

# Water Heater

## Thermo Top Evo Parking Heater



# Installation Documentation

## Renault Master / Opel Movano / Nissan NV400

### Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Renault	Master	MA	e2 * 2007 / 46 * 0016 * ...
Renault	Master	MA	e2 * 2007 / 46 * 0019 * ...
Opel	Movano	MR	e2 * 2007 / 46 * 0362 * ...
Nissan	NV400	M1	e2 * 7007 / 46 * 0137 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm <sup>3</sup>	Engine code
2.3 D	Diesel	6-speed SG	74	2299	M9T
2.3 D	Diesel	6-speed SG	92	2299	M9T
2.3 D	Diesel	6-speed AG	92	2299	M9T
2.3 D	Diesel	6-speed SG	107	2299	M9T
2.3 D	Diesel	6-speed SG	120	2299	M9T

SG = manual transmission

AG = Quickshift transmission

### From model year 2010

### Left-hand drive vehicle

**Verified equipment variants:** Manual / automatic air-conditioning system

Front fog lights

Front and rear-wheel drive (74kW, 92kW and 107kW only)

120kW rear-wheel drive

120kW all-wheel drive, Oberaigner conversion

### Not verified:

Passenger compartment monitoring

### Total installation time:

approx. 8.5 hours

approx. 10 hours in case of Oberaigner conversion

## Table of Contents

Validity	1	Preparing Installation Location	14
Necessary Components	2	Preparing Heater	15
Installation Overview	2	Installing Heater	17
Information on Total Installation Time	2	Fuel	18
Information on Operating and Installation Instructions	3	Coolant Circuit for 74kW, 92kW und 107kW	23
Information on Validity	4	Coolant Circuit for 120kW	28
Technical Information	4	Combustion Air	33
Explanatory Notes on Document	4	Exhaust Gas	34
Preliminary Work	5	Final Work	37
Heater Installation Location	5	Template for Fuel Standpipe - Version 2	38
Preparing Electrical System	6	Template for Fuel Standpipe - Version 3	39
Electrical System	9	Operating Instructions for Manual Air-Conditioning	40
Manual Air-Conditioning Fan Controller	10	Operating Instructions for Automatic Air-Conditioning	41
Fan Controller for Automatic Air-Conditioning	11		
MultiControl CAR Option	12		
Remote Option (Telestart)	12		
ThermoCall Option	13		

## Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit for Renault Master / Opel Movano / Nissan NV400 2010 Diesel: **1316166C**
- Heater control in accordance with price list and upon consultation with end customer
- In case of installation of MultiControl CAR: MultiControl installation frame: **9030077\_**
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

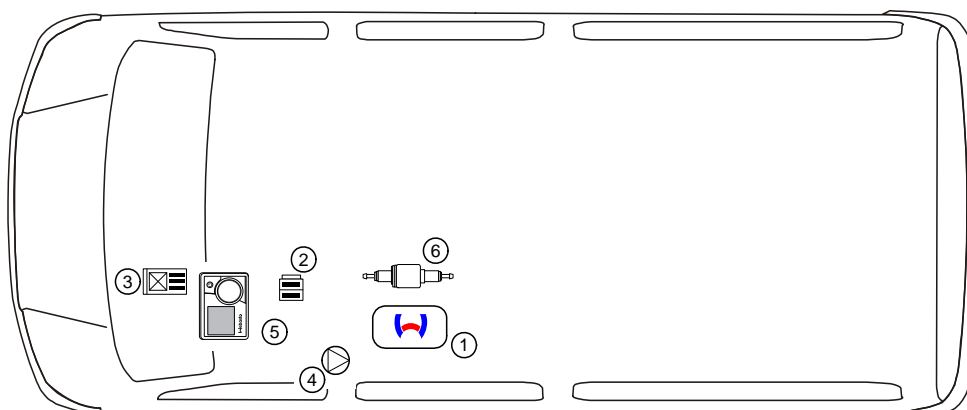
## Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location of the push button in case of Telestart or Thermo Call should be confirmed with the end customer.
- Depending on the available space and manufacturer's instructions, we recommend the use of a vehicle battery with more electrical capacity.

## Installation Overview

### Legend:

1. Heater
2. Fuse holder F1, F2
3. Fuse holder F3, F4, F5
4. Circulating pump
5. MultiControl CAR
6. Metering pump



## Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting the vehicle-specific components, the heater specific installation time and all other times required for the system integration and initial start-up of the heater.

The total installation time may vary for vehicle equipment other than provided.

## Information on Operating and Installation Instructions

### 1 Important information (not complete)

#### 1.1 Installation and repair



The improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide, leading to serious injury or death.



To install and repair Webasto heating and cooling systems you need to have completed a special company training course and have the appropriate technical documentation, special tools and special equipment.



Installation and repair may ONLY be carried out by persons trained and certified in a Webasto training course. NEVER try to install or repair Webasto heating or cooling systems if you have not completed a Webasto training course, you do not have the necessary technical skills and you do not have the technical documentation, tools and equipment available to ensure that you can complete the installation and repair work properly.

Only use genuine Webasto parts. See the Webasto air and water heaters accessories catalogue for this purpose.

#### 1.2 Operation

To ensure safe operation, we recommend having the heater checked every two years by an authorised Webasto dealer, especially when used over a long period and/or under extreme environmental conditions.

Do not operate the heater in closed rooms due to the danger of poisoning and suffocation.

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel diesel (DIN EN 590) or petrol (DIN EN 228).

The heater may not be cleaned with a high-pressure cleaner.

#### 1.3 Please note

ALWAYS follow all Webasto installation and operating instructions and observe all warnings.

To become familiar with and understand all functions and properties of the heater, the operating instructions must be read carefully and observed at all times.

For proper, safe installation and repair work, the installation instructions with all warnings and safety information must be carefully read and observed at all times. Please always contact a workshop authorised by Webasto for all installation and repair work.

#### Important

**Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.**

**This liability exclusion particularly applies to improper installations and repairs, installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.**

**The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.**

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components have to audibly click into place during installation.

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components!

The initial startup is to be executed with the Webasto Thermo Test Diagnosis.

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

### 2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 04 5627

#### Note

The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

#### Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

#### Note

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

### 2.1 Excerpt from ECE regulation 122 (heating system) paragraph 5 for the installation of the heater

Beginning of excerpt.

#### ANNEX VII

#### REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

##### 1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

##### 2. VEHICLE INSTALLATION REQUIREMENTS

###### 2.1. Scope

2.1.1. Subject to paragraph 2.1.2, combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

###### 2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

###### 2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

###### 2.4. Exhaust system

2.4.1. The exhaust outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

###### 2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

###### 2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

###### 2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

# Renault Master / Opel Movano / Nissan NV400

## Information on Validity

This installation documentation applies to Renault Master / Opel Movano / Nissan NV400 Diesel vehicles - for validity, see page 1 - from model year 2010 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this 'installation documentation'.

Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

## Technical Information

### Special Tools

- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper, 0.2 - 6mm<sup>2</sup>
- Crimping pliers for cable lug / tab connector, 0.5 - 6mm<sup>2</sup>
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

### Dimensions

- All dimensions are in mm.

### Tightening torque values

- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque value of 5x15 water connection piece retaining plate bolt = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

## Explanatory Notes on Document

You will find an identification mark on the outside top right corner of the page in question to provide you with a quick overview of the individual working steps.

Special features are highlighted using the following symbols:

### Mechanical System



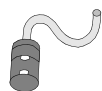
### Electrical System



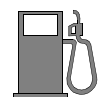
### Coolant Circuit



### Combustion Air



### Fuel



### Exhaust Gas



### Software



Specific risk of damage to components.



Specific risk due to electrical voltage.



Specific risk of injury or fatal accidents.



Specific risk of fire or explosion.



Reference to the manufacturer's vehicle-specific documents or to the general installation instructions of Webasto components.



Reference to a special technical feature.



The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.



Tightening torque according to the manufacturer's vehicle-specific documents.



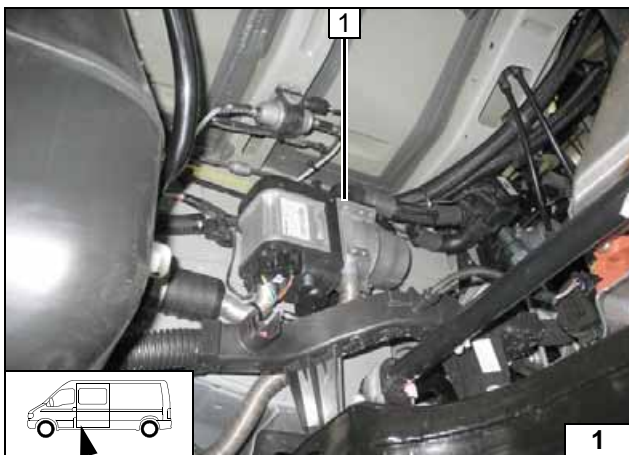
## Preliminary Work

### Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Remove the left entrance trim.
- Remove the lever for the bonnet release.
- Remove the lower A-pillar trim in the driver's side footwell.
- Remove the lower instrument panel trim on the driver's side (only with Telestart option).
- Remove the A-pillar trim on the driver's side (only with Telestart option).
- Remove the fuse compartment cover of the left instrument panel trim.
- Remove the glove box.
- Remove the fuel tank in accordance with the manufacturer's instructions (only for vehicles with electrical pre-feed pump in the fuel tank).
- Remove the fuel tank sending unit in accordance with the manufacturer's instructions (only for vehicles with electrical pre-feed pump in the fuel tank).

### Heater

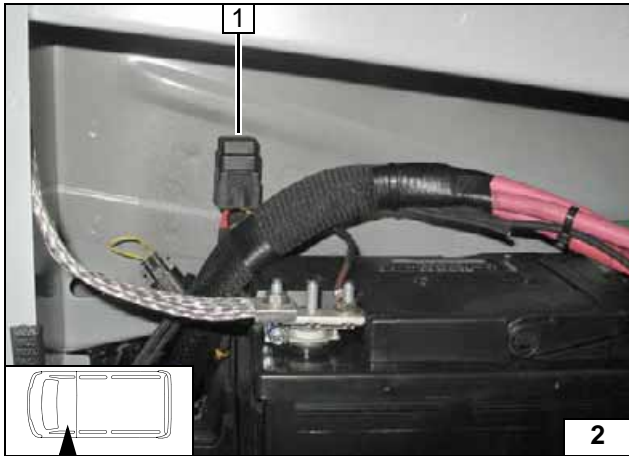
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



### Heater Installation Location

1 Heater

Installation location



### Preparing Electrical System

Wire sections retain their numbering in the entire document.

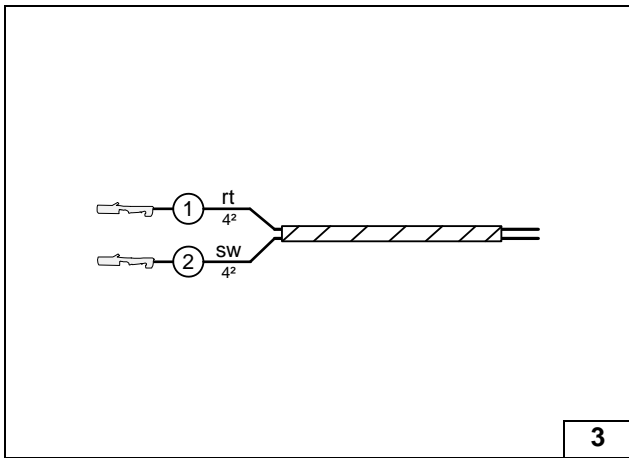
Produce all following electrical connections as shown in the wiring diagram.

Drill 4 mm dia. hole at position 1 in the rear wall of the battery carrier. Fasten retaining plate of fuse holder with 5.5x13 self-tapping screw.

- 1 20A fuse F1 and 30A fuse F2



**Installing F1-2 fuse holder**

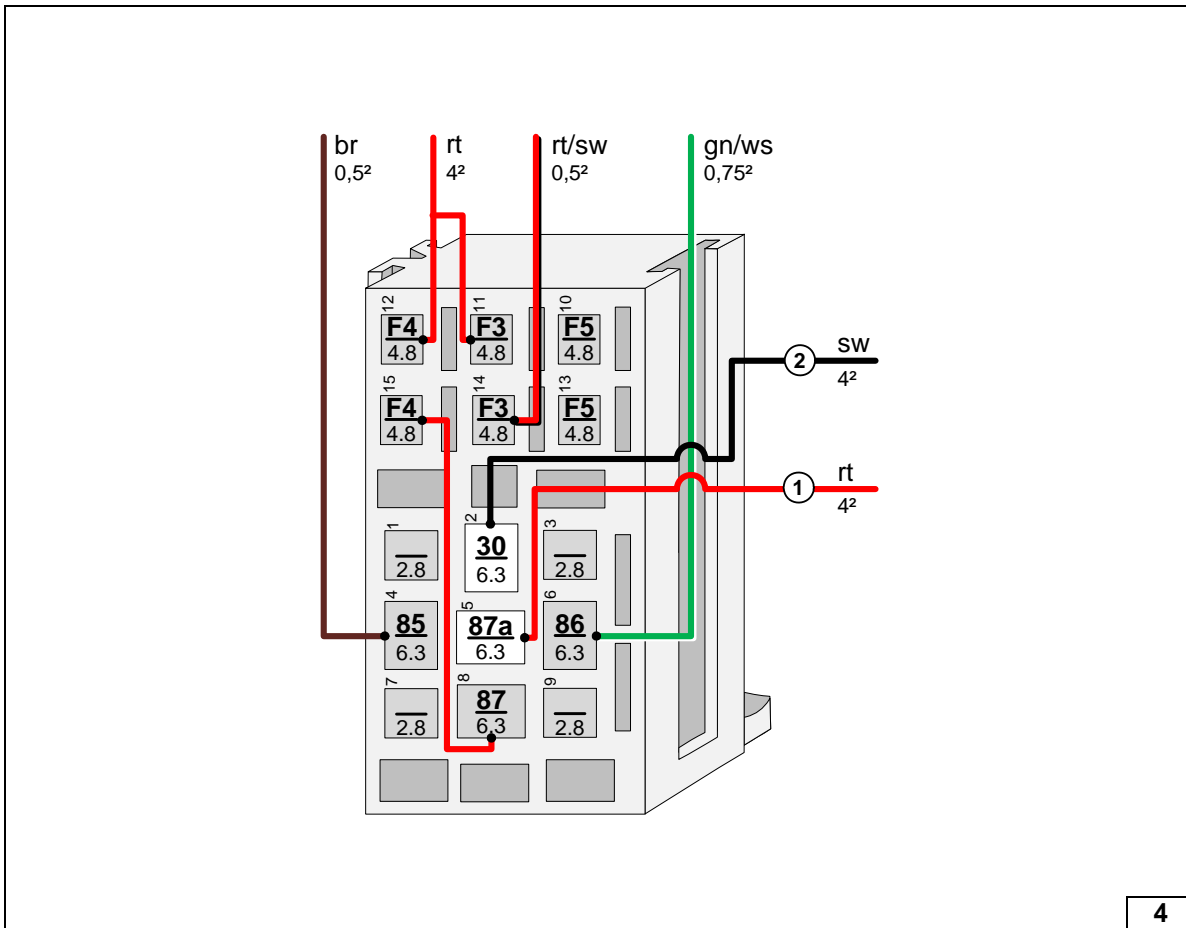


### Manual air-conditioning

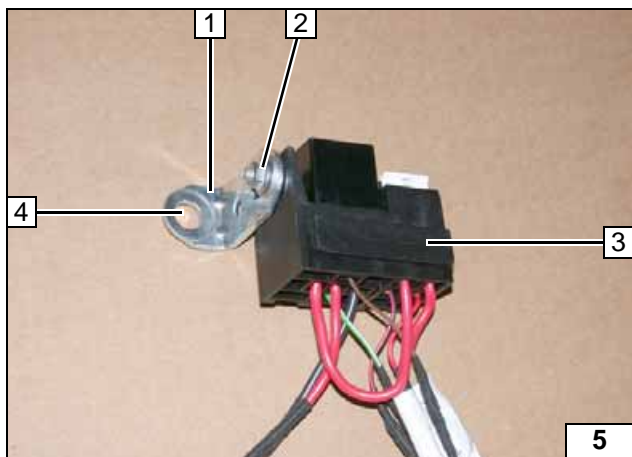
- ① Red (rt) wire of fan wiring harness
- ② Black (sw) wire of fan wiring harness



**Assigning wires**



**Connecting wires to passenger compartment relay and fuse holder**

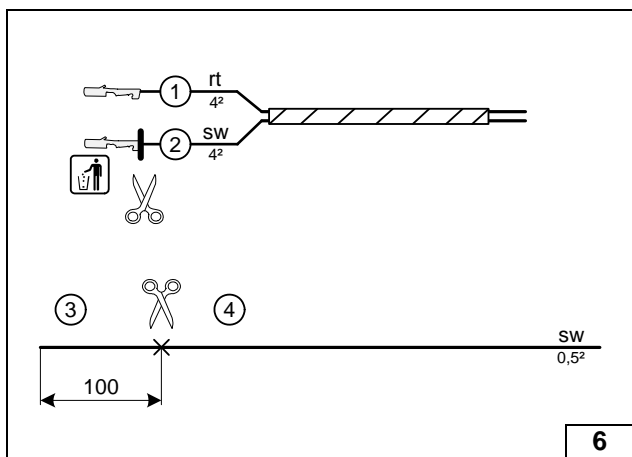


Drill out angle bracket 1 at position 4 to 8.5 mm dia.

- 2 M5x16 bolt, large diameter washer, flanged nut
- 3 Passenger compartment relay and fuse holder



**Preparing passenger compartment relay and fuse holder**



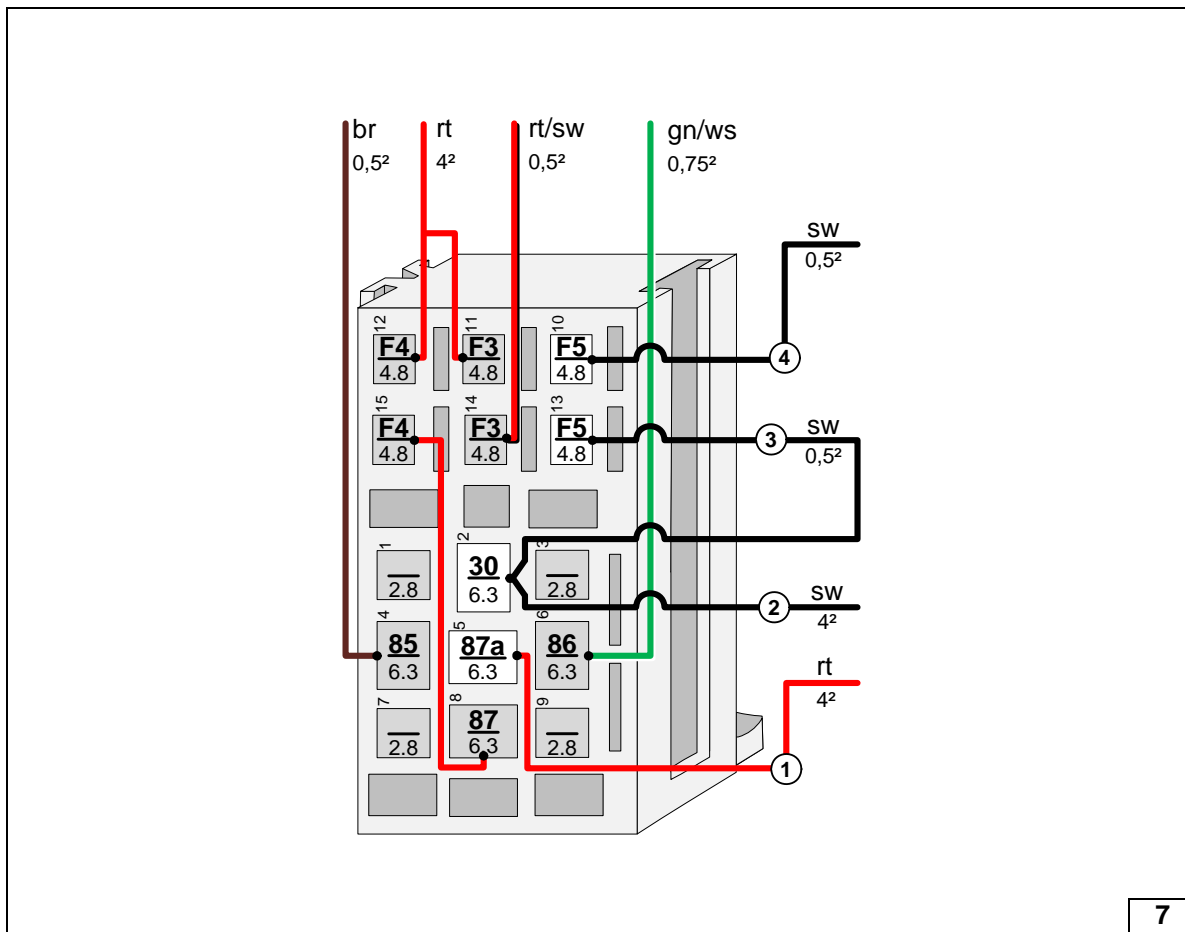
**Automatic air-conditioning**

Draw wire 4 into provided protective sleeving.

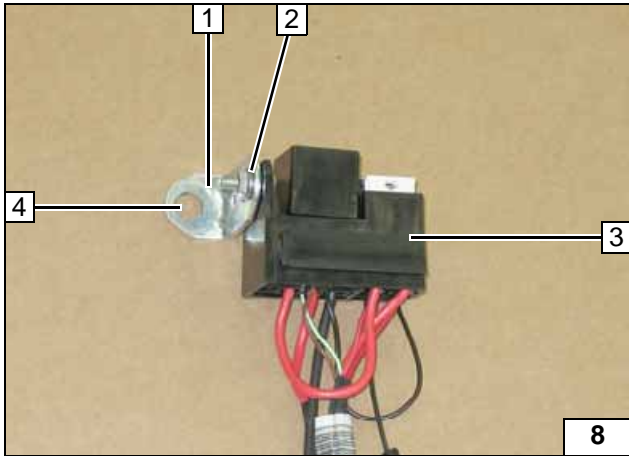
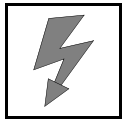
- 1 Red (rt) wire of fan wiring harness
- 2 Black (sw) wire of fan wiring harness



**Cutting to length / assigning wire**



**Connecting wires to passenger compartment relay and fuse holder**

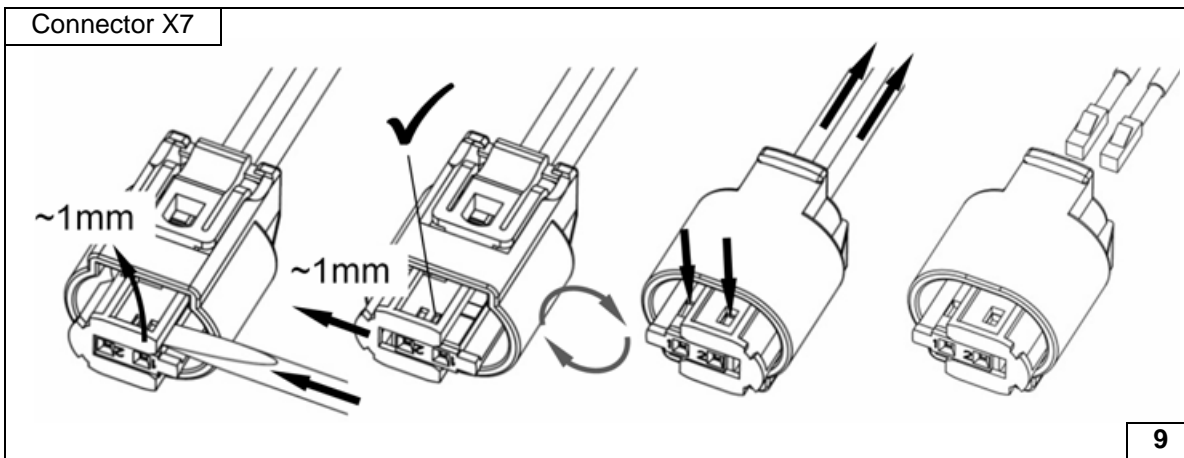


Drill out angle bracket 1 at position 4 to 8.5 mm dia.

- 2 M5x16 bolt, large diameter washer, flanged nut
- 3 Passenger compartment relay and fuse holder



**Preparing passenger compartment relay and fuse holder**



**Dismantling metering pump connector**



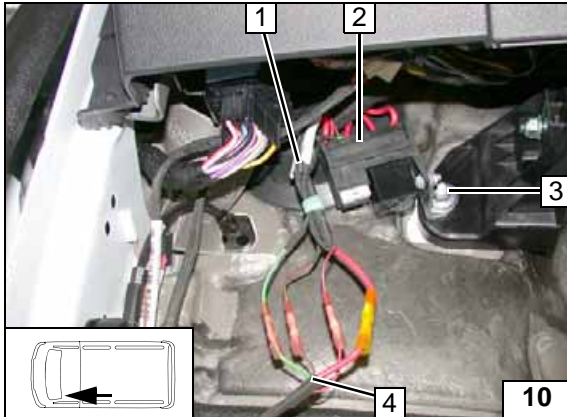


## Electrical System

### Fuse holder, K1 relay

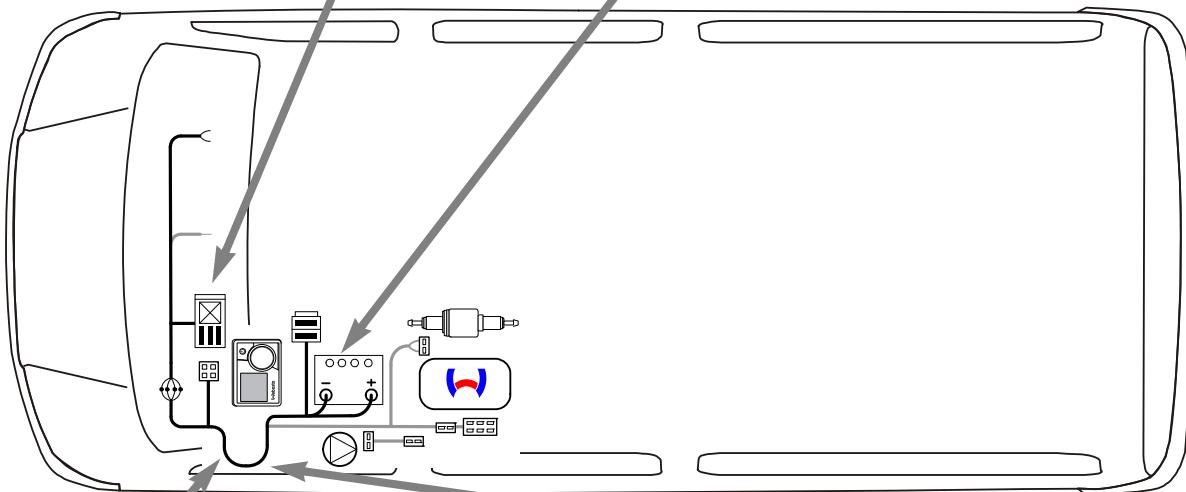
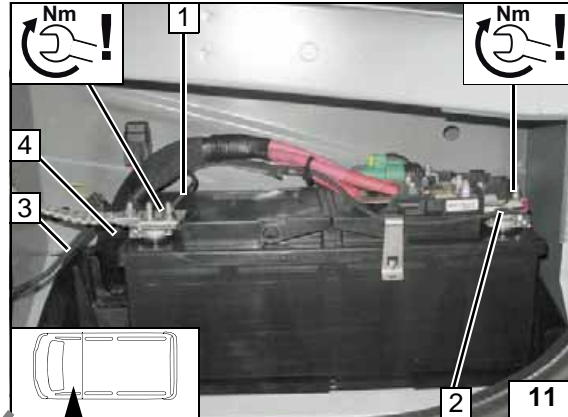
Connect wiring harness of relay and fuse holder 1 and wiring harness of heater 4 in such a way that wires of the same colour are connected to each other.

- 2 Relay and fuse holder
- 3 Original vehicle bolt

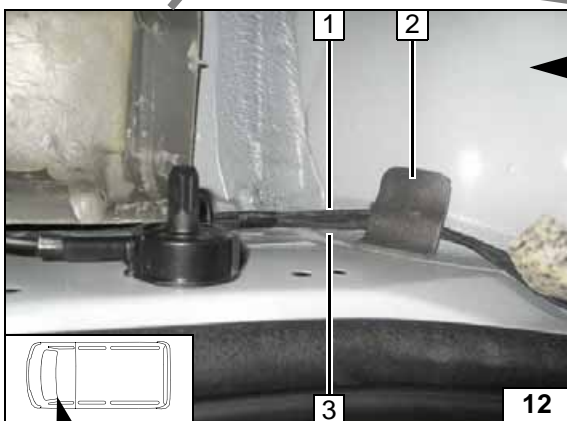


### Positive and earth wire

- 1 Earth wire, nut on negative battery terminal
- 2 Positive wire on positive battery terminal
- 3 Wiring harnesses of fan controller and heater control
- 4 Route heater wiring harness to underbody

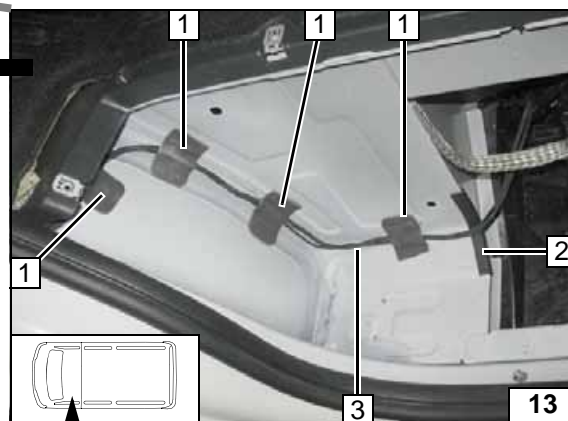


Wiring harness routing diagram



### Routing wiring harnesses

- 1 Fan controller wiring harness
- 2 Damping strips cut to half
- 3 Heater control wiring harness



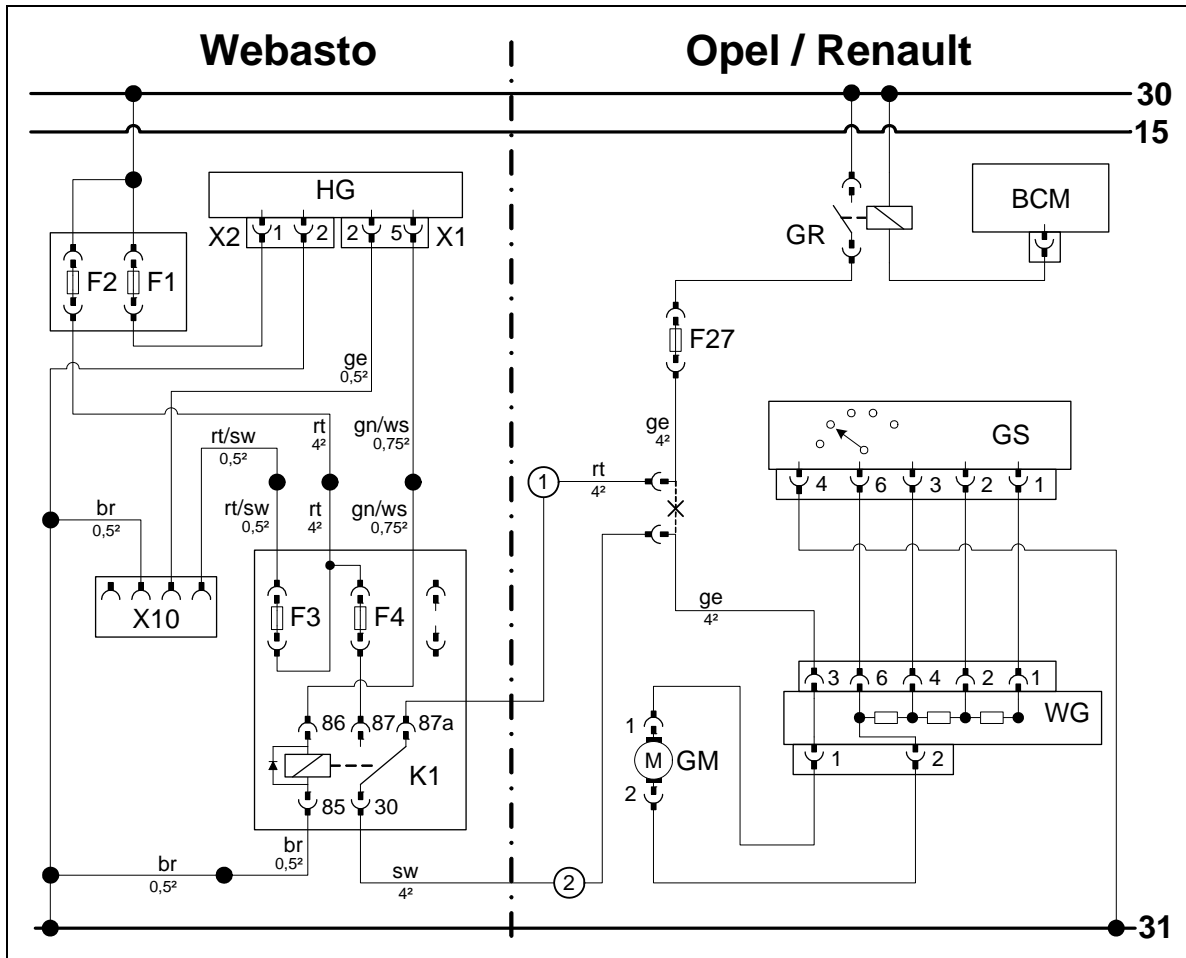
### Routing wiring harnesses

Cut damping strips 1 at the centre. Route the wiring harnesses of the fan controller and the controls 3 in the passenger compartment.

- 2 100 mm long edge protection



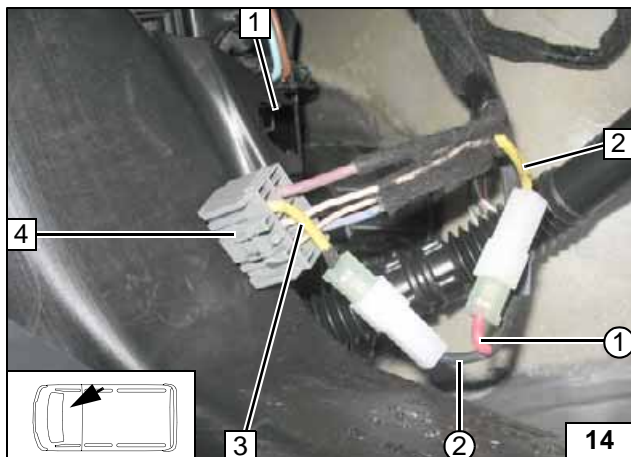
Manual Air-Conditioning Fan Controller



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	BCM	Body control unit	rt	red
X1	6-pin heater connector	GR	Fan relay	ws	white
X2	2-pin heater connector	F27	40A fuse	sw	black
F1	20A fuse	GS	Fan switch	br	brown
F2	30A fuse	WG	Resistor group	gn	green
F3	1A fuse	GM	Fan motor	ge	yellow
F4	25A fuse				
X10	4-pin connector Heater control				
K1	Fan relay			X	Cutting point
				Wiring colours may vary.	

Legend

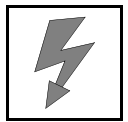


Connection to 6-pin connector 4 from resistor group (connector pulled out). After installation, provide rub protection for the connectors.

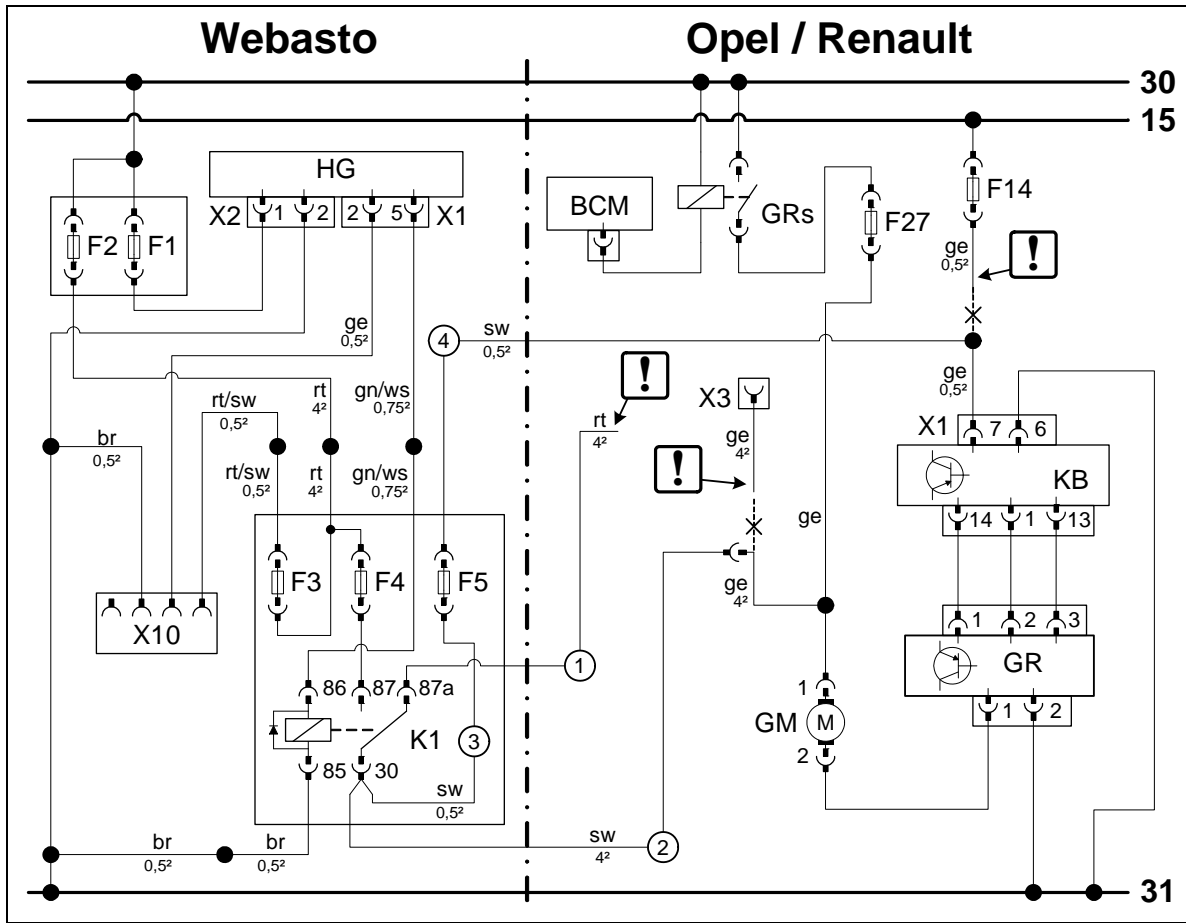


- 1 Socket for 6-pin connector WG
- 2 Yellow (ge) wire of fuse F27
- 3 Yellow (ge) wire of 6-pin connector WG / pin 3
- ① Red (rt) wire of K1/87a, fan wiring harness
- ② Black (sw) wire of K1/30, fan wiring harness

Connecting fan motor



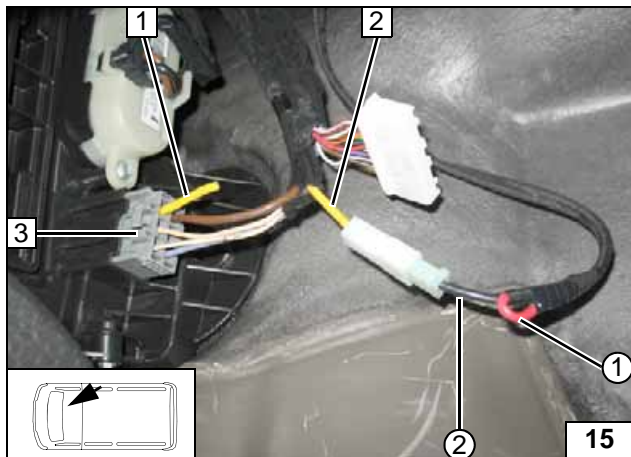
Fan Controller for Automatic Air-Conditioning



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	F14	5A fuse	rt	red
X1	6-pin heater connector	F27	40A fuse	ws	white
X2	2-pin heater connector	GRs	Fan relay	sw	black
F1	20A fuse	BCM	Body control unit	br	brown
F2	30A fuse	X3	6-pin dummy connector	gn	green
F3	1A fuse	KB	A/C control panel	ge	yellow
F4	25A fuse	X1	12-pin connector of KB	!	Insulate wire ends and tie back!
F5	5A fuse	GR	Fan controller		
X10	4-pin connector Heater control	GM	Fan motor	X	Cutting point
K1	Fan relay			Wiring colours may vary.	

Legend

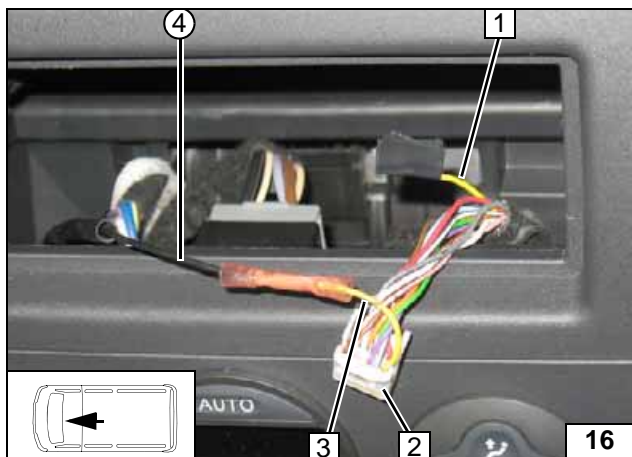


Connection to 6-pin dummy connector X3 3 before fan motor.  
 Insulate and tie back red (rt) wire ① of K1/87a.  
 After installation, provide rub protection for the connectors.



- 1 Yellow (ge) wire of 6-pin dummy connector X3 / pin 3
- 2 Yellow (ge) wire of fan motor / fuse F27
- ② Black (sw) wire of K1/30, fan wiring harness

Connecting fan motor

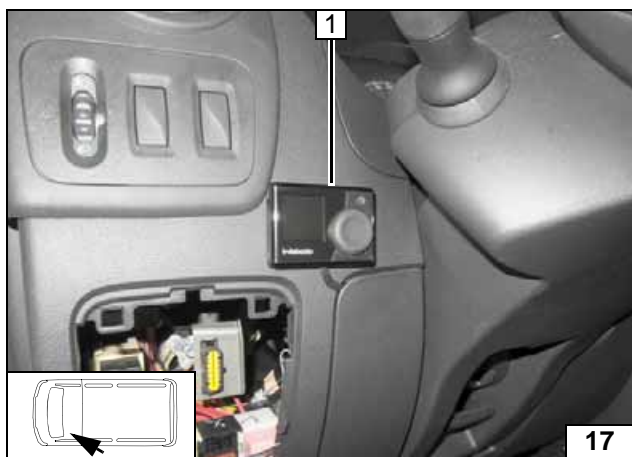


Connection to 12-pin connector X1 2 of A/C control panel.  
Insulate and tie back yellow (ge) wire 1 from fuse F14. After installation, provide rub protection for the connectors.

- ④ Black (sw) wire of F5 fuse
- 3 Yellow (ge) wire of 12-pin connector pin7



**Connect-  
ing A/C  
control  
panel**

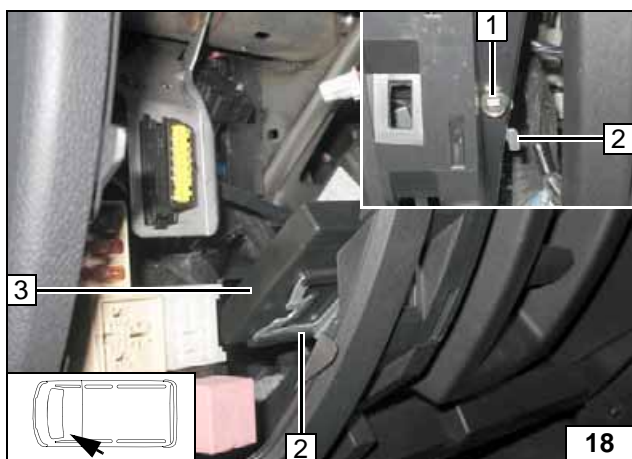


### MultiControl CAR Option

- 1 Installation frame



**Installing  
MultiControl  
CAR**

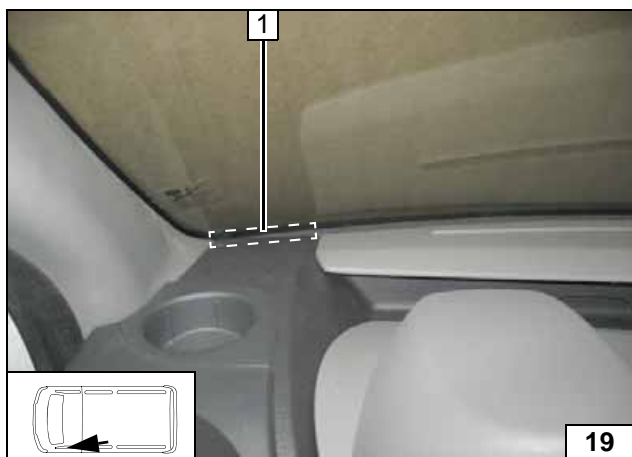


### Remote Option (Telestart)

- 1 5.5 mm dia. Hole for M5x16 bolt, washer, flanged nut
- 2 Bracket
- 3 Receiver



**Installing  
receiver**



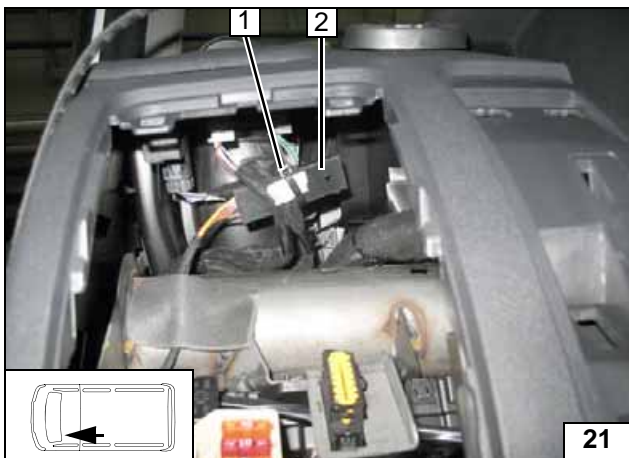
- 1 Aerial

**Installing  
aerial**



1 16 mm dia. hole, push button

Installing push button



**Temperature sensor T100 HTM**

Fasten temperature sensor 2 with cable tie 1 to original vehicle wiring harness.



Installing temperature sensor

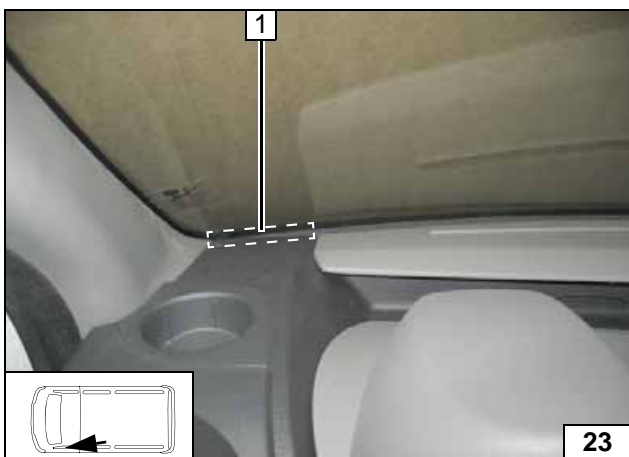


**ThermoCall Option**

Fasten receiver 1 with double-sided adhesive tape

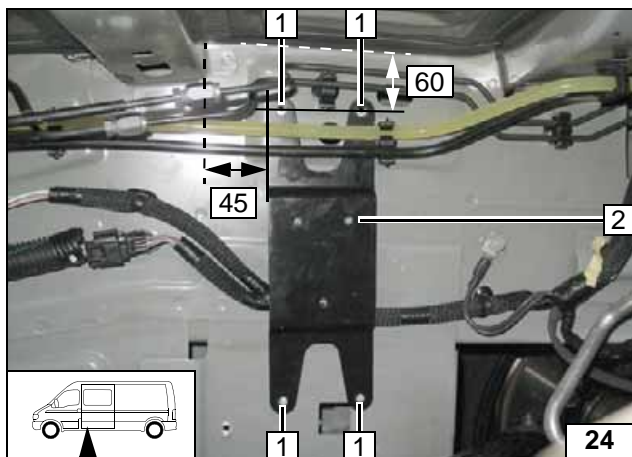


Installing receiver



1 Aerial (optional)

Installing aerial



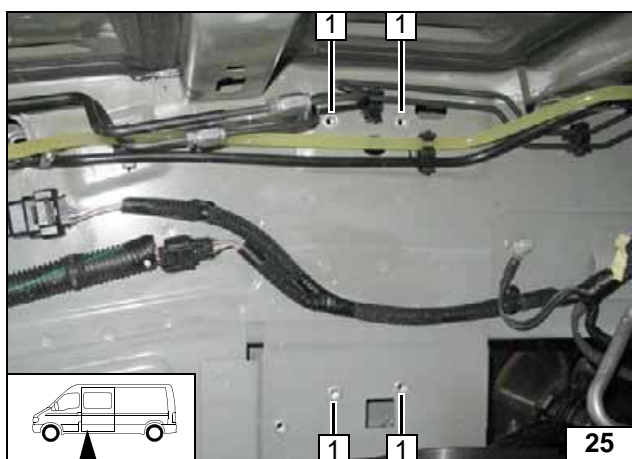
### Preparing Installation Location

Hold and align bracket 2.

- 1 Copy hole pattern [4x]



Copying hole pattern

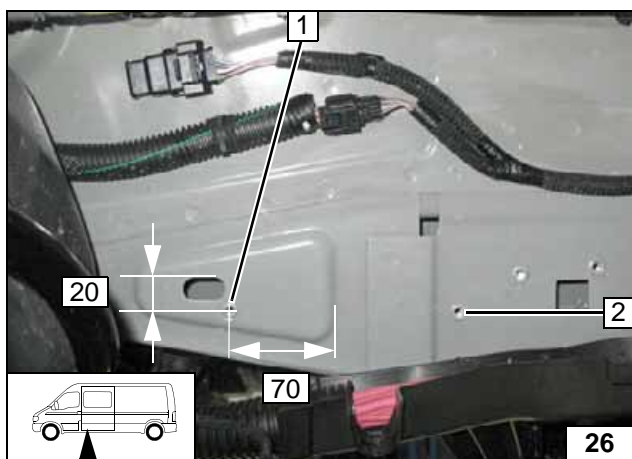


Take off bracket!

- 1 9.1 mm dia. hole; rivet nut [4x each]



Installing rivet nut

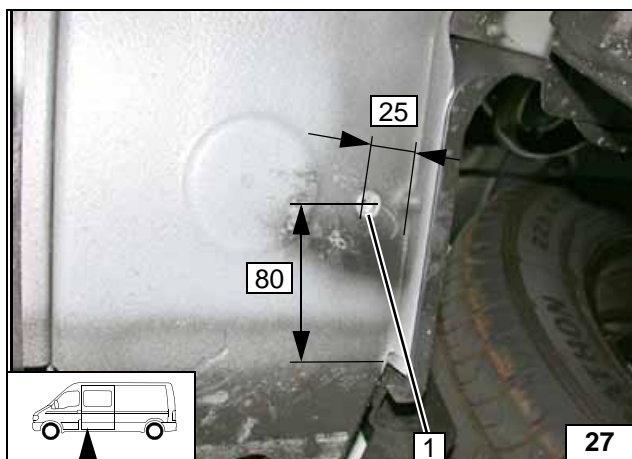


Drill out existing hole at position 2 to 9.1 mm dia. and mount the rivet nut.

- 1 9.1 mm dia. hole; rivet nut

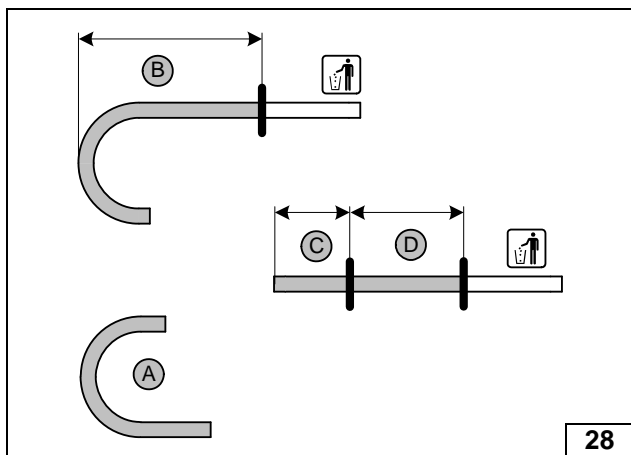


Installing rivet nut



- 1 9.1 mm dia. hole; rivet nut

Installing rivet nut



### Preparing Heater

74kW, 92kW and 107kW

Hose A = 180°, 20 mm dia. moulded hose

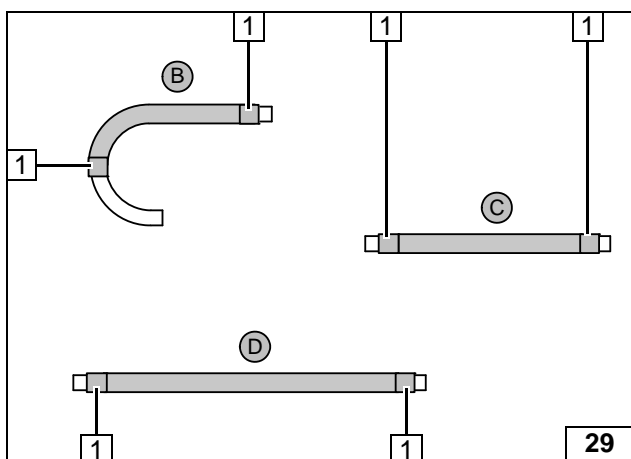
B = 520

C = 215

D = 650



**Cutting hoses to length**

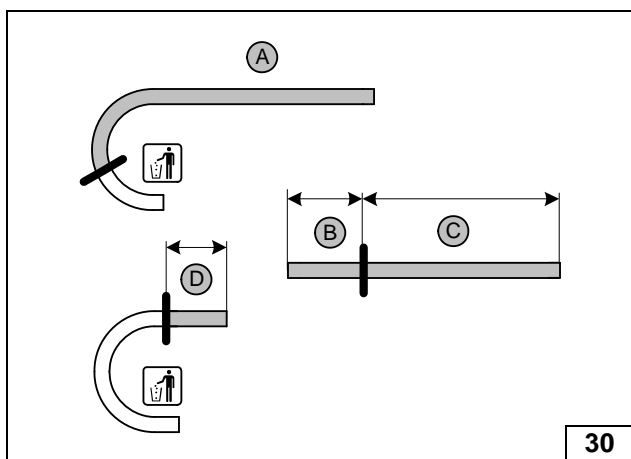


Push braided protection hoses onto hose B, C and D and cut to length.  
Cut heat shrink plastic tubing to length.

1 Heat shrink plastic tubing, 50 mm long [6x]



**Preparing hoses**



120kW

Hose D = 180°, 20 mm dia. moulded hose

A = 640

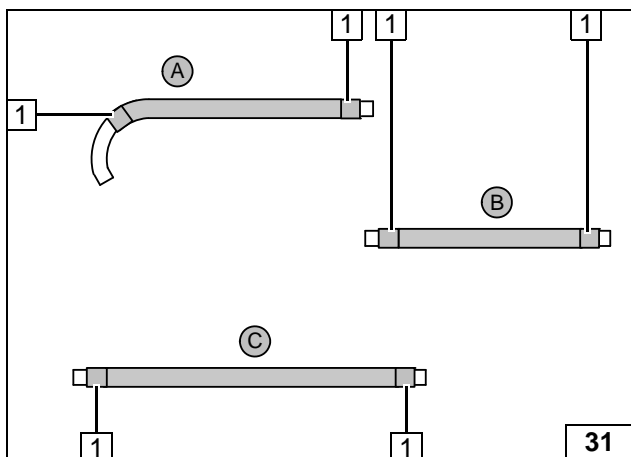
B = 215

C = 985

D = 60



**Cutting hoses to length**

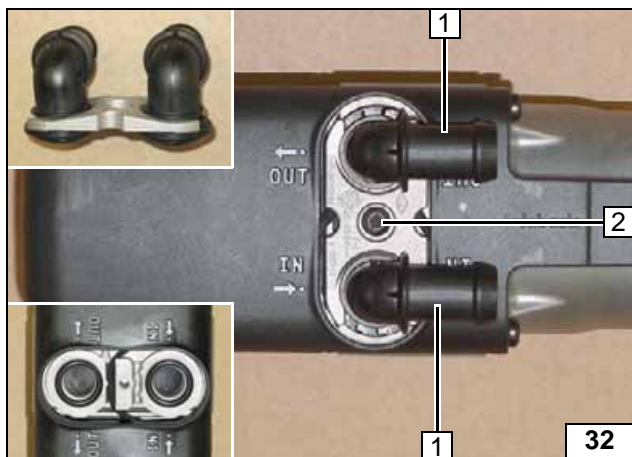


Push braided protection hoses onto hoses A, B and C and cut to length.  
Cut heat shrink plastic tubing to length.

1 Heat shrink plastic tubing, 50 mm long [6x]



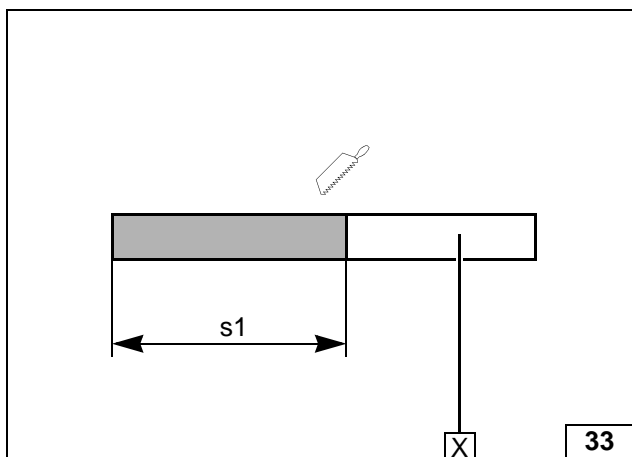
**Preparing hoses**



- 1 Water connection piece, sealing ring [2x each]
- 2 5x15 self-tapping bolt, retaining plate of water connection piece



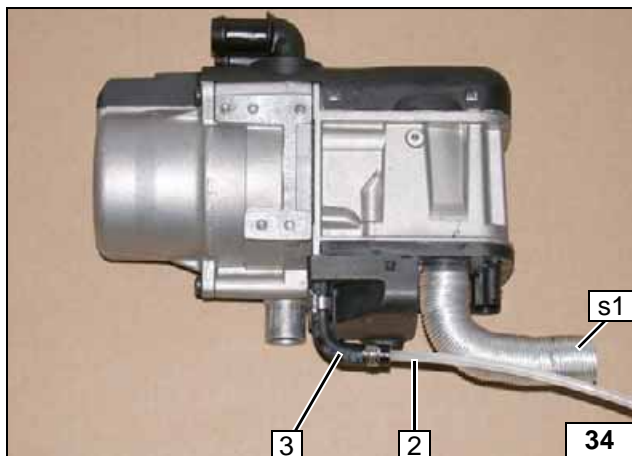
**Installing water connection piece**



s1 = 130

X =

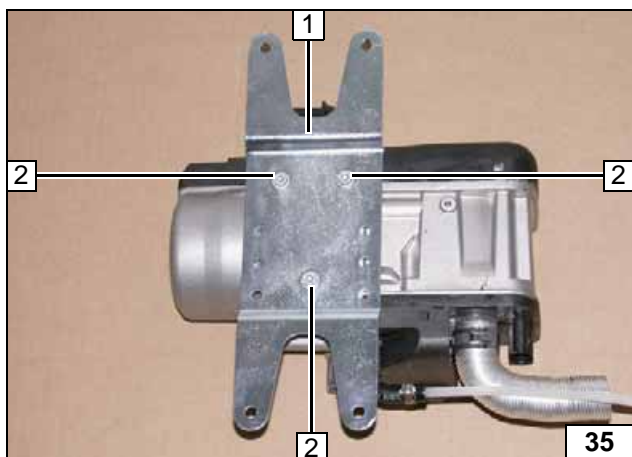
**Cutting combustion air pipe to length**



- 1 Combustion air pipe
- 2 Fuel line
- 3 90° moulded hose, 10 mm dia. clamp [2x]



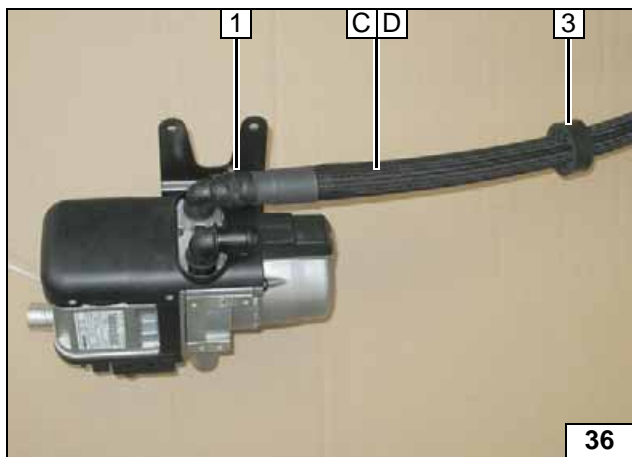
**Premounting heater**



- 1 Bracket
- 2 5x13 self-tapping bolt [3x]

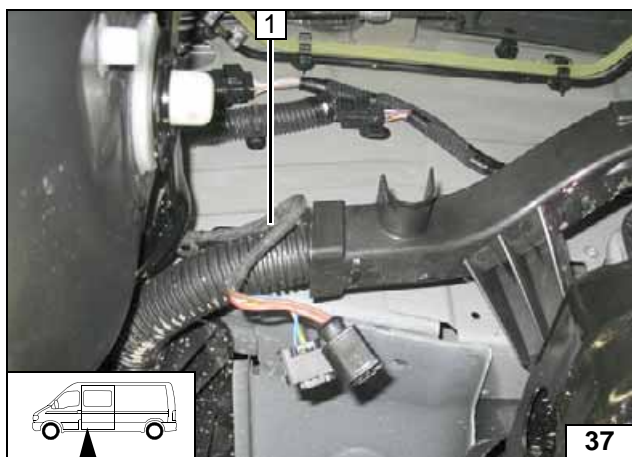
**Installing bracket**





- 1 25 mm dia. spring clip
- 3 Slide on black (sw) rubber isolator (not for 120 kW)
- C For 120kW
- D For 74kW, 92kW and 107kW

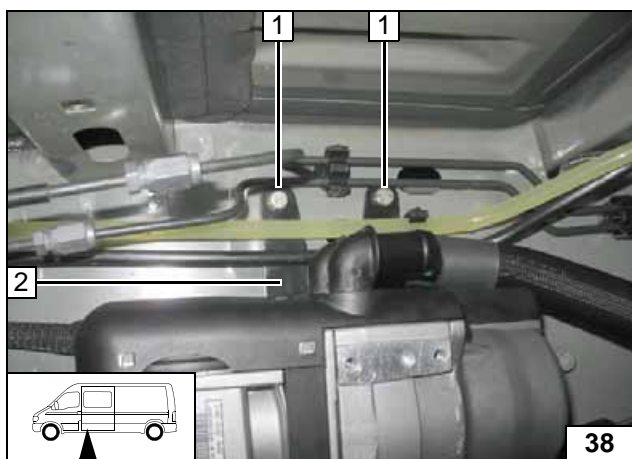
Premounting hose C/D



### Installing Heater

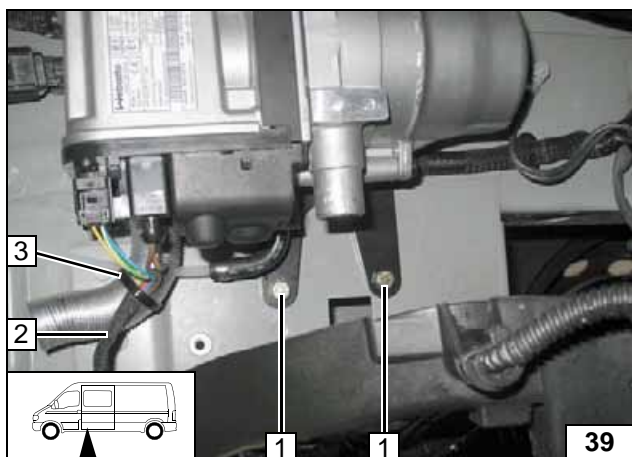
- 1 Heater wiring harness

Routing wiring harness of heater



- 1 M6x20 bolt, spring lockwasher [2x each]
- 2 Bracket

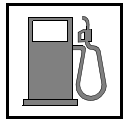
Installing heater



Check the position of all components; adjust if necessary. Check that they have freedom of movement.

- 1 M6x20 bolt, spring lockwasher [2x each]
- 2 Connect wiring harness of heater
- 3 Cable tie

Installing heater



**Fuel**

**CAUTION!**

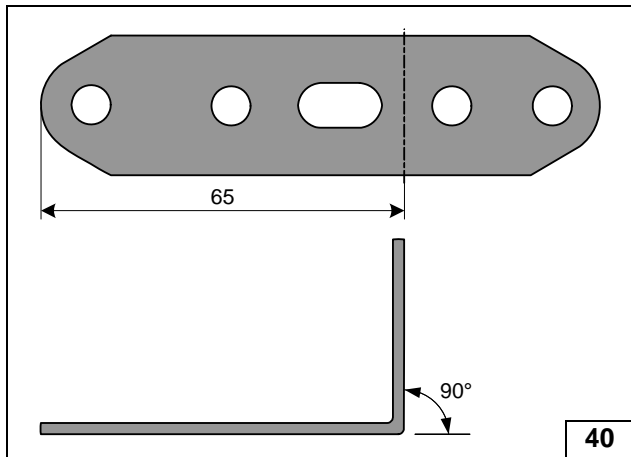
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off in an appropriate container.

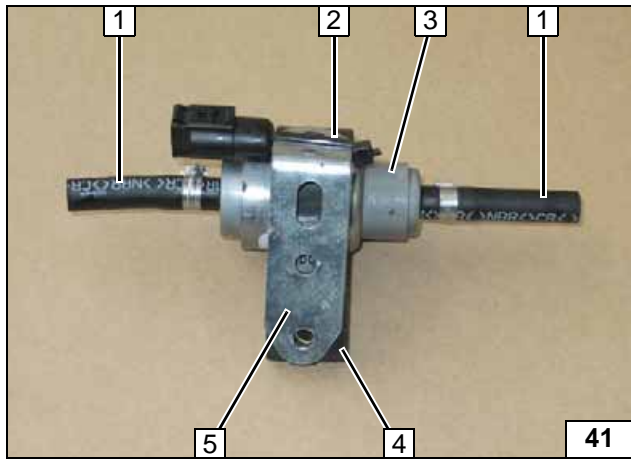
Route fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties. Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

**WARNING!**

The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.

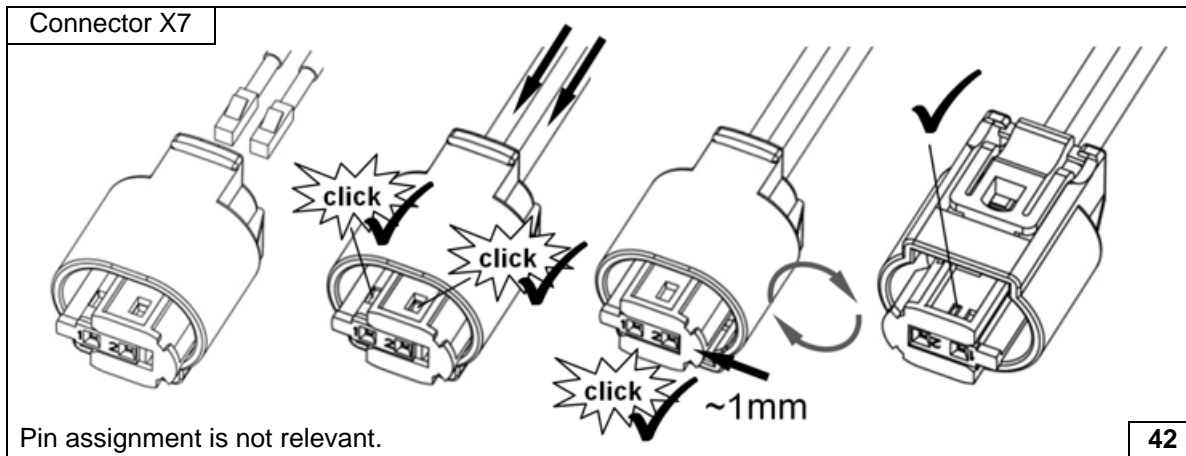


Angling down perforated bracket



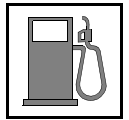
- 1 Hose section, 10 mm dia. clamp [2x each]
- 2 Cable tie
- 3 Metering pump
- 4 Metering pump mount
- 5 Perforated bracket

Premounting metering pump



Completing metering pump connector

Pin assignment is not relevant.



**Installing metering pump**



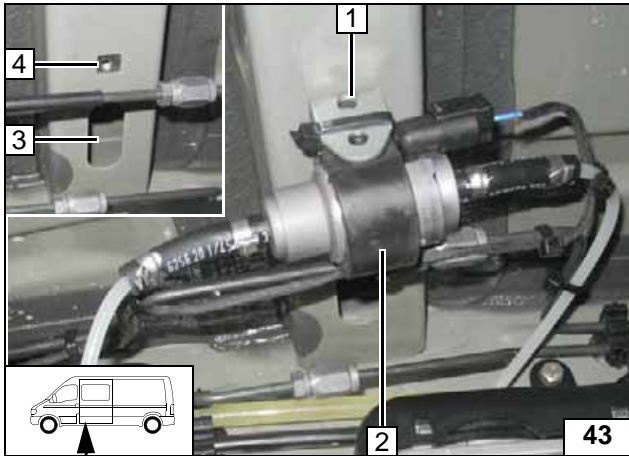
**Versions of fuel extraction**



**Fuel extraction**



**Connecting metering pump**

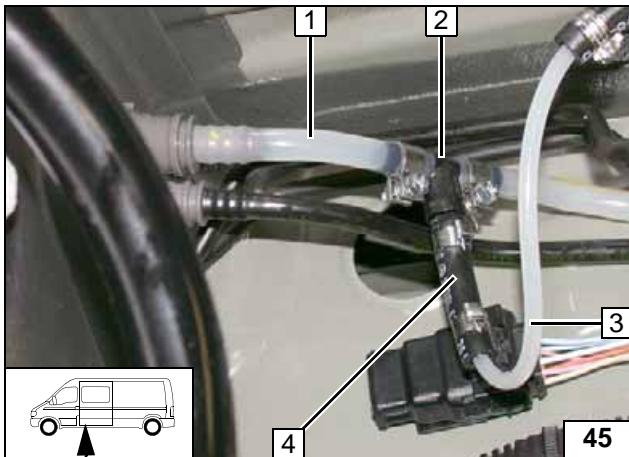


Large diameter washer and flanged nut positioned through original vehicle opening **3** in cross member at position **4**. Fasten metering pump mount **2**, support angle bracket and perforated bracket **1** with M6x25 bolt at position **4** with large diameter washer and flanged nut.



**Version 1.**  
Vehicle with hand pump **1** (without pre-feed pump in tank), fuel extraction with T-piece in supply line.

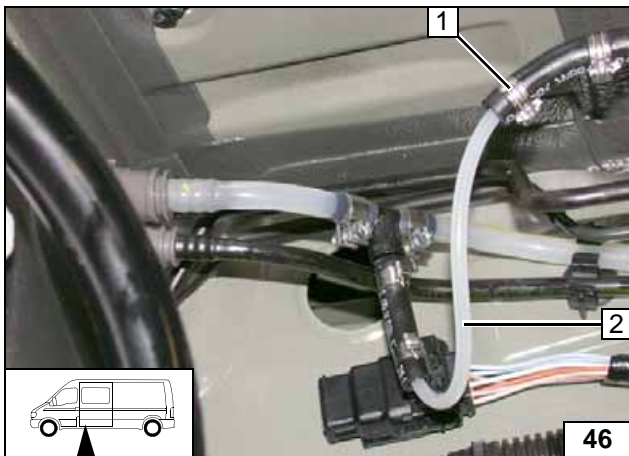
**Version 2 and version 3.**  
Vehicle without hand pump **1** (with pre-feed pump in tank): Fuel extraction with fuel standpipe in the fuel tank sending unit.



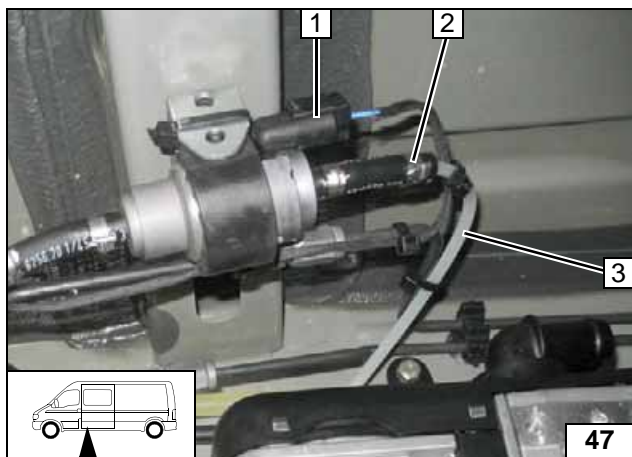
**Version 1**

Cut fuel supply line **1** at position **2**.

- 2** 8x5x8 fuel standpipe, 10mm dia.clamp [2x]
- 3** Fuel line from fuel standpipe
- 4** Hose section, 10mm dia. clamp [2x]



- 1** 10 mm dia. clamp
- 2** Fuel line from fuel standpipe

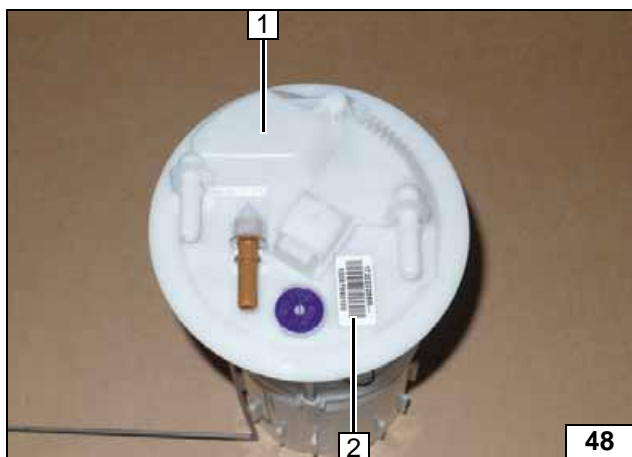


Check the position of the components; correct if necessary. Check that they have freedom of movement.

- 1 Wiring harness of metering pump, connector X7 mounted
- 2 10 mm dia. clamp
- 3 Fuel line of heater



**Connect-  
ing meter-  
ing pump**



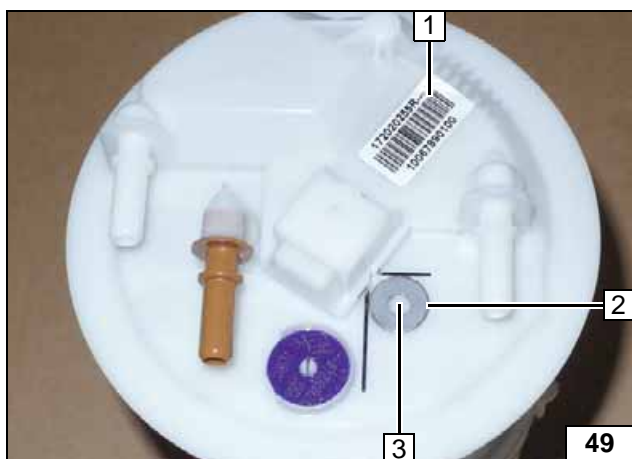
**Version 2**

Remove fuel tank and fuel tank sending unit 1 in accordance with manufacturer's instructions.

- 2 Remove bar code label



**Fuel ex-  
traction**

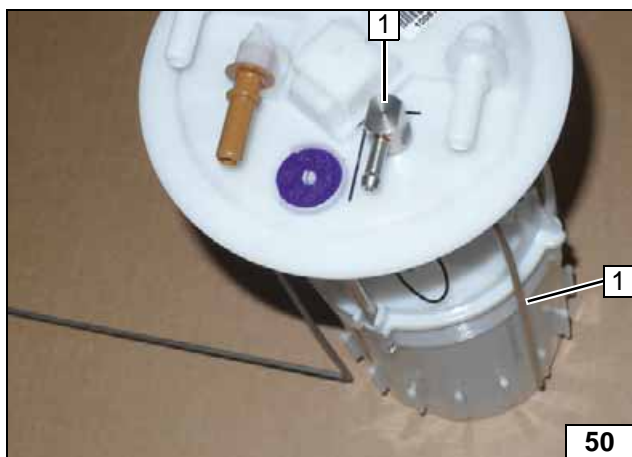


Place washer with outer dia.  $d_a = 14.6\text{mm}$  2 against the ridges (see markings).

- 1 Stick bar code label on again
- 3 Copy hole pattern, 6 mm dia. hole



**Fuel ex-  
traction**



Bend fuel standpipe 1 according to template and cut to length.



**Installing  
fuel stand-  
pipe**

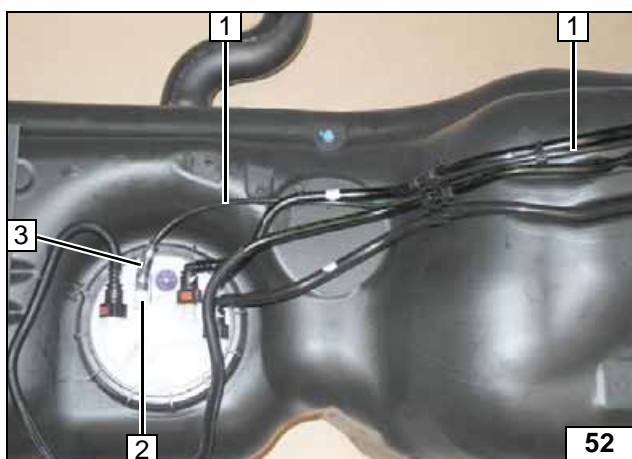


Insert three washers with outer dia.  $d_a = 12$  mm as height compensation at position 1.

2 Fuel standpipe



Installing fuel standpipe

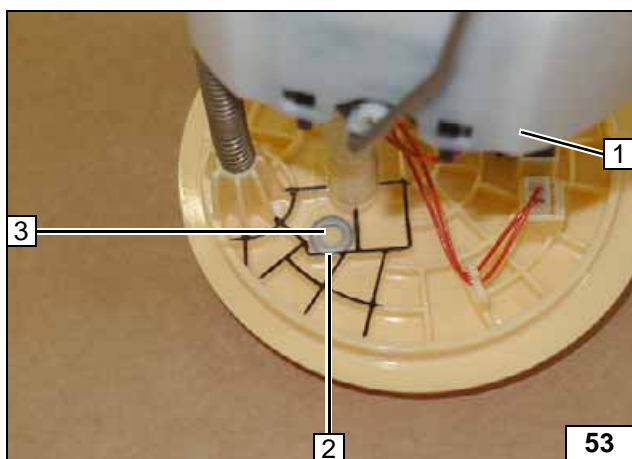


Install fuel tank sending unit and fuel tank in accordance with manufacturer's instructions.

- 1 Fuel line from fuel standpipe
- 2 Fuel standpipe
- 3 Hose section, 10mm dia. clamp [2x]



Connecting fuel line



**Version 3**

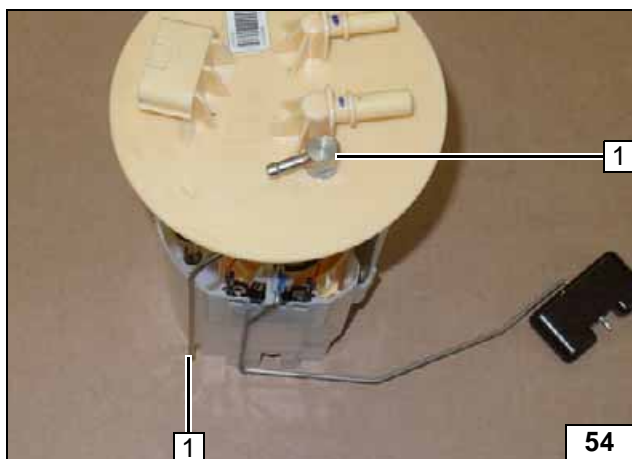
Remove fuel tank according to manufacturer's instructions. Remove the fuel tank sending unit 1 according to the manufacturer's instructions.

Place washer with outer dia.  $d_a = 12$ mm 2 against the marked ribs.

3 Copy hole pattern, 6 mm dia. hole



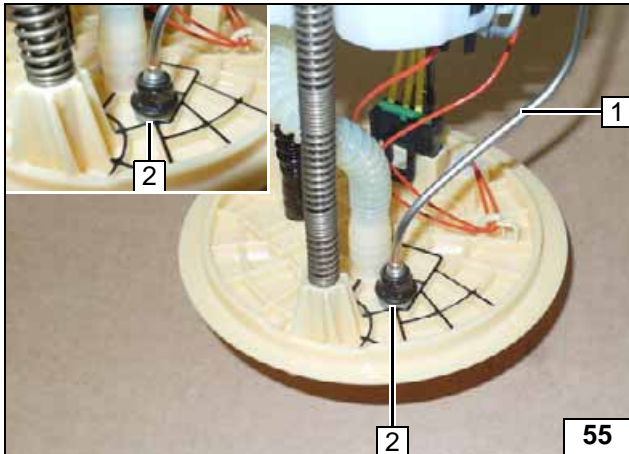
Fuel extraction



Bend fuel standpipe 1 according to template and cut to length.



Installing fuel standpipe

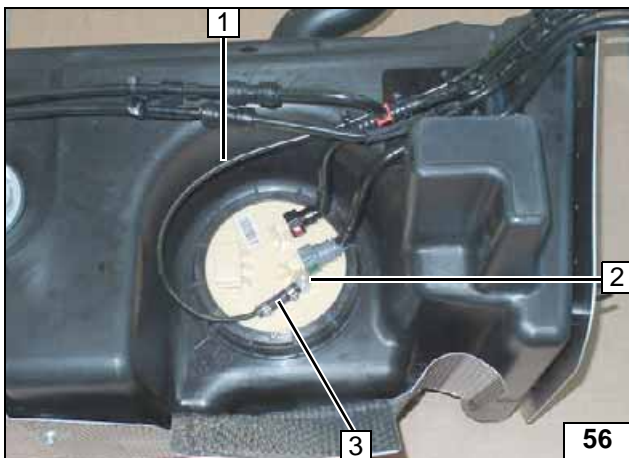


Insert three washers with outer dia.  $d_a = 12$  mm as height compensation at position 2.

- 1 Fuel standpipe



**Installing fuel standpipe**

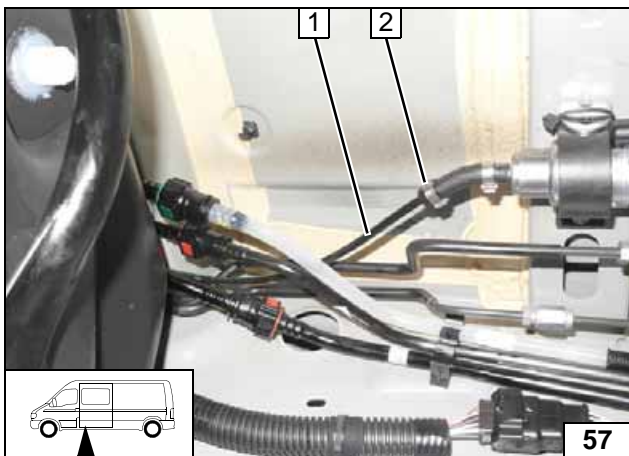


Install fuel tank sending unit and fuel tank in accordance with manufacturer's instructions.

- 1 Fuel line from fuel standpipe
- 2 Fuel standpipe
- 3 Hose section, 10mm dia. clamp [2x]



**Connecting fuel line**

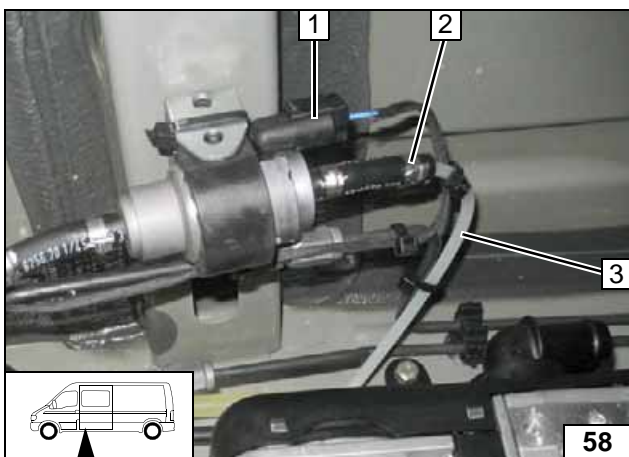


**Version 2 and version 3**

- 1 Fuel line from fuel standpipe
- 2 10 mm dia. clamp



**Connecting metering pump**



Check the position of the components; correct if necessary. Check that they have freedom of movement.

- 1 Wiring harness of metering pump, connector X7 mounted
- 2 10 mm dia. clamp
- 3 Fuel line of heater



**Connecting metering pump**

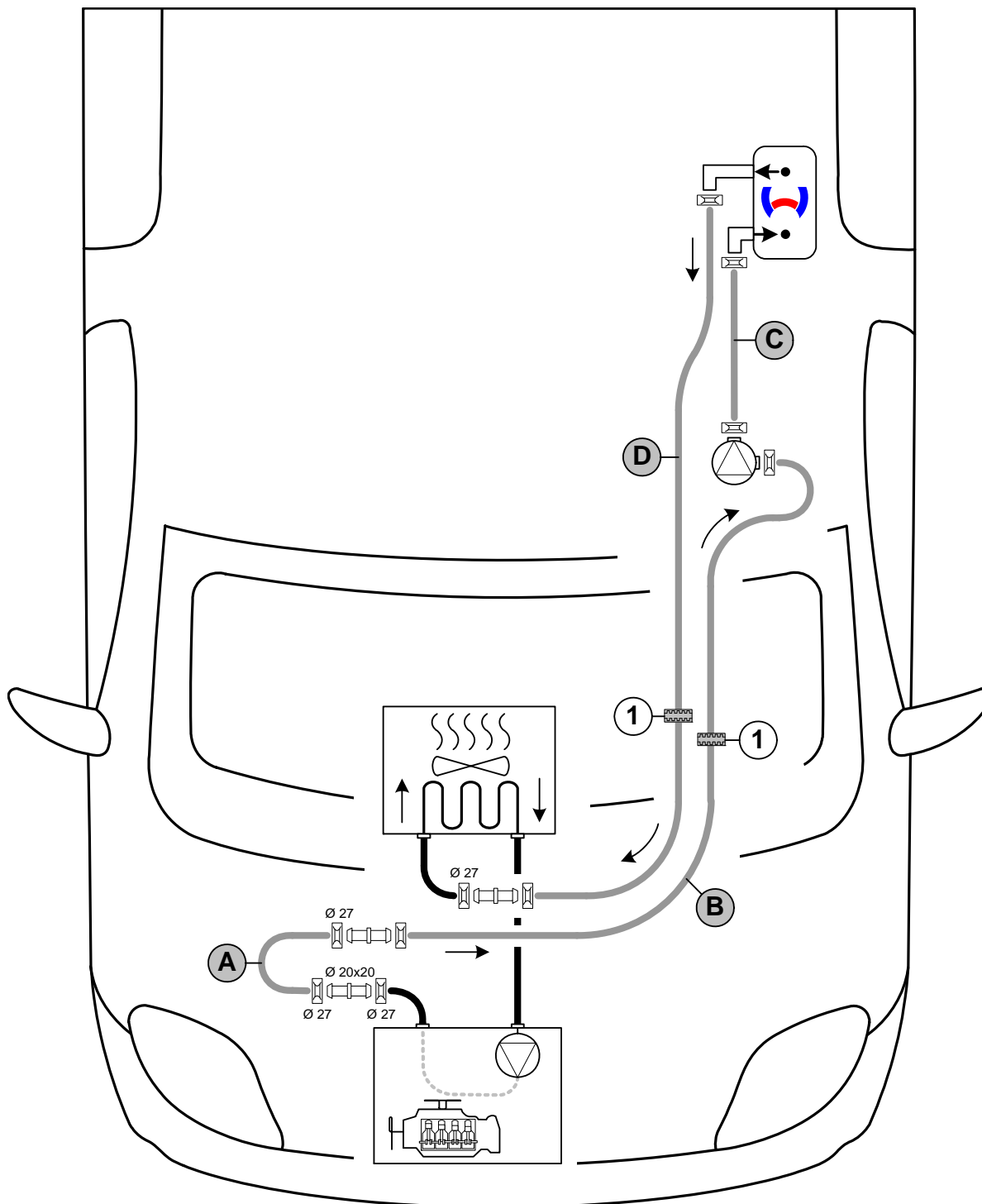


### Coolant Circuit for 74kW, 92kW und 107kW




**WARNING!**

Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

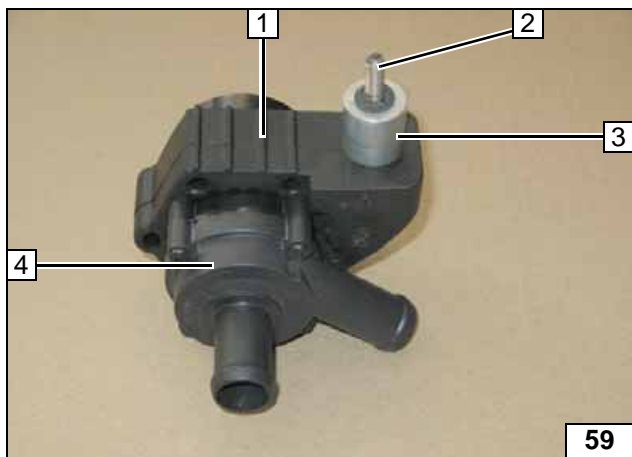
The connection should be modelled on an 'inline' circuit and based on the following diagram:



Hose routing diagram

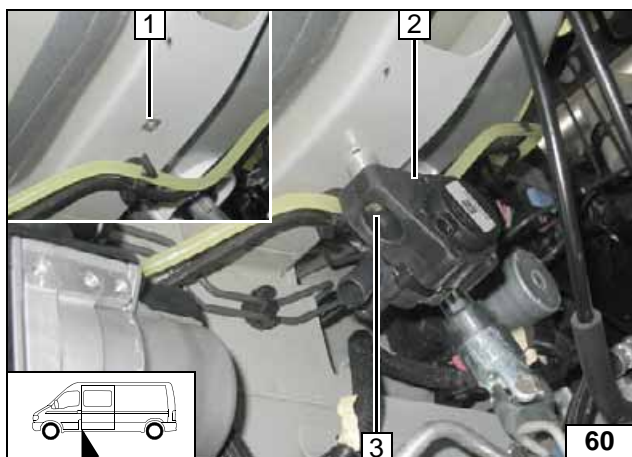
All spring clips without a specific designation  = 25 mm dia. **1** = Black (sw) rubber isolator . All connecting pipes without a specific designation  = 18x20 mm dia.





- 1 Circulating pump mount
- 2 M6x50 bolt, pin lock
- 3 20 mm shim
- 4 Circulating pump

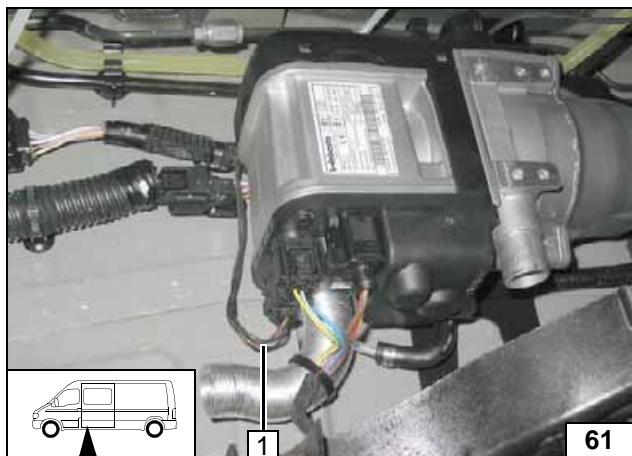
Premounting circulating pump



Fasten circulating pump mount 2 with M6x50 bolt 3 to original vehicle threaded hole 1.

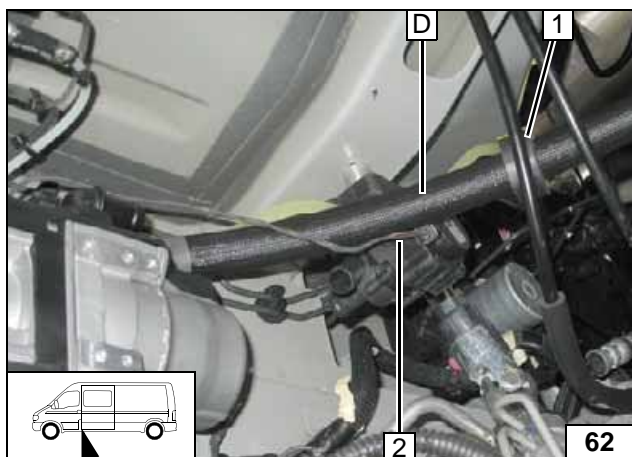


Installing circulating pump



- 1 Circulating pump wiring harness

Connecting circulating pump wiring harness



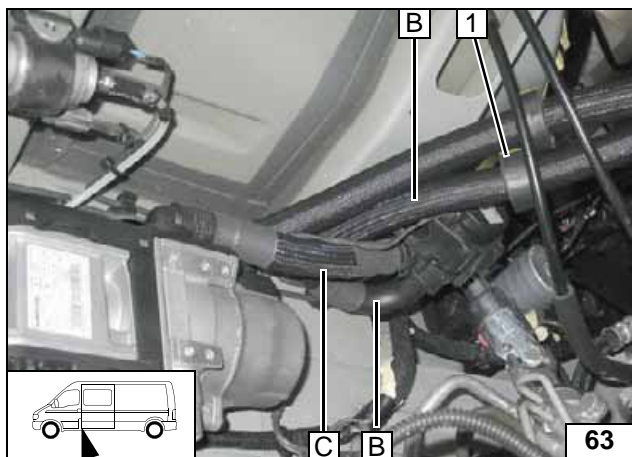
Route hose D to the engine compartment.

- 1 Push on black (sw) rubber isolator and align
- 2 Circulating pump wiring harness



Connecting wiring harness

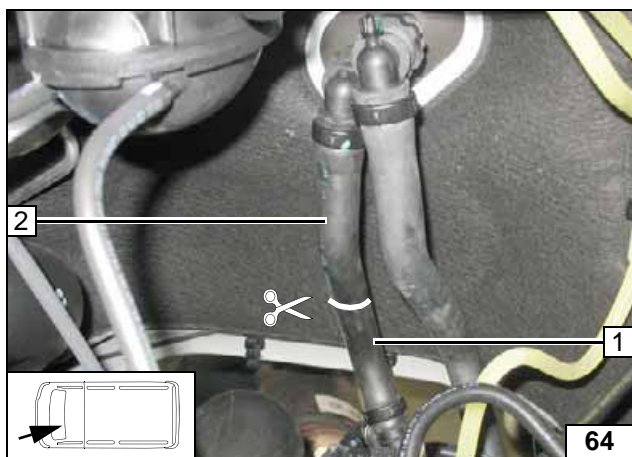




Connect hose **B** with 180° elbow to circulating pump inlet and route to engine compartment.

- 1 Push on black (sw) rubber isolator and align

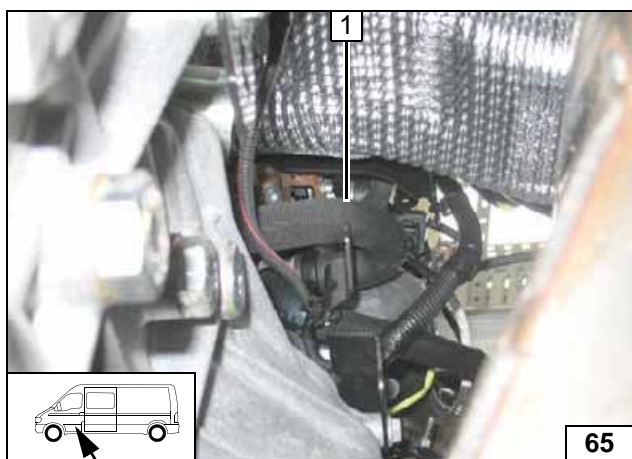
**Connect-  
ing heater  
inlet**



**Front-wheel drive**

- 1 Hose section of engine outlet
- 2 Hose section on heat exchanger inlet

**Cutting  
point**

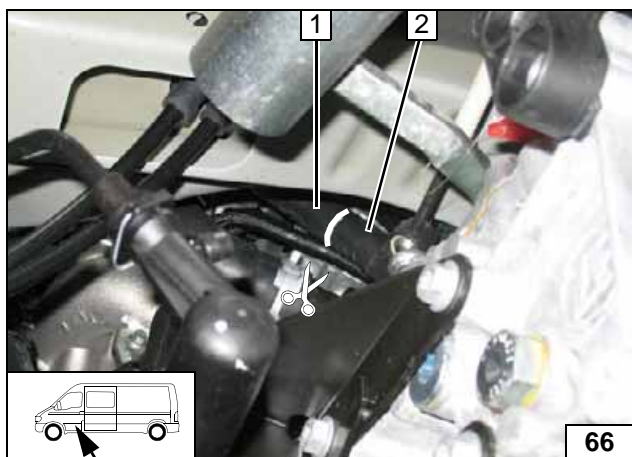


**Rear-wheel drive**

Hose of engine outlet / heat exchanger inlet **1** is routed over the transmission to the driver's side.

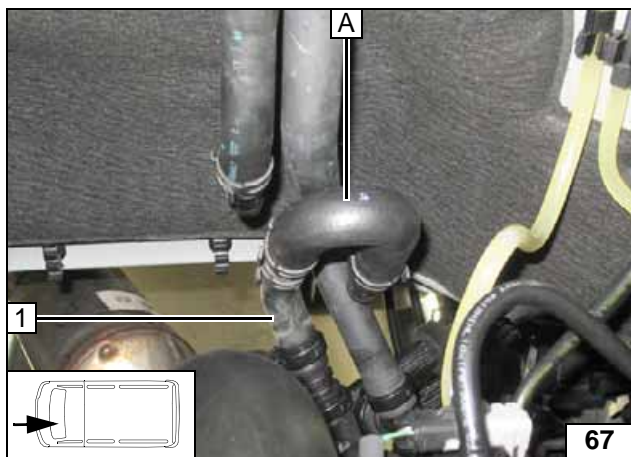


**Informa-  
tion on cut-  
ting point**



- 1 Hose section on heat exchanger inlet
- 2 Hose section of engine outlet

**Cutting  
point**

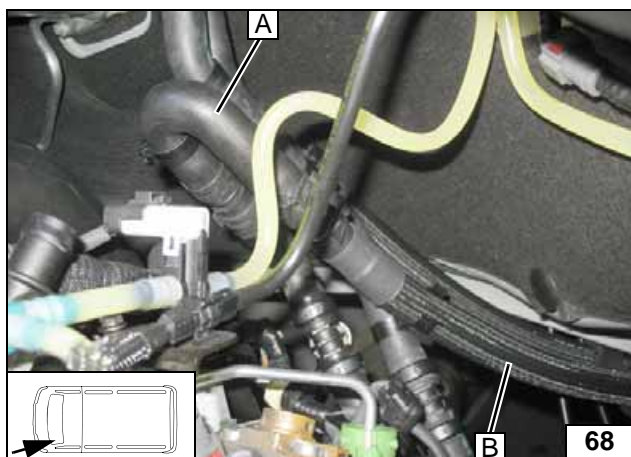


**All vehicles**

The following figures illustrate the connection of the hoses in the front-wheel drive!

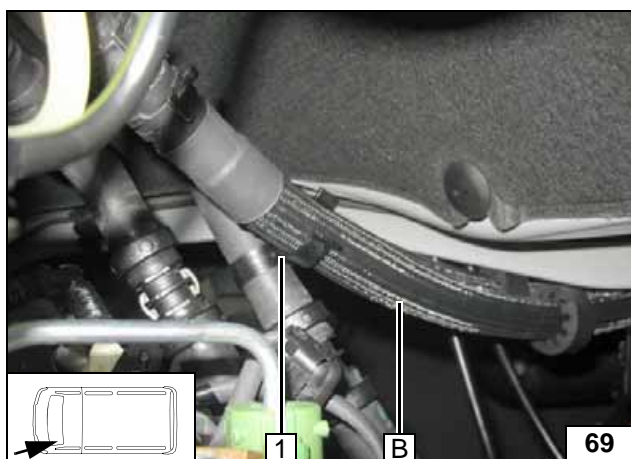
- 1 Hose section of engine outlet

**Connect-  
ing engine  
outlet**

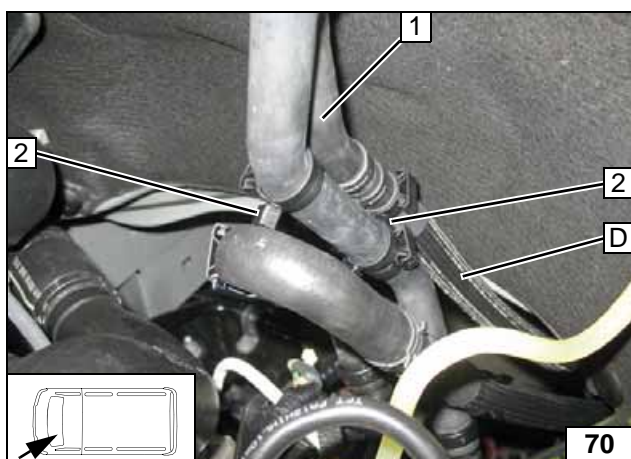


**Routing in  
engine  
compartment**

- 1 Spacer bracket

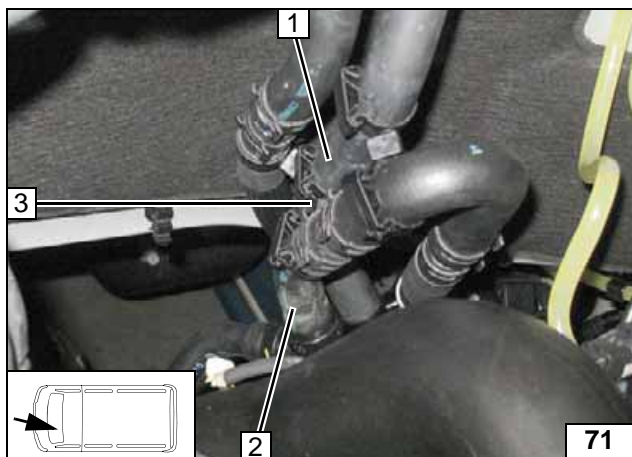


**Installing  
spacer  
bracket**



- 1 Hose section on heat exchanger inlet
- 2 Lockable spacer bracket [2x]

**Connect-  
ing heat ex-  
changer  
inlet**

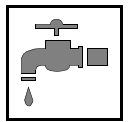


Ensure sufficient distance from neighbouring components.

- 1 Hose section of heat exchanger outlet
- 2 Hose section of engine outlet
- 3 Lockable spacer bracket



**Installing  
spacer  
bracket**

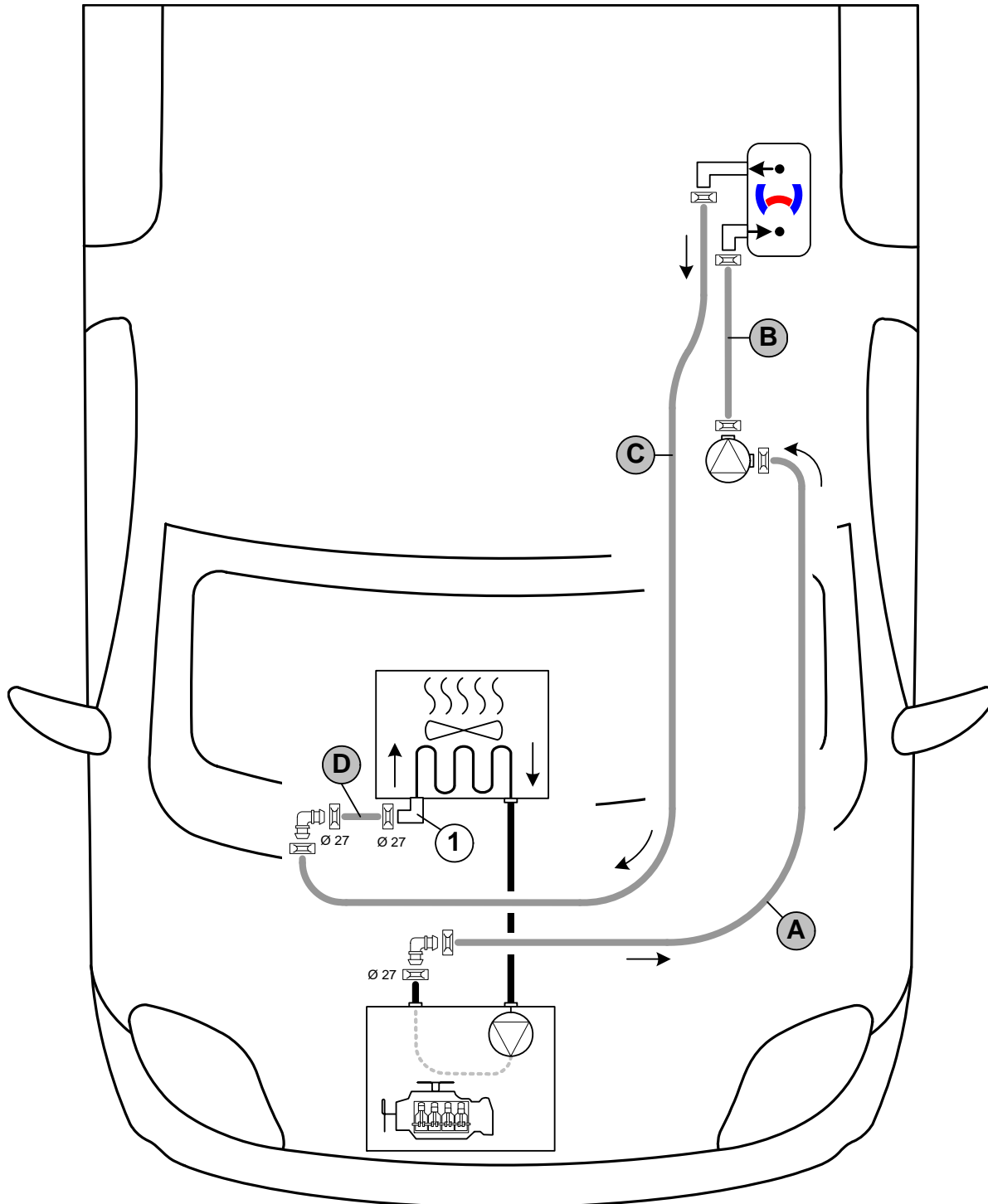


### Coolant Circuit for 120kW



**WARNING!**

Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

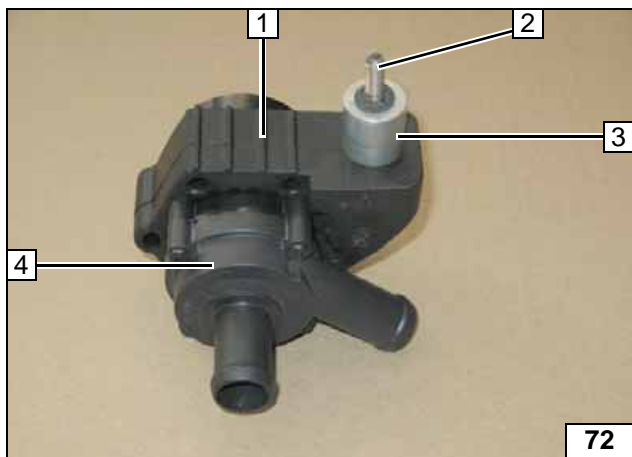
The connection should be modelled on an 'inline' circuit and based on the following diagram:



Hose routing diagram

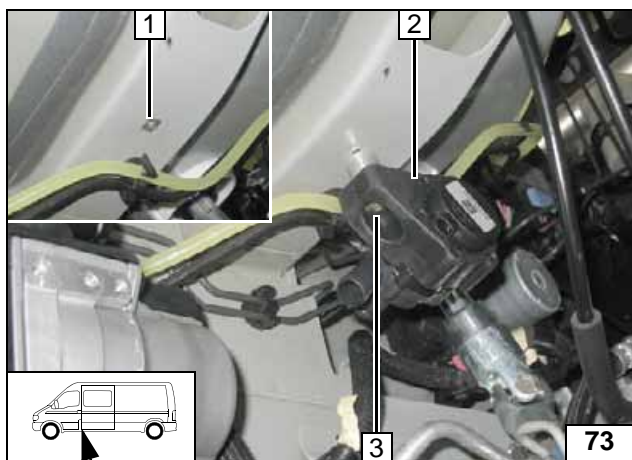
All spring clips without a specific designation  = 25 mm dia. 1 = Original vehicle quick-release coupling. All connecting pipes without a specific designation  = 18x20 mm dia.





- 1 Circulating pump mount
- 2 M6x50 bolt, pin lock
- 3 20 mm shim
- 4 Circulating pump

Premounting circulating pump

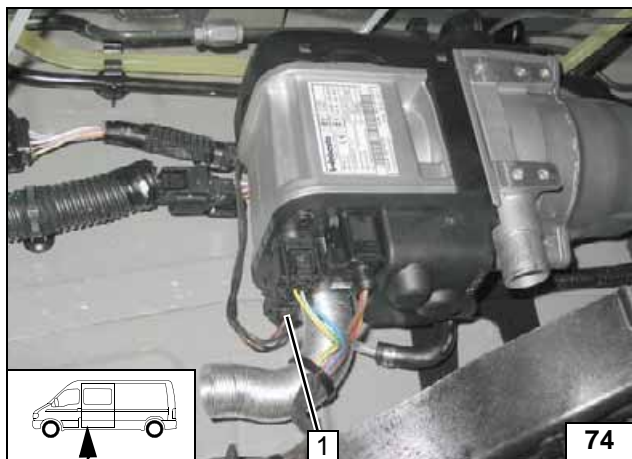


Next figures show vehicle with all-wheel drive but apply to all vehicles.



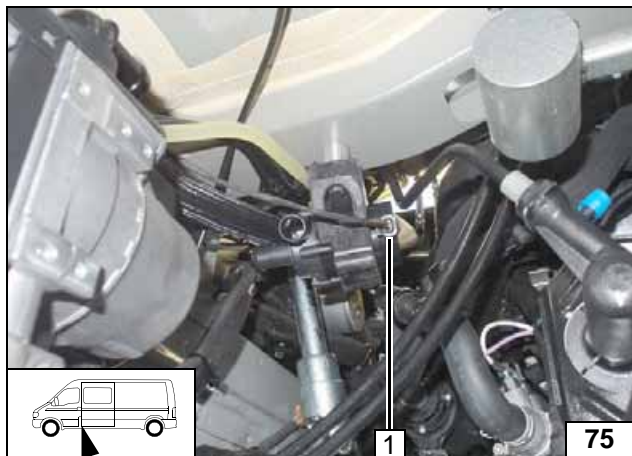
Fasten circulating pump mount 2 with M6x50 bolt 3 to original vehicle threaded hole 1.

Installing circulating pump



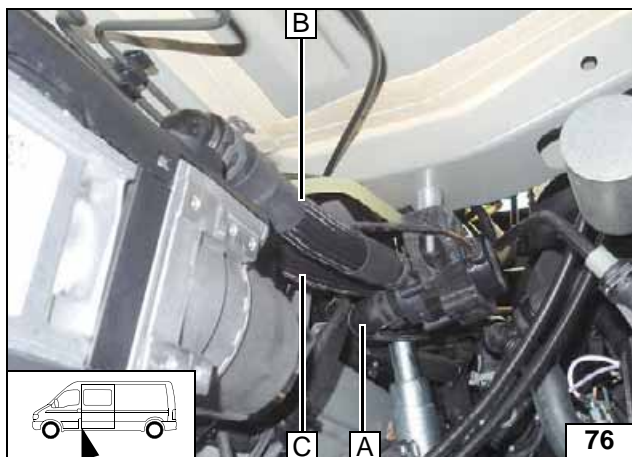
- 1 Connector of circulating pump wiring harness

Connecting circulating pump wiring harness



- 1 Connector of circulating pump wiring harness

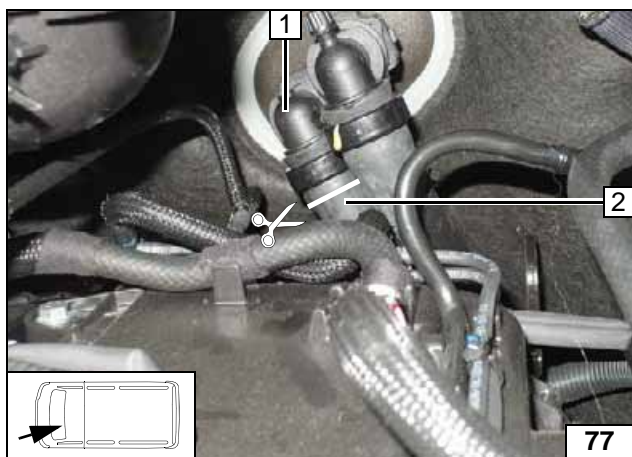
Connecting wiring harness



Connect hose **A** with 90° elbow to circulating pump inlet and route in engine compartment.

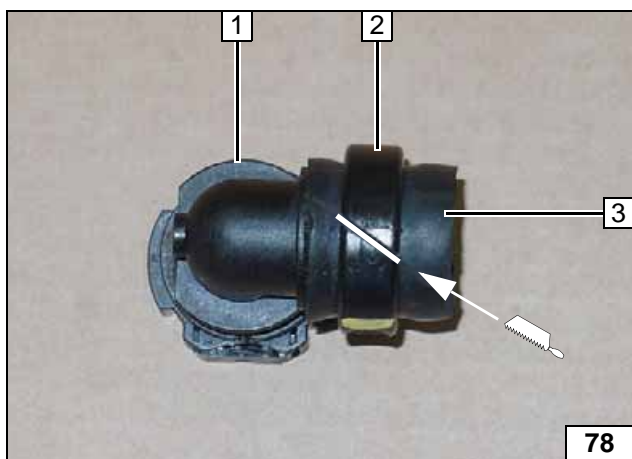


**Connect-  
ing heater  
inlet**



- 1 Quick-release coupling of heat exchanger inlet
- 2 Hose section of engine outlet

**Cutting  
point**



Remove quick-release coupling **1**.  
Cut open plastic ring **2** carefully and discard.

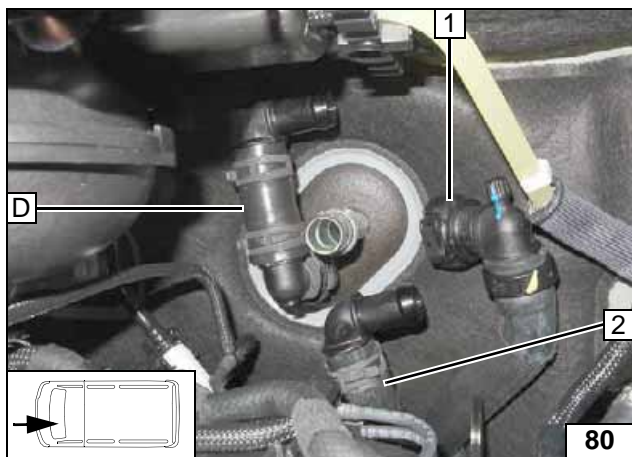
- 3 Discard hose section



**Preparing  
quick-re-  
lease cou-  
pling**



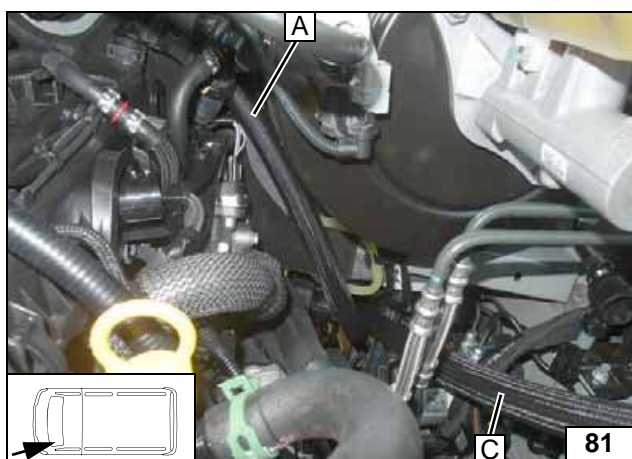
**Premount-  
ing quick-  
release  
coupling**



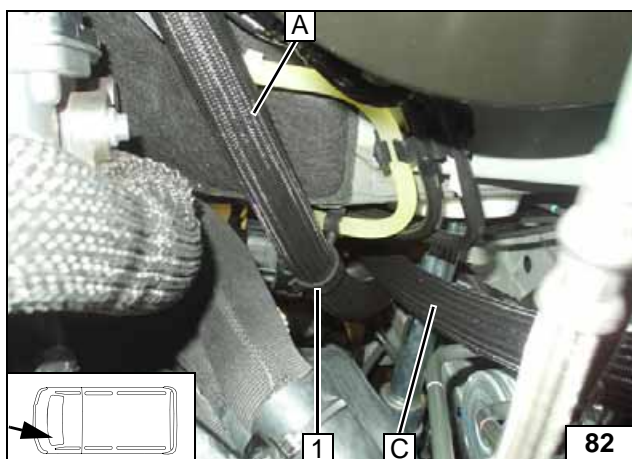
Quick-release coupling of heat exchanger outlet **1** removed for better display.

**2** Hose section of engine outlet

Preparing connection of engine outlet / heat exchanger inlet



Routing of hose A in engine compartment



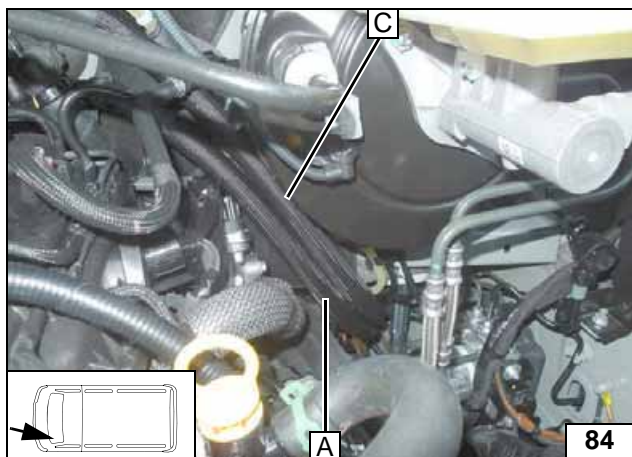
**1** Spacer bracket

Installing spacer bracket



**1** Hose section of engine outlet

Connecting engine outlet

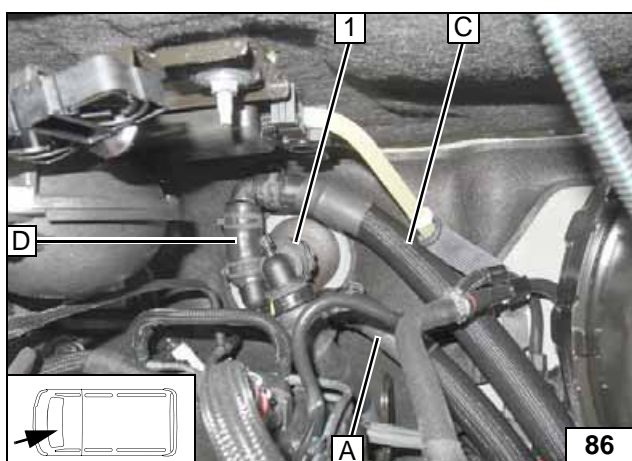


Routing of hose C in engine compartment

1 Spacer bracket



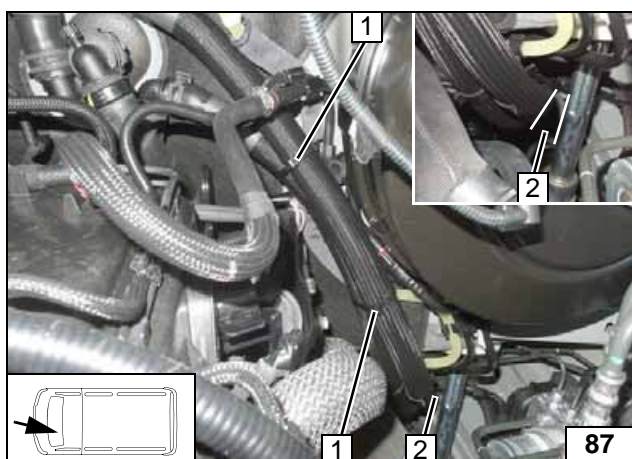
Installing spacer bracket



Quick-release coupling of heat exchanger outlet 1 installed.



Connecting heat exchanger inlet



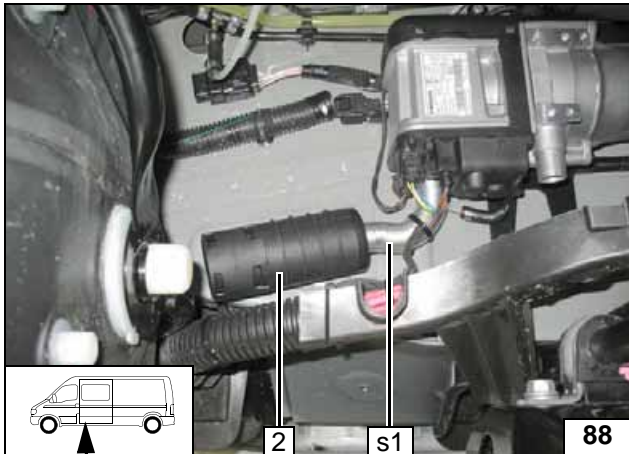
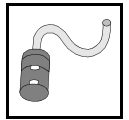
Ensure sufficient distance from neighbouring components. Check 20mm distance from steering column at position 2!

1 Cable tie [2x]



Installing cable tie

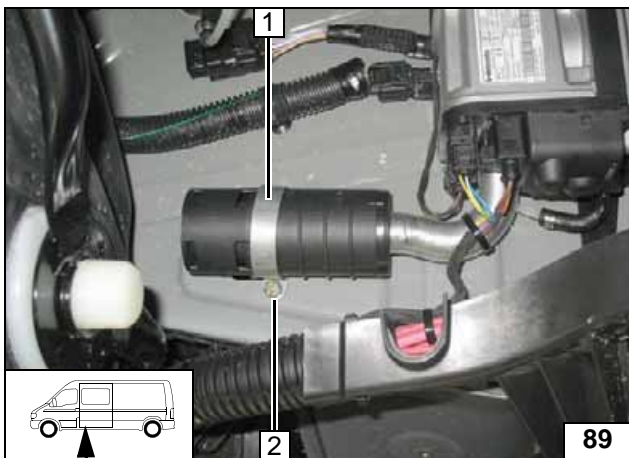




### Combustion Air

- 1 Silencer

#### Installing silencer

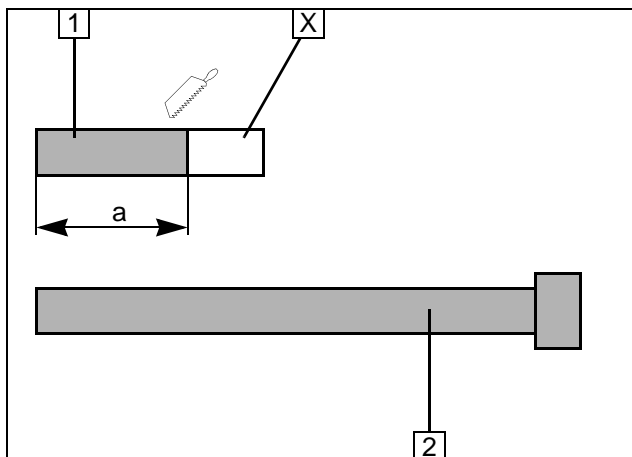
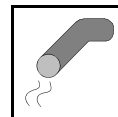


Discard rubber insert of 48mm dia. clamp 1.

- 2 M6x20 bolt, spring lockwasher, pre-mounted rivet nut

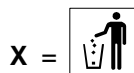


#### Fastening silencer

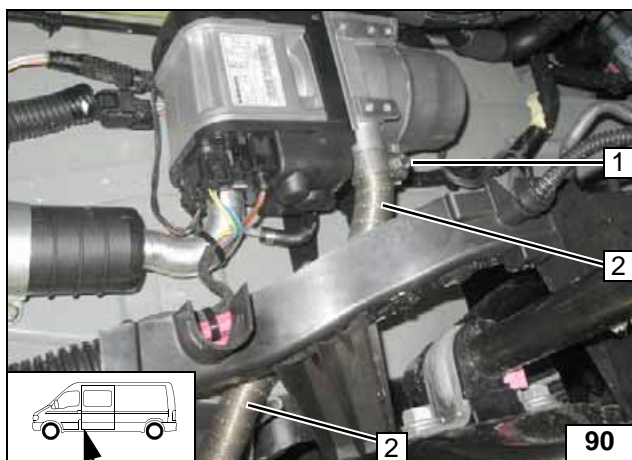


### Exhaust Gas

- 1 Exhaust pipe a = 360
- 2 Exhaust end section = 1000

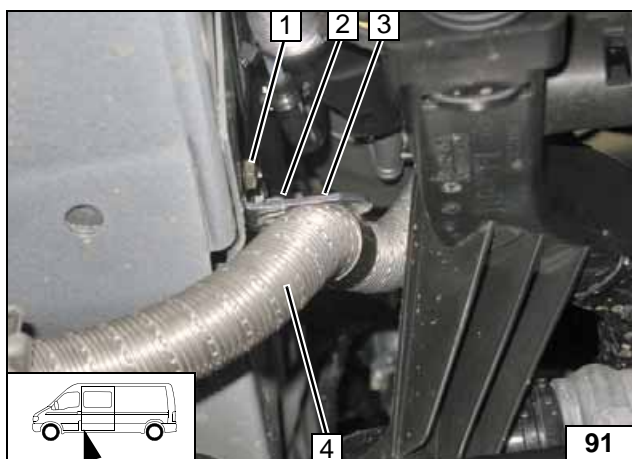


Exhaust pipe and exhaust end section



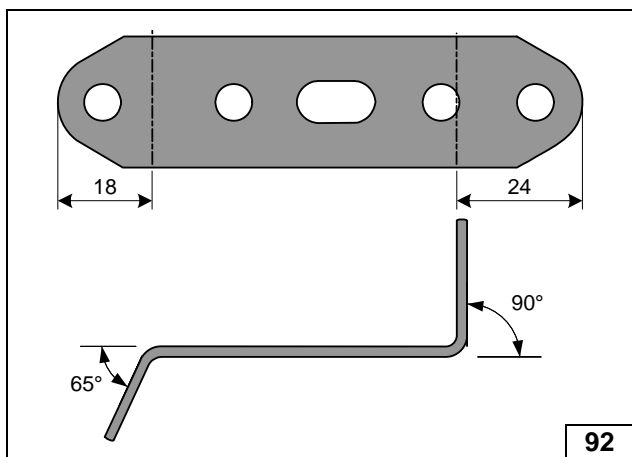
- 1 Hose clamp
- 2 Exhaust pipe

Installing exhaust pipe

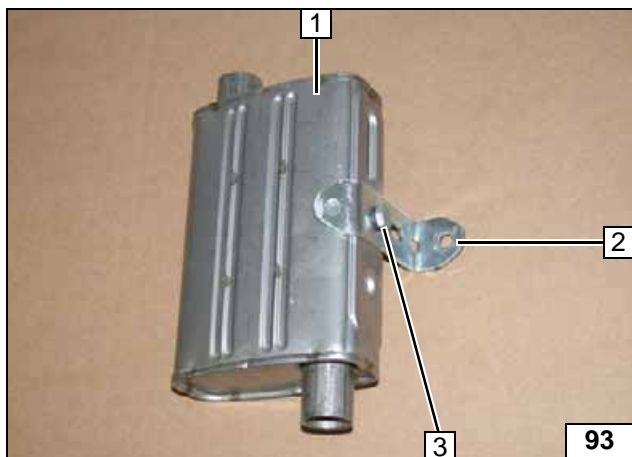
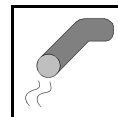


- 1 M6x20 bolt, spring lockwasher, pre-mounted rivet nut
- 2 M6x20 bolt, p-clamp, flanged nut
- 3 Angle bracket
- 4 Exhaust pipe

Fastening exhaust pipe

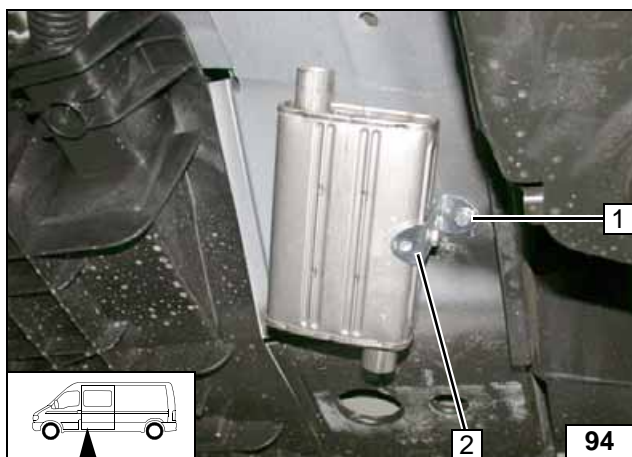


Preparing perforated bracket



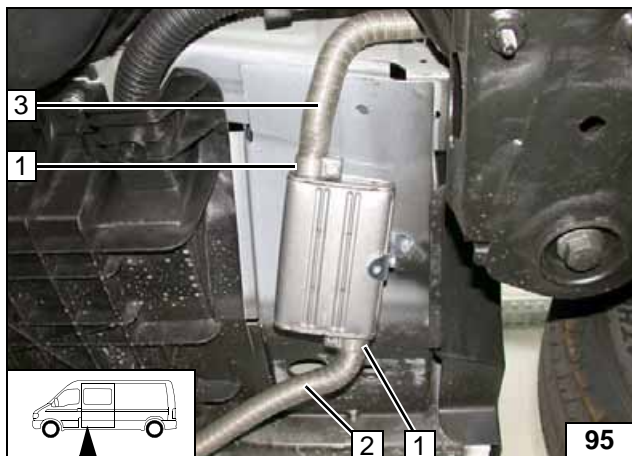
- 1 Silencer
- 2 Perforated bracket
- 3 M6x16 bolt, spring lockwasher

**Premounting silencer**



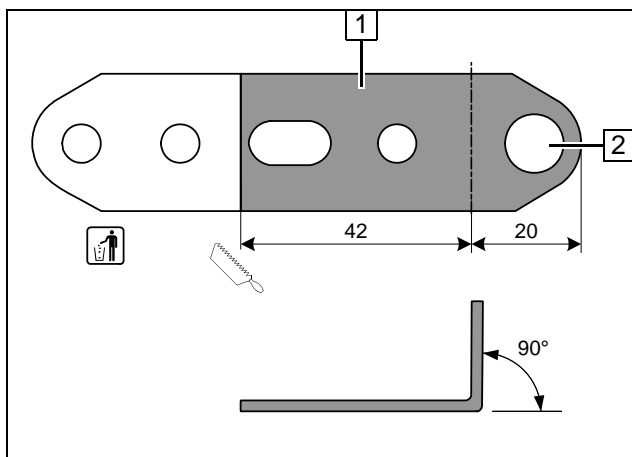
- 1 M6x20 bolt, spring lockwasher, pre-mounted rivet nut
- 2 Perforated bracket

**Installing silencer**



- 1 Hose clamp [2x]
- 2 Exhaust end section
- 3 Exhaust pipe

**Installing exhaust pipe and exhaust end section**

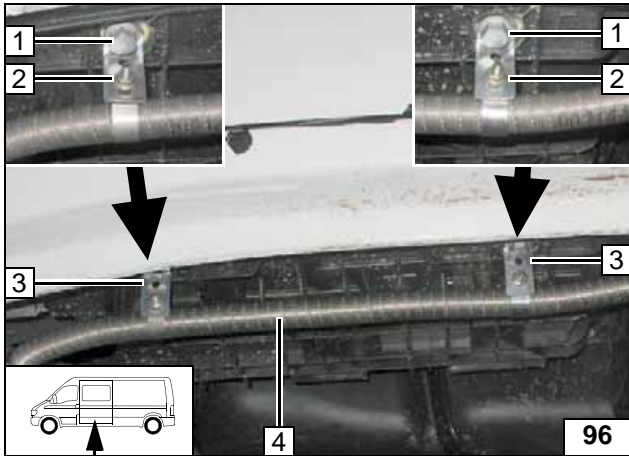
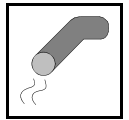


Drill out hole at position 2 to 10 mm dia.

- 1 Cut perforated bracket [2x] to length and bend

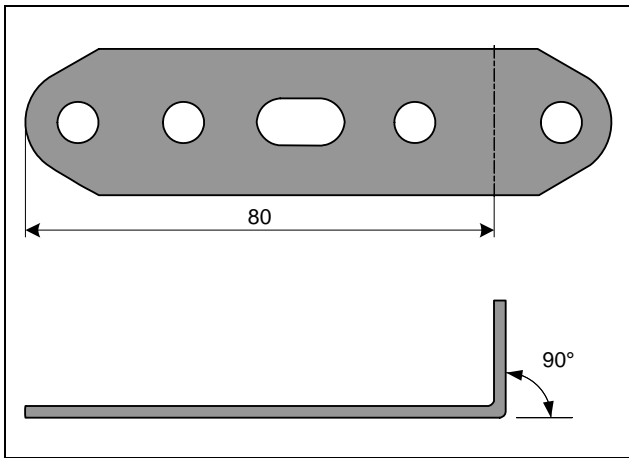


**Preparing perforated bracket [2x]**

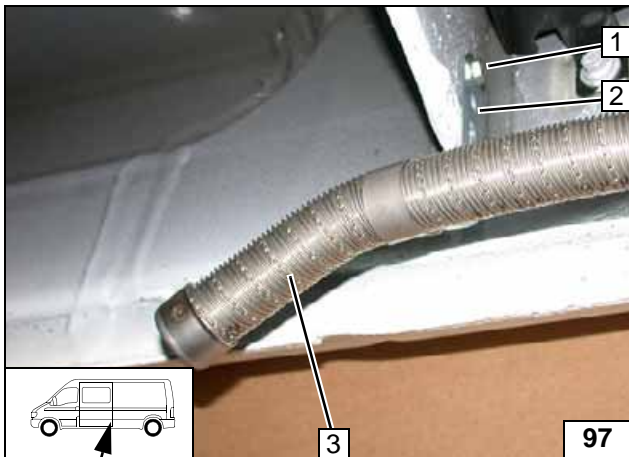


- 1 M10 original vehicle bolt [2x]
- 2 M6x20 bolt, p-clamp, p-clamp, flanged nut [2x each]
- 3 Perforated bracket [2x]
- 4 Exhaust end section

**Installing exhaust end section**



**Preparing perforated bracket**

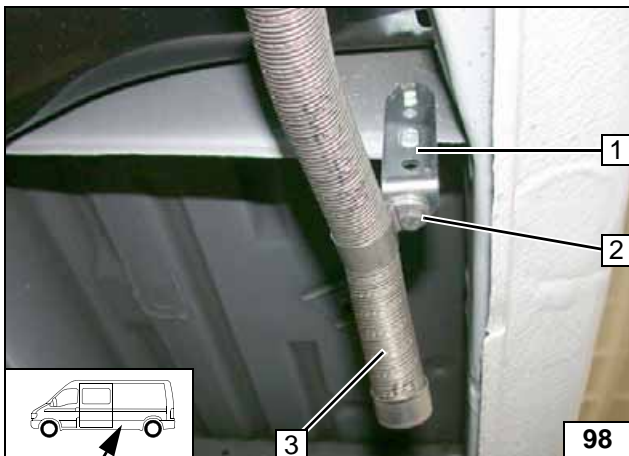


Ensure sufficient distance from neighbouring components.



- 1 M6x20 bolt, flanged nut, existing hole
- 2 Perforated bracket
- 3 Exhaust end section

**Installing perforated bracket**



Ensure sufficient distance from neighbouring components.



- 1 Perforated bracket
- 2 M6x20 bolt, p-clamp, flanged nut
- 3 Align exhaust end section

**Attaching exhaust end section**



## Final Work

### WARNING!

Reassemble the components in reverse order.

Check all hoses, clamps and all electrical connections for firm seating.

Insulate and tie back all loose lines.

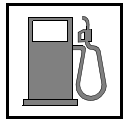
Only use manufacturer-approved coolant.

Spray the heater components with anti-corrosion wax (Tectyl 100K).



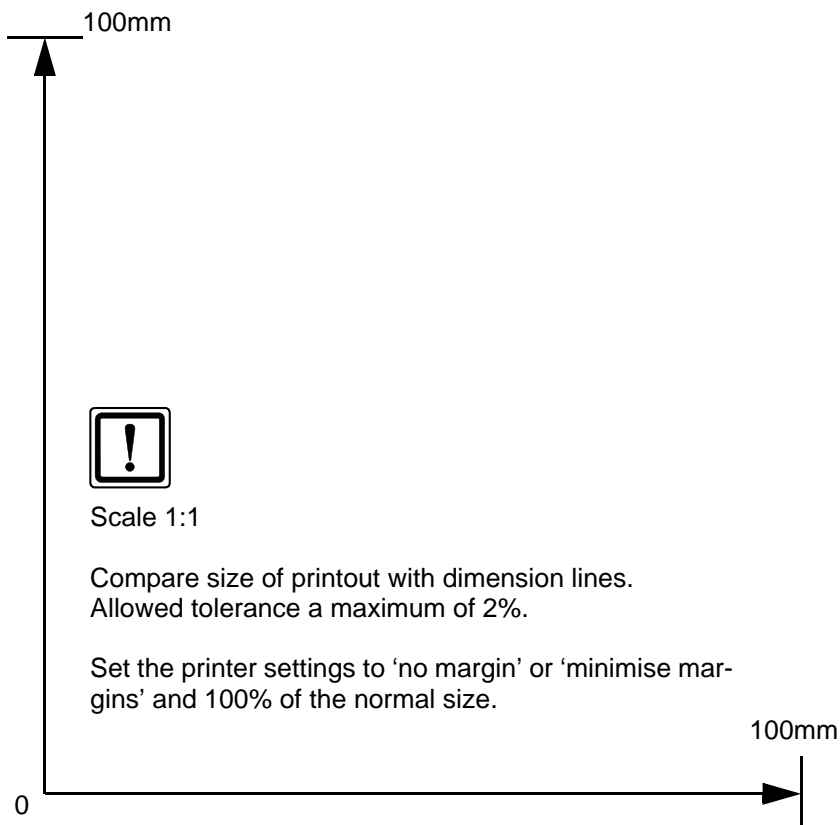
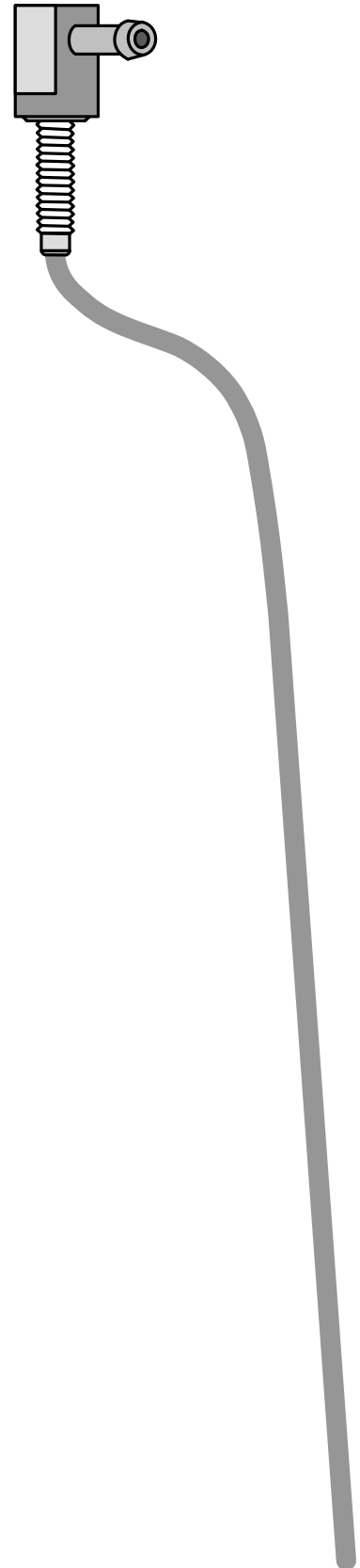
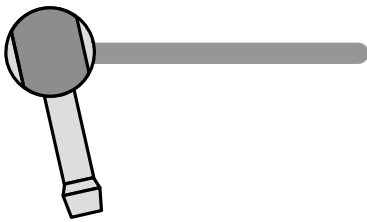
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on the A/C control panel according to the 'operating instructions'.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler neck.**
- **For initial startup and function check, please see installation instructions.**

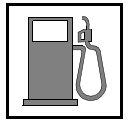




Template for Fuel Standpipe - Version 2

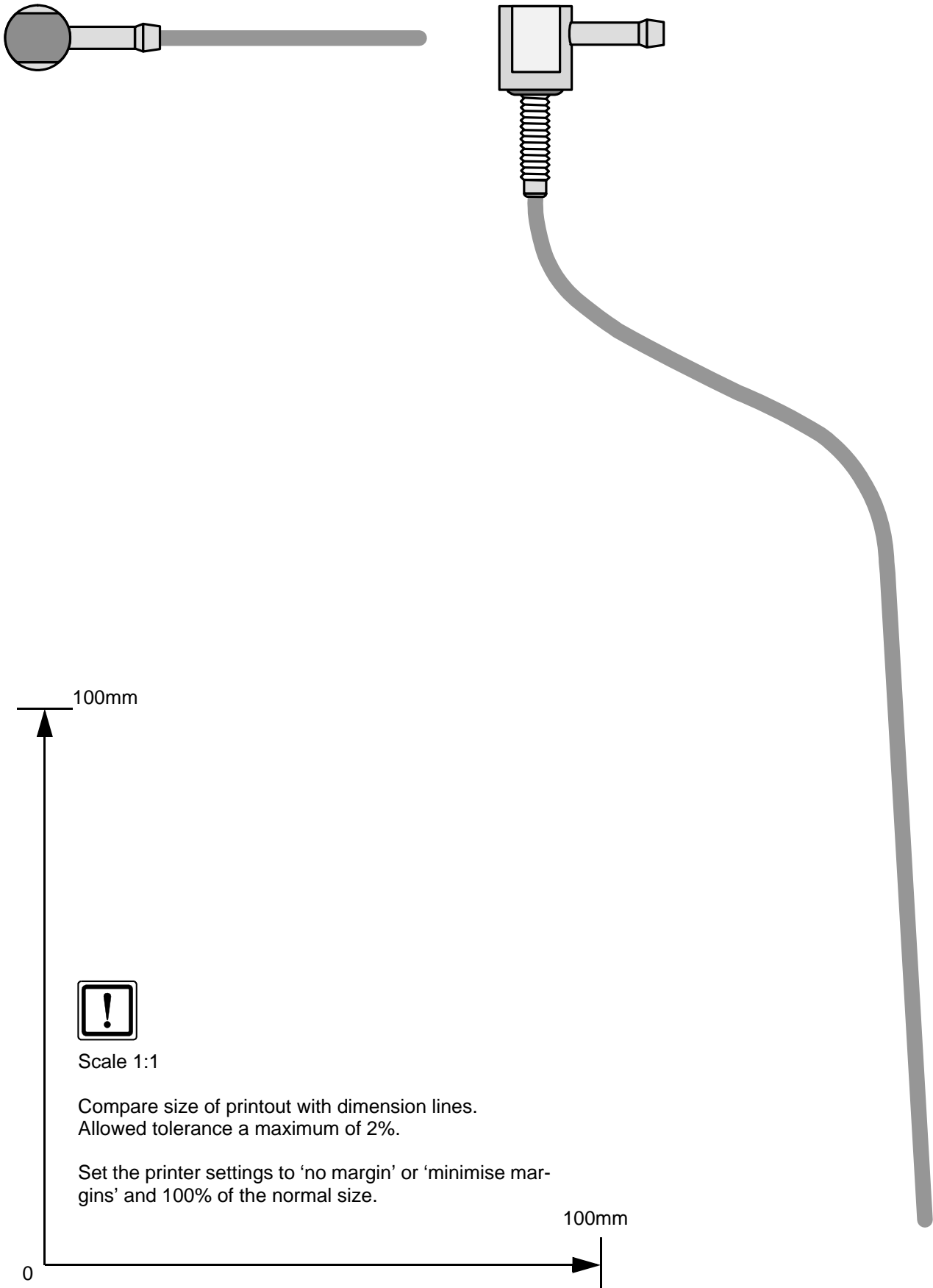
Top view





Template for Fuel Standpipe - Version 3

Top view



## Operating Instructions for Manual Air-Conditioning

Please remove page and add to the vehicle operating instructions.

### Note:

We recommend matching the heating time to the driving time.

Heating time = driving time

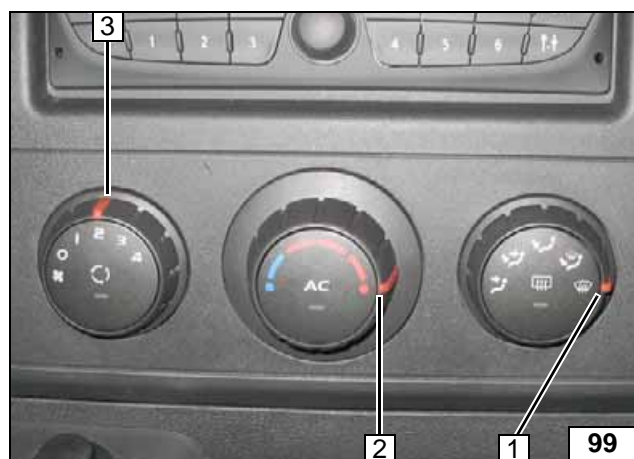
### Example:

For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.

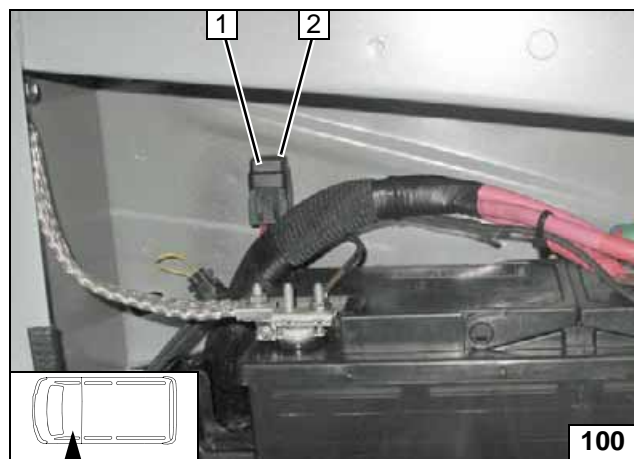
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



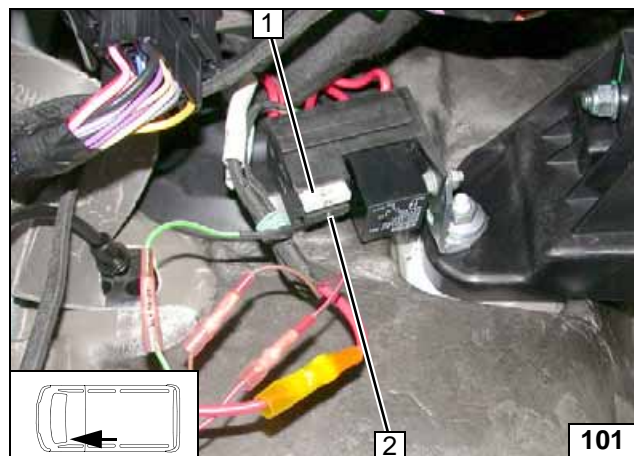
- 1 Air outlet to windscreen
- 2 Set temperature to 'max.'
- 3 Set fan to level '1', or max. '2'

A/C control panel



- 1 Heater fuse F1 20A (behind F2)
- 2 30A main fuse F2 of passenger compartment

Fuses F1, F2



- 1 25A fan fuse F4
- 2 1A heater control fuse F3

Fuses F3, F4





## Operating Instructions for Automatic Air-Conditioning

Please remove page and add to the vehicle operating instructions.

### Note:

We recommend matching the heating time to the driving time.

Heating time = driving time

### Example:

For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.

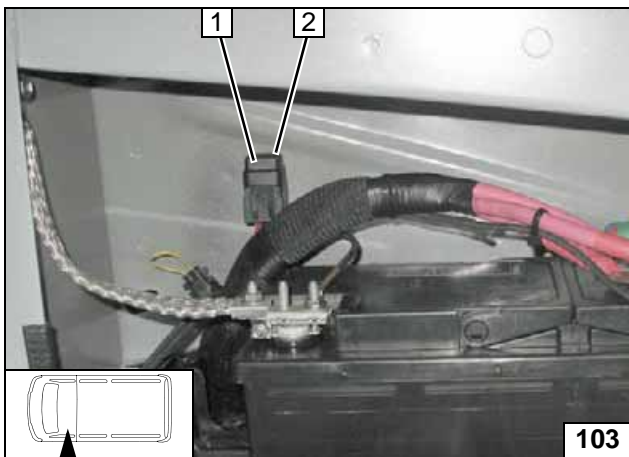
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



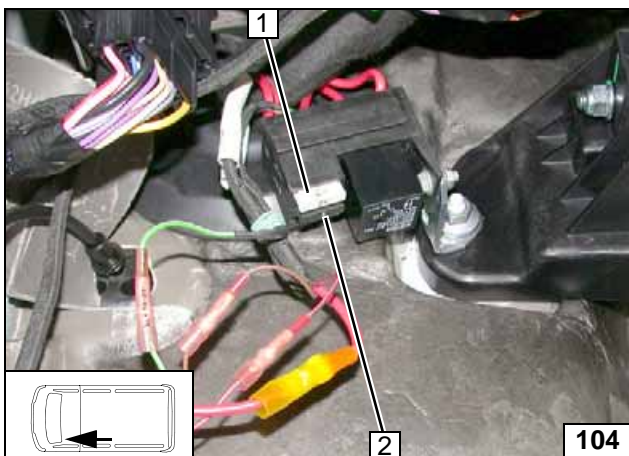
- 1 Air outlet to windscreen
- 2 Set temperature to 'max.'
- 3 Set fan to level '1', or max. '2'

A/C control panel



- 1 Heater fuse F1 20A (behind F2)
- 2 30A main fuse F2 of passenger compartment

Fuses F1, F2



- 1 25A fan fuse F4
- 2 1A heater control fuse F3

Fuses F3, F4

