Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

With FuelFix

Installation Documentation
Ford Transit Custom

Validity

Manufacturer	Model	Type	EG-BE-No. / ABE
Ford	Transit Custom	FAC	e11 * 2007 / 46 * 0676 * ...
Ford	Transit Custom	FCC	e1 * 2007 / 46 * 1005 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
2.2 TDCi	Diesel	6-speed SG	74	2198	DRFA
2.2 TDCi	Diesel	6-speed SG	74	2198	DRFB
2.2 TDCi	Diesel	6-speed SG	74	2198	DRFC
2.2 TDCi	Diesel	6-speed SG	74	2198	DRFD
2.2 TDCi	Diesel	6-speed SG	92	2198	CYFA
2.2 TDCi	Diesel	6-speed SG	92	2198	CYFB
2.2 TDCi	Diesel	6-speed SG	92	2198	CYFC
2.2 TDCi	Diesel	6-speed SG	92	2198	CYFD

SG = manual transmission

From model year 2013
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
Front fog lights

Not verified: Passenger compartment monitoring
Headlight washer system
Automatic air-conditioning

Total installation time: approx. 8 hours

Ford Transit Custom

Table of Contents

Necessary Components

- Basic delivery scope of *Thermo Top Evo* based on price list
- Installation kit with FuelFix Ford Transit Custom 2013 Diesel: **1319578B**
- Heater control in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer
- For MultiControl CAR installation: MultiControl installation frame: **9030077A**

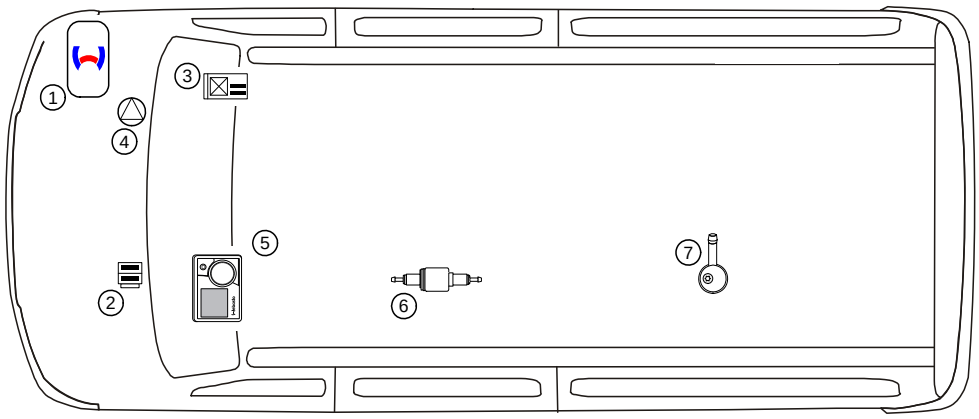
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full!
- The installation location of the push button in the 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 of engine compartment
3. Passenger compartment relay and fuse holder
4. Circulating pump
5. MultiControl CAR
6. Metering pump
7. FuelFix



Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting of 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.

Ford Transit Custom

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 wires and tie them 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, Order No. 111329).

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

STIPULATIONS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL STIPULATIONS

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.

Ford Transit Custom

Information on Validity

This installation documentation applies to Ford Transit Custom Diesel vehicles - for validity, see page 1 - from model year 2013 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 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 self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Webasto Thermo Test diagnosis with current software

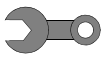
Dimensions
- All dimensions are in mm

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

Explanatory Notes on Document

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

Mechanical System



Electrical System

Coolant Circuit

Combustion Air

Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage

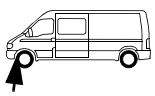
Specific risk of injury or fatal accidents.

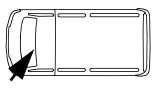
Specific risk of fire or explosion

Reference to manufacturer's vehicle-specific documents or to the 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

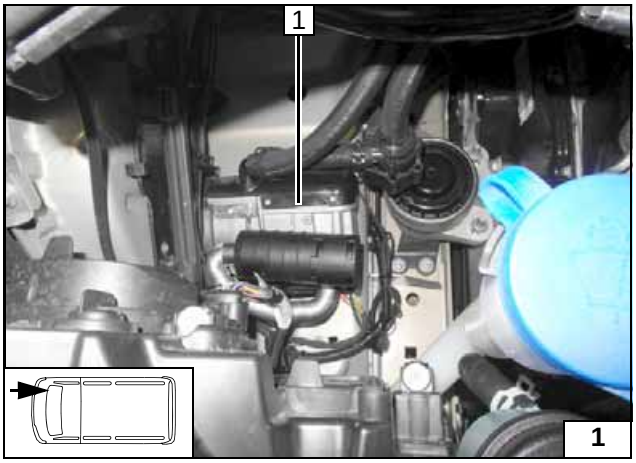
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Remove the air filter box.
- Remove the left and right-hand headlight.
- Remove the glove compartment.

The following work should only be performed during the corresponding installation sequence:

- Remove the tank according to the manufacturer's instructions.

Heater

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



Heater Installation Location

1 Heater

Installation location

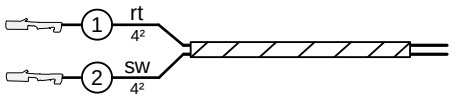
Preparing Electrical System

Wire sections retain their numbering in the entire document.

Produce all following electrical connections as shown in wiring diagram.

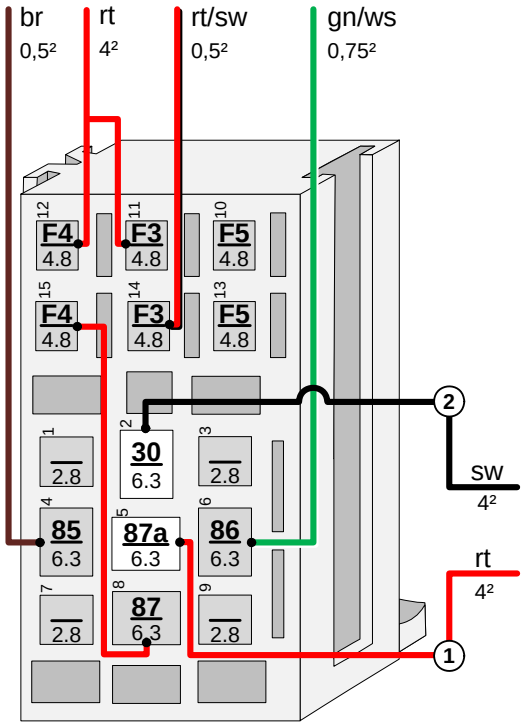
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness

Assigning wires



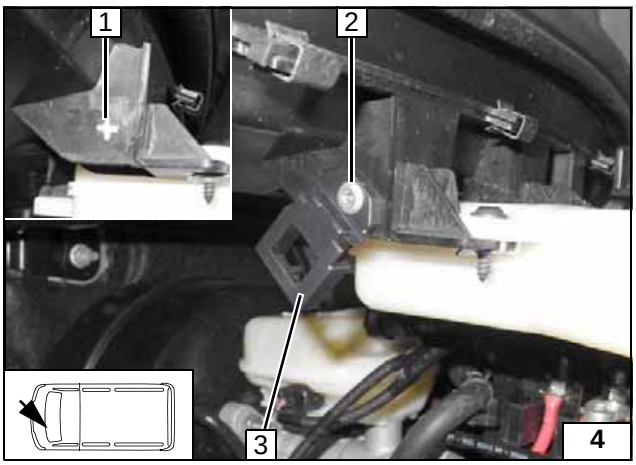
2

Connecting wires to relay and fuse holder of passenger compartment



3

Premounting retaining plate



4

1 Draw hole pattern
2 5mm dia. hole, 4.8x15 body-bound rivet
3 Retaining plate for engine compartment fuse holder

Electrical System

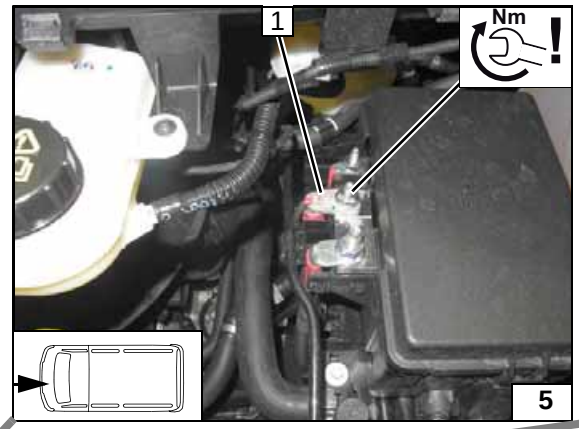
Positive wire

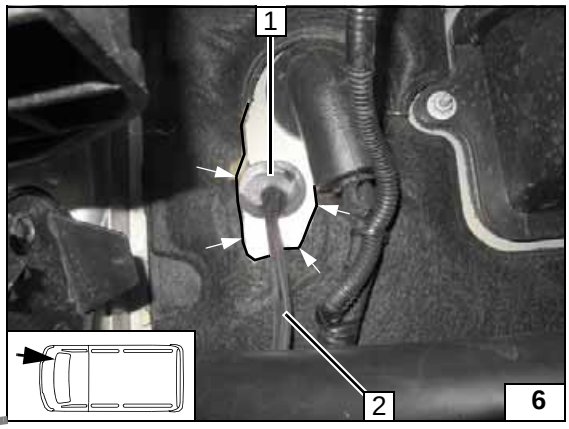
1 Positive wire on positive battery distributor

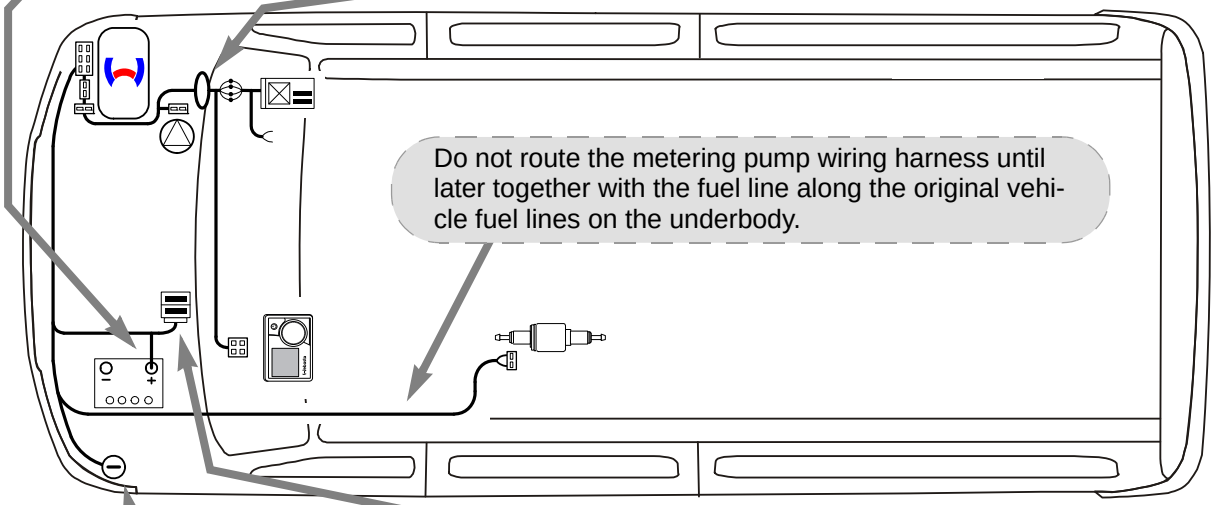
Wiring harness pass through

Cut out insulation mat in the area of the marking. See following page for wiring harness routing!

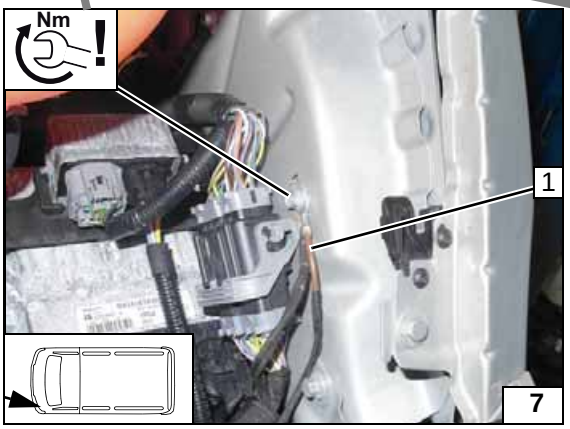
1 Protective rubber plug
2 Heater wiring harnesses, heater control

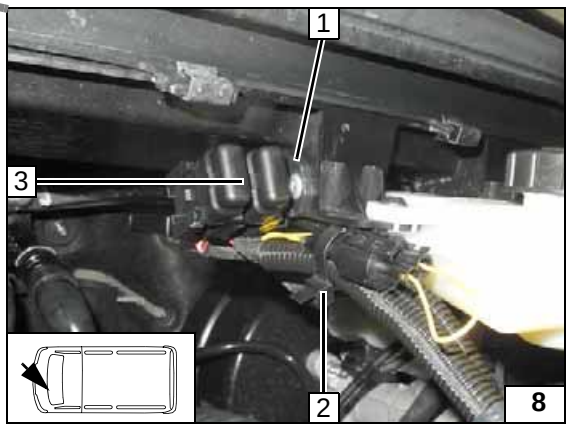






Wiring harness routing diagram



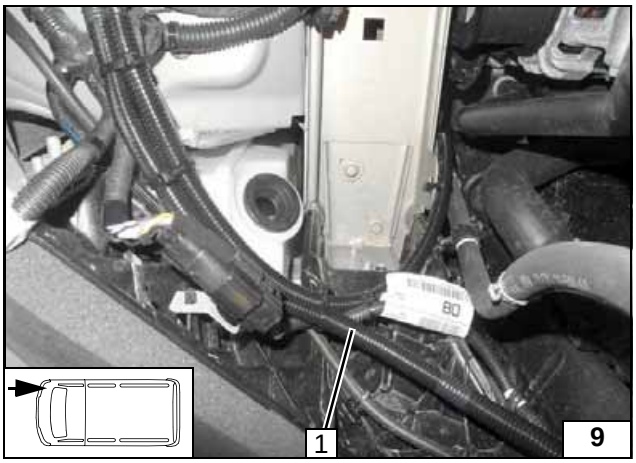


Earth wire

1 Earth wire on original vehicle earth support point

Fuse holder of engine compartment

1 Retaining plate for fuse holder
2 Cable tie
3 Fuses F1-2

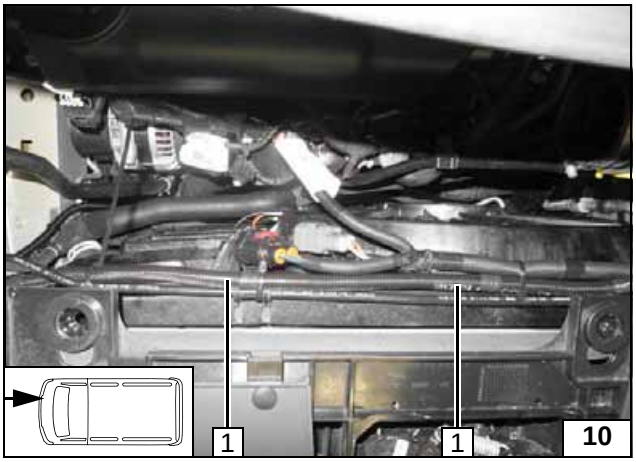


Wiring Harness Routing

Cut the 10mm dia. corrugated tube up lengthways.

1 Wiring harness of heater and wiring harness of metering pump in 10mm dia. corrugated tube

Routing wiring harnesses



1 Wiring harness of heater and wiring harness of metering pump in 10mm dia. corrugated tube

Routing wiring harnesses

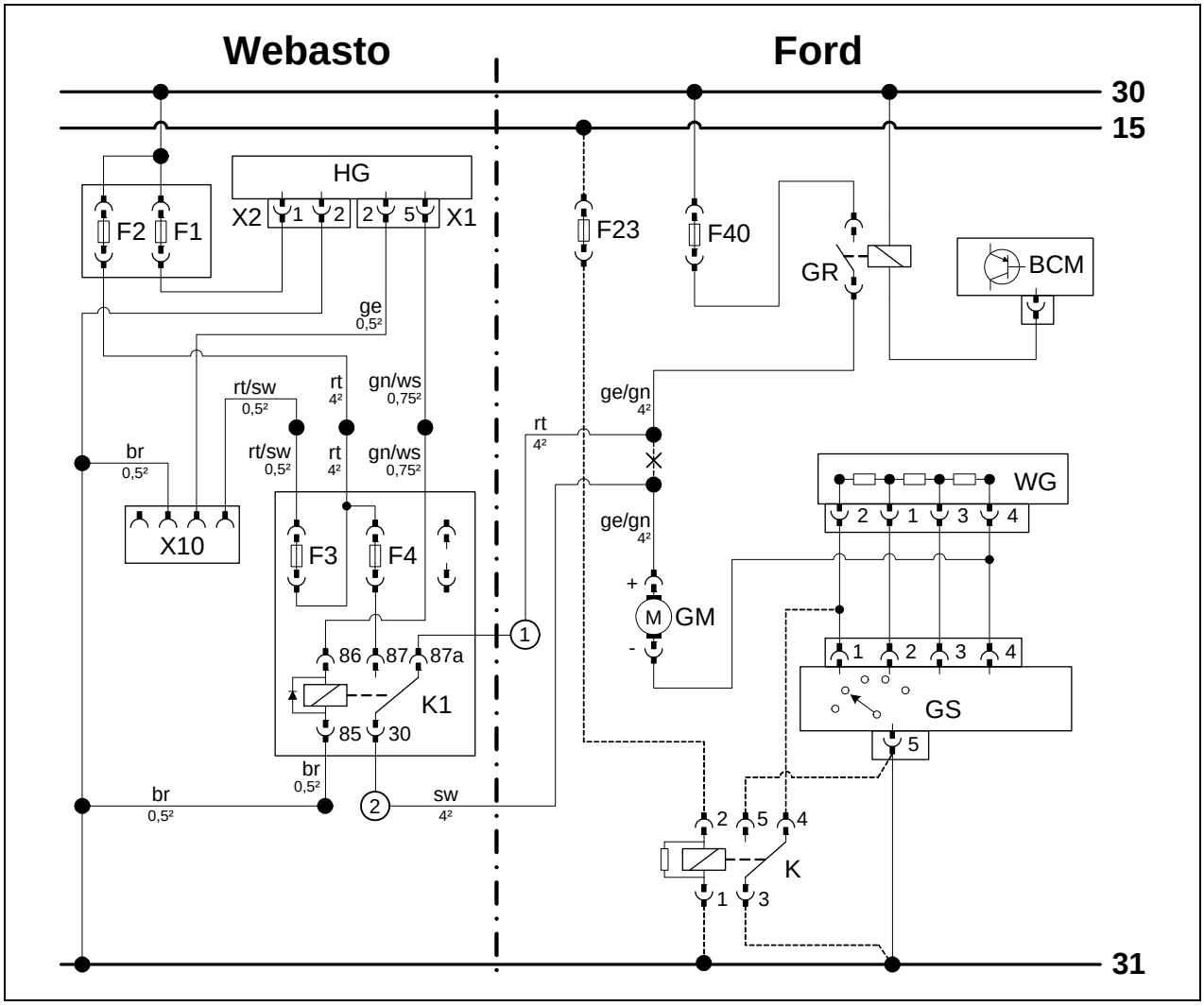
Remove wiring harness of metering pump from corrugated tube **3** at position **2** and insert it into corrugated tube **1**.

1 Wiring harness of metering pump and earth wire in 10mm dia. corrugated tube
3 Wiring harness of heater in 10mm dia. corrugated tube

Routing wiring harnesses

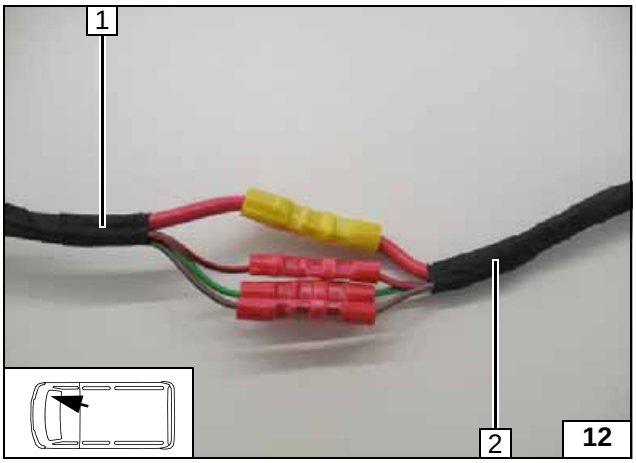
Fan Controller

Wiring diagram



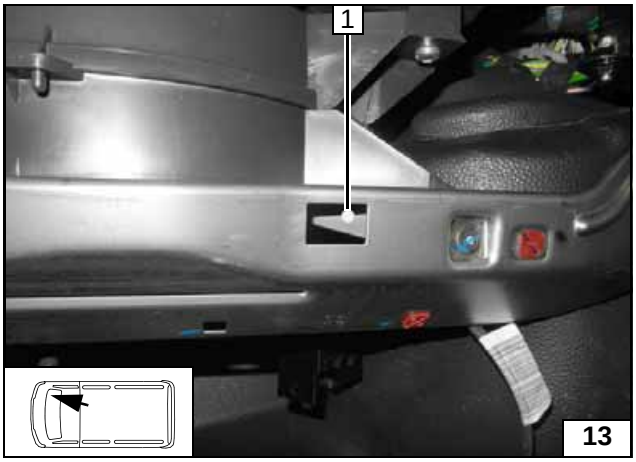
Legend

Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-Evo	F23	7.5A fuse (optional)	rt	red
X1	6-pin heater connector	F40	40A fuse	sw	black
X2	2-pin heater connector	GR	Fan relay	ge	yellow
F1	20A fuse	BCM	Body control unit	gn	green
F2	30A fuse	WG	Resistor group	br	brown
X10	4-pin connector of heater control	GM	Fan motor	ws	white
		GS	Fan switch		
F3	1A fuse	K	Relay of fuel fired auxiliary heater (optional)		
F4	25A fuse				
K1	Fan relay			-------	Optional
				X	Cutting point
				Wiring colours may vary.	



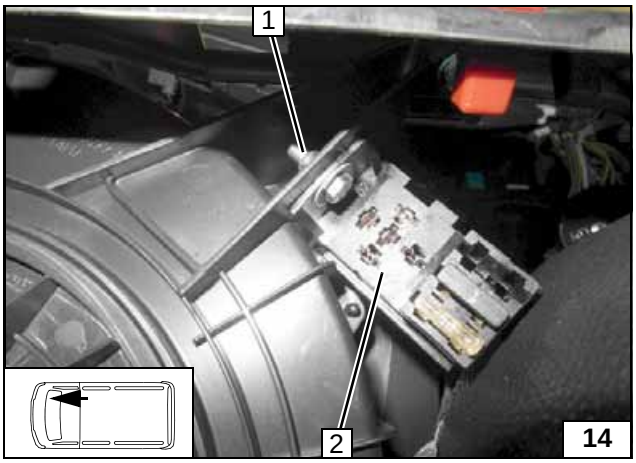
1 Wiring harness of passenger compartment relay and fuse holder
2 Wiring harness of heater

Connecting wiring harnesses using same colour wires



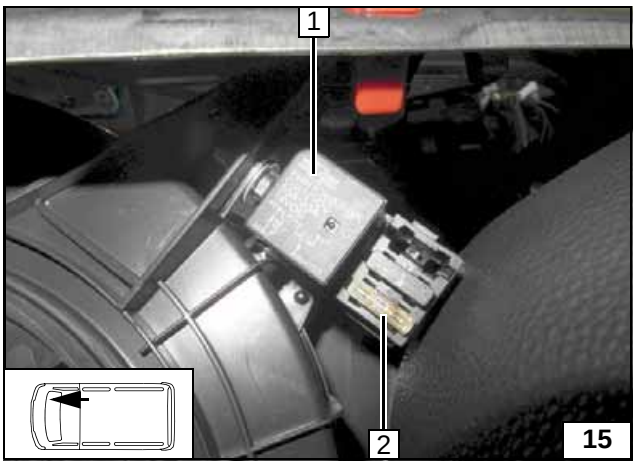
1 5.5mm dia hole in fan motor component

Hole for passenger compartment relay and fuse holder



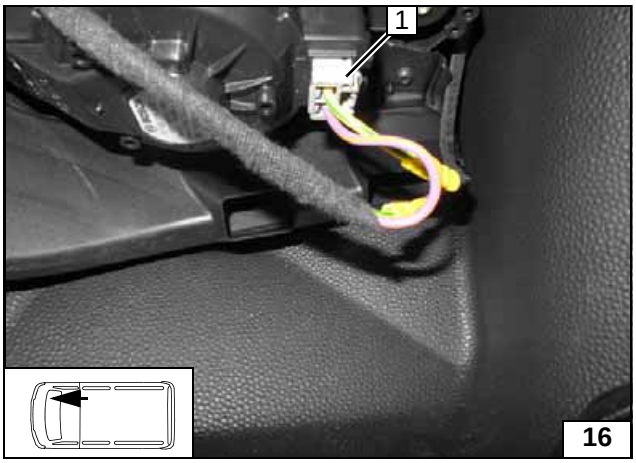
1 M5x16 bolt, large diameter washer [2x], nut
2 Passenger compartment relay and fuse holder

Installing relay and fuse holder of passenger compartment



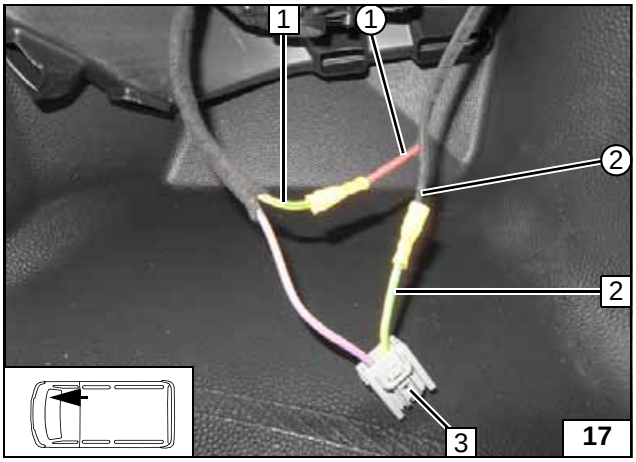
1 K1 relay
2 25A main fuse F4 of heater control

Attaching F4 and K1 relay



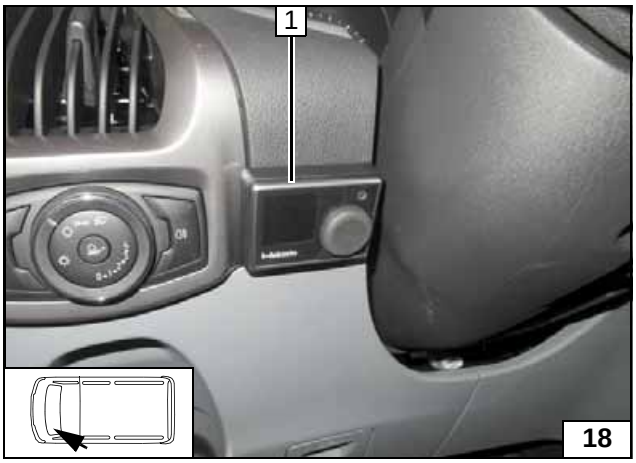
1 Socket of 2-pin connector GM

View of connector GM



1 Yellow/green (ge/gn) wire of GR
2 Yellow/green (ge/gn) wire of 2-pin connector of GM
3 2-pin connector GM
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness

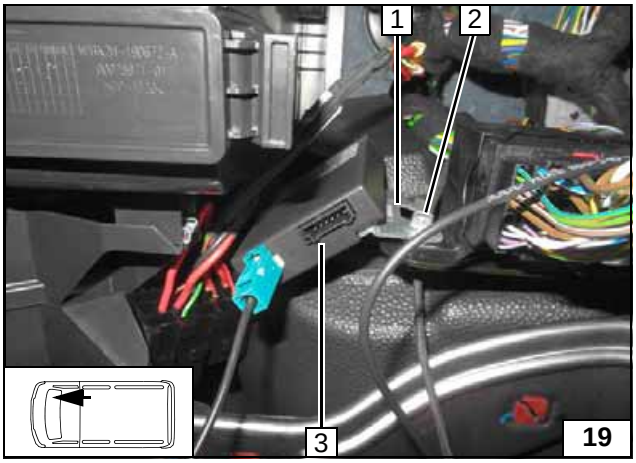
Connecting fan motor



MultiControl CAR

1 MultiControl CAR with installation frame

Installing MultiControl CAR

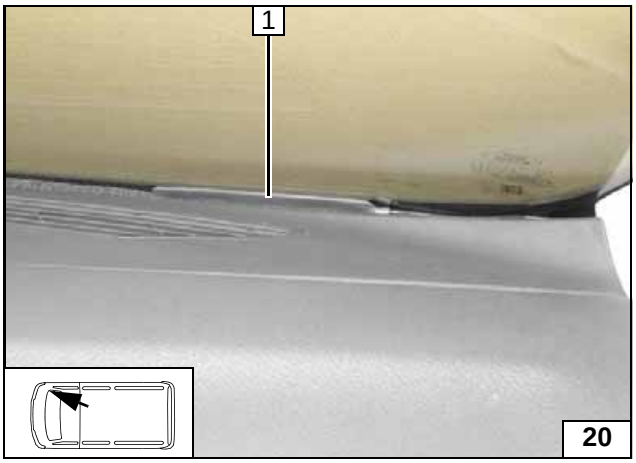


Remote Option (Telestart)

Angle down bracket **1** by 45°.

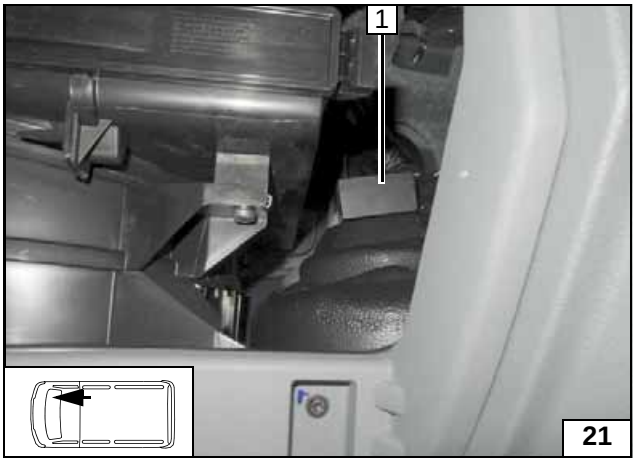
2 Original vehicle bolt
3 Receiver

Mounting receiver



1 Antenna

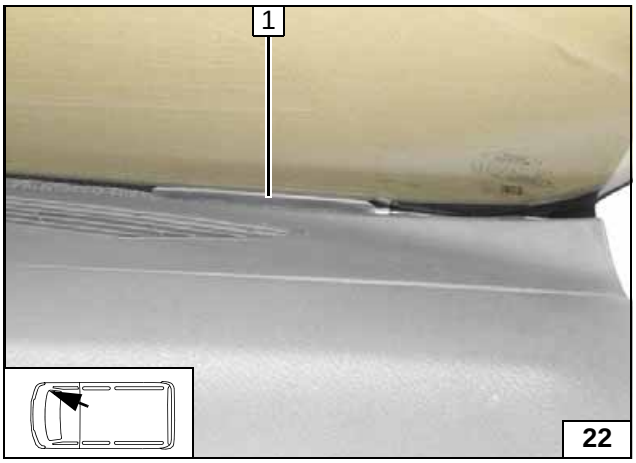
Mounting antenna



ThermoCall TC3 Option

Fasten receiver **1** with double-sided adhesive tape.

Mounting receiver



1 Antenna

Mounting antenna

Preparing Installation Location

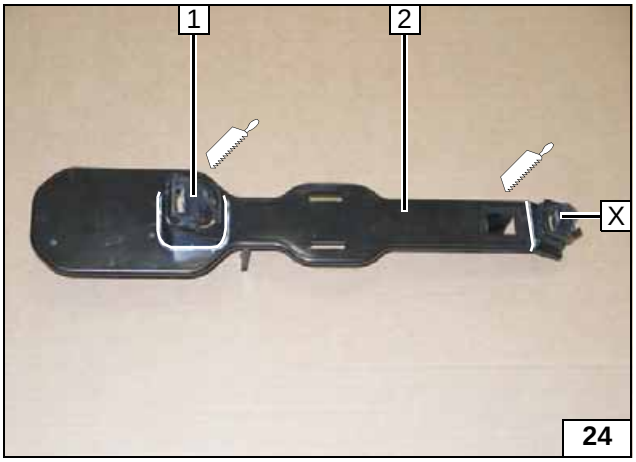
Remove towing hook with bracket **1**.

Removing towing hook

Cut bracket **2** along the markings. Discard section **X**.

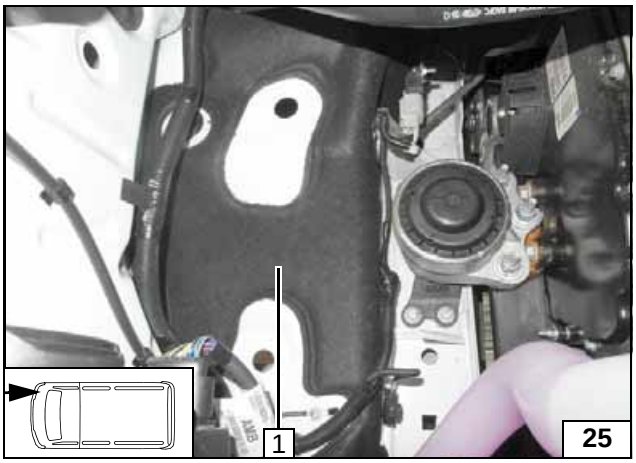
1 Cut out locking tab

Preparing bracket



1 Remove and discard insulation mat

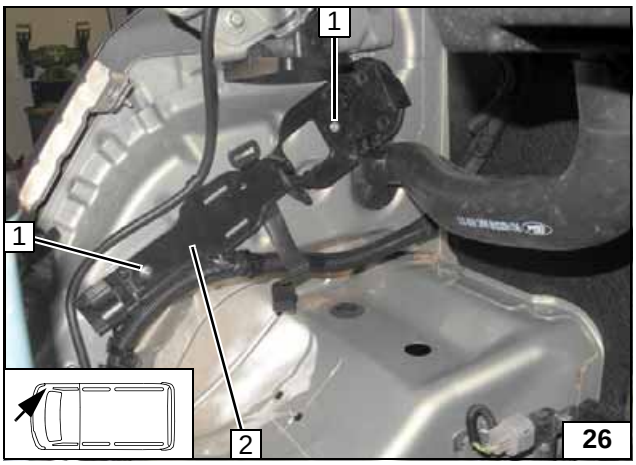
Removing insulation mat

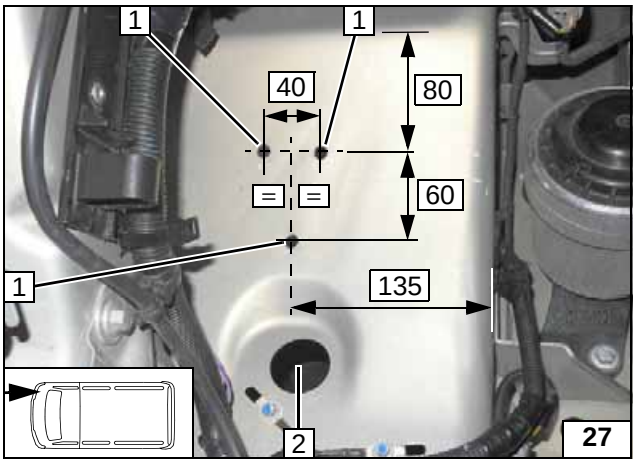


Align the bracket of towing hook **2** as shown. Drill a 5mm dia. hole [2x] at position **1** through bracket and body.

1 4.8x15 mm body-bound rivet [2x]

Installing bracket

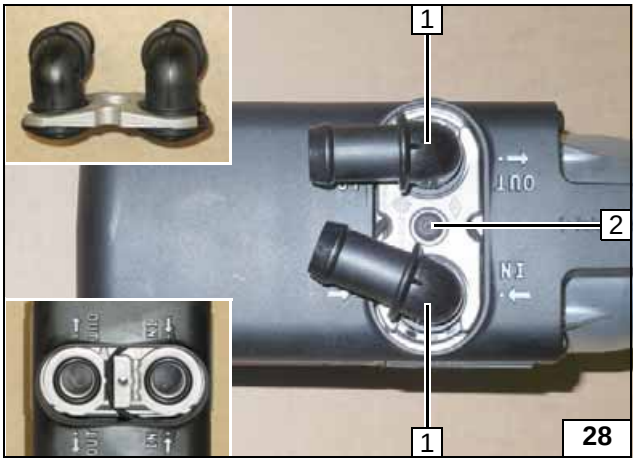




1 7 mm dia. hole [3x]
2 Drill out hole to 40 mm dia.

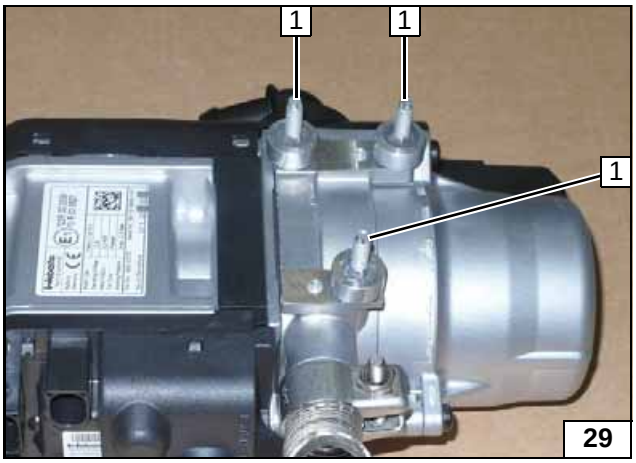
Holes for heater

Preparing Heater



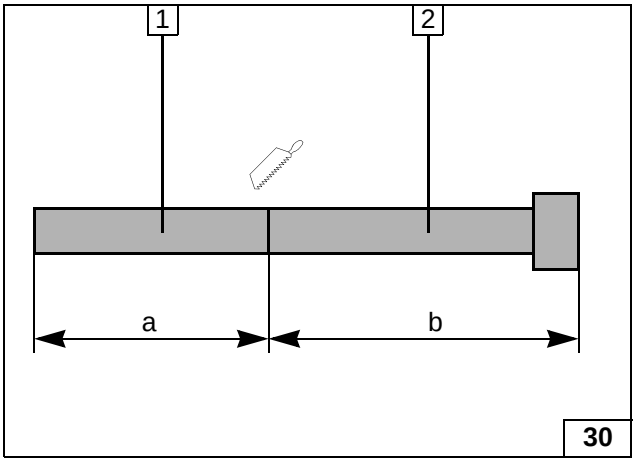
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection pieces

Mounting water connection pieces



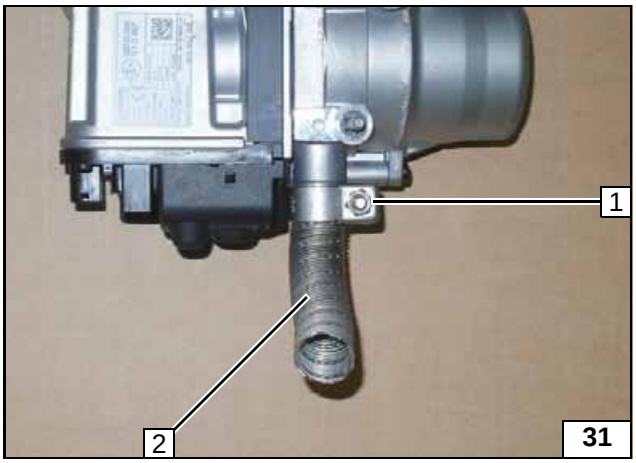
1 5x11/M6x25.5 self-tapping stud bolts; 8mm shim, pin lock [3x each]

Installing stud bolt



1 Exhaust pipe
a = 100
2 Exhaust end section
b = 300

Preparing exhaust pipe

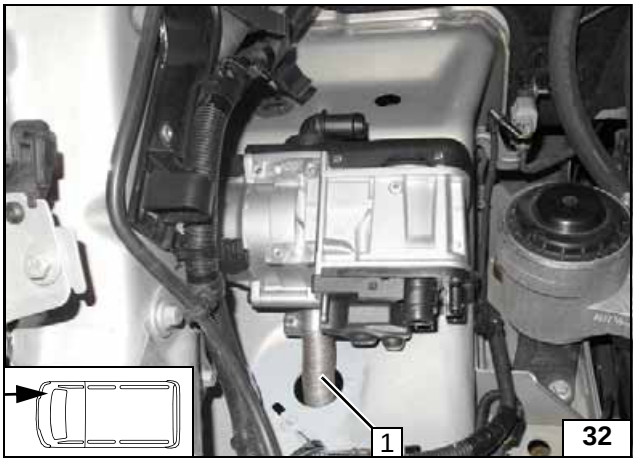


1 Hose clamp
2 Exhaust pipe

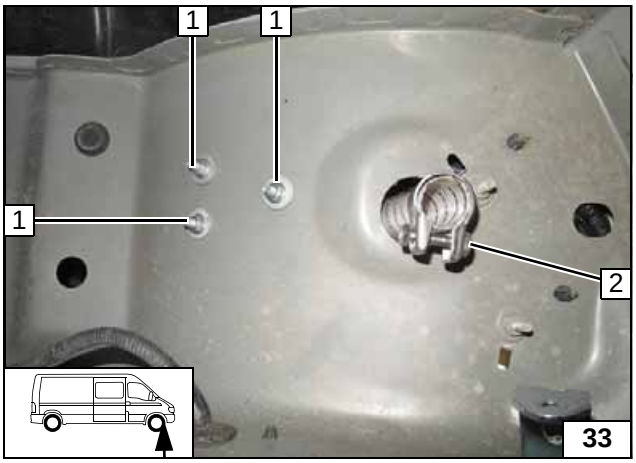
Mounting exhaust pipe

Installing Heater

Insert heater into 7mm dia. holes. Route exhaust pipe **1** through 40mm dia. hole.

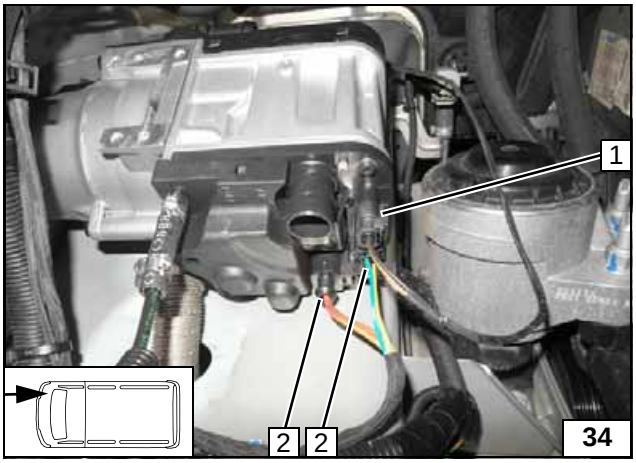


Mounting heater



1 Large diameter washer, flanged nut [3x each] on stud bolt
2 Mount hose clamp

Mounting heater



1 Connector of circulating pump wiring harness
2 Connector for wiring harness of heater [2x]

Mounting wiring harnesses

Fuel

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

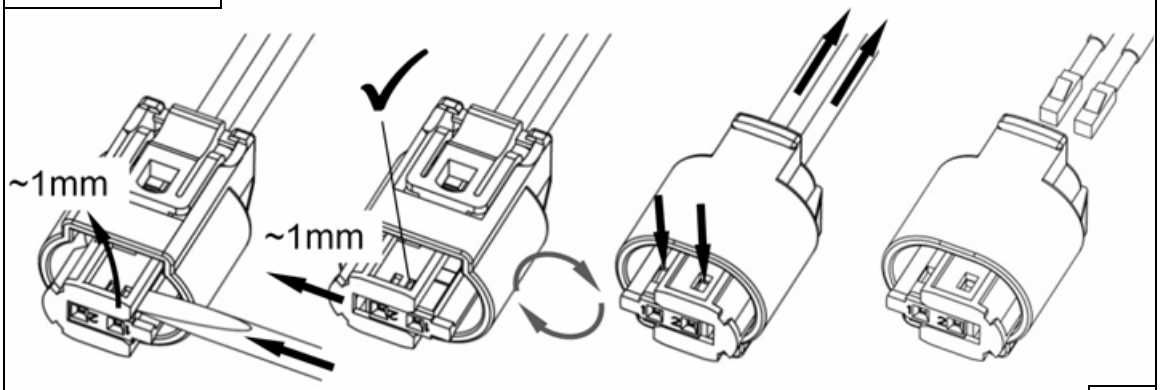
Any fuel running off should be collected in an appropriate container.

Install 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.

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

Dismantling connector of metering pump

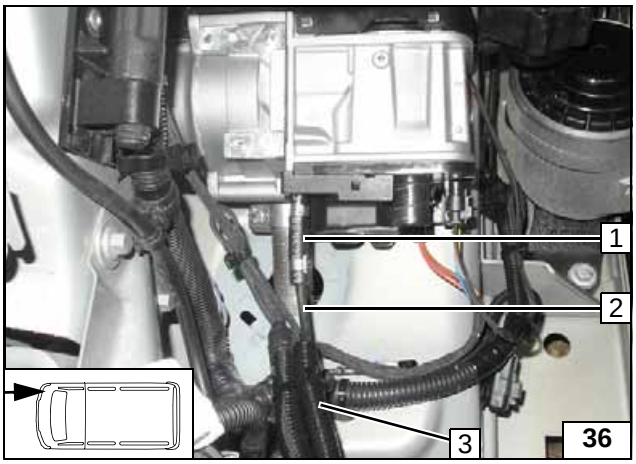
Connector X7



Pin assignment is not relevant.

35

Connecting heater



36

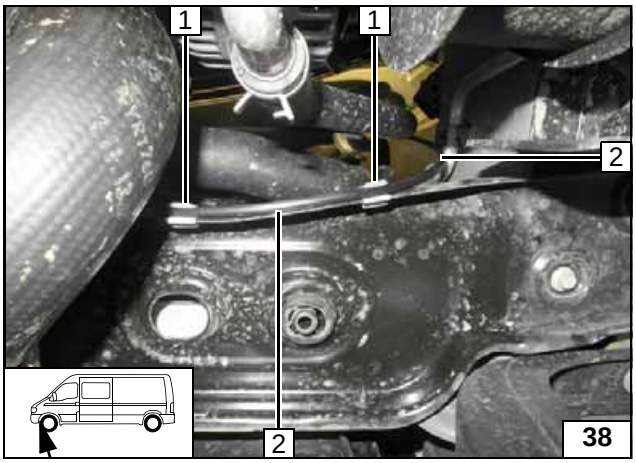
Pull fuel line **2** into 300mm long, 10mm dia. corrugated tube **3**.

1 Hose section, 10mm dia. clamp [2x]

Routing fuel line

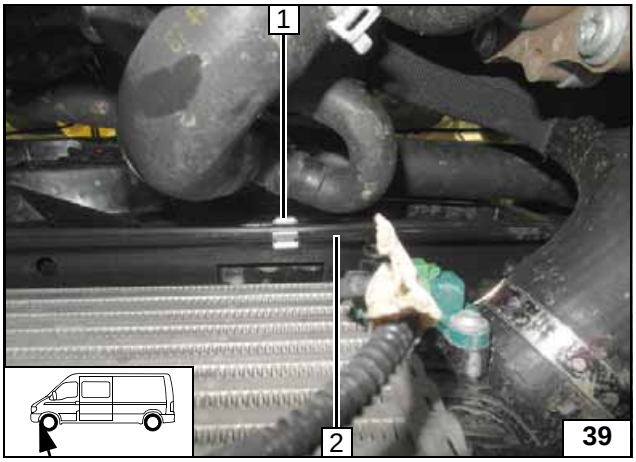
37

1 Route fuel line in 10mm dia. corrugated tube downwards to the radiator cowl



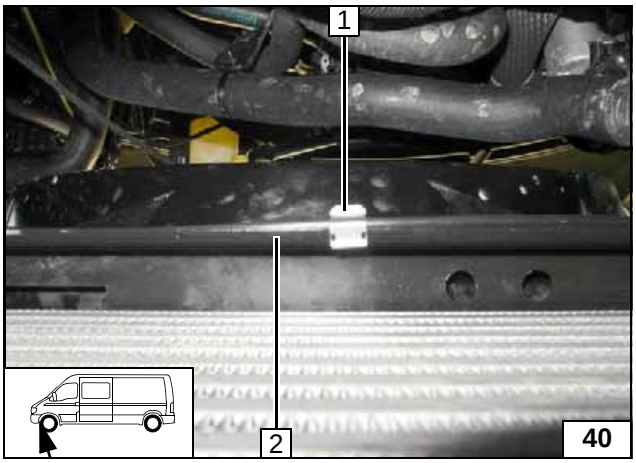
1 Install retaining clamp [2x]
2 Insert fuel line into retaining clamps and route to the left side of the vehicle

Routing fuel line



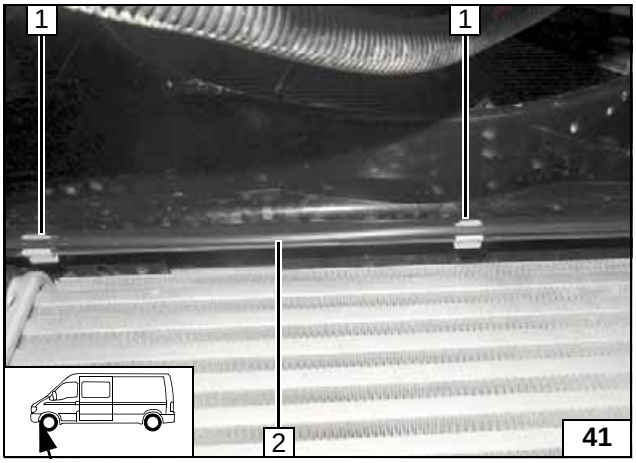
1 Install retaining clamp
2 Insert fuel line into retaining clamp

Routing fuel line



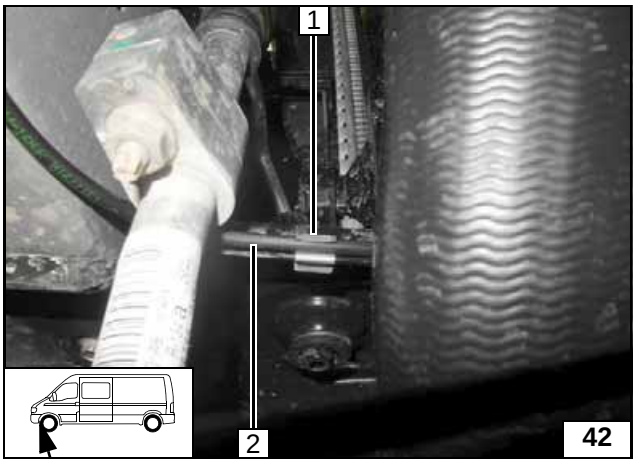
1 Install retaining clamp
2 Insert fuel line into retaining clamp

Routing fuel line



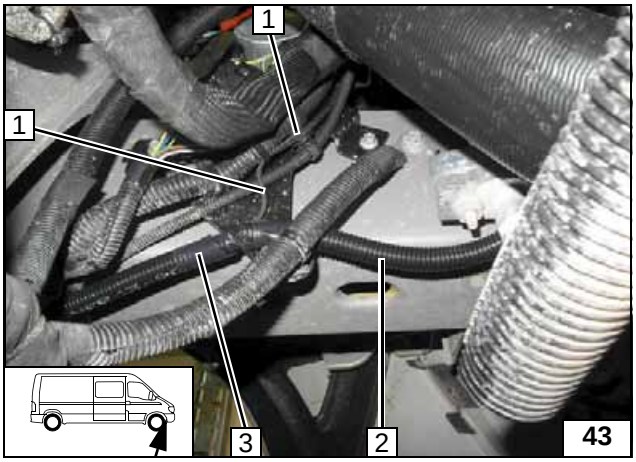
1 Install retaining clamp [2x]
2 Insert fuel line into retaining clamps

Routing fuel line



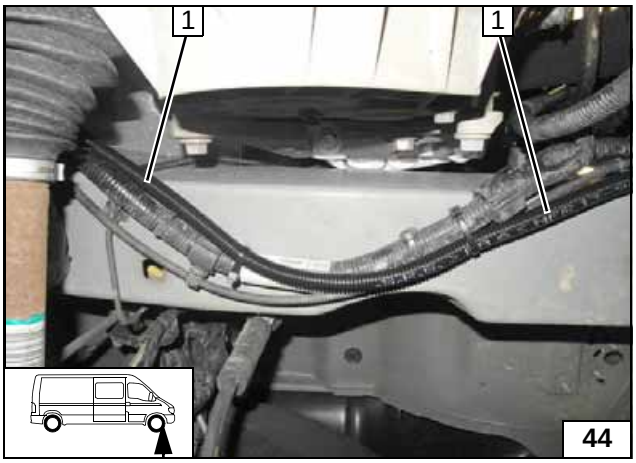
1 Install retaining clamp
2 Insert fuel line into retaining clamp

Routing fuel line



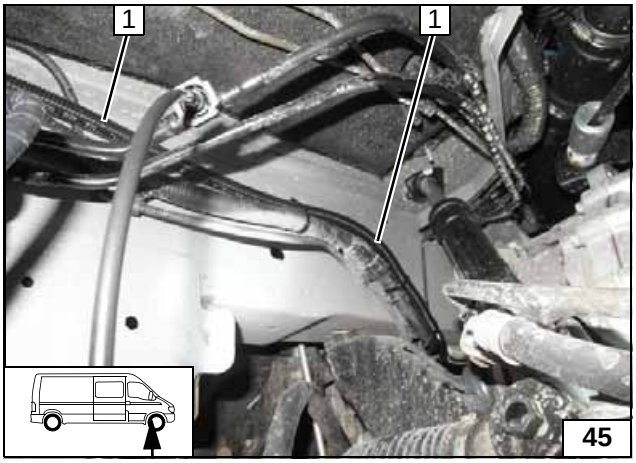
10mm dia., 100mm long corrugated tube **2** pushed on fuel line. Route wiring harness of metering pump **1** in 10mm dia. corrugated tube **3** to the installation location of the metering pump along original vehicle wiring harness.

Routing lines



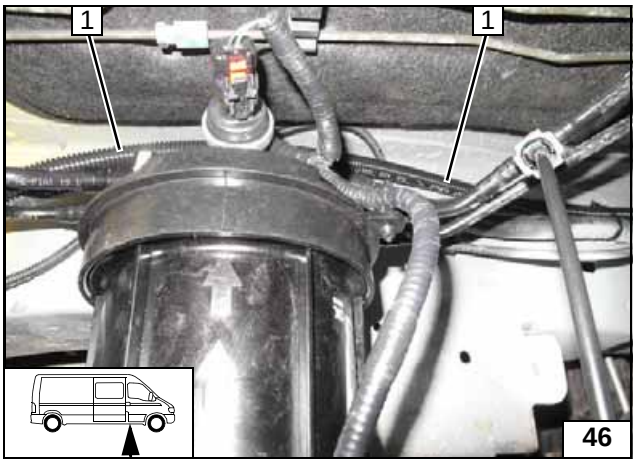
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines



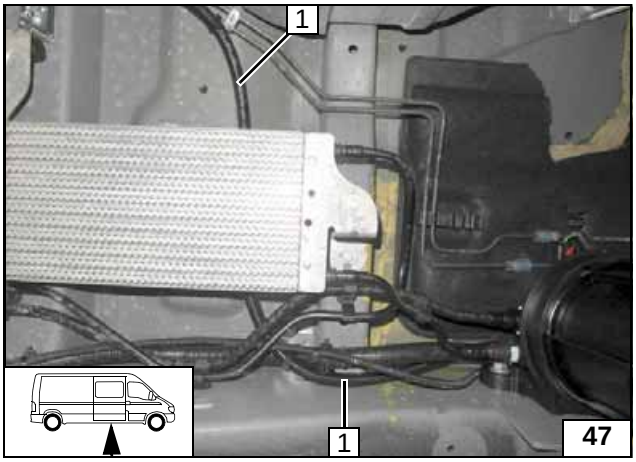
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines



1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines



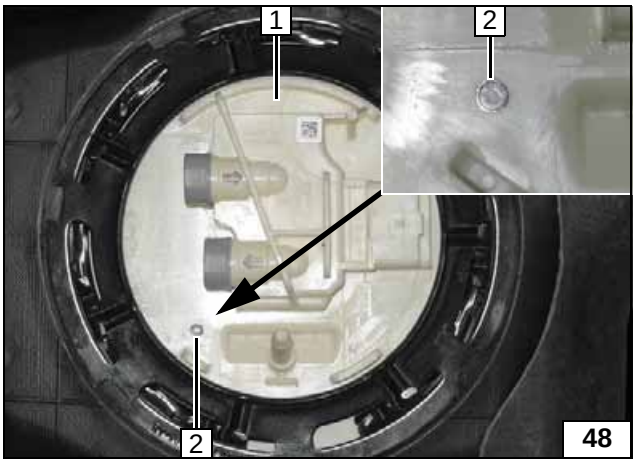
1 Fuel line and wiring harness of metering pump in 10mm dia. corrugated tube

Routing lines

Installing FuelFix

Remove the fuel tank according to the manufacturer's instructions.

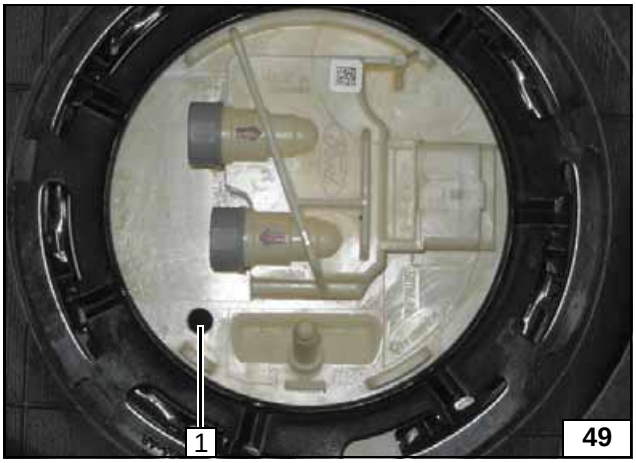
Work step 1 and 2.



1 Fuel-tank sending unit
2 Hole pattern in the middle of the perforation

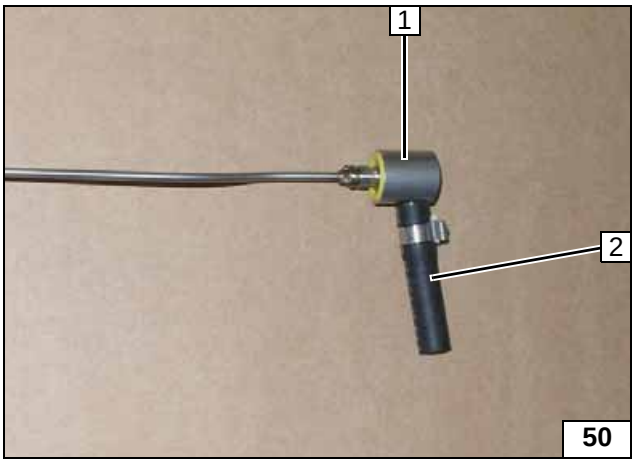
Copying hole pattern

Work step 3.



1 Hole made with provided drill in the centre of the perforation

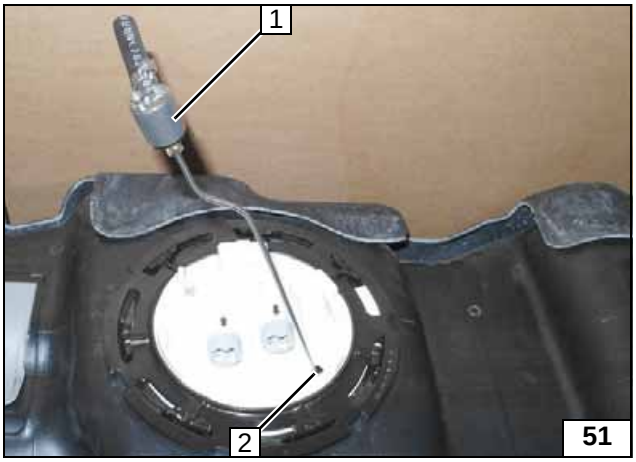
Hole for FuelFix



Work steps 4 and 6.1.
Bend FuelFix **1** according to template and cut to length.

2 Hose section, 10 mm dia. clamp

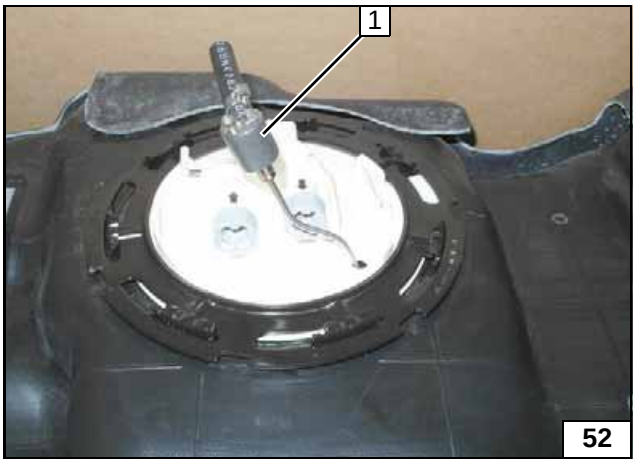
Preparing FuelFix



Work step 5.

1 Insert FuelFix in hole

Inserting FuelFix



Work step 5.

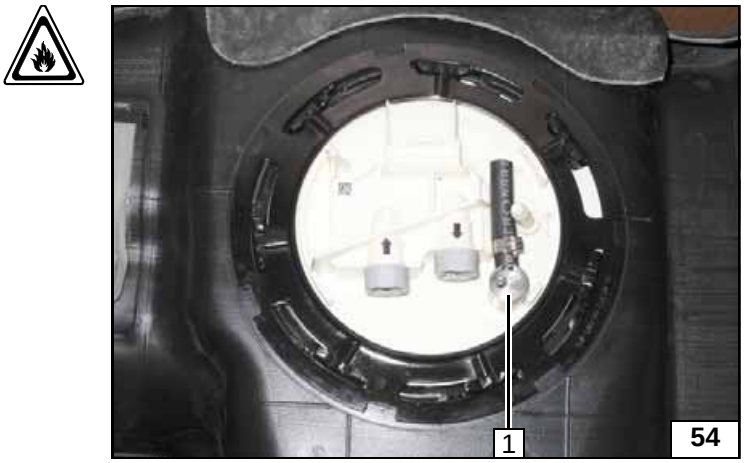
1 FuelFix

Inserting FuelFix

Work step 5.

1 FuelFix

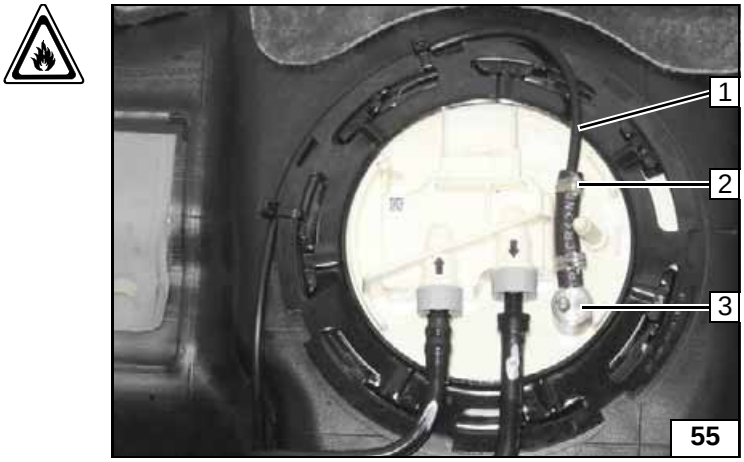
Inserting FuelFix



Work step 5.

1 FuelFix

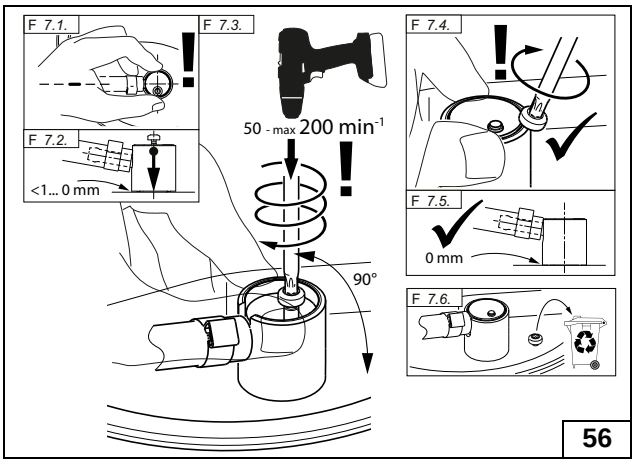
Inserting FuelFix



Work step 6.2.
Install original vehicle fuel lines.

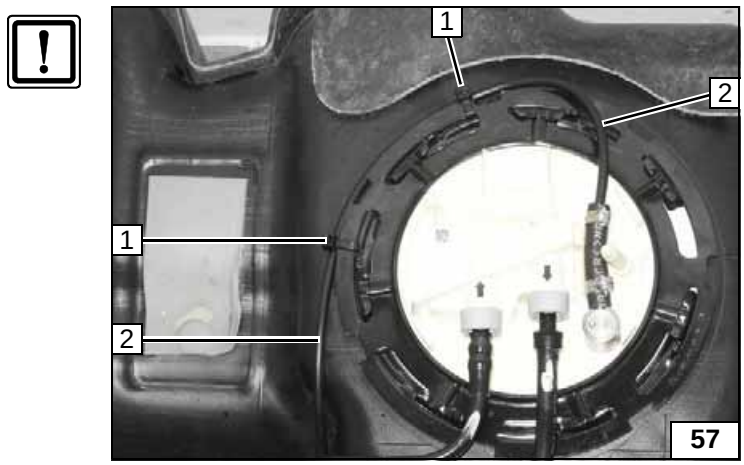
1 Fuel line of FuelFix
2 10 mm dia. clamp
3 FuelFix

Connecting fuel line



Work step 7.

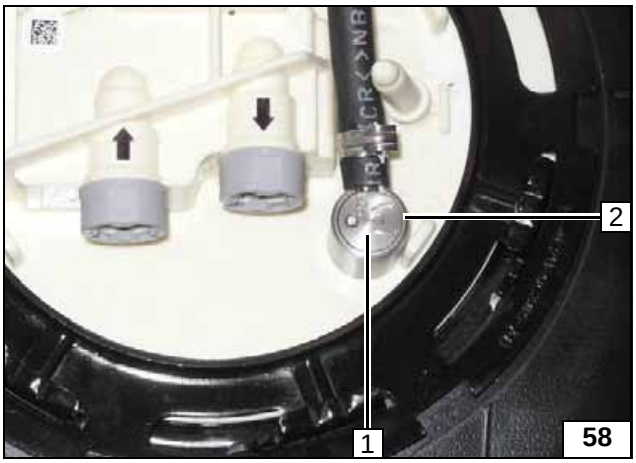
Installing FuelFix



Work step 8.

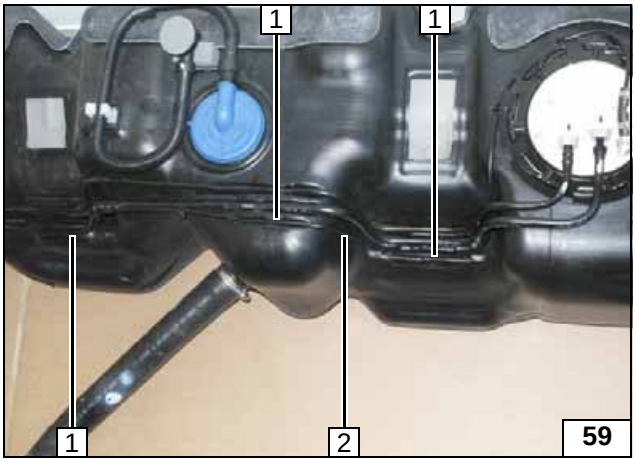
1 Cable tie as tension relief
2 Fuel line of FuelFix

Securing fuel line



Work step 8.
Ensure firm seating of FuelFix and positioning of clamping piece **2** with respect to upper edge **1** of the housing.

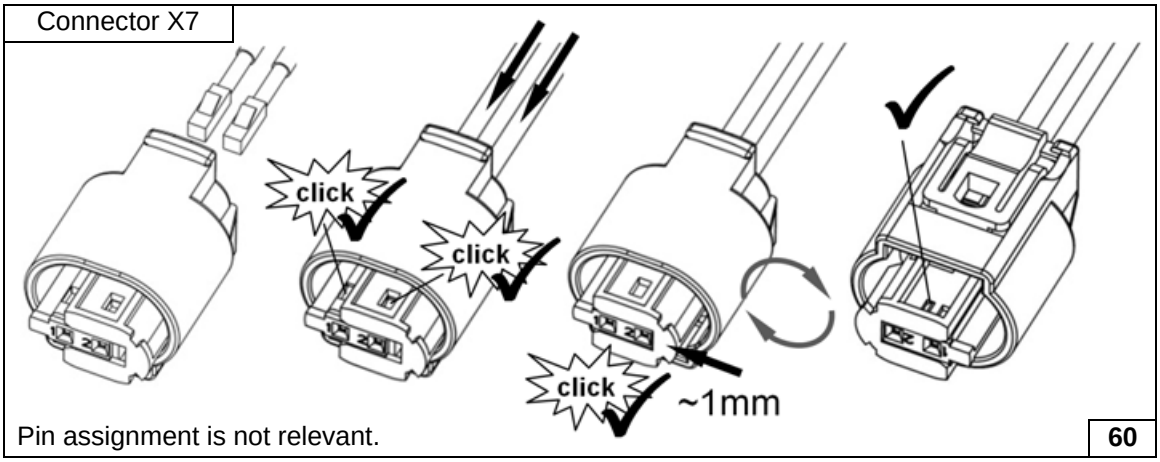
Checking final position



Insert fuel line of FuelFix **2** in locking tab **1** [3x] of the fuel tank. Mount fuel tank according to manufacturer's instructions.

Routing fuel line

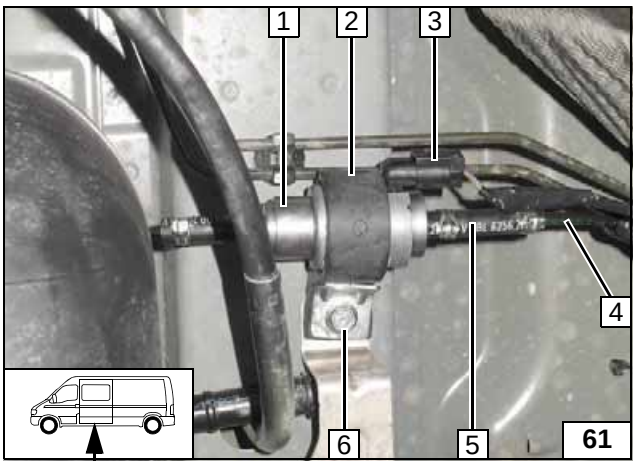
Connector X7



Pin assignment is not relevant.

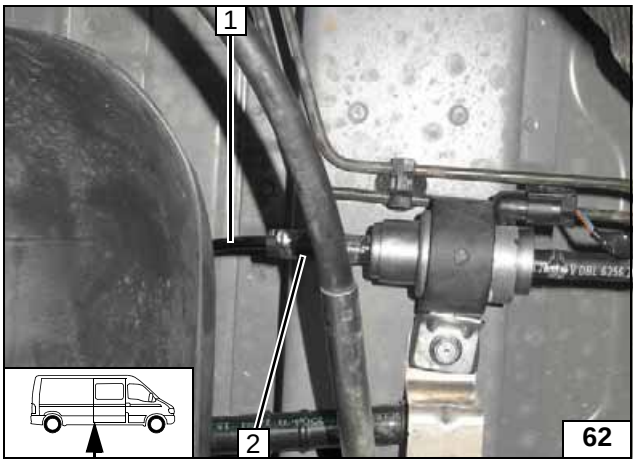
60

Completing connector of metering pump



1 Metering pump
2 Mounting of metering pump
3 Wiring harness of metering pump, connector X7 mounted
4 Fuel line of heater
5 Hose section, 10mm dia. clamp [2x]
6 Original vehicle bolt

Mounting metering pump



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Fuel line of FuelFix
2 Hose section, 10mm dia. clamp [2x]

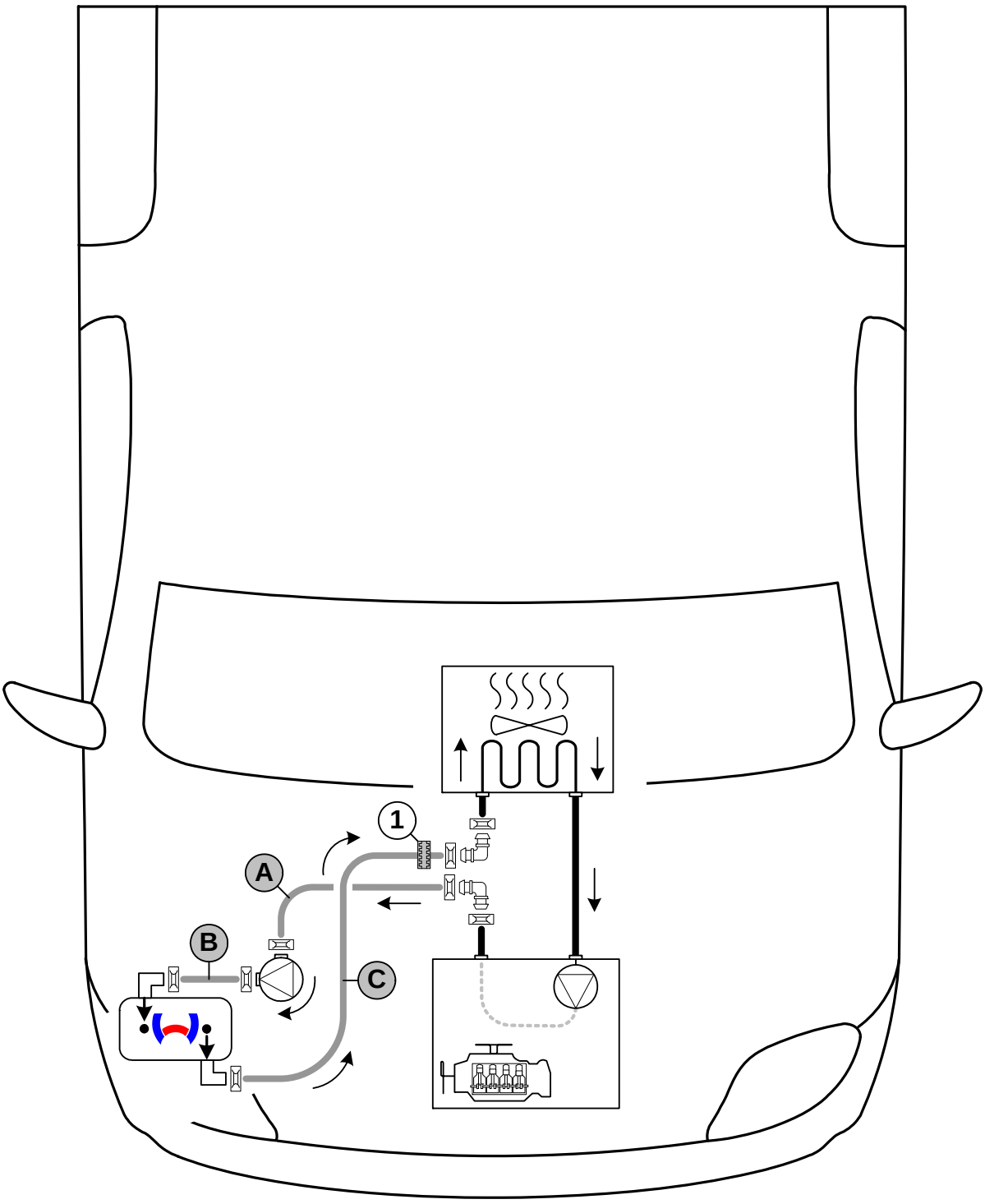
Connecting metering pump

Coolant Circuit

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. When installing the hoses, the heater must be filled with coolant.

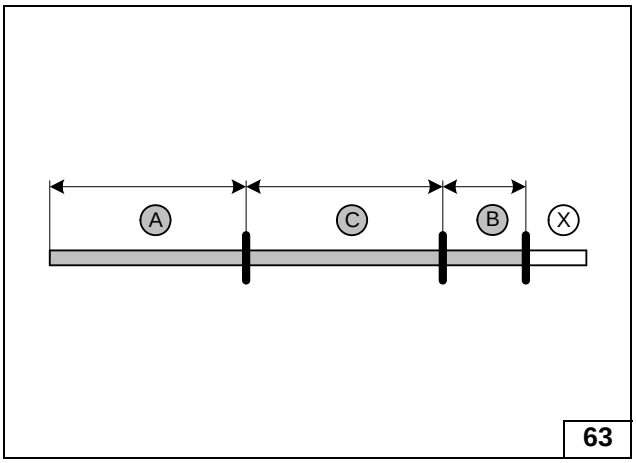
The connection should be modelled on an "inline" circuit and based on the following diagram:

Hose routing diagram



All spring clips = 25 mm dia. All connecting pipes = 18x18 mm dia.
1 = Black (sw) rubber isolator

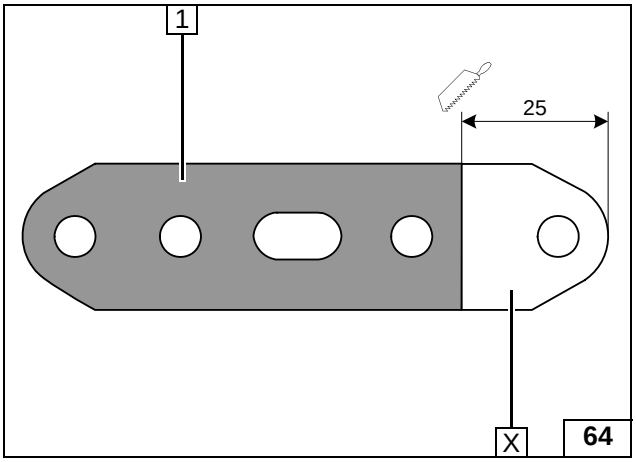
Cutting hoses to length



Discard section **X**

A = 950
B = 130
C = 1100

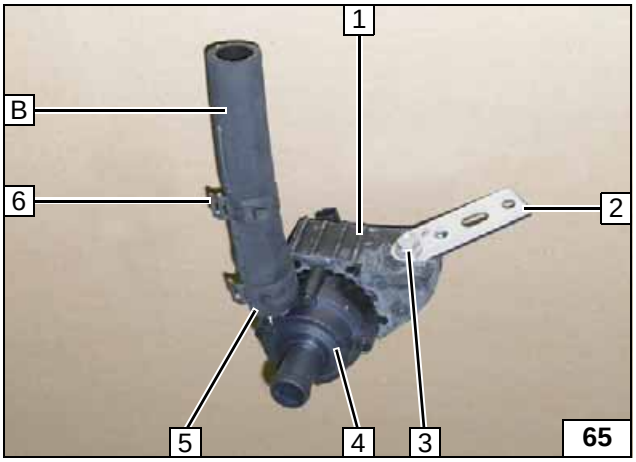
Cutting perforated bracket to length



Discard section **X**

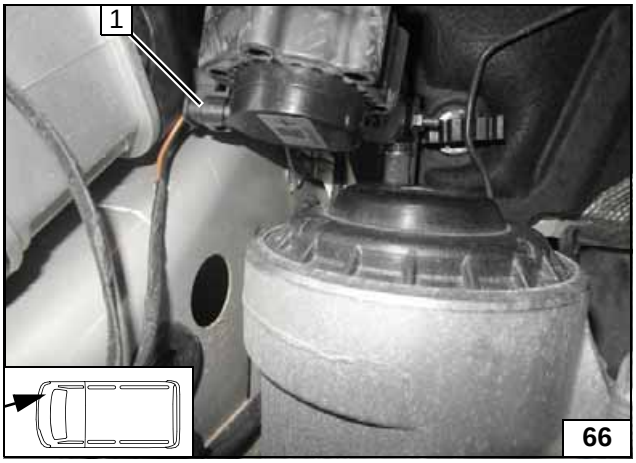
1 Perforated bracket

Premounting circulating pump

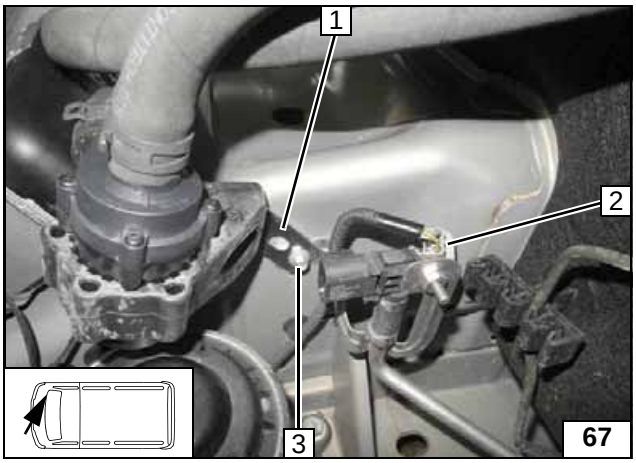


1 Mounting circulating pump
2 Perforated bracket
3 M6x25 bolt, flanged nut
4 Circulating pump
5 Spring clip = 25 mm dia.
6 Slide on 25 mm dia. spring clip

Mounting wiring harness



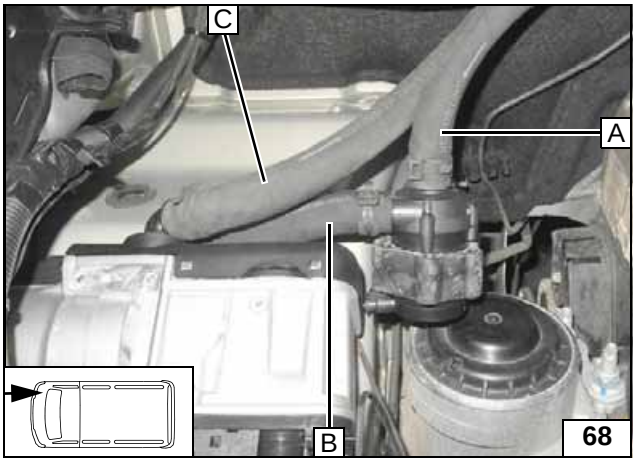
1 Wiring harness of circulating pump



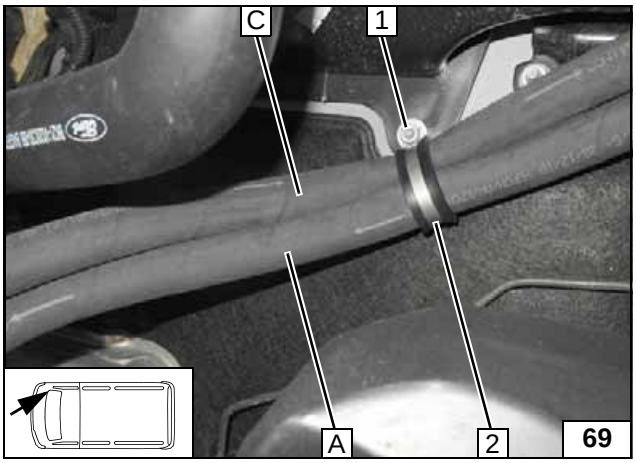
Connector **2** only pulled off for documentary purposes.

1 Perforated bracket
3 Original vehicle bolt

Installing circulating pump

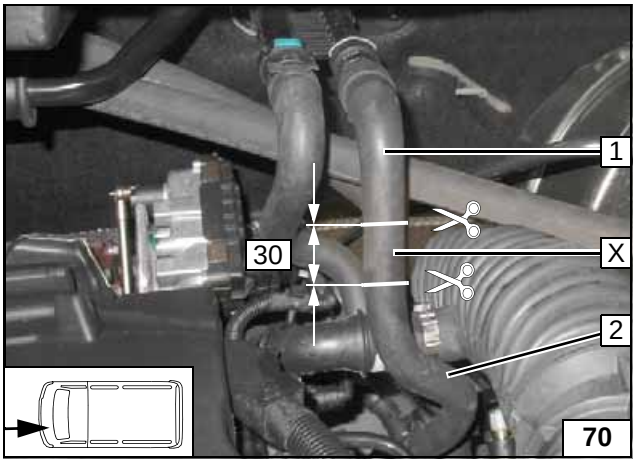


Connecting heater



1 Original vehicle bolt, original vehicle nut
2 38 mm dia. rubber-coated p-clamp

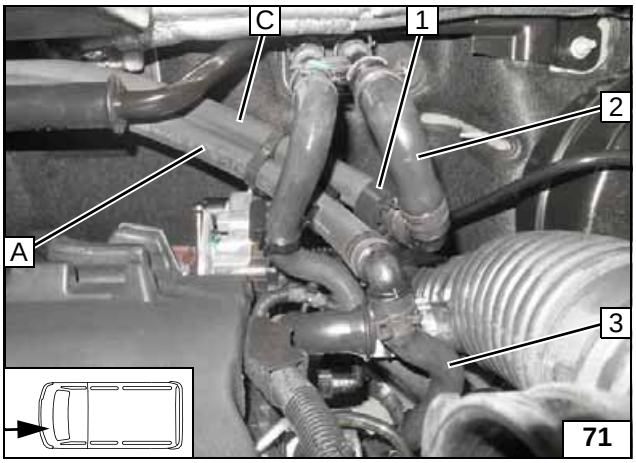
Routing in engine compartment



Cut hose of engine outlet / heat exchanger inlet at the markings.
Discard section **X**.

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

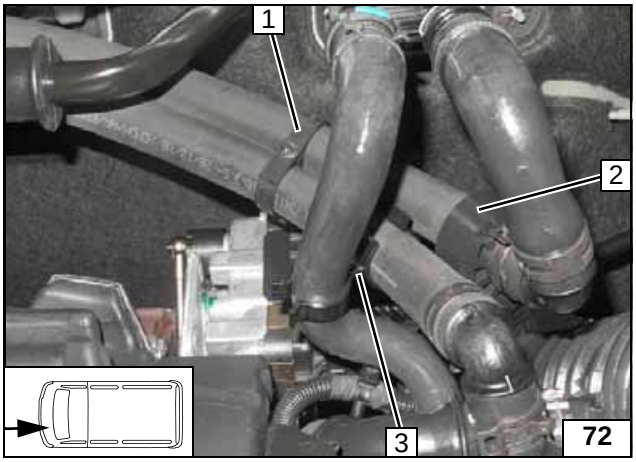
Cutting point



Slide on black (sw) rubber isolator **1** onto hose **C**.

2 Hose on heat exchanger inlet
3 Hose of engine outlet

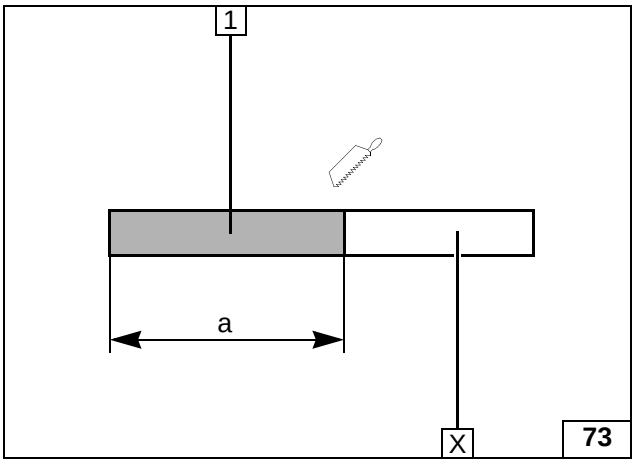
Connection on engine outlet and heat exchanger inlet



Align hoses. Ensure sufficient distance from neighbouring components, correct if necessary.

1 Hose bracket
2 Align black (sw) rubber isolator
3 Hose bracket, twistable

Inserting hose bracket

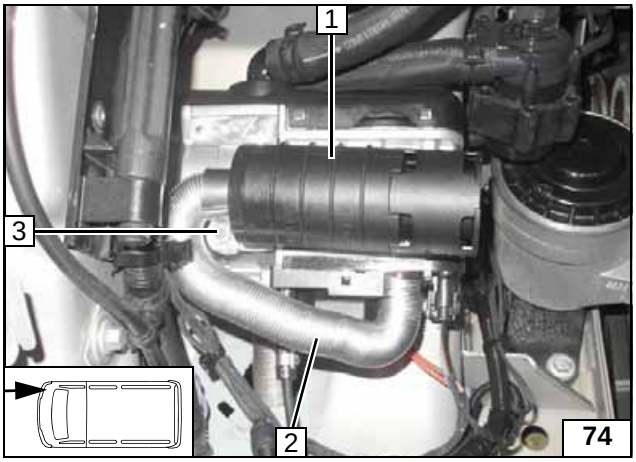


Combustion Air

Discard section **X**

1 Combustion air pipe
a = 300

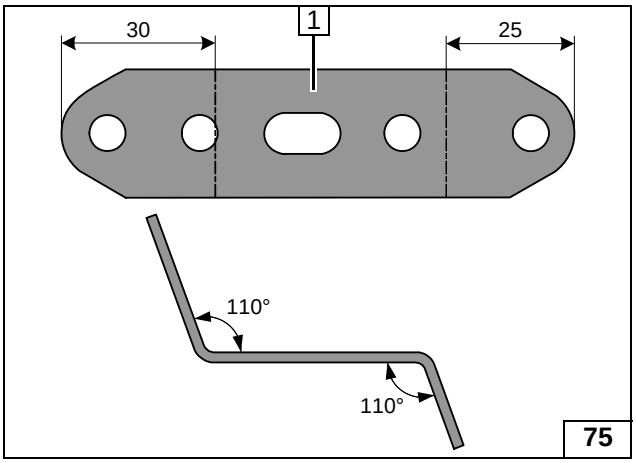
Cutting combustion air pipe to length



1 Silencer
2 Combustion air pipe
3 5x11/M6x25.5 self-tapping stud bolt; 10mm shim, p-clamp, flanged nut

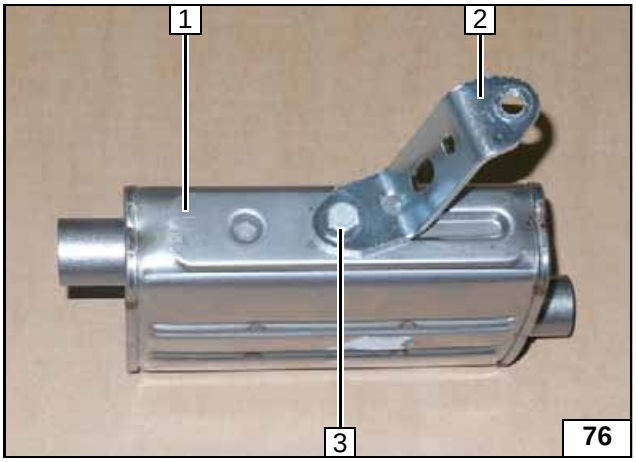
Mounting combustion air pipe and silencer

Exhaust Gas



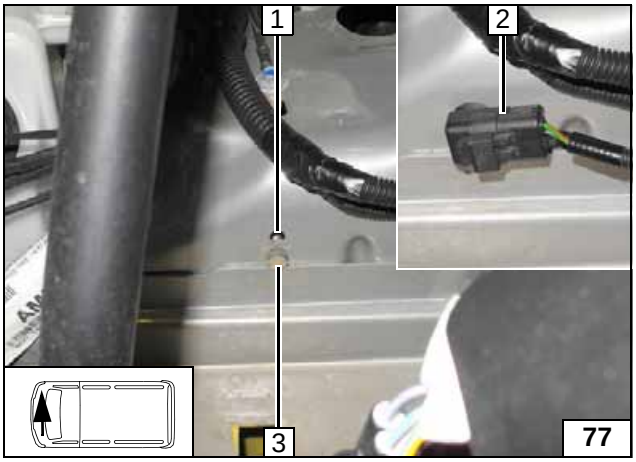
1 Perforated bracket

Preparing perforated bracket



1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

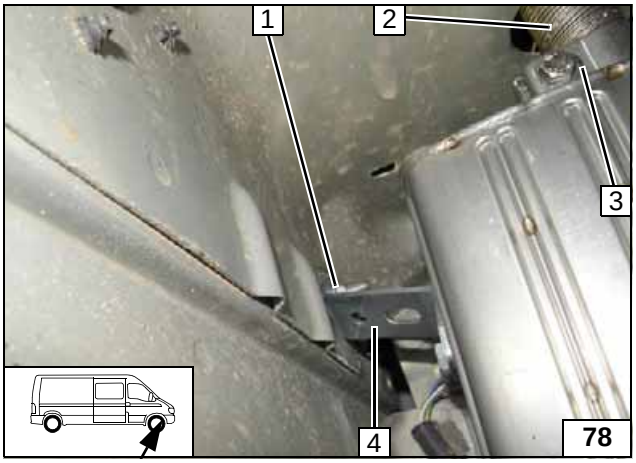
Premounting silencer



Remove sensor **2** from hole **1**, install bolt **3** and re-insert connector **2** after installation.

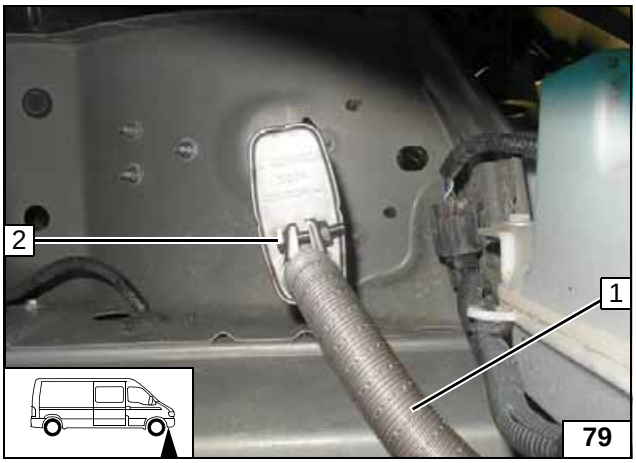
3 M6x20 bolt, pin lock

Inserting bolt



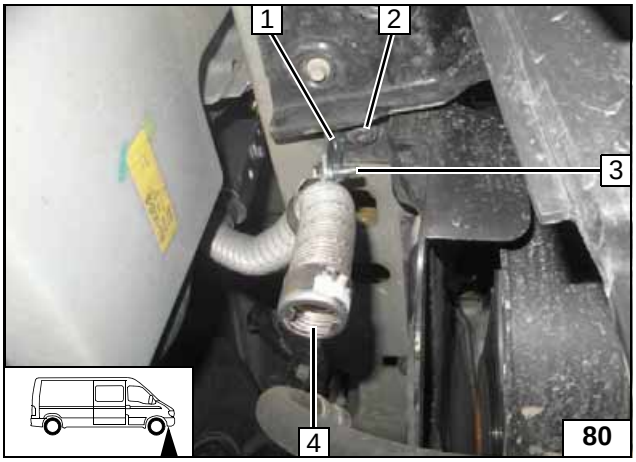
1 M6 flanged nut
2 Exhaust pipe
3 Hose clamp
4 Perforated bracket

Mounting silencer



1 Exhaust end section
2 Hose clamp

Mounting exhaust end section



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Angle bracket
2 Original vehicle bolt
3 M6x20 bolt, p-clamp, flanged nut
4 Exhaust end section

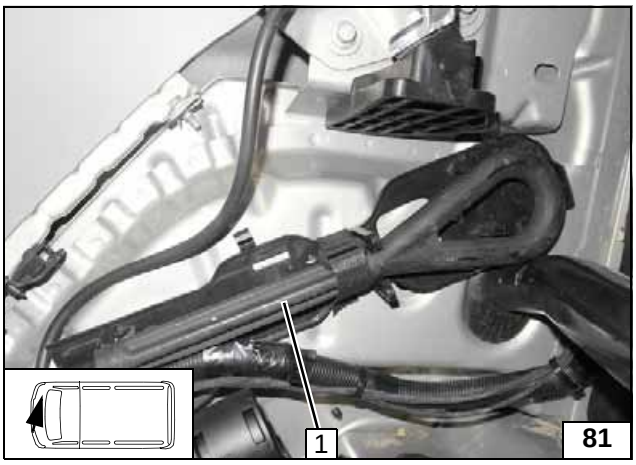
Fastening exhaust end section

Final Work

Mount removed parts in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back all loose wires.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Program MultiControl CAR, teach telestart transmitter.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refuelling" caution label in the area of the filler neck.**
- **See installation instructions for initial startup and function check.**

Inserting and fastening towing hook

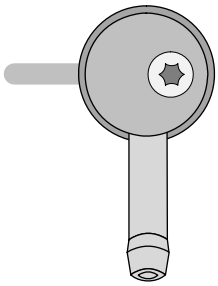


1 Towing hook

Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

FuelFix Template

Top view



100mm

Scale 1:1

Compare size of the printed version with dimension lines.
Allowed tolerance max. 2%.

Set the printer settings to “no margin” or “minimise margins” and 100% of the normal size.

100mm

0

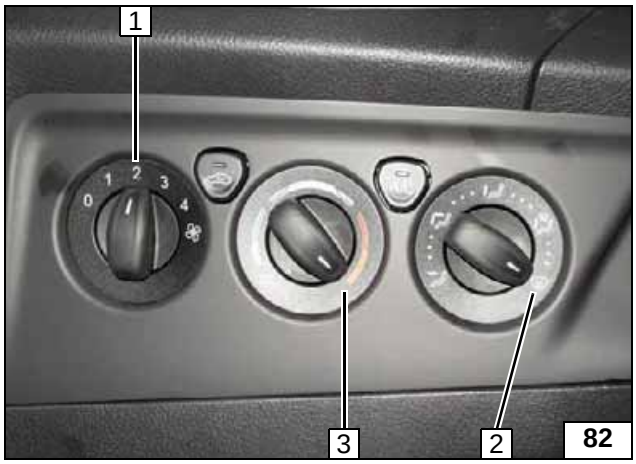
Operating Instructions for End Customer

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.

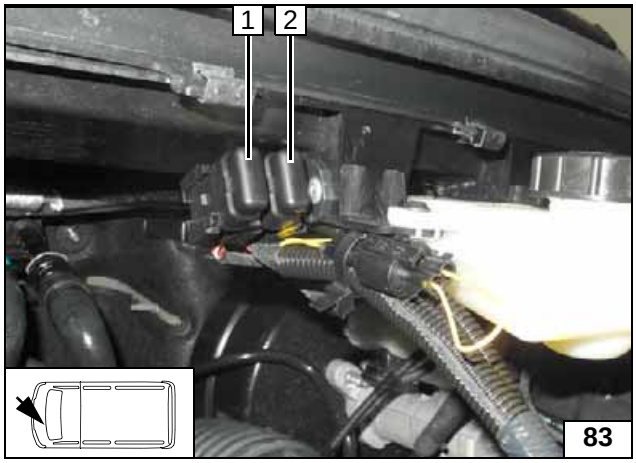
Passenger compartment monitoring , if installed, must be deactivated in addition to the vehicle settings for the heating operation.
Instructions for deactivation can be taken from the operating instructions manual of the vehicle.

Before parking the vehicle, make the following settings:



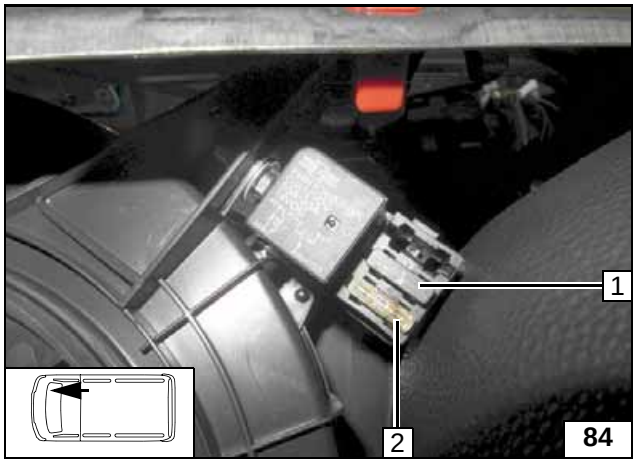
A/C control panel

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



Fuses of engine compartment

1 20A fuse F1 of heater
2 30A main fuse F2 of passenger compartment



Fuses of passenger compartment

1 1A main fuse F3 of heater control
2 25A fan fuse F4