Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Nissan Qashqai

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Nissan	Qashqai	J11	e11 * 2007 / 46 * 0963 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.6 D	Diesel	Xtronic	96	1598	R9M

Xtronic = continuously variable automatic transmission

From Model Year 2014
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
2 zone automatic air-conditioning
Front fog light
2 WD / 4 WD
LED daytime running lights
Start / Stop
Euro 5 / 5b+

Not verified: Passenger compartment monitoring
LED headlights

Total installation time: approx. 8 hours

Nissan Qashqai

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Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Nissan Qashqai 2014 1.2 P**/**1.6 Diesel: **1323907A**
- 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 upon consultation with end customer

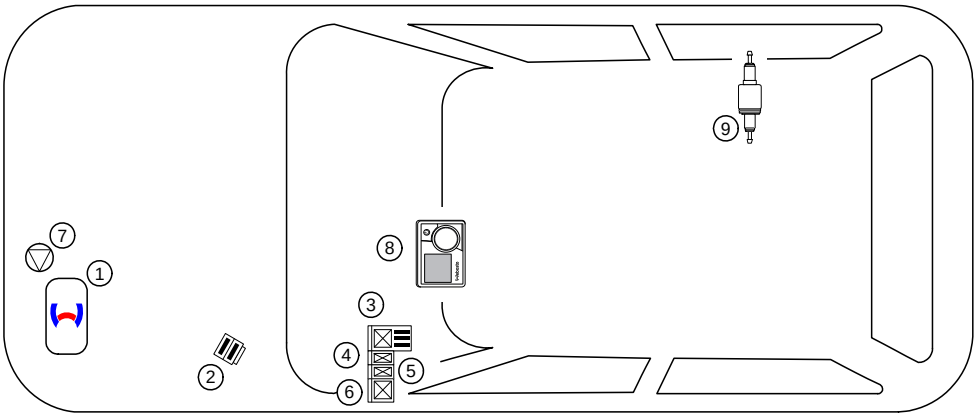
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full!
- The installation location of the push button in the case of Telestart or Thermo Call should be confirmed with the end customer.
- Depending on the space required and the manufacturer's instructions on the vehicle, we recommend the use of a vehicle battery with a higher electrical capacity!
- The vehicle owner's preferred settings for the A/C control panel in the case of normal operation are to be requested and must be adjusted before the battery is disconnected from the A/C control panel. Further details can be found in the sections "Preliminary Work" and "Final Work"!

Installation Overview

Legend:

1. Heater
2. Fuse holder of engine compartment
3. Relay and fuse holder of passenger compartment
4. K2 relay
5. K3 relay
6. PWM GW
7. Circulating pump
8. MultiControl CAR
9. Metering pump



Notes 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 Information (not complete)

1.1 Installation and Repair

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

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

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

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

1.2 Operation

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

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

Always switch off the heater before refuelling.

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

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

1.3 Please note

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

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

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

Important

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

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

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

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

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

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

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

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

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

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

2.2. Positioning of heater

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

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

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

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

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

2.3. Fuel supply

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

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

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

2.4. Exhaust system

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

2.5. Combustion air inlet

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

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

2.6. Heating air inlet

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

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

2.7. Heating air outlet

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

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

End of excerpt.

In multilingual versions the German language is binding.

Notes on Validity

This installation documentation applies to Nissan Qashqai 1.6 Diesel vehicles - for validity, see page 1 - from model year 2014 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 Instructions

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

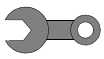
Dimensions
- All dimensions are in mm

Tightening torque values
- Tightening torque values for 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque of 5x15 retaining plate of water connection piece 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

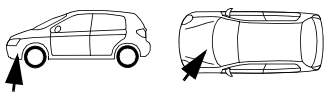
Specific risk of injury or fatal accidents.

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

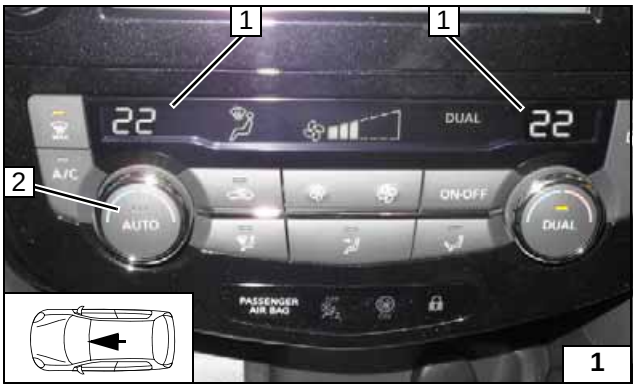


Tightening torque according to the manufacturer's vehicle-specific documents

Preliminary Work

On the vehicle

- The vehicle owner's preferred settings for the A/C control panel in the case of normal operation must be requested before the vehicle battery is disconnected and they must be adjusted as follows:

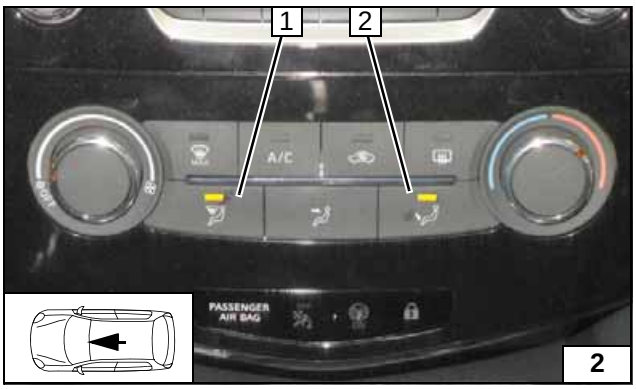


Automatic air-conditioning

Example:

1 Set temperature on both sides to "22ºC"
2 Button "Auto" activated

Adjusting pre-settings on A/C control panel



Manual air-conditioning

Example:

1 Button "air outlet towards windscreen" activated
2 Button "air outlet towards footwell" activated

Fan speed and temperature presettings are not required!

Adjusting pre-settings on A/C control panel

- Then switch off the ignition!
  Note:
  these values will be the basic settings in the future for normal operation after switching on the ignition!

Vehicle

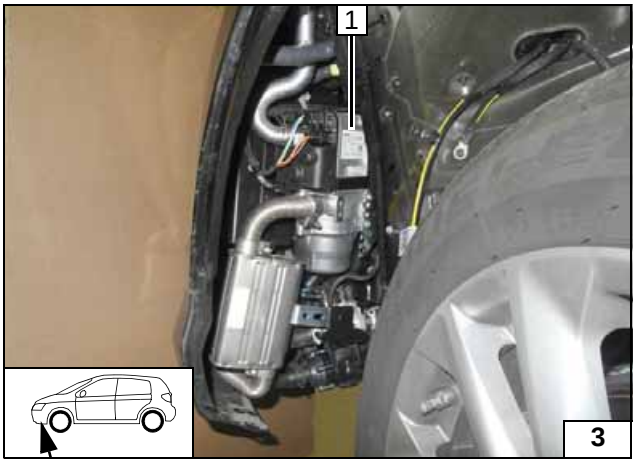
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery and remove it completely with the battery carrier.
- Remove the air filter completely with the intake hose as far as the engine.
- Remove the front left-hand wheel well trim.
- Remove the front bumper trim.
- Remove the underride protection of the engine.
- Remove the underride protection on the underbody on the right.
- Remove the control unit of the electric auxiliary heater together with the front left bracket.
- Remove the fuse and relay box [2x] with the front left bracket.
- Remove the rear bench seat.
- Remove the left instrument panel trim.
- Remove the centre console trim on the left.
- Remove the centre console trim on the right (only in case of automatic air-conditioning).
- Remove the A/C control panel (only in case of manual air-conditioning).

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

- Open the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.

Heater

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

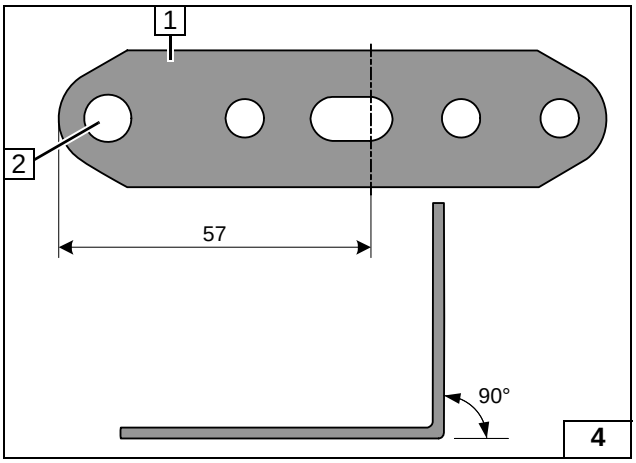


Heater Installation Location

1 Heater

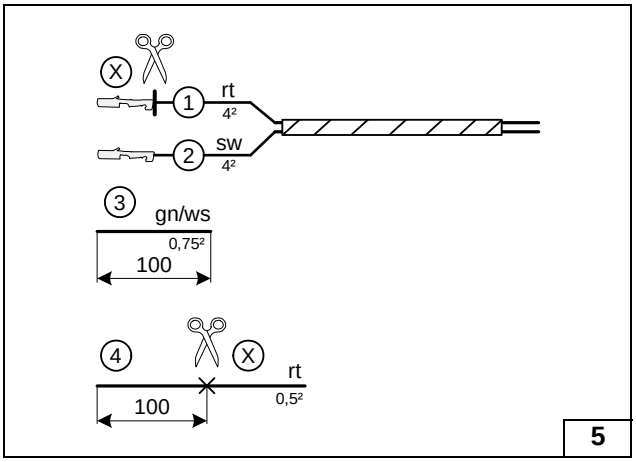
Installation location

Preparing Electrical System



1 Perforated bracket for engine compartment fuse holder
2 Drill out hole to 8.5mm dia.

Preparing perforated bracket



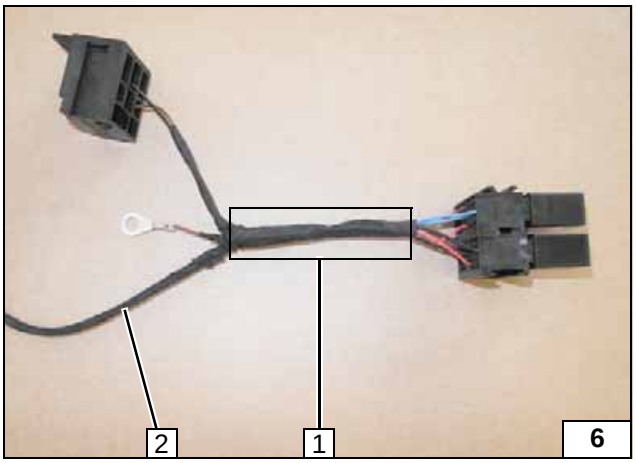
Wire sections retain their numbering in the entire document.

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

Discard sections **X**.

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

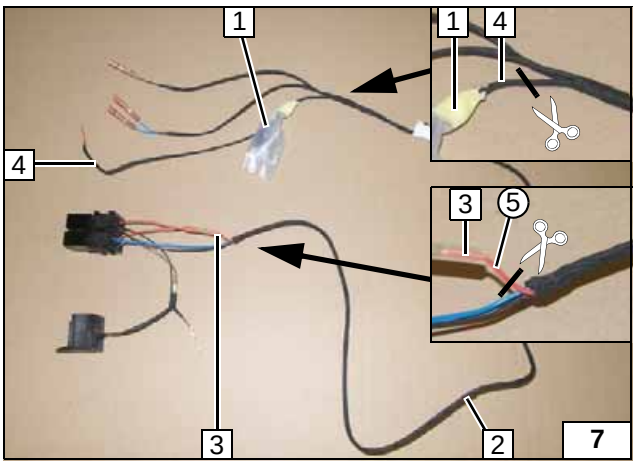
Cutting to length/assigning wires



Carefully remove the insulation of the provided additional wiring harness in marked area **1**!

2 Additional wiring harness

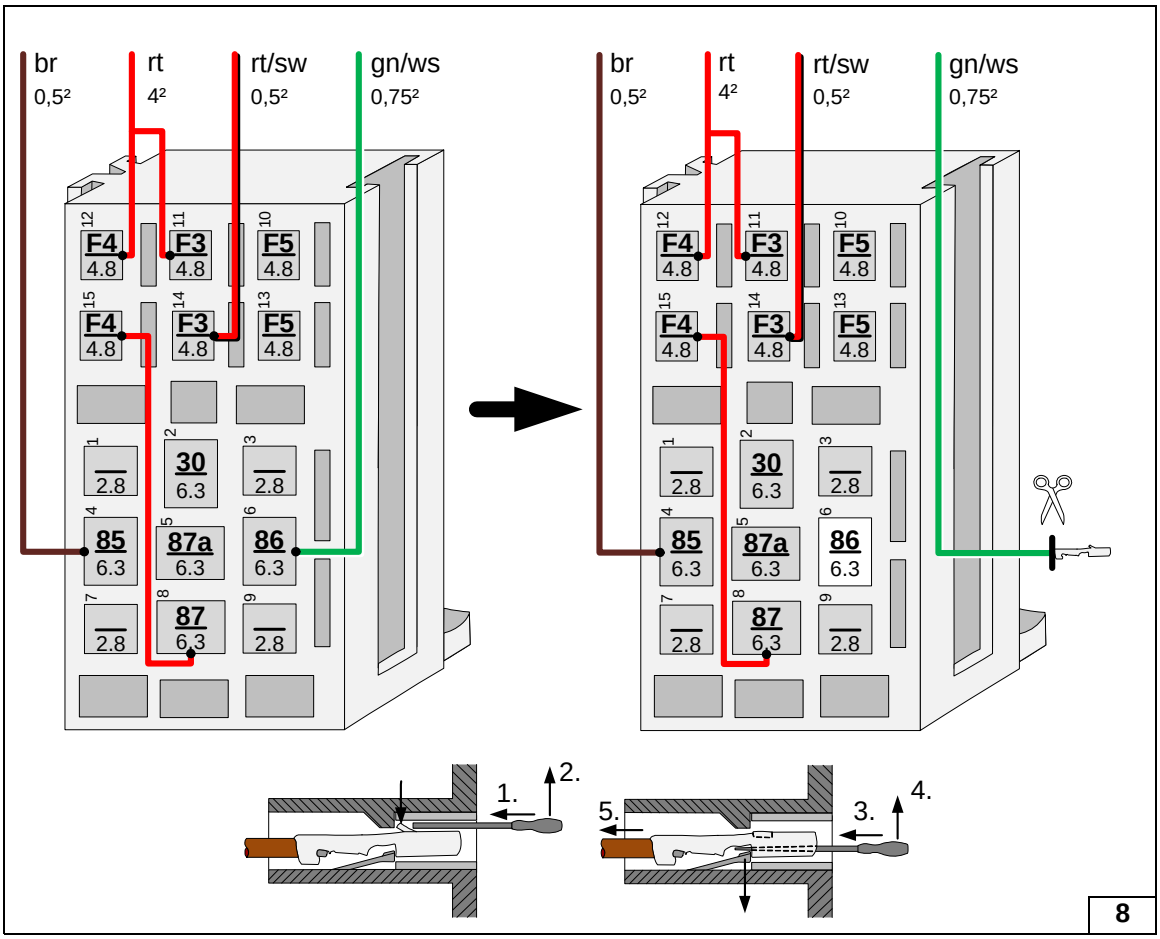
Preparing additional wiring harness



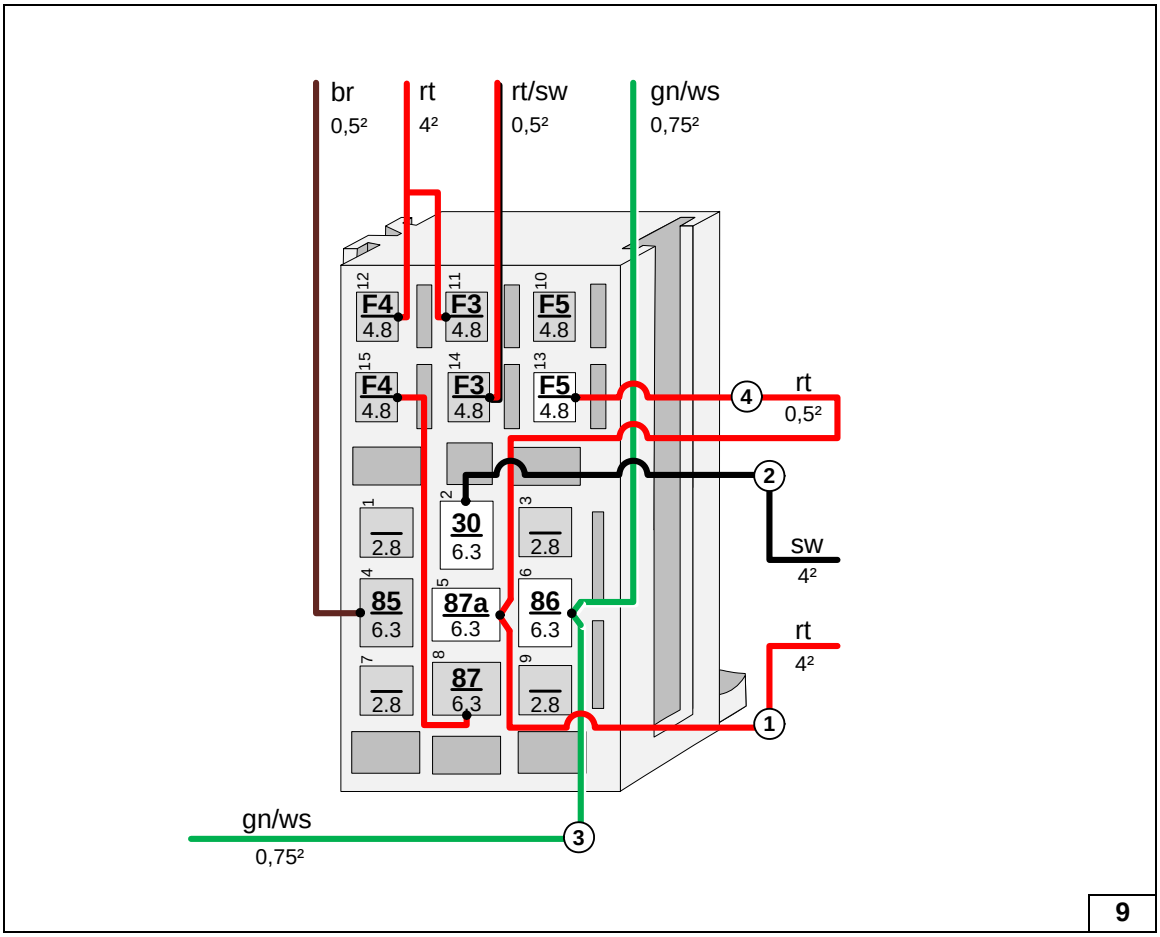
Cut red (rt) wire **4** as shown and discard with accessories bag **1**.
Cut red (rt) wire **3** as shown.

2 Additional wiring harness
⑤ Red (rt) wire of K2/86 and K3/86

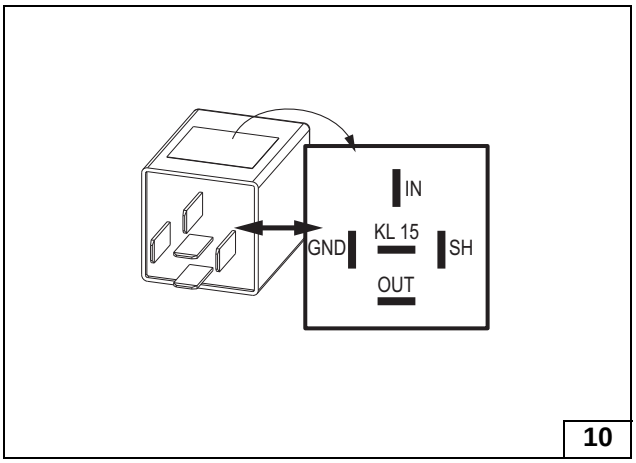
Preparing additional wiring harness



Preparing relay and fuse holder of passenger compartment



Connecting wires to passenger compartment relay and fuse holder



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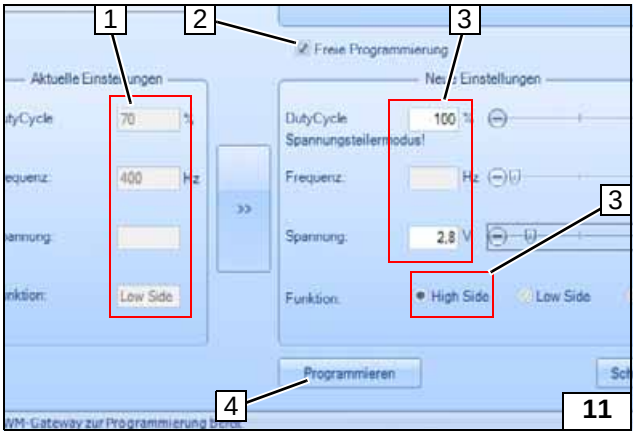
Manual air-conditioning

The pre-programmed settings of the provided PWM GW must be changed to the following values using the Webasto Thermo Test Diagnosis (WTT) (see also the next figure):

Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 2.8V
Function: High-side

Reprogramming PWM-GW



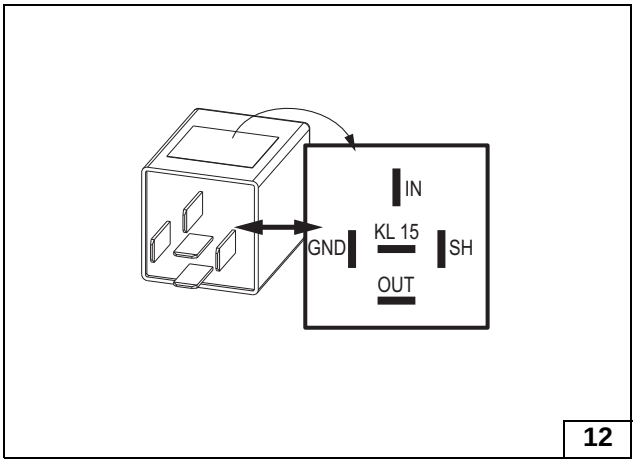
11

Valid for WTT, software version V2.16 and higher! Free update via: www.dealers.webasto.com and Support via: technikcenter@webasto.com

1 Current settings
2 Activate "Free programming"
3 Enter the new settings
4 After adjusting the settings, click on the button "Program"

Check the PWM Gateway settings when starting up the heater and adjust if necessary (see "Final Work")!

Reprogramming PWM-GW with WTT



12

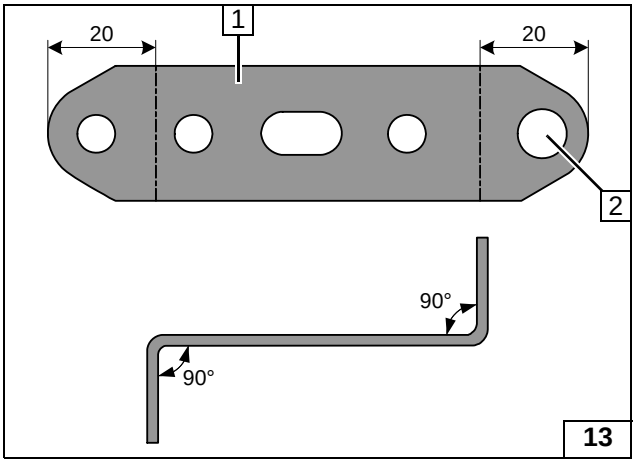
Automatic air-conditioning

Check the PWM Gateway settings when starting up the heater and adjust if necessary (see "Final Work")!

Settings:

Duty cycle: 70%
Frequency: 400Hz
Voltage: not relevant
Function: Low-side

View of PWM GW

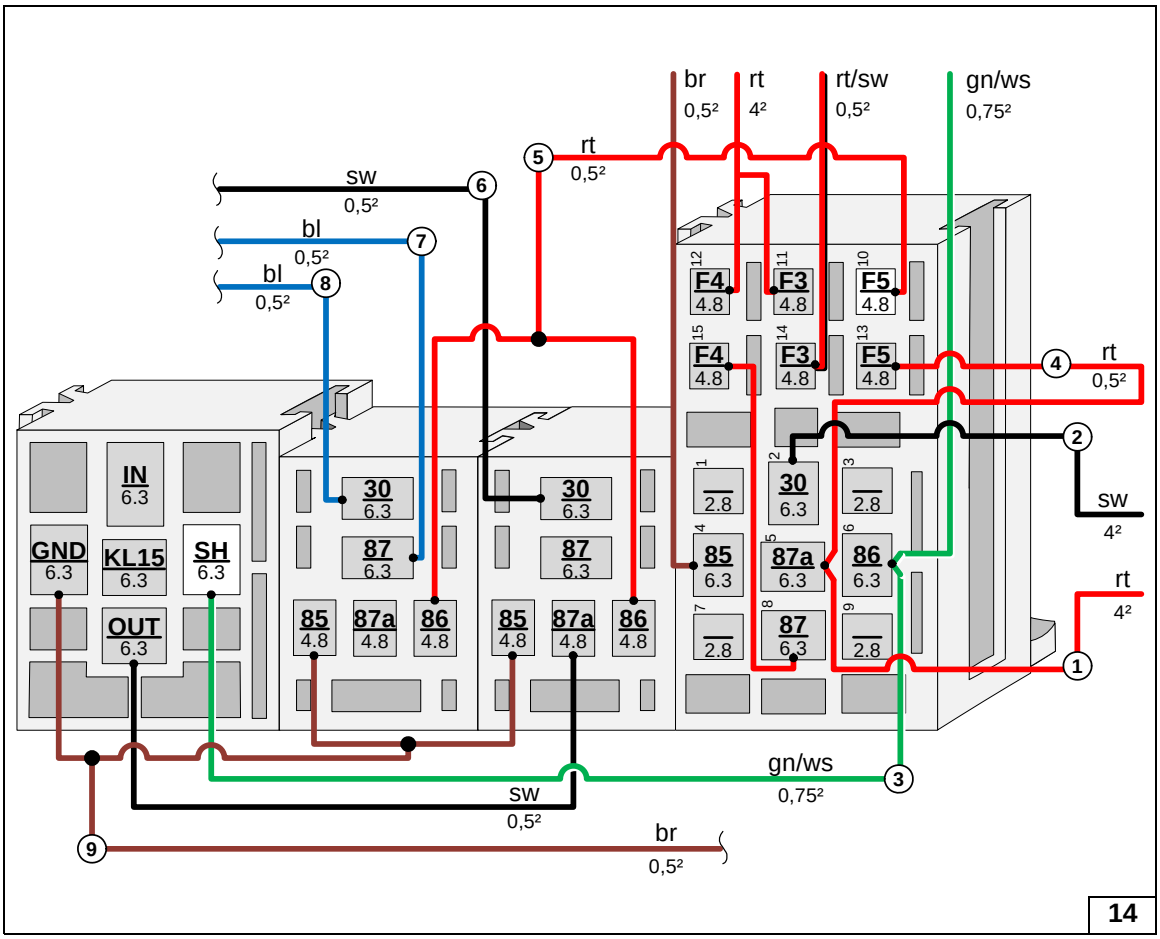


13

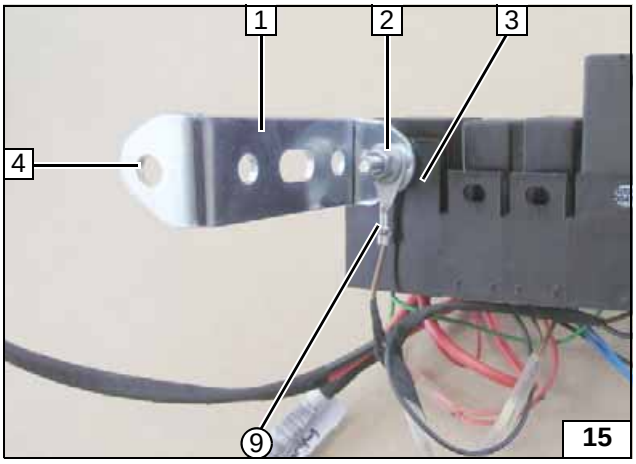
All vehicles

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

Preparing perforated bracket

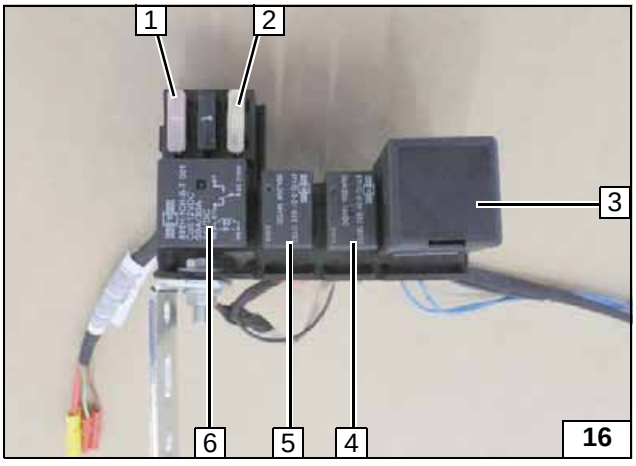


Interlocking PWM GW, K2 relay and K3 relay socket with passenger compartment relay and fuse holder, connecting wires



1 Perforated bracket
2 M5x16 bolt, large diameter washer [2x], nut
3 Relay and fuse holder of passenger compartment
4 Prepared 8.5 mm dia. hole
⑨ Brown (br) wire of additional wiring harness

Installing perforated bracket



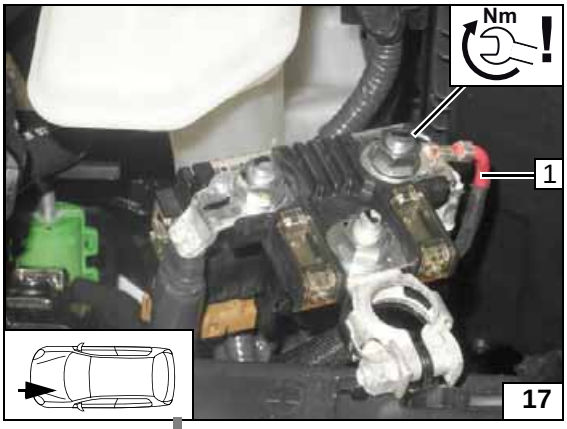
1 3A fuse F5
2 25A fuse F4
3 PWM GW
4 K3 relay
5 K2 relay
6 K1 relay

Inserting PWM GW, relays and fuses

Electrical System

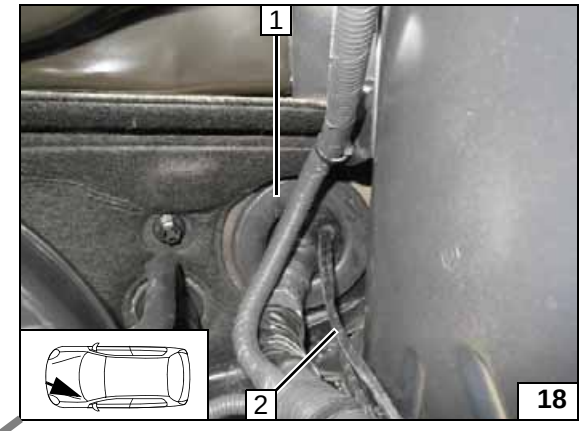
Positive wire

1 Positive wire on positive battery terminal

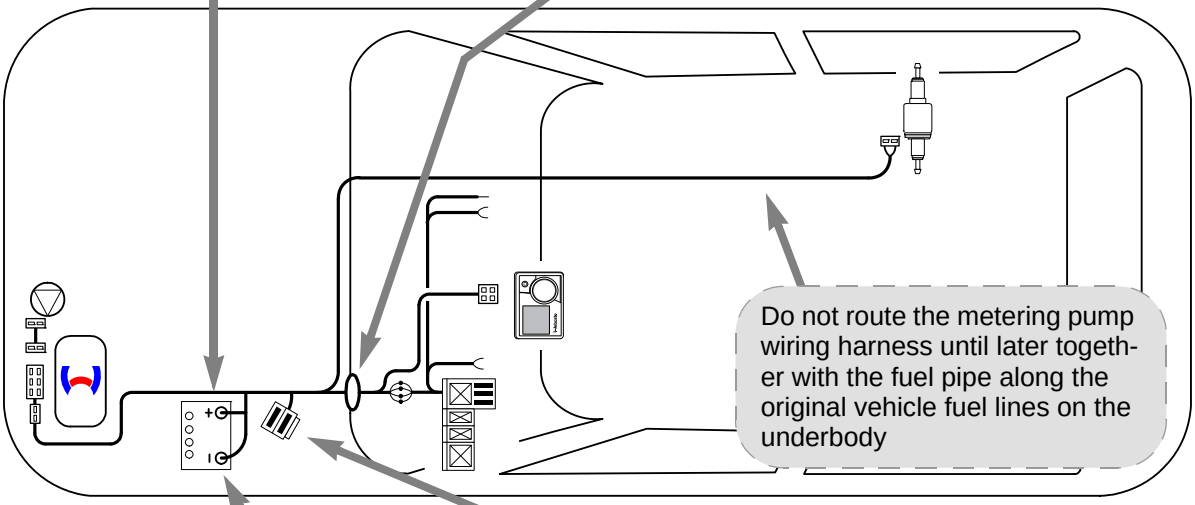


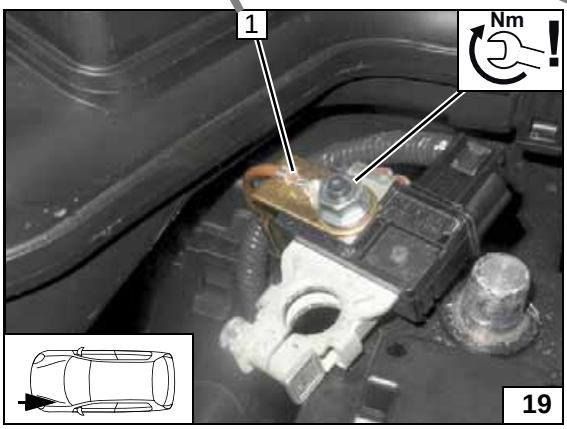
Wiring harness pass through

1 Protective rubber plug
2 Wiring harnesses of heater, heater control



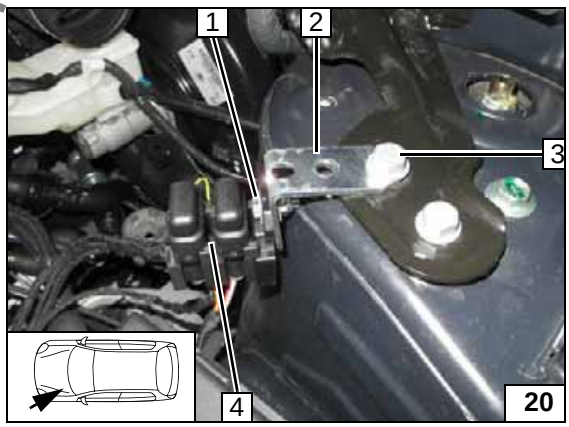
Wiring harness routing diagram





Earth wire

1 Earth wire on negative battery terminal

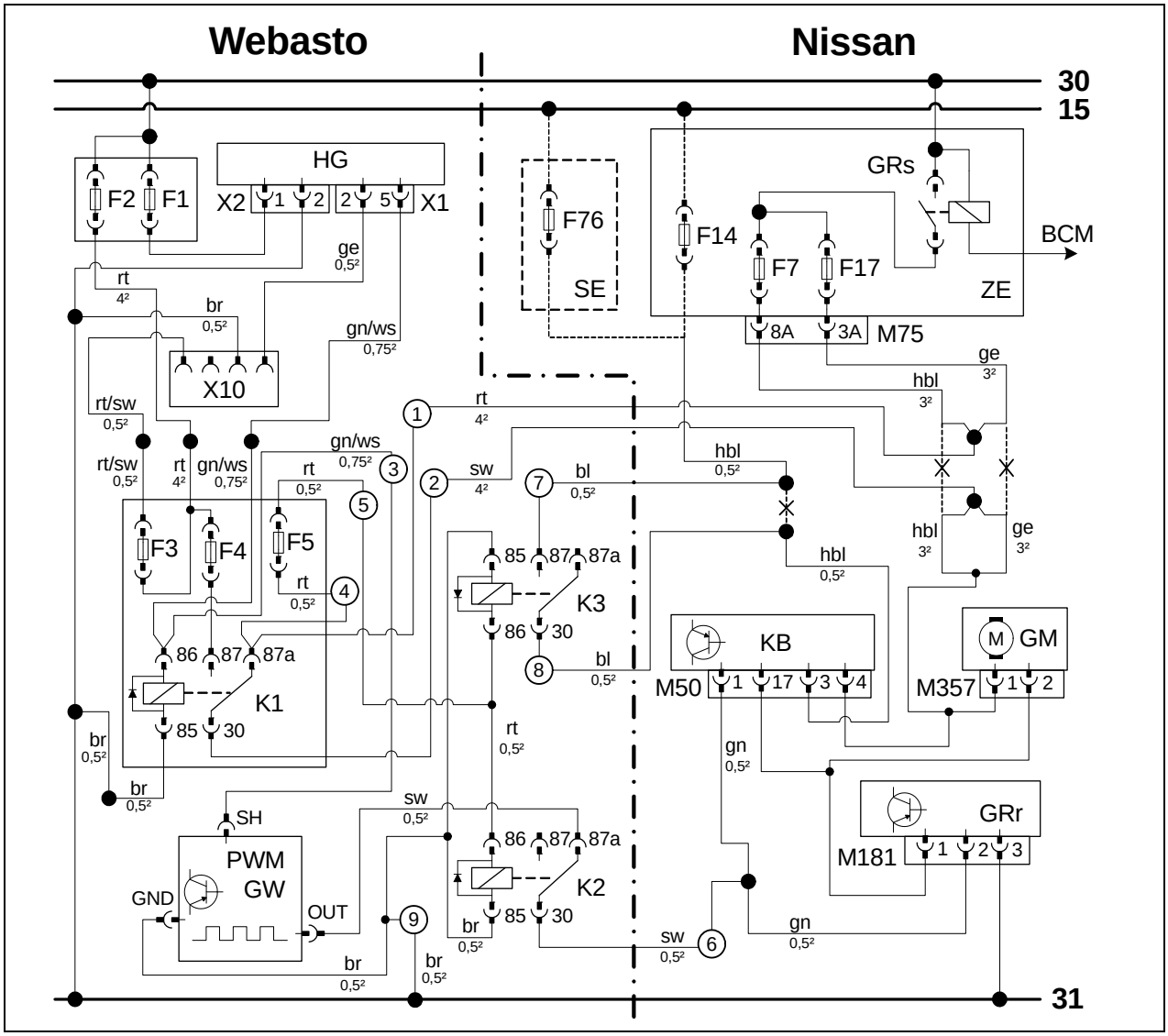


Fuse holder of engine compartment

1 M5x16 bolt, large diameter washer [2x], retaining plate of fuse holder, nut
2 Prepared perforated bracket
3 Original vehicle bolt
4 F1-2 fuses

Wiring Diagram for Manual Air-Conditioning

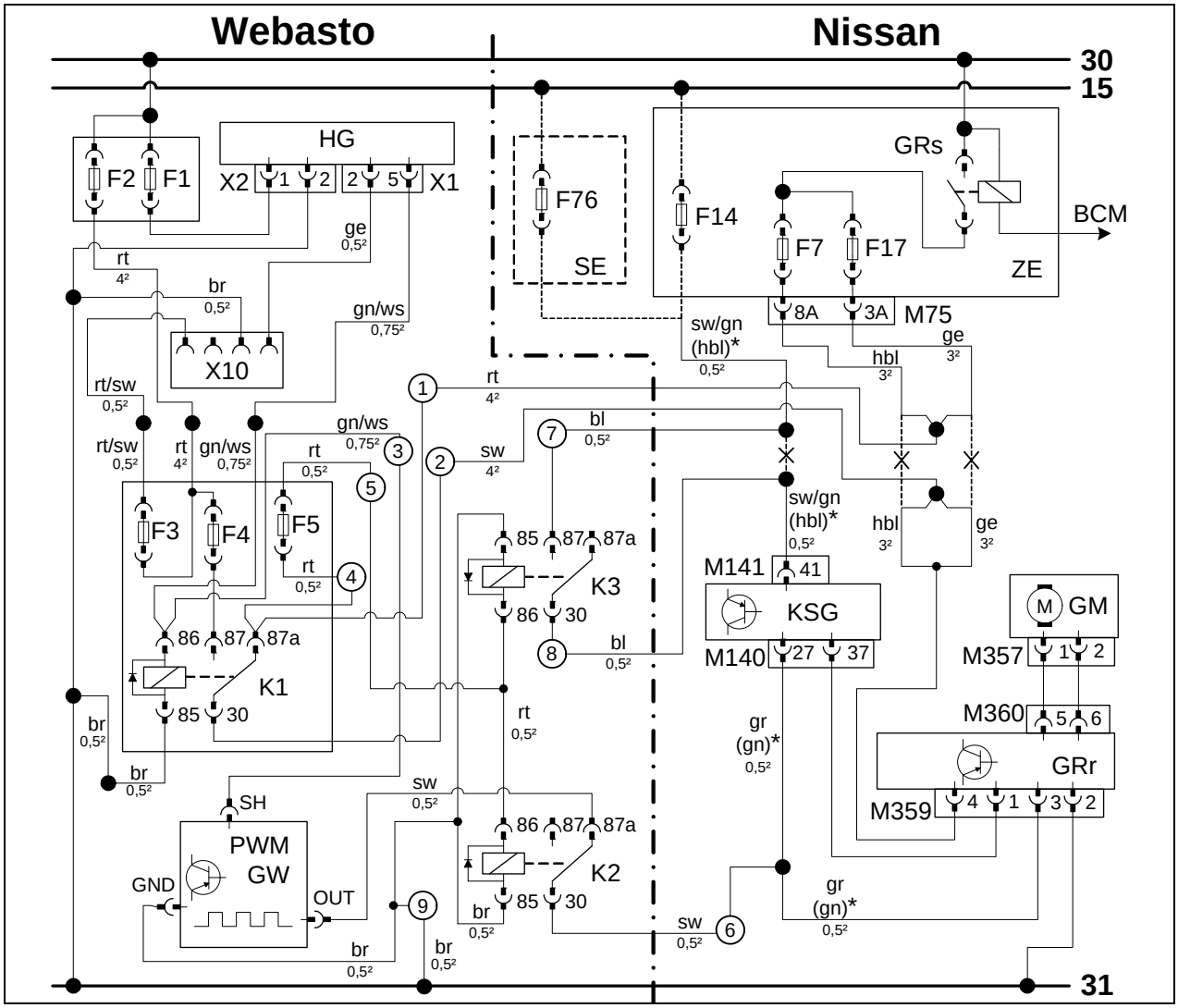
Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Fuse box of passenger compartment	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	GRs	Fan relay	ge	yellow
F1	20A fuse	F14	10A fuse (vehicle without Start/Stop)	gn	green
F2	30A fuse			ws	white
X10	4-pin connector of heater control	F7	20A fuse	br	brown
		F17	20A fuse	hbl	light blue
F3	1A fuse	M75	8-pin ZE connector	bl	blue
F4	25A fuse	SE	Fuse unit on front passenger's side (vehicle with Start/Stop)		
F5	3A fuse				
K3	Isolating relay	F76	10A fuse (vehicle with Start/Stop)		
K1	Fan relay				
PWM GW	Pulse width modulator	KB	A/C control panel		
K2	Additional relay	M50	32-pin KB connector		
PWM GW settings:		GM	Fan motor		
Duty cycle:	100% (DC)	M357	2-pin connector GM		
Frequency:	not relevant	GRr	Fan controller	**X**	Cutting point
Voltage:	2.8V	M181	4-pin connector, GRr	Wiring colours may vary.	
Function:	High-side				

Legend

Wiring Diagram for Automatic Air-Conditioning



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Fuse box of passenger compartment	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	GRs	Fan relay	ge	yellow
F1	20A fuse	F14	10A fuse (vehicle without Start/Stop)	gn	green
F2	30A fuse			ws	white
X10	4-pin connector of heater control	F7	20A fuse	br	brown
		F17	20A fuse	gr	grey
F3	1A fuse	M75	8-pin ZE connector	bl	blue
F4	25A fuse	SE	Fuse unit on front passenger's side (vehicle with Start/Stop)	hbl	light blue
F5	3A fuse				
K3	Isolating relay	F76	10A fuse (vehicle with Start/Stop)		
K1	Fan relay				
PWM GW	Pulse width modulator	KSG	A/C control unit		
K2	Additional relay	M140	40-pin connector KSG		
		M141	40-pin connector KSG		
PWM GW settings:		GM	Fan motor	*	Wiring colours may vary.
Duty cycle: 70%		M357	2-pin connector GM		
Frequency: 400Hz		GRr	Fan controller	X	Cutting point
Voltage: not relevant		M359	4-pin connector, GRr	Wiring colours may vary.	
Function: Low-side		M360	2-pin connector, GRr		

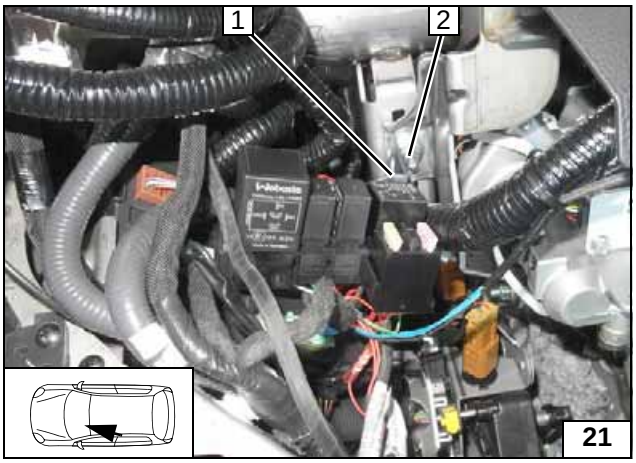
Legend

Fan Controller

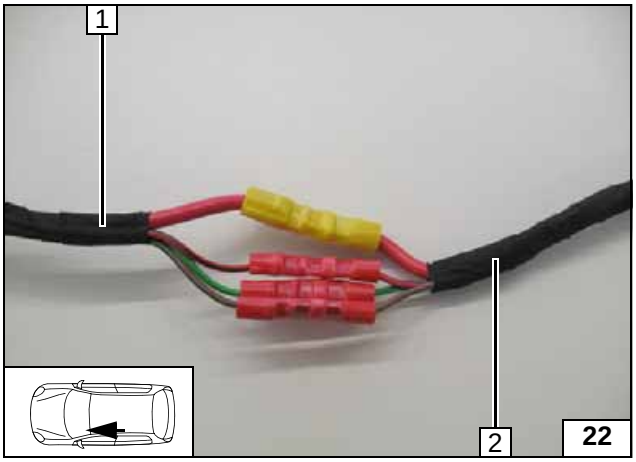
All vehicles

Warning:
Before disconnecting the battery, please consult the information in the section "Preliminary Work".

Installing relay and fuse holder of passenger compartment

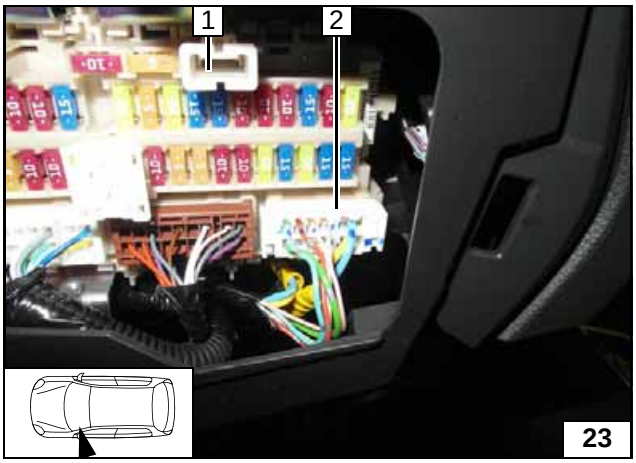


1 Premounted perforated bracket
2 Original vehicle bolt and flanged nut



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

Connecting wiring harnesses using same colour wires

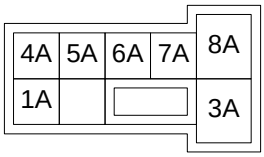


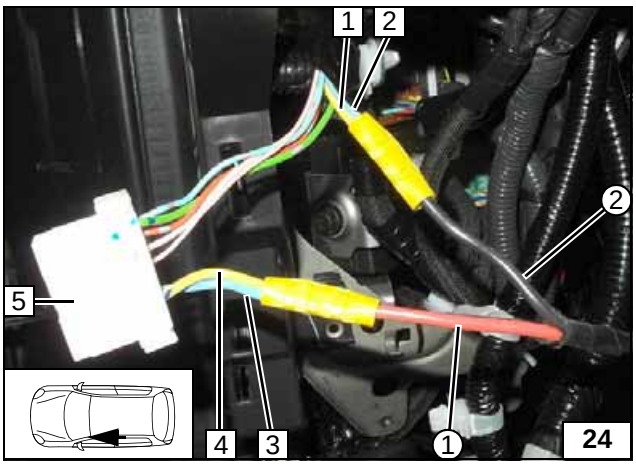
Connection to fuse box in passenger compartment **1**!

2 Remove 8-pin connector M75

Pulling out M75 connector

M75 connector on wiring side

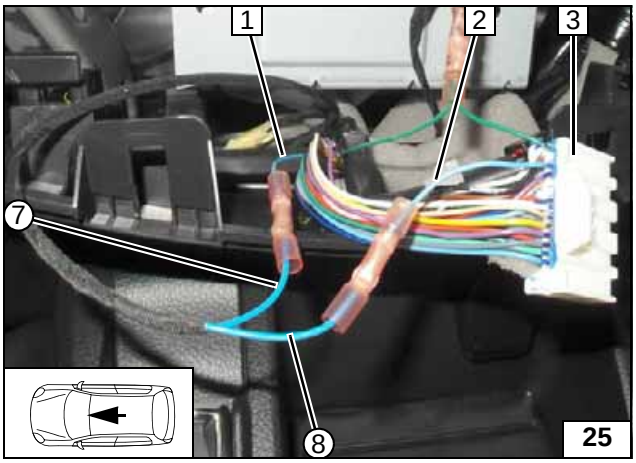




Connection to 8-pin connector M75 **5** of passenger compartment fuse box.

Connecting fuse box in passenger compartment

1 Yellow (ge) wire for AC fan motor and A/C control panel, for AAC fan controller, pin 4
2 Light blue (hbl) wire for AC fan motor and A/C control panel, for AAC fan controller, pin 4
3 Light blue (hbl) wire of 8-pin M75 connector, Pin 8A
4 Yellow (ge) wire of 8-pin M75 connector, pin 3A
① Red (rt) wire of K1/87a, fan wiring harness
② Black (sw) wire of K1/30, fan wiring harness



Manual air-conditioning

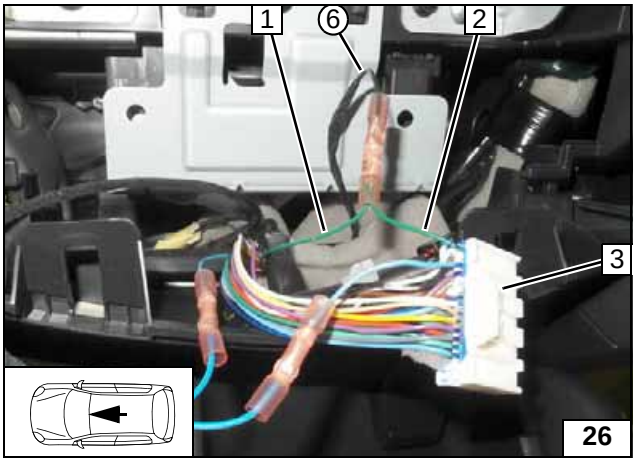
Connection to 32-pin connector M50 **3** from A/C control unit / A/C control panel.

- **1** Light blue (hbl) wire of terminal 15
- **2** Light blue (hbl) wire of 32-pin connector M50/3
- ⑦ Blue (bl) wire of K3/87
- ⑧ Blue (bl) wire of K3/30

M50 connector on wiring side

		30	29	28	27	26	25	24	23		21		19	18	17	
		14	13	12	11	10	9	8	7			4	**3**		1	

Connection to A/C control unit



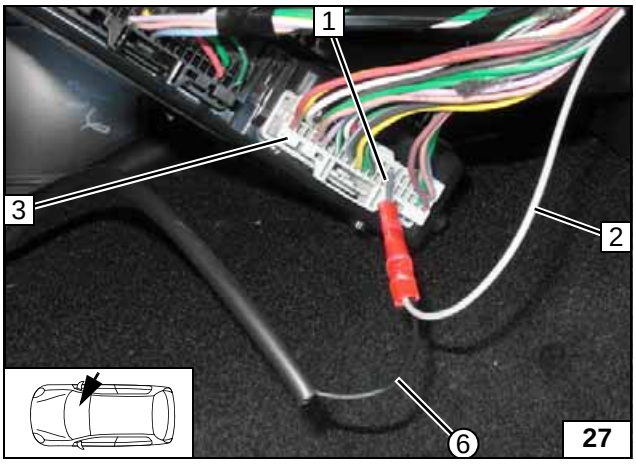
Connection to 32-pin connector M50 **3** from A/C control unit / A/C control panel.

- **1** Green (gn) wire of fan controller M181/2
- **2** Green (gn) wire of 32-pin connector M50/1
- ⑥ Black (sw) wire of K2/30

Connection to A/C control unit

M50 connector on wiring side

		30	29	28	27	26	25	24	23		21		19	18	17	
		14	13	12	11	10	9	8	7			4	3		**1**	



Automatic air-conditioning

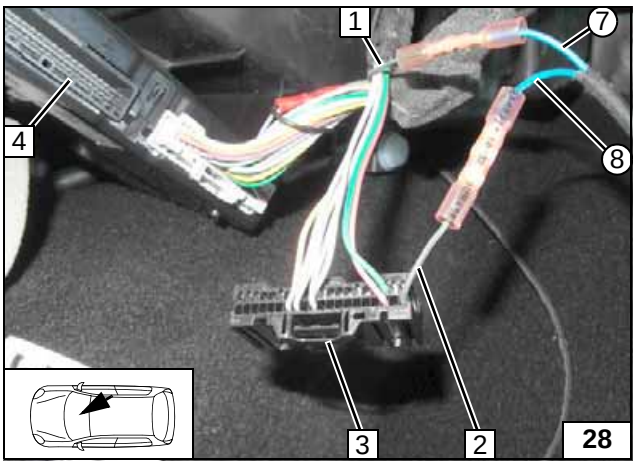
Connection to 40-pin connector M140 **3** from A/C control unit, centre console on the right.

- **1** Grey (gr) or green (gn) wire of connector M140/27
- **2** Grey (gr) or green (gn) wire of fan controller M359/3
- ⑥ Black (sw) wire of K2/30

Connection to A/C control unit

M140 connector on wiring side

40		38	37	36	35		33	32	31	30			**27**				22	21
20			17	16		14		12	11	10	9						2	1



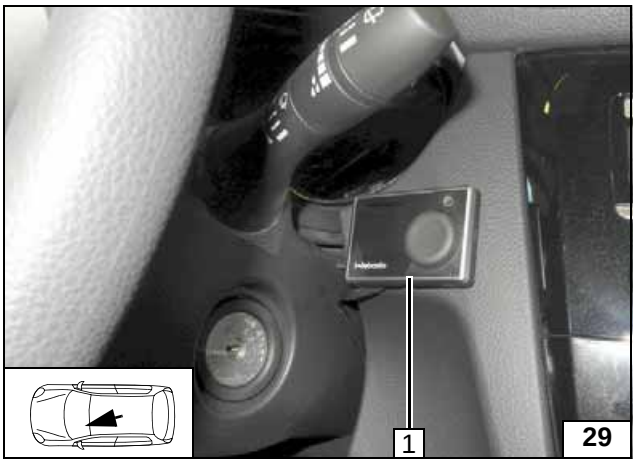
Connection to 40-pin connector M141 **3** from A/C control unit, centre console on the right.

- **1** Black/green (sw/gn) or light blue (hbl) wire of terminal 15
- **2** Black/green (sw/gn) or light blue (hbl) wire of connector M141/41
- **4** Socket of connector M141
- ⑦ Blue (bl) wire of K3/87
- ⑧ Blue (bl) wire of K3/30

Connection to A/C control unit

M141 connector on wiring side

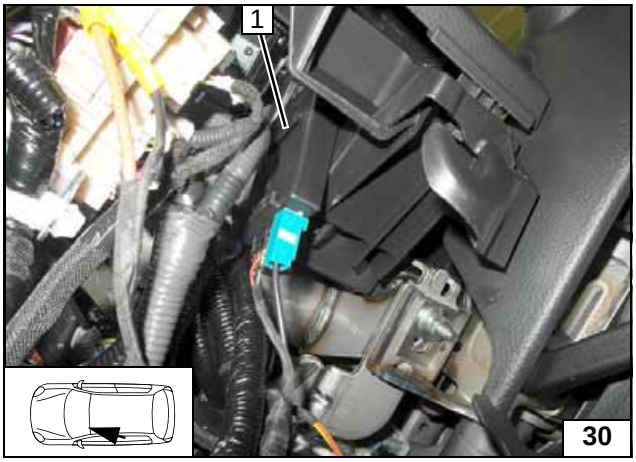
							73		71							63				
						54	53		51							43		**41**		



MultiControl CAR

1 MultiControl CAR

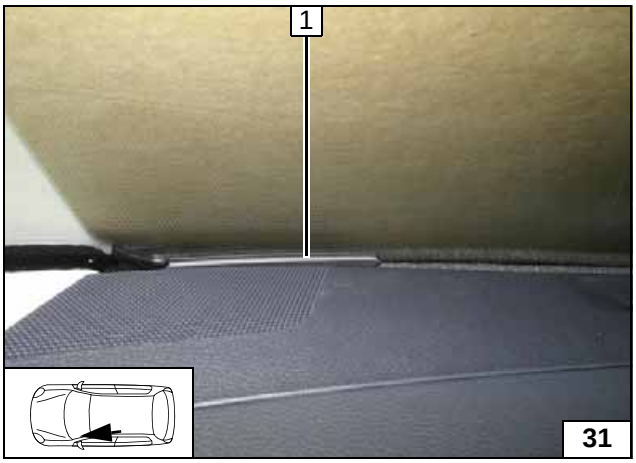
Installing MultiControl CAR



Remote Option (Telestart)

Fasten receiver **1** with adhesive tape as shown in the image.

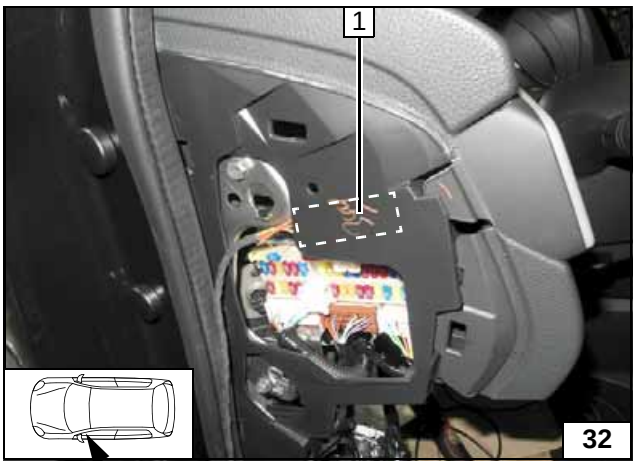
Installing receiver



For windscreens with a special coating or heater, use only the area recommended by the manufacturer to assemble antenna.

1 Antenna

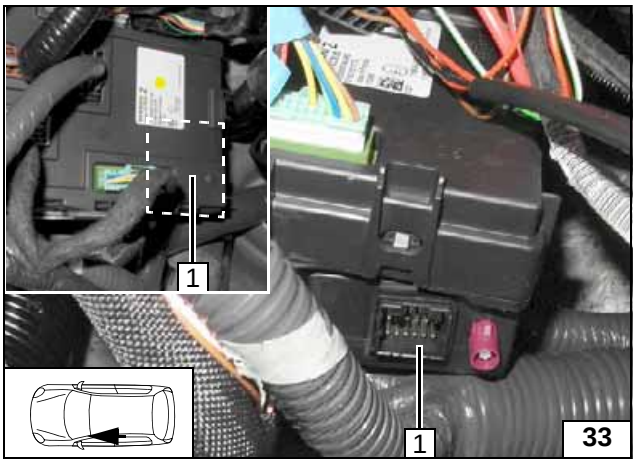
Mounting antenna



Temperature sensor T100 HTM

Secure temperature sensor **1** behind trim at the marking using adhesive tape.

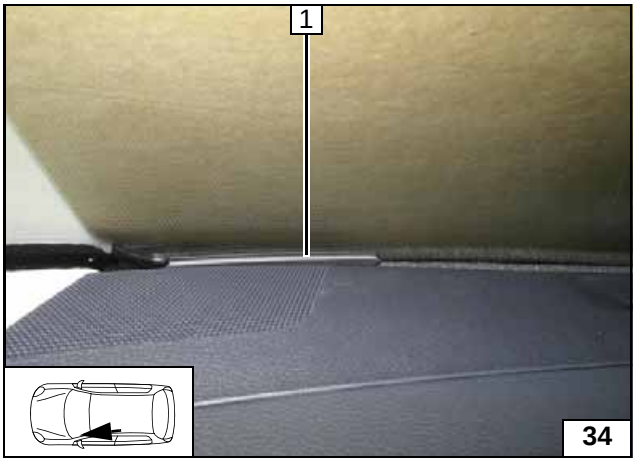
Mounting temperature sensor



Remote Option Thermo Call

Secure receiver **1** behind the control unit at the marking using adhesive tape.

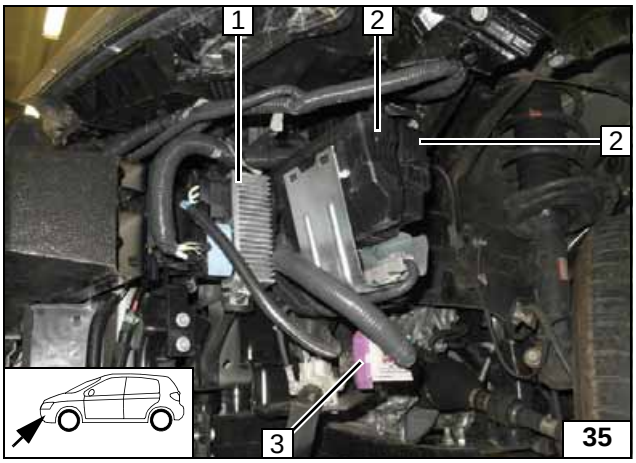
Installing receiver



For windscreens with a special coating or heater, use only the area recommended by the manufacturer to assemble antenna.

1 Antenna

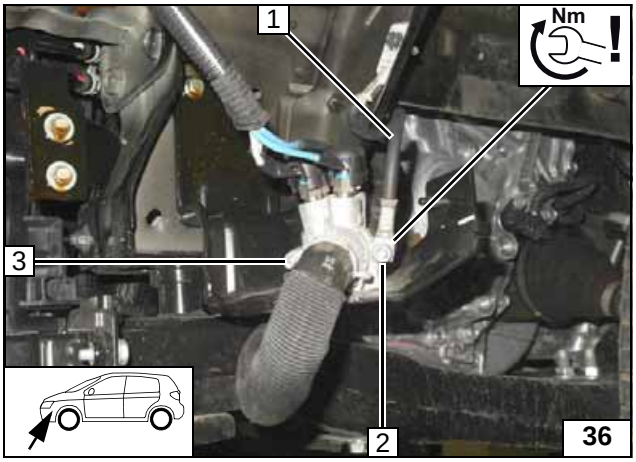
Mounting antenna



Preparing Installation Location

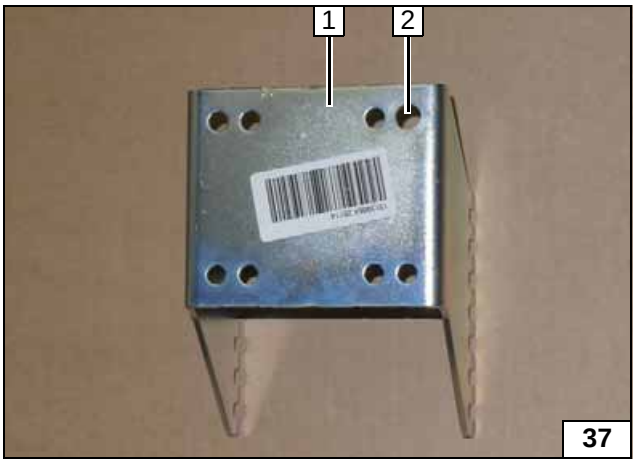
Remove relay **3**, fuse and relay box **2** [2x] together with the bracket and control unit of electric auxiliary heater **1** with the bracket and put aside.

Preparing installation location



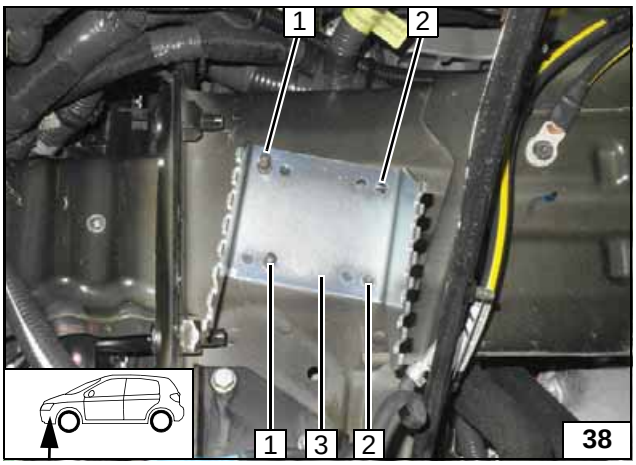
Mount earth wire **1** of position **3** on position **2**.

Moving earth wire



1 Bracket
2 Drill out hole to 9 mm dia.

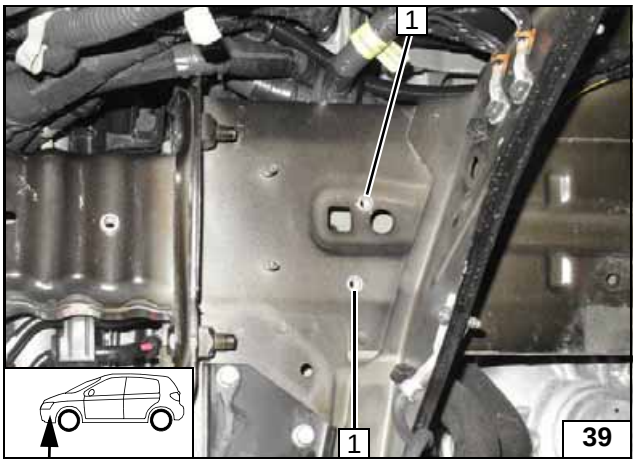
Preparing bracket



Mount bracket **3** on original vehicle stud bolts **1** [2x].

2 Copy hole pattern [2x]

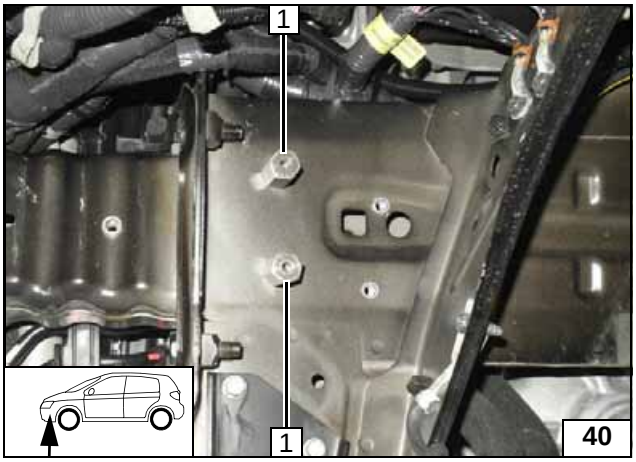
Copying hole pattern



Remove bracket.

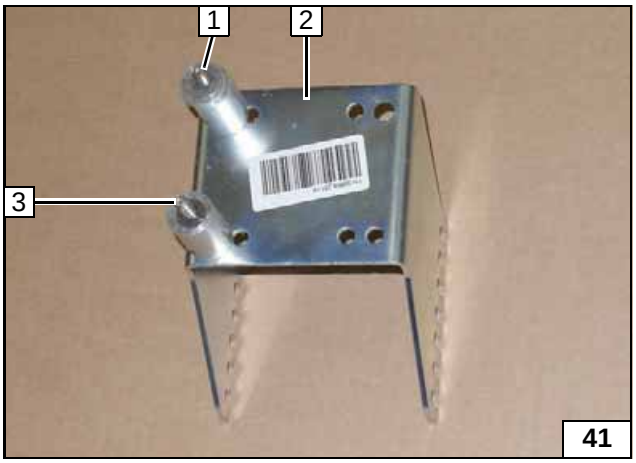
1 9.1 mm dia. hole, rivet nut [2x]

Installing rivet nut



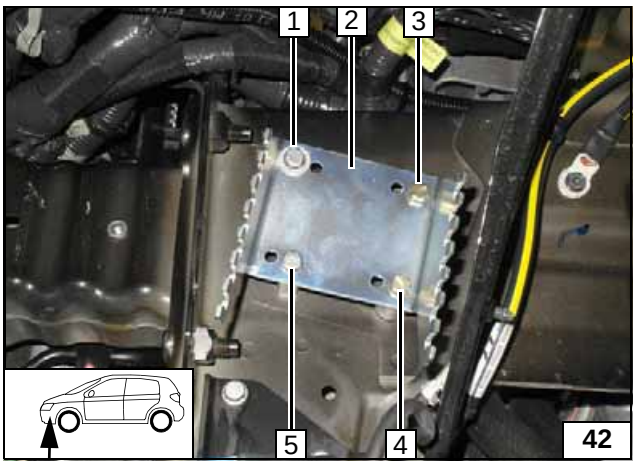
1 M6x30 spacer nut [2x] on original vehicle stud bolts

Installing spacer nuts



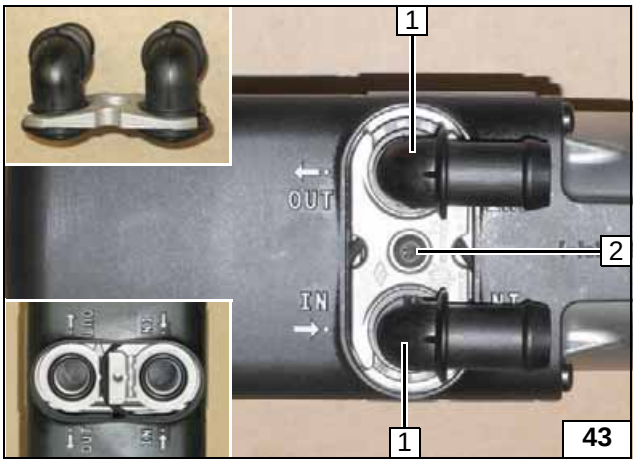
1 M6x60 bolt, spring lockwasher, 30mm shim, 5mm shim, pin lock
2 Bracket
3 M6x50 bolt, spring lockwasher, 30mm shim, pin lock

Premounting bracket



1 M6x16 bolt, spring lockwasher, large diameter washer
2 Bracket
3 M6x60 bolt on rivet nut
4 M6x50 bolt on rivet nut
5 M6x16 bolt, spring lockwasher

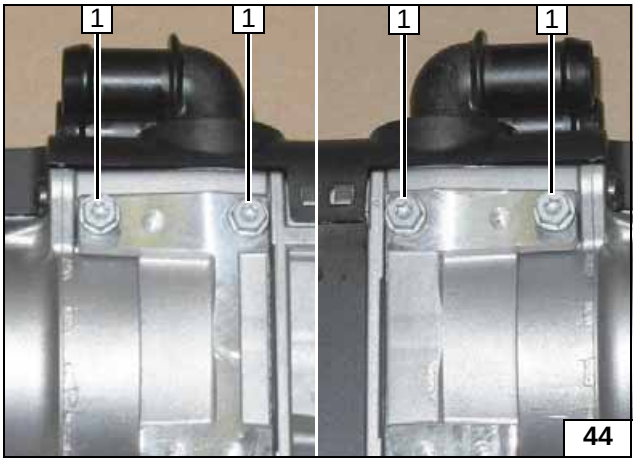
Installing bracket



Preparing Heater

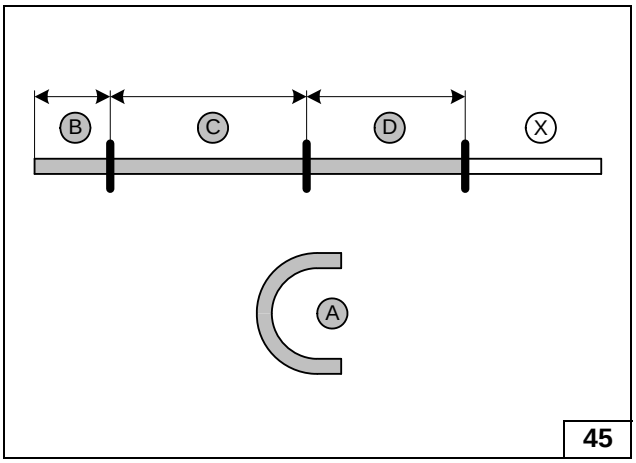
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



Screw 5x13 self-tapping bolts **1** [4x] into existing holes by a maximum of 3 thread turns.

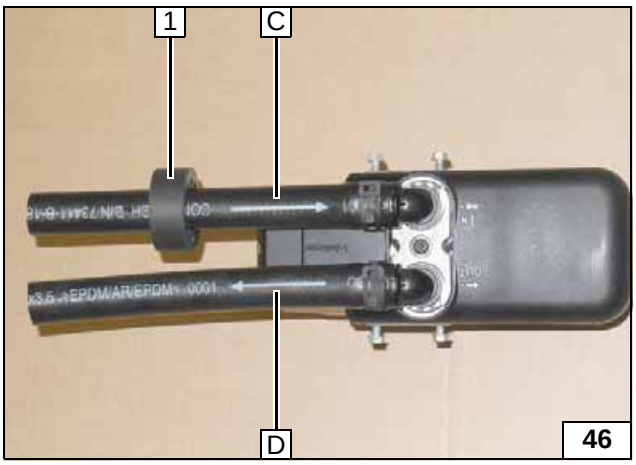
Loosely premounting bolts



Discard section **X**.
Hose **A** = 180° moulded hose = 18mm dia.

B = 60
C = 210
D = 170

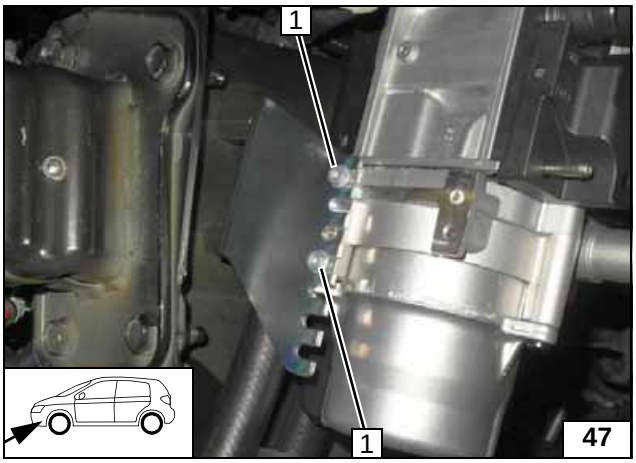
Cutting hoses to length



All spring clips = 25mm dia.

1 Black (sw) rubber isolator

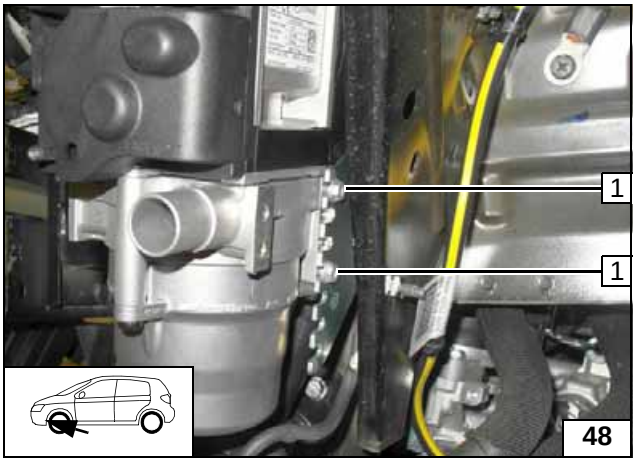
Premounting hoses



Installing Heater

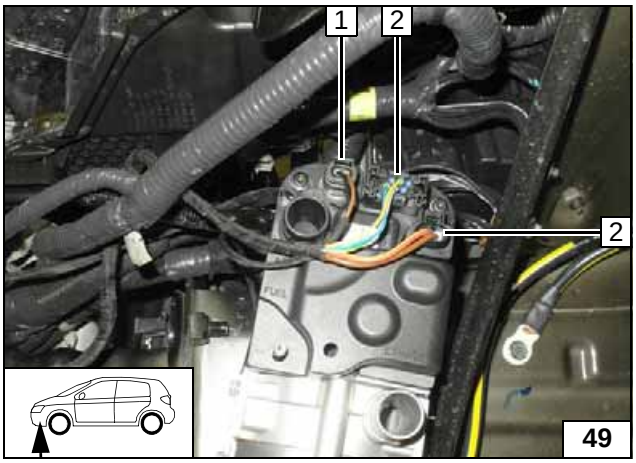
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



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

Installing heater



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

Installing wiring harnesses

Fuel

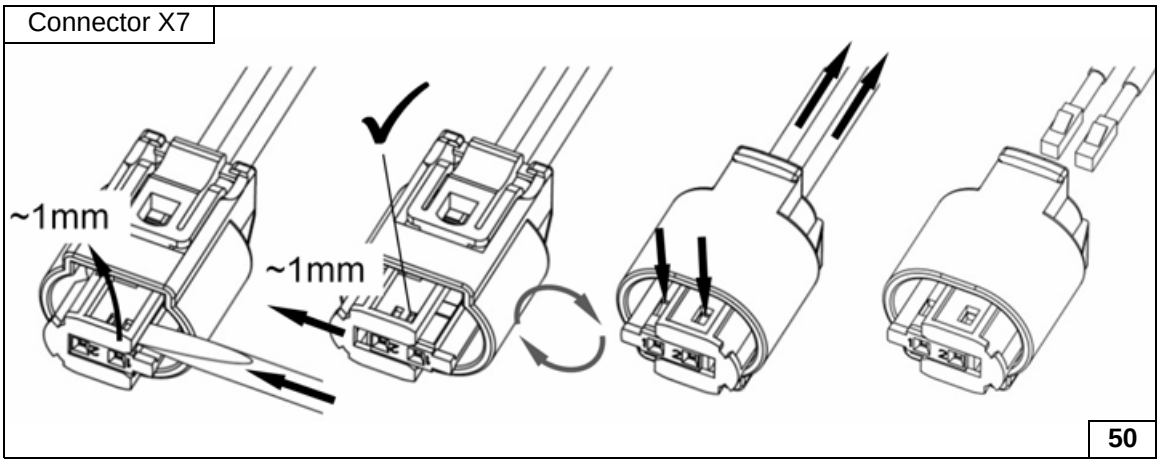
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the fuel tank cap.

Catch any fuel running off in an appropriate container.

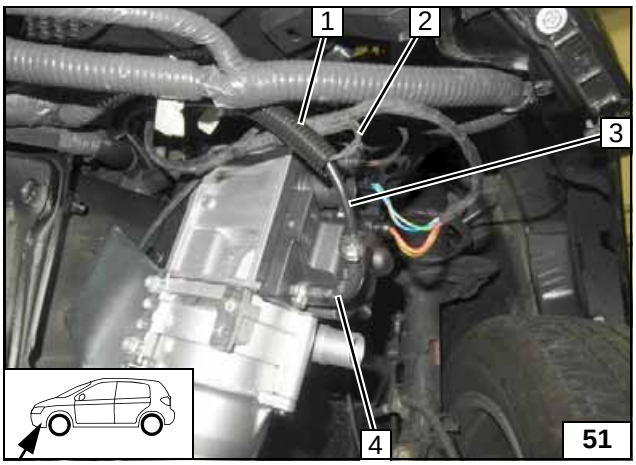
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

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

Removing metering pump connector



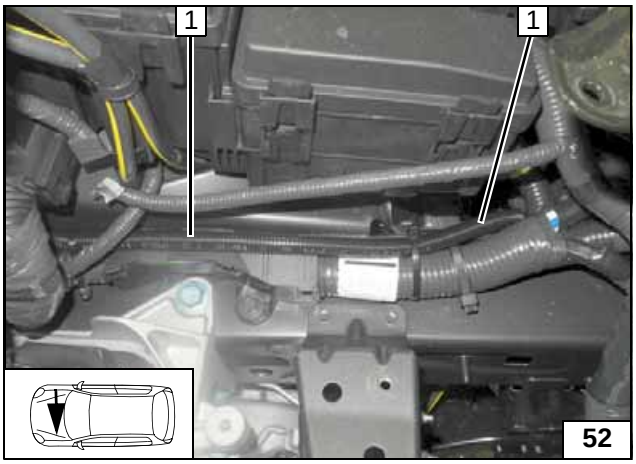
Connecting heater



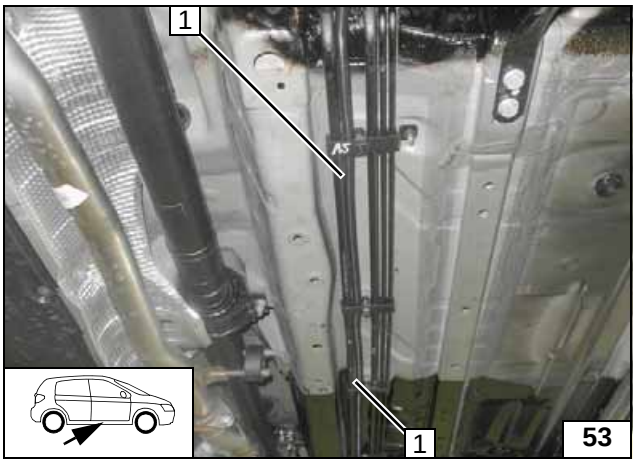
Route fuel line **3** and wiring harness of metering pump **2** in 10mm dia. corrugated tube **1** in the engine compartment.

4 90° moulded hose, 10 mm dia. clamp [2x]

Routing lines

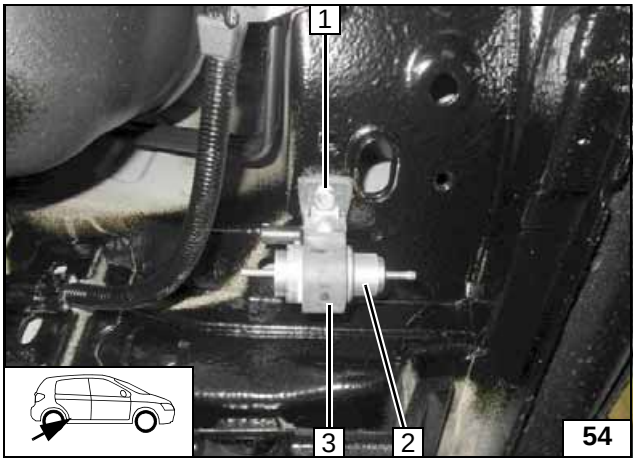


Pull fuel line and wiring harness of metering pump into 10mm dia. corrugated tube **1**, route towards the firewall and on to the underbody along the original vehicle lines.



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** along original vehicle lines to installation location of metering pump.

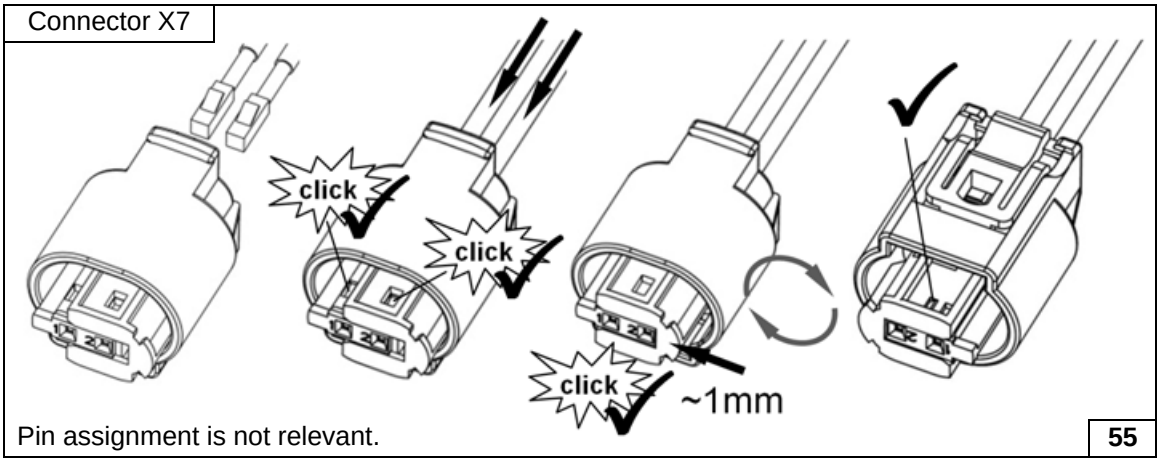
Routing lines



1 M6x25 bolt, support angle bracket, original vehicle threaded hole
2 Metering pump
3 Metering pump mounting bracket

Installing metering pump

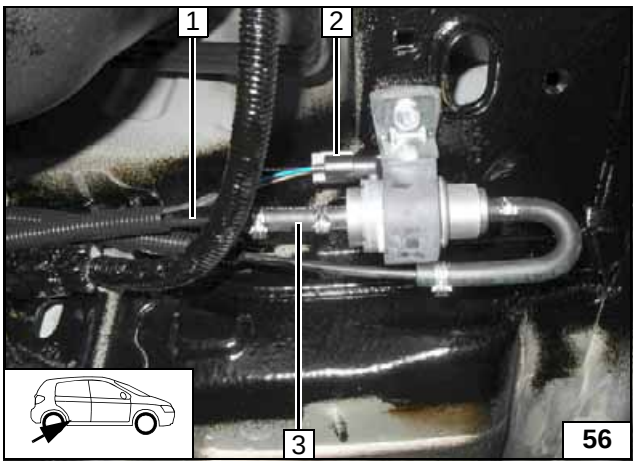
Connector X7



Pin assignment is not relevant.

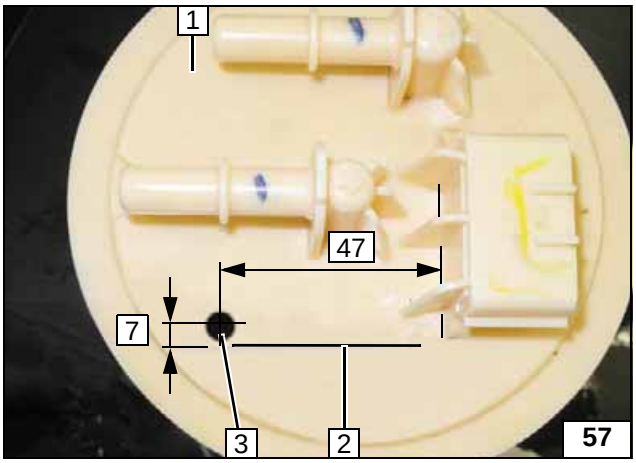
55

Completing metering pump connector



1 Fuel line of Heater
2 Wiring harness of metering pump, connector X7 mounted
3 Hose section, 10 mm dia. clamp [2x]

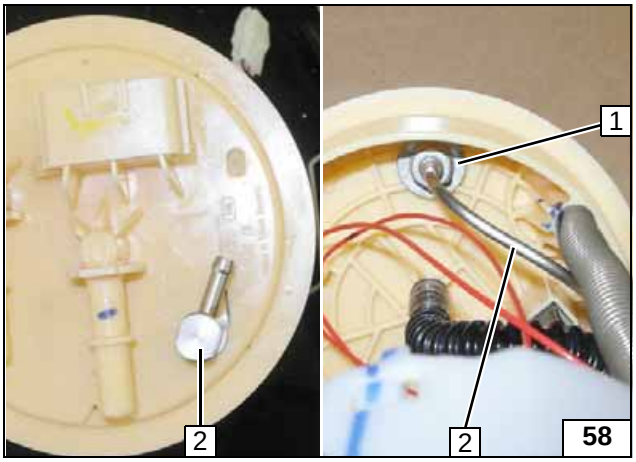
Connecting metering pump



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

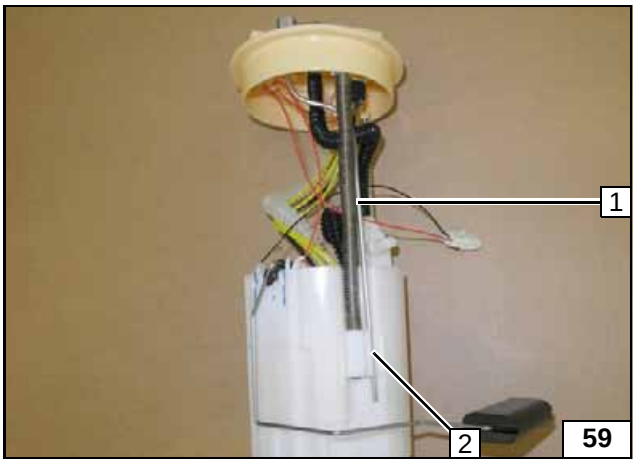
2 Existing formed ridge
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



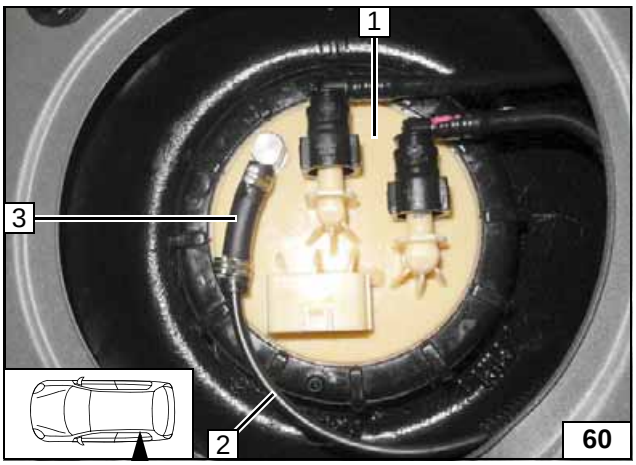
Bend fuel standpipe **2** according to template and cut to length.
Insert large diameter washer with outer dia. d_a = 17.6mm **1** between fuel-tank sending unit and fuel standpipe **2**.

Installing fuel standpipe



Engage fuel standpipe **1** in existing groove at position **2**.

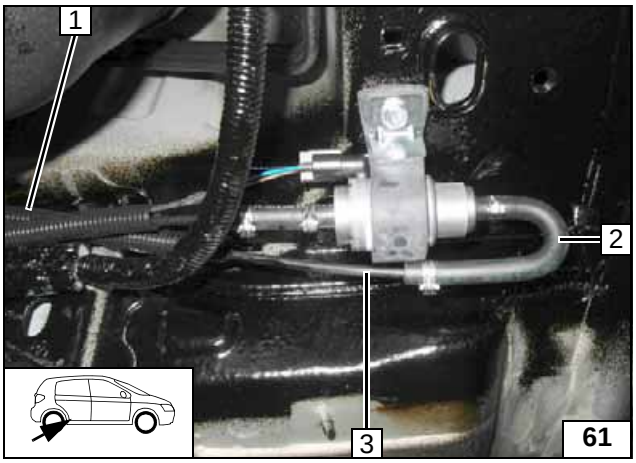
Installing fuel standpipe



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

2 Fuel line
3 Hose section, 10mm dia. clamp [2x]

Connecting fuel line



Slide 10mm dia. corrugated tube **1** onto fuel line of fuel standpipe **3**.
Ensure sufficient distance to neighbouring components, adjust if necessary.

2 180° moulded hose, 10 mm dia. clamp [2x]

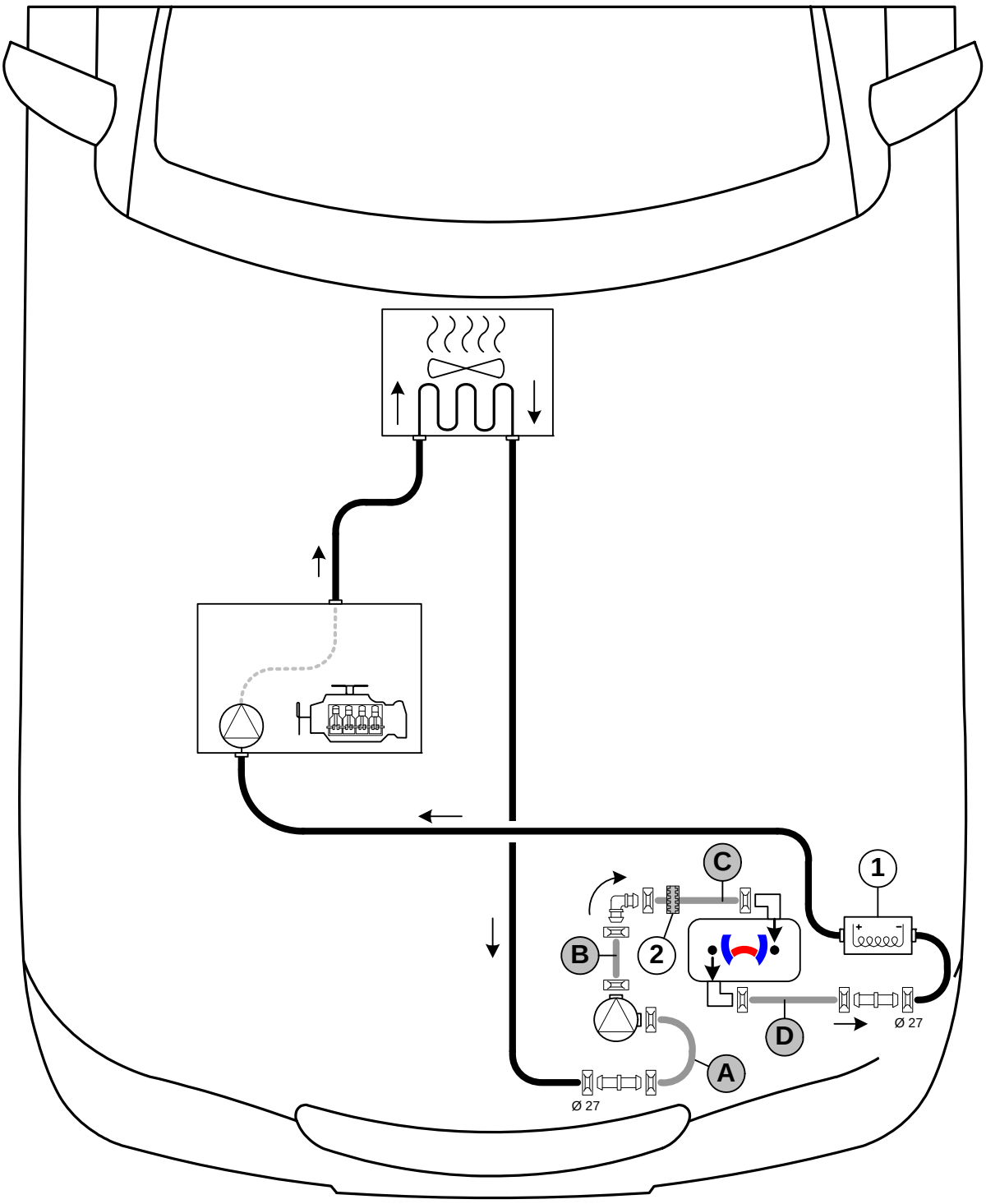
Connecting metering pump

Coolant Circuit

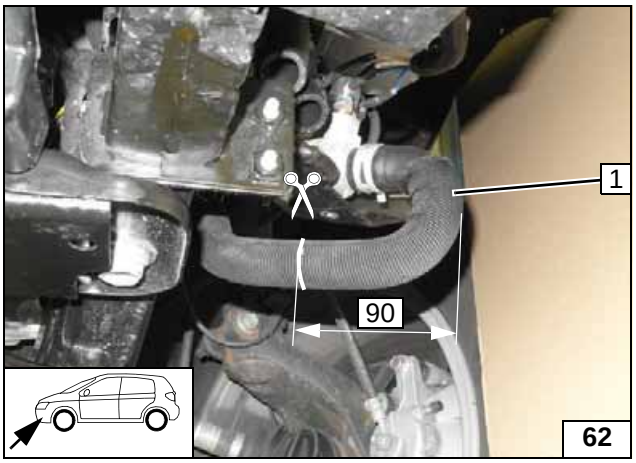
Any coolant running off should be collected in an appropriate container. Route hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that no other hoses can be damaged. When installing the hoses, the heater must be filled with coolant.

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

Hose routing diagram

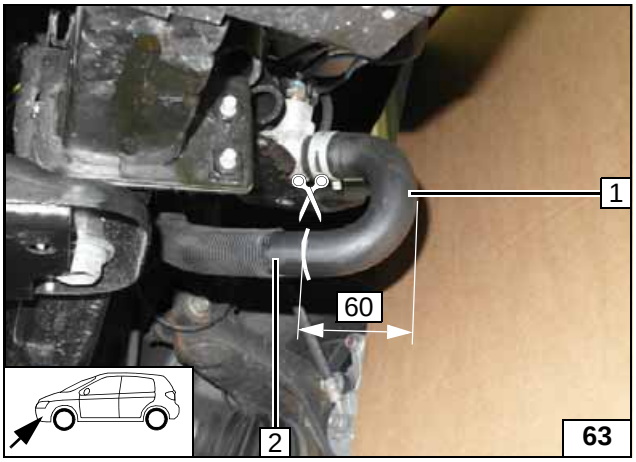


All spring clips without a specific designation = 25mm dia. Connecting pipe = 18x18mm dia.
All connecting pipes = 18x20mm dia.
1 = Electric auxiliary heater. **2** = Black (sw) rubber isolator.



Remove fabric protective hose **1** from original vehicle hose up to the marking.

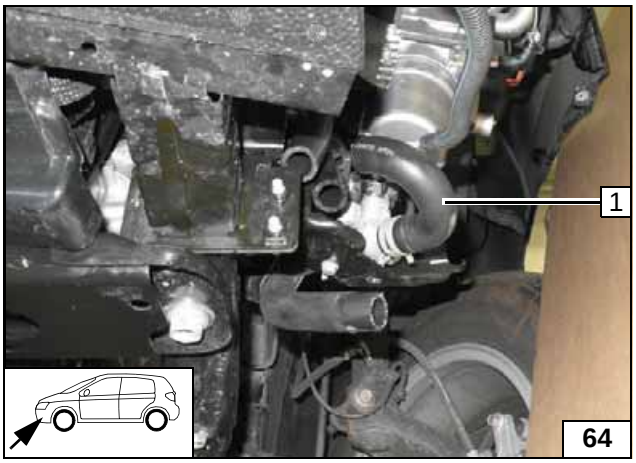
Removing protective hose



Cut original vehicle hose at the marking.

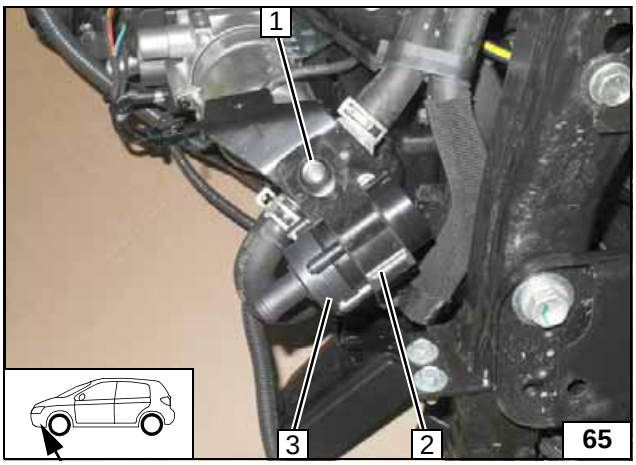
1 Hose for electric auxiliary heater inlet
2 Hose on heat exchanger outlet

Cutting point



Turn hose section of electric auxiliary heater inlet **1** on connection piece of electric auxiliary heater by approx. 90° upwards.

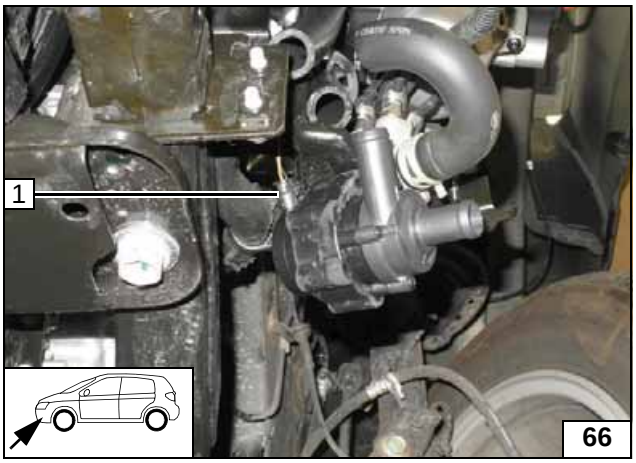
Turning hose



Remove original vehicle bolt at position **1**.

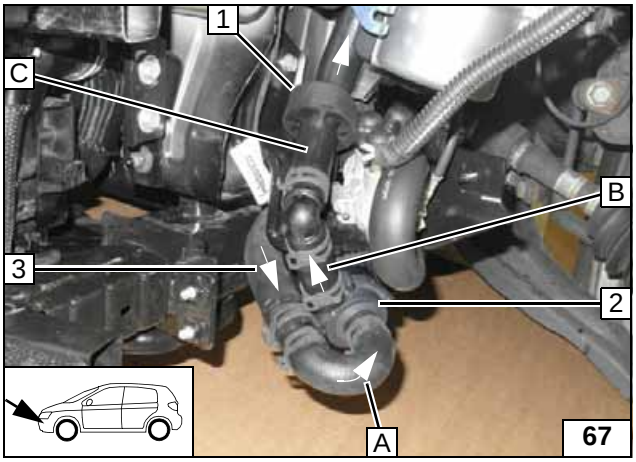
1 M6x25 bolt, original vehicle threaded hole
2 Circulating pump mounting bracket
3 Circulating pump

Installing circulating pump



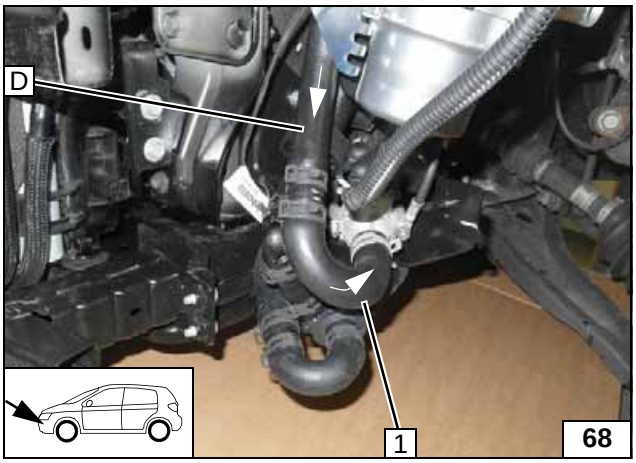
1 Connector of circulating pump wiring harness

Installing wiring harness



1 Align black (sw) rubber isolator with electric auxiliary heater
2 Circulating pump
3 Hose section on heat exchanger outlet

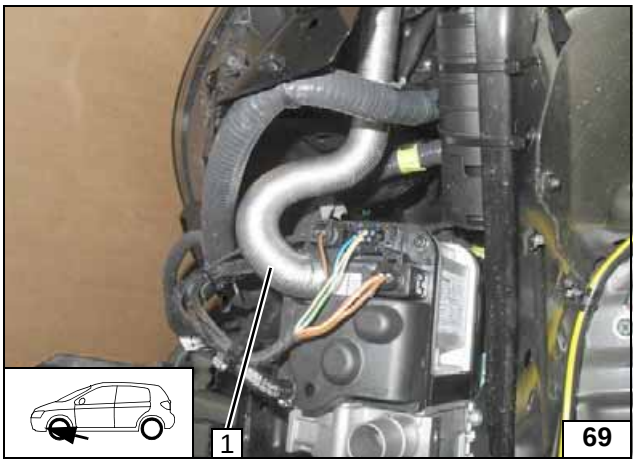
Connecting circulating pump



Align hoses. Ensure sufficient distance to neighbouring components, adjust if necessary.

1 Hose section for electric auxiliary heater inlet

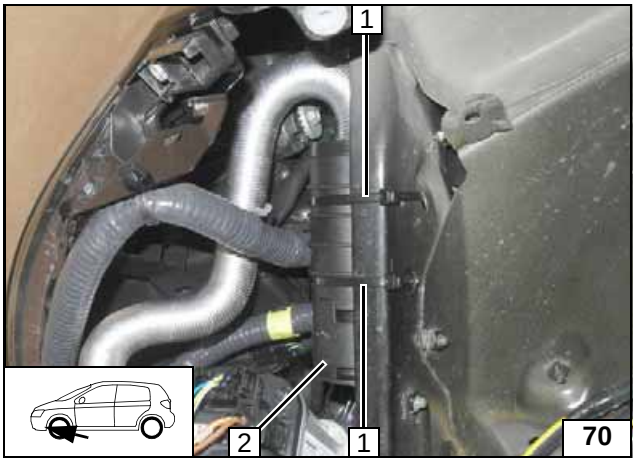
Heater outlet



Combustion Air

Route combustion air pipe **1** upwards as shown.

Installing combustion air pipe

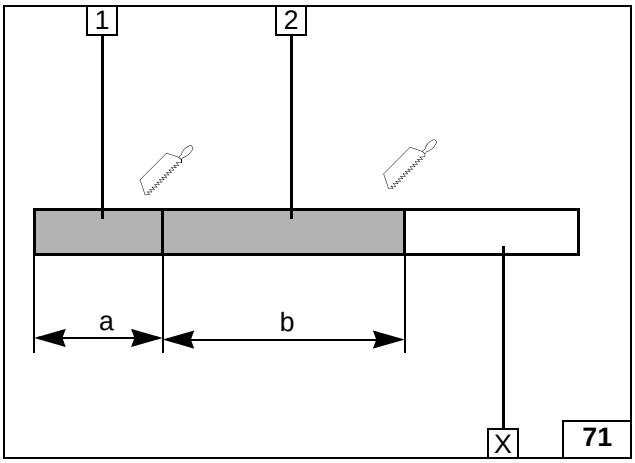


1 Cable tie [2x] through original vehicle holes
2 Silencer

Mounting silencer

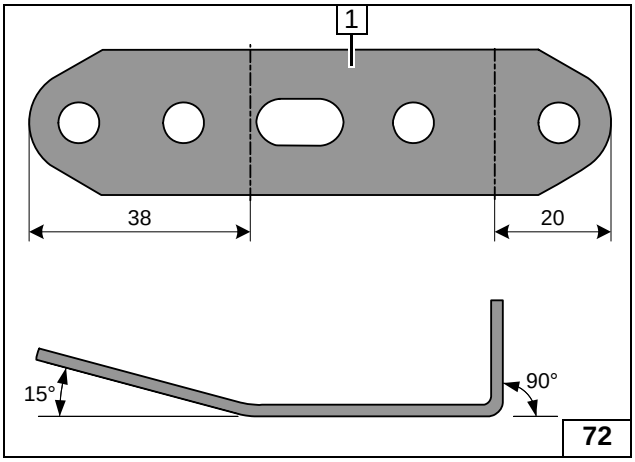
Exhaust Gas

Discard section **X**.



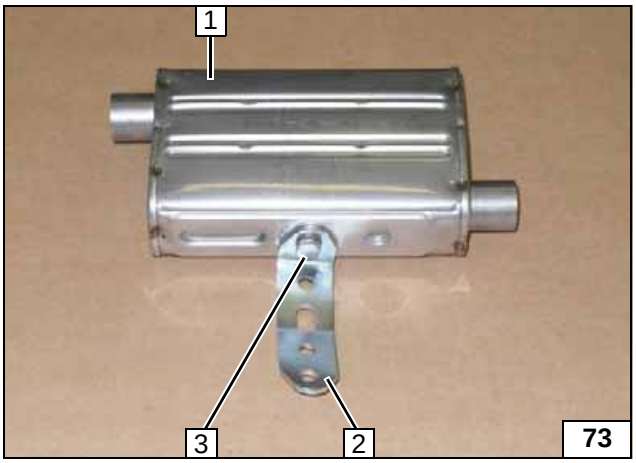
1 Exhaust pipe
a = 130
2 Exhaust end section
b = 320

Preparing exhaust pipe



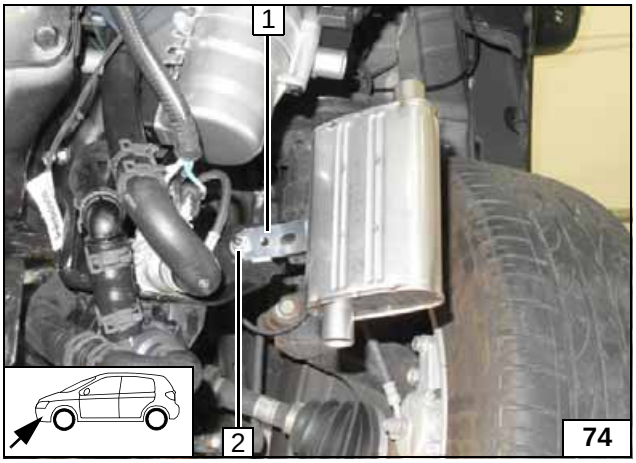
1 Perforated bracket

Preparing perforated bracket



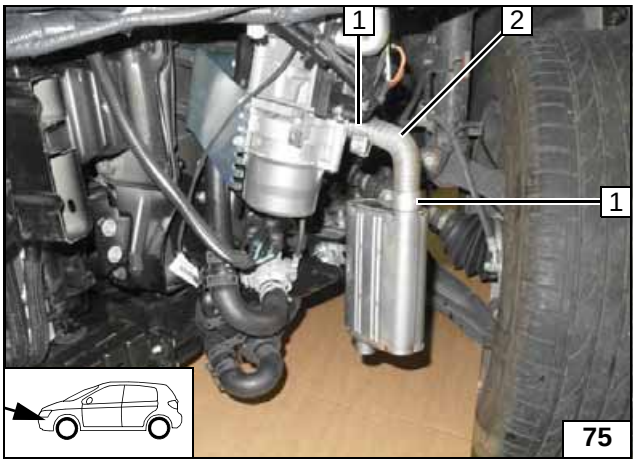
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premount-ing silencer



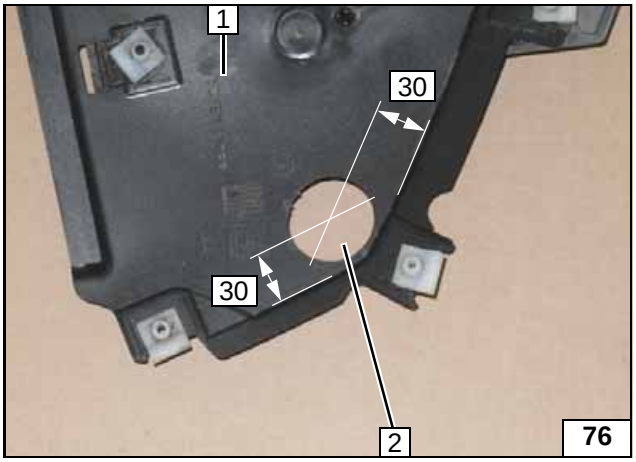
1 Perforated bracket
2 M6 flanged nut on original vehicle stud bolt

Mounting silencer



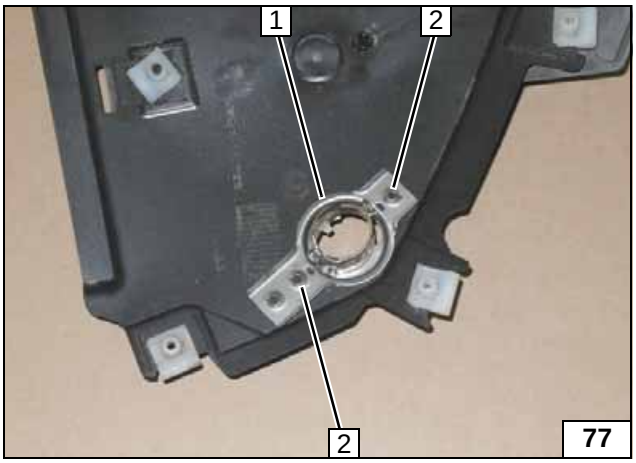
1 Hose clamp [2x]
2 Exhaust pipe

Mounting exhaust pipe



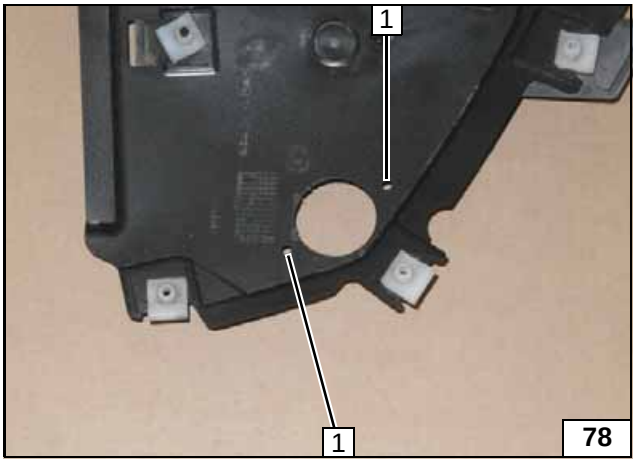
1 Wheel well trim
2 Hole (as per work step 1 of the installation instructions)

Hole in wheel well trim



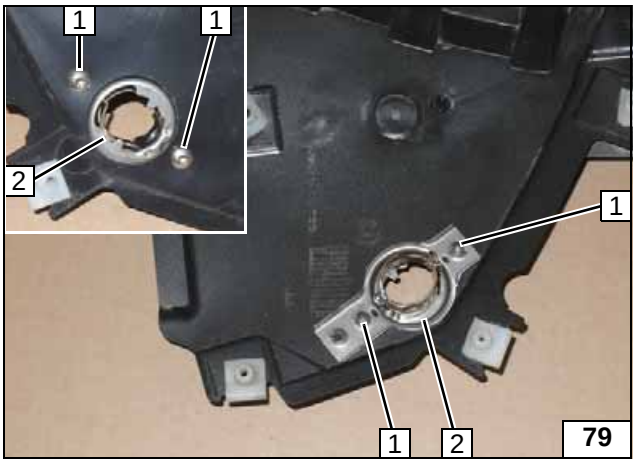
Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2** [2x]!

Copying hole pattern



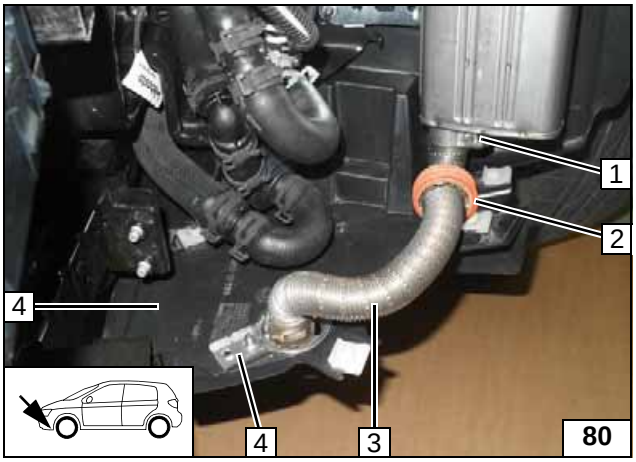
Hole **1** [2x] as per work step 4 of the installation instructions!

Hole in wheel well trim



1 5x13 self-tapping screw [2x] as per work step 5 of the installation instructions
2 Exhaust end fastener

Mounting exhaust end fastener

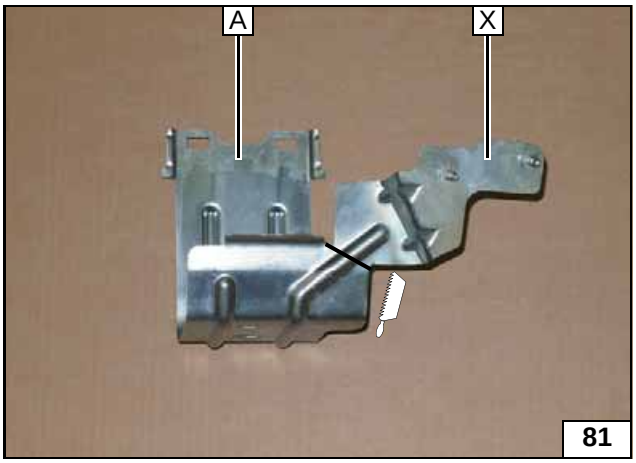


Install wheel well trim. Slide spacer bracket **2** onto exhaust end section **3** and align. Install exhaust end section **3** as per work steps 6 - 8 of the installation instructions. Ensure sufficient distance from 180° moulded hose and wheel well trim, correct if necessary.

1 Hose clamp
4 Exhaust end fastener

Mounting exhaust end section

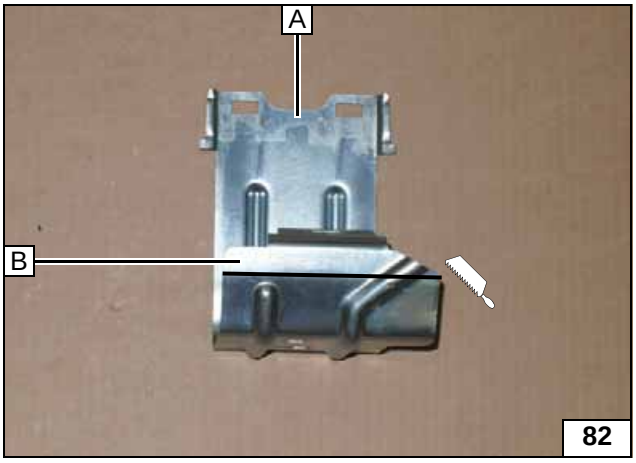
Installing Control Unit, Fuse and Relay Box



Discard section **X**.

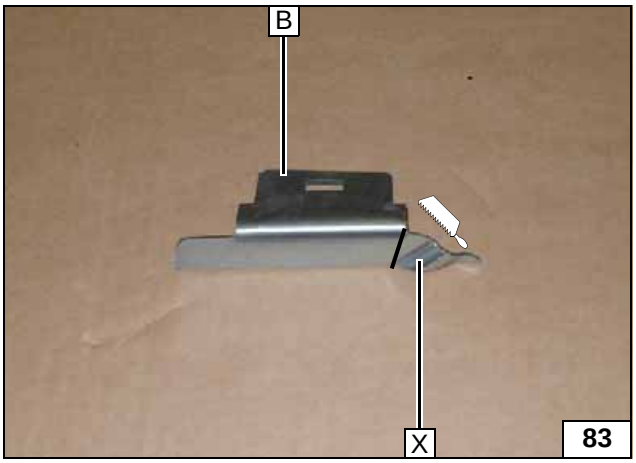
A Bracket of fuse and relay box

Preparing bracket of relay box



A Bracket of fuse and relay box
B Bracket section will be reused (see next figure)

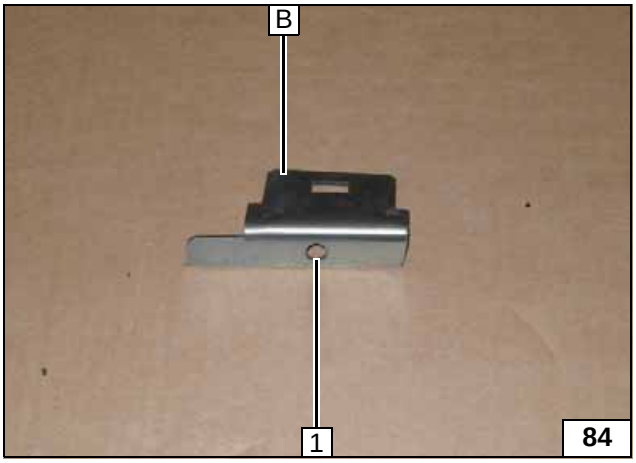
Cutting bracket



Discard section **X**.

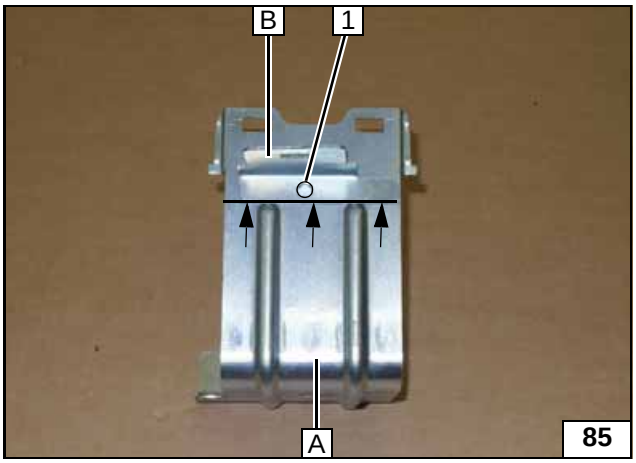
B Bracket section

Cutting bracket section to length



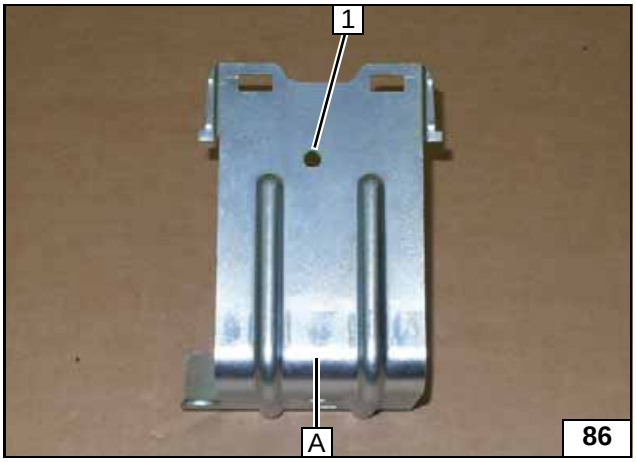
B Bracket section
1 7mm dia. hole as shown

Hole in bracket section



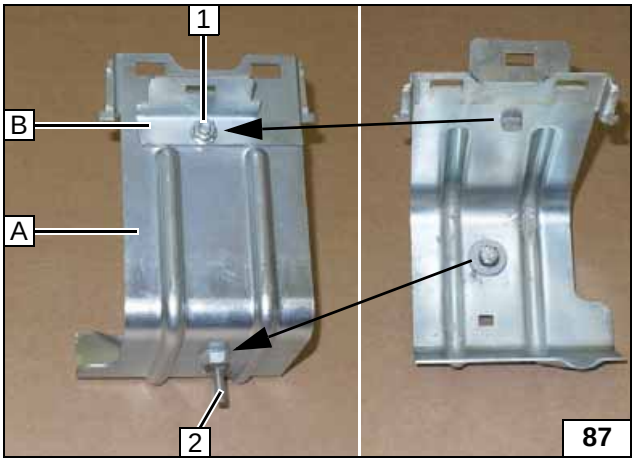
Position bracket section **B** at the bead of fuse and relay box bracket **A** as shown and copy hole pattern **1**.

Copying hole pattern



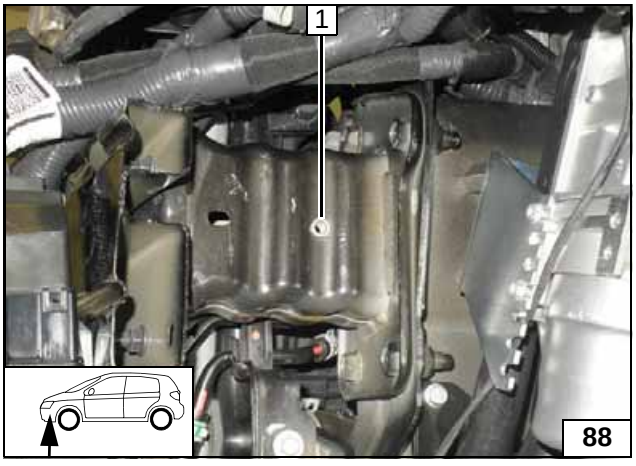
1 7mm dia. hole in bracket **A**

Hole in bracket A



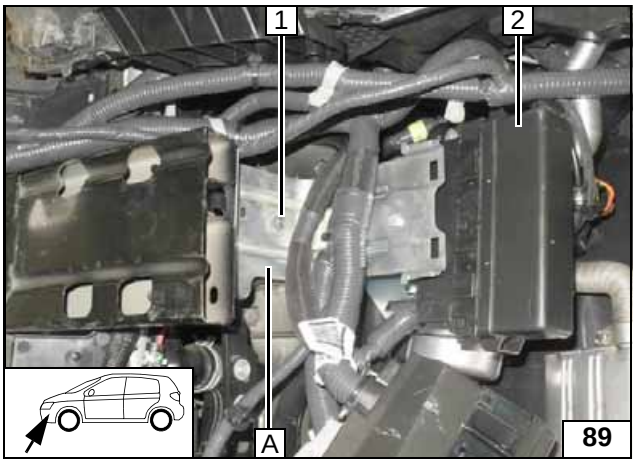
1 M6x12 bolt, flanged nut
2 M6x30 bolt, spring lockwasher, large diameter washer, M8 flanged nut (with flanged nut on bracket **A**), pin lock, original vehicle hole
A Bracket of fuse and relay box
B Bracket section

Completing bracket of relay box



1 Drill out original vehicle hole to 9.1mm dia.; rivet nut

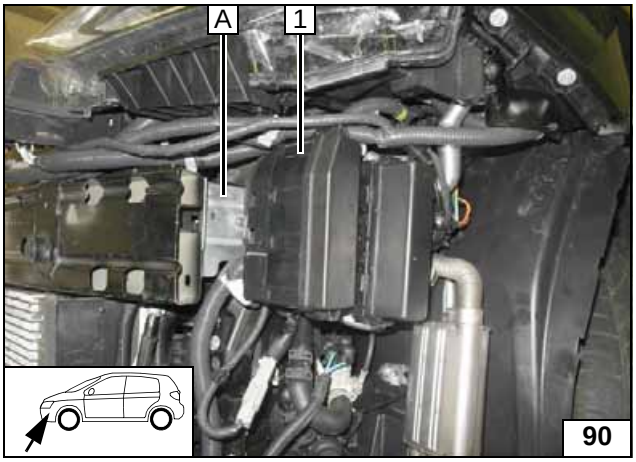
Installing rivet nut



Mount rear relay box **2** first onto bracket section **B** (hidden)!

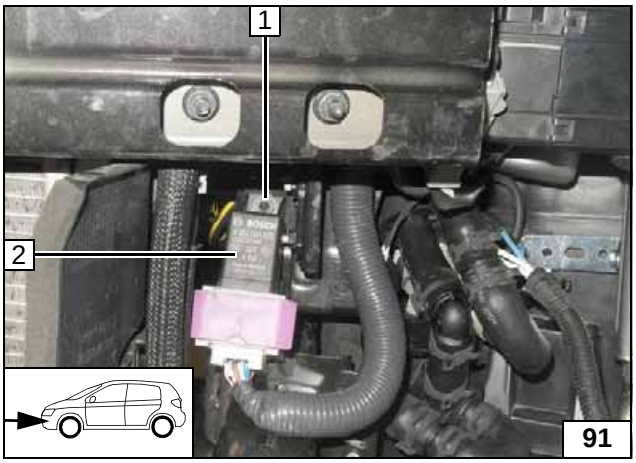
1 M6x30 bolt on rivet nut
A Bracket of relay box

Installing rear relay box



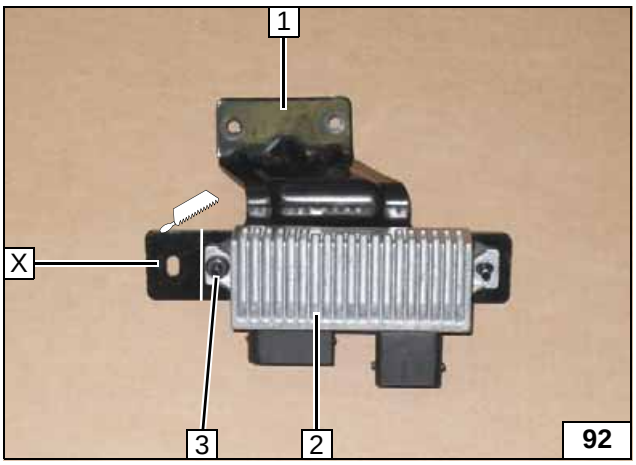
Mount front relay box **1** onto bracket **A**.

Mounting front relay box



1 Original vehicle flanged nut on original vehicle stud bolt
2 Original vehicle relay

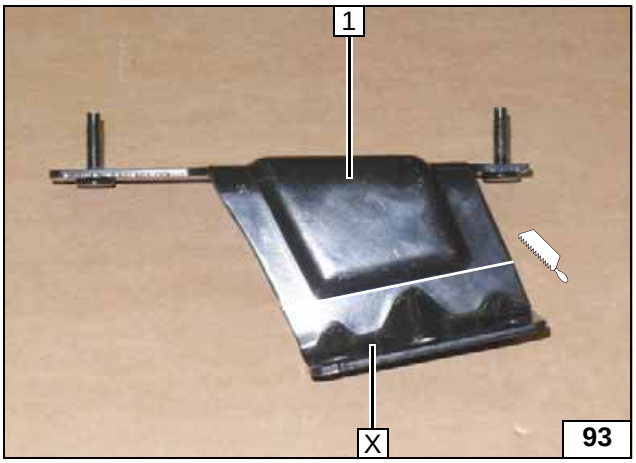
Installing relay



Mount control unit of electric auxiliary heater **2** on stud bolts and install loosely at position **3** using original vehicle flanged nut.
Discard section **X**

1 Bracket of control unit

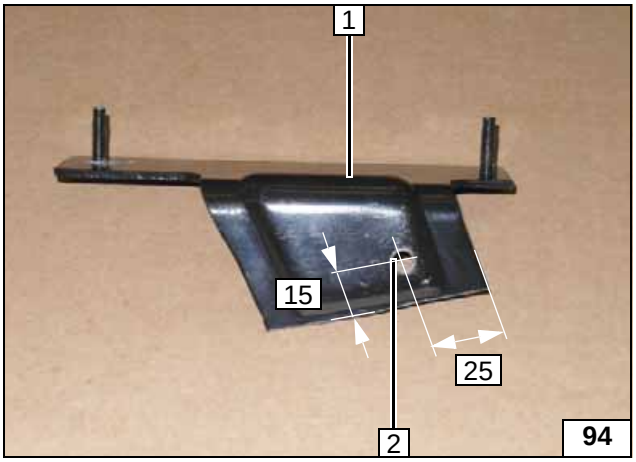
Preparing bracket of control unit



Remove control unit.
Discard section **X**.

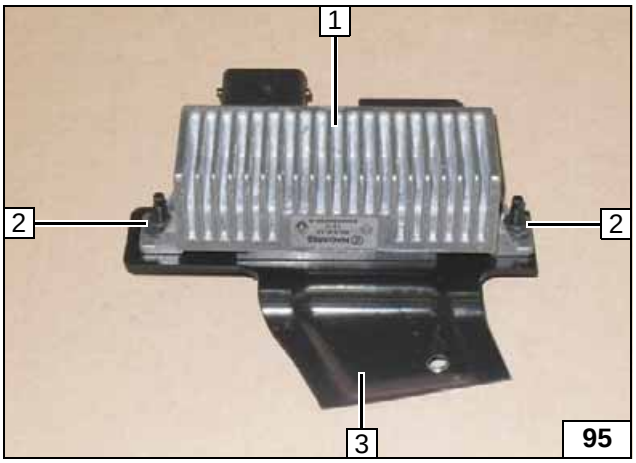
1 Bracket for control unit of electric auxiliary heater

Cutting bracket of control unit to length



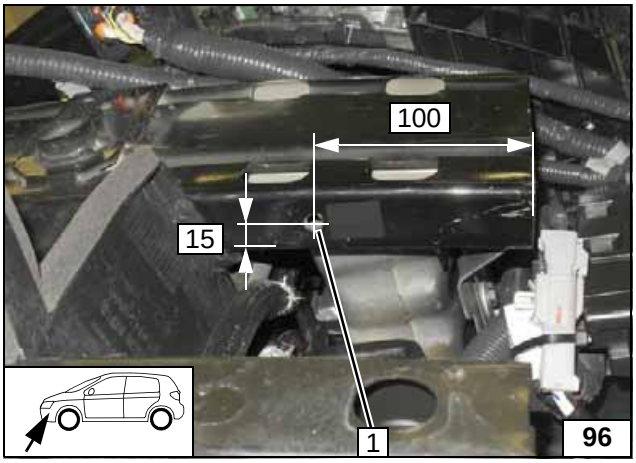
1 Bracket for control unit of electric auxiliary heater
2 7 mm dia. hole

Hole in bracket



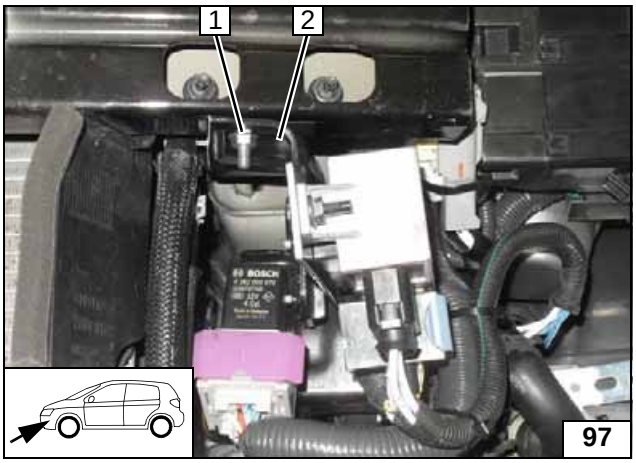
1 Control unit of electrical auxiliary heater
2 Original vehicle flanged nut [2x] on stud bolt
3 Bracket of control unit

Premounting control unit



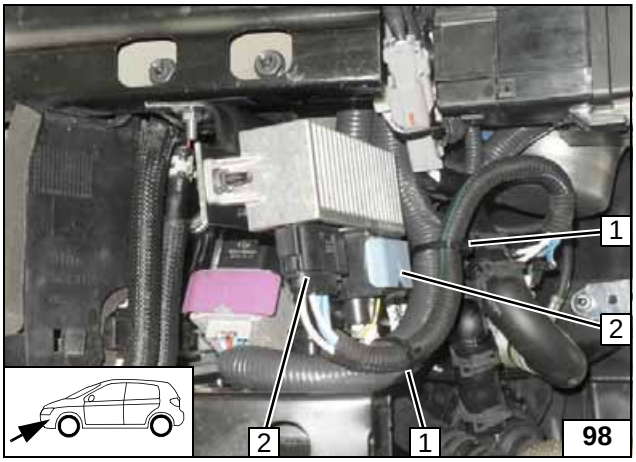
1 7 mm dia. hole

Hole for control unit



1 M6x20 bolt, flanged nut
2 Bracket of control unit

Installing control unit



Align wiring harnesses and secure using cable tie **1** [2x].

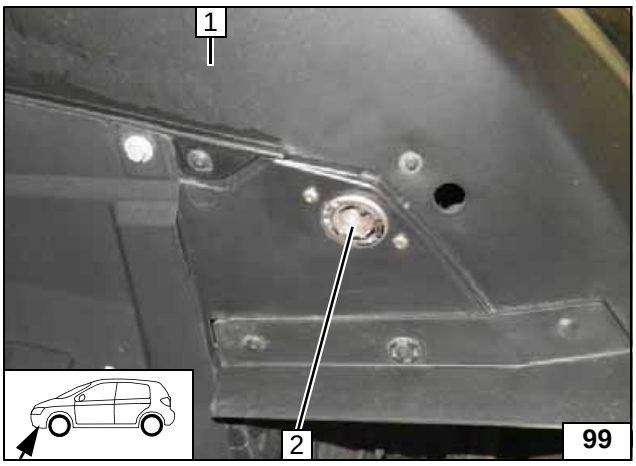
2 Connector for wiring harness of electric auxiliary heater [2x]

Installing wiring harnesses

Final Work

Reassemble the disassembled components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate all loose lines and tie back.
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 SmartControl CAR, teach Telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Apply the caution label "Switch off parking heater before refilling" in the area of the filler neck**
- **See installation instructions for initial start-up and function check**
- **Check the fan speed in parking heating mode. Target value of approx. 1/3 of the maximum speed.**
  If required, the programming of the PWM-Gateway must be adjusted using the Webasto Thermo Test Diagnosis (WTT).
- **Switch on the ignition and check if the settings for normal operation chosen in consultation with the vehicle owner are shown on the A/C control panel (see section "Preliminary Work")!**

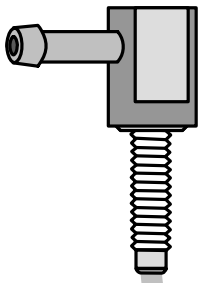


Install bumper **1**. Check the correct seating of exhaust end section **2** in exhaust end fastener.

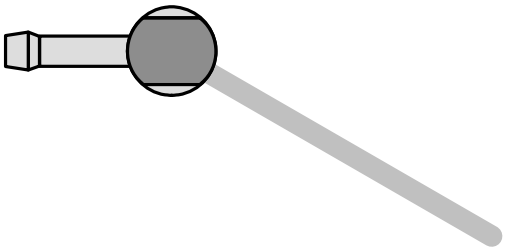
Checking exhaust end section

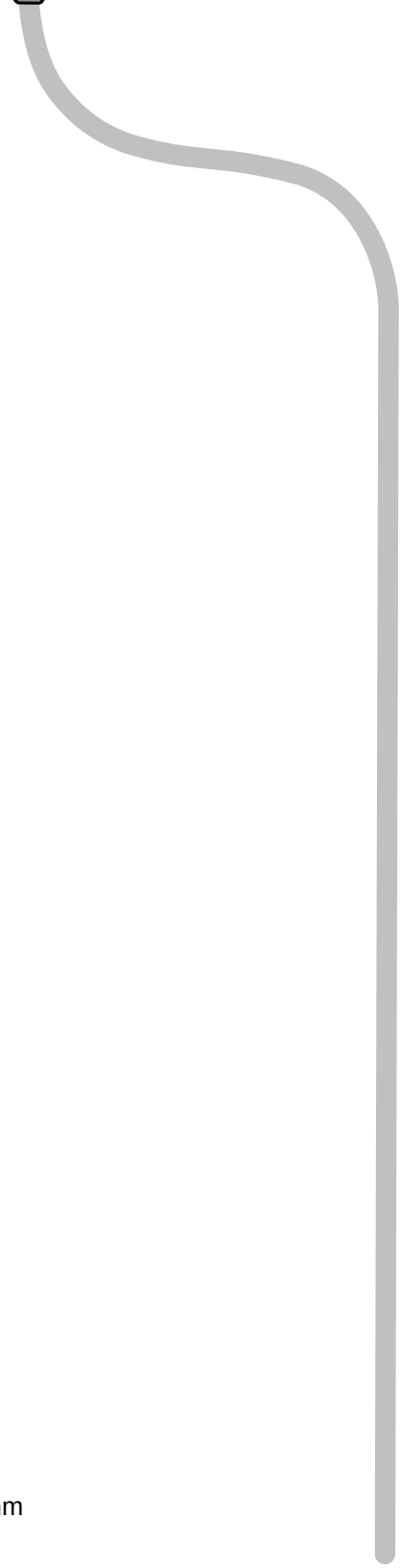
Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

Template for Fuel Standpipe



Top view





100mm

Scale 1:1

Compare the size of the printed version with dimension lines.
Permitted tolerance a maximum of 2%.

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

100mm

0

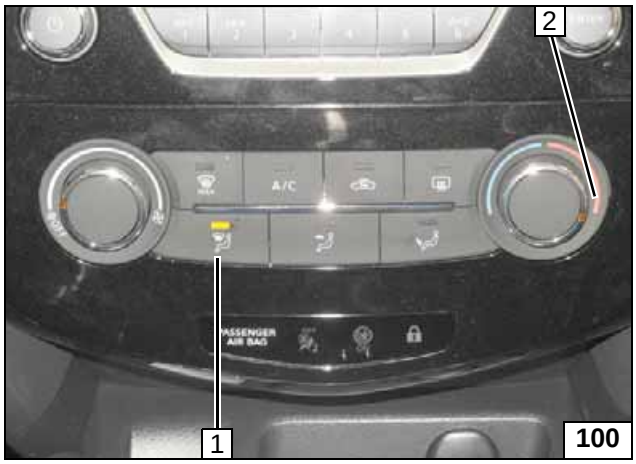
Operating Instructions for Manual Air-Conditioning

Please remove page and add to the vehicle operating instructions.

Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating cycle.
Deactivation instructions can be found in the operating instructions of the vehicle.

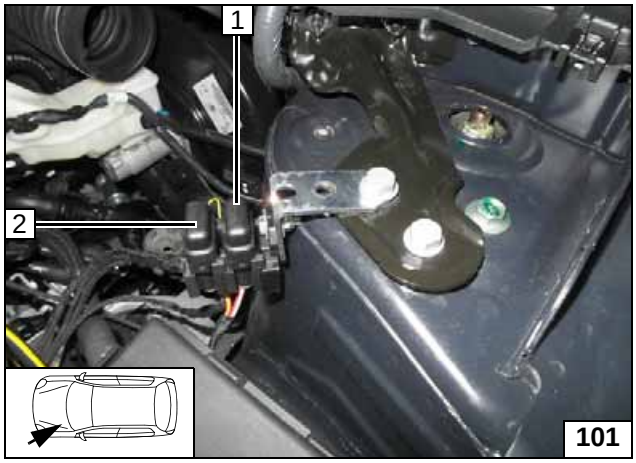
Before parking the vehicle, make the following settings:



It is not necessary to set the fan speed, it will be automatically set to approx. 1/3.

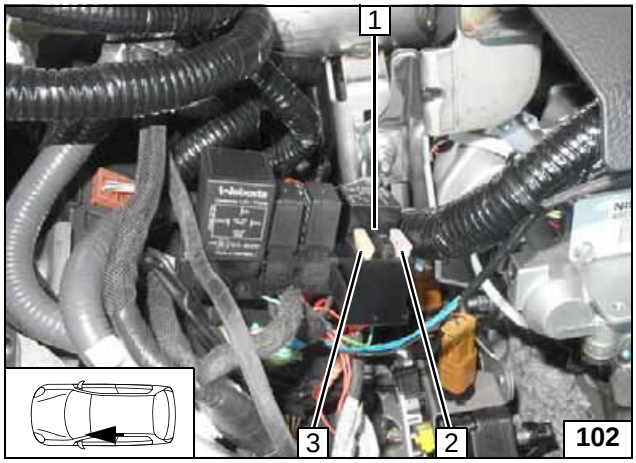
1 Air outlet to windscreen
2 Set temperature to "HI"

A/C control panel



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

Engine compartment fuses



1 1A fuse F3 of heater control
2 3A fan fuse F5
3 25 A fan fuse F4

Passenger compartment fuses

Webasto
Feel the Drive

Operating Instructions for 2-Zone Automatic Air-Conditioning

Please remove page and add to the vehicle operating instructions.

Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

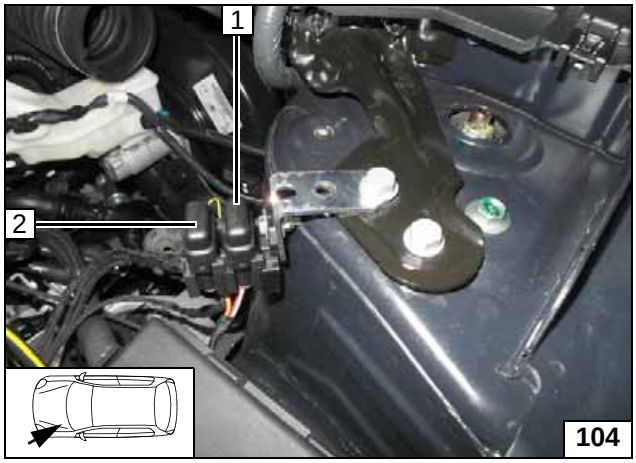
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating cycle.
Deactivation instructions can be found in the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

It is not necessary to set the fan speed, it will be automatically set to approx. 1/3.

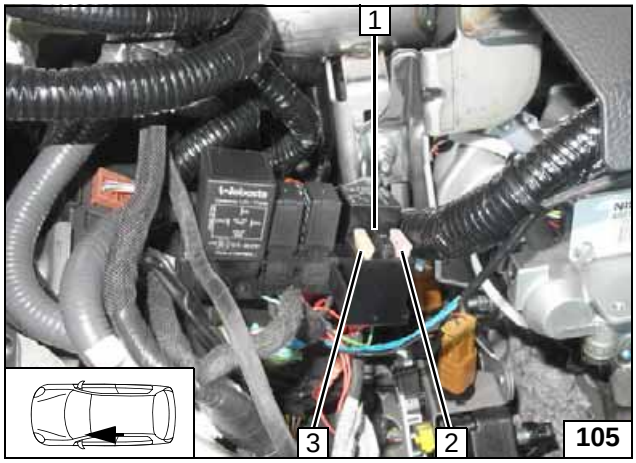
1 Air outlet to windscreen
2 Set temperature to "HI"

A/C control panel



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

Engine compartment fuses



1 1A fuse F3 of heater control
2 3A fan fuse F5
3 25 A fan fuse F4

Passenger compartment fuses