Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Porsche Macan

Validity

Manufacturer	Model	Type	EG-BE No./ ABE
Porsche	Macan	95B	e13 * 2007 / 46 * 1165 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
3.0 D	Diesel	DSG	190	2967	CTB

DSG = direct gear transmission

From Model Year 2015
Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning
Front fog lights
Headlight washer system

Not verified: Passenger compartment monitoring

Total installation time: approx. 10 hours

Porsche Macan

Table of Contents

Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Porsche Macan 2015 Diesel: **1323658A**
- 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

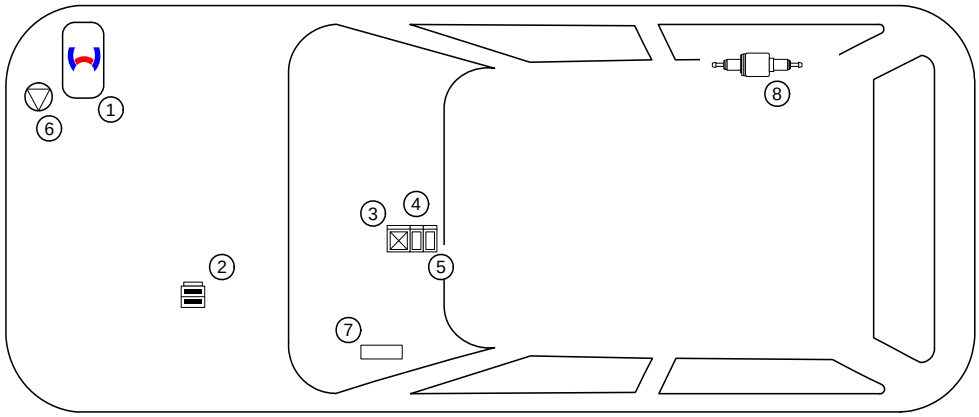
Installation instructions:

- 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. Engine compartment fuse holder
3. CAN Module
4. K1 relay
5. K2 relay
6. Circulating pump
7. Telestart receiver
8. Metering pump



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.

Information on Operating and Installation Instructions

1 Important notes (not complete)

1.1 Installation and repair

The improper installation or repairing 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, 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.

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	TT-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 the directive 122 (heater) section 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 gas 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.

Porsche Macan

Information on Validity

This installation documentation applies to Porsche Macan Diesel vehicles - for validity, see page 1 - from model year 2015 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
- 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

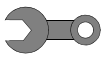
Dimensions
- All dimensions are in mm.

Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque values 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.

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

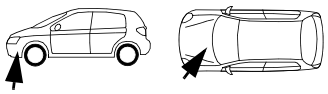
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

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

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.

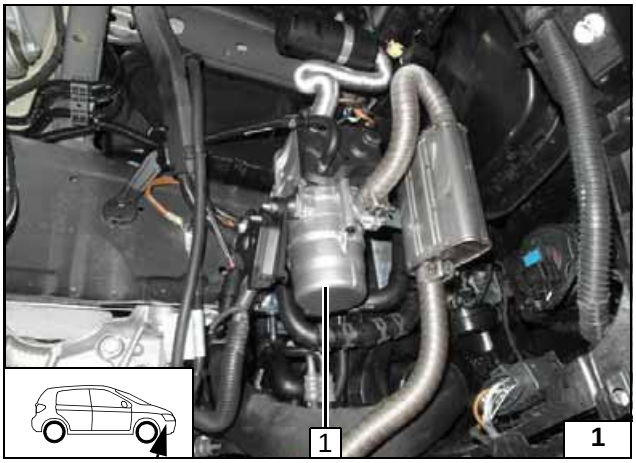
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Remove the air filter together with the intake hose.
- Remove the coolant reservoir cap.
- Remove the wheel well trim on the right.
- Remove the rear bench seat.
- Open the right-hand tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Detach the shift lever trim on the centre console (see dismantling instructions).
- Detach the A/C control panel (see dismantling instructions).
- Remove the instrument panel trim under the steering wheel (see dismantling instructions).

Heater

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



Heater Installation Location

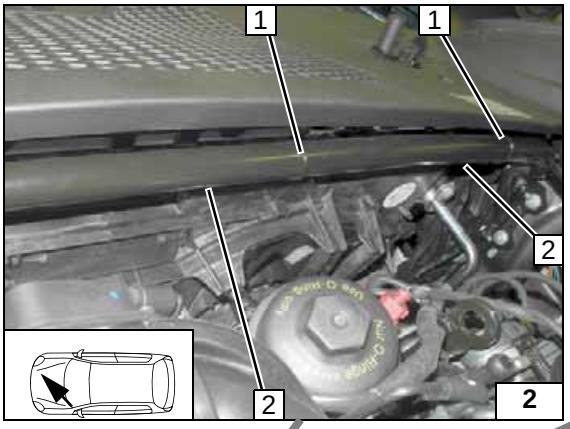
1 Heater

Installation location

Electrical System, Connection of the Earth Wire

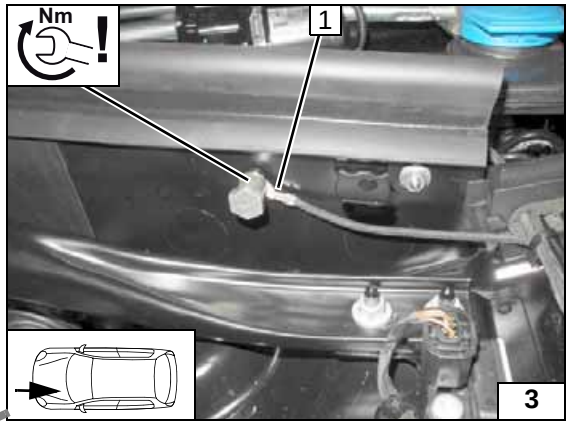
Wiring harness routing

1 Cable tie [2x]
2 Heater wiring harness routed along the cross member

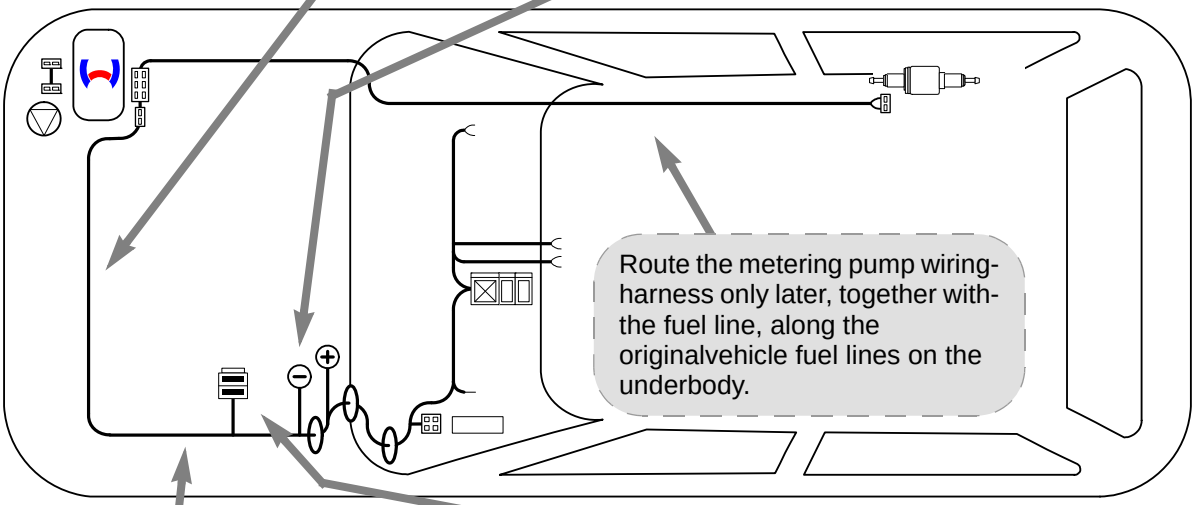


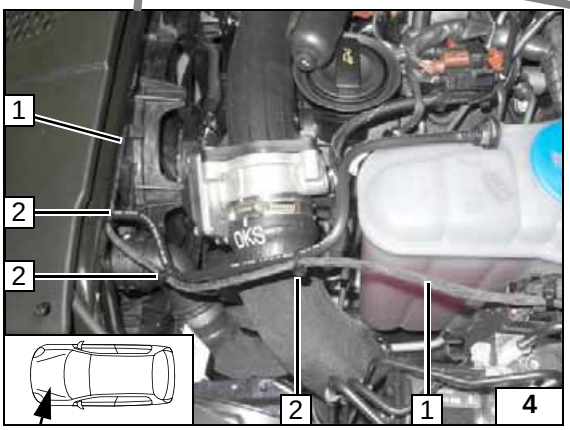
Earth wire

1 Earth wire on original vehicle earth support point



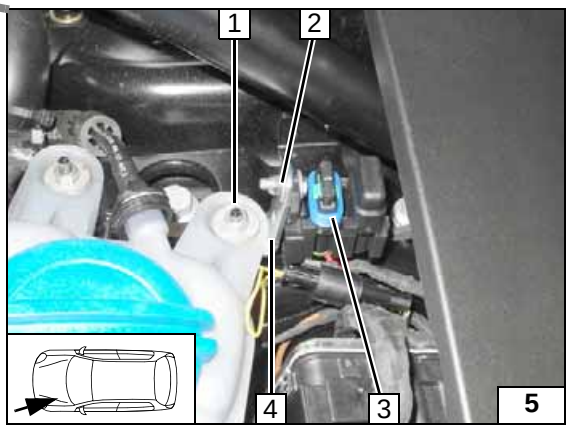
Wiring harness routing diagram





Wiring harness routing

1 Wiring harness of heater
2 Cable tie



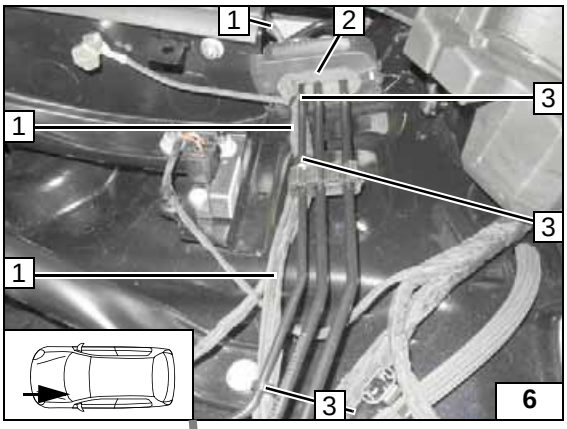
Engine compartment fuse holder

1 Original vehicle stud bolt and flanged nut
2 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut
3 F1-2 fuses, replace 30A F1 with 1A
4 Angle bracket (install under the expansion tank)

Electrical System, Connection of the Positive Wire

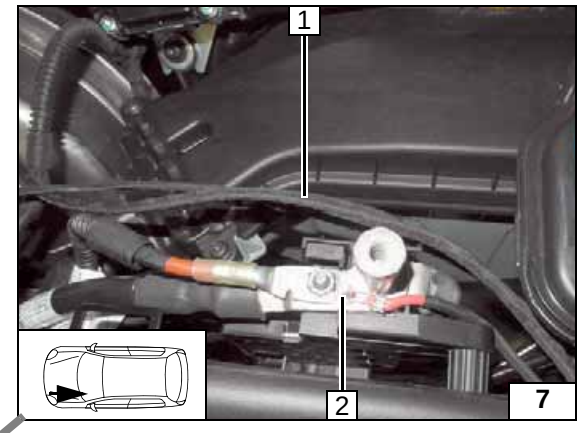
Wiring harness routing

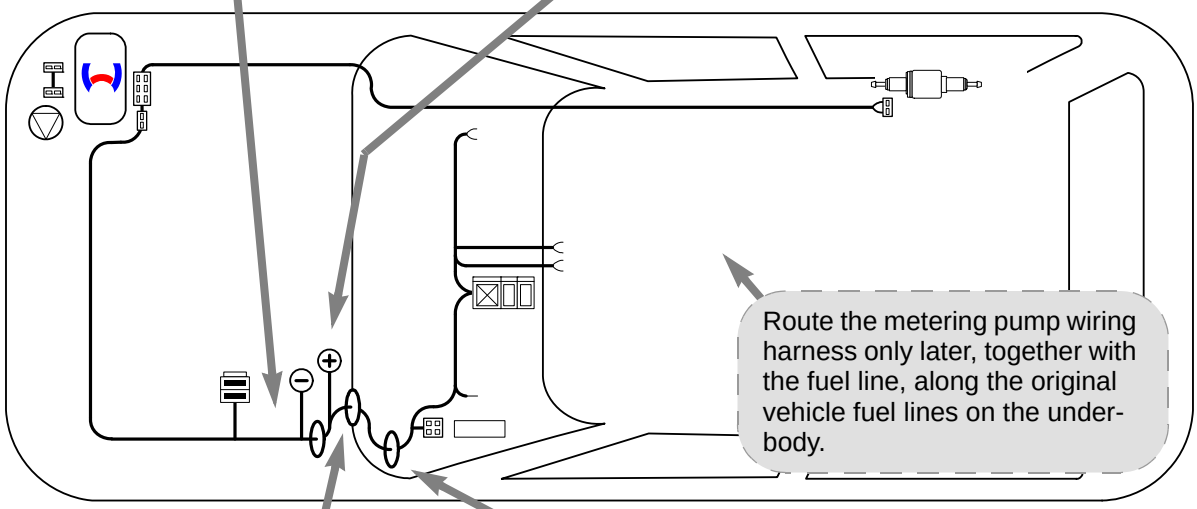
1 Wiring harness of heater and heater control
2 Original vehicle cable duct
3 Cable tie [3x]



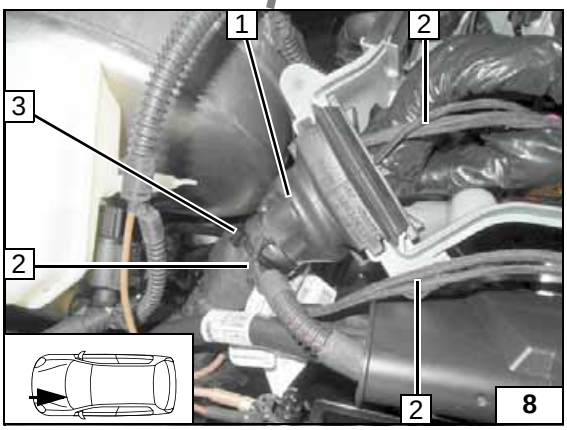
Positive wire

1 Wiring harness of heater and heater control
2 Positive wire on original vehicle positive distributor



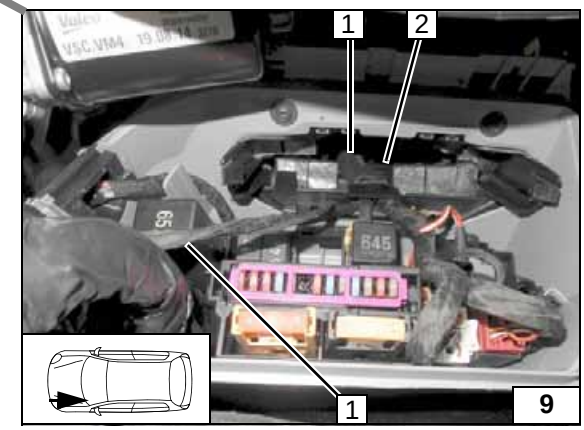


Wiring harness routing diagram



Wiring harness routing

1 Original vehicle protective rubber plug
2 Wiring harness of heater and heater control
3 Cable tie

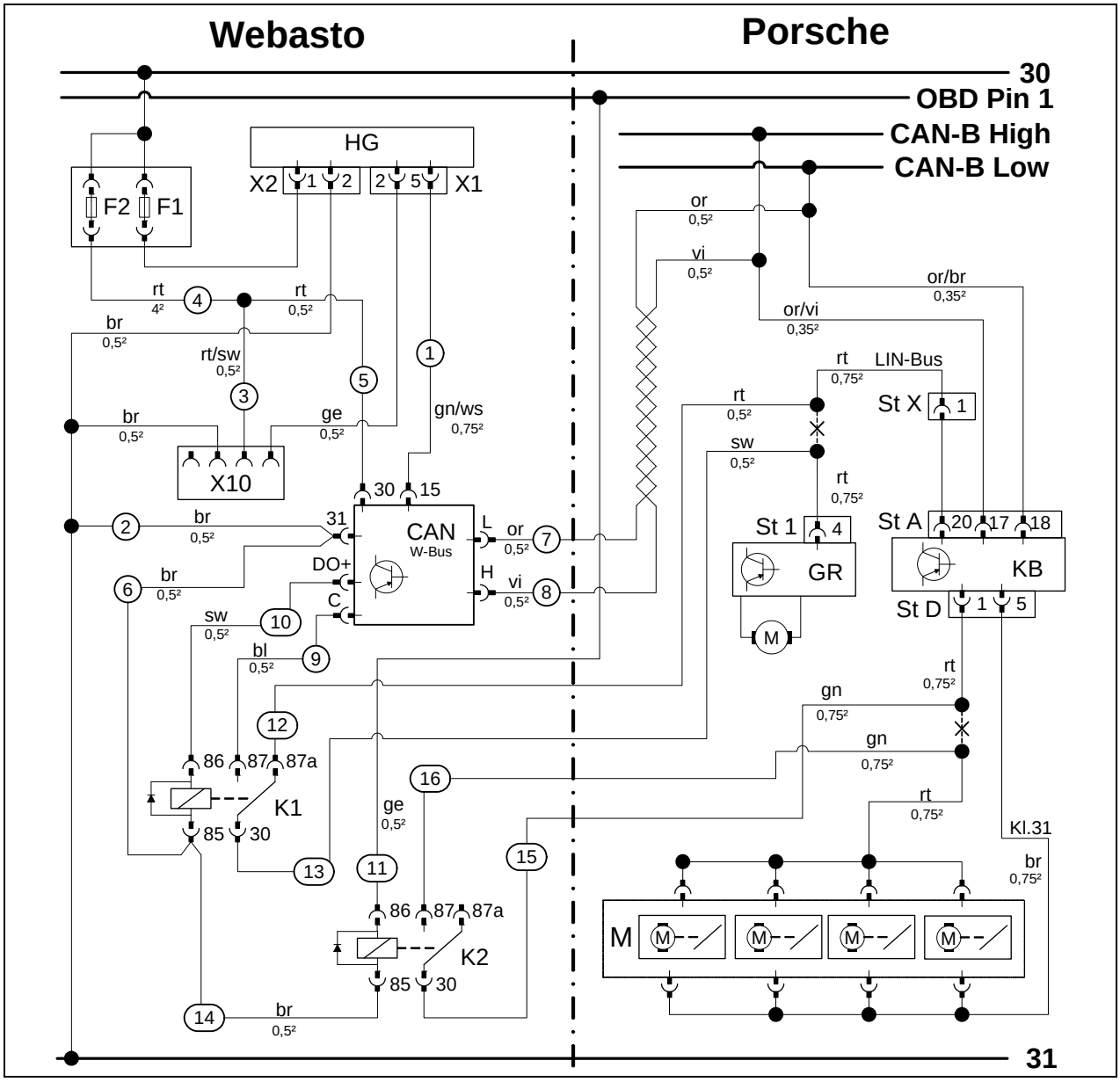


Wiring harness routing

1 Wiring harness of heater and heater control
2 Original vehicle cable duct

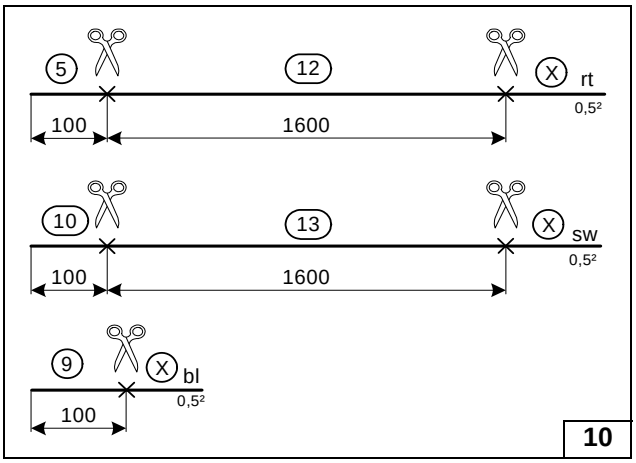
Fan Controller for Automatic Air-Conditioning

Wiring diagram



Legend

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	GR	Fan controller / fan motor	rt	red
X1	6-pin heater connector			gn	green
X2	2-pin heater connector	St 1	4-pin connector GR	sw	black
F1	20A fuse	KB	A/C control panel	vi	violet
F2	30A replaced with 1A fuse.	St A	24-pin connector of KB	ge	yellow
		St D	12-pin connector of KB	br	brown
X10	4-pin connector of heater control	M	Flap positioning module	gn	green
				bl	blue
CAN W-Bus	CAN W-Bus module			or	orange
K1	Changeover relay				
K2	Additional relay			**X**	Cutting point
				Wiring colours may vary.	



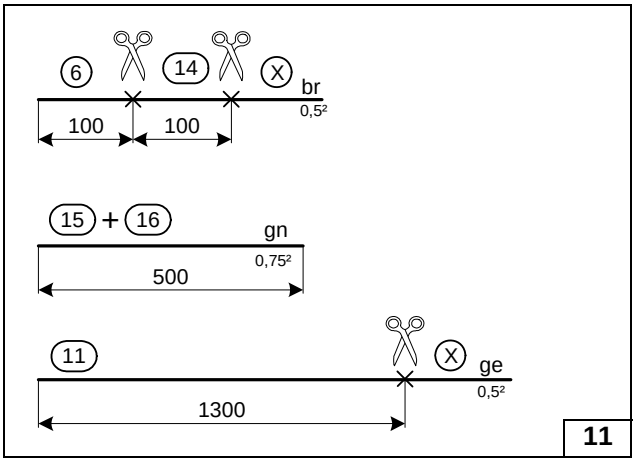
Wire sections retain their numbering throughout the entire document.

Produce all following electrical connections as shown in wiring diagram.

Discard sections **X**.

Pull wires ⑫ and ⑬ into a 7mm dia. protective sleeving

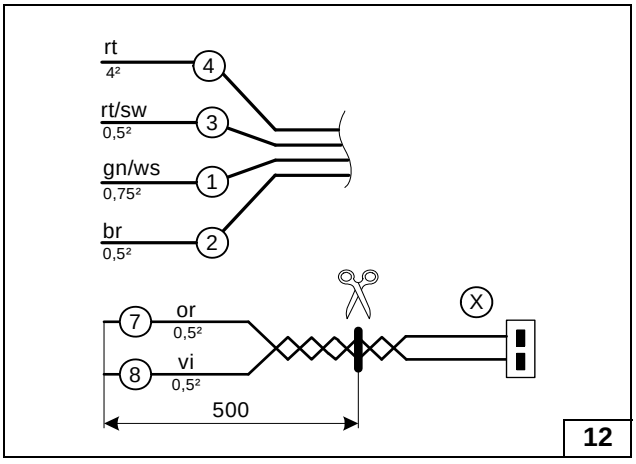
Cutting to length / assigning wires



Discard sections **X**.

Cut 4mm dia. protective sleeving in 350mm and 1150mm long sections.
Pull wires ⑮ and ⑯ in a 350mm protective sleeving and wire ⑪ into a 1150mm protective sleeving!

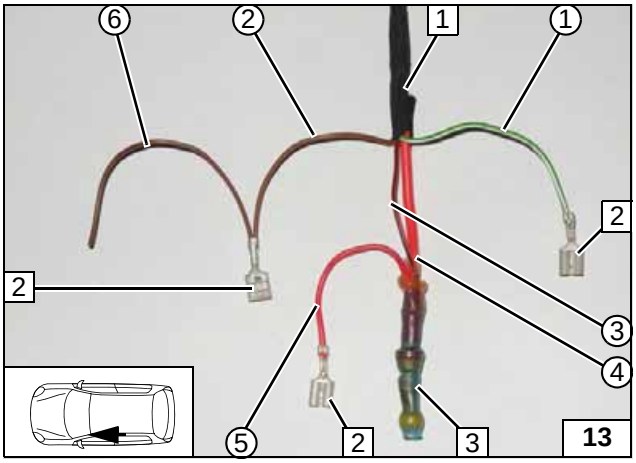
Cutting to length / assigning wires



Discard section **X**.

① Green/white (gn/ws) wire of heater wiring harness X1/5
② Brown (br) wire of heater wiring harness X2/2
③ Red/black (rt/sw) wire of heater wiring harness X10
④ Red (rt) wire of heater wiring harness F2
⑦ Orange (or) wire of CAN wiring harness
⑧ Violet (vi) wire of CAN wiring harness

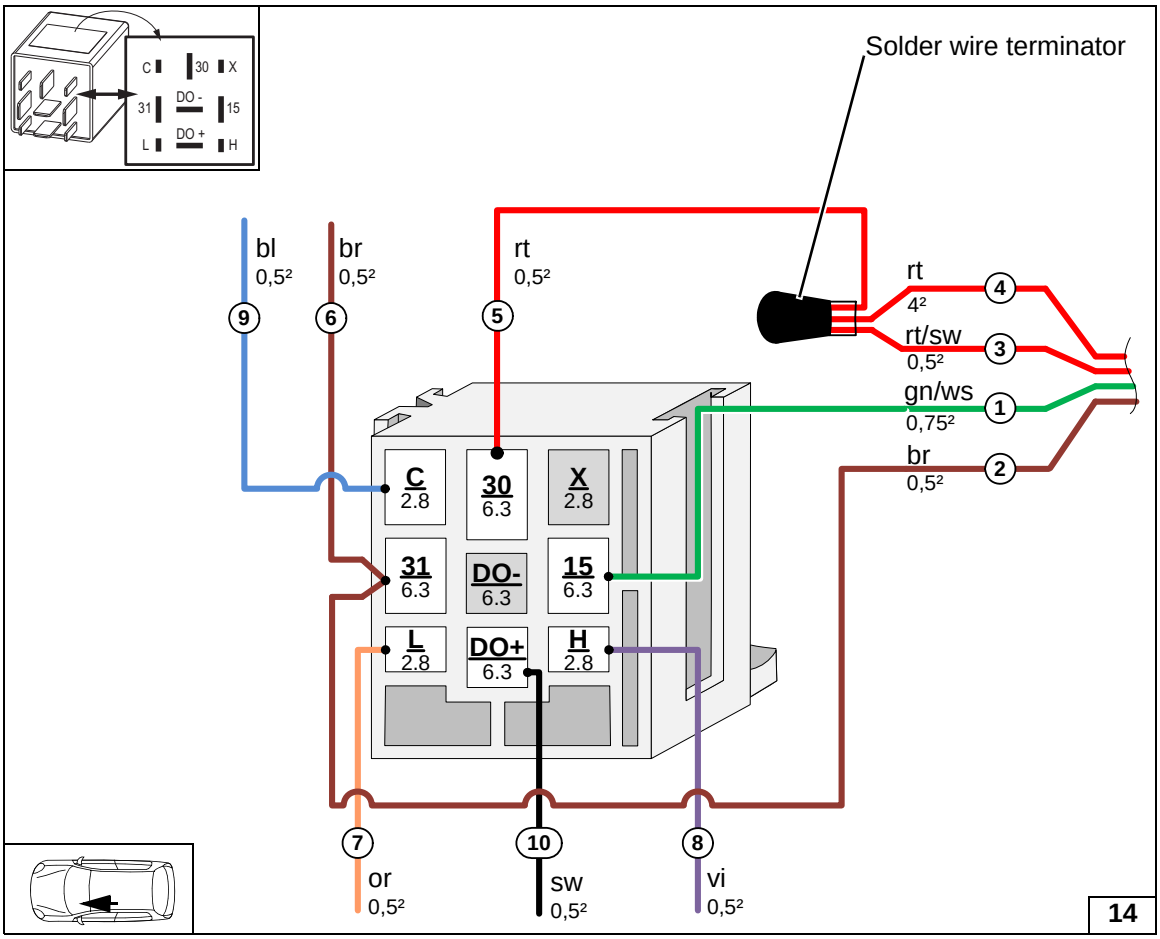
Cutting to length / assigning wiring harnesses



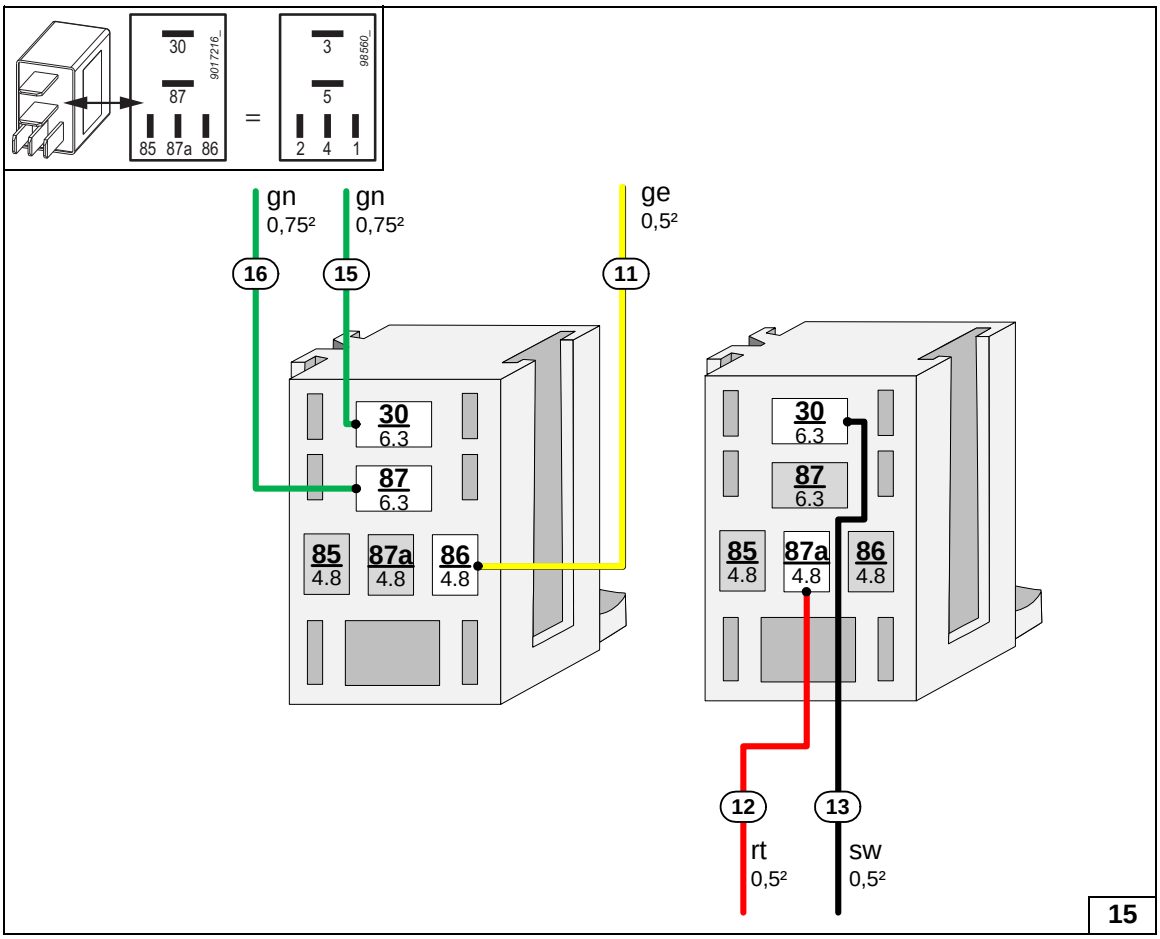
Prepare heater wiring harness **1** in passenger compartment!
Connect red (rt) wire ④, red (rt) wire ⑤ and red/black (rt/sw) wire ③ with solder wire terminator **3**, install provided contacts **2**.

① Green/white (gn/ws) wire of connector X1/5 for CAN module/15
② Brown (br) wire of connector X2/2 for CAN module/31
③ Red/black (rt/sw) wire of connector X10
④ Red (rt) wire of fuse F2
⑤ Red (rt) wire for CAN module/30
⑥ Brown (br) wire for K1/85

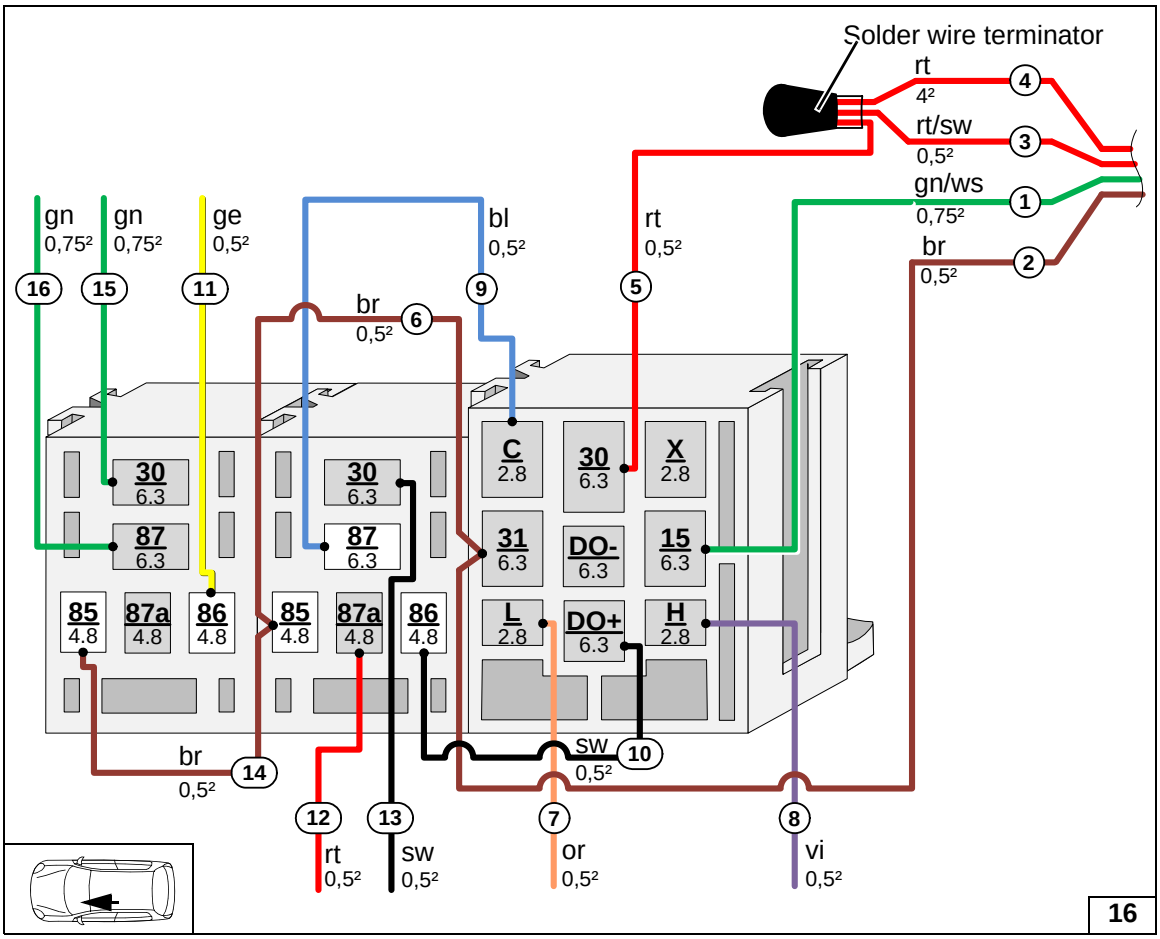
Preparing heater wiring harness



Connecting wires to socket of CAN module in passenger compartment



Connecting wires to socket of K2 relay (left) and K1 relay (right)

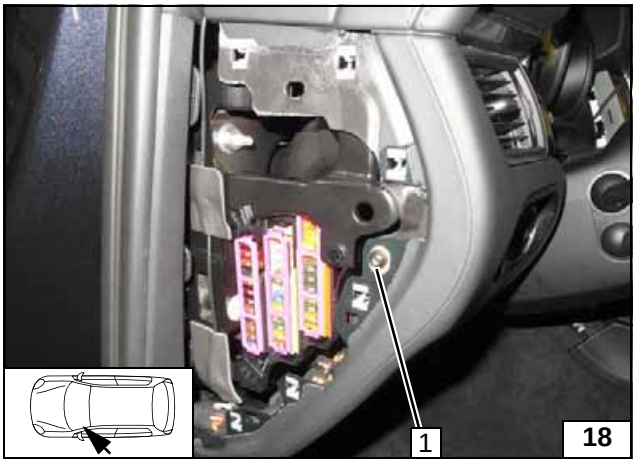


Interlocking sockets of CAN module, K1 and K2 relays, connecting wires to sockets of K1 and K2 relays in passenger compartment

Dismantling Instructions

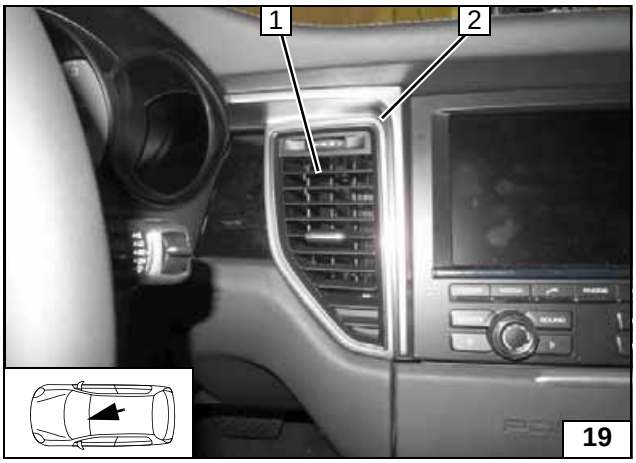
1 Bolt [2x]

Removing bolts



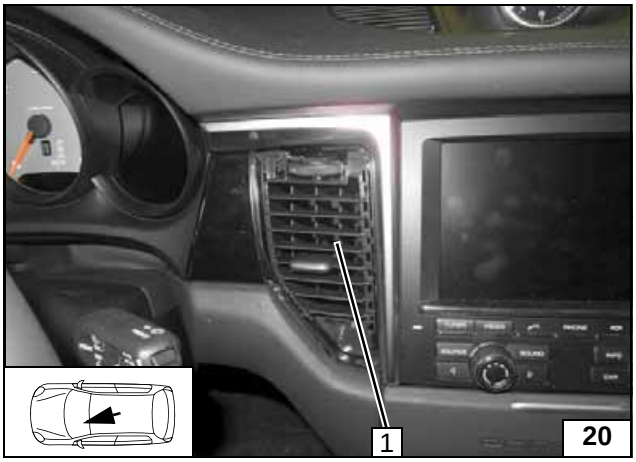
1 Bolt

Removing bolt



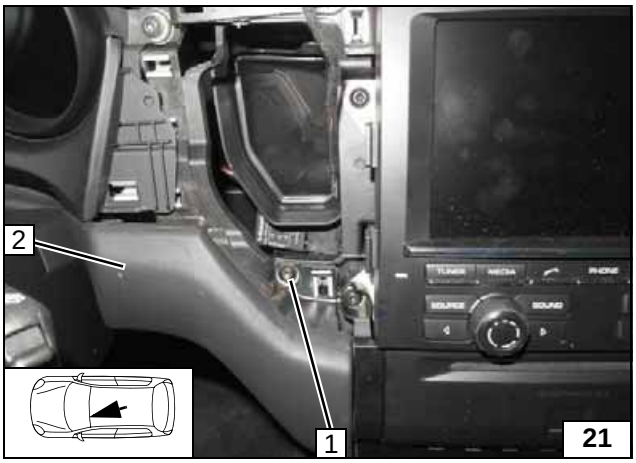
Unclip external trim **2** of air outlet **1**.

Removing trim



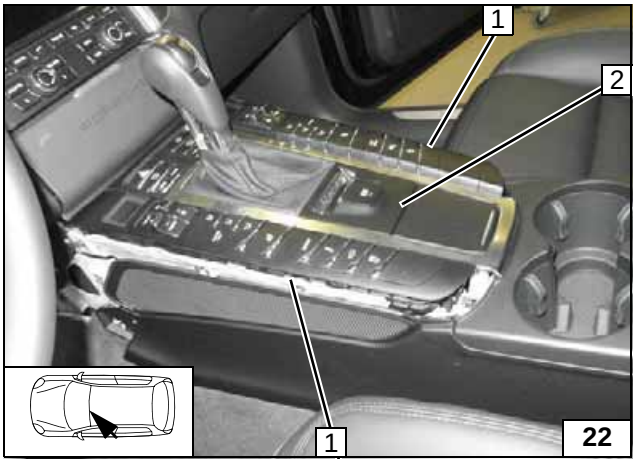
Pull out air outlet incl. frame **1**.

Removing air outlet



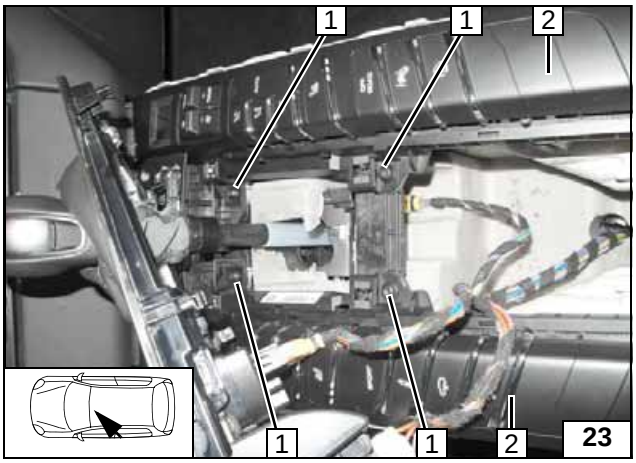
1 Remove bolt
2 Lower instrument panel trim

Removing lower instrument panel trim



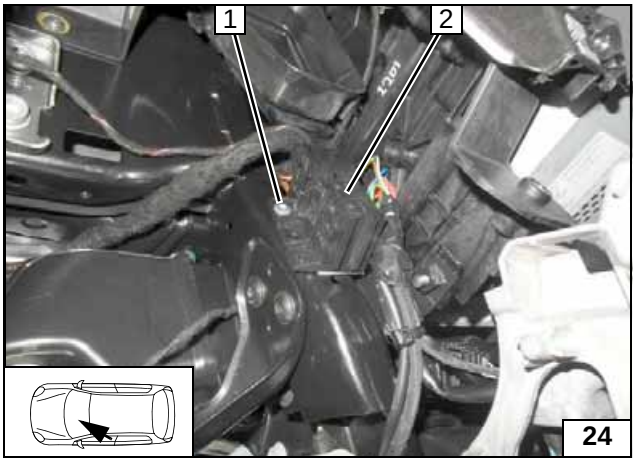
Unclip external peripheral trim **1** and cover in the middle **2**.

Removing frame around A/C control panel



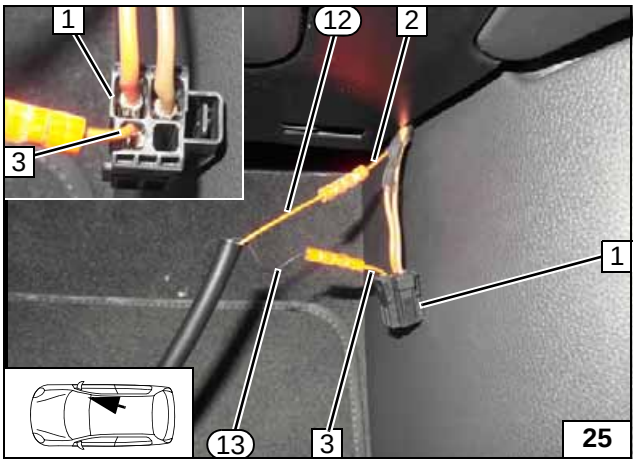
1 Bolts [4x]
2 A/C control panel

Detaching A/C control panel



1 Original vehicle hole, body-bound rivet
2 Premounted socket for K1, K2 and CAN module

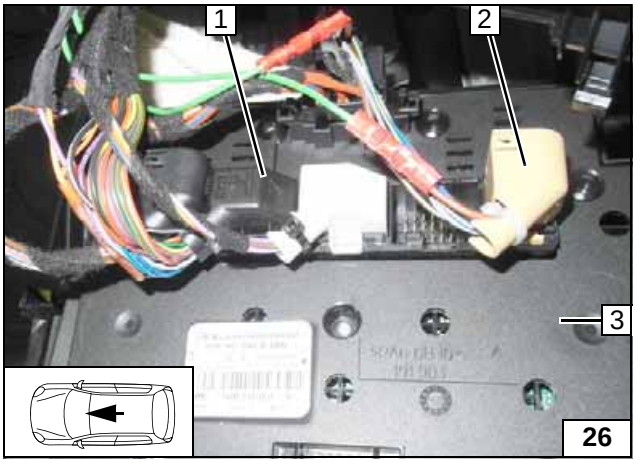
Installing sockets of K1 relay, K2 relay and CAN module



Connection to 4-pin connector ST1 **1** of fan controller GR.

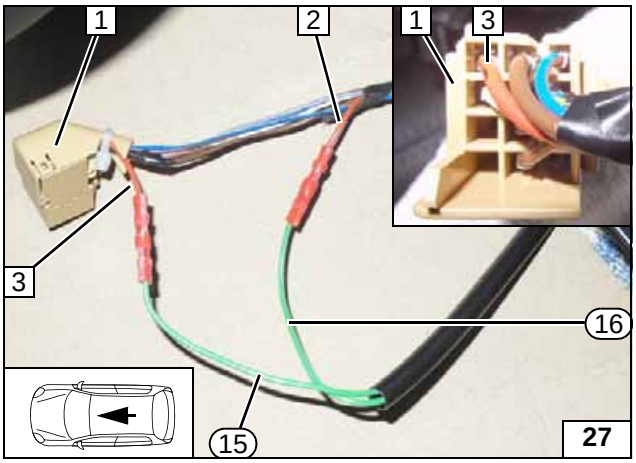
2 Red (rt) wire of LIN Bus, wire to A/C control panel
3 Red (rt) wire of 4-pin connector ST1, pin 4
(12) Red (rt) wire of K1/87a
(13) Black (sw) wire of K1/30

Connecting fan controller



1 Connector St A
2 Connector St D
3 A/C control panel KB

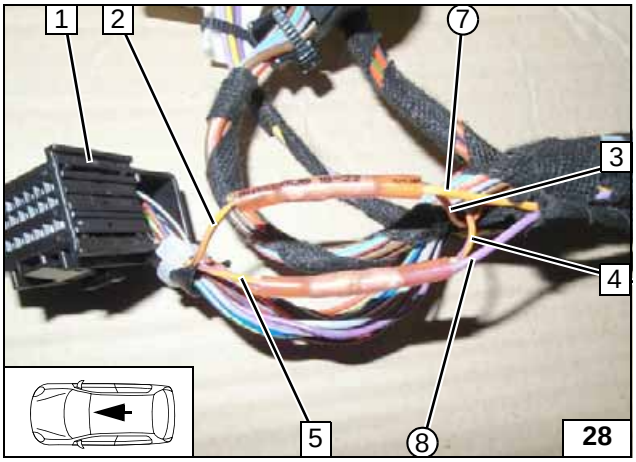
Locating / removing connectors of St A and St D of A/C control panel



Connection to 12-pin connector ST D **1** of A/C control panel KB.

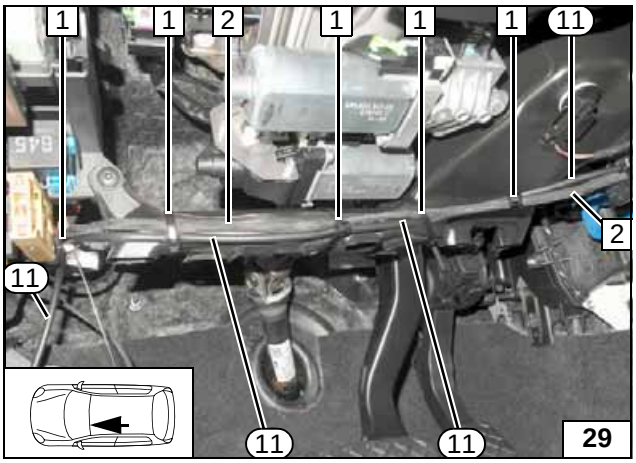
2 Red (rt) wire of flap positioning module
3 Red (rt) wire of 12-pin connector ST D, pin 1
(15) Green (gn) wire of K2/30
(16) Green (gn) wire of K2/87

Connecting A/C control panel



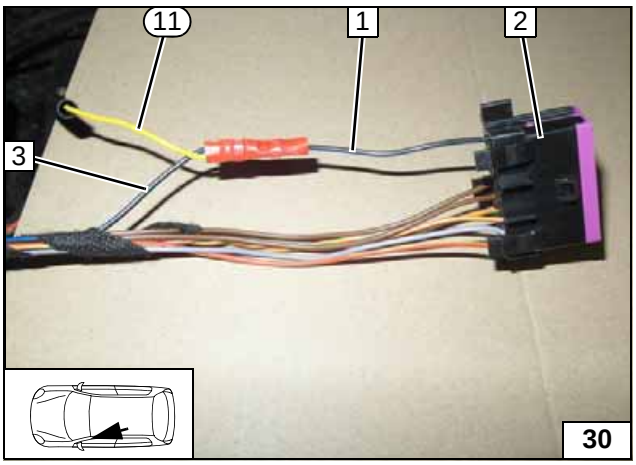
1 Connector St A of A/C control panel KB
2 Orange/brown (or/br) wire of connector St A/18 from KB
3 Orange/brown (or/br) wire of CAN-B Low
4 Orange/violet (or/vi) wire of CAN-B High
5 Orange/violet (or/vi) wire of connector St A/17 from KB
(7) Orange (or) wire of CAN wiring harness
(8) Violet (vi) wire of CAN wiring harness

Connection to CAN wires



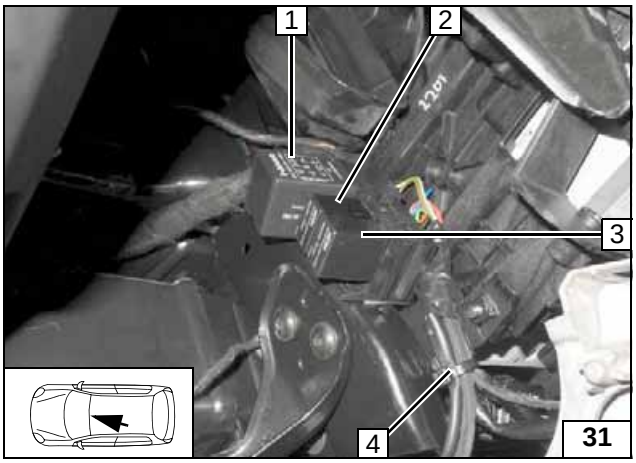
1 Cable tie [5x]
2 Wiring harness of heater
(11) Yellow (ge) wire of K2/86

Routing/securing wires



1 Black/blue (sw/bl) wire on OBD, pin 1
2 OBD socket outlet
3 Black/blue (sw/bl) wire of terminal 15
(11) Yellow (ge) wire of K2/86

Connecting OBD socket outlet



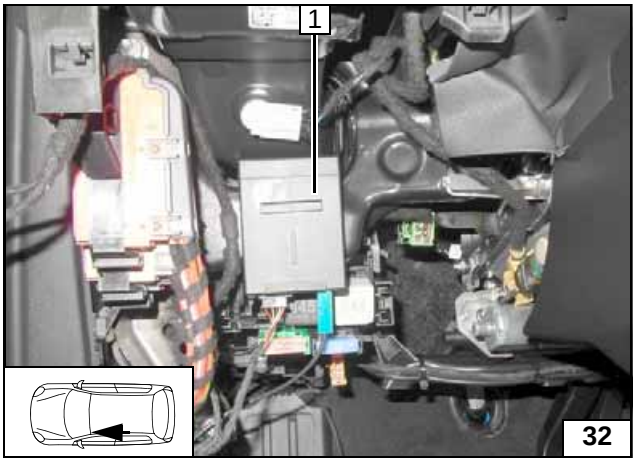
1 CAN Module
2 K1 relay
3 K2 relay
4 Cable tie

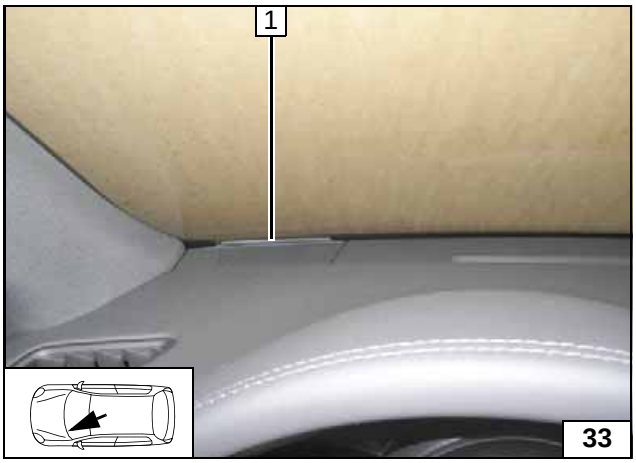
Installing K1 / K2 relay and CAN module

Remote Option (Telestart)

Fasten receiver **1** with adhesive tape.

Installing receiver





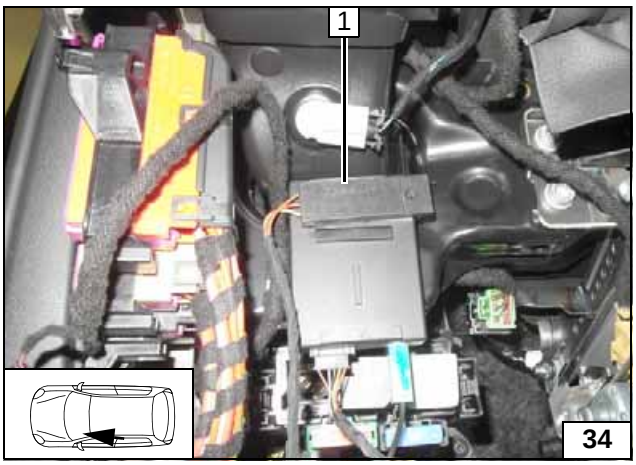
1 Antenna

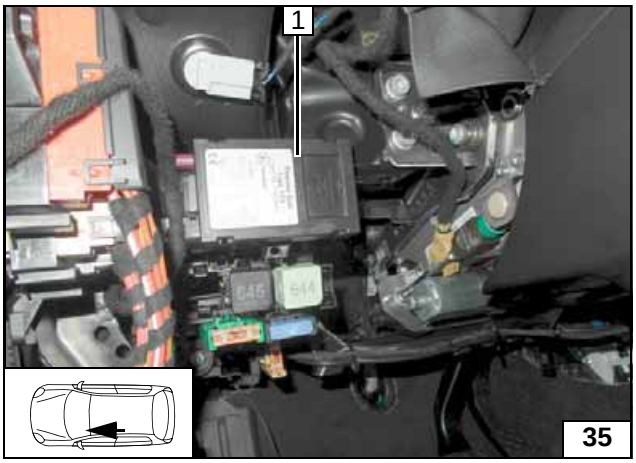
Installing antenna

Temperature sensor T100 HTM

Fasten temperature sensor **1** with adhesive tape.

Installing temperature sensor

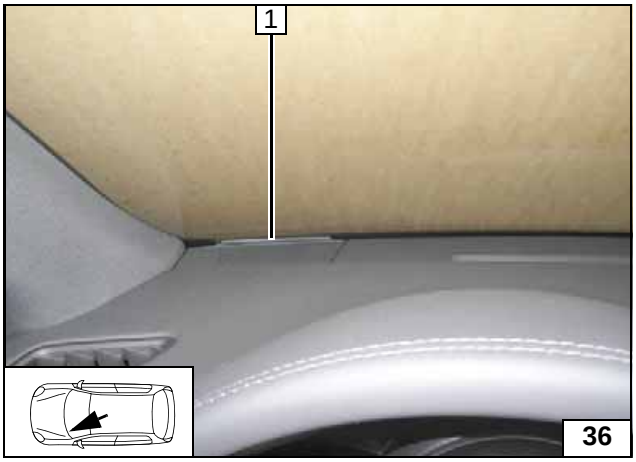




Thermo Call Option

Fasten receiver **1** with adhesive tape.

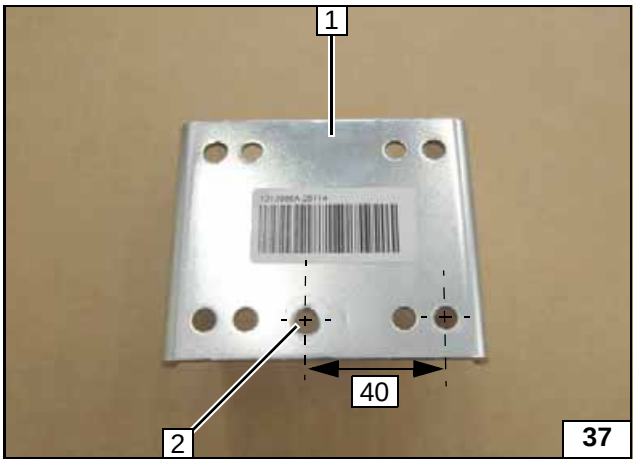
Installing receiver



1 Antenna

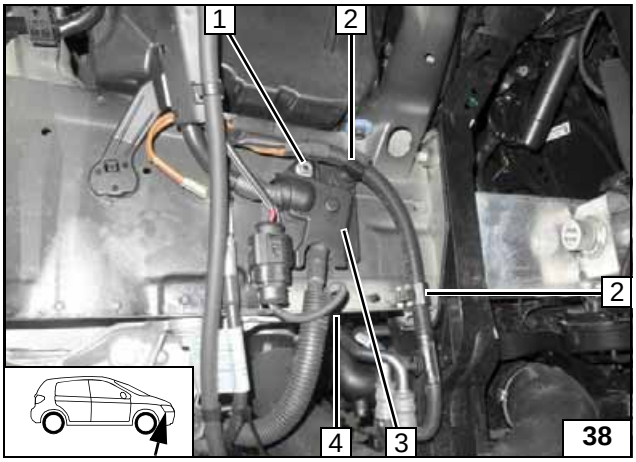
Installing antenna

Preparing Installation Location



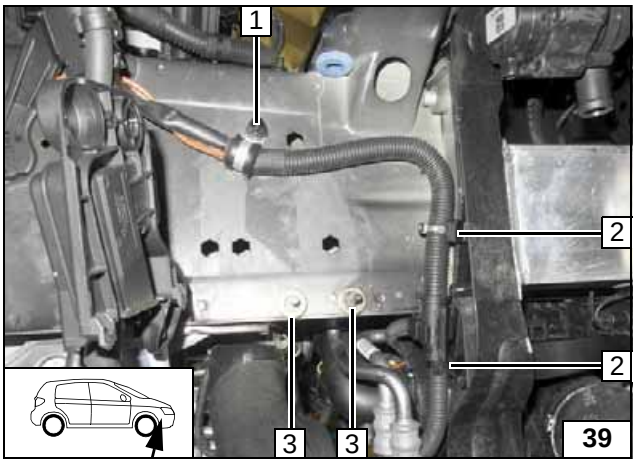
1 Bracket
2 7 mm dia. hole

Preparing bracket



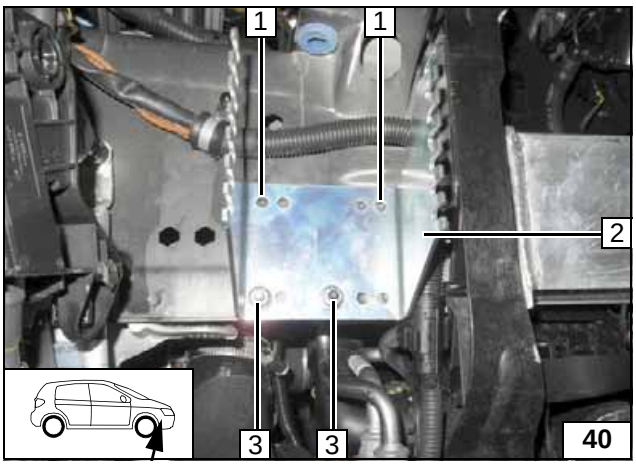
1 Remove nut, will be reused
2 Remove wiring harness clip and discard [2x]
3 Detach cable holder
4 Remove original vehicle cap nut (hidden), will be reused

Detaching original vehicle wiring harness



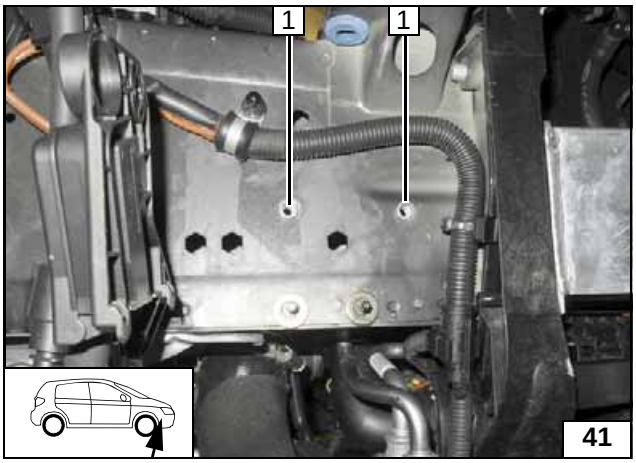
1 Original vehicle cap nut, 15mm dia. rubber-coated p-clamp
2 Clip-type cable tie [2x]
3 Position washer with inner dia. d_i = 10mm [2x] on original vehicle stud bolt

Re-attaching original vehicle wiring harness



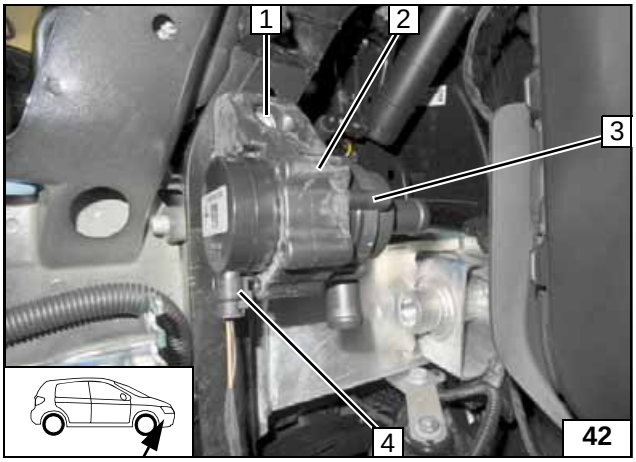
1 Copy hole pattern [2x]
2 Bracket, align parallel to bottom edge of frame side member
3 M6 flanged nut [2x]

Installing bracket loosely



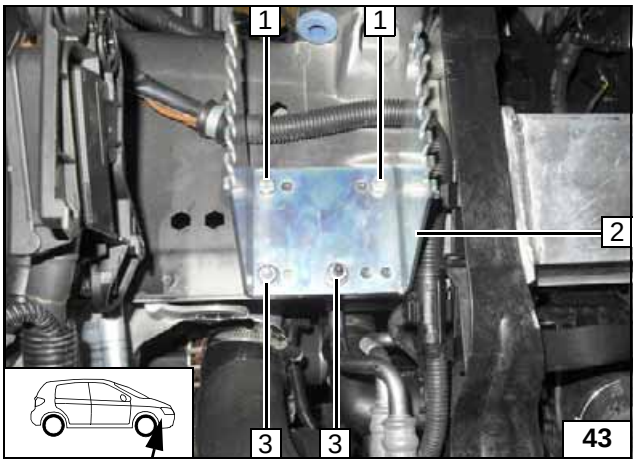
1 9.1mm dia. hole; rivet nut [2x each]

Installing rivet nuts



1 M6x25 bolt, existing hole, flanged nut
2 Circulating pump mounting
3 Circulating pump
4 Connector of circulating pump wiring harness

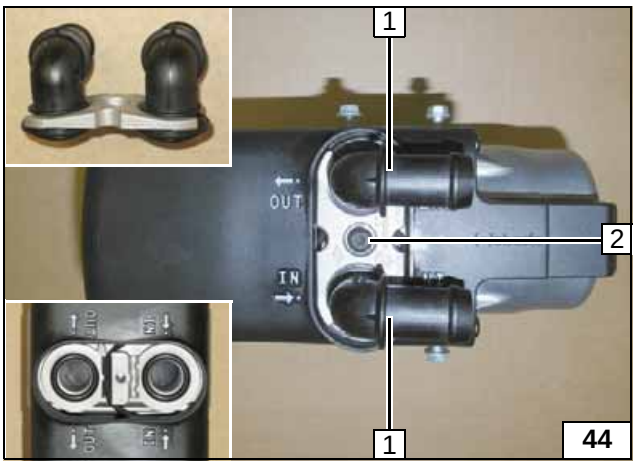
Installing circulating pump



1 M6x20 bolt, spring lockwasher [2x each]
2 Bracket
3 M6 flanged nut [2x], bracket **2**, washer with inner dia. d_i = 10mm [2x], original vehicle stud bolt [2x]

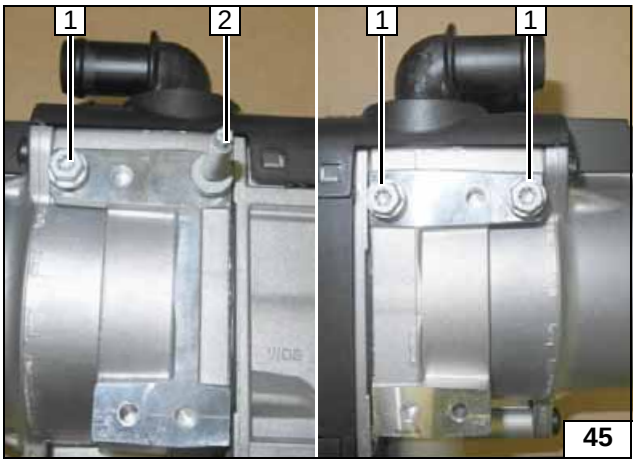
Installing bracket

Preparing Heater



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

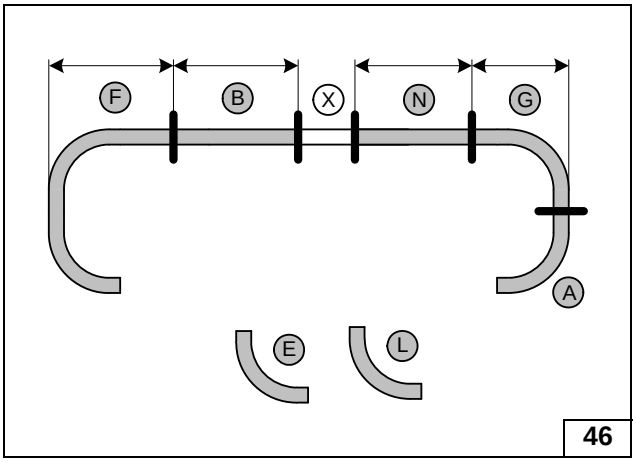
Mounting water connection piece



45

Screw 5x13 self-tapping bolts **1** [3x] and 5x11/M6x25 stud bolt **2** into existing holes by a maximum of 3 thread turns.

Premounting bolts / stud bolt loosely

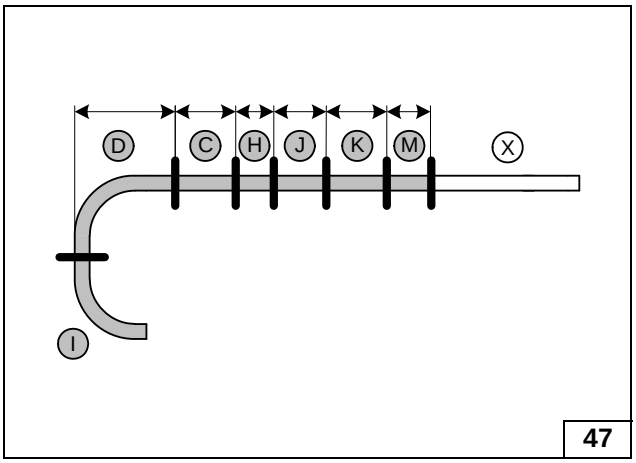


46

Discard section **X**.
Hose **E** + **L** = 90°, 18mm dia. moulded hose

B = 600
F = 160
G = 120
N = 600

Cutting hoses to length

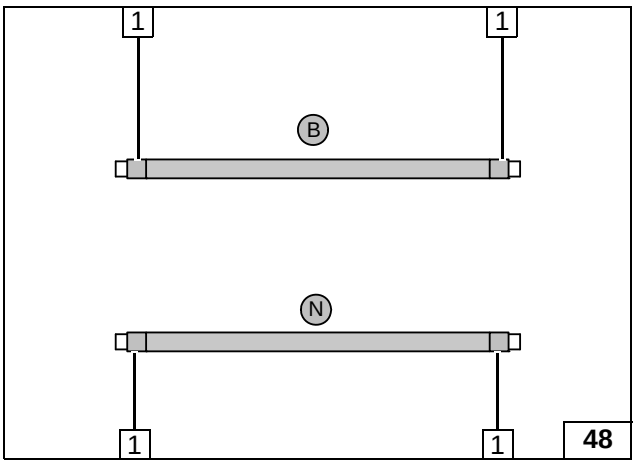


47

Discard section **X**.

C = 105
D = 180
H = 70
J = 80
K = 200
M = 60

Cutting hoses to length

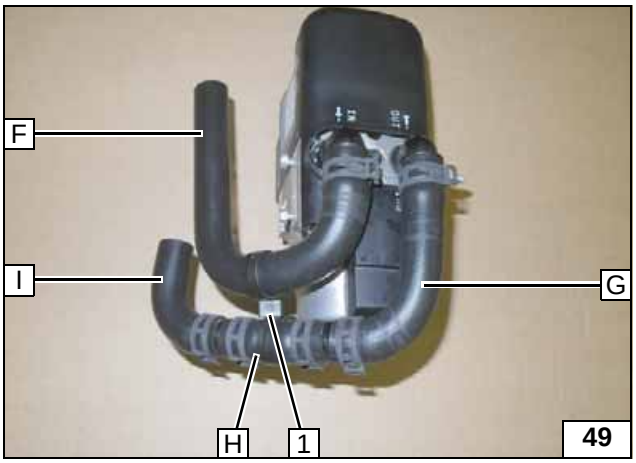


48

Push braided protection hoses onto hoses **B** and **N** and cut to length. Cut heat shrink plastic tubing to size.

1 50 mm long heat shrink plastic tubing [4x]

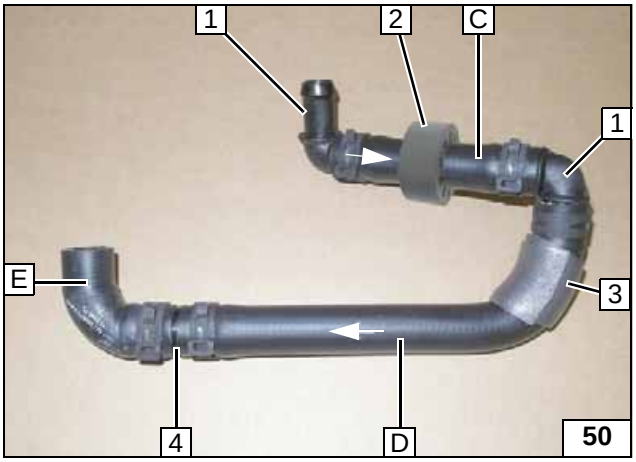
Preparing hoses



All spring clips = 25mm dia.
All connecting pipes = 18x18 mm dia.

1 25x25mm hose bracket

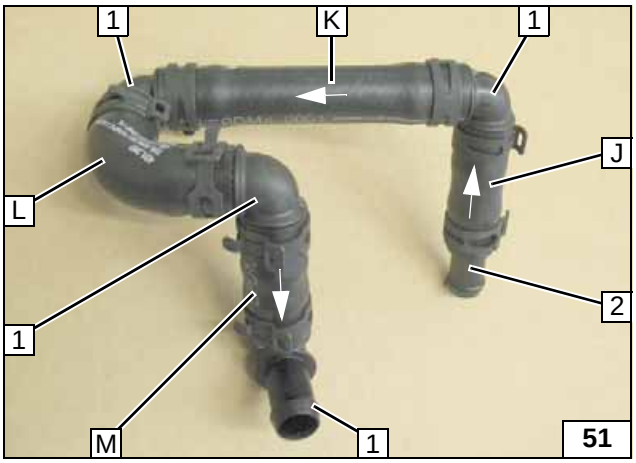
Premounting hoses



All spring clips = 25mm dia.

1 90°, 18mm dia. connecting pipe [2x]
2 Black rubber isolator
3 Insulation protection strips
4 18mm dia. connecting pipe

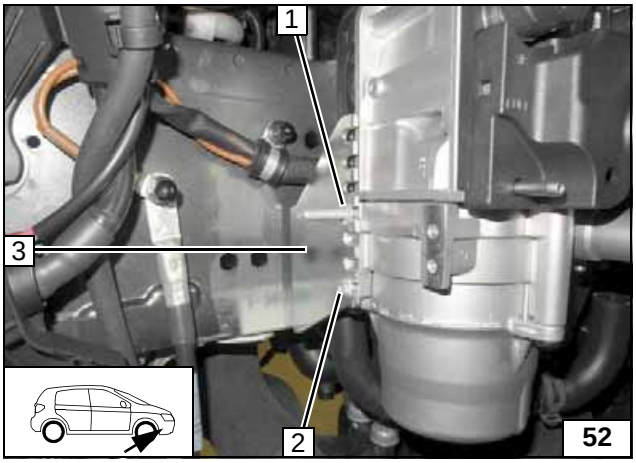
Premounting hoses



All spring clips = 25mm dia.

1 90°, 18mm dia. connecting pipe [4x]
2 18mm dia. connecting pipe

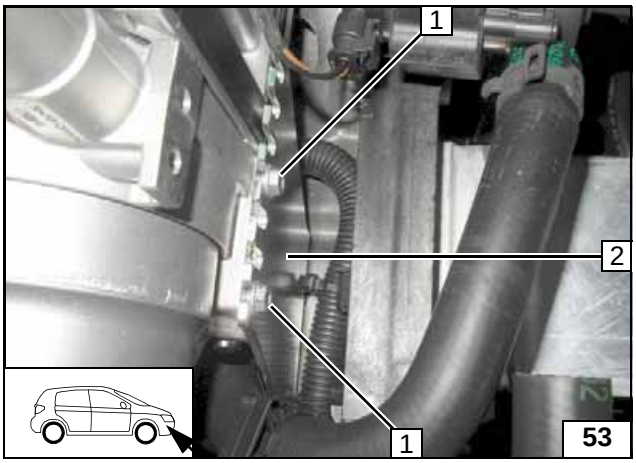
Premounting hoses



Installing Heater

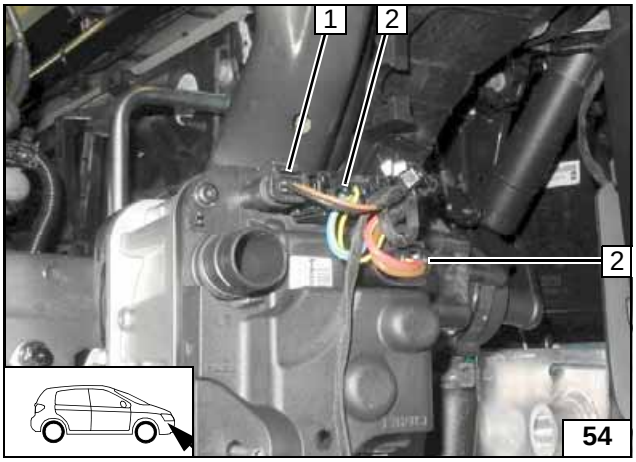
1 5x13 self-tapping bolt
2 5x13 self-tapping stud bolt
3 Bracket

Mounting heater



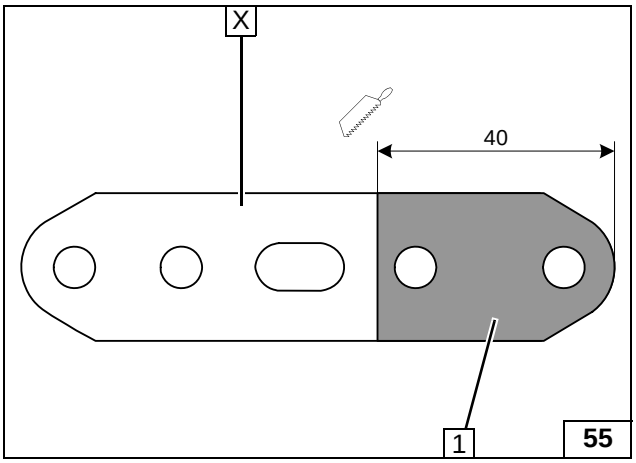
1 5x13 self-tapping bolt [2x]
2 Bracket

Mounting heater



1 Connector of circulating pump wiring harness
2 Heater wiring harness connector [2x]

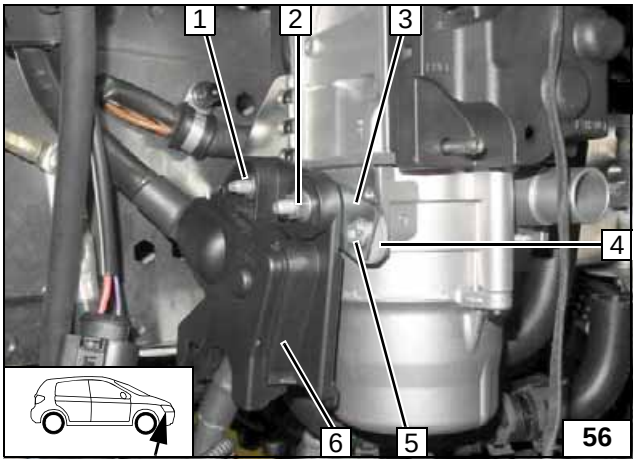
Connection of wiring harnesses



Discard section **X**.

1 Perforated bracket

Cutting perforated bracket to length



1 Self-tapping stud bolt, original vehicle flanged nut
2 M6x20 bolt, flanged nut
3 Perforated bracket cut to length
4 Large diameter washer with outer dia. d_a = 18mm
5 5x13 self-tapping bolt
6 Cable holder

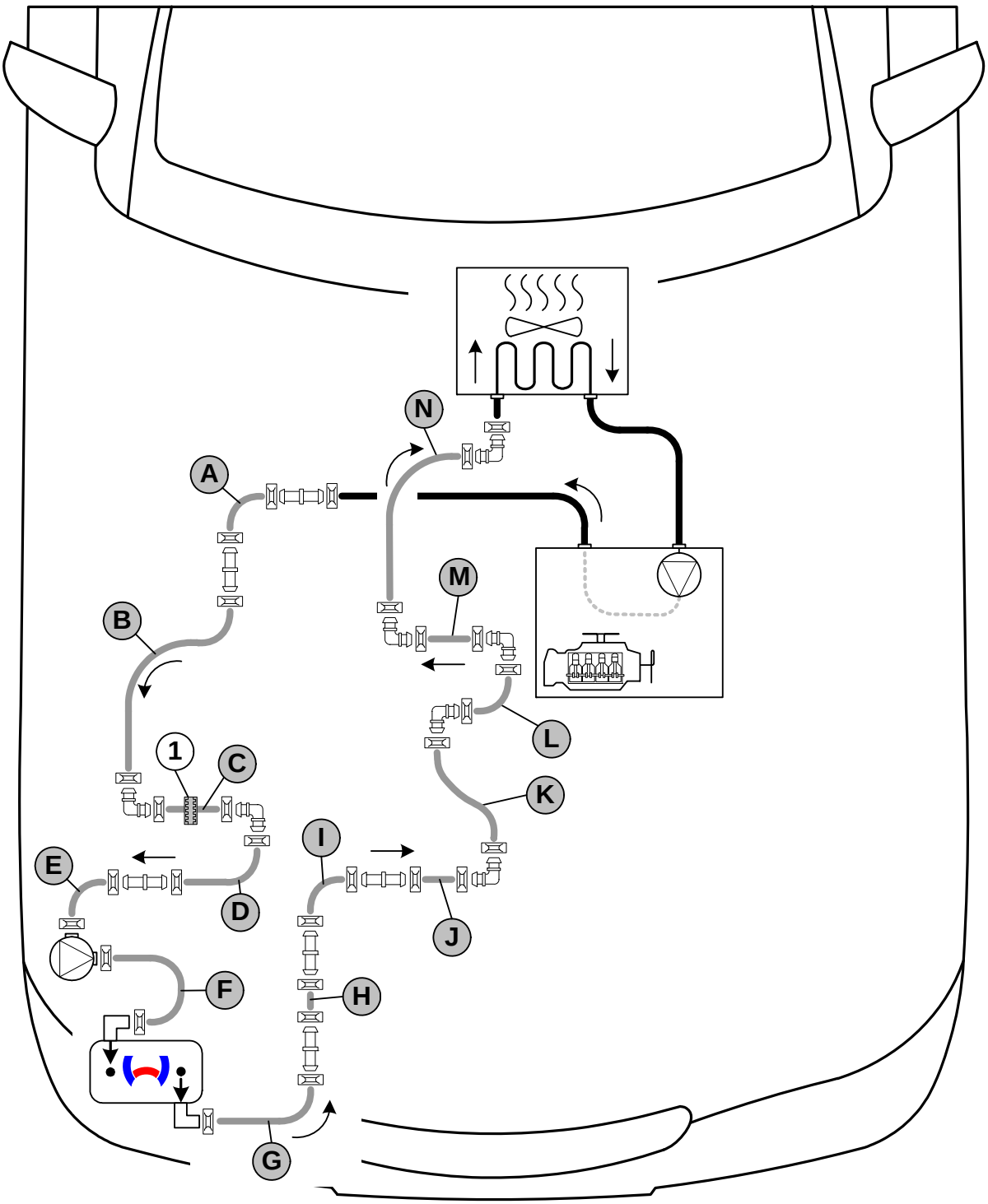
Detaching original vehicle wiring harness

Coolant Circuit

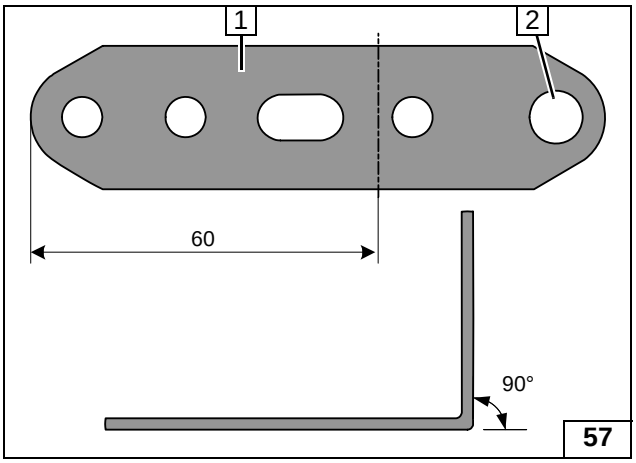
Any coolant running off should be collected in an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

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

Hose routing diagram

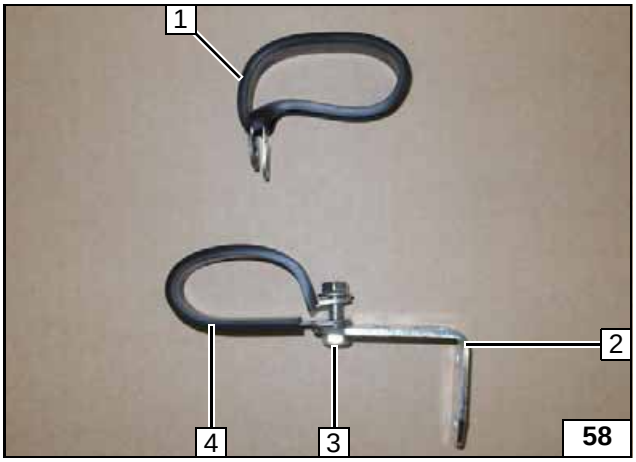


All spring clips without a specific designation = 25 mm dia. **1** = Black (sw) rubber isolator.
All connecting pipes and = 18x18mm dia.



1 Perforated bracket
2 Drill out hole to 8.5 mm dia.

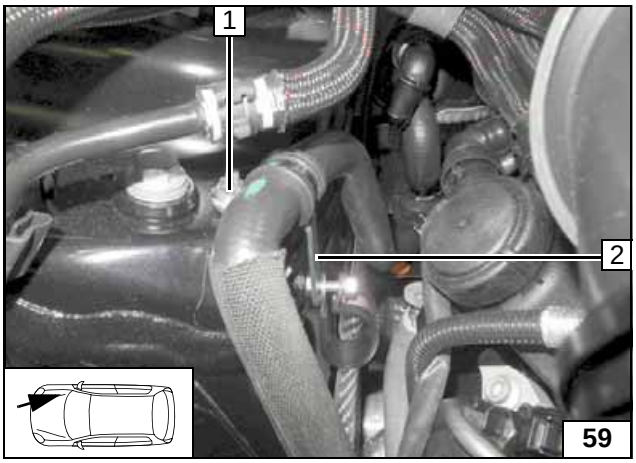
Angling down perforated bracket



Shape 38mm dia. rubber-coated p-clamp **1** as shown.

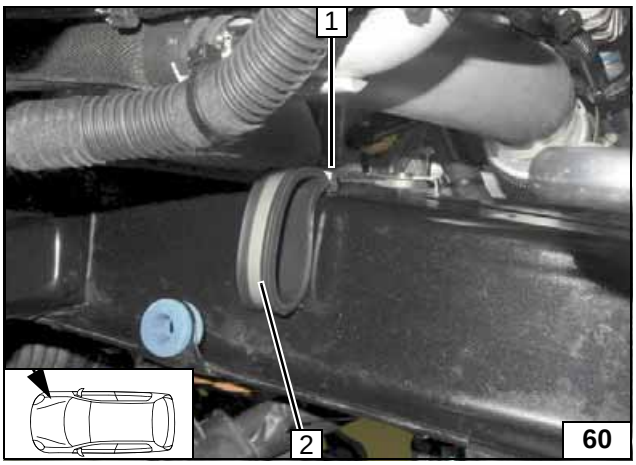
2 Perforated bracket
3 Loosely premount M6x20 bolt, flanged nut
4 38 mm dia. p-clamp

Preparing rubber-coated p-clamp



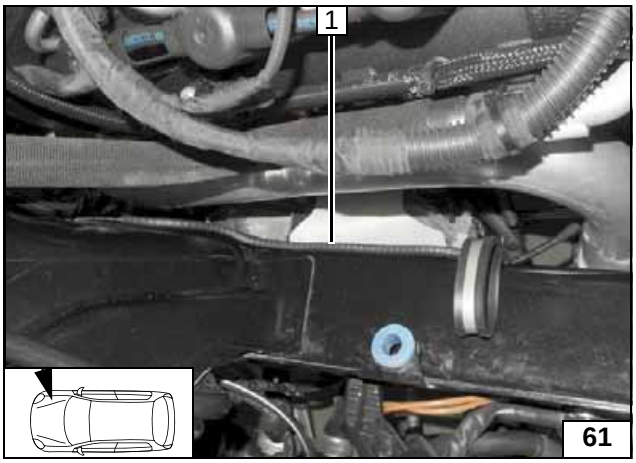
1 Original vehicle stud bolt, premounted perforated bracket with rubber-coated p-clamp **2**, original vehicle M8 flanged nut

Installing bracket



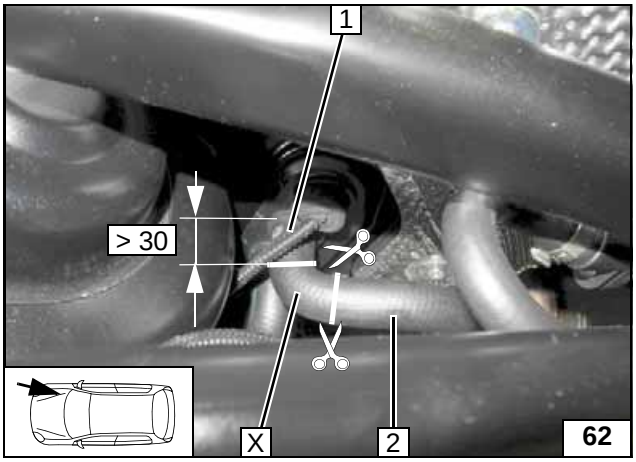
1 M6x20 bolt, preformed rubber-coated p-clamp **2**, spring lockwasher, original vehicle thread

Installing rubber-coated p-clamp loosely



1 200mm edge protection

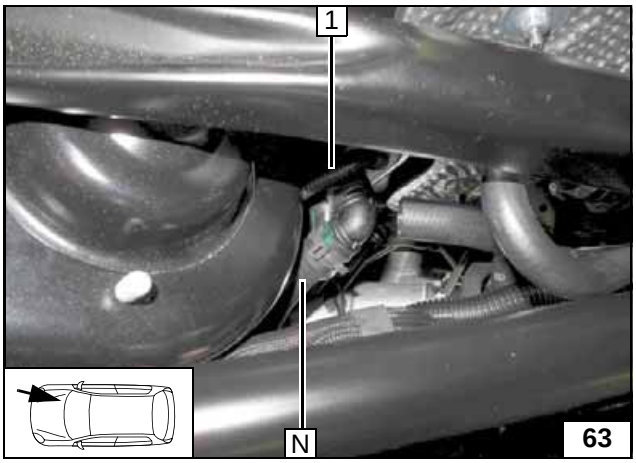
Mounting edge protection



Cut out 90° elbow **X** of engine outlet / heat exchanger inlet hose at the markings and discard.

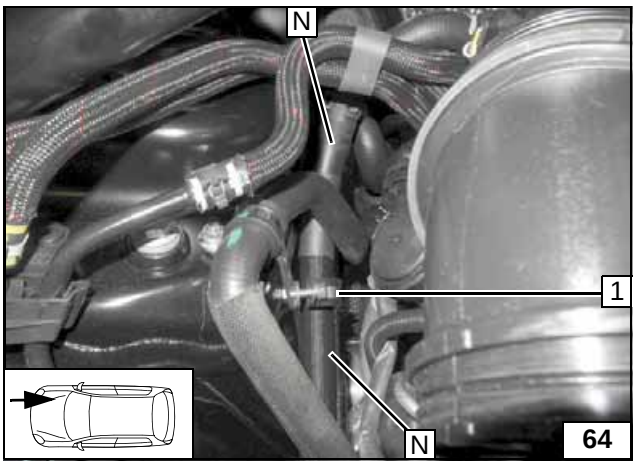
1 Hose section of heat exchanger inlet
2 Hose section on engine outlet

Cutting point



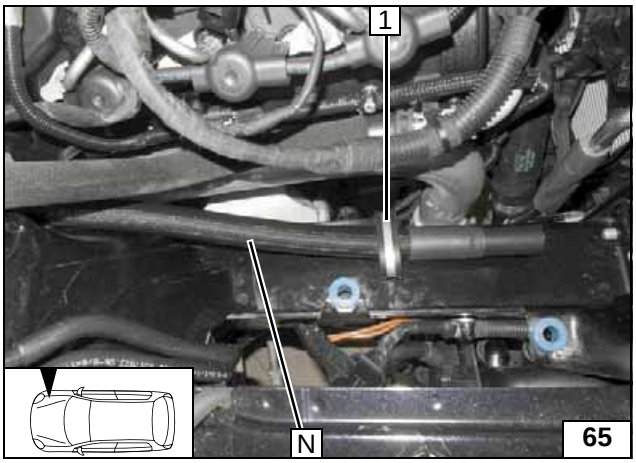
1 Hose of heat exchanger inlet

Connecting heat exchanger inlet



Guide hose **N** through premounted rubber-coated p-clamp **1**.

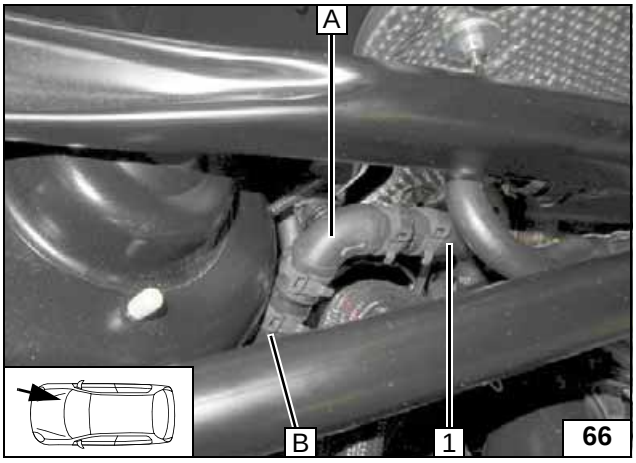
Hose routing



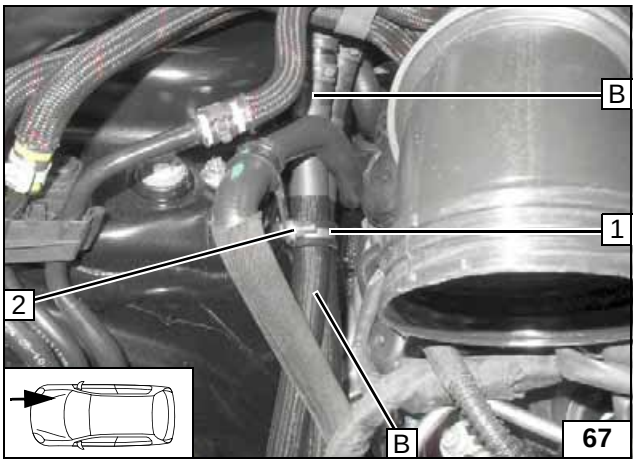
Guide hose **N** through premounted rubber-coated p-clamp **1**.

Routing hose

1 Hose of engine outlet



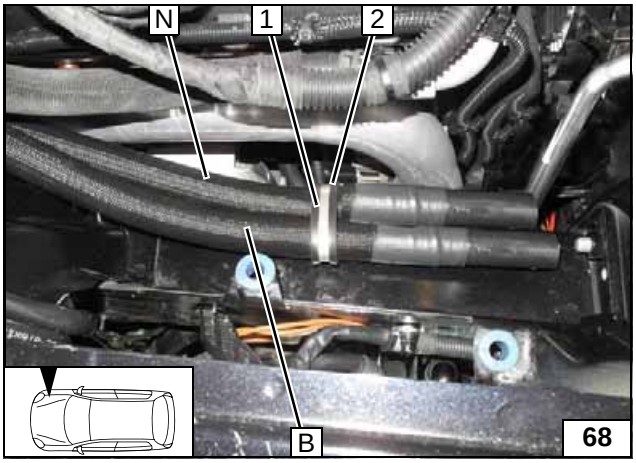
Connecting engine outlet



Guide hose **B** through premounted rubber-coated p-clamp **1**.

2 Tighten flanged nut

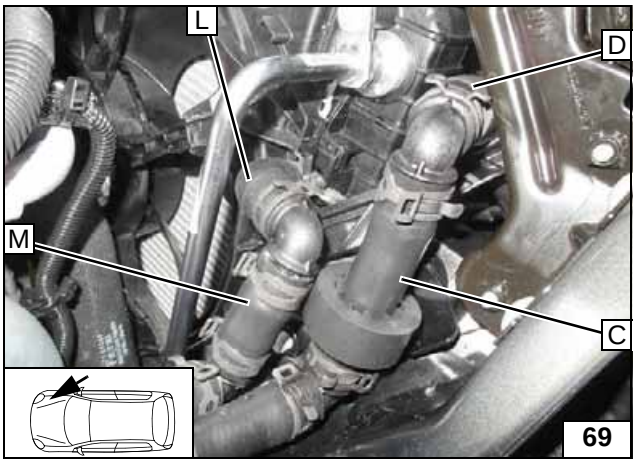
Hose routing



Guide hose **B** through premounted rubber-coated p-clamp **1**.

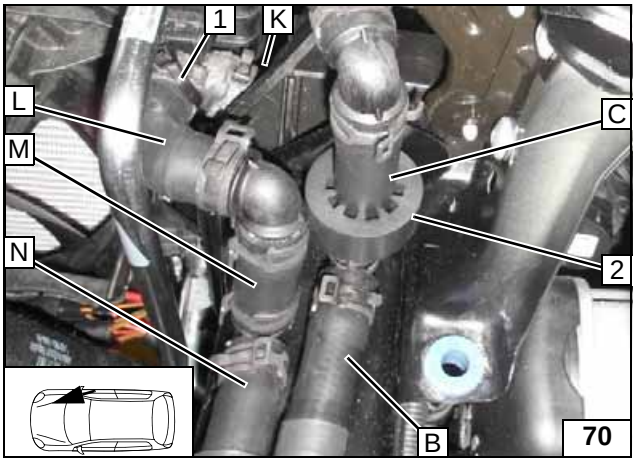
2 Tighten bolt (hidden)

Routing hose



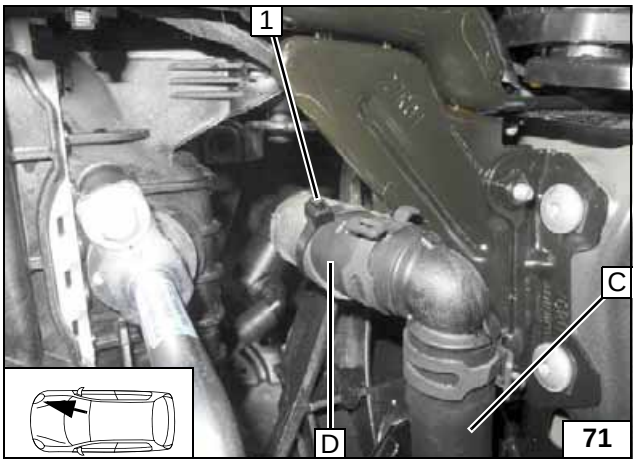
Route premounted hose group **C - E** to installation location of circulating pump and **J - M** to installation location of heater.

Routing hoses



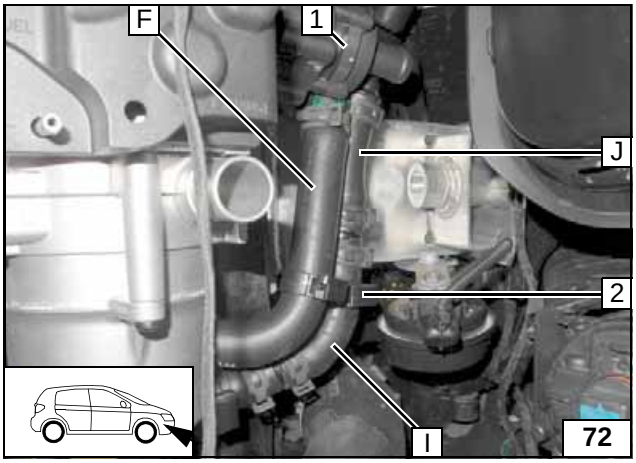
1 Cable tie
2 Align black (sw) rubber isolator

Connecting / aligning and securing hoses



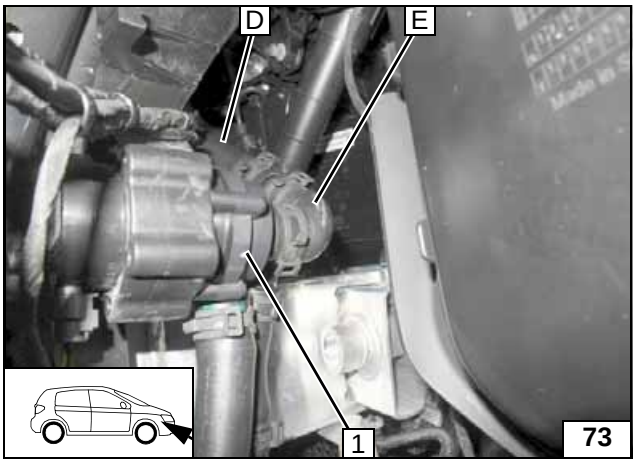
1 Cable tie

Aligning and securing hoses



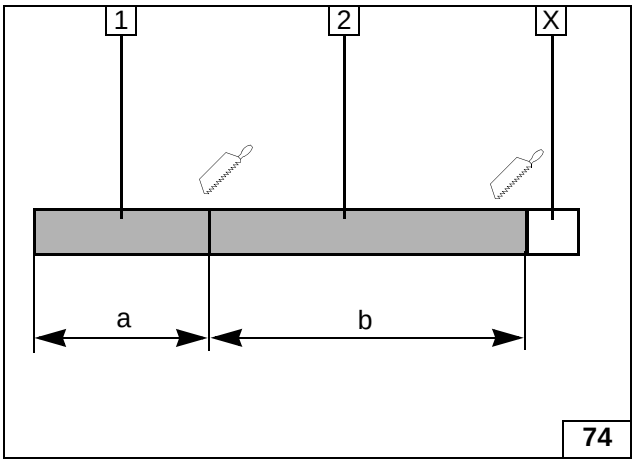
1 Circulating pump
2 Lockable 25x25mm hose bracket

Connecting circulating pump and heater



1 Circulating pump

Connecting circulating pump

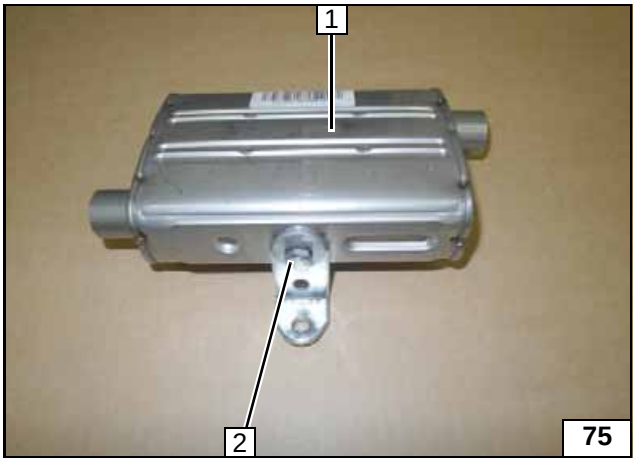


Exhaust Gas

Discard section **X**.

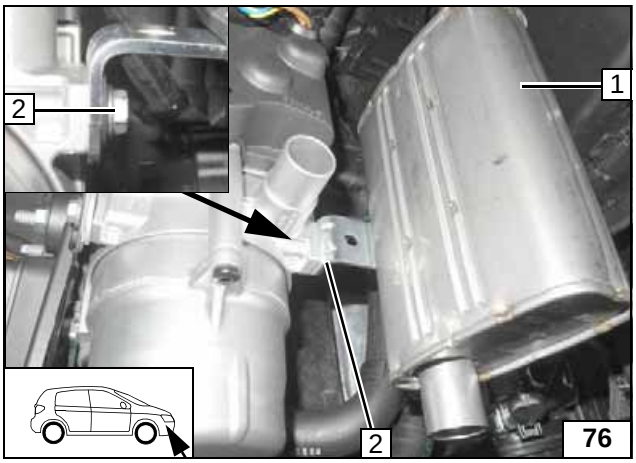
1 Exhaust pipe
a = 250
2 Exhaust end section
b = 380

Preparing exhaust pipe



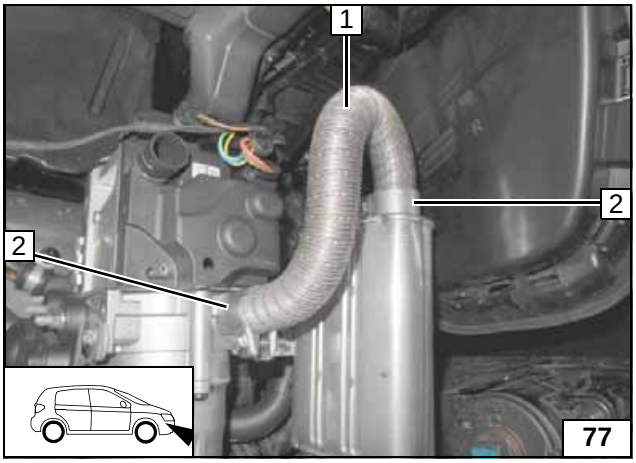
1 Silencer
2 M6x16 bolt, large diameter washer, angle bracket

Installing angle bracket



1 Silencer
2 5x13 mm self-tapping bolt, large diameter washer

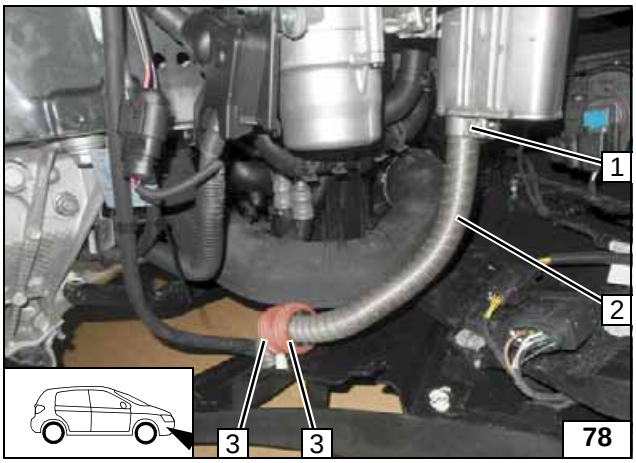
Installing silencer



Ensure sufficient distance from neighbouring components, correct if necessary.

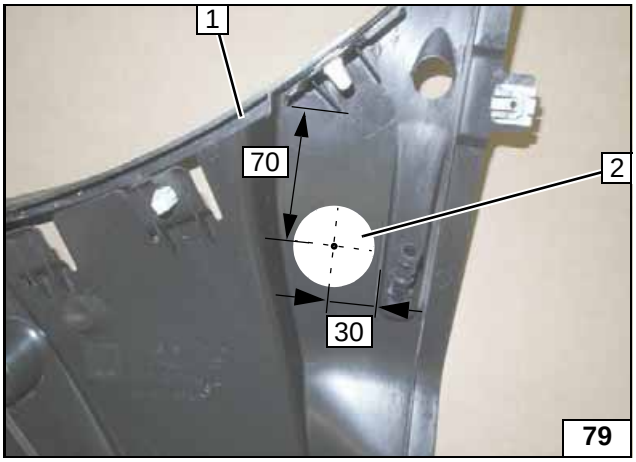
1 Exhaust pipe
2 Hose clamp [2x]

Installing exhaust pipe



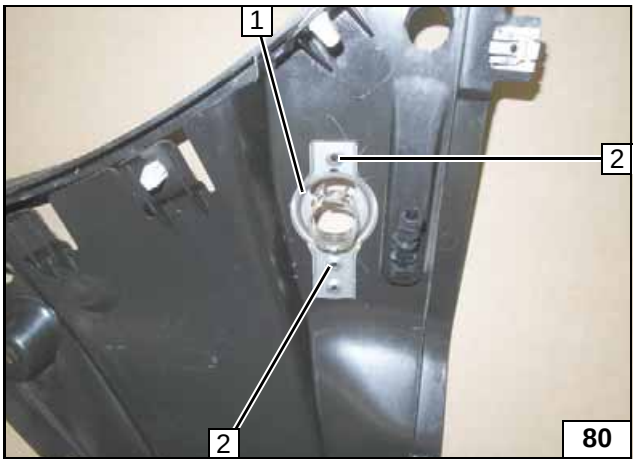
1 Hose clamp
2 Exhaust end section
3 Spacer bracket [2x]

Installing exhaust end section



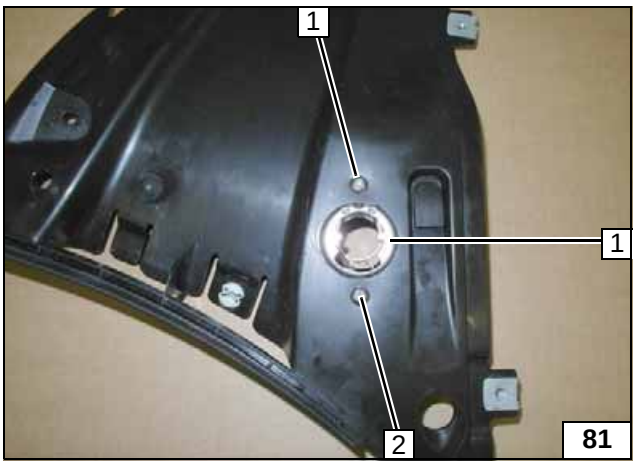
1 Underride protection
2 Hole (according to work step 1 of the installation instructions)

Hole in underride protection



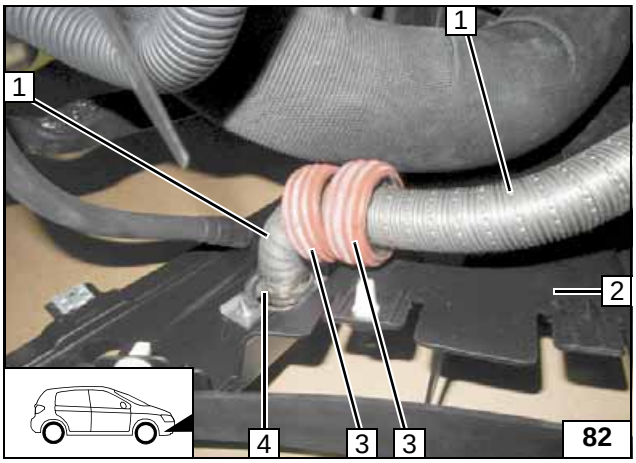
Position exhaust end fastener **1** as per work step 3 and 4 of the installation instructions, copy hole pattern **2** [2x] and drill holes.

Holes in underride protection



1 Self-tapping screw 5x13 [2x] according to work step 5 of the installation instructions
2 Exhaust end fastener

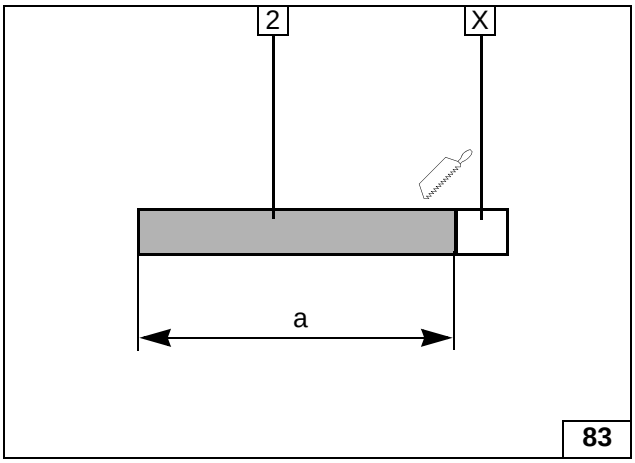
Installing exhaust end fastener



Install underride protection **2**.
Mount exhaust end section **1** according to work step 2, as well as work steps 6 - 8 of the installation instructions.
Ensure sufficient distance from neighbouring components, correct if necessary.

3 Align spacer bracket with charge-air tube [2x]
4 Exhaust end fastener

Installing exhaust end section

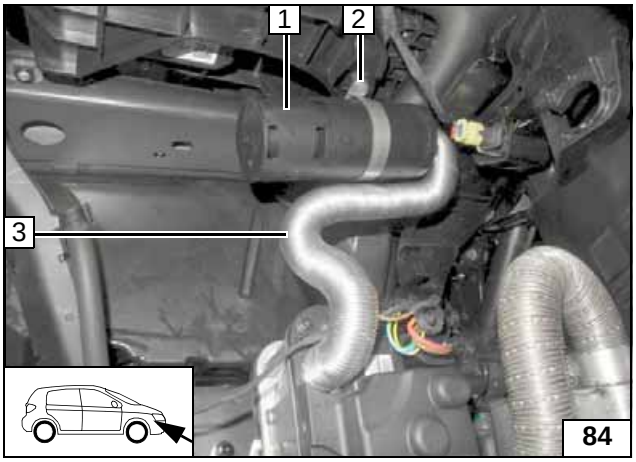


Combustion Air

Discard section **X**.

1 Combustion air pipe
a = 345

Preparing combustion air pipe



1 Silencer
2 M5x16 bolt, 51mm dia. clamp, existing hole, flanged nut
3 Combustion air pipe

Installing combustion air pipe

Fuel

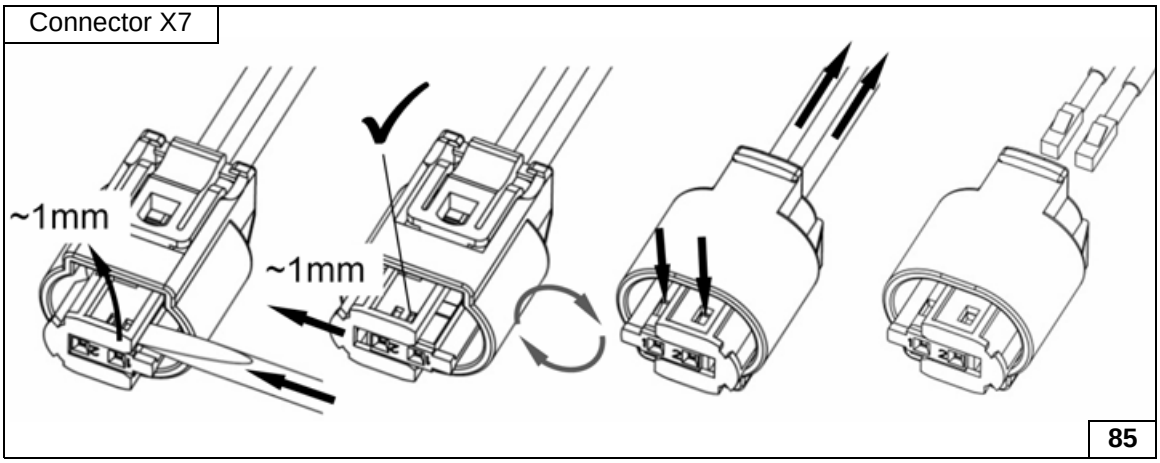
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

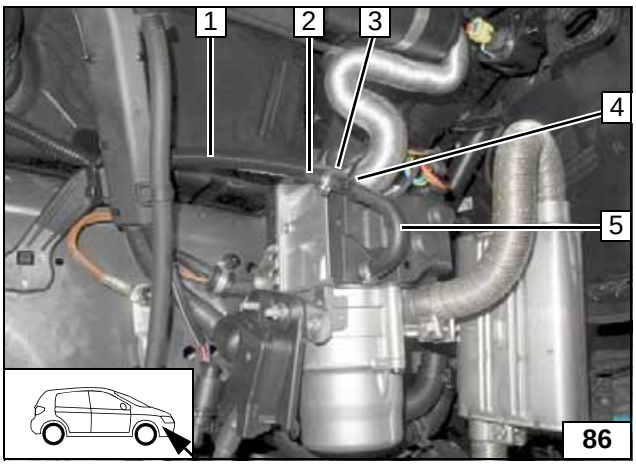
Catch any fuel running off in an appropriate container.

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 metering pump connector

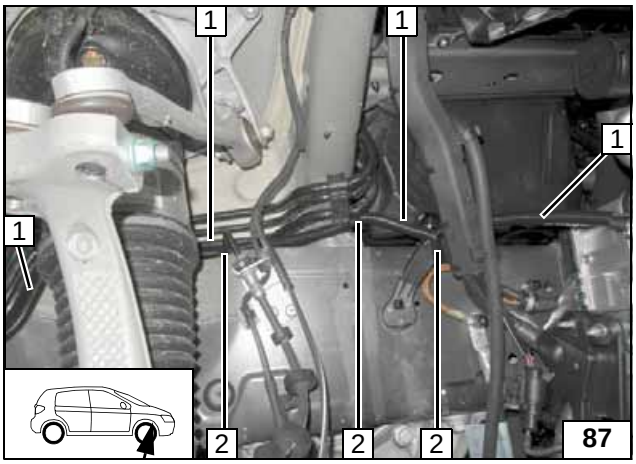




Pull fuel line **2** and wiring harness of metering pump **3** into corrugated tube **1** and route to wheel well.

4 Cable tie
5 180° moulded hose, 10mm dia. clamp [2x]

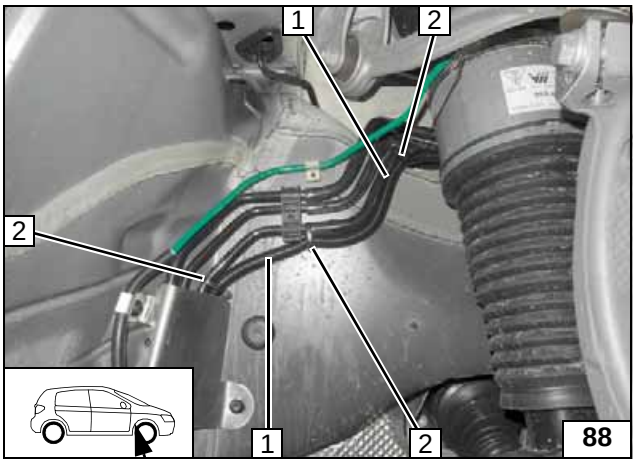
Connecting heater



Route fuel line and wiring harness of metering pump in corrugated tube **1** along original vehicle fuel lines.

2 Cable tie [3x]

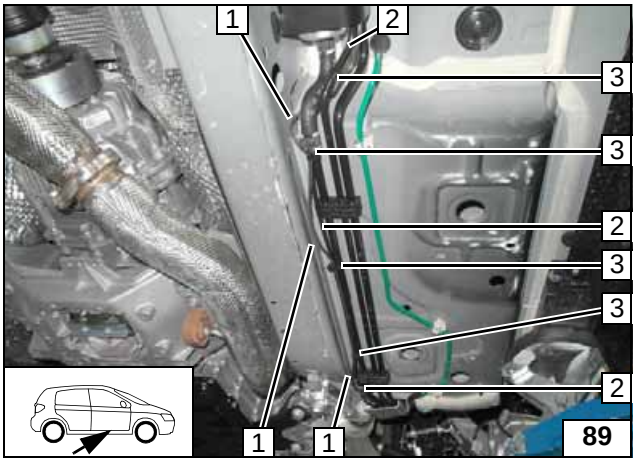
Routing lines



Route fuel line and wiring harness of metering pump in corrugated tube **1** along original vehicle fuel lines to the underbody.

2 Cable tie [3x]

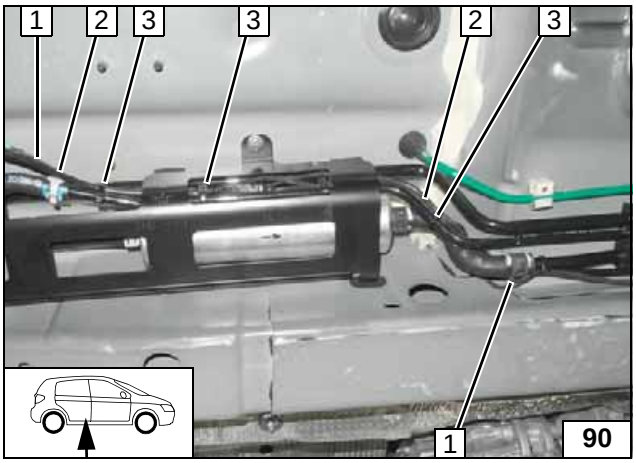
Routing lines



Route fuel line **2** and wiring harness of metering pump **1** along original vehicle fuel lines!

3 Cable tie [4x]

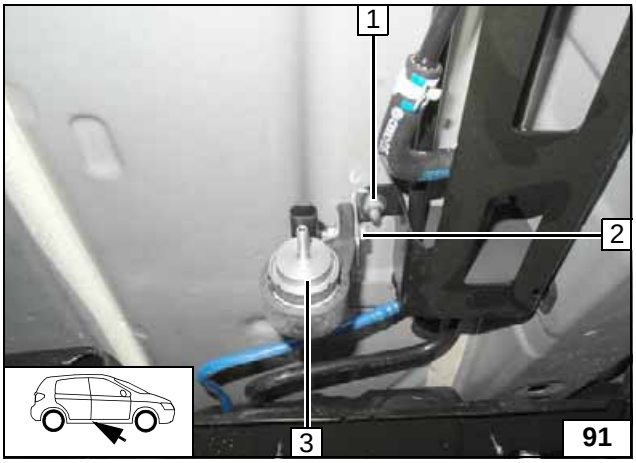
Routing lines



Route fuel line **2** and wiring harness of metering pump **1** along original vehicle fuel lines to installation location of metering pump.

3 Cable tie [3x]

Routing lines

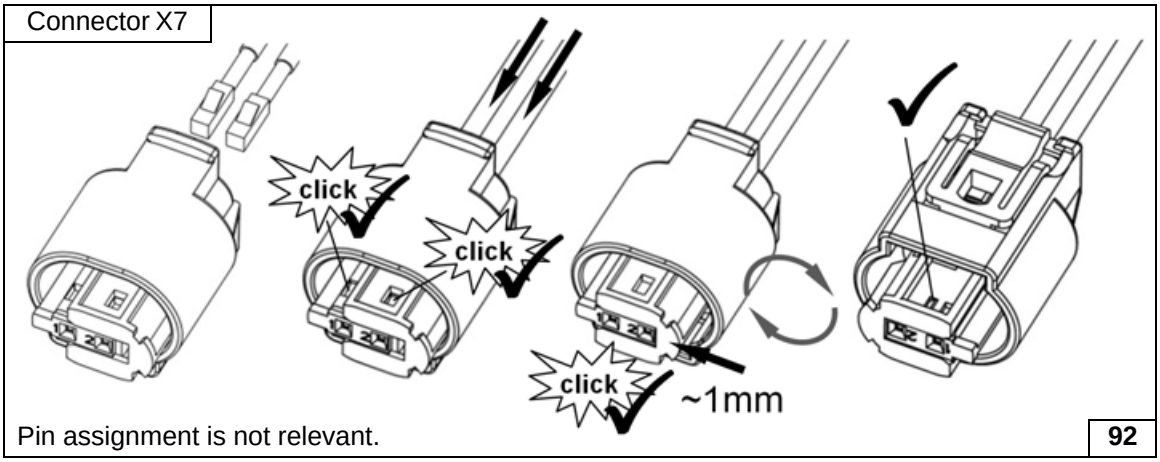


1 Original vehicle stud bolt, angle bracket, original vehicle nut
2 M6x25 bolt, angle bracket, metering pump mounting, support angle bracket, flanged nut
3 Metering pump

Installing metering pump

Completing metering pump connector

Connector X7



Pin assignment is not relevant.

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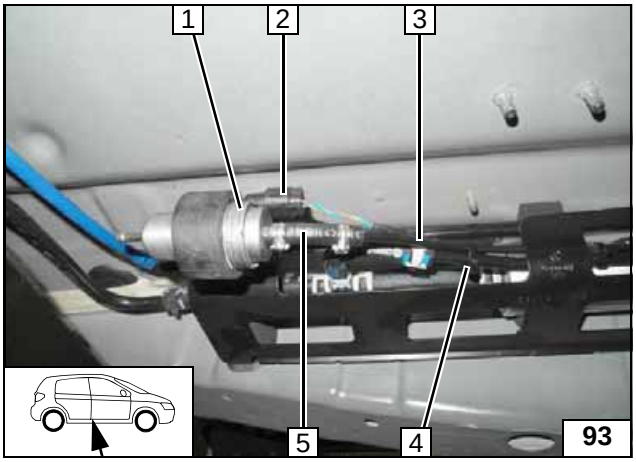

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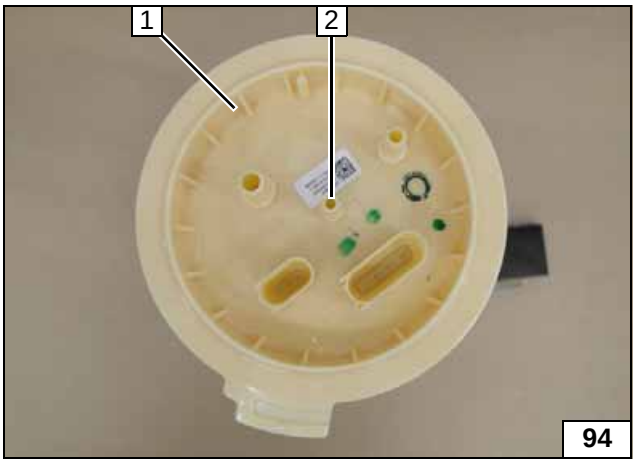
1 Metering pump
2 Wiring harness of metering pump, connector X7 mounted
3 Fuel line of heater
4 Cable tie
5 Hose section, 10mm dia. clamp [2x]

Connecting metering pump



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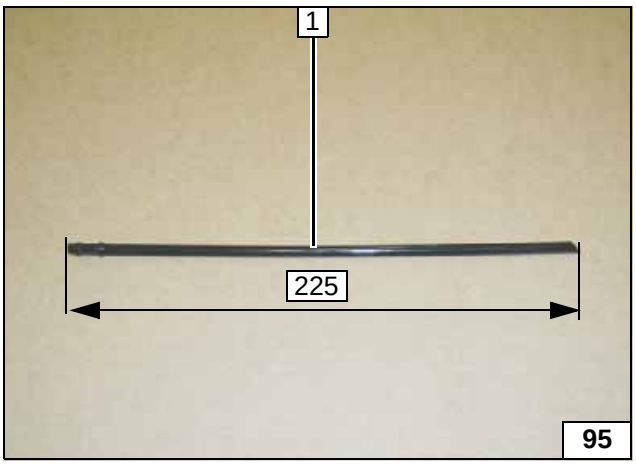
Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 Drill out connection piece to 2.5 mm dia.

Fuel extraction



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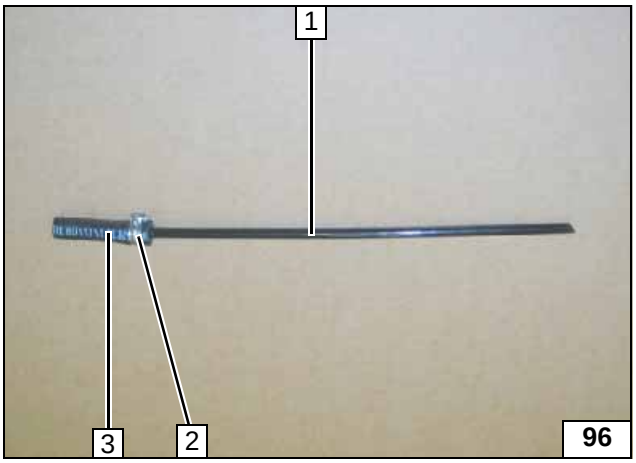
1 Standpipe

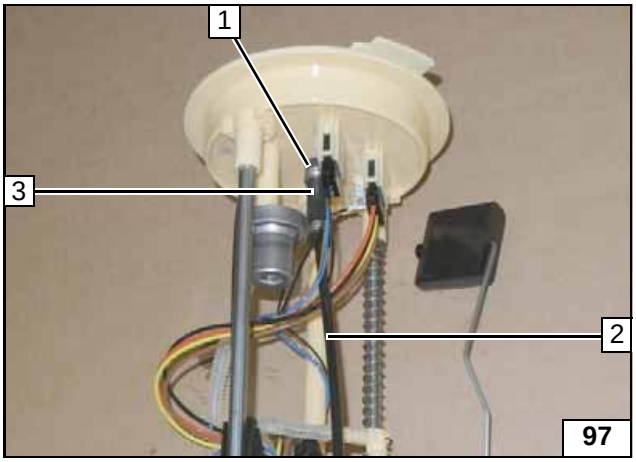
Cutting standpipe obliquely to length



Position 10mm dia. clamp **2** exactly between the two bulges of the standpipe.

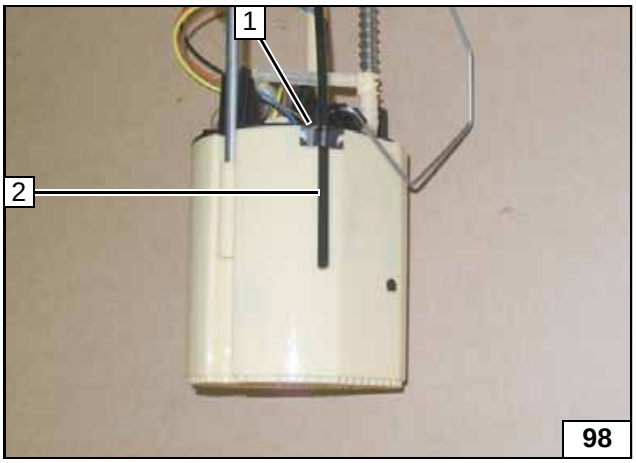
1 Standpipe
3 Hose section

Premounting standpipe



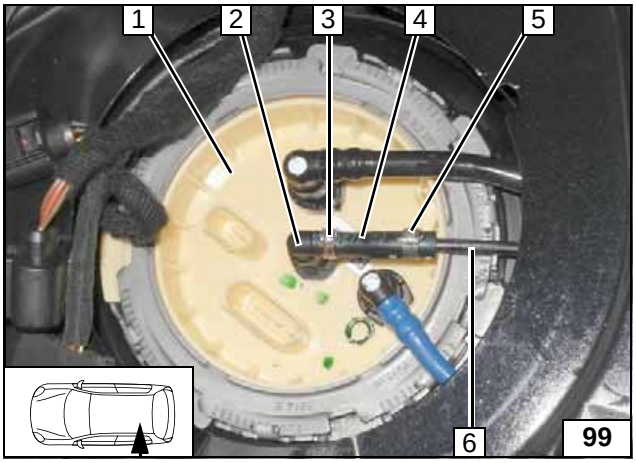
1 10 mm dia. clamp
2 Standpipe
3 Premounted hose section

Installing standpipe



1 Retaining clamp
2 Standpipe

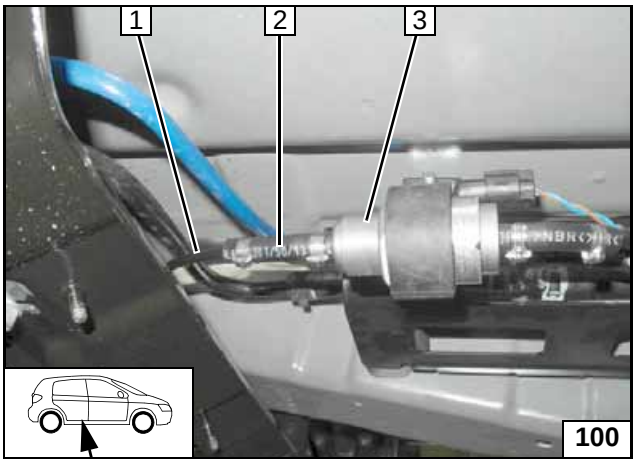
Securing standpipe



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions.

2 90° coupling
3 9 mm dia. clamp
4 3.5x4.5mm moulded hose with 3.5mm side on 90° coupling
5 10 mm dia. clamp
6 Fuel line of fuel standpipe

Connecting fuel line



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Fuel line of fuel standpipe
2 Hose section, 10mm dia. clamp [2x]
3 Metering pump

Connecting metering pump

Final Work

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, Order No. 111329).

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **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 refueling" caution label near the filler neck**
- **See installation instructions for initial start-up and function check**

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82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

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.

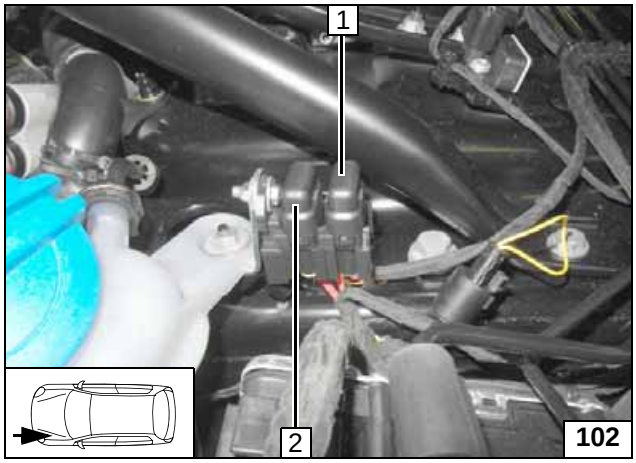
Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

A/C control panel

1 Set temperature on both sides to "HI"
2 Air outlet on both sides to windscreen

Engine compartment fuses



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