oil  
⇒ ["4 Technical data", page 8](#) .





## 3 Repair notes

⇒ ["3.1 Working on refrigerant circuit", page 6](#)

⇒ ["3.2 General repair instructions", page 6](#)

⇒ ["3.3 Refrigerant circuit seals", page 6](#)

### 3.1 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/ desiccant cartridge 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 .

### 3.2 General repair instructions

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

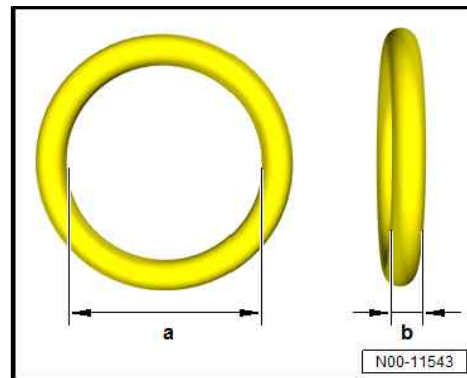
### 3.3 Refrigerant circuit seals

- ◆ Renew seals after removal.
- ◆ Moisten seals with refrigerant oil before installing.
- ◆ Ensure proper seating of seals on the pipe or in the groove.



- ◆ Work in a completely clean environment. Even the smallest contaminants, e.g. a hair, can cause leaks.
- ◆ 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) .





## 4 Technical data

⇒ "4.1 Refrigerant capacity", page 8

⇒ "4.2 Refrigerant oil", page 8

⇒ "4.3 Oil distribution", page 9

### 4.1 Refrigerant capacity

⇒ "4.1.1 Capacities for refrigerant R1234yf", page 8

⇒ "4.1.2 Capacities for refrigerant R134a", page 8

#### 4.1.1 Capacities for refrigerant R1234yf

Total capacity
340 grammes



#### Note

A tolerance of  $\pm 15$  g is permissible although not indicated on the identification plate.

#### 4.1.2 Capacities for refrigerant R134a

Total capacity
$380 \pm 10$ grammes



#### Note

Contrary to the manufacturer's plate, a tolerance of  $380 \pm 15$  g is permissible.

### 4.2 Refrigerant oil

⇒ "4.2.1 Refrigerant oil R1234yf", page 8

⇒ "4.2.2 Refrigerant oil R134a", page 8

#### 4.2.1 Refrigerant oil R1234yf

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 <sup>1)</sup>
Air conditioner compressor, manufacturer: Hanon	$120 \pm 10$ cm <sup>3</sup>

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

#### 4.2.2 Refrigerant oil R134a

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 <sup>2)</sup>
Air conditioner compressor, manufacturer: Visteon	150 ± 10 cm <sup>3</sup>

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

### 4.3 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 ambient 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

- ◆ *The only heating system presently available for the e-up! has an integrated air conditioning system.*
- ◆ *For information on repairs, refer to [⇒ g r.87 "Air conditioning system", page 11](#) .*





## 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 11](#)

⇒ [“1.2 Overview of fitting locations - components located in front section of passenger compartment”, page 15](#)

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

⇒ [“1.1.1 Overview of fitting locations - components not located in passenger compartment, left-hand drive vehicles”, page 11](#)

⇒ [“1.1.2 Overview of fitting locations - components not located in passenger compartment, right-hand drive vehicles”, page 13](#)

##### 1.1.1 Overview of fitting locations - components not located in passenger compartment, left-hand drive vehicles



#### Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/ desiccant cartridge 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

- ☐ Removing and installing ⇒ [page 83](#)
- ☐ Checking ⇒ [page 82](#) .

### 2 - Humidity sender for air conditioning system - G260-

- ☐ Removing and installing ⇒ Electrical system; Rep. gr. 92 ; Wind-screen wiper system; Removing and installing rain and light sensor - G397- .
- ☐ 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.

### 3 - Expansion valve

- ☐ Removing and installing ⇒ [page 21](#)

### 4 - High-pressure sender - G65-

- ☐ Removing and installing ⇒ [page 19](#)

### 5 - Evacuating and charging valve, high-pressure side

- ☐ Removing and installing ⇒ [page 28](#)

### 6 - Ambient temperature sensor - G17-

- ☐ Removing and installing ⇒ [page 92](#)

### 7 - Condenser

- ☐ Removing and installing ⇒ [page 24](#)

### 8 - Desiccant cartridge

- ☐ Removing and installing ⇒ [page 26](#)

### 9 - Electrical air conditioner compressor - V470-

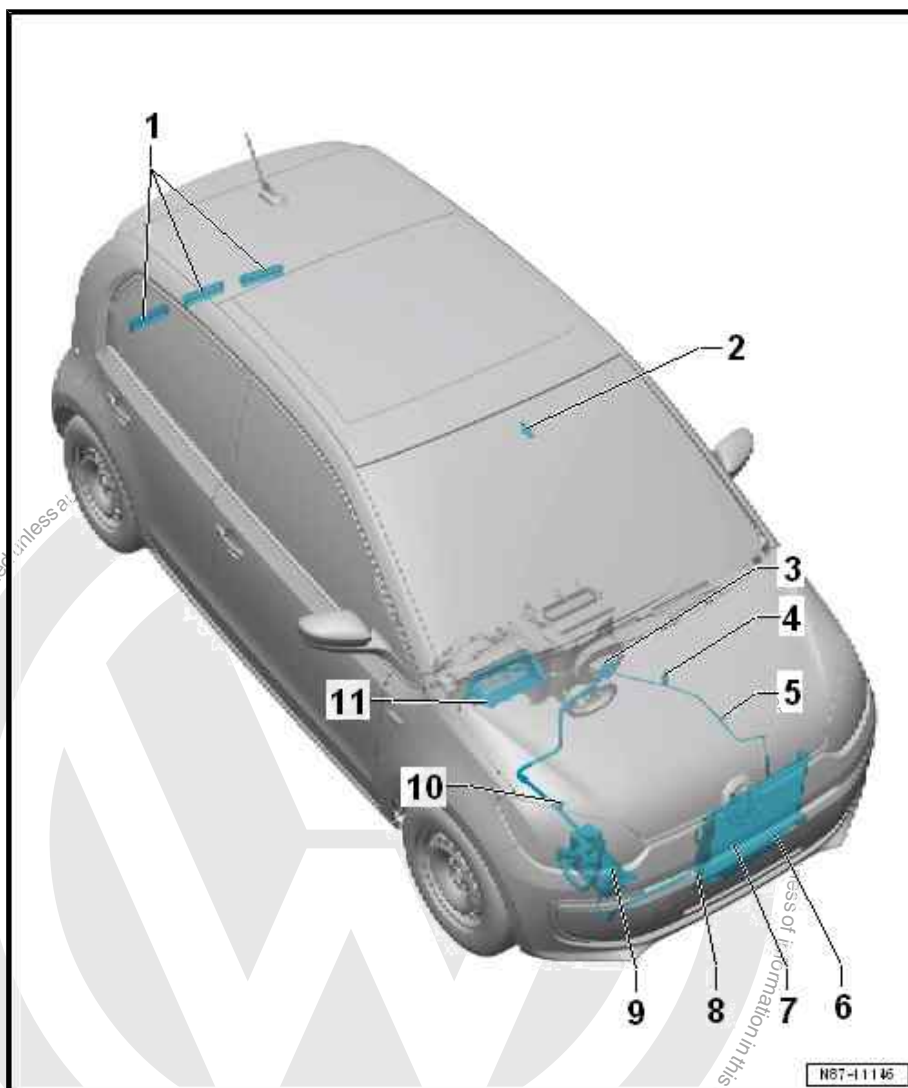
- ☐ With control unit for air conditioning compressor - J842-
- ☐ Removing and installing ⇒ [page 33](#)

### 10 - Evacuating and charging valve, low-pressure side

- ☐ Removing and installing ⇒ [page 28](#)

### 11 - Fresh air intake connecting piece

- ☐ Removing and installing ⇒ [page 83](#)







## 1.1.2 Overview of fitting locations - components not located in passenger compartment, right-hand drive vehicles



### Note

- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/ desiccant cartridge 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

- ☐ Removing and installing ⇒ [page 83](#)
- ☐ Checking ⇒ [page 82](#)

### 2 - Humidity sender for air conditioning system - G260-

- ☐ Removing and installing ⇒ Electrical system; Rep. gr. 92; Wind-screen wiper system; Removing and installing rain and light sensor - G397-
- ☐ 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.

### 3 - Expansion valve

- ☐ Removing and installing ⇒ [page 21](#)

### 4 - High-pressure sender - G65-

- ☐ Removing and installing ⇒ [page 19](#)

### 5 - Evacuating and charging valve, high-pressure side

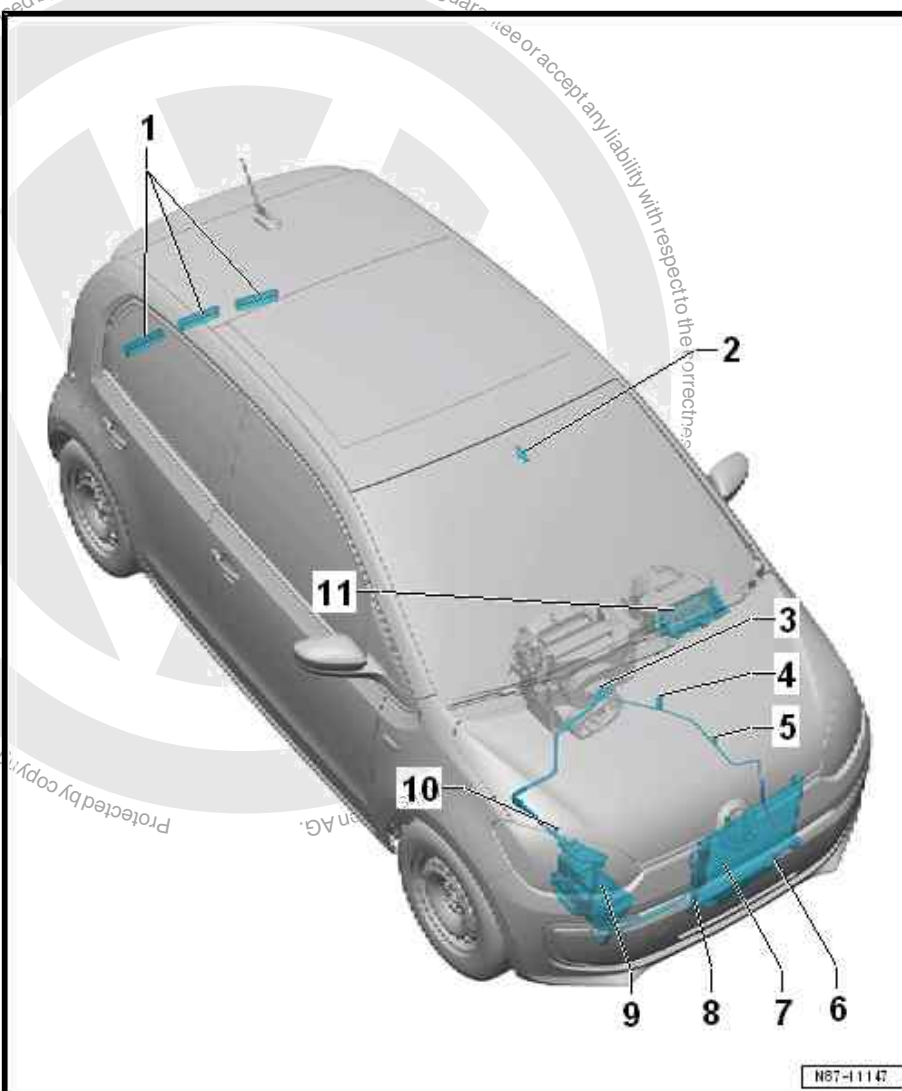
- ☐ Removing and installing ⇒ [page 28](#)

### 6 - Ambient temperature sensor - G17-

- ☐ Removing and installing ⇒ [page 92](#)

### 7 - Condenser

- ☐ Removing and installing ⇒ [page 24](#)





## 8 - Desiccant cartridge

- ☐ Removing and installing ⇒ [page 26](#)

## 9 - Electrical air conditioner compressor - V470-

- ☐ With control unit for air conditioning compressor - J842-
- ☐ Removing and installing ⇒ [page 33](#)

## 10 - Evacuating and charging valve, low-pressure side

- ☐ Removing and installing ⇒ [page 28](#)

## 11 - Fresh air intake connecting piece

- ☐ Removing and installing ⇒ [page 83](#)





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

⇒ "1.2.1 Overview of fitting locations - components inside of front passenger compartment, left-hand drive vehicles", page 15

⇒ "1.2.2 Overview of fitting locations - components inside of front passenger compartment, right-hand drive vehicles", page 16

### 1.2.1 Overview of fitting locations - components inside of front passenger compartment, left-hand drive vehicles

#### 1 - Defroster vent

- ☐ Removing and installing  
⇒ [page 80](#)

#### 2 - Sunlight penetration photo-sensor - G107-

- ☐ Removing and installing  
⇒ [page 92](#)

#### 3 - Heater and air conditioning unit

- ☐ Removing and installing  
⇒ [page 59](#)
- ☐ Dismantling and assembling ⇒ [page 68](#) .

#### 4 - Dash panel vent, side

- ☐ Removing and installing  
⇒ [page 81](#)

#### 5 - Right vent

- ☐ Removing and installing  
⇒ [page 81](#)

#### 6 - Centre vent

- ☐ Removing and installing  
⇒ [page 80](#)

#### 7 - Operating and display unit

- ☐ Removing and installing  
⇒ [page 91](#)

#### 8 - Right footwell vent

- ☐ Removing and installing  
⇒ [page 82](#)

#### 9 - Left footwell vent

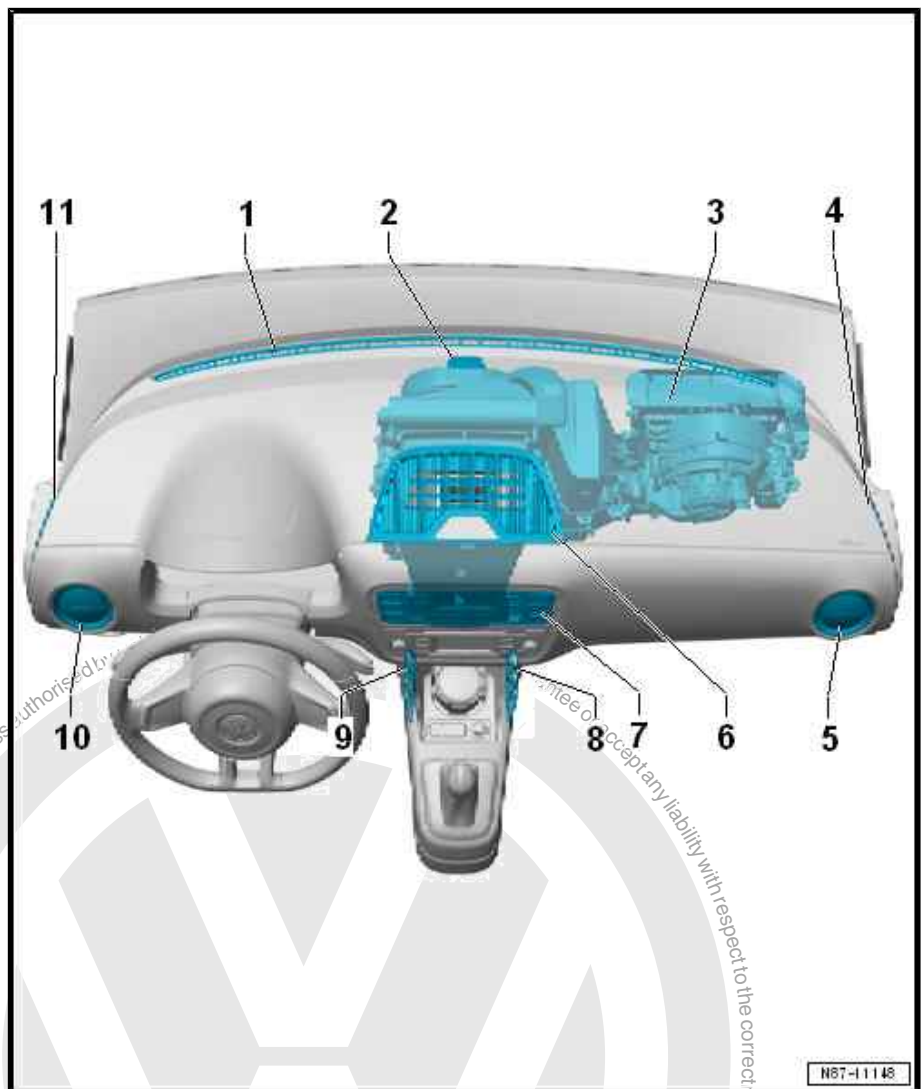
- ☐ Removing and installing  
⇒ [page 82](#)

#### 10 - Left vent

- ☐ Removing and installing ⇒ [page 81](#)

#### 11 - Dash panel vent, side

- ☐ Removing and installing ⇒ [page 81](#)



## 1.2.2 Overview of fitting locations - components inside of front passenger compartment, right-hand drive vehicles

### 1 - Defroster vent

- ☐ Removing and installing  
⇒ [page 80](#)

### 2 - Sunlight penetration photo-sensor - G107-

- ☐ Removing and installing  
⇒ [page 92](#)

### 3 - Heater and air conditioning unit

- ☐ Removing and installing  
⇒ [page 59](#)
- ☐ Dismantling and assembling ⇒ [page 68](#).

### 4 - Dash panel vent, side

- ☐ Removing and installing  
⇒ [page 81](#)

### 5 - Right vent

- ☐ Removing and installing  
⇒ [page 81](#)

### 6 - Centre vent

- ☐ Removing and installing  
⇒ [page 80](#)

### 7 - Operating and display unit

- ☐ Removing and installing  
⇒ [page 91](#)

### 8 - Right footwell vent

- ☐ Removing and installing  
⇒ [page 82](#)

### 9 - Left footwell vent

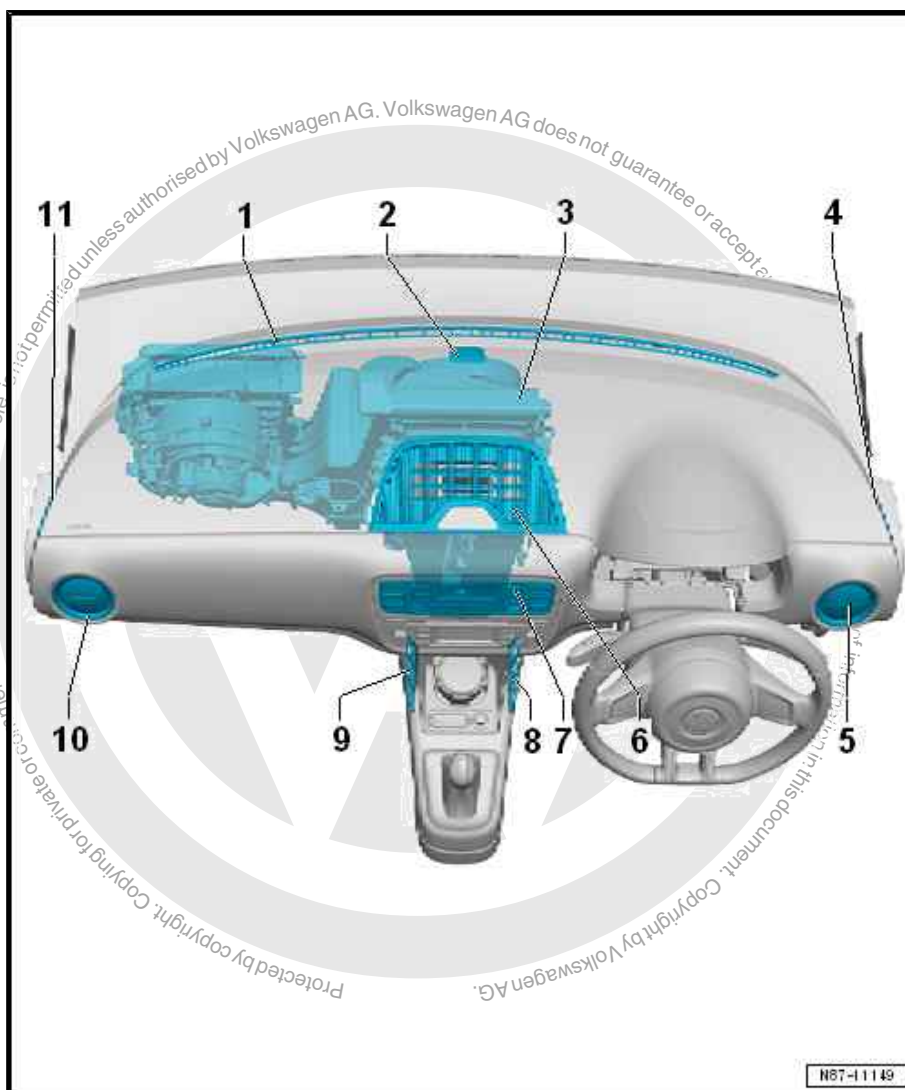
- ☐ Removing and installing  
⇒ [page 82](#)

### 10 - Left vent

- ☐ Removing and installing ⇒ [page 81](#)

### 11 - Dash panel vent, side

- ☐ Removing and installing ⇒ [page 81](#)





## 2 Refrigerant circuit

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

⇒ [“2.2 Removing and installing high-pressure sender G65”, page 19](#)

⇒ [“2.3 Removing and installing expansion valve”, page 21](#)

⇒ [“2.4 Removing and installing condenser”, page 24](#)

⇒ [“2.5 Removing and installing desiccant bag or cartridge”, page 26](#)

⇒ [“2.6 Removing and installing evacuating and charging valves on low and high-pressure side”, page 28](#)

### 2.1 System overview - refrigerant circuit

⇒ [“2.1.1 System overview – refrigerant circuit, LHD vehicles”, page 17](#)

⇒ [“2.1.2 System overview – refrigerant circuit, RHD vehicles”, page 18](#)

#### 2.1.1 System overview – refrigerant circuit, LHD vehicles



##### Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/desiccant cartridge 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 - Expansion valve

- ❑ Removing and installing  
⇒ [page 21](#)

### 2 - High-pressure sender - G65-

- ❑ Removing and installing  
⇒ [page 19](#)
- ❑  $8 \pm 1$  Nm

### 3 - Evacuating and charging valve, high-pressure side

- ❑ Removing and installing  
⇒ [page 28](#)

### 4 - Condenser

- ❑ Removing and installing  
⇒ [page 24](#)

### 5 - Desiccant cartridge

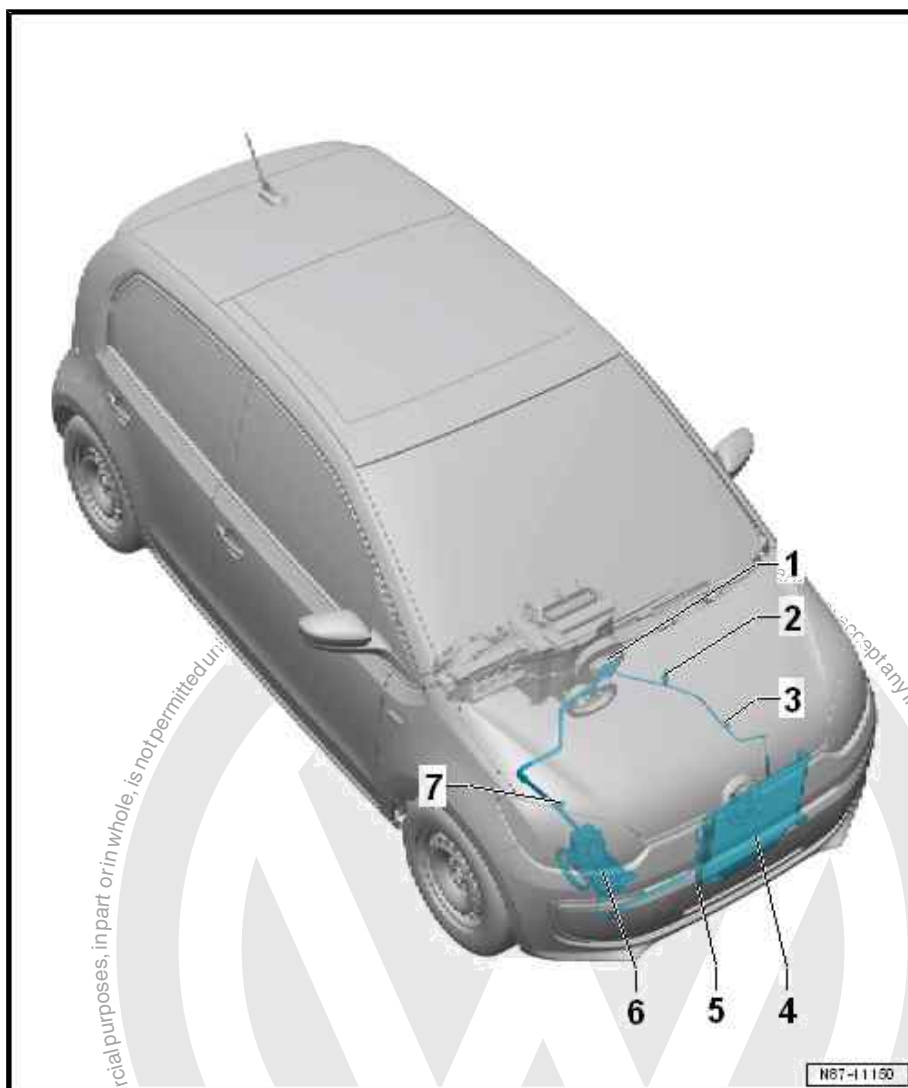
- ❑ Removing and installing  
⇒ [page 26](#)

### 6 - Electrical air conditioner compressor - V470-

- ❑ With control unit for air conditioning compressor - J842-
- ❑ Removing and installing  
⇒ [page 33](#)

### 7 - Evacuating and charging valve, low-pressure side

- ❑ Removing and installing  
⇒ [page 28](#)



## 2.1.2 System overview – refrigerant circuit, RHD vehicles



### Note

- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/desiccant cartridge 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 - Expansion valve

- ☐ Removing and installing  
⇒ [page 21](#)

### 2 - High-pressure sender - G65-

- ☐ Removing and installing  
⇒ [page 19](#)
- ☐  $8 \pm 1$  Nm

### 3 - Evacuating and charging valve, high-pressure side

- ☐ Removing and installing  
⇒ [page 28](#)

### 4 - Condenser

- ☐ Removing and installing  
⇒ [page 24](#)

### 5 - Desiccant cartridge

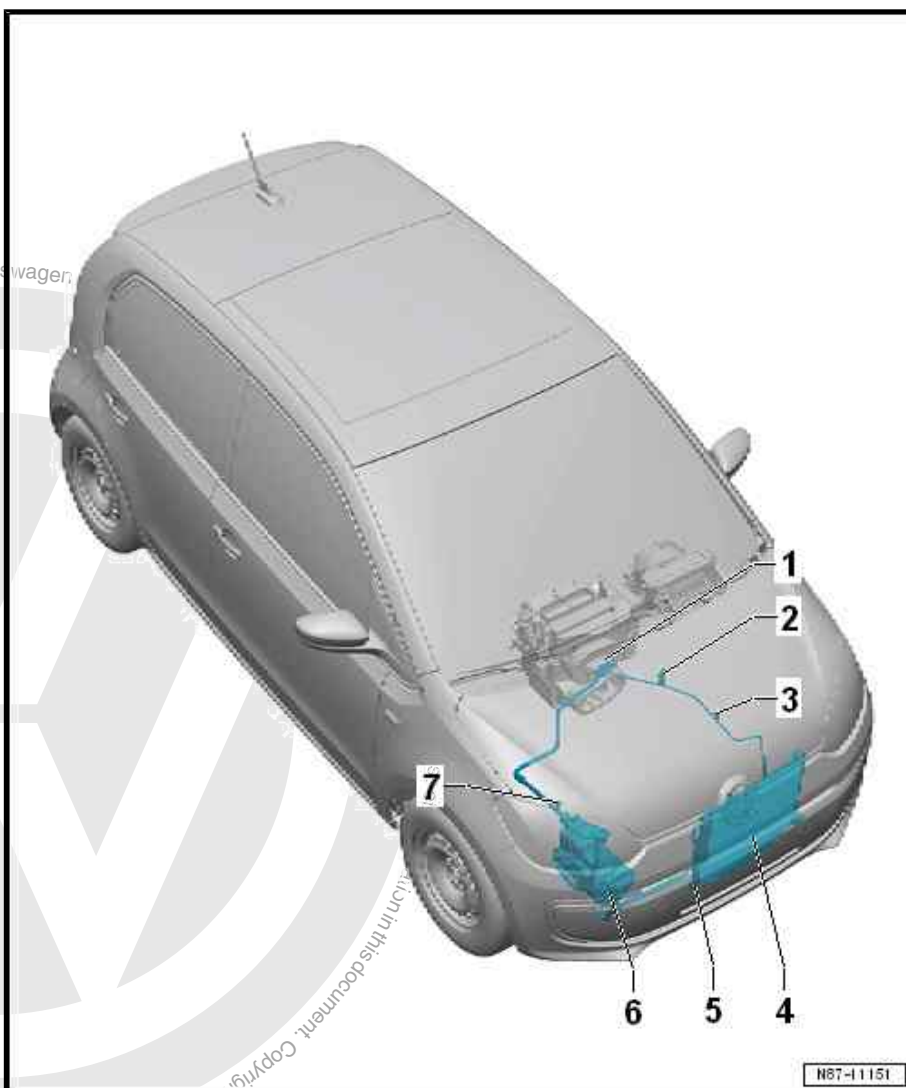
- ☐ Removing and installing  
⇒ [page 26](#)

### 6 - Electrical air conditioner compressor - V470-

- ☐ With control unit for air conditioning compressor - J842-
- ☐ Removing and installing  
⇒ [page 33](#)

### 7 - Evacuating and charging valve, low-pressure side

- ☐ Removing and installing  
⇒ [page 28](#)



## 2.2 Removing and installing high-pressure sender - G65-

### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-

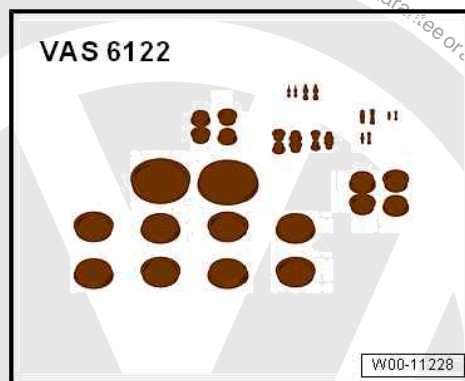
V.A.G 1410



W00-11174



◆ Engine bung set - VAS 6122-



Removing

**⚠ 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.





- Disconnect electrical connector -2-.
- Counterhold refrigerant lines using a suitable tool. At the same time, detach high-pressure sender - G65- -1-.

### ⚠ 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.

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

- Unscrew high-pressure sender - G65- -1-.

### Installing

Install in reverse order of removal, observing the following:

- Renew seal for high-pressure sender - G65- -1-.

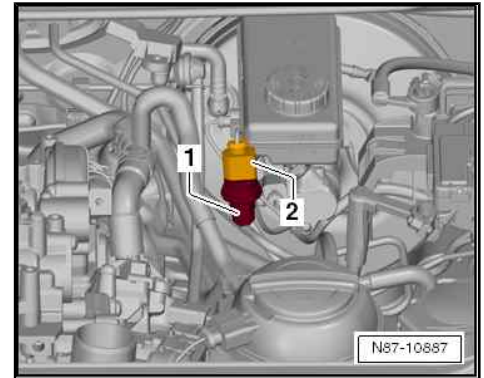
### Specified torques

- ◆ High-pressure sender - G65- ⇒ [Item 2 \(page 18\)](#)

## 2.3 Removing and installing expansion valve

### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



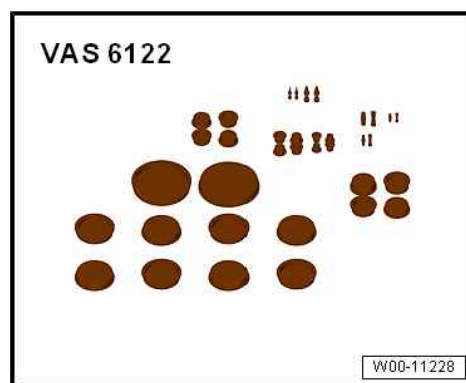
### V.A.G 1331



W00-11166



♦ Engine bung set - VAS 6122-



1 - Seal between evaporator housing and plenum chamber bulkhead

2 - O-ring

☐ Renew

3 - Expansion valve

☐ Aperture must be sealed against splashed water.

4 - O-ring

☐ Renew

5 - High-pressure refrigerant line

6 - Low-pressure refrigerant line

7 - Socket head bolt with washer

☐ 5 Nm

8 - Bolts

☐ 12 Nm

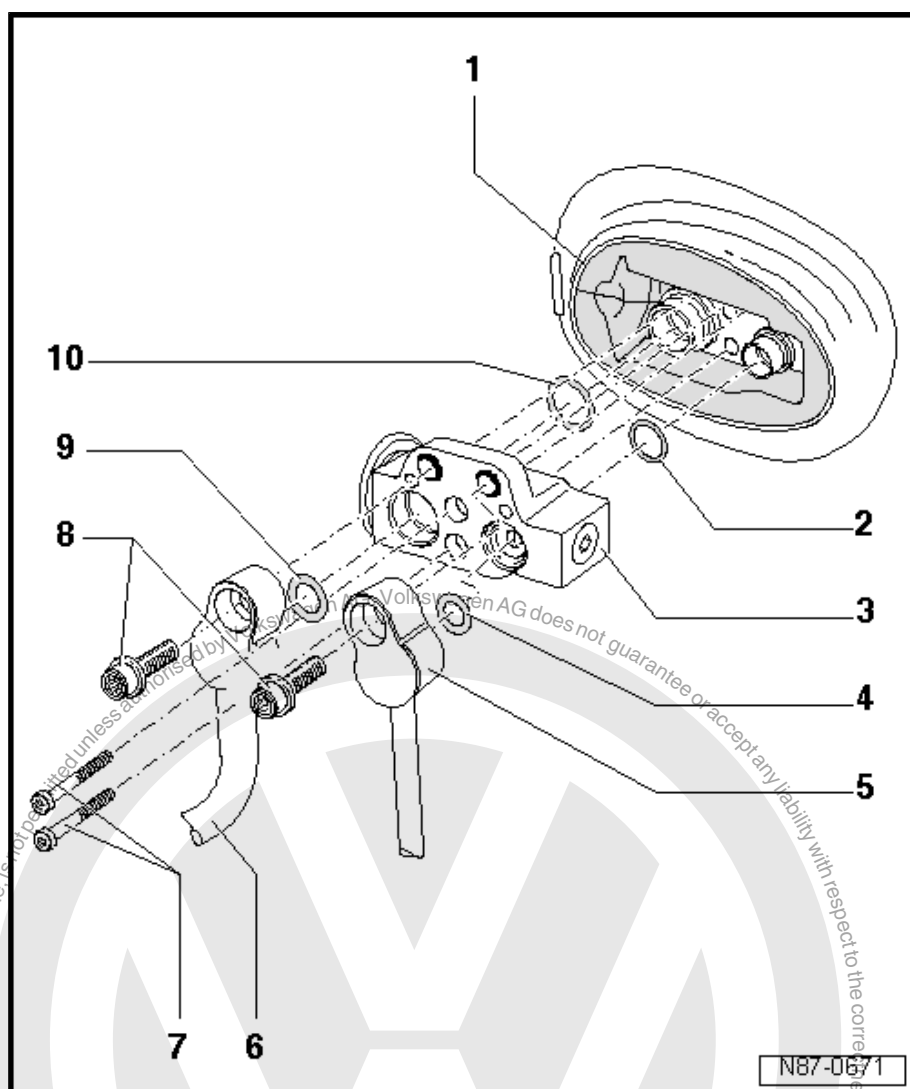
☐ Qty. 2

9 - Seal

☐ Renew

10 - Seal

☐ Renew



## Removing

- Remove air filter housing ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing.

## 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 -8-.
- Pull out refrigerant lines -5- and -6-.
- Unscrew bolts -7-.
- Remove expansion valve -3-.

### Installing

Install in reverse order of removal, observing the following:

- Renew seals -2-, -4-, -9- and -10-.



#### 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

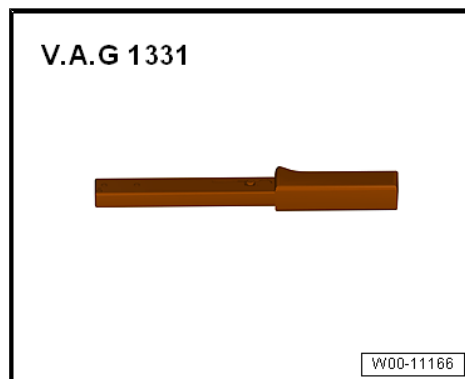
- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems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



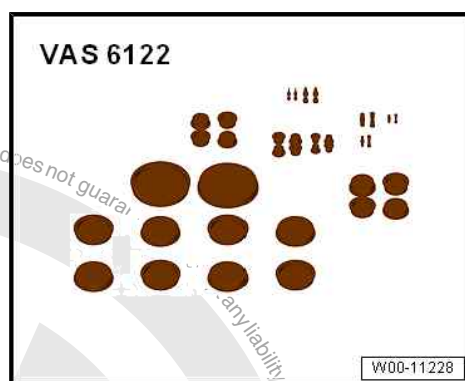
## 2.4 Removing and installing condenser

### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



### Removing

- Remove front bumper ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing front bumper .
- Partly remove washer fluid reservoir and attach on side ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Removing and installing washer fluid reservoir .

### 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 -1-.
- Remove refrigerant lines -2- from condenser.
- Push condenser -4- in direction of -arrow A- out of brackets -3- and -5- and remove downwards.

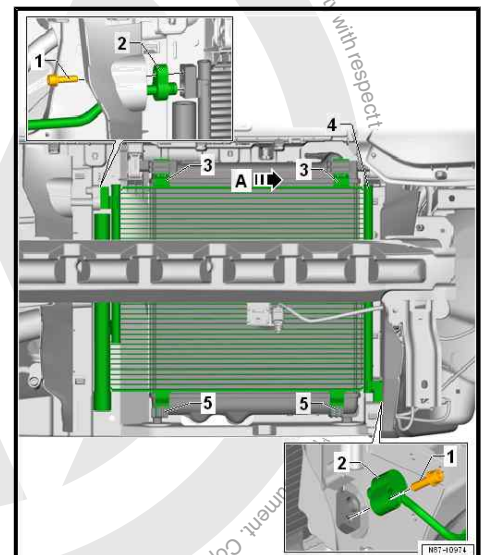
### Installing

- 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  
⇒ **"4 Technical data", page 8** .
- 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



Component	Specified torque
Bolts -1-	12 Nm

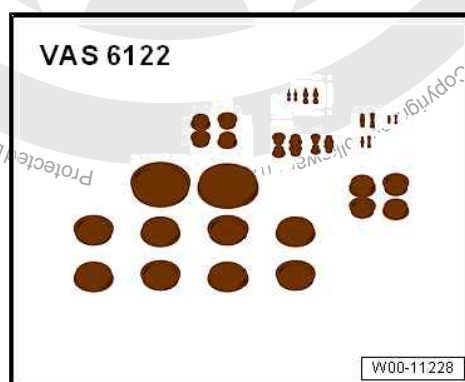
## 2.5 Removing and installing desiccant bag or cartridge

### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-



- ◆ Engine bung set - VAS 6122-



### Removing

- Partly remove front bumper in order to gain access to desiccant cartridge ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing front bumper .

### 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 cap -5- (5 Nm).
- Pull desiccant cartridge -2- out of condenser -1- using a suitable tool.
- Seal open receiver immediately with plug -1- to prevent ingress of dirt and moisture.

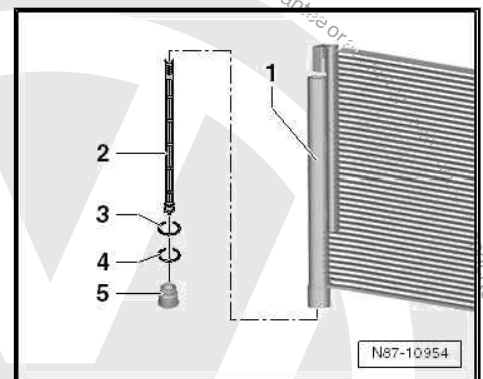
**Installing**

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) .*



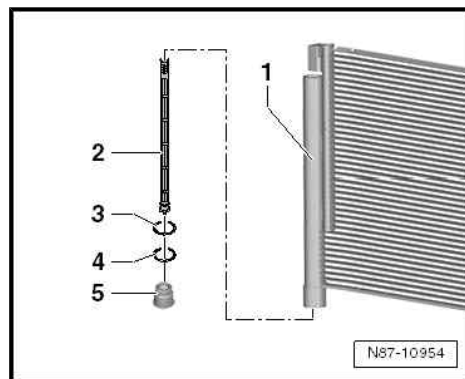


- Insert new desiccant cartridge -2- in condenser -1-.
- Renew seals -3- and -4- ⇒ Electronic parts catalogue .
- Make sure cap -5- is seated correctly.

**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 .

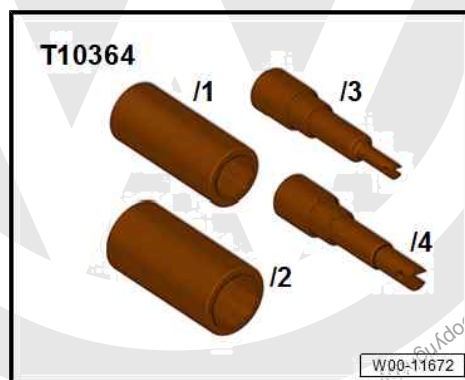
**Specified torques**

Component	Specified torque
Cap -5-	5 Nm

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

**Special tools and workshop equipment required**

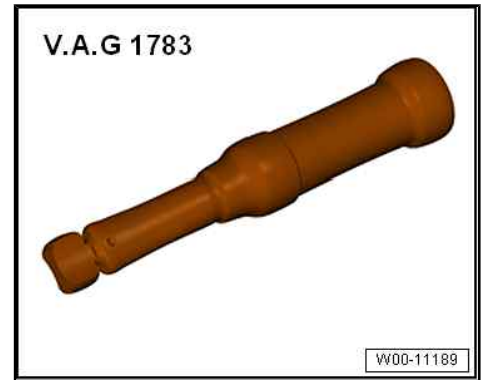
- ♦ Adapter set for service connections - T10364-



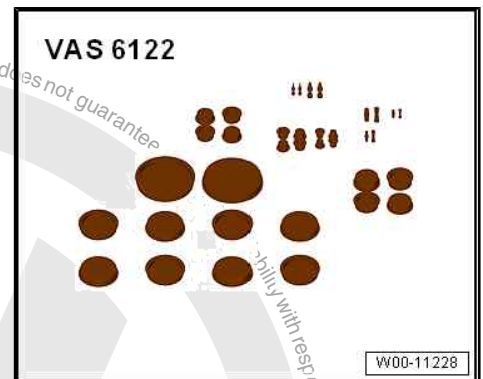




- ◆ Torque wrench - V.A.G 1783-



- ◆ 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 -3- and -4-.

- Unscrew valve core -1- and -2- with adapter set for service connections - T10364- .

## Installing

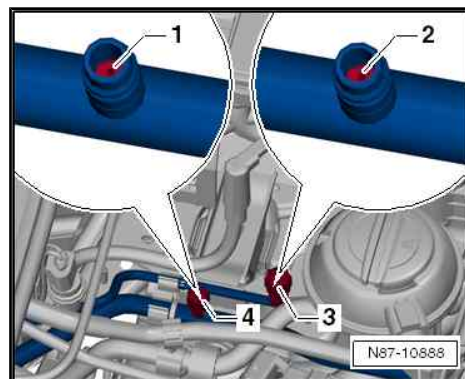
Install in reverse order of removal, observing the following:



## 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

Component	Specified torque
Valve core -1- and -2-	2.5 Nm



### 3 Air conditioner compressor

⇒ [“3.1 Assembly overview - drive unit of air conditioner compressor”, page 31](#)

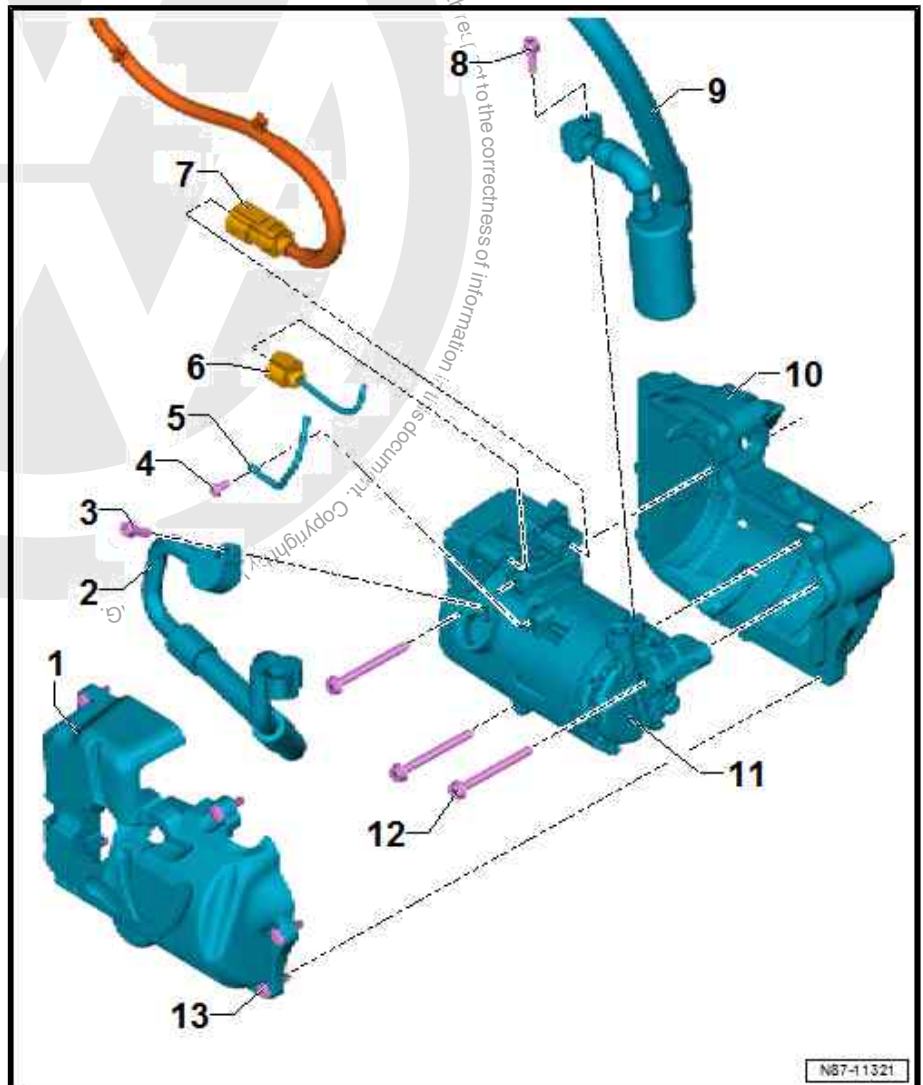
⇒ [“3.2 Removing electrical air conditioner compressor V470 from and attaching to bracket”, page 31](#)

⇒ [“3.3 Removing and installing electrical air conditioner compressor V470”, page 33](#)

⇒ [“3.4 Removing and installing high-voltage system fuse 3 S353”, page 35](#)

#### 3.1 Assembly overview - drive unit of air conditioner compressor

- 1 - Guard
  - ☐ Vehicle-specific
- 2 - Refrigerant line
- 3 - Bolt
  - ☐ 25 Nm
- 4 - Bolt
  - ☐ 9 Nm
- 5 - Potential equalisation line
- 6 - Connector
- 7 - High-voltage connector
- 8 - Bolt
  - ☐ 25 Nm
- 9 - Refrigerant line
- 10 - Guard
  - ☐ Vehicle-specific
- 11 - Electrical air conditioner compressor - V470-
  - ☐ With control unit for air conditioning compressor - J842-
  - ☐ ⇒ [page 33](#)
- 12 - Bolt
  - ☐ Qty. 3
  - ☐ 23 Nm
- 13 - Fastener

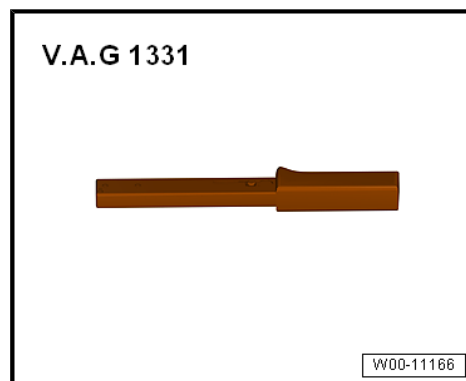


#### 3.2 Removing electrical air conditioner compressor - V470- from and attaching to bracket

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331- (5 to 50 Nm)



## Removing

- Observe the risk classification of the high-voltage system ⇒ Electric drive; Rep. gr. 00 ; Risk classification of the high-voltage system .

### DANGER

**Danger to life from high voltage.**

**Severe or fatal injury from electric shock.**

- **The high-voltage system must be de-energised by a suitably qualified technician.**

- Now de-energise the high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising the high-voltage system .
- Remove noise insulation under engine ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation .

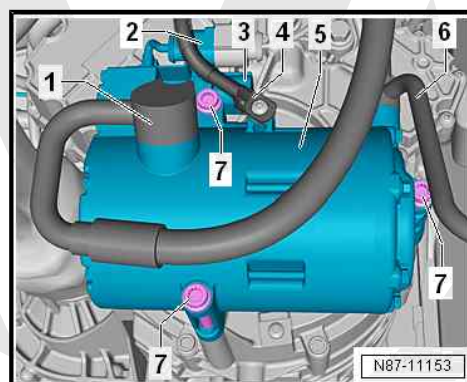
Remove front right wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Removing and installing front wheel housing liner .

- If fitted, push noise insulation of electrical air conditioner compressor - V470- -5- aside or detach it partly in order to gain access to connectors and bolts.
- Disconnect connector -2- from electrical air conditioner compressor - V470- -5-.
- Disconnect high-voltage cable -3- from electrical air conditioner compressor - V470- -5-.
- Disconnect potential equalisation line -4- from electrical air conditioner compressor - V470- -5-.
- Unscrew bolts -7-.
- Remove electrical air conditioner compressor - V470- -5-.

### NOTICE

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

- **Make sure to store the air conditioner compressor in installation position only.**





- Secure electrical air conditioner compressor - V470- -2- to body with suitable material (e.g. welding wire -1-).

### Installing

Install in the reverse order of removal, observing the following:

- Always assemble refrigerant circuit before starting engine.
- Always charge refrigerant circuit before starting engine.



### Note

- ◆ The contact points of the electrical air conditioner compressor - V470- and the engine must be checked prior to installation.
- ◆ The contact surfaces must be free of dirt, rust and grease.



### WARNING

**Danger to life from high voltage.**

**Electrical shocks can cause serious injuries or death.**

- Have a qualified technician re-energise the high-voltage system.

### Specified torque

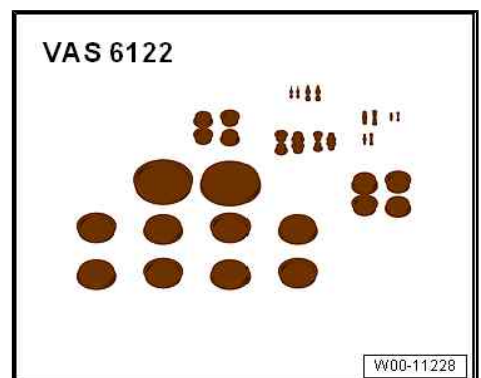
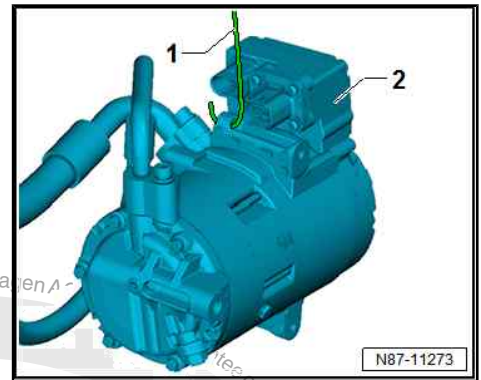
- ◆ ⇒ [“3.1 Assembly overview - drive unit of air conditioner compressor”, page 31](#)

## 3.3 Removing and installing electrical air conditioner compressor - V470-

### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

- ◆ Engine bung set - VAS 6122-







## Removing

### DANGER

**Danger to life from high voltage.**

**Severe or fatal injury from electric shock.**

- The high-voltage system must be de-energised by a suitably qualified technician.

- De-energise high-voltage system ⇒ Rep. gr. 93 ; De-energising high-voltage system .
- Loosen front right wheel housing liner far enough to gain access to electrical air conditioner compressor - V470- ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Assembly overview – wheel housing liner .
- If fitted, remove noise insulation from electrical air conditioner compressor - V470- .
- Disconnect electrical connector -2-.
- Disconnect high-voltage cable -3- from electrical air conditioner compressor - V470- -5-.
- Disconnect earth wire -4- from electrical air conditioner compressor - V470- -5-.

### 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 .

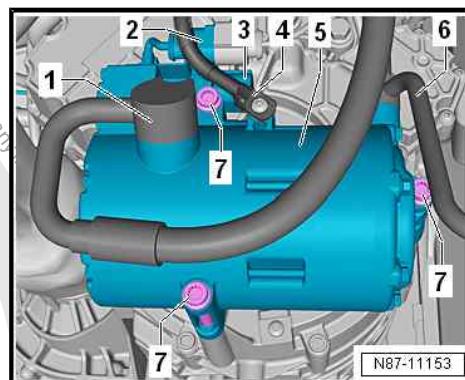
### Continued for all vehicles

### 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- .





- Disconnect refrigerant lines -1- and -6- from electrical air conditioner compressor - V470- -5-.
- Unscrew bolts -7-.
- Remove electrical air conditioner compressor - V470- -5-.

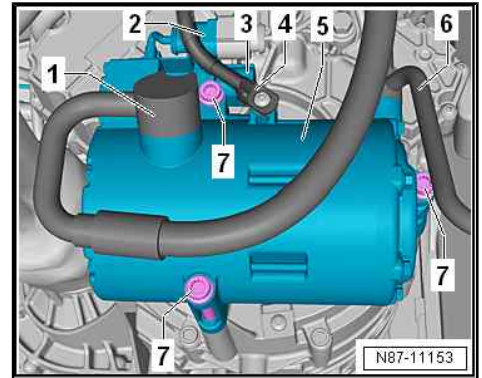
#### Installing

Install in the 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 .

#### WARNING

**Danger to life from high voltage.**

**Electrical shocks can cause serious injuries or death.**

- Have a qualified technician re-energise the high-voltage system.

- Re-energise high-voltage system ⇒ Rep. gr. 93 ; Re-energising high-voltage system .

#### Specified torques

- ♦ ⇒ ["3.1 Assembly overview - drive unit of air conditioner compressor", page 31](#)

### 3.4 Removing and installing high-voltage system fuse 3 - S353-

Removing and installing ⇒ Rep. gr. 93 ; Power and control electronics for electric drive; Removing and installing high-voltage system fuse 3 - S353-

## 4 Control motors

⇒ ["4.1 Overview of fitting locations - front control motors", page 36](#)

⇒ ["4.2 Removing and installing temperature flap control motor V68", page 37](#)

⇒ ["4.3 Removing and installing centre flap control motor V70", page 39](#)

⇒ ["4.4 Removing and installing air flow flap control motor V71", page 41](#)

⇒ ["4.5 Removing and installing defroster flap control motor V107", page 43](#)

### 4.1 Overview of fitting locations - front control motors

⇒ ["4.1.1 Overview of fitting locations - front control motors, LHD vehicles", page 36](#)

⇒ ["4.1.2 Overview of fitting locations - front control motors, RHD vehicles", page 37](#)

#### 4.1.1 Overview of fitting locations - front control motors, LHD vehicles

##### 1 - Defroster flap control motor - V107-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 43](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

##### 2 - Temperature flap control motor - V68-

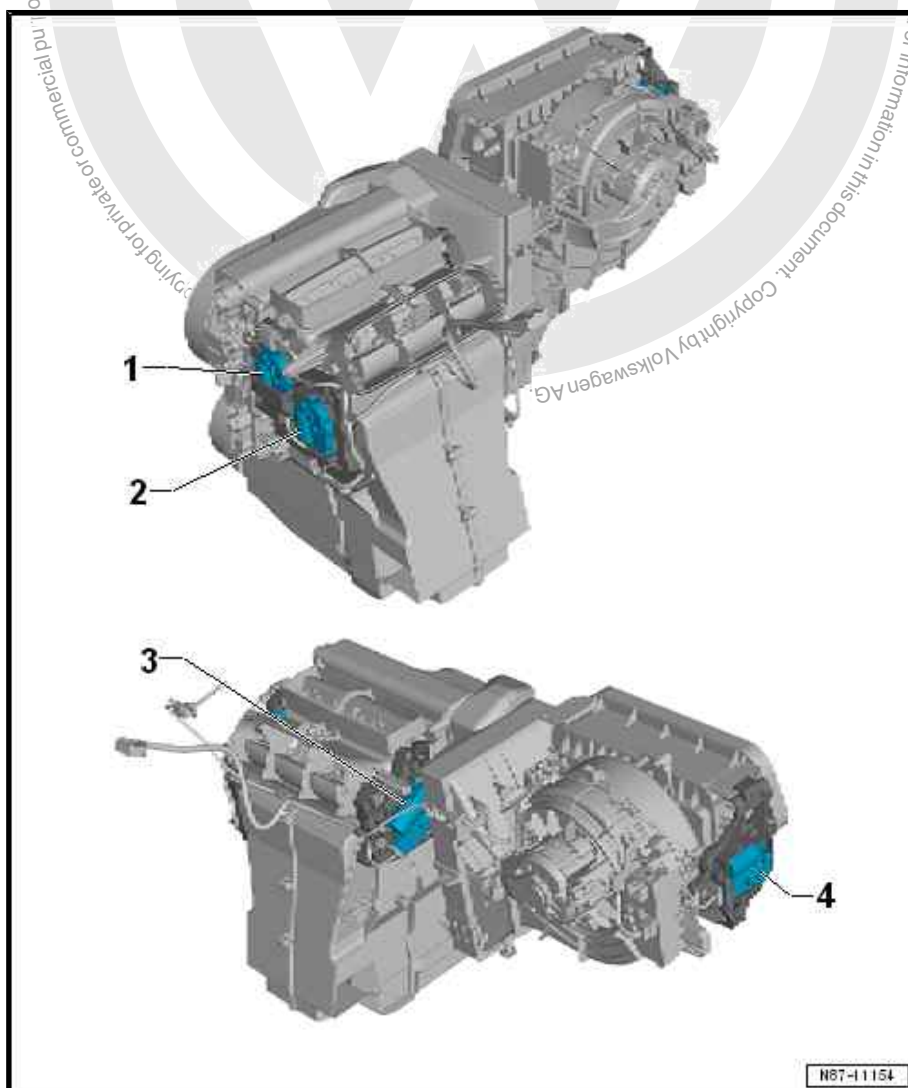
- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 37](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

##### 3 - Central flap control motor - V70-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 39](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

##### 4 - Air flow flap control motor - V71-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 41](#)







- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

## 4.1.2 Overview of fitting locations - front control motors, RHD vehicles

### 1 - Air flow flap control motor - V71-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 42](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

### 2 - Defroster flap control motor - V107-

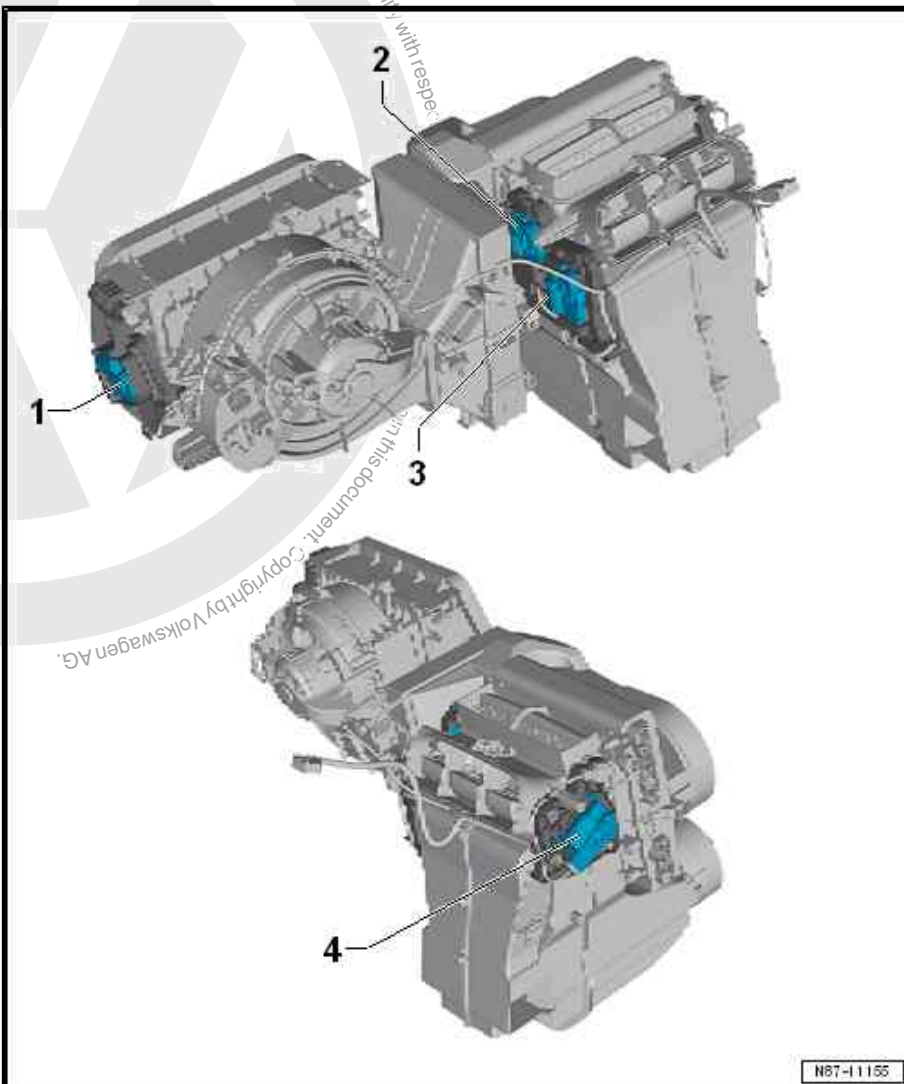
- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 44](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

### 3 - Temperature flap control motor - V68-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 38](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .

### 4 - Central flap control motor - V70-

- ☐ Checking: vehicle diagnostic tester
- ☐ Removing and installing  
⇒ [page 40](#)
- ☐ Renewing: initiate basic setting using vehicle diagnostic tester .



N87-11155

## 4.2 Removing and installing temperature flap control motor - V68-

⇒ ["4.2.1 Removing and installing temperature flap control motor V68 , left-hand drive vehicles", page 37](#)

⇒ ["4.2.2 Removing and installing temperature flap control motor V68 , right-hand drive vehicles", page 38](#)

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

Special tools and workshop equipment required

- ◆ Bit ratchet



- ◆ Angled screwdriver - VAS 6800-

### Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Disconnect connectors -4-.
- Unscrew bolts -1- and -3-.
- Remove control motors with bracket.
- Unclip temperature flap control motor - V68- -2- from bracket.

### Installing

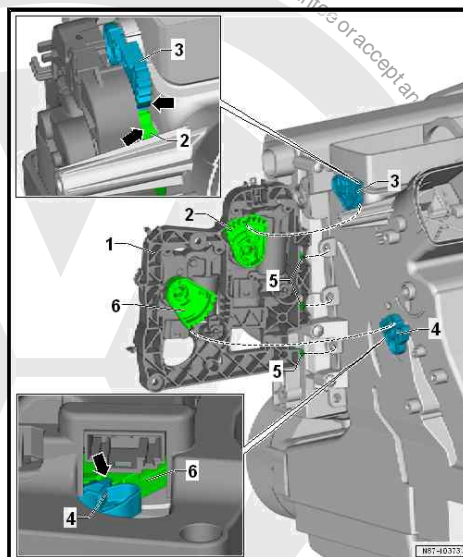
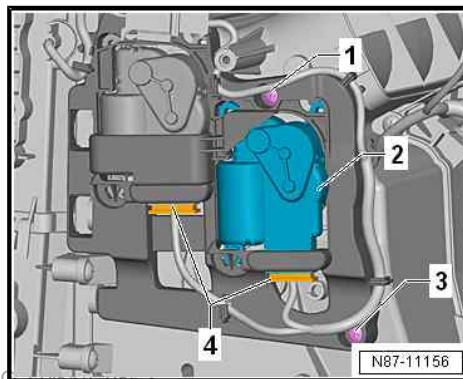
- Install in reverse order of removal, observing the following:



#### Note

Before installing, check condition and function of flaps.

- Fit control motors with bracket -1- into mountings -5-.
- Make sure that gears -2- and -6- engage with gears -3- and -4- -arrows- of heater and air conditioning unit.
- Check function of control motors.
- Further assembly is carried out in the reverse order.



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

### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

### Removing



#### Note

The figures show a left-hand drive vehicle. Removal and installation are analogous.

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .



- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Disconnect connectors -4- .
- Unscrew bolts -1- and -3- .
- Remove control motors with bracket.
- Unclip temperature flap control motor - V68- -2- from bracket.

### Installing

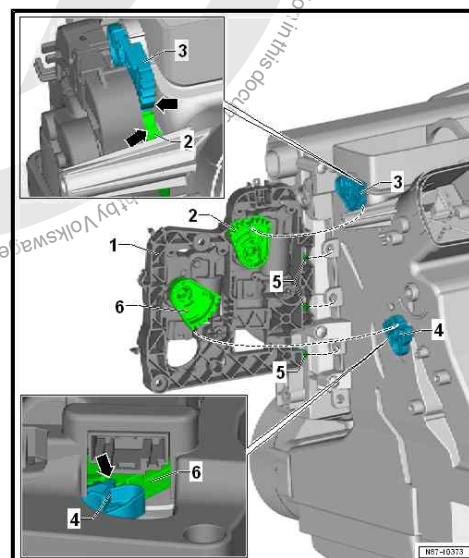
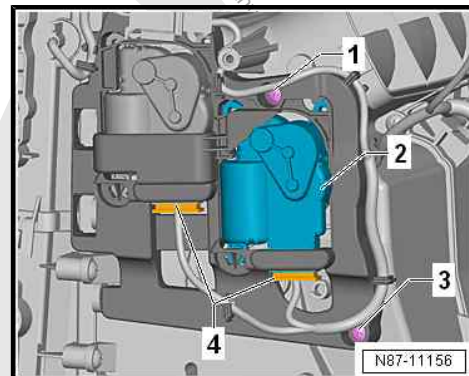
- Install in reverse order of removal, observing the following:



### Note

*Before installing, check condition and function of flaps.*

- Fit control motors with bracket -1- into mountings -5- .
- Make sure that gears -2- and -6- engage with gears -3- and -4- -arrows- of heater and air conditioning unit.
- Check function of control motors.
- Further assembly is carried out in the reverse order.



## 4.3 Removing and installing centre flap control motor - V70-

⇒ [“4.3.1 Removing and installing centre flap control motor V70 , left-hand drive vehicles”, page 39](#)

⇒ [“4.3.2 Removing and installing centre flap control motor V70 , right-hand drive vehicles”, page 40](#)

### 4.3.1 Removing and installing centre flap control motor - V70- , left-hand drive vehicles

#### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

#### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .



- Remove lower part of centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console .
- Disconnect connector -4-.
- Remove bolts -1-, -3- and -5-.
- Remove centre flap control motor - V70- -2- together with bracket.

#### Installing

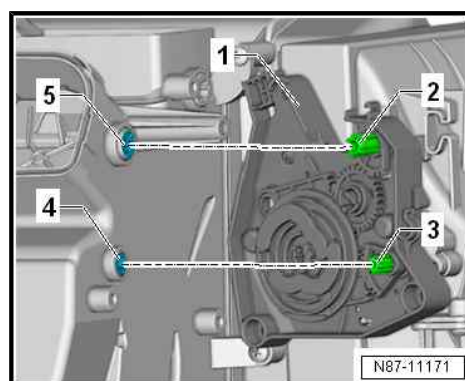
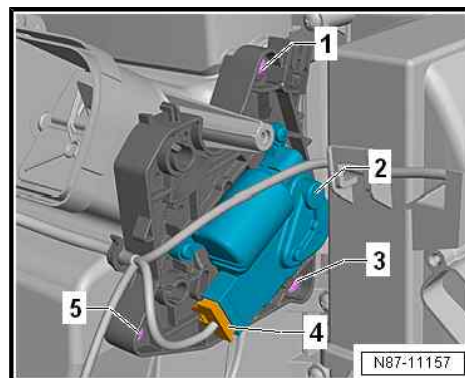
- Install in reverse order of removal, observing the following:



#### Note

*Before installing, check condition and function of flaps.*

- There is only one position in which mountings -2- and -3- of centre flap control motor - V70- -1- can be fitted into mountings -4- and -5- of air distribution housing.
- Position centre flap control motor - V70- on air distribution housing, and fit it into mountings.
- Further assembly is carried out in the reverse order.



### 4.3.2 Removing and installing centre flap control motor - V70- , right-hand drive vehicles

#### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

#### Removing

- Remove dash panel ➔ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove dash panel central tube ➔ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Disconnect connector -4-.
- Remove bolts -1-, -3- and -5-.
- Remove centre flap control motor - V70- -2- together with bracket.

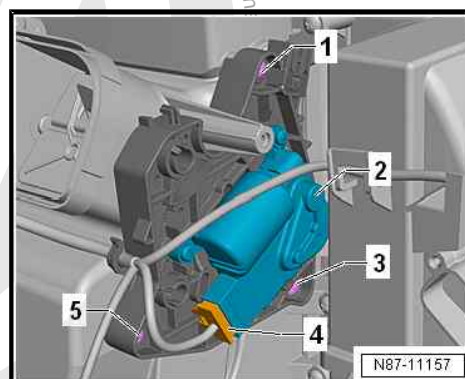
#### Installing

- Install in reverse order of removal, observing the following:



#### Note

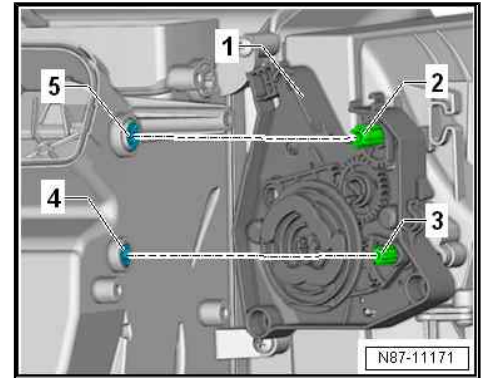
*Before installing, check condition and function of flaps.*







- There is only one position in which mountings -2- and -3- of centre flap control motor - V70- -1- can be fitted into mountings -4- and -5- of air distribution housing.
- Position centre flap control motor - V70- on air distribution housing, and fit it into mountings.
- Further assembly is carried out in the reverse order.



## 4.4 Removing and installing air flow flap control motor - V71-

⇒ [“4.4.1 Removing and installing air flow flap control motor V71 , left-hand drive vehicles”, page 41](#)

⇒ [“4.4.2 Removing and installing air flow flap control motor V71 , right-hand drive vehicles”, page 42](#)

### 4.4.1 Removing and installing air flow flap control motor - V71- , left-hand drive vehicles

#### Special tools and workshop equipment required

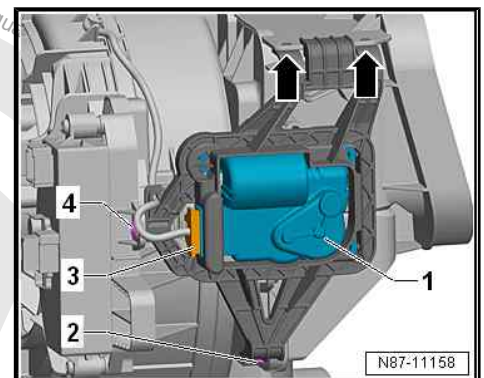
- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

#### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Disconnect connector -3-.
- Remove bolts -2- and -4-.
- Unhook and remove air flow flap control motor - V71- -1- -arrows-.

#### Installing

- Install in the reverse order of removal, observing the following:

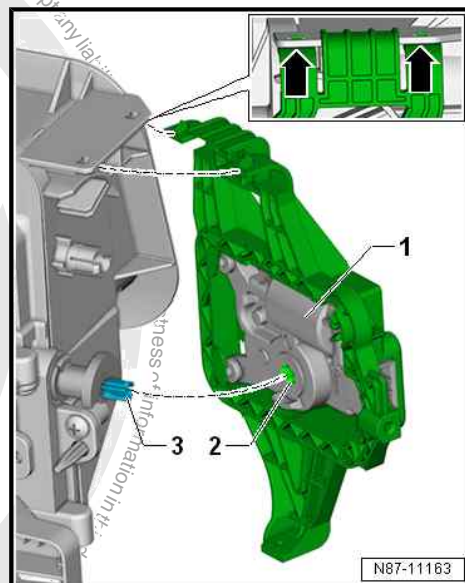




- Attach air flow flap control motor - V71- -arrows-.
- Fit air flow flap control motor - V71- -1- onto shaft.

There is only one position in which the mounting -2- of the air flow flap control motor - V71- -1- fits onto the shaft -3-.

- Make sure the control motor is seated correctly on the shaft and in the mounting -arrows-.
- Further assembly is carried out in the reverse order.



#### 4.4.2 Removing and installing air flow flap control motor - V71- , right-hand drive vehicles

##### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

##### Removing



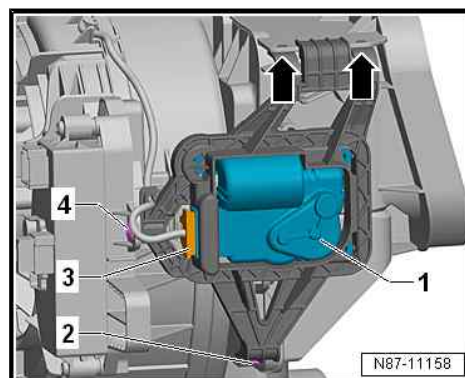
##### Note

*The figures show a left-hand drive vehicle. Removal and installation are analogous.*

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Disconnect connector -3-.
- Remove bolts -2- and -4-.
- Unhook and remove air flow flap control motor - V71- -1- -arrows-.

##### Installing

- Install in the reverse order of removal, observing the following:

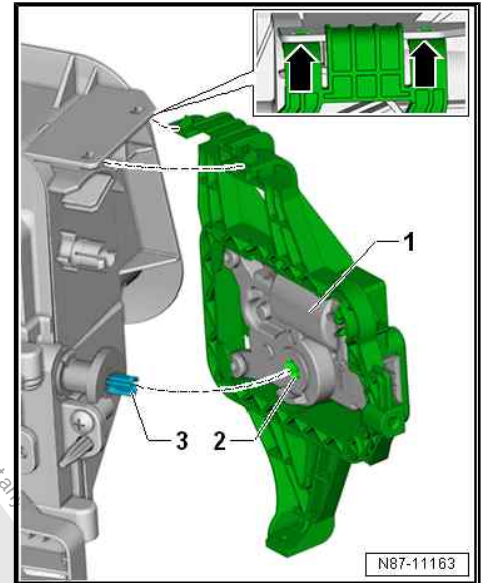




- Attach air flow flap control motor - V71- -arrows-.
- Fit air flow flap control motor - V71- -1- onto shaft.

There is only one position in which the mounting -2- of the air flow flap control motor - V71- -1- fits onto the shaft -3-.

- Make sure the control motor is seated correctly on the shaft and in the mounting -arrows-.
- Further assembly is carried out in the reverse order.



## 4.5 Removing and installing defroster flap control motor - V107-

⇒ [4.5.1 Removing and installing defroster flap control motor V107, left-hand drive vehicles](#), page 43

⇒ [4.5.2 Removing and installing defroster flap control motor V107, right-hand drive vehicles](#), page 44

### 4.5.1 Removing and installing defroster flap control motor - V107- , left-hand drive vehicles

#### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

#### Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Disconnect connectors -3-.
- Remove bolts -1- and -2-.
- Remove control motors with bracket.
- Unclip defroster flap control motor - V107- -4- from bracket.

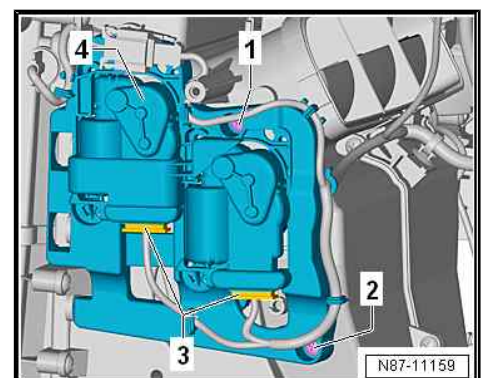
#### Installing

- Install in reverse order of removal, observing the following:



#### Note

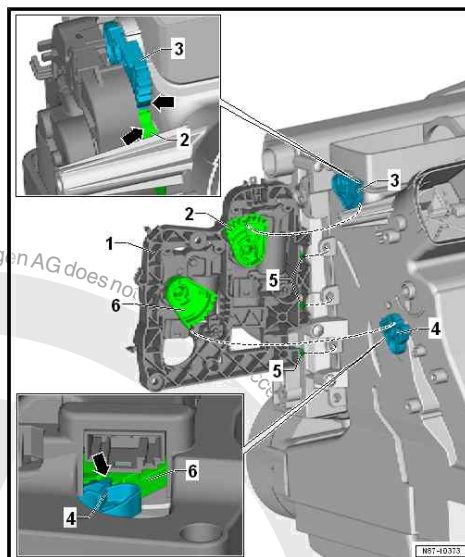
*Before installing, check condition and function of flaps.*







- Fit control motors with bracket -1- into mountings -5-.
- Make sure that gears -2- and -6- engage with gears -3- and -4- -arrows- of heater and air conditioning unit.
- Check function of control motors.
- Further assembly is carried out in the reverse order.



#### 4.5.2 Removing and installing defroster flap control motor - V107- , right-hand drive vehicles

##### Special tools and workshop equipment required

- ◆ Bit ratchet
- ◆ Angled screwdriver - VAS 6800-

##### Removing



##### Note

*The figures show a left-hand drive vehicle. Removal and installation are analogous.*

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel
- Remove dash panel central tube ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .
- Disconnect connectors -3-.
- Remove bolts -1- and -2-.
- Remove control motors with bracket.
- Unclip defroster flap control motor - V107- -4- from bracket.

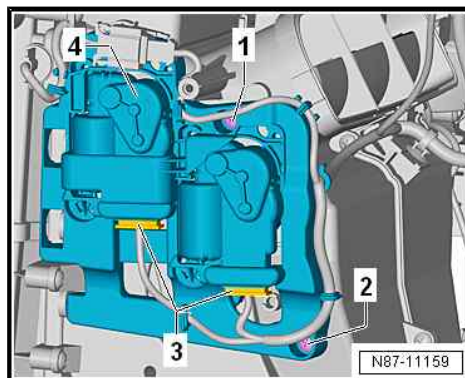
##### Installing

- Install in reverse order of removal, observing the following:



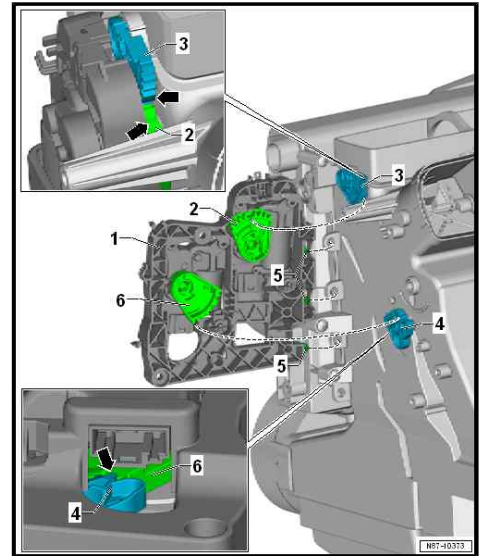
##### Note

*Before installing, check function of flaps.*





- Fit control motors with bracket -1- into mountings -5-.
- Make sure that gears -2- and -6- engage with gears -3- and -4- -arrows- of heater and air conditioning unit.
- Check function of control motors.
- Further assembly is carried out in the reverse order.





## 5 Front heater and air conditioning unit

⇒ "5.1 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box", page 46

⇒ "5.2 Assembly overview - evaporator housing", page 49

⇒ "5.3 Removing and installing evaporator", page 51

⇒ "5.4 Removing and installing evaporator output temperature sender G263 ", page 58

⇒ "5.5 Removing and installing heater and air conditioning unit", page 59

⇒ "5.6 Dismantling and assembling heater and air conditioning unit", page 68

⇒ "5.7 Removing and installing dust and pollen filter", page 70

⇒ "5.8 Removing and installing fresh air blower V2 ", page 71

⇒ "5.9 Removing and installing fresh air blower control unit J126 ", page 74

⇒ "5.10 Removing and installing heat exchanger", page 76

⇒ "5.11 Removing and installing condensation drain", page 78

⇒ "5.12 Checking condensation drain", page 78

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

⇒ "5.1.1 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box, LHD vehicles", page 46

⇒ "5.1.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box, RHD vehicles", page 48

#### 5.1.1 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box, LHD vehicles



#### Note

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/desiccant cartridge 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 - Air distribution housing**

**2 - Central flap control motor - V70-**

- ☐ Removing and installing  
⇒ [page 39](#)

**3 - Seal**

**4 - Air intake housing**

**5 - Air flow flap**

**6 - Air flow flap control motor - V71-**

- ☐ Removing and installing  
⇒ [page 41](#)

**7 - Upper part of evaporator housing**

**8 - Lower part of evaporator housing**

**9 - Fresh air blower - V2-**

- ☐ Removing and installing  
⇒ [page 71](#)

**10 - Fresh air blower control unit - J126-**

- ☐ Removing and installing  
⇒ [page 74](#)

**11 - Fresh air blower bracket**

**12 - Dust and pollen filter**

- ☐ Removing and installing  
⇒ [page 70](#)

**13 - Cover**

- ☐ For dust and pollen filter

**14 - Wiring harness for fresh air blower - V2-**

**15 - Footwell vent temperature sender - G192-**

- ☐ Removing and installing ⇒ [page 97](#)

**16 - Centre vent temperature sender - G191-**

- ☐ Removing and installing ⇒ [page 96](#)

**17 - Wiring harness for control motors**

**18 - Heat exchanger**

- ☐ Removing and installing ⇒ [page 76](#)

**19 - Seal**

- ☐ Note installation position ⇒ [page 78](#)

**20 - Evaporator**

- ☐ Removing and installing ⇒ [page 51](#)

**21 - Evaporator output temperature sender - G263-**

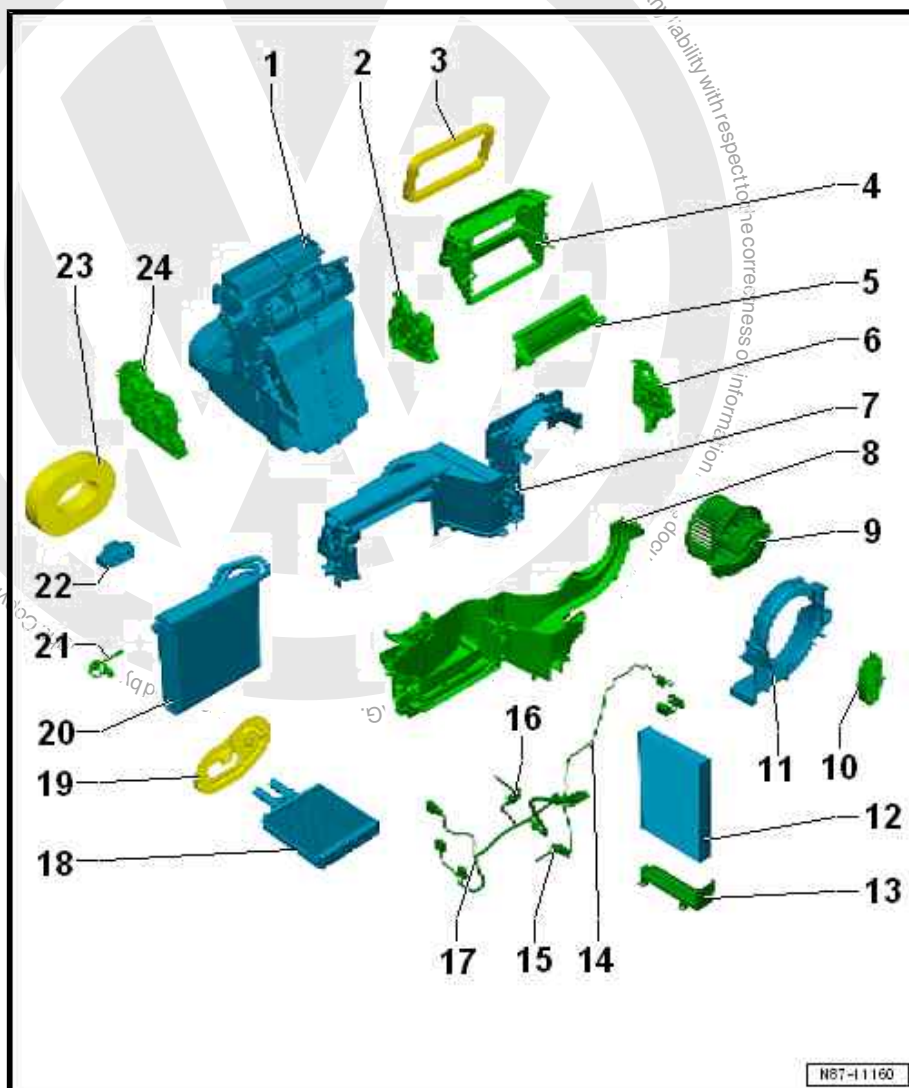
- ☐ Removing and installing ⇒ [page 58](#)

**22 - Expansion valve**

- ☐ Removing and installing ⇒ [page 21](#)

**23 - Seal**

- ☐ Note installation position ⇒ [page 55](#)





**24 - Temperature flap control motor - V68- and defroster flap control motor - V107-**

- ☐ Removing and installing ➔ [page 36](#)

### 5.1.2 Assembly overview - add-on parts of heater and air conditioning unit and of air intake box, RHD vehicles

**Note**

- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/ desiccant cartridge 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 - Air distribution housing****2 - Temperature flap control motor - V68- and defroster flap control motor - V107-**

- ☐ Removing and installing ➔ [page 36](#)

**3 - Seal****4 - Air intake housing****5 - Air flow flap****6 - Air flow flap control motor - V71-**

- ☐ Removing and installing ➔ [page 41](#)

**7 - Upper part of evaporator housing****8 - Lower part of evaporator housing****9 - Fresh air blower - V2-**

- ☐ Removing and installing ➔ [page 71](#)

**10 - Fresh air blower bracket****11 - Fresh air blower control unit - J126-**

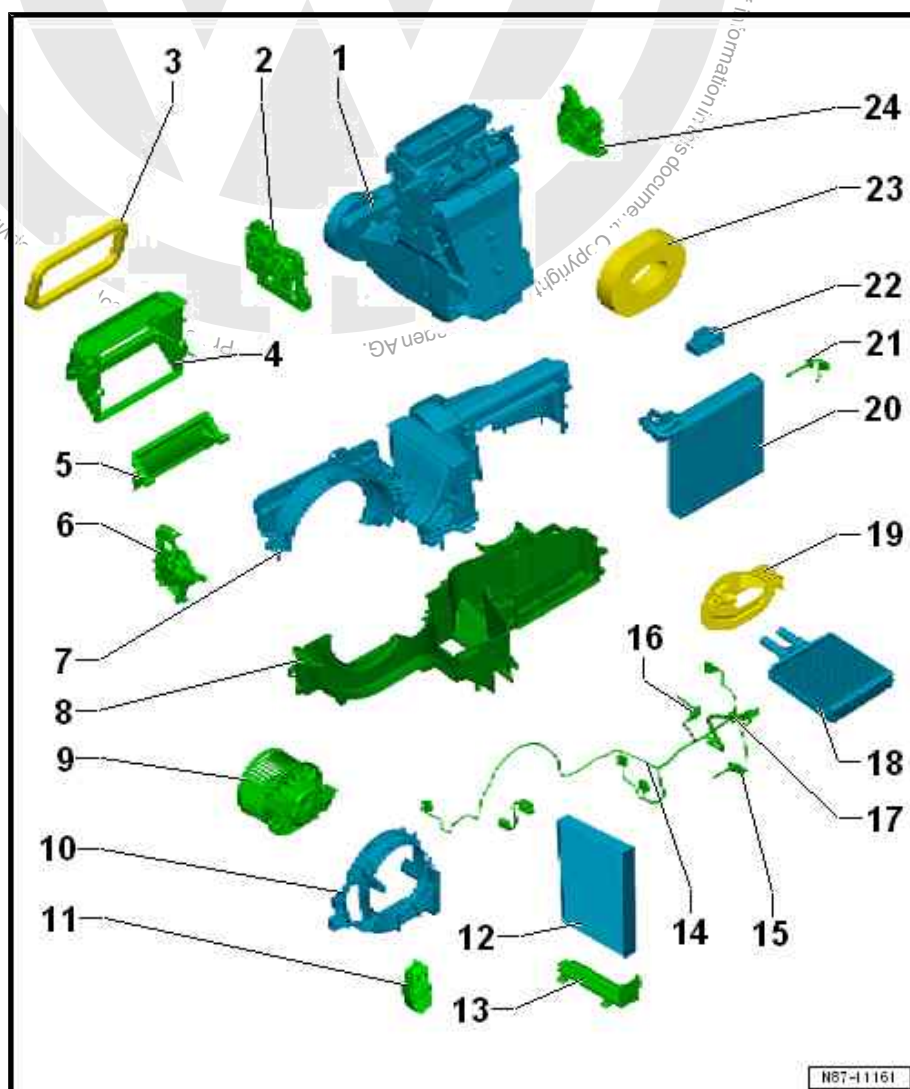
- ☐ Removing and installing ➔ [page 74](#)

**12 - Dust and pollen filter**

- ☐ Removing and installing ➔ [page 70](#)

**13 - Cover**

- ☐ For dust and pollen filter





**14 - Wiring harness for fresh air blower - V2-**

**15 - Footwell vent temperature sender - G192-**

- ❑ Removing and installing ⇒ [page 97](#)

**16 - Centre vent temperature sender - G191-**

- ❑ Removing and installing ⇒ [page 96](#)

**17 - Wiring harness for control motors**

**18 - Heat exchanger**

- ❑ Removing and installing ⇒ [page 76](#)

**19 - Seal**

- ❑ Note installation position ⇒ [page 78](#)

**20 - Evaporator**

- ❑ Removing and installing ⇒ [page 51](#)

**21 - Evaporator output temperature sender - G263-**

- ❑ Removing and installing ⇒ [page 59](#)

**22 - Expansion valve**

- ❑ Removing and installing ⇒ [page 21](#)

**23 - Seal**

- ❑ Note installation position ⇒ [page 55](#)

**24 - Central flap control motor - V70-**

- ❑ Removing and installing ⇒ [page 39](#)

## 5.2 Assembly overview - evaporator housing

⇒ [“5.2.1 Assembly overview - evaporator housing, LHD vehicles”, page 49](#)

⇒ [“5.2.2 Assembly overview - evaporator housing, RHD vehicles”, page 50](#)

### 5.2.1 Assembly overview - evaporator housing, LHD vehicles



**Note**

- ◆ *In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/desiccant cartridge 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 - Evaporator housing, upper part

## 2 - Seal

- ☐ Note installation position ➔ [page 55](#)

## 3 - Expansion valve

- ☐ Removing and installing ➔ [page 21](#)

## 4 - Socket head bolt with washer

- ☐ 5 Nm
- ☐ Qty. 2

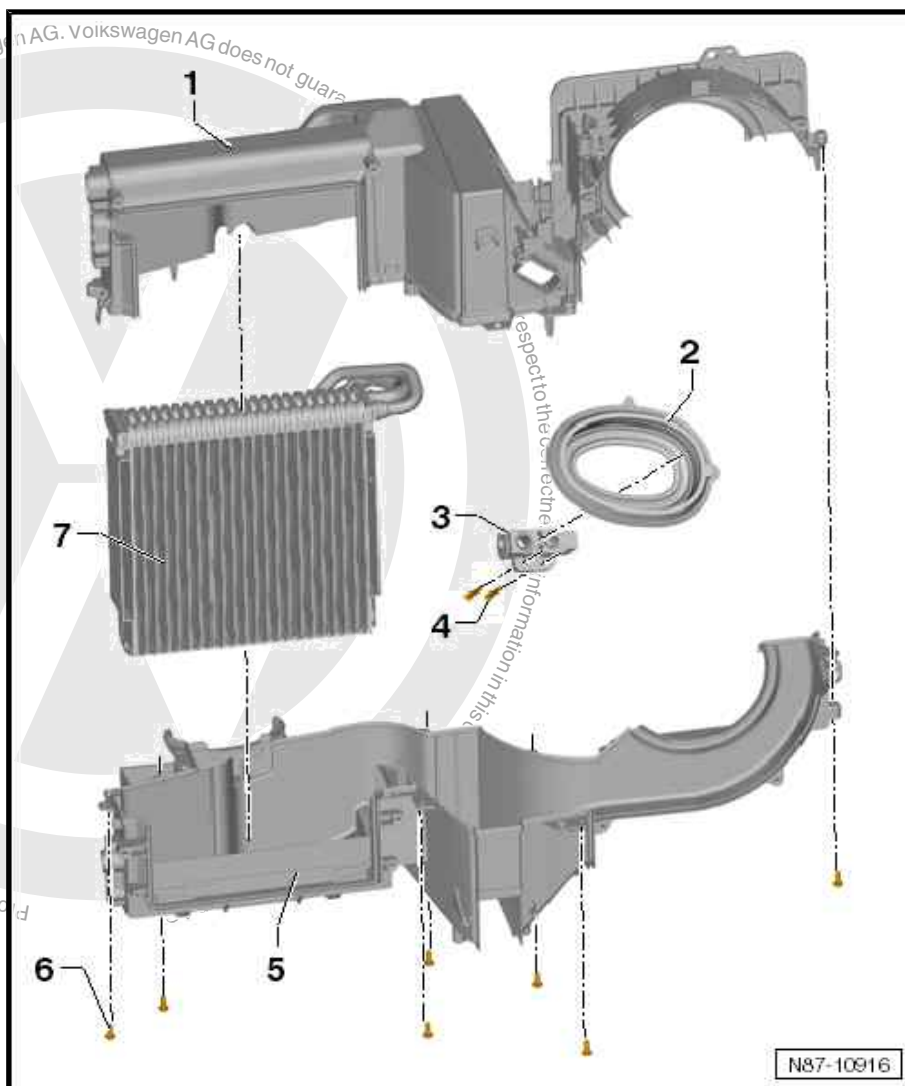
## 5 - Evaporator housing, lower part

## 6 - Bolts

- ☐ 1.5 Nm

## 7 - Evaporator

- ☐ Removing and installing ➔ [page 51](#)



## 5.2.2 Assembly overview - evaporator housing, RHD vehicles



### Note

- ◆ In some cases, it is no longer necessary on air conditioning systems with refrigerant R1234yf to renew the desiccant bag/desiccant cartridge 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 - Evaporator housing, upper part**

**2 - Evaporator**

- ☐ Removing and installing  
⇒ [page 51](#)

**3 - Evaporator housing, lower part**

**4 - Bolts**

- ☐ 1.5 Nm

**5 - Seal**

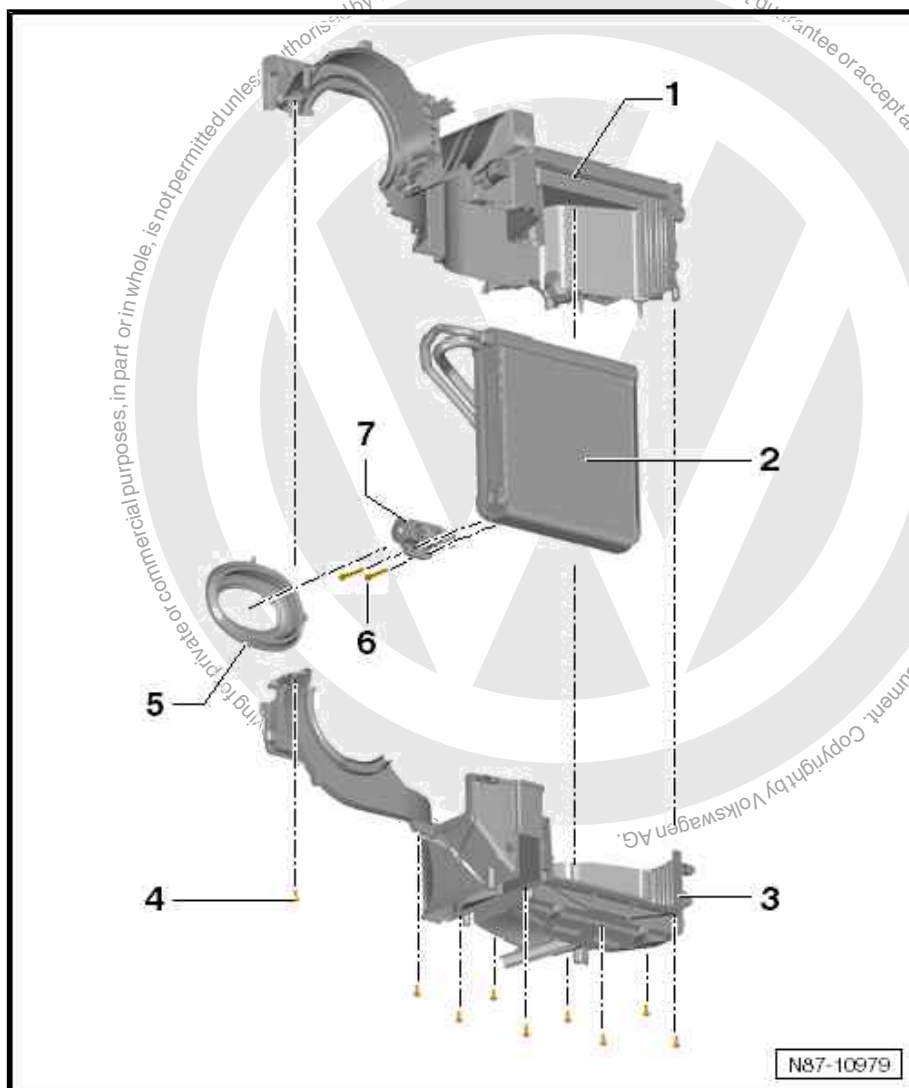
- ☐ Note installation position  
⇒ [page 55](#)

**6 - Socket head bolt with washer**

- ☐ 5 Nm
- ☐ Qty. 2

**7 - Expansion valve**

- ☐ Removing and installing  
⇒ [page 21](#)



### 5.3 Removing and installing evaporator

⇒ ["5.3.1 Removing and installing evaporator, left-hand drive vehicles", page 51](#)

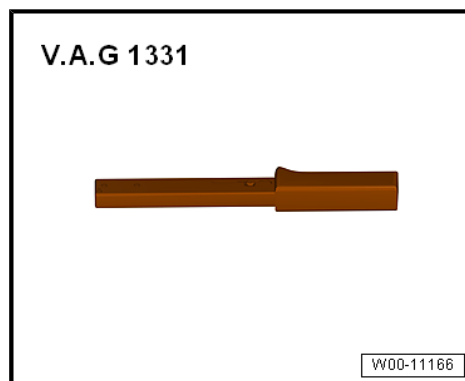
⇒ ["5.3.2 Removing and installing evaporator, right-hand drive vehicles", page 55](#)

#### 5.3.1 Removing and installing evaporator, left-hand drive vehicles

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331/- (5 to 50 Nm)



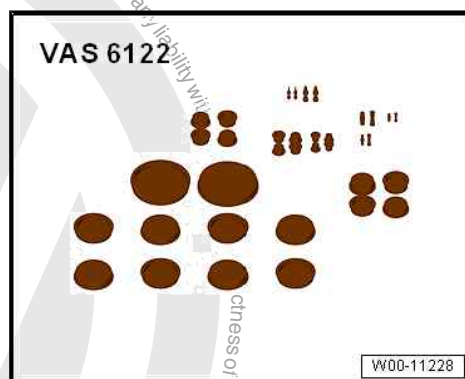
- ◆ Hose clamps to 25 mm - 3094-



- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Engine bung set - VAS 6122-



- ◆ Air conditioner service station
- ◆ Commercially available compressed air gun



## Removing



### Note

- ◆ *The refrigerant must be extracted beforehand, with the air conditioning service station .*
- ◆ *The previously used air conditioner service station can still be used ⇒ Volkswagen Workshop Equipment catalogue.*
- ◆ *To prevent the intrusion of moisture, all components of the refrigerant circuit which have been opened must be sealed with suitable plugs.*
- ◆ *Releasing refrigerant into the environment is a punishable offence.*



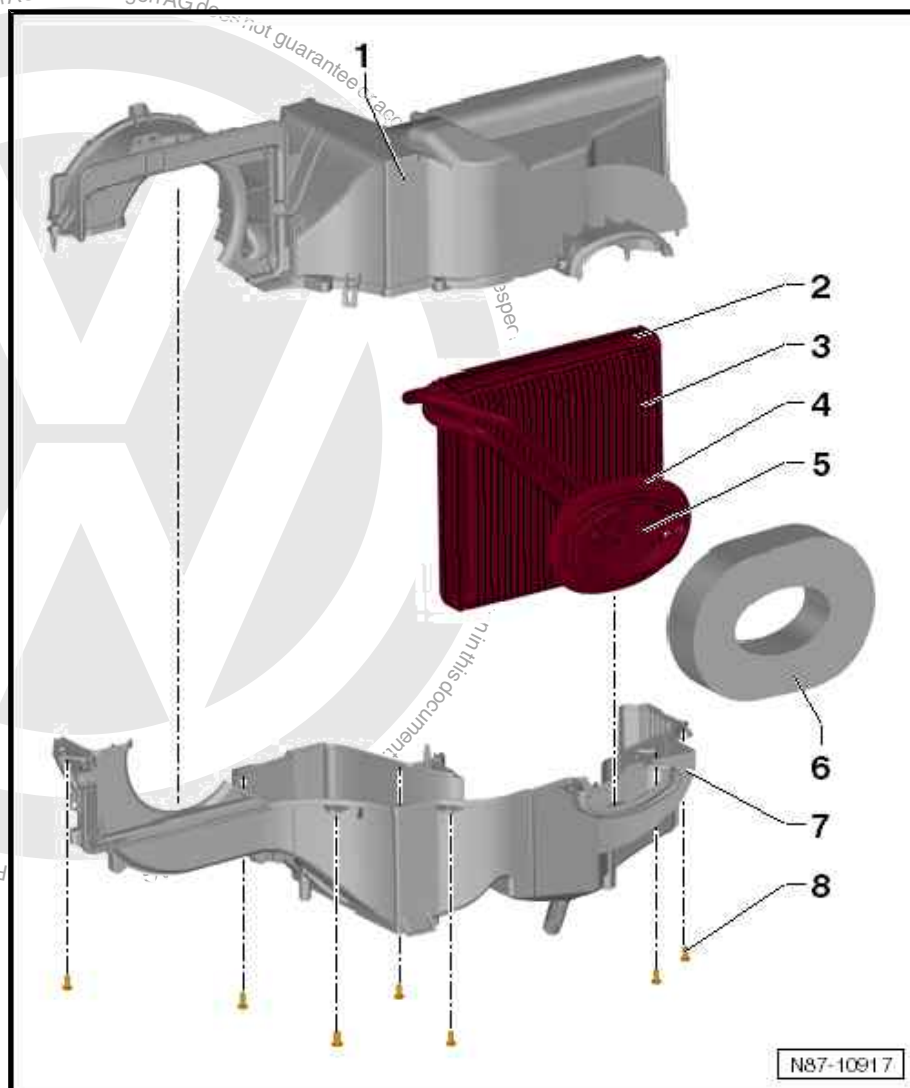
### CAUTION

**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.

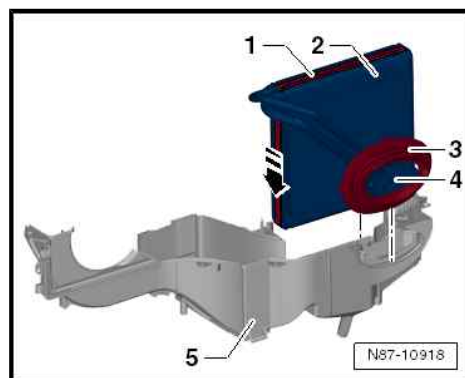
- Remove heater and air conditioning unit ⇒ [page 59](#) .
- Dismantling evaporator housing ⇒ [page 49](#) .



- Remove evaporator -3- from lower part of evaporator housing -7-.

### Installing

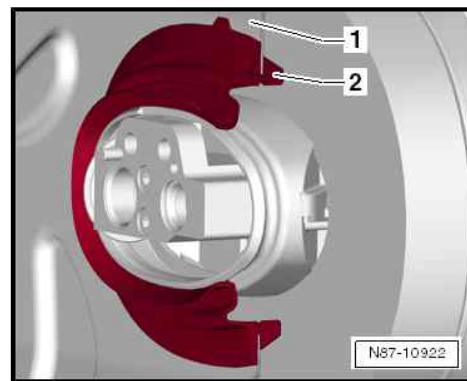
Ensure proper seating of gasket -3-:





### Vehicles with air conditioning system

- Further assembly is carried out in the reverse order.



### 5.3.2 Removing and installing evaporator, right-hand drive vehicles

#### Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331/- (5 to 50 Nm)



- ◆ Hose clamps to 25 mm - 3094-

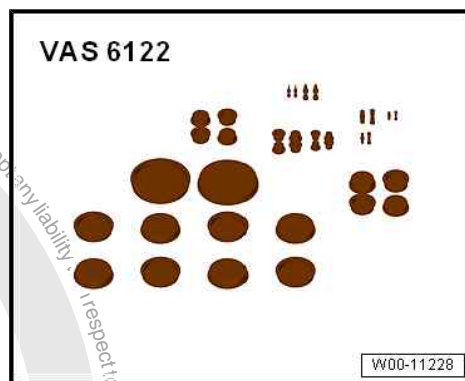


- ◆ Drip tray for workshop hoist - VAS 6208-





♦ Engine bung set - VAS 6122



♦ Air conditioner service station

♦ Commercially available compressed air gun

Removing



Note

- ♦ *The refrigerant must be extracted beforehand, with the air conditioning service station .*
- ♦ *The previously used air conditioner service stations can still be used ⇒ Volkswagen Workshop Equipment catalogue.*
- ♦ *To prevent the intrusion of moisture, all components of the refrigerant circuit which have been opened must be sealed with suitable plugs.*
- ♦ *Releasing refrigerant into the environment is a punishable offence.*



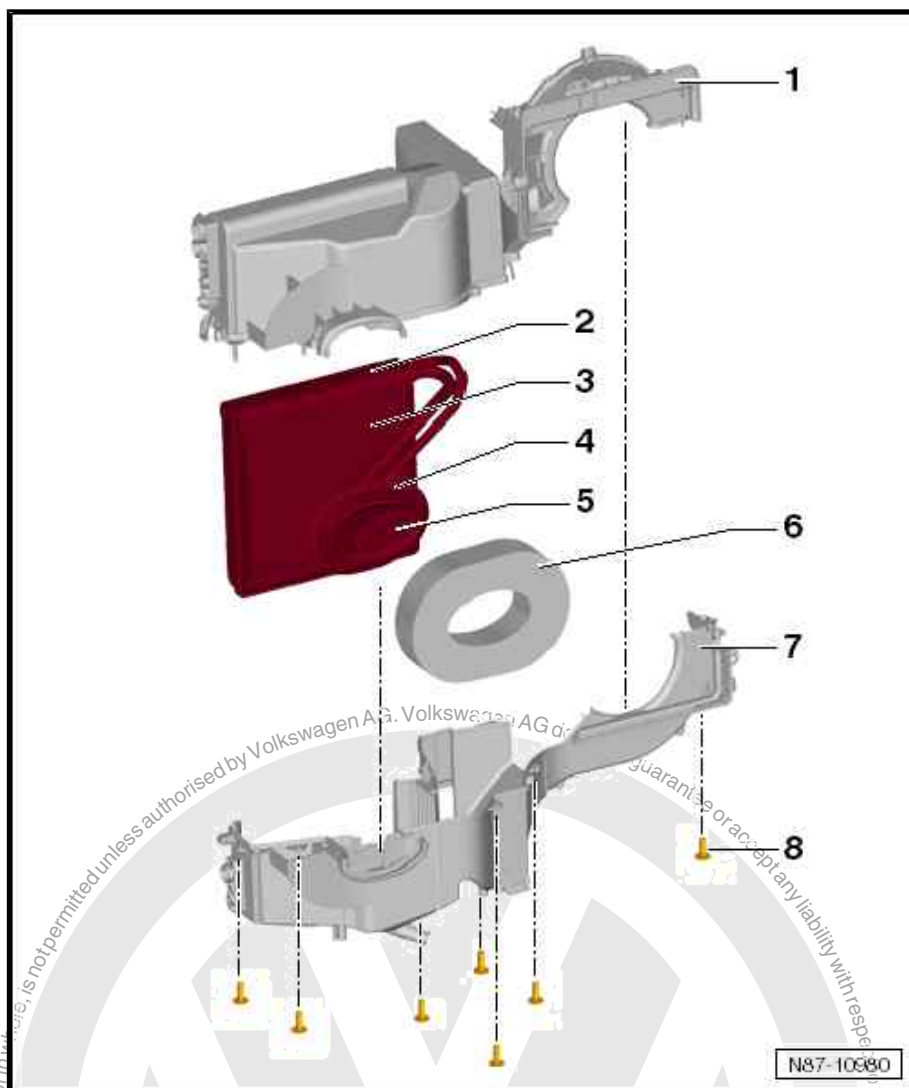
CAUTION

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.

- Remove heater and air conditioning unit ⇒ [page 59](#) .
- Dismantling evaporator housing ⇒ [page 49](#) .



- Remove evaporator -3- from lower part of evaporator housing -7-.

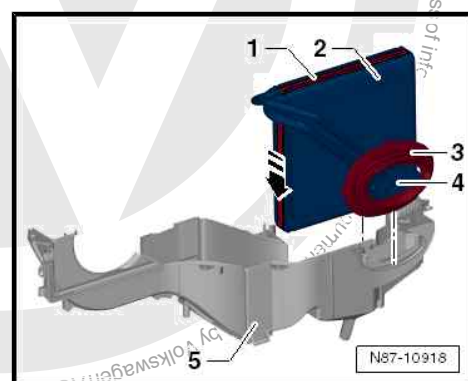
### Installing



#### Note

The diagram shows a left-hand drive vehicle.

Ensure proper seating of gasket -3-:

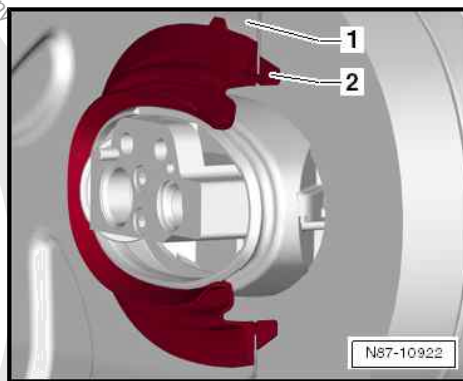






## Vehicles with air conditioning system

- Further assembly is carried out in the reverse order.



### 5.4 Removing and installing evaporator output temperature sender - G263-

⇒ [“5.4.1 Removing and installing evaporator output temperature sender G263 , LHD vehicles”, page 58](#)

⇒ [“5.4.2 Removing and installing evaporator output temperature sender G263 , RHD vehicles”, page 59](#)

#### 5.4.1 Removing and installing evaporator output temperature sender - G263- , LHD vehicles



#### Note

*The evaporator output temperature sender - G263- is located on the left side of the heater and air conditioning unit.*

#### Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Disconnect connector -2-.
- Turn evaporator output temperature sender - G263- -1- by 90° in direction of -arrow-, and remove it.

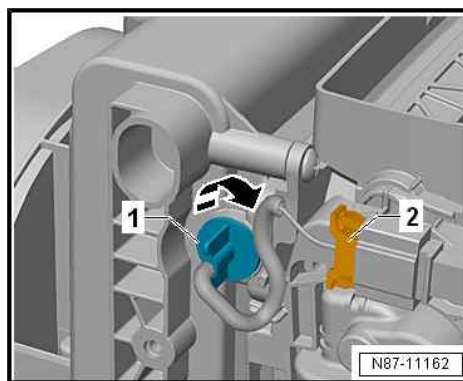
#### Installing

- Install evaporator output temperature sender - G263- in reverse order of removal.



#### Note

*Ensure that the evaporator output temperature sender - G263- wiring is routed correctly.*





## 5.4.2 Removing and installing evaporator output temperature sender - G263- , RHD vehicles



### Note

The illustration shows a left-hand drive vehicle. But removal and installation are analogous. The evaporator output temperature sender - G263- is located on the right side of the heater and air conditioning unit.

### Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Disconnect connector -2-.
- Turn evaporator output temperature sender - G263- -1- by 90° in direction of -arrow-, and remove it.

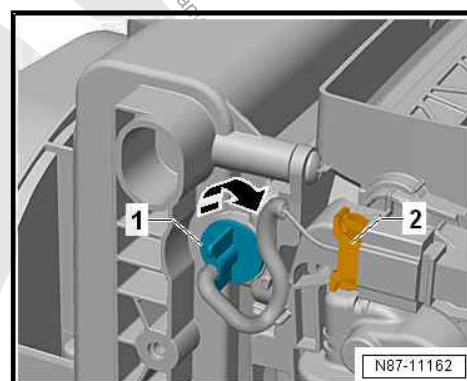
### Installing

- Install evaporator output temperature sender - G263- in reverse order of removal.



### Note

Ensure that the evaporator output temperature sender - G263- wiring is routed correctly.



## 5.5 Removing and installing heater and air conditioning unit

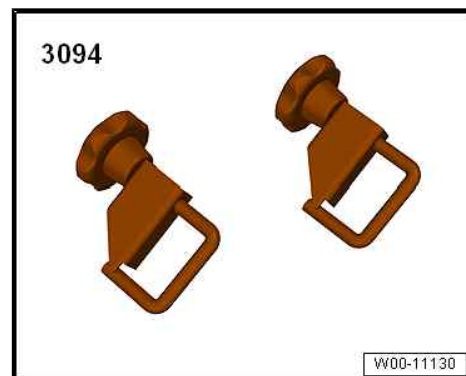
⇒ [“5.5.1 Removing and installing heater and air conditioning unit, LHD vehicles”, page 59](#)

⇒ [“5.5.2 Removing and installing heater and air conditioning unit, RHD vehicles”, page 64](#)

### 5.5.1 Removing and installing heater and air conditioning unit, LHD vehicles

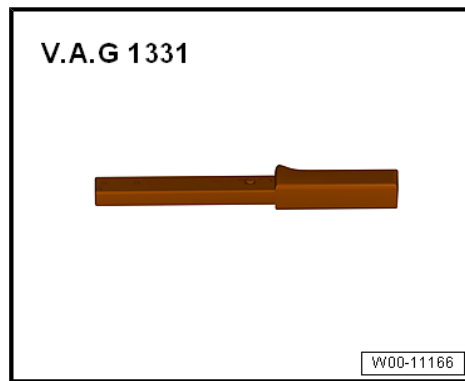
#### Special tools and workshop equipment required

- ◆ Hose clamps to 25 mm - 3094-

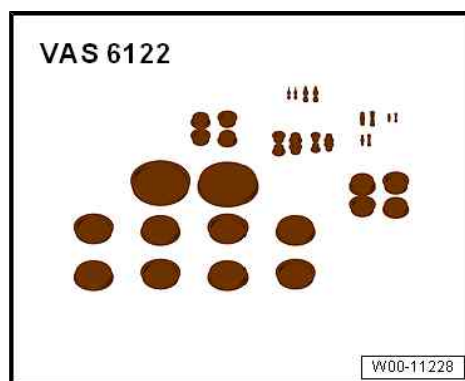




- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Compressed air gun

#### Removing

- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and reconnecting battery .
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove air filter ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing -
- Cover floor covering at front.



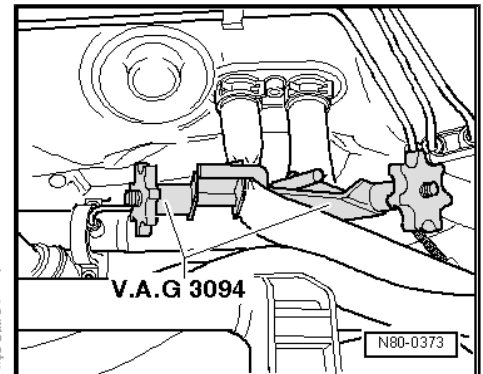
**CAUTION**

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.

- Mark and clamp off coolant hoses in engine compartment using hose clamps up to 40 mm - 3093- and remove from heat exchanger.



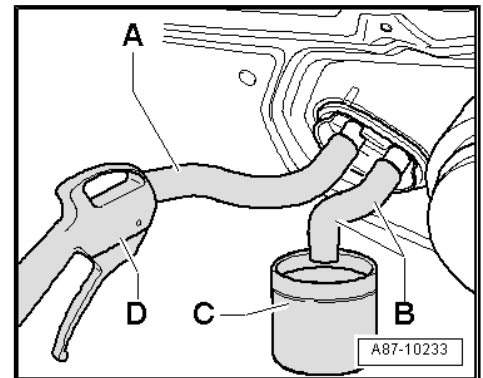
- Push a piece of hose -A- and -B- onto both connections to heat exchanger.
- Hold a container -C- under hose from lower connection -B-.
- Using a compressed air gun -D-, carefully blow coolant out of heat exchanger into container -C- via hose -A-.

**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.

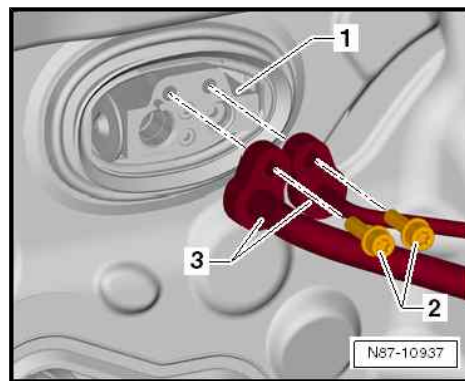
There is a risk of injury to the skin and parts of the body due to freezing.

- 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 -2- (12 Nm) for refrigerant lines -3- which are accessible from engine compartment.
- Disconnect refrigerant lines from expansion valve -1-.
- Cover floor covering in interior of vehicle with a waterproof foil and absorbent paper.
- Disconnect electrical connectors from heater and air conditioning unit.
- Remove intermediate piece for defroster vent ➔ [page 81](#) .
- Remove intermediate piece for centre vent ➔ [page 82](#) .



#### 1 - Dash panel central tube

- ☐ Removing and installing  
➔ General body repairs,  
interior; Rep. gr. 70 ;  
Dash panel central tube;  
Removing and installing  
dash panel central tube .

#### 2 - Bolt

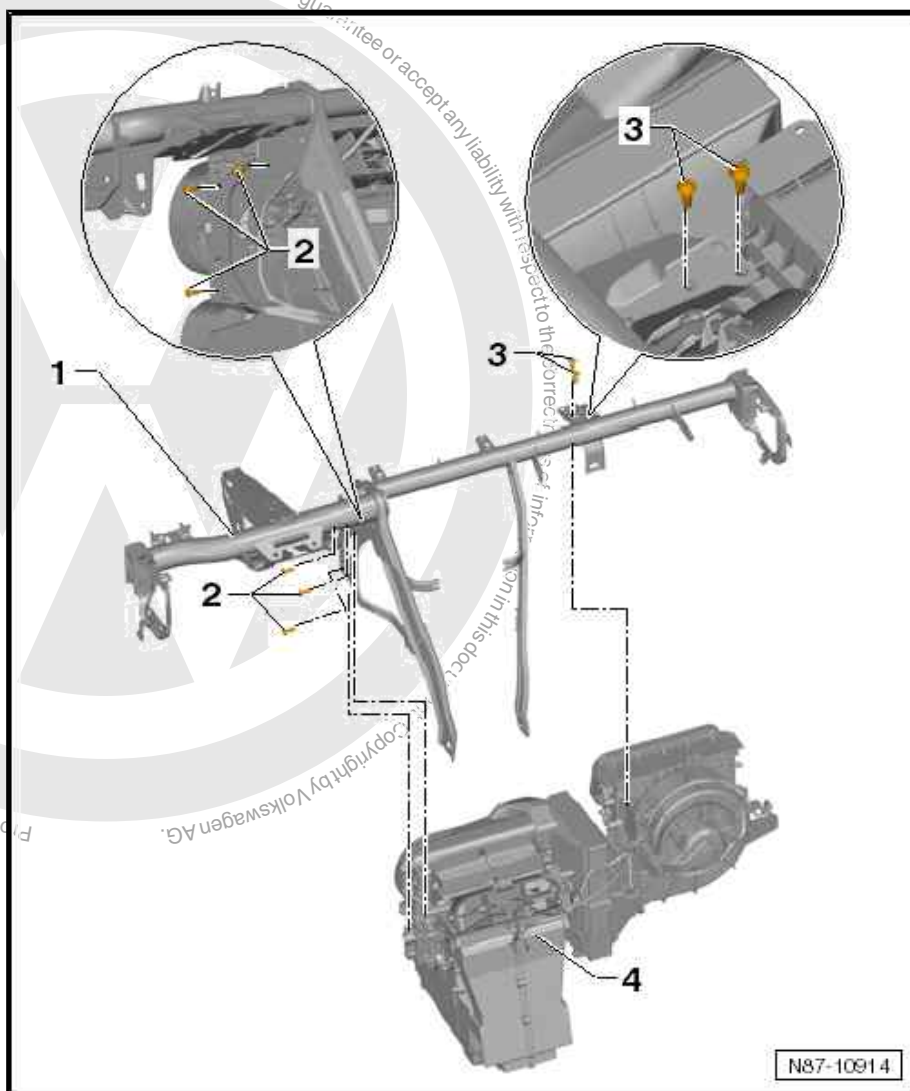
- ☐ Qty. 3
- ☐ 3.5 Nm

#### 3 - Bolt

- ☐ Qty. 2
- ☐ 3.5 Nm

#### 4 - Heater and air conditioning unit

- ☐ Removing and installing  
➔ [page 59](#)



#### Note

- ◆ Install all cable ties and other fasteners for the wiring harness at the same places from which they were detached or cut when the air conditioner was removed.
- ◆ The air conditioning wiring harness is removed along with the heater and air conditioning unit.





- Unscrew bolts -2- and -3-.
- Remove dash panel central tube -1- ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .

**Note**

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

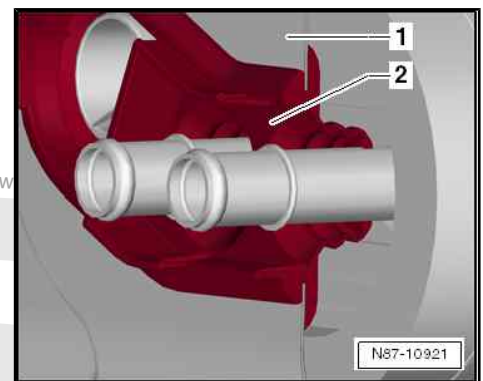
- Remove heater and air conditioning unit to the side.

**Installing**

- Install in reverse order, noting the following:
- Install seal -2- on heater and air conditioning unit first.
- When installing heater and air conditioning unit, pull seal -2- through bulkhead -1-.

**Note**

- ◆ *Ensure that seal -2- in plenum chamber bulkhead -1- is properly seated.*
- ◆ *The condensate drain connection must not be covered by the seal -2- ⇒ [page 78](#) .*



**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.



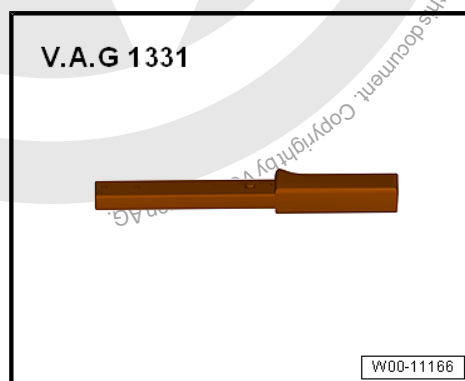
## 5.5.2 Removing and installing heater and air conditioning unit, RHD vehicles

### Special tools and workshop equipment required

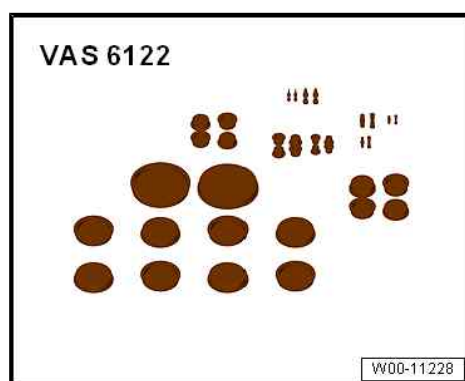
- ◆ Hose clamps to 25 mm - 3094-



- ◆ Torque wrench - V.A.G 1331-



- ◆ Engine bung set - VAS 6122-



- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Compressed air gun





## Removing

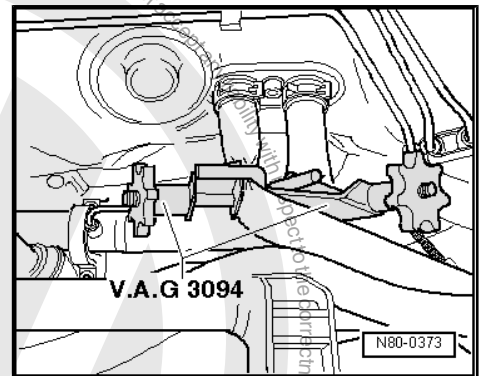
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and reconnecting battery .
- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove air filter ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing -
- Cover floor covering at front.

### 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.
- Mark and clamp off coolant hoses in engine compartment using hose clamps up to 40 mm - 3093- and remove from heat exchanger.





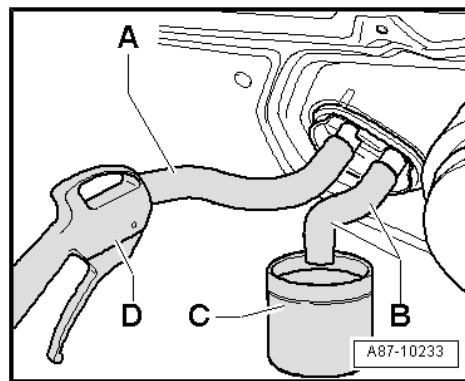
- Push a piece of hose -A- and -B- onto both connections to heat exchanger.
- Hold a container -C- under hose from lower connection -B-.
- Using a compressed air gun -D-, carefully blow coolant out of heat exchanger into container -C- via hose -A-.

#### 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

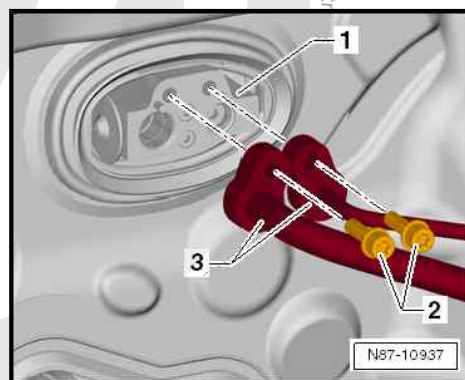
### ⚠ CAUTION

**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 -2- (12 Nm) for refrigerant lines -3- which are accessible from engine compartment.
- Disconnect refrigerant lines from expansion valve -1-.
- Cover floor covering in interior of vehicle with a waterproof foil and absorbent paper.
- Disconnect electrical connectors from heater and air conditioning unit.
- Remove intermediate piece for defroster vent ⇒ [page 81](#) .
- Remove intermediate piece for centre vent ⇒ [page 82](#) .





### 1 - Dash panel central tube

- ❑ Removing and installing  
⇒ General body repairs,  
interior; Rep. gr. 70 ;  
Dash panel central tube;  
Removing and installing  
dash panel central tube .

### 2 - Bolt

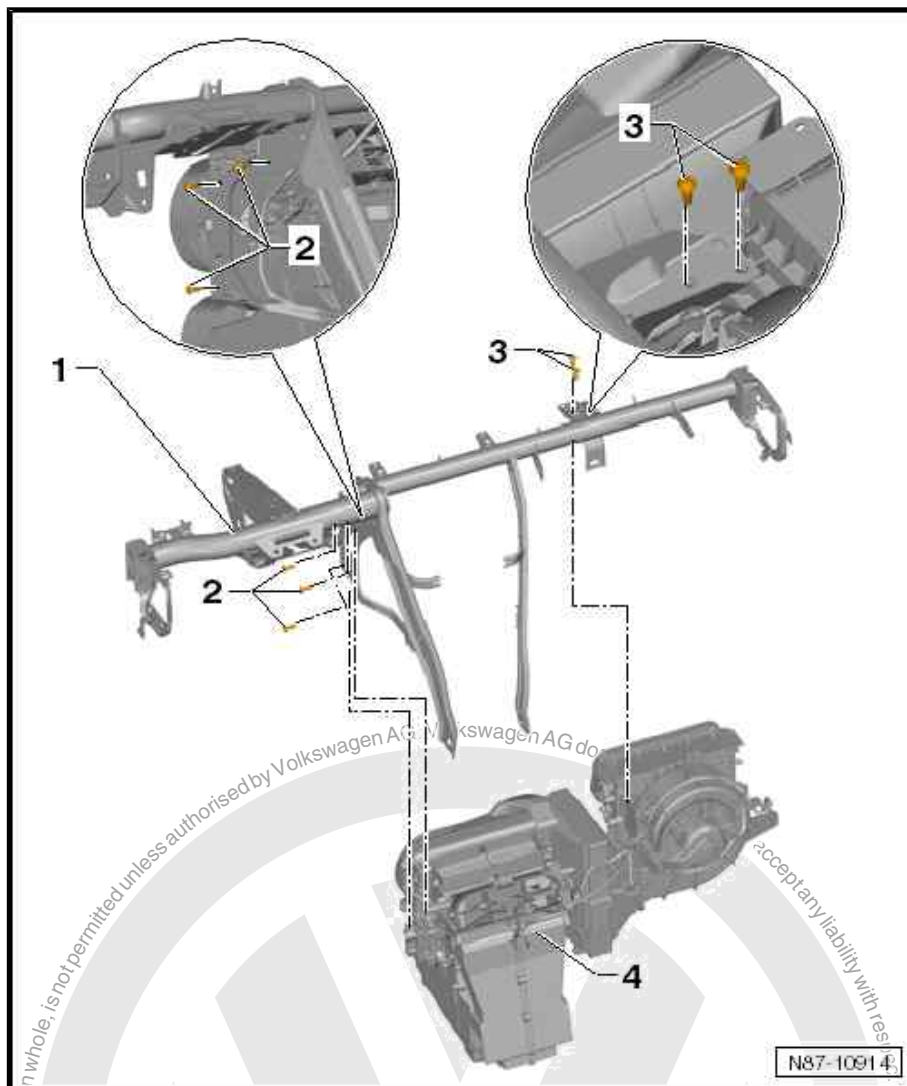
- ❑ Qty. 3
- ❑ 3.5 Nm

### 3 - Bolt

- ❑ Qty. 2
- ❑ 3.5 Nm

### 4 - Heater and air conditioning unit

- ❑ Removing and installing  
⇒ [page 59](#)



#### Note

- ◆ *Install all cable ties and other fasteners for the wiring harness at the same places from which they were detached or cut when the air conditioner was removed.*
- ◆ *The air conditioning wiring harness is removed along with the heater and air conditioning unit.*

- Unscrew bolts -2- and -3-.
- Remove dash panel central tube -1- ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel central tube; Removing and installing dash panel central tube .



#### Note

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

- Remove heater and air conditioning unit to the side.



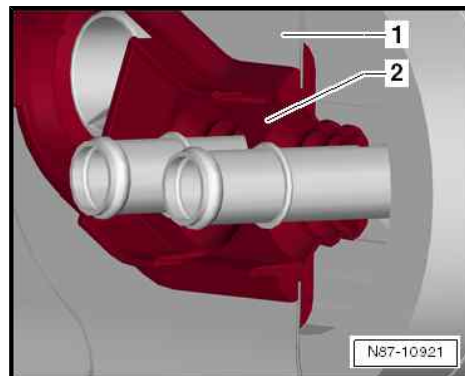
## Installing

- Install in reverse order, noting the following:
- Install seal -2- on heater and air conditioning unit first.
- When installing heater and air conditioning unit, pull seal -2- through bulkhead -1-.



### Note

- ◆ Ensure that seal -2- in plenum chamber bulkhead -1- is properly seated.
- ◆ The condensate drain connection must not be covered by the seal -2- ➔ [page 78](#).



### 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.

## 5.6 Dismantling and assembling heater and air conditioning unit



### Note

*The diagram shows a left-hand drive vehicle. Removal and installation are analogous for right-hand drive units.*



**1 - Air distribution housing**

**2 - Central flap control motor - V70-**

- ☐ Removing and installing  
⇒ [page 39](#)

**3 - Seal**

**4 - Air intake housing**

**5 - Air flow flap**

**6 - Air flow flap control motor - V71-**

- ☐ Removing and installing  
⇒ [page 41](#)

**7 - Upper part of evaporator housing**

**8 - Lower part of evaporator housing**

**9 - Fresh air blower - V2-**

- ☐ Removing and installing  
⇒ [page 71](#)

**10 - Fresh air blower control unit - J126-**

- ☐ Removing and installing  
⇒ [page 74](#)

**11 - Fresh air blower bracket**

**12 - Dust and pollen filter**

- ☐ Removing and installing  
⇒ [page 70](#)

**13 - Cover**

- ☐ For dust and pollen filter

**14 - Wiring harness for fresh air blower - V2-**

**15 - Footwell vent temperature sender - G192-**

- ☐ Removing and installing ⇒ [page 97](#)

**16 - Centre vent temperature sender - G191-**

- ☐ Removing and installing ⇒ [page 96](#)

**17 - Wiring harness for control motors**

**18 - Heat exchanger**

- ☐ Removing and installing ⇒ [page 76](#)

**19 - Seal**

- ☐ Note installation position ⇒ [page 78](#)

**20 - Evaporator**

- ☐ Removing and installing ⇒ [page 51](#)

**21 - Evaporator output temperature sender - G263-**

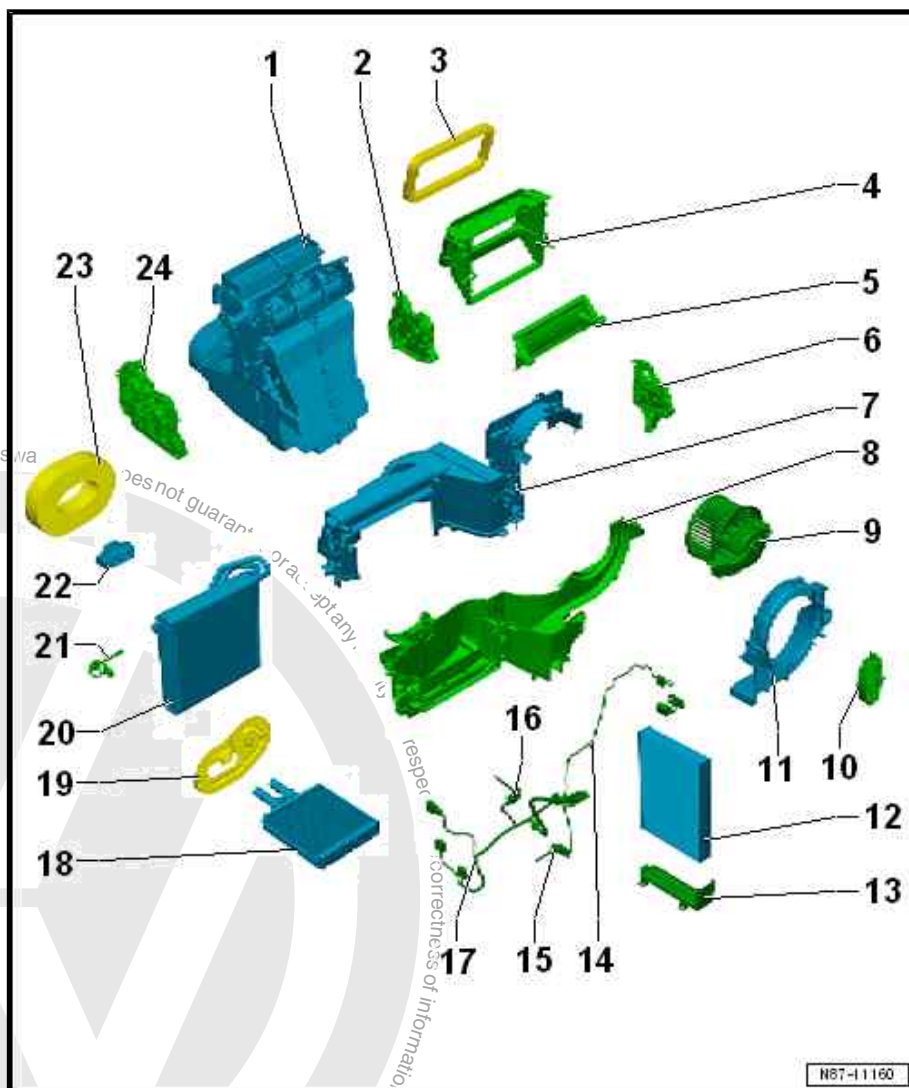
- ☐ Removing and installing ⇒ [page 58](#)

**22 - Expansion valve**

- ☐ Removing and installing ⇒ [page 21](#)

**23 - Seal**

- ☐ Note installation position ⇒ [page 55](#)







## 24 - Temperature flap control motor - V68- and defroster flap control motor - V107-

- ❑ Removing and installing ➔ [page 36](#)

### 5.7 Removing and installing dust and pollen filter

➔ ["5.7.1 Removing and installing dust and pollen filter, left-hand drive vehicles", page 70](#)

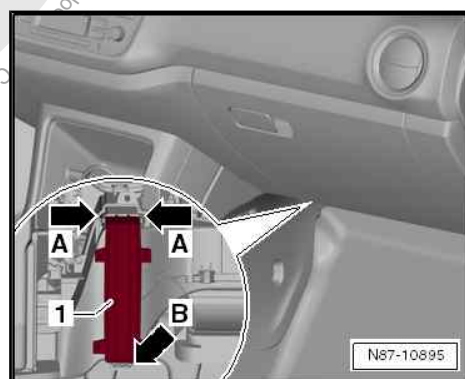
➔ ["5.7.2 Removing and installing dust and pollen filter, right-hand drive vehicles", page 70](#)

#### 5.7.1 Removing and installing dust and pollen filter, left-hand drive vehicles

##### Removing

The dust and pollen filter is accessible from the footwell on the front passenger side.

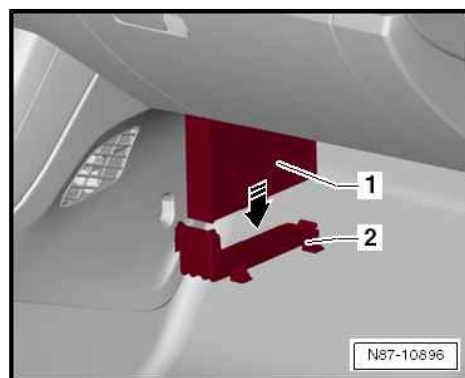
- Press locking lugs -arrow A- inwards and fold dust and pollen filter cover -1- downwards.
- Unhook and remove dust and pollen filter cover -1- from mounting -arrow B-.



- Pull dust and pollen filter -1- in -direction of arrow- out of heater unit.

##### Installing

- Observe installation position of dust and pollen filter.
- Install in reverse order of removal.



#### 5.7.2 Removing and installing dust and pollen filter, right-hand drive vehicles

##### Removing

The dust and pollen filter is accessible from the footwell on the front passenger side.

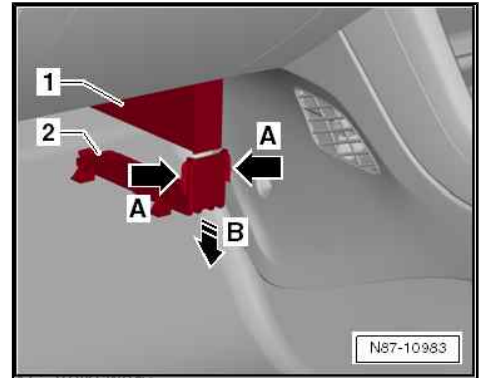




- Press locking lugs -arrow A- inwards and fold dust and pollen filter cover -2- downwards.
- Pull dust and pollen filter -1- in -direction of arrow B- out of heater unit.

#### Installing

- Observe installation position of dust and pollen filter.
- Install in reverse order of removal.



## 5.8 Removing and installing fresh air blower - V2-

⇒ [“5.8.1 Removing and installing fresh air blower V2 , left-hand drive vehicles”, page 71](#)

⇒ [“5.8.2 Removing and installing fresh air blower V2 , right-hand drive vehicles”, page 72](#)

### 5.8.1 Removing and installing fresh air blower - V2- , left-hand drive vehicles

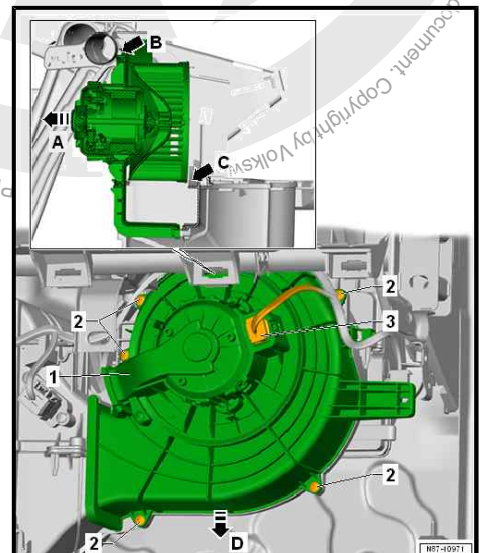


#### Note

*The illustration shows an left-hand drive version of the up!. Removal and installation are analogous.*

#### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Disconnect connector -3- on fresh air blower - V2- -1-.
- Unscrew bolts -2-.
- Tilt housing with fresh air blower - V2- forwards in -direction of arrow A-, taking care that the fresh air blower - V2- does not make contact at points -arrow B- and -arrow C-.
- Pull housing with fresh air blower - V2- downwards slightly in -direction of arrow D-.





- Loosen bolt -2-.
- Press retaining lug -arrow A- to the left, turn fresh air blower - V2- -1- in -in direction of arrow B- and remove it from housing.



#### Note

*If the fresh air blower - V2- is to be reused, do not set it on fan wheel.*

#### Installing

Install in the reverse order of removal, observing the following:

- The connector must engage correctly in the housing.

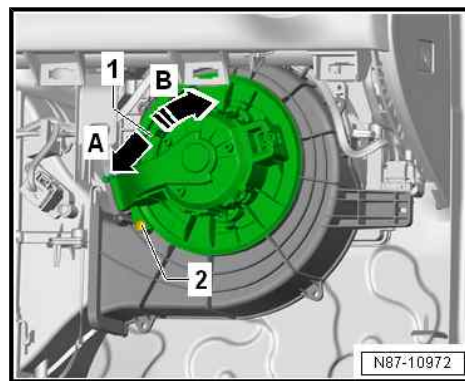


#### NOTICE

Improper handling may damage the fresh air blower.

Imbalance leading to customer complaints may occur during operation.

- Avoid applying excessive pressure to the fan wheel.
- Never change position of the balancing weights on fan wheel.



#### Specified torque:

Component	Specified torque
Bolts on fresh air blower bracket	1 Nm

- ♦ Install glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .

### 5.8.2 Removing and installing fresh air blower - V2- , right-hand drive vehicles

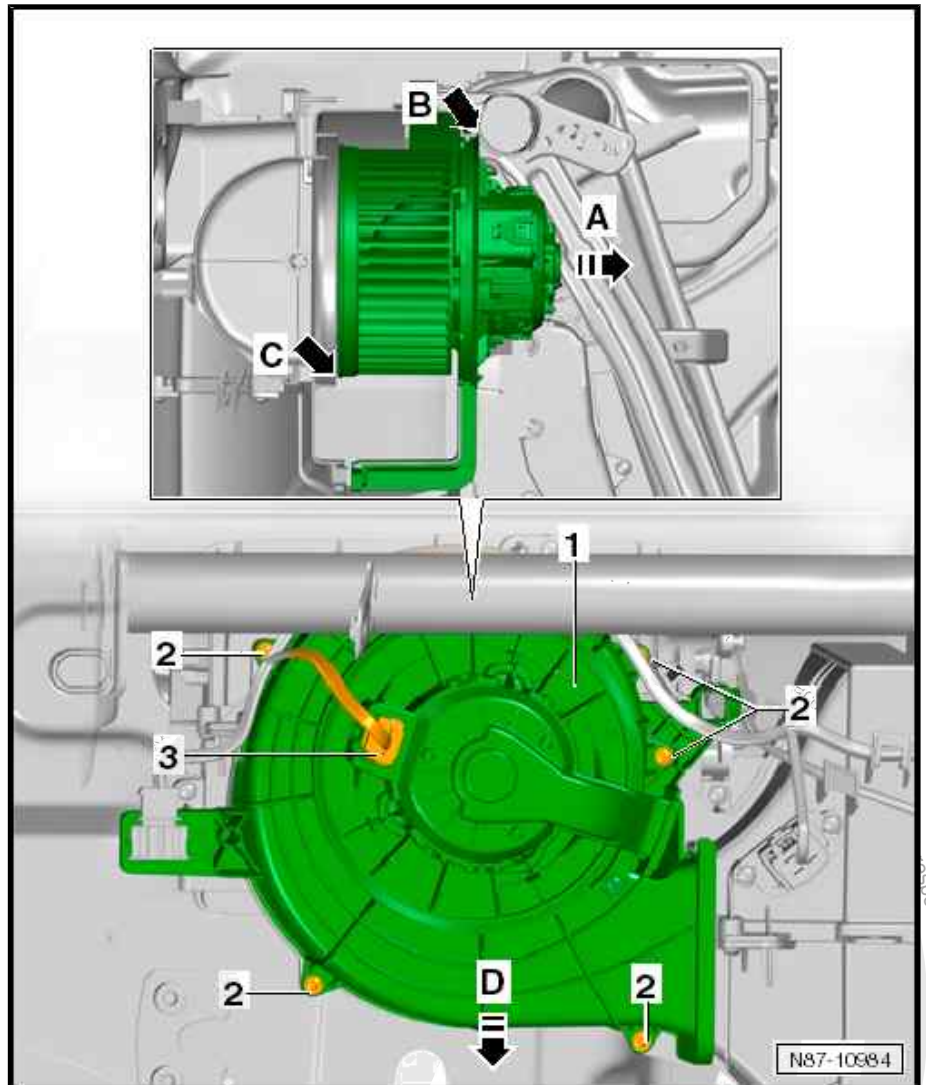


#### Note

*The illustration shows a right-hand drive version of the up!. Removal and installation are analogous.*

#### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Disconnect connector -3- on fresh air blower - V2- -1-.



- Unscrew bolts -2-.
- Tilt housing with fresh air blower - V2- forwards in -direction of arrow A-, taking care that the fresh air blower - V2- does not make contact at points -arrow B- and -arrow C-.
- Pull housing with fresh air blower - V2- downwards slightly in -direction of arrow D-.



- Loosen bolt -2-.
- Press retaining lug -arrow A- to right; then turn fresh air blower - V2- -1- in direction of -arrow B-, and remove it from housing.



#### Note

*If the fresh air blower - V2- is to be reused, do not set it on fan wheel.*

#### Installing

Install in the reverse order of removal, observing the following:

- The connector must engage correctly in the housing.



#### NOTICE

Improper handling may damage the fresh air blower.

Imbalance leading to customer complaints may occur during operation.

- Avoid applying excessive pressure to the fan wheel.
- Never change position of the balancing weights on fan wheel.

#### Specified torque:

Component	Specified torque
Bolts on fresh air blower bracket	1 Nm

- ♦ Install glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .

## 5.9 Removing and installing fresh air blower control unit - J126

⇒ ["5.9.1 Removing and installing fresh air blower control unit J126 , left-hand drive vehicles", page 74](#)

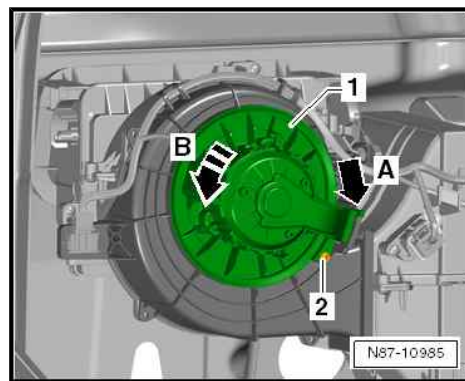
⇒ ["5.9.2 Removing and installing fresh air blower control unit J126 , right-hand drive vehicles", page 75](#)

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

As of week 12/2014, a new fresh air blower control unit - J126- and a new housing for the heater and air conditioning unit have been introduced ⇒ [page 75](#) .

#### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .



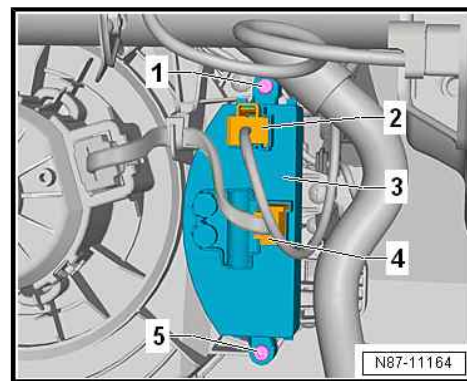


- Disconnect connectors -2- and -4- from fresh air blower control unit - J126- -3-.
- Unscrew bolts -1- and -5-.

### ⚠ 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- -3-.

### Installing

- Install in the reverse order of removal. When doing this, note the following:

As of week 12/2014, a new fresh air blower control unit - J126- and a new housing for the heater and air conditioning unit have been introduced .

#### Situation: new housing and old fresh air blower control unit - J126-

- Add seal between housing and fresh air blower control unit - J126- ⇒ Electronic parts catalogue (ETKA) .

#### Situation: old housing and new fresh air blower control unit - J126-

- Raise fresh air blower control unit - J126- by fitting 2 x 3 spacers (0,8 mm) between housing and fresh air blower control unit - J126- ⇒ Electronic parts catalogue (ETKA) .
- Seal the gap with a seal ⇒ Electronic parts catalogue (ETKA) .

### Specified torque:

Component	Specified torque
Bolts on fresh air blower control unit - J126-	1 Nm

- ◆ Install glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .

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

As of week 12/2014, a new fresh air blower control unit - J126- and a new housing for the heater and air conditioning unit have been introduced ⇒ [page 76](#) .

### Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .





- Disconnect connectors -2- and -4- from fresh air blower control unit - J126- -3-.
- Unscrew bolts -1- and -5-.

### ⚠ 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- -3-.

### Installing

- Install in the reverse order of removal. When doing this, note the following:

As of week 12/2014, a new fresh air blower control unit - J126- and a new housing for the heater and air conditioning unit have been introduced .

### Situation: new housing and old fresh air blower control unit - J126-

- Add seal between housing and fresh air blower control unit - J126- ⇒ Electronic parts catalogue (ETKA) .

### Situation: old housing and new fresh air blower control unit - J126-

- Raise fresh air blower control unit - J126- by fitting 2 x 3 spacers (0,8 mm) between housing and fresh air blower control unit - J126- ⇒ Electronic parts catalogue (ETKA) .
- Seal the gap with a seal ⇒ Electronic parts catalogue (ETKA) .

### Specified torque:

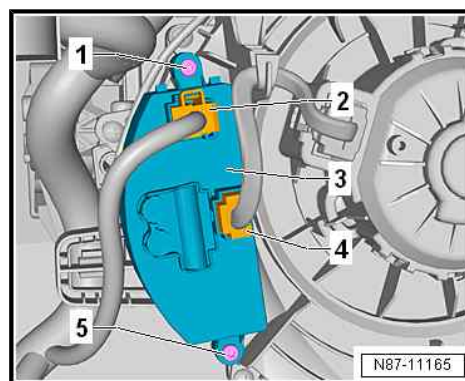
Component	Specified torque
Bolts on fresh air blower control unit - J126-	1 Nm

- ◆ Install glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .

## 5.10 Removing and installing heat exchanger

### Special tools and workshop equipment required

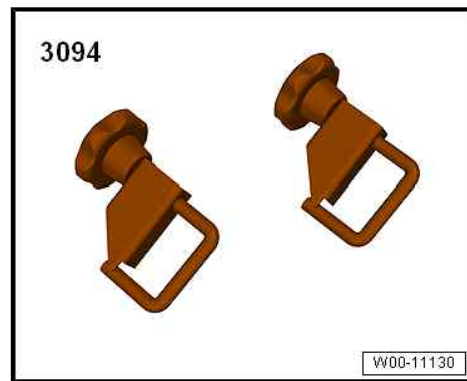
- ◆ Drip tray for workshop hoist - VAS 6208-



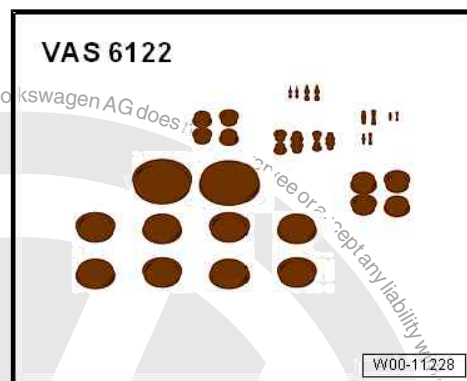




- ◆ Hose clamps to 25 mm - 3094-



- ◆ Compressed air gun, commercially available
- ◆ Engine bung set - VAS 6122-



### Removing

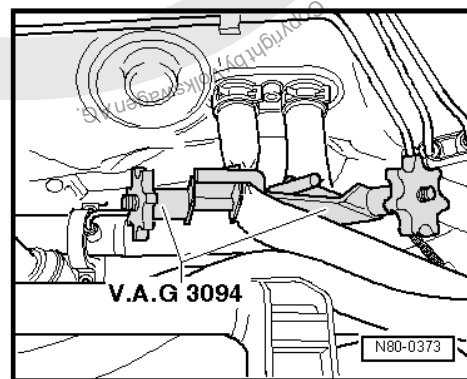
- Disconnect battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and reconnecting battery .

### **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.
- Mark and clamp off coolant hoses in engine compartment using hose clamps up to 25 mm - 3094- and remove from heat exchanger.





- Push a piece of hose -A- and -B- onto both connections to heat exchanger.
- Hold a container -C- under hose from lower connection -B-.
- Using a compressed air gun -D-, carefully blow coolant out of heat exchanger into container -C- via hose -A-.
- Remove heater and air conditioning unit ⇒ [page 59](#) .
- Dismantling heater and air conditioning unit ⇒ [page 68](#) .
- Remove heat exchanger.

**Installing**

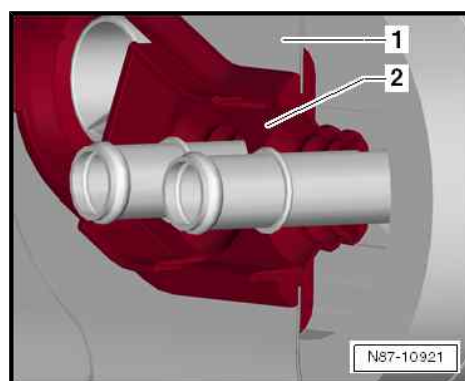
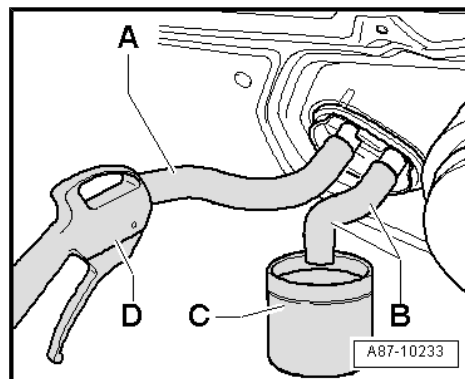
Install in the reverse order of removal, observing the following:

- Ensure proper installation position of coolant hoses and seal between heat exchanger and plenum chamber bulkhead.

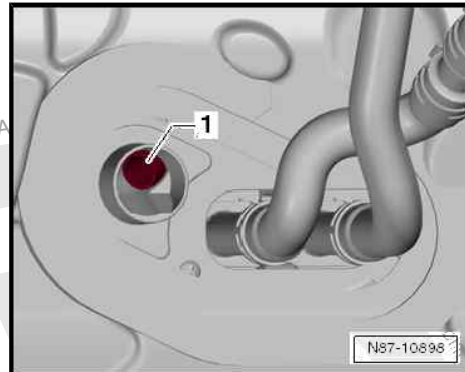
**Seal between evaporator housing and plenum chamber bulkhead****Note**

After renewal of heat exchanger, renew coolant.

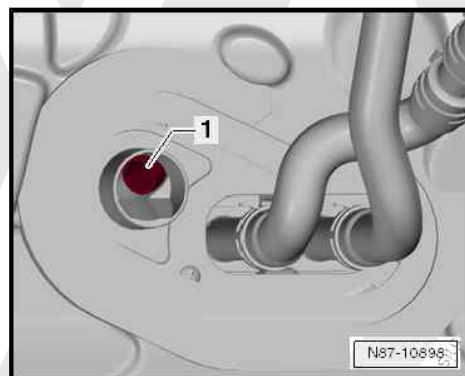
- Fill with coolant ⇒ Electric drive; Rep. gr. 93 ; Cooling system/coolant, vehicles with high-voltage system; Draining and filling coolant .

**5.11 Removing and installing condensation drain****Condensate drain connection****Note**

- ♦ The condensate drain connection -1- is located behind the heat shield.
- ♦ The condensate drain connection -1- is a permanent part of the heater and air conditioning unit and cannot be removed or installed separately.

**5.12 Checking condensation drain****Condensate drain connection**

- ♦ The condensate drain connection -1- must not be blocked by wax, dirt or seal.





## 6 Air duct

⇒ [“6.1 Assembly overview - air duct and air distribution in passenger compartment”, page 79](#)

⇒ [“6.2 Removing and installing centre vent”, page 80](#)

⇒ [“6.3 Removing and installing defroster vent”, page 80](#)

⇒ [“6.4 Removing and installing dash panel vent, side”, page 81](#)

⇒ [“6.5 Removing and installing right or left vent”, page 81](#)

⇒ [“6.6 Removing and installing air duct for defroster vent”, page 81](#)

⇒ [“6.7 Removing and installing air duct for centre vent”, page 82](#)

⇒ [“6.8 Removing and installing footwell air vents on driver and front passenger sides”, page 82](#)

⇒ [“6.9 Checking forced ventilation for passenger compartment”, page 82](#)

⇒ [“6.10 Removing and installing forced ventilation for passenger compartment”, page 83](#)

⇒ [“6.11 Removing and installing fresh air intake”, page 83](#)

### 6.1 Assembly overview - air duct and air distribution in passenger compartment



#### Note

*The illustration shows an left-hand drive version of the up!.*

**1 - Dash panel****2 - Defroster vent**

- ☐ Removing and installing  
⇒ [page 80](#)

**3 - Intermediate piece for defroster vent**

- ☐ Removing and installing  
⇒ [page 81](#)

**4 - Removing and installing centre vent**

- ☐ Removing and installing  
⇒ [page 80](#)

**5 - Dash panel vent, side**

- ☐ Removing and installing  
⇒ [page 81](#)

**6 - Vent on driver or front passenger side**

- ☐ Removing and installing  
⇒ [page 81](#)

**7 - Intermediate piece for centre vent**

- ☐ Removing and installing  
⇒ [page 82](#)

**8 - Footwell vent on driver side or front passenger side**

- ☐ Removing and installing  
⇒ [page 82](#)

**9 - Footwell vent on driver side or front passenger side**

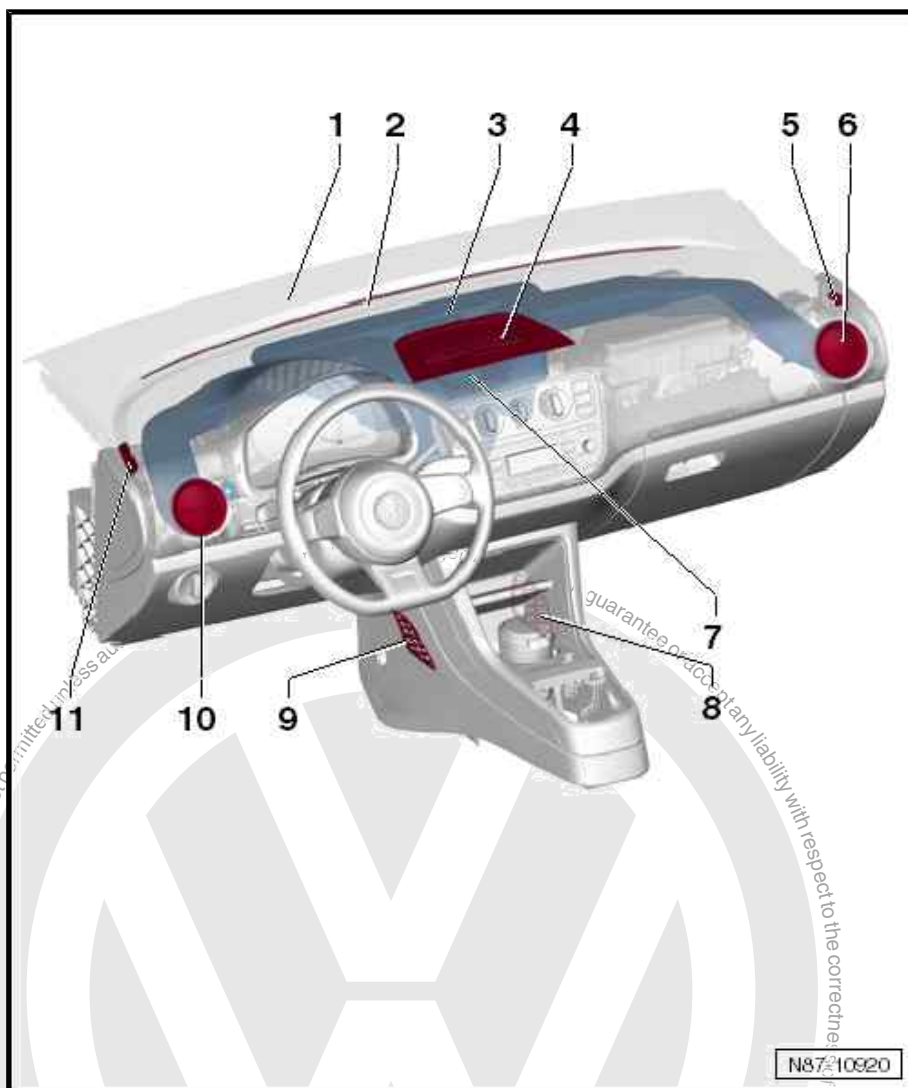
- ☐ Removing and installing  
⇒ [page 82](#)

**10 - Vent on driver or front passenger side**

- ☐ Removing and installing ⇒ [page 81](#)

**11 - Dash panel vent, side**

- ☐ Removing and installing ⇒ [page 81](#)

**6.2 Removing and installing centre vent****Note**

*The vent is a permanent part of the dash panel and cannot be removed.*

**6.3 Removing and installing defroster vent****Note**

*The vent is a permanent part of the dash panel and cannot be removed.*



## 6.4 Removing and installing dash panel vent, side



### Note

*The vent is a permanent part of the dash panel and cannot be removed.*

## 6.5 Removing and installing right or left vent

### Special tools and workshop equipment required

- ◆ Hook - 3438-

### Removing

- Pull out vent -1- in direction of -arrow- using hook - 3438- -2-.



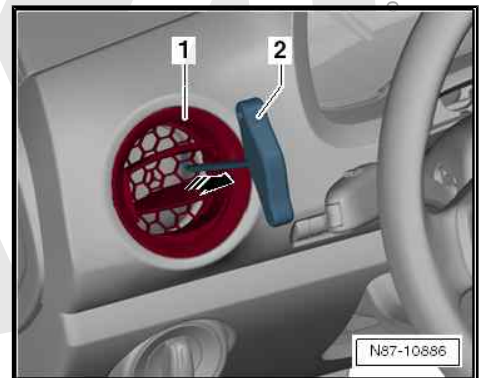
### Note

*The diagram shows a left-hand drive vehicle.*

The removal of the vents on both sides is identical, but one is a mirror image of the other.

### Installing

- Press vent in lightly until it locates



## 6.6 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 -2-.



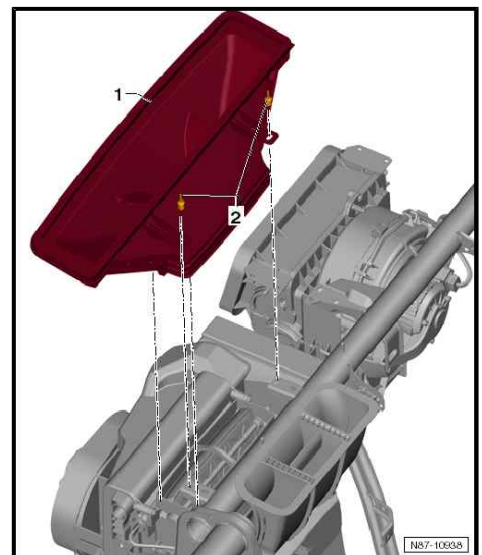
### Note

*The diagram shows a left-hand drive vehicle.*

- Remove intermediate piece for defroster vent -1- from heater and air conditioning unit.

### Installing

Install in reverse order of removal.







## 6.7 Removing and installing air duct for centre vent

### Removing

- Remove dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Dash panel; Removing and installing dash panel .
- Remove intermediate piece for centre vent -1- upwards from heater and air conditioning unit -2-.

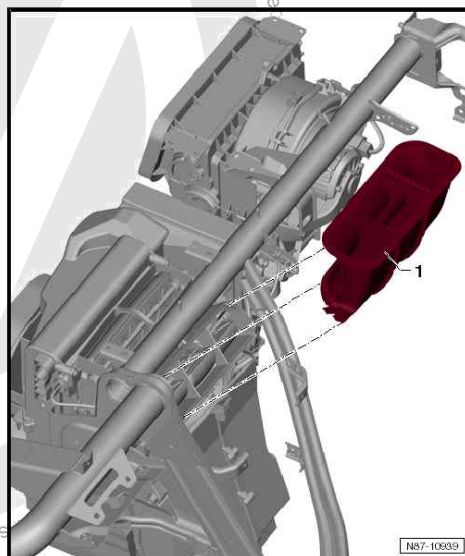


### Note

*The diagram shows a left-hand drive vehicle.*

### Installing

Install in reverse order of removal.



## 6.8 Removing and installing footwell air vents on driver and front passenger sides

The vents are permanent parts of the heater and cannot be removed.

## 6.9 Checking forced ventilation for passenger compartment

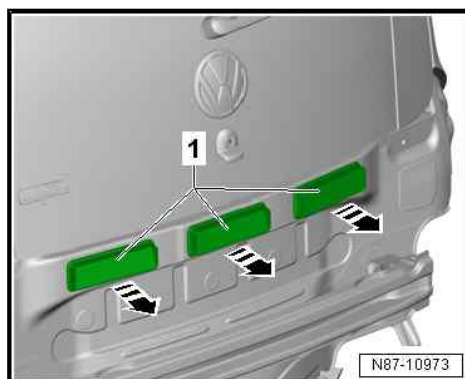


### Note

- ♦ *The stale air escapes via ventilation outlets in the luggage compartment trim.*
- ♦ *If the ventilation is to work properly, the vent openings must not be covered.*
- ♦ *The ventilation frames can be found on the cross panel under the bumper.*

### Check

- The sealing lips in the ventilation frame -1- must be free to move and close by themselves.







## 6.10 Removing and installing forced ventilation for passenger compartment

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

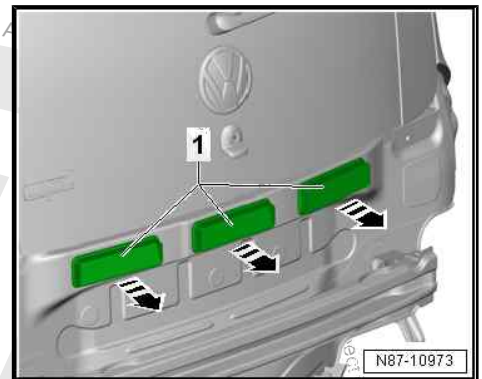


### Removing

- Remove rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper; Removing and installing rear bumper .
- Unclip ventilation frame -1- in direction of -arrow- from cross panel using removal wedge - 3409- .

### Installing

- Ventilation frame must engage audibly.
- Further assembly is carried out in the reverse order.



## 6.11 Removing and installing fresh air intake

⇒ [“6.11.1 Removing and installing fresh air intake, left-hand drive vehicles”, page 83](#)

⇒ [“6.11.2 Removing and installing fresh air intake , right-hand drive vehicles”, page 84](#)

### 6.11.1 Removing and installing fresh air intake, left-hand drive vehicles

#### Removing

- Remove right plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .



- Loosen nuts -1-, -2- and -4-.
- Remove fresh air intake connecting piece -3- from plenum chamber.

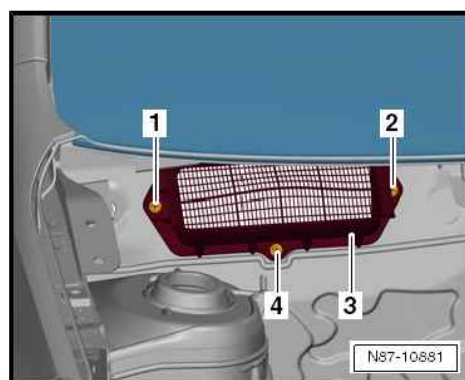
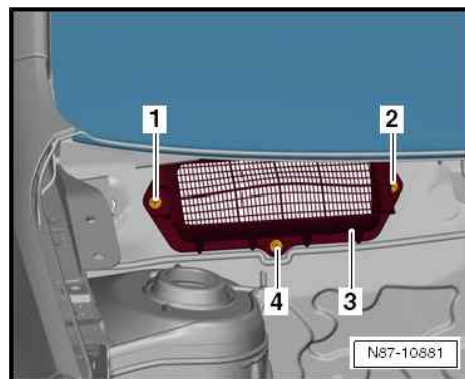
#### Installing

- Fit fresh air intake connecting piece -3-, and start nuts -1- and -2-.
- Tighten nut -4-.
- Tighten nuts -1- and -2-.
- Further assembly is carried out in the reverse order.

#### Specified torques:

Component	Specified torque
Nut	2.5 Nm

- ◆ Install right plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .

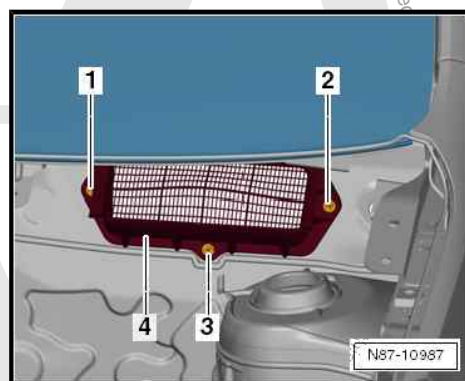


### 6.11.2 Removing and installing fresh air intake , right-hand drive vehicles

#### Removing

- Remove left plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Loosen nuts -1-, -2- and -3-.
- Remove fresh air intake connecting piece -4- from plenum chamber.

#### Installing



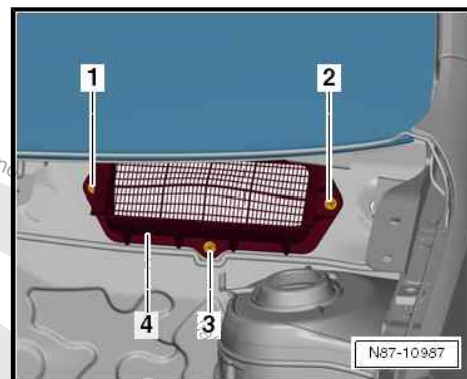


- Fit fresh air intake connecting piece -4-, and start nuts -1- and -2-.
- Tighten nut -3-.
- Tighten nuts -1- and -2-.
- Further assembly is carried out in the reverse order.

**Specified torques:**

Component	Specified torque
Nut	2.5 Nm

- ◆ Install left plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .





## 7 Coolant circuit

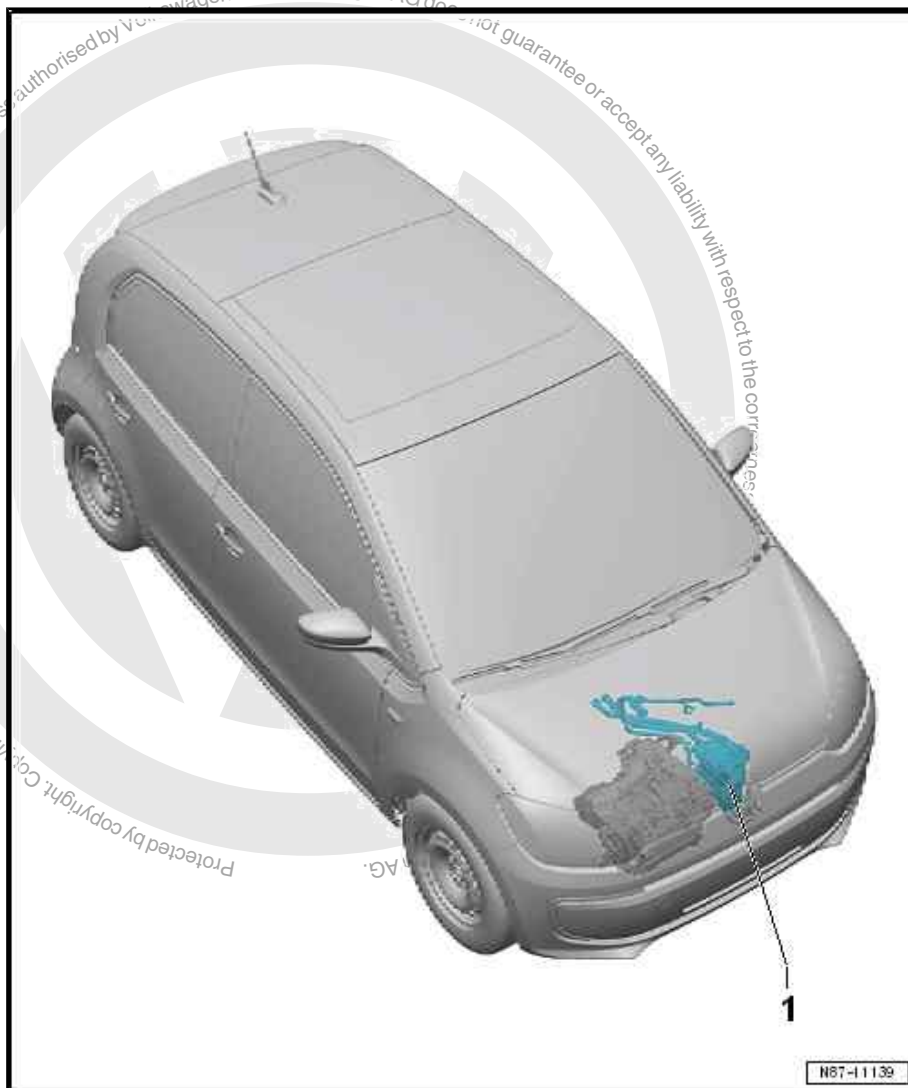
⇒ ["7.1 Overview of fitting locations – coolant circuit", page 86](#)

⇒ ["7.2 Removing and installing high-voltage heater \(PTC\) Z115 / high-voltage heater \(PTC\) J848 ", page 86](#)

### 7.1 Overview of fitting locations – coolant circuit

#### 1 - High-voltage heater (PTC) - Z115-

- ☐ With control unit for high-voltage heater (PTC) - J848-
- ☐ Removing and installing  
⇒ [page 86](#)



### 7.2 Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) - J848-

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1410/-

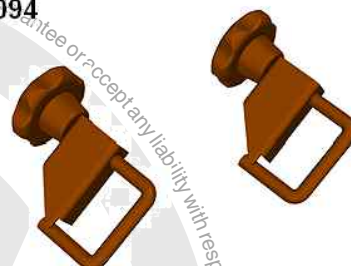
V.A.G 1410



W00-11174

- ◆ Hose clamps up to 25 mm - 3094-

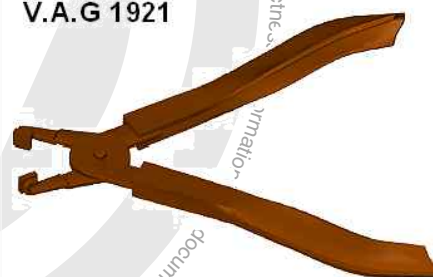
3094



W00-11130

- ◆ Hose clamp pliers - V.A.G 1921-

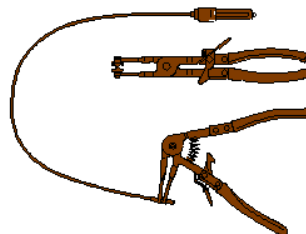
V.A.G 1921



W00-11169

- ◆ Pliers for spring-type clips - VAS 5024 A

VAS 5024 A



W00-11305

## Removing

- Observe safety precautions when working on the high-voltage system ⇒ [page 2](#) .
- Observe safety precautions when working in the vicinity of high-voltage components ⇒ [page 3](#) .



- Observe the risk classification of the high-voltage system ⇒ Electric drive; Rep. gr. 00 ; Risk classification of the high-voltage system .

**⚠ DANGER**

**Danger to life from high voltage.**

**Severe or fatal injury from electric shock.**

- **The high-voltage system must be de-energised by a suitably qualified technician.**

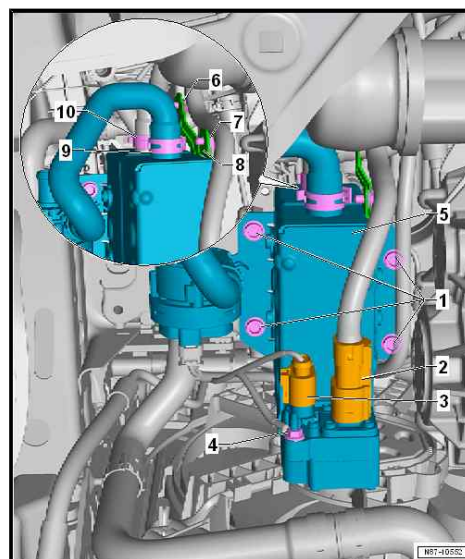
- De-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; De-energising high-voltage system .
- Clamp off coolant hoses using hose clamps to 25 mm - 3094- .

**⚠ 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.
- Disconnect earth wire -3- from high-voltage heater (PTC) - Z115- -5-.





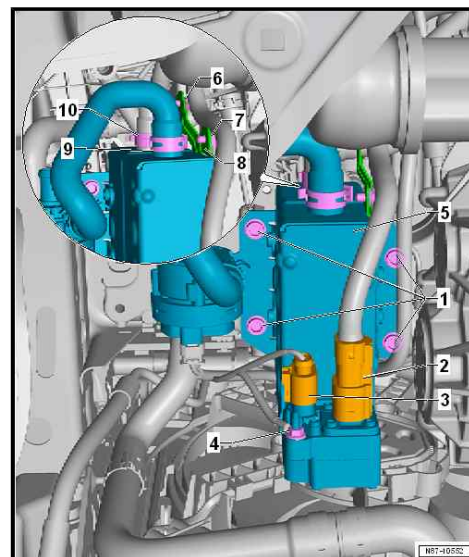


- Disconnect high-voltage connector -2- from high-voltage heater (PTC) - Z115- -5-.
- Disconnect earth wire -4- from high-voltage heater (PTC) - Z115- -5-.
- Open spring-type clips -9- and -10-.
- Disconnect coolant hoses from high-voltage heater (PTC) - Z115- -5-.
- Unclip high-voltage cable retainers -6- and -7- from bracket -8-.
- Unscrew bolts -1-, and remove high-voltage heater (PTC) - Z115- -5- with bracket downwards.

### Installing

Install in the reverse order of removal, observing the following:

- Replenish coolant circuit after high-voltage heater (PTC) - Z115- has been installed ⇒ Electric drive; Rep. gr. 93 ; Cooling system/coolant, vehicles with high-voltage system; Draining and filling coolant .



### WARNING

**Danger to life from high voltage.**

**Electrical shocks can cause serious injuries or death.**

- Have a qualified technician re-energise the high-voltage system.

- Re-energise high-voltage system ⇒ Electric drive; Rep. gr. 93 ; Re-energising high-voltage system .

### Specified torque:

Component	Specified torque
Bolts on high-voltage heater (PTC) - Z115-	20 Nm
Nut on earth wire	9 Nm



## 8 Operating and display unit

⇒ "8.1 Overview - operating and display unit", page 90

⇒ "8.2 Removing and installing operating and display unit", page 91

### 8.1 Overview - operating and display unit

#### Climatronic

#### 1 - Button for interior temperature regulation

- ☐ Increase temperature

#### 2 - Button for interior temperature regulation

- ☐ Decrease temperature

#### 3 - Display

- ☐ Displays the set temperature and activated functions

#### 4 - Button for blower speed adjustment

- ☐ The blower speed is controlled automatically.
- ☐ Press this button to adjust the blower speed manually.

#### 5 - Button for blower speed adjustment

- ☐ The blower speed is controlled automatically.
- ☐ Press this button to adjust the blower speed manually.

#### 6 - **A/C** button

- ☐ To switch the air conditioner compressor on or off.

#### 7 - **AUTO** button

- ☐ 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.

#### 8 - Button to regulate air distribution in footwell

#### 9 - Button to regulate air distribution in vehicle interior

#### 10 - Button to regulate windscreen air distribution

#### 11 - Button for fresh air and air recirculation mode

#### 12 - Defroster button

- ☐ Air drawn in from the outside is channelled to the windscreen and air recirculation mode is automatically switched off.

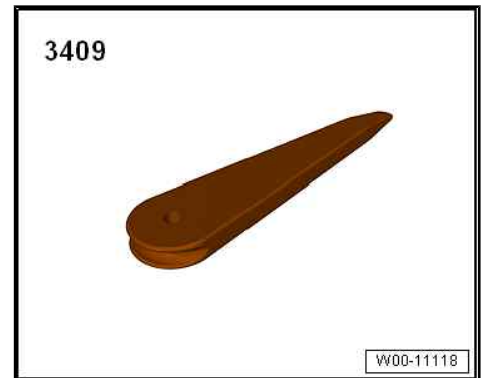




## 8.2 Removing and installing operating and display unit

### Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



### Removing

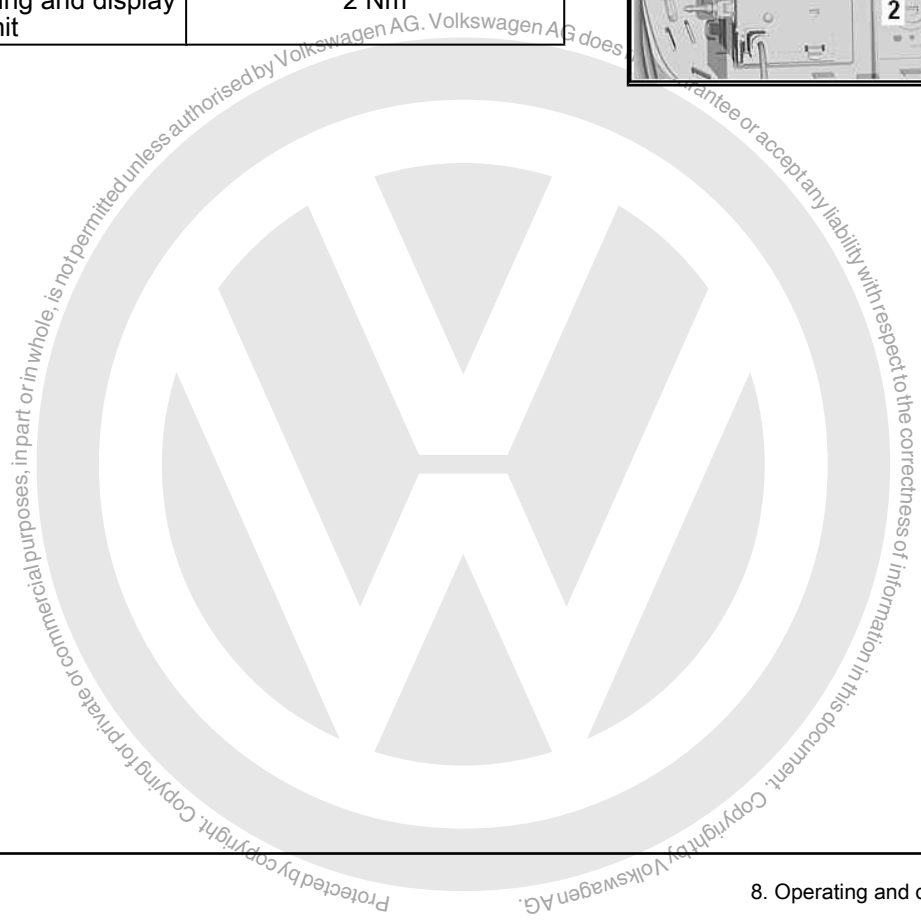
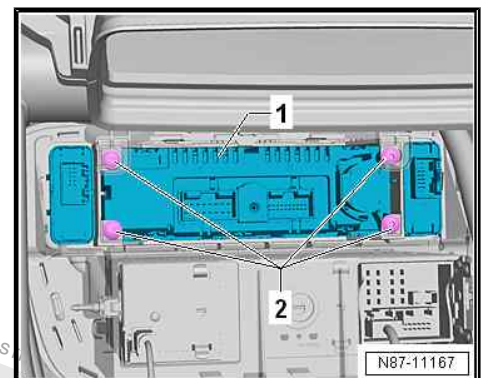
- Remove radio ⇒ Communication; Rep. gr. 91 ; Radio units/ radio navigation systems; Removing and installing radio units/ radio navigation systems .
- Detach connectors.
- Unscrew bolts -2-.
- Remove operating and display unit -1-.

### Installing

Install in reverse order of removal.

### Specified torque:

Component	Specified torque
Bolts on operating and display unit	2 Nm





## 9 Other controlling and regulating components

⇒ ["9.1 Removing and installing ambient temperature sensor G17", page 92](#)

⇒ ["9.2 Removing and installing sunlight penetration photosensor G107", page 92](#)

⇒ ["9.3 Removing and installing humidity sender for air conditioning system G260", page 93](#)

⇒ ["9.5 Removing and installing centre vent temperature sender G191", page 96](#)

⇒ ["9.6 Removing and installing footwell vent temperature sender G192", page 97](#)

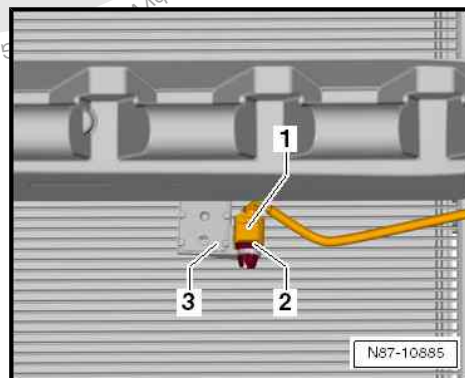
### 9.1 Removing and installing ambient temperature sensor - G17-

#### Removing

- Remove front bumper ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Removing and installing front bumper .
- Disconnect connector -1- from temperature sensor for ambient temperature - G17- -2-.
- Remove temperature sensor for ambient temperature - G17- -2- from bracket -3-.

#### Installing

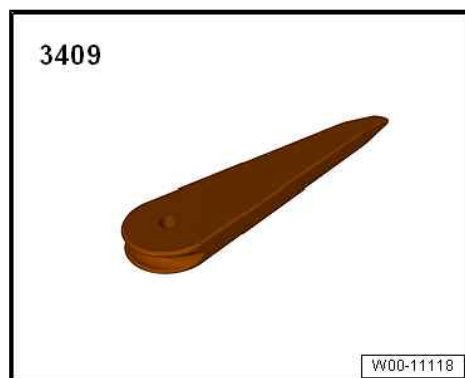
- Install in reverse order of removal.



### 9.2 Removing and installing sunlight penetration photosensor - G107-

#### Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



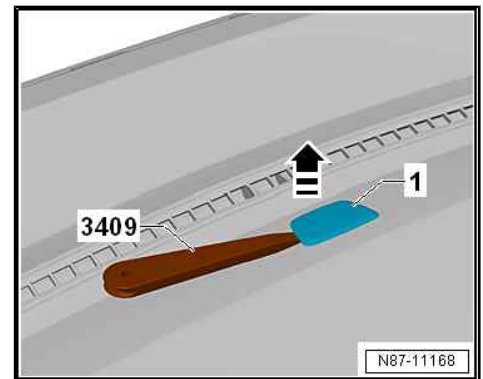


## Removing

- Unclip sunlight penetration photosensor - G107- -1- from dash panel in direction of arrow.
- Secure wiring harness of sunlight penetration photosensor - G107- against slipping into dash panel.
- Separate connector.

## Removing

- Install in reverse order of removal.



## 9.3 Removing and installing humidity sender for air conditioning system - G260-



### Note

- ◆ The humidity sender for air conditioning system - G260- has a silicon layer (coupling pad) which forms the contact surface to the windscreen.
- ◆ The humidity sender for air conditioning system - G260- is designed for reuse. A prerequisite for reuse is that the coupling pad is not damaged or dirty (check!).
- ◆ Diagnosis is carried out via onboard supply control unit - J519-.

## Removing

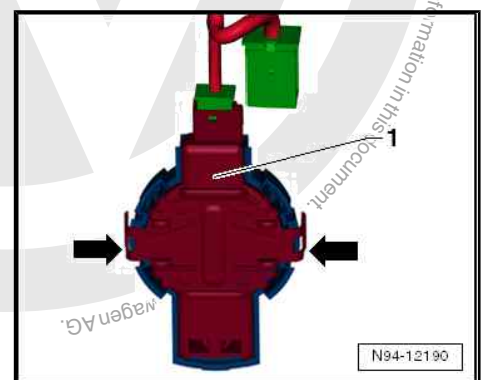
- Switch off ignition and all electrical equipment and then remove ignition key.
- Remove cover from interior mirror ⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Assembly overview - interior mirror .



### Note

Wait for at least 1 minute after releasing the retaining clip. This is necessary to ensure that the silicone coating is relieved of tension and will not be damaged during removal.

- Release retaining clip on left and right -arrows-.
- Starting from top, carefully lever humidity sender for air conditioning system - G260- -1- out of retaining frame on windscreen.





- Release and pull off connector -1-, and remove humidity sender for air conditioning system - G260- -2-.
- Store removed humidity sender for air conditioning system - G260- so that coupling pad cannot be damaged or soiled from dust etc. until it is ready to be reinstalled.

### Installation

Install in reverse order of removal, observing the following:

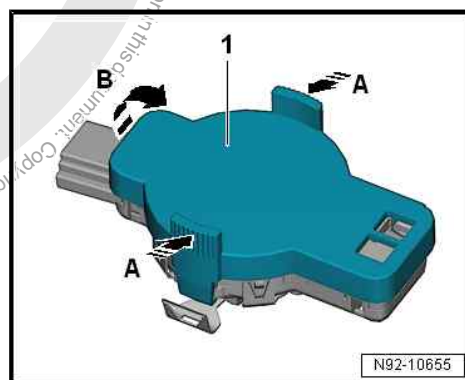
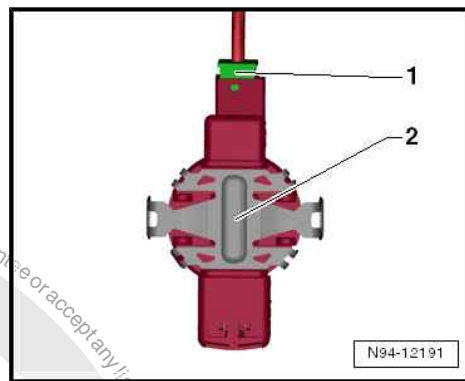
- Prior to installation, thoroughly clean the surface of the windscreen within the retaining frame for humidity sender for air conditioning system - G260- , and make sure to completely remove any remains of the coupling pad adhering to the windscreen.
- Check the coupling pad surface of the humidity sender for air conditioning system - G260- for damage, and renew the sender if necessary.



### Note

*If the surface of the coupling pad on the rain and light sensor - G397- is soiled, it may be possible to clean it by "sticking on" and then "pulling off" one or more adhesive strips.*

- Thoroughly clean windscreen in area of retaining plate.
- If necessary, remove protective cap -1- from new rain and light sensor - G397- .
- Press grip in direction of arrow -A-.
- Remove protective cap -1- in direction of arrow -B-.





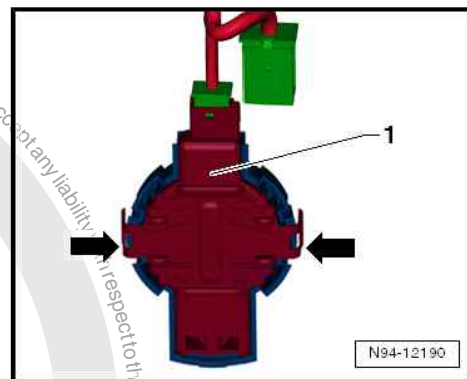


- Fit connector.
- Insert rain and light sensor - G397- -1- into retaining frame on windscreen.
- Push in retaining clip on both sides -arrows- until it engages audibly.



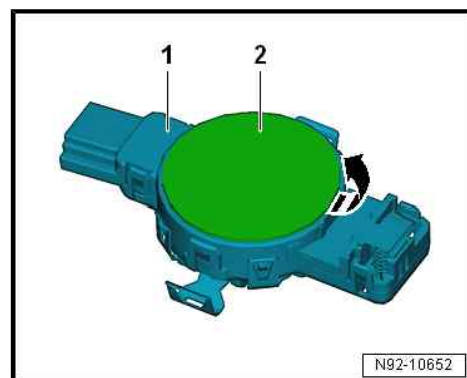
#### Note

- ◆ *Small air bubbles may appear between windscreen and coupling pad initially even on correctly installed sensors. After approx. 10 minutes, the contact surface must be free of bubbles.*
- ◆ *If the contact surface is not free of bubbles after 10 minutes, the rain and light sensor - G397- must be removed and re-installed.*
- ◆ *Air bubbles between the windscreen and the coupling pad will cause the rain and light sensor - G397- to malfunction.*
- ◆ *Coding rain and light sensor - G397- → Vehicle diagnostic tester.*



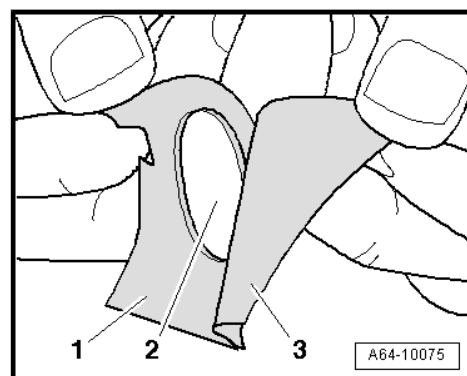
## 9.4 Repairing humidity sender for air conditioning system - G260-

- Remove rain and light sensor - G397- → [page 93](#).
- Carefully remove sensor film -2-, or any sensor film residue from rain and light sensor - G397- -1-.
- Remove any film residue from sensor surface.
- Clean sensor surfaces with cleaning solution D 009 401 04.



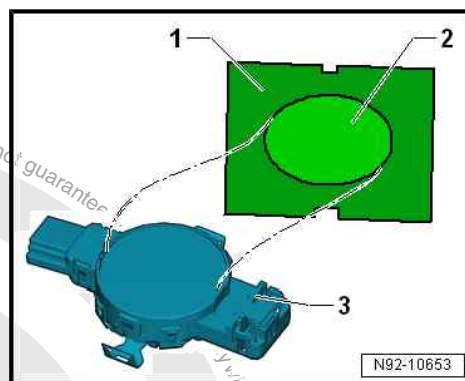
- Pull silicone paper -3- off sensor film -2-.

Transparent protective film -1- remains on sensor film initially as an assembly aid.

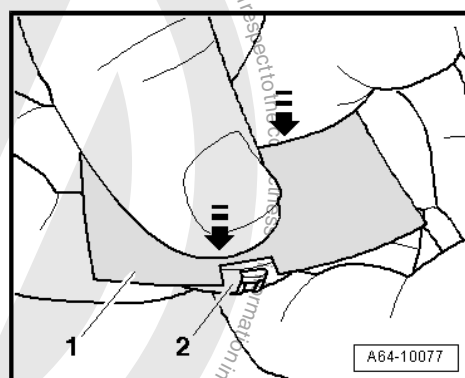




- With the aid of transparent protective film -1-, place sensor film -2- onto rain and light sensor - G397- -3-.

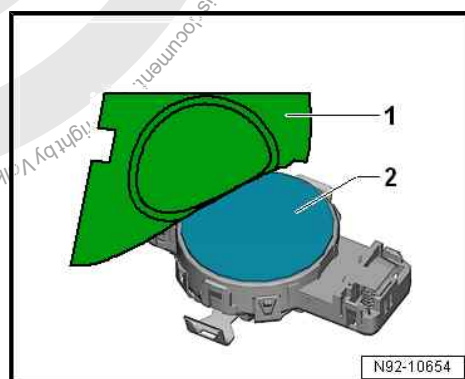


- Using protective film -1-, press sensor film onto rain and light sensor - G397- -2- ensuring there are no bubbles.



- Pull transparent protective film -1- off sensor film -2-.

- Install rain and light sensor - G397- ⇒ [page 93](#) .



## 9.5 Removing and installing centre vent temperature sender - G191-

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-





## Removing

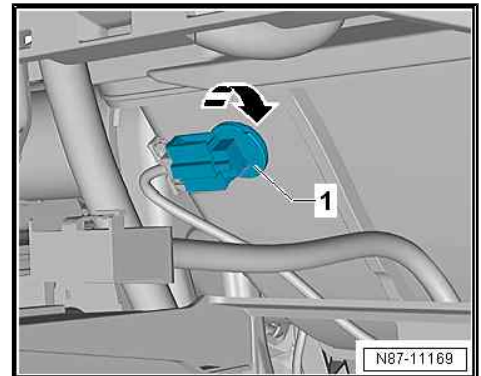
- Remove radio ⇒ Communication; Rep. gr. 91 ; Radio units/ radio navigation systems; Removing and installing radio units/ radio navigation systems .
- Separate electrical connector.
- Turn centre vent temperature sender - G191- -1- by 90°, and remove it.

## Installing

- Install in reverse order of removal.

## Specified torque

- ◆ Removing and installing radio ⇒ Communication; Rep. gr. 91 ; Radio units/ radio navigation systems; Removing and installing radio units/ radio navigation systems .



## 9.6 Removing and installing footwell vent temperature sender - G192-

### Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

## Removing

- Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- Remove lower part of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console .
- Separate electrical connector.
- Turn footwell vent temperature sender - G192- -1- by 90°, and remove it.

## Installing

- Install in reverse order of removal.

## Specified torque

- ◆ Removing and installing glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments/covers; Removing and installing glove compartment .
- ◆ Removing and installing lower part of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Assembly overview – centre console .

