Water Heater

Webasto
Feel the Drive

***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
1.2 P	Petrol	6-speed SG	85	1197	HRA2DDT
1.5 D	Diesel	6-speed SG	81	1461	K9K

SG = Manual 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
LED daytime running lights
Start / Stop
Euro 5b+

Not verified:
Passenger compartment monitoring
LED headlights
4 WD

Total installation time: approx. 8 hours

Nissan Qashqai

Table of Contents

Necessary Components

- Basic delivery scope *Thermo Top Evo* based on price list
- Installation kit for Nissan Qashqai 2014 Petrol and diesel: **1322997B**
- 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

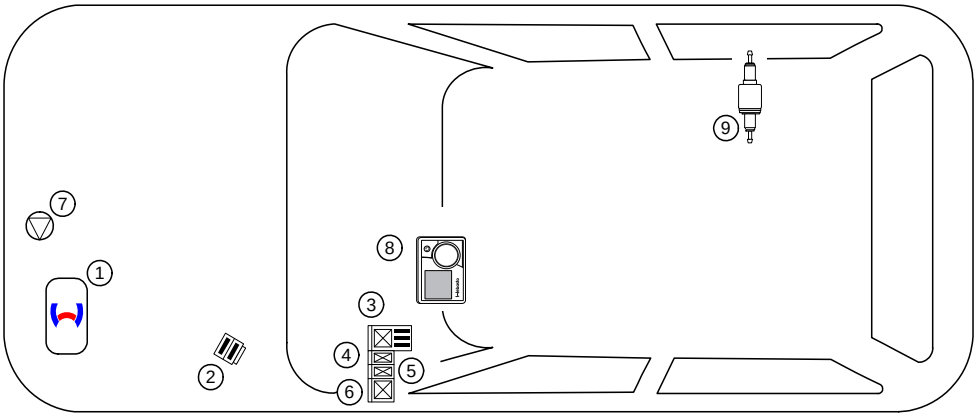
Installation instructions:

- 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.

Nissan Qashqai

Notes on Validity

This installation documentation applies to Nissan Qashqai Petrol and 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

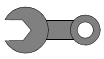
Special Tools
- Hose clamp pliers for self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Automatic wire stripper 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Webasto 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 injury or fatal accidents 

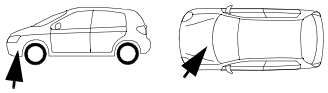
Specific risk due to electrical voltage 

Specific risk of damage to components 

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 

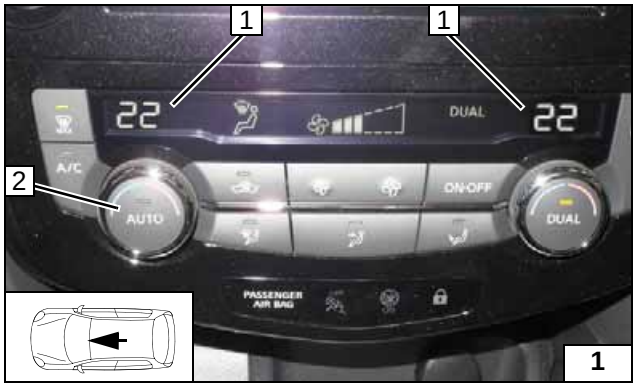
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle 

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:

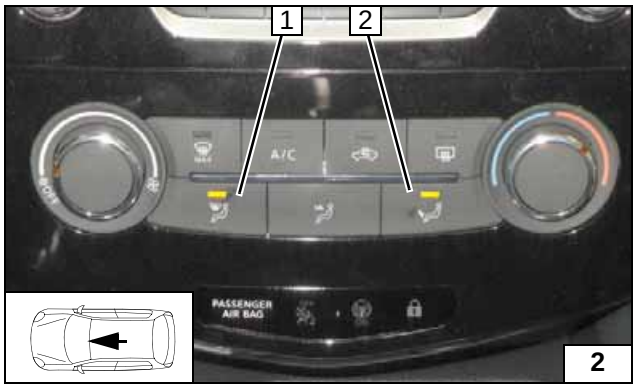


Automatic air-conditioning

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

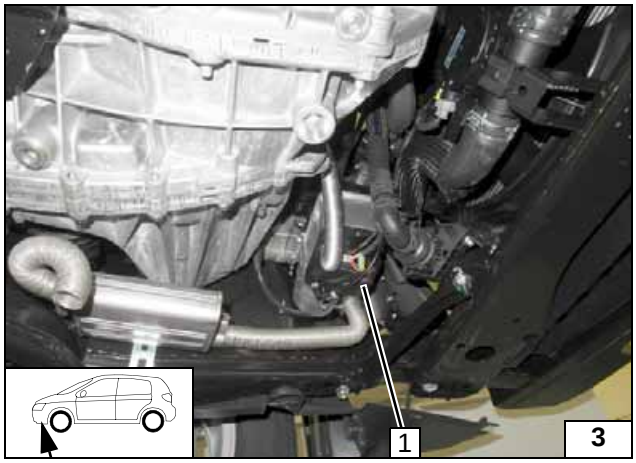
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Unclamp the battery and remove completely with the battery carrier.
- Remove the air filter completely with the intake hose as far as the engine.
- Remove the underride protection of the engine.
- Remove the underride protection on the right underbody.
- 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 of fuel-tank sending unit.
- 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.

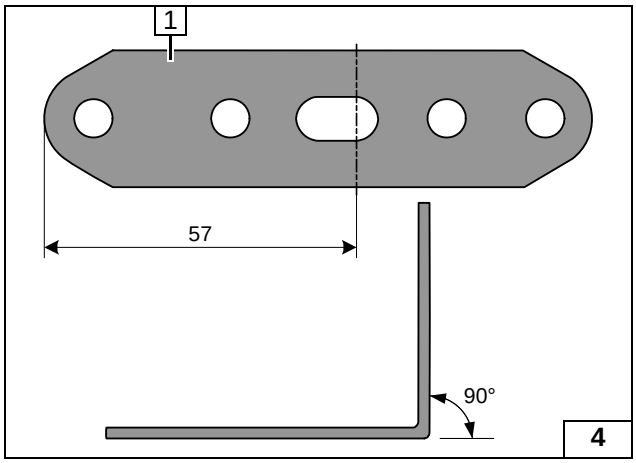


Heater Installation Location

1 Heater

Installation location

Preparing Electrical System



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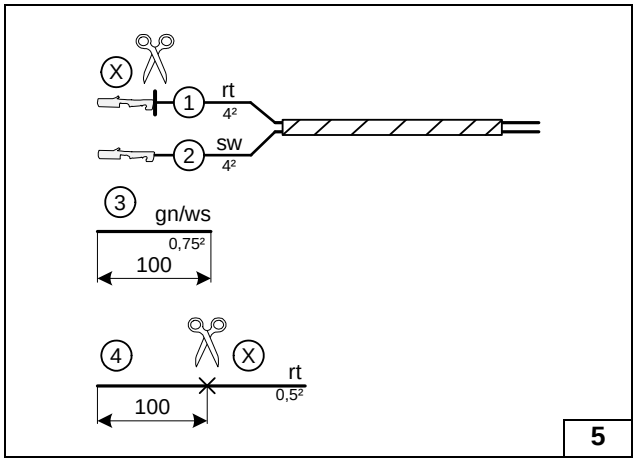
1 Perforated bracket for engine compartment fuse holder

Preparing perforated bracket



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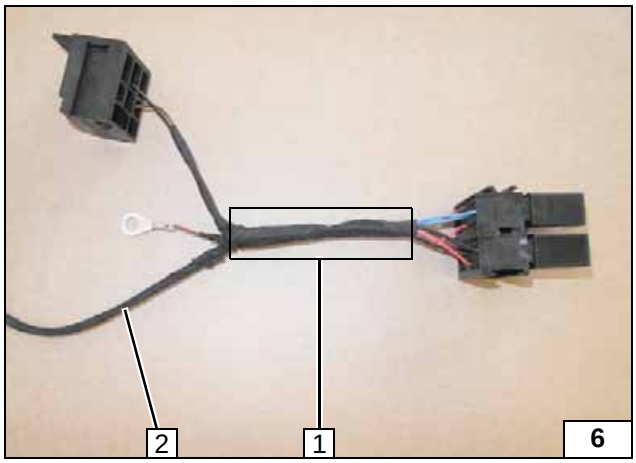
Wire sections retain their numbering in the entire document.

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



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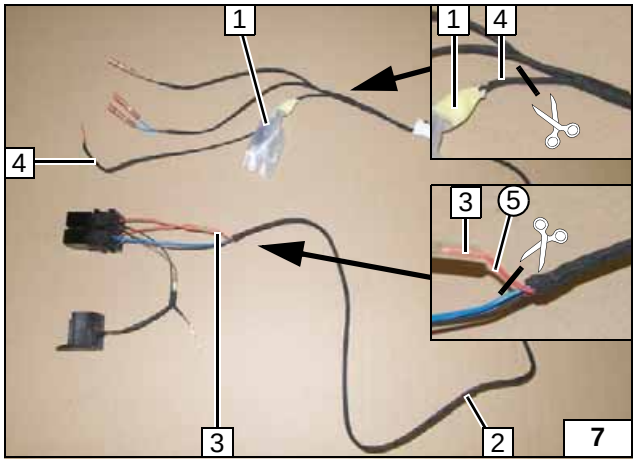
Carefully remove the insulation of the provided additional wiring harness in marked area **1**!

2 Additional wiring harness

Preparing additional wiring harness



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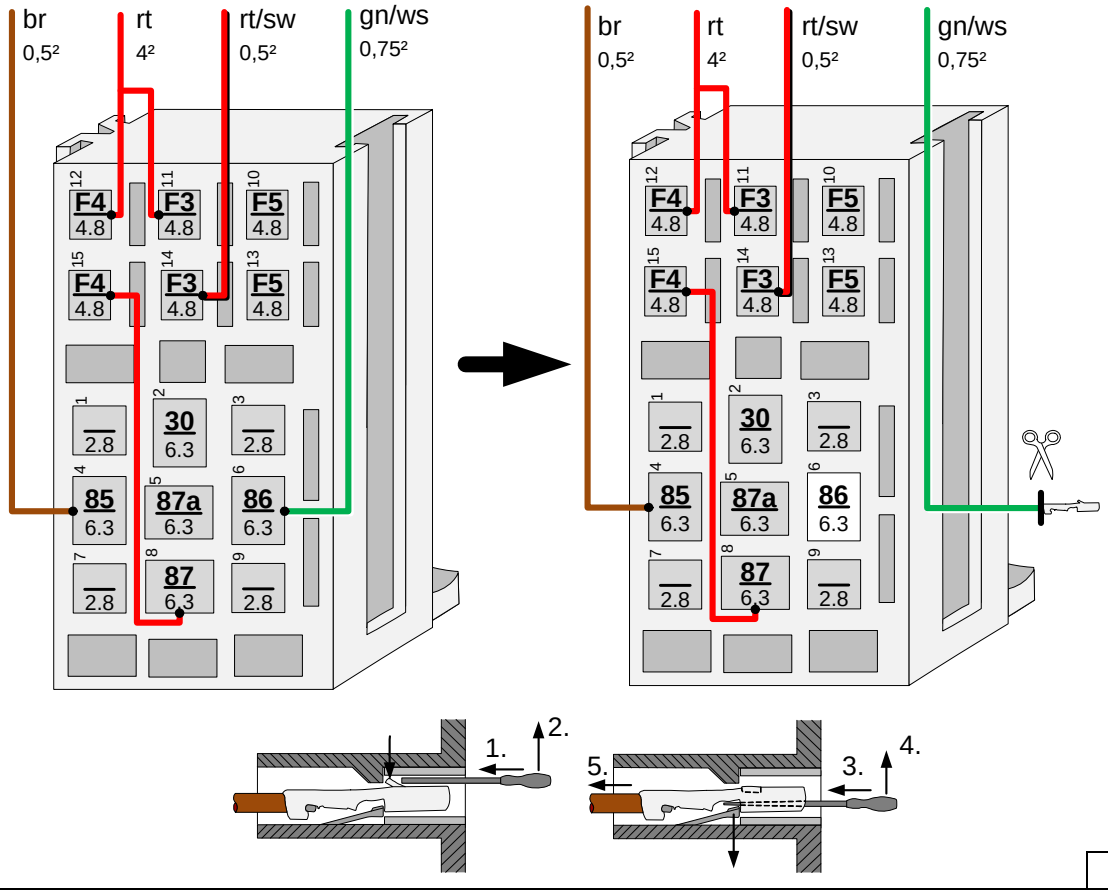
Cut red (rt) wire **4** as shown and discard together with accessories bag **1**!
Cut red (rt) wire **3** as shown!

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

Preparing additional wiring harness



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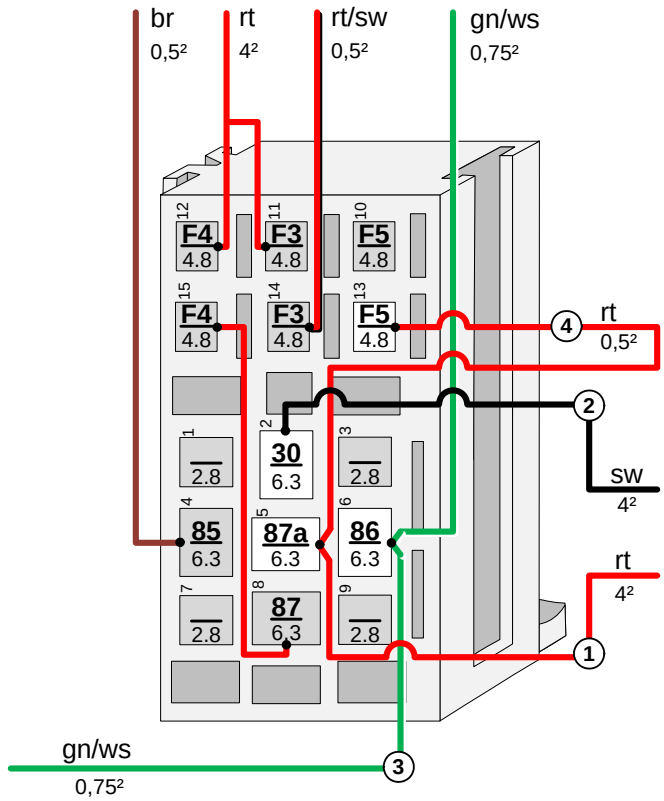
Preparing relay and fuse holder of passenger compartment



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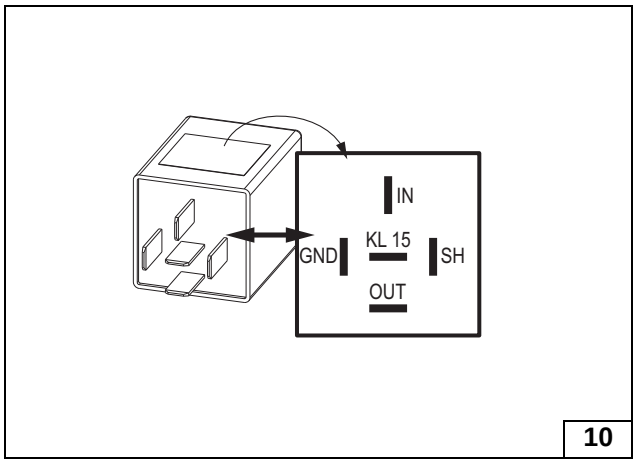
Connecting wires to passenger compartment relay and fuse holder



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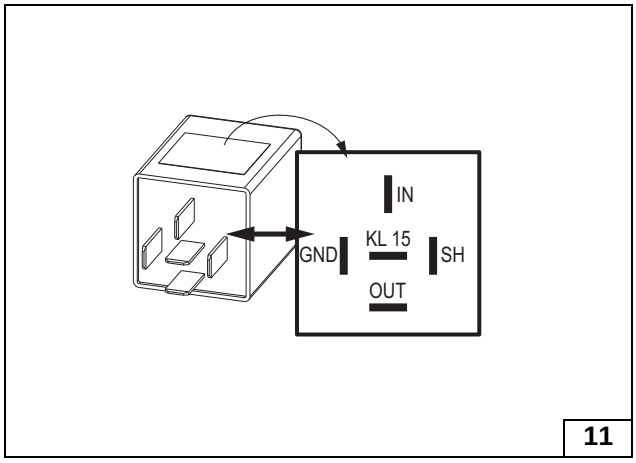
View of PWM GW

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



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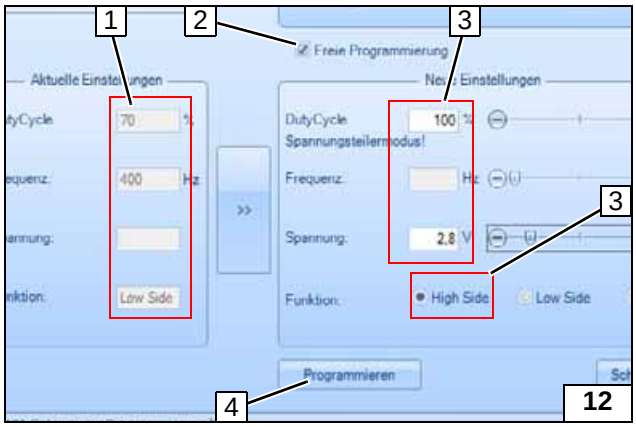
Reprogramming PWM-GW

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%
Frequency: not relevant
Voltage: 2.8V
Function: High-side



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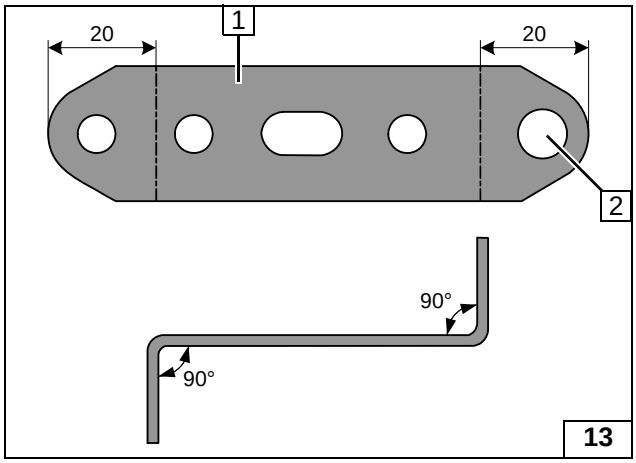
Valid for WTT, software version V2.16 and higher! Free update via: www.dealers.webasto.com
Support via: technikcenter@webasto.com

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

Reprogramming PWM-GW with WTT

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



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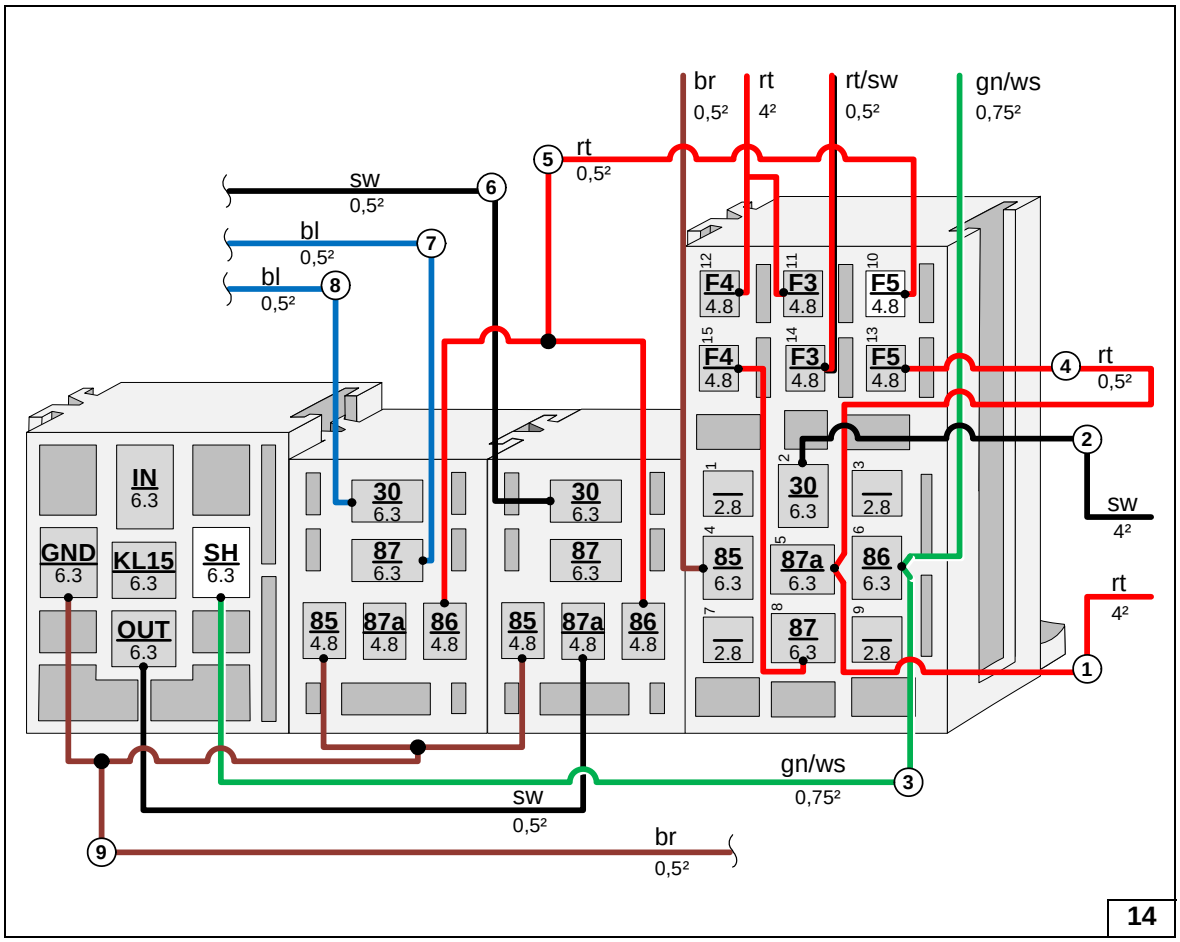
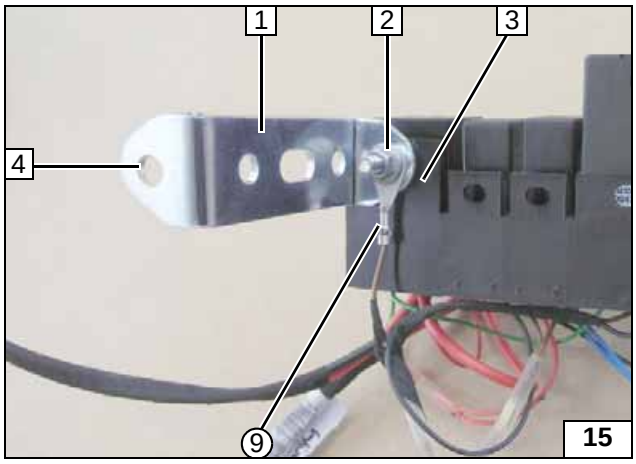
All vehicles

1 Perforated bracket
2 8.5 mm dia. hole

Preparing perforated bracket

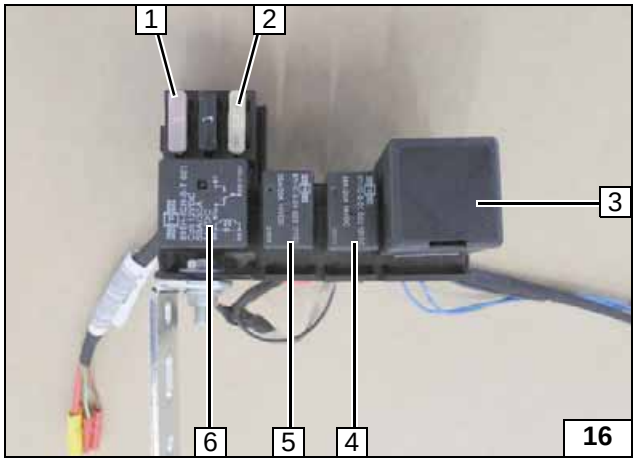


Interlocking PWM GW, K2 relay and K3 relay socket with passenger compartment relay and fuse holder, connecting wires



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



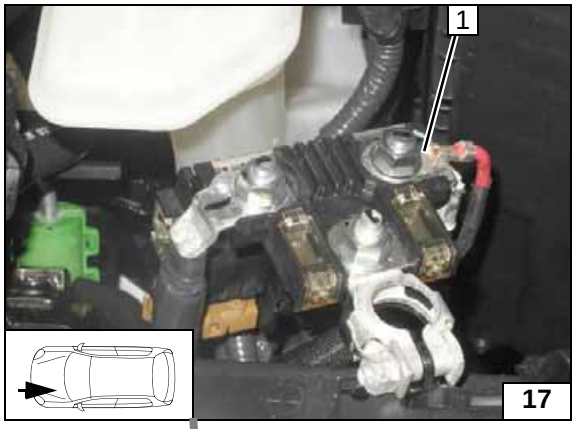
1 Fuse F5 3A
2 25A fuse F4
3 PWM GW
4 K3 relay
5 K2 relay
6 K1 relay

Inserting PWM GW, relays and fuses

Electrical System

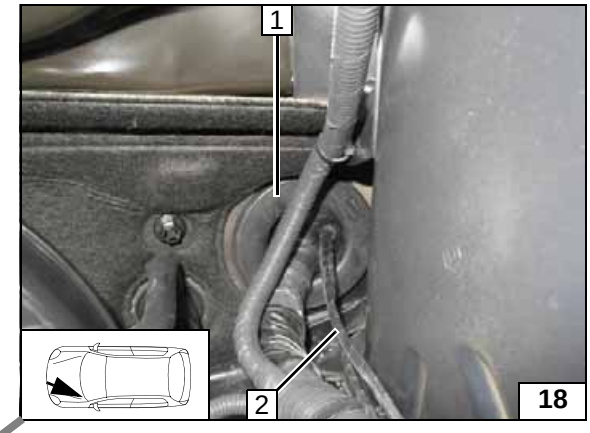
Positive wire

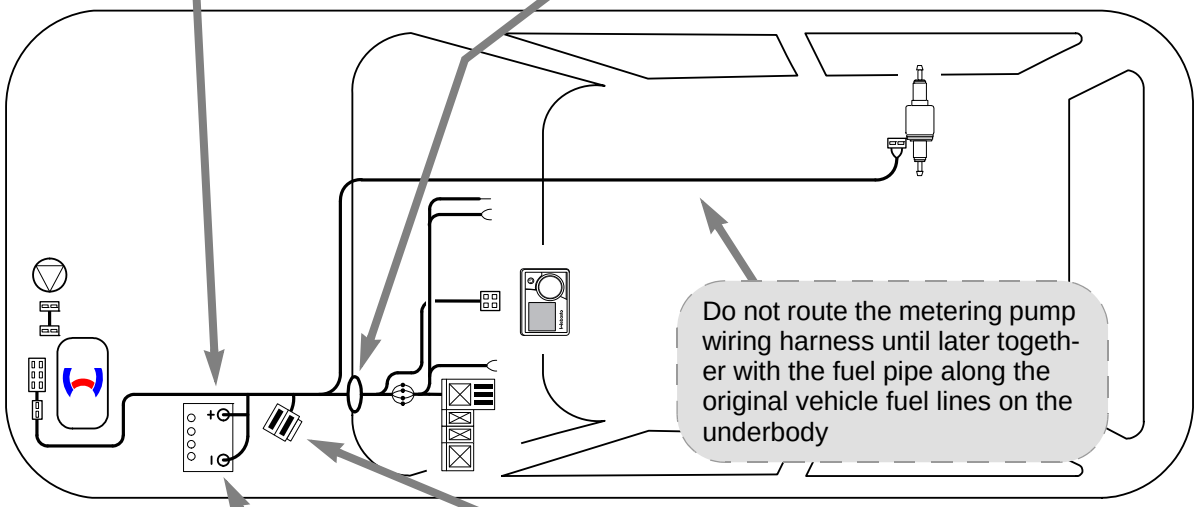
1 Positive wire on positive battery terminal



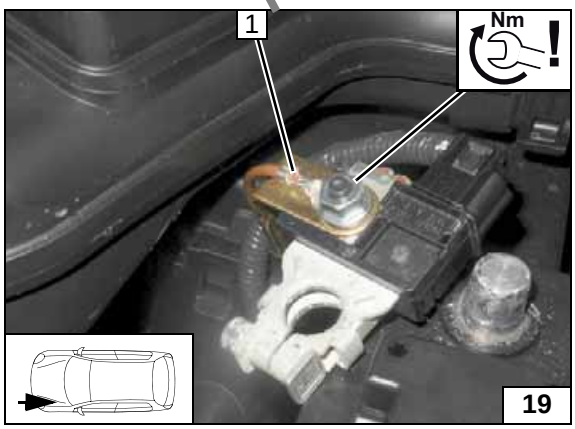
Wiring harness pass through

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



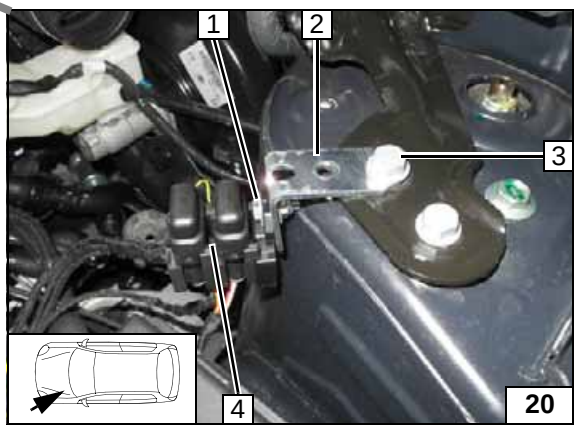


Wiring harness routing diagram



Earth wire

1 Earth wire on negative battery terminal

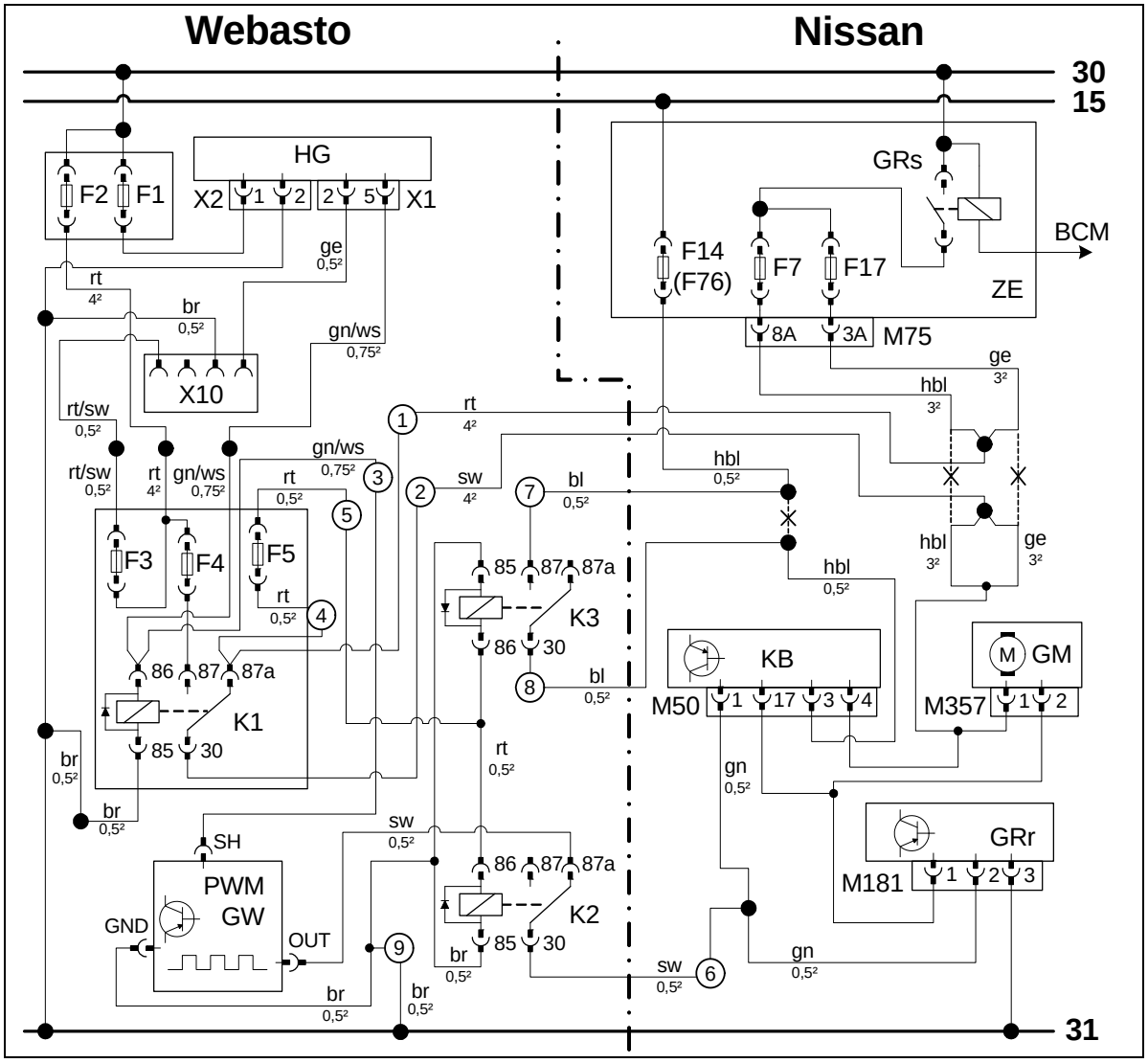


Fuse holder of engine compartment

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

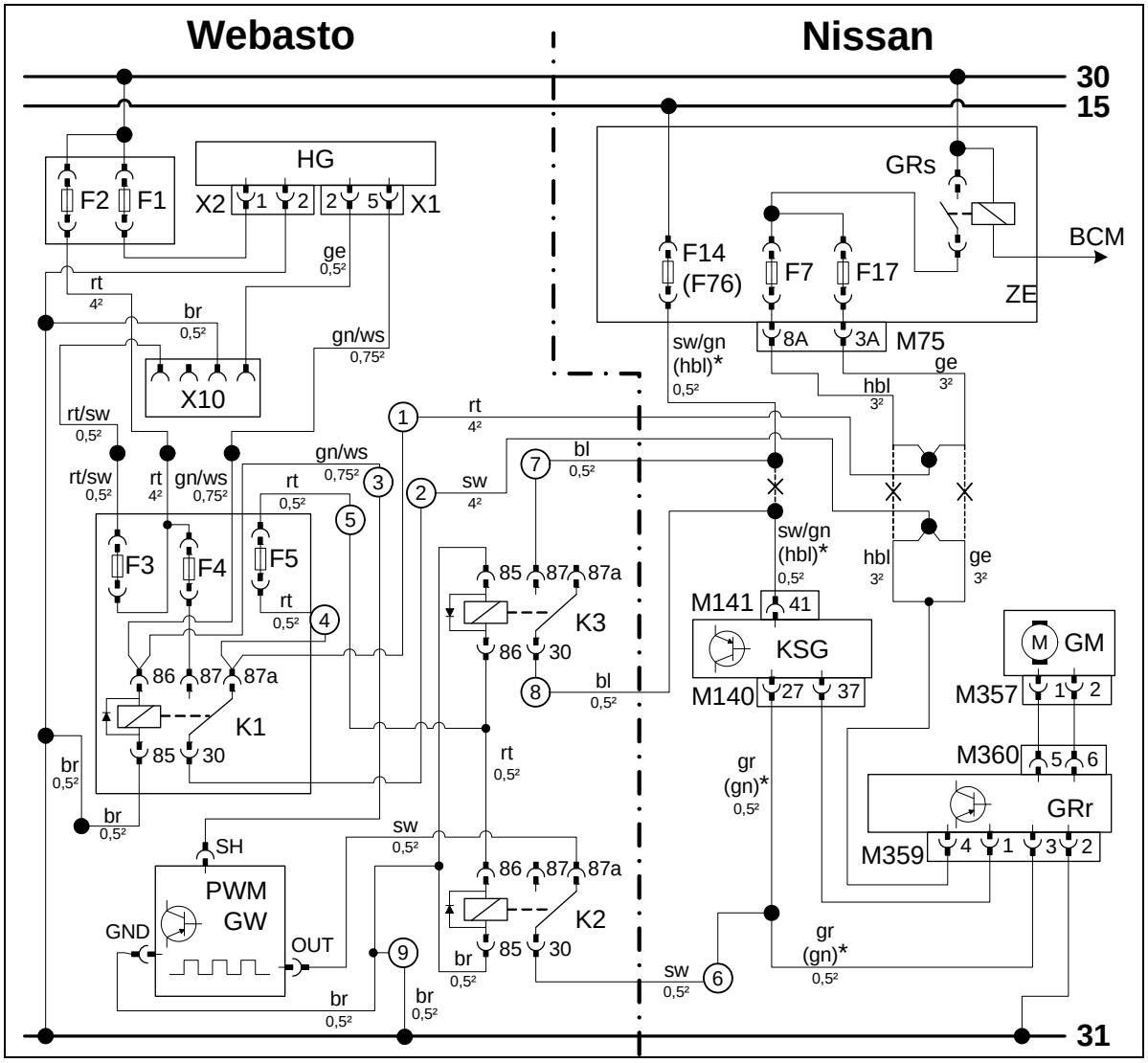


Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Fuse box of passenger compartment	rt	red
X1	6-pin heater connector			sw	black
X2	2-pin heater connector	GRs	Fan relay	ge	yellow
F1	20A fuse	F14	10A fuse (vehicle without Start/Stop)	gn	green
F2	30A fuse			ws	white
X10	4-pin connector of heater control	F76	10A fuse (vehicle with Start/Stop)	br	brown
				gr	grey
F3	1A fuse	F7	20A fuse	bl	blue
F4	25A fuse	F17	20A fuse	hbl	light blue
F5	3A fuse	M75	8-pin ZE connector		
K3	Isolating relay	KB	A/C control panel		
K1	Fan relay	M50	32-pin KB connector		
PWM GW	Pulse width modulator	GM	Fan motor		
K2	Additional relay	M357	2-pin connector GM		
PWM GW settings:		GRr	Fan controller		
Duty cycle:	100%	M181	4-pin connector, GRr		
Frequency:	not relevant			**X**	Cutting point
Voltage:	2.7 - 2.8			Wiring colours may vary.	
Function:	High-side				

Legend

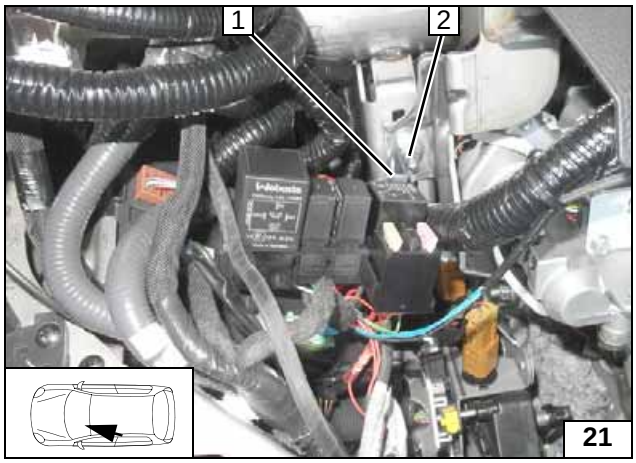
Wiring Diagram for Automatic Air-Conditioning

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	F76	10A fuse (vehicle with Start/Stop)	br	brown
				gr	grey
F3	1A fuse	F7	20A fuse	bl	blue
F4	25A fuse	F17	20A fuse	hbl	light blue
F5	3A fuse	M75	8-pin ZE connector		
K3	Isolating relay	KSG	A/C control unit		
K1	Fan relay	M140	40-pin connector KSG		
PWM GW	Pulse width modulator	M141	40-pin connector KSG		
K2	Additional relay	GM	Fan motor		
PWM GW settings:		M357	2-pin connector GM	*	Wiring colours may vary.
Duty cycle:	70%	GRr	Fan controller		
Frequency:	400Hz	M359	4-pin connector, GRr	X	Cutting point
Voltage:	not relevant	M360	2-pin connector, GRr	Wiring colours may vary.	
Function:	Low-side				

Legend



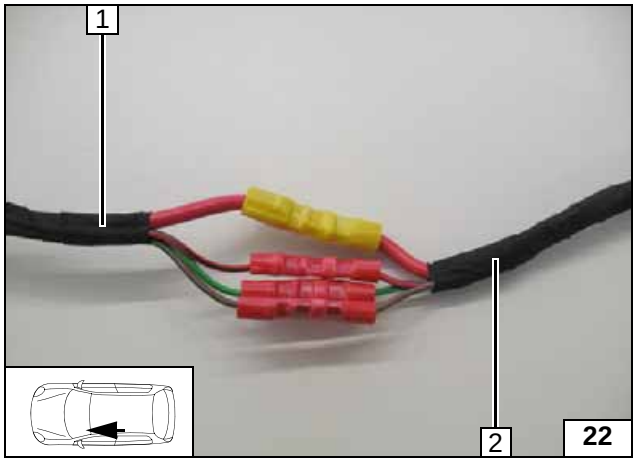
Fan Controller

All vehicles

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

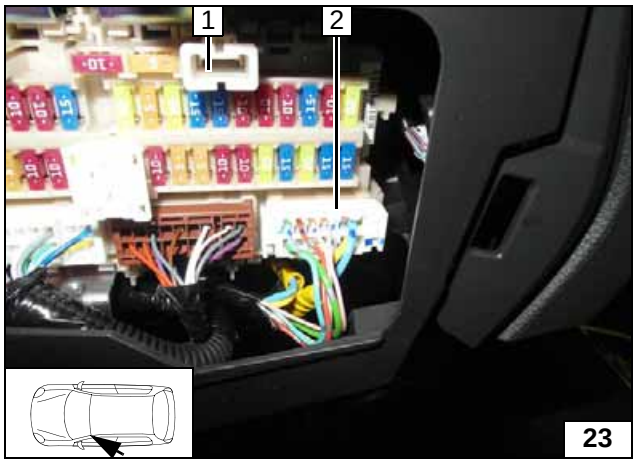
Installing relay and fuse holder of passenger compartment

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

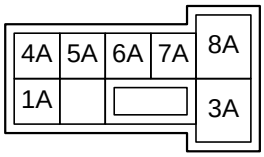


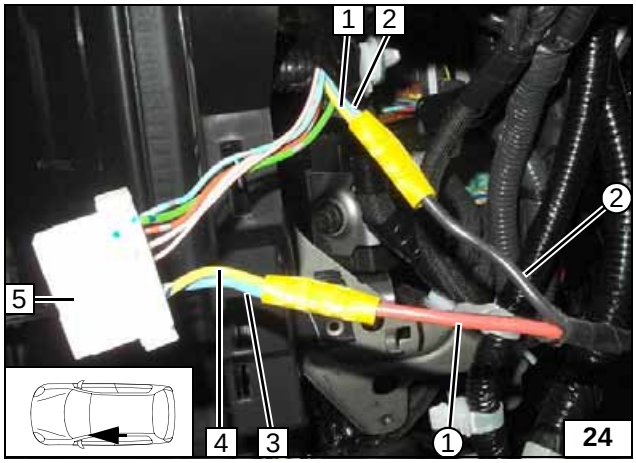
Connection to fuse box in passenger compartment **1**!

2 Remove 8-pin connector M75

Pulling out M75 connector

M75 connector on wiring side

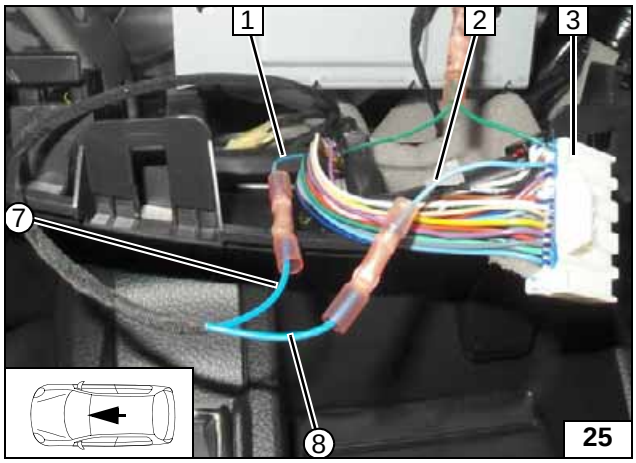




Connection to 8-pin connector M75 **5** of passenger compartment fuse box.
Establish connections according to wiring diagram.

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
② Black (sw) wire of K1/30



Manual air-conditioning

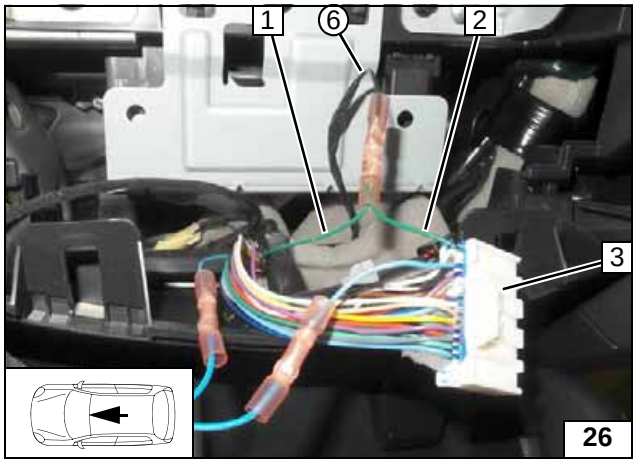
Connection to 32-pin connector M50 **3** of A/C control unit / A/C control panel.
Establish connections according to wiring diagram.

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



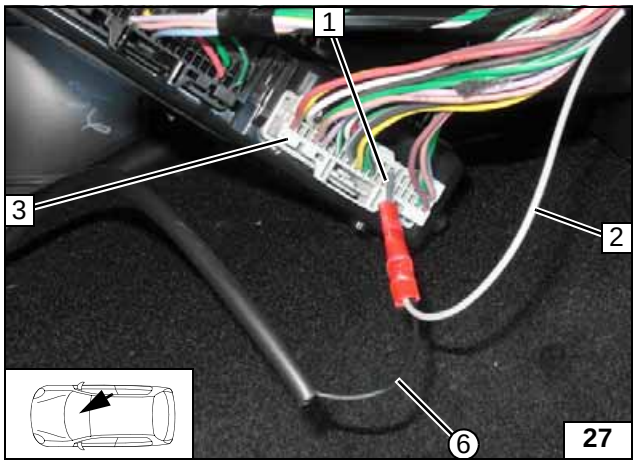
Connection to 32-pin connector M50 **3** of A/C control unit / A/C control panel.
Establish connections according to wiring diagram.

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

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



Automatic air-conditioning

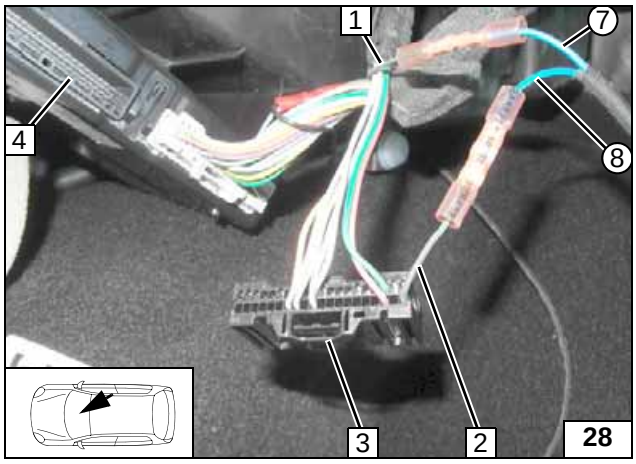
Connection to 40-pin connector M140 **3** of A/C control unit, centre console on the right.
Establish connections according to wiring diagram.

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

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 A/C control unit



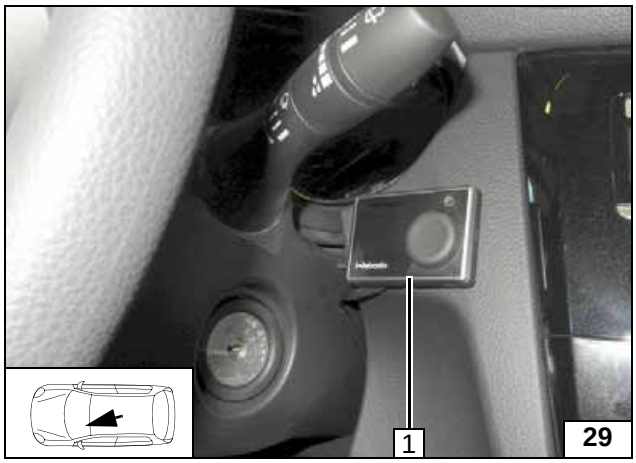
Connection to 40-pin connector M141 **3** of A/C control unit, centre console on the right.
Establish connections according to wiring diagram.

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

M141 connector on wiring side

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

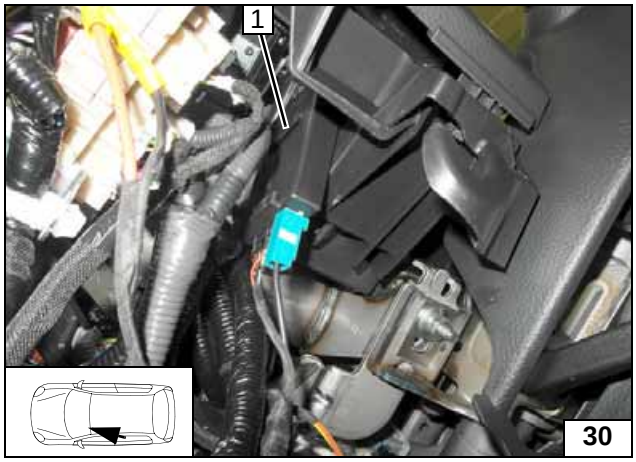
Connection to A/C control unit



MultiControl CAR

1 MultiControl CAR

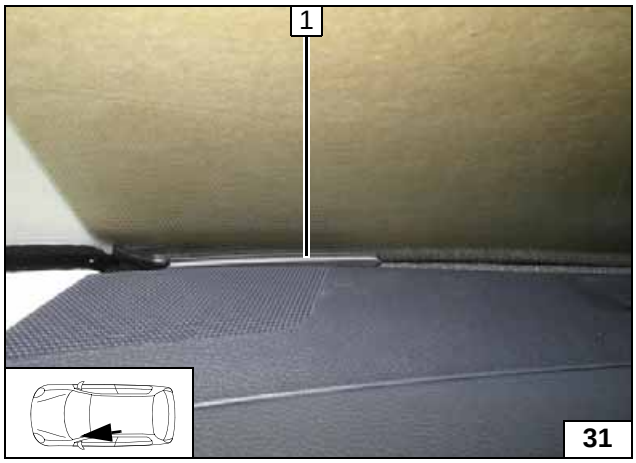
Installing MultiControl CAR



Remote Option (Telestart)

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

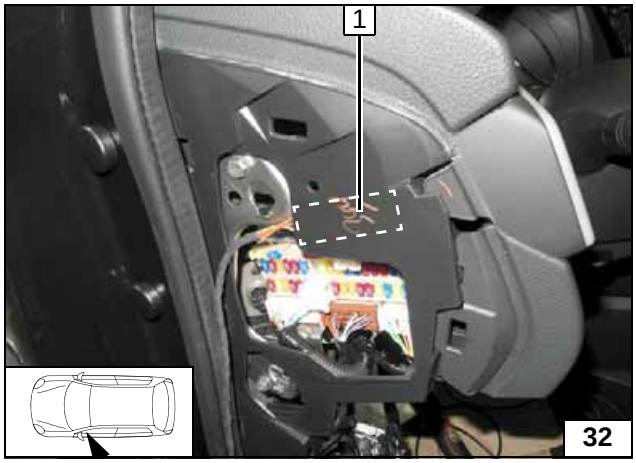
Installing receiver



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

1 Antenna

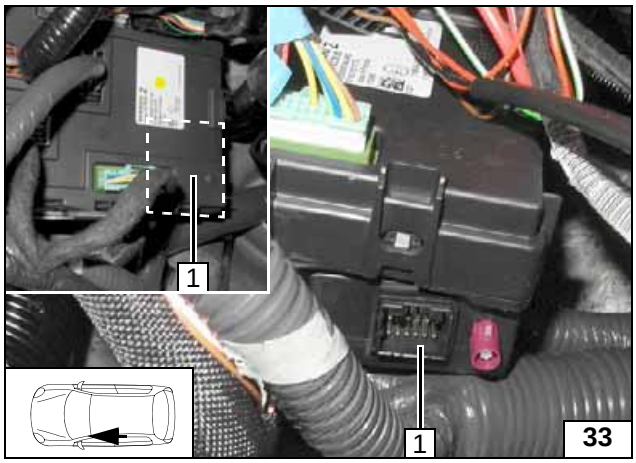
Mounting antenna



Temperature sensor T100 HTM

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

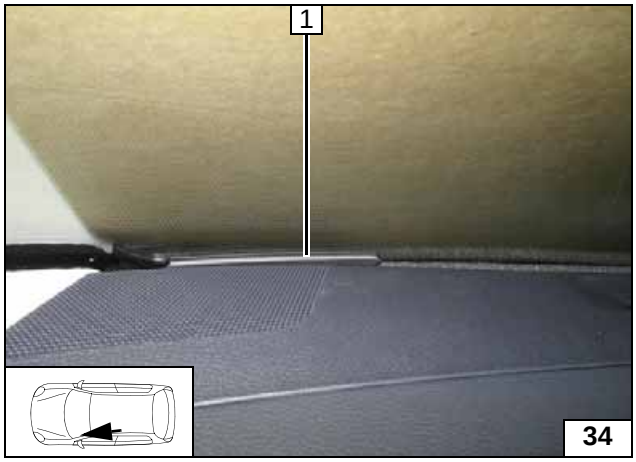
Mounting tempera-ture sensor



Remote Option Thermo Call

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

Installing receiver



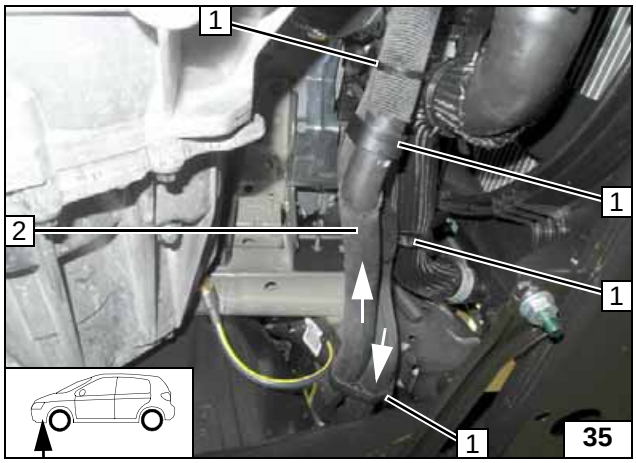
For windscreens with a special coating or heater, use only the area recommended by the manufacturer to assemble antenna.

1 Antenna

Mounting antenna

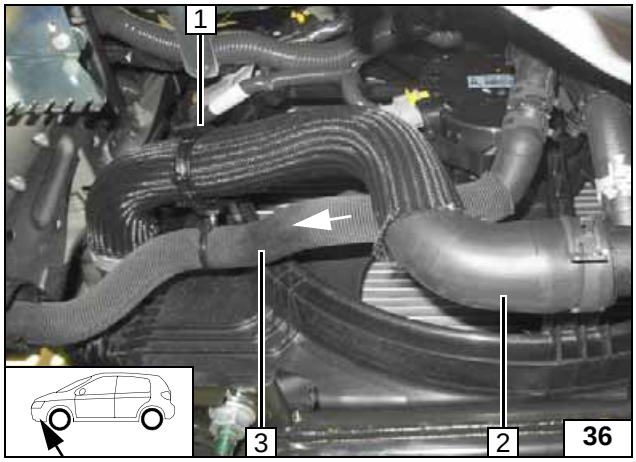
Preparing Installation Location

Diesel engine only



Removing hose

Label the direction of flow. Pay attention to the information on the coolant circuitfor diesel engines .
Remove original vehicle hose bracket **1** [4x], will be re-used. Remove original vehicle hose for electric auxiliary heater outlet / engine inlet **2** , will be re-used.

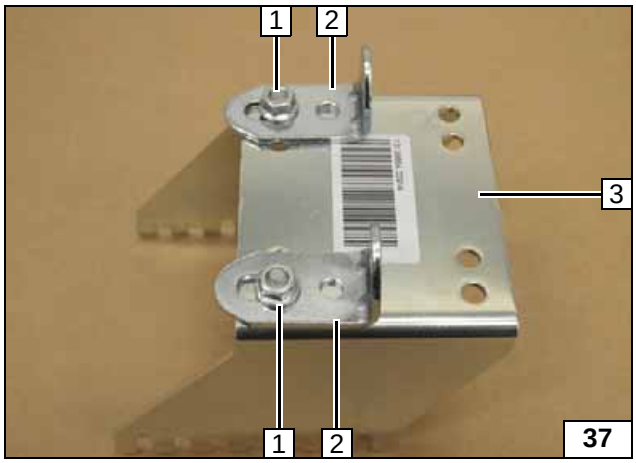


Routing hose

Route original vehicle hose for electric auxiliary heater inlet **3** behind the original vehicle radiator hose **2**.

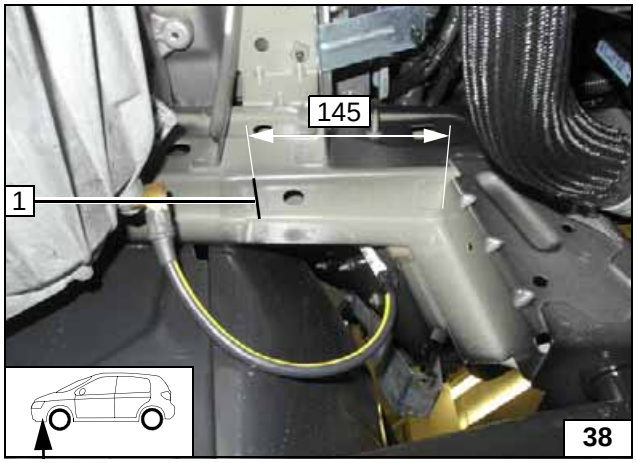
1 Original vehicle hose bracket

All vehicles



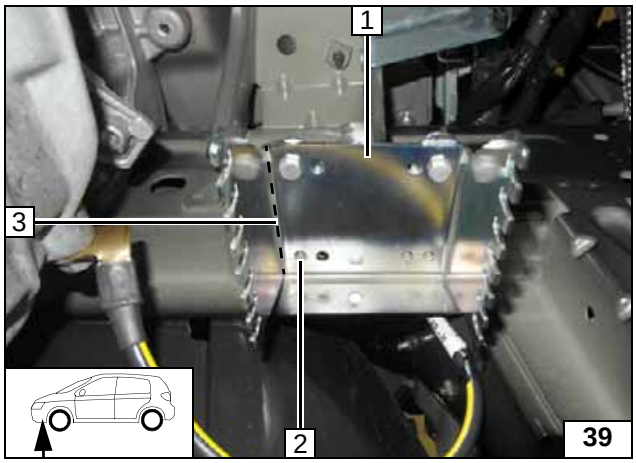
Installing angle bracket

1 M6x20 bolt, flanged nut [2x each]
2 Loosely mount angle bracket [2x]
3 Bracket



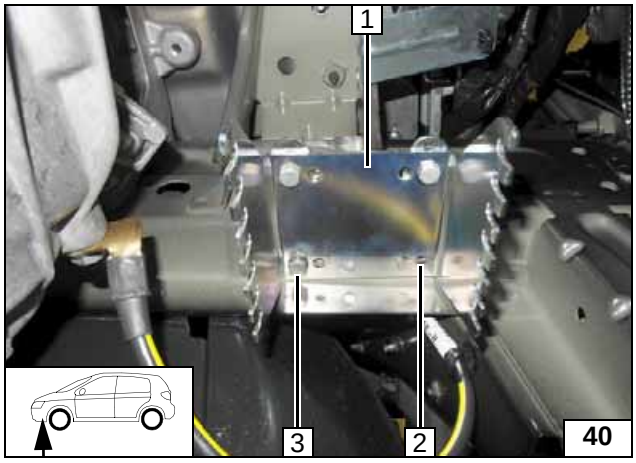
Drawing a marking

1 Draw a marking



Affix bracket **1** at marking **3** and align at the frame side member using angle brackets [2x]. Copy hole pattern **2**. Remove bracket **1**. Pull in 9.1 mm hole and rivet nut at position **2**.

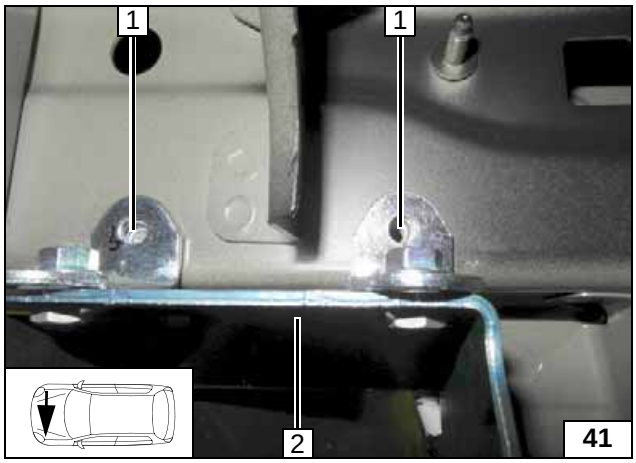
Installing rivet nut



Loosely mount bracket **1**.

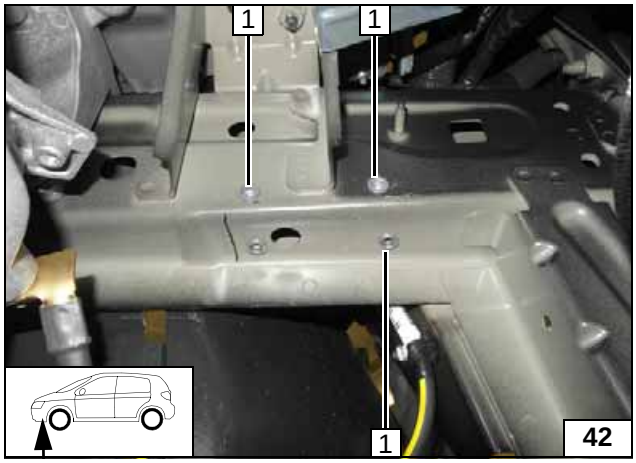
2 Copy hole pattern
3 M6x20 bolt

Copying hole pattern



1 Copy hole pattern [2x]
2 Bracket

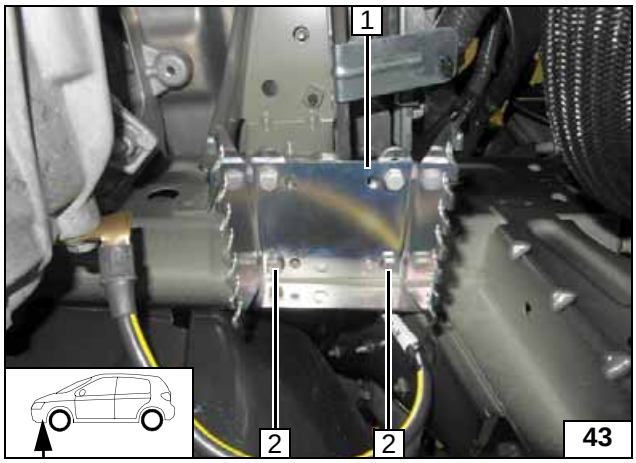
Copying hole pattern



Remove bracket.

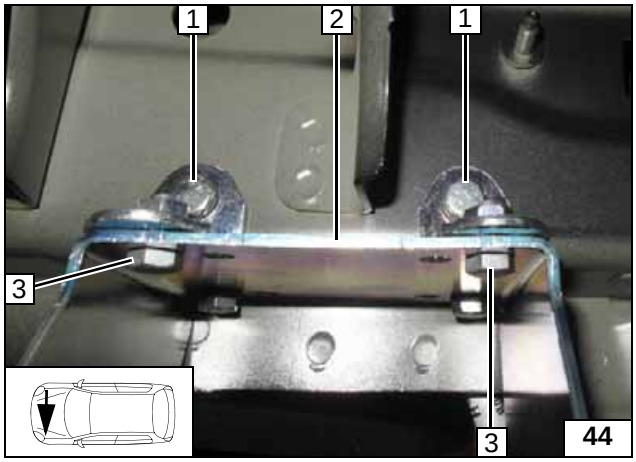
1 Drill 9.1 mm dia. hole; install rivet nut [3x each]

Inserting and tightening rivet nuts



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

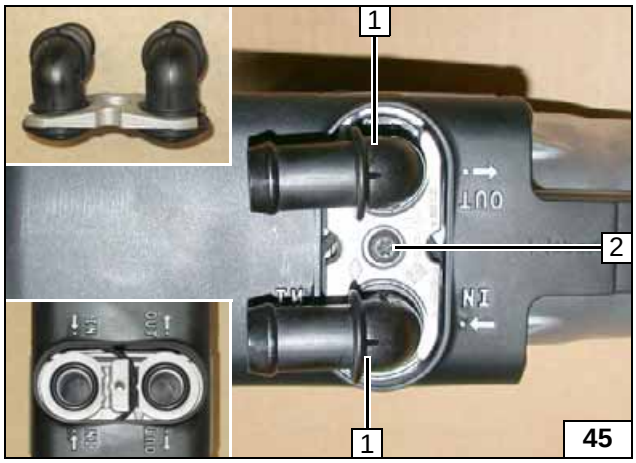
Installing bracket



1 M6x20 bolt, spring lockwasher [2x each]
2 Bracket
3 M6x20 bolt, tighten flanged nut [2x]

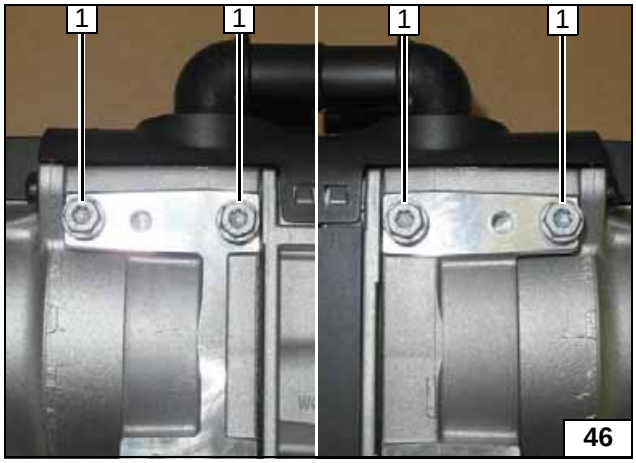
Installing bracket

Preparing Heater



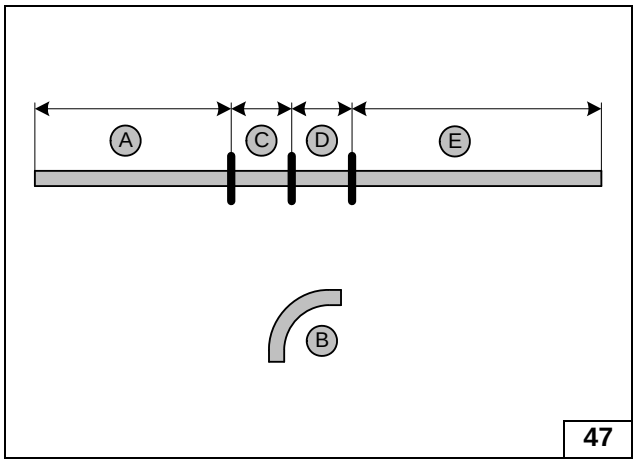
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



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

Loosely premounting bolts



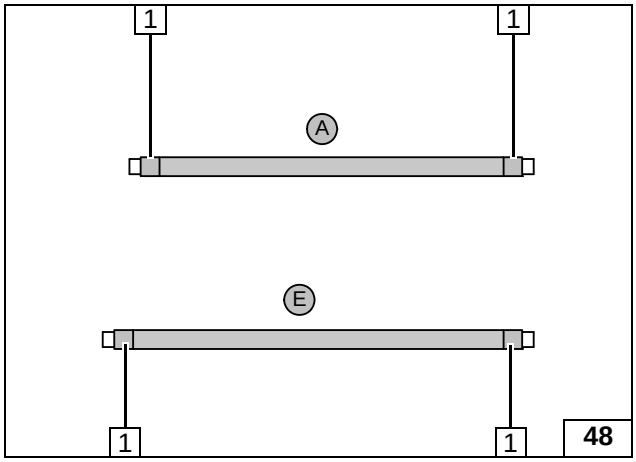
47

Petrol

Hose **B** = 90°, 18 mm dia. moulded hose

A = 620
C = 150
D = 120
E = 710

Cutting hoses to length

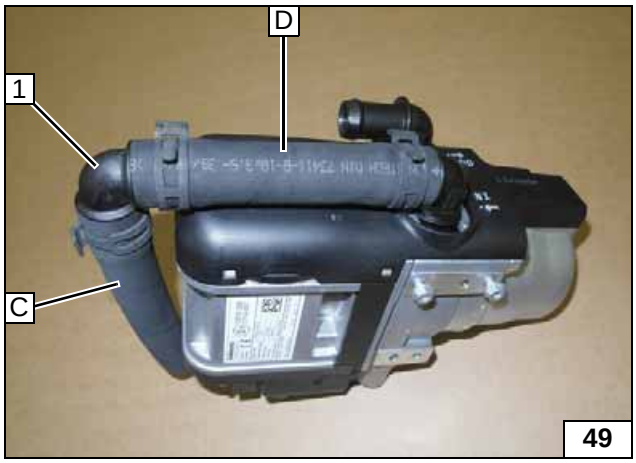


48

Push braided protection hoses onto hose **A** and **E** and cut to length. Cut heat shrink plastic tubing to length.

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

Preparing hoses

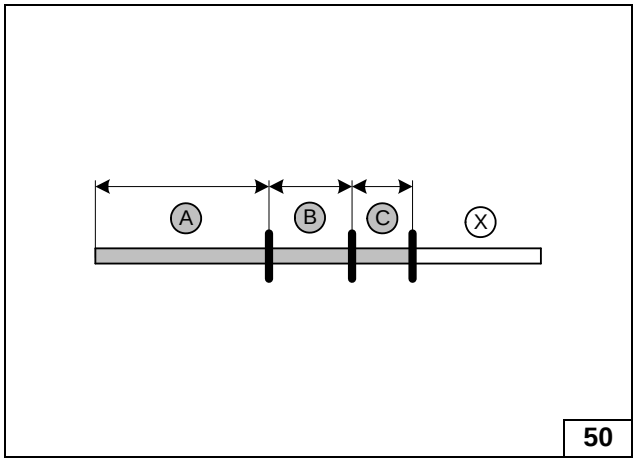


49

All spring clips = 25mm dia.

1 90°, 18x18mm dia. connecting pipe

Premounting hoses



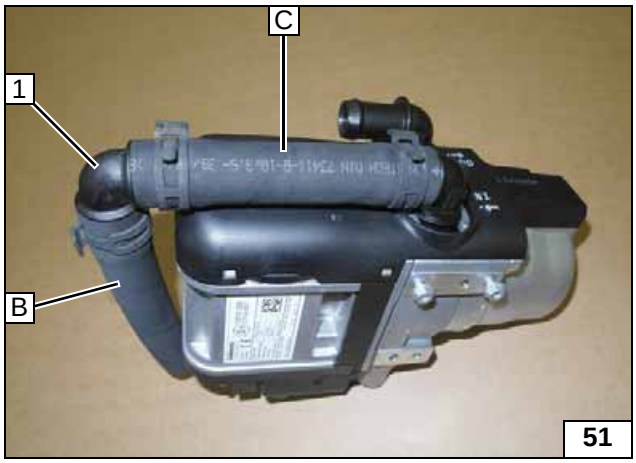
50

Diesel

Discard section **X**.

A = 230
B = 150
C = 120

Cutting hoses to length

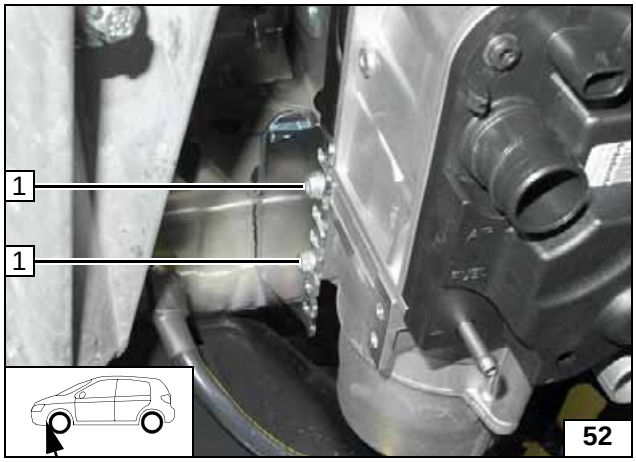


All spring clips = 25mm dia.

1 90°, 18x18mm dia. connecting pipe

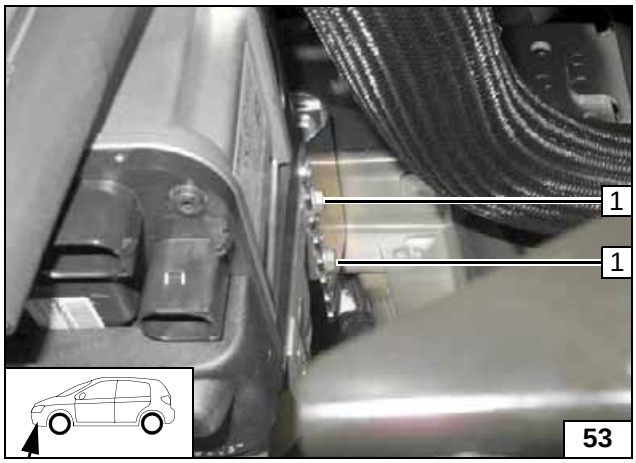
Premounting hoses

Installing Heater



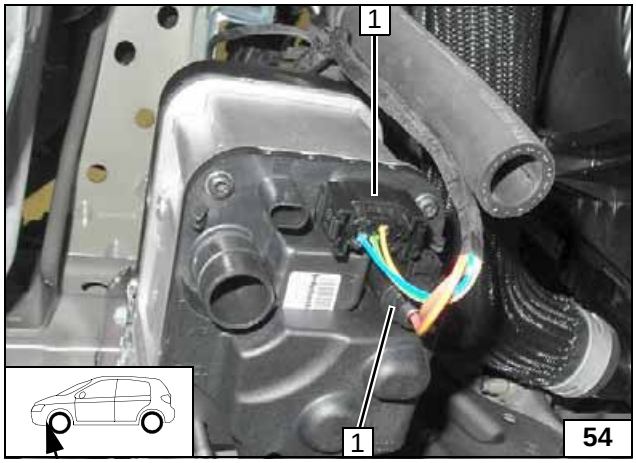
1 Tighten 5x13 self-tapping bolt [2x]

Installing heater



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

Installing heater



1 Connector for wiring harness of heater [2x]

Installing heater wiring harness

Fuel

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

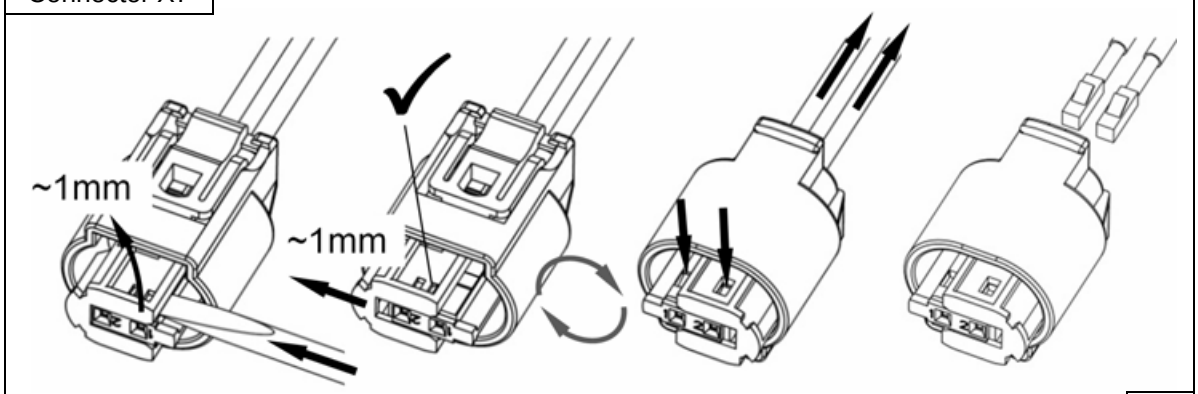
Catch any fuel running off in an appropriate container.

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.

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

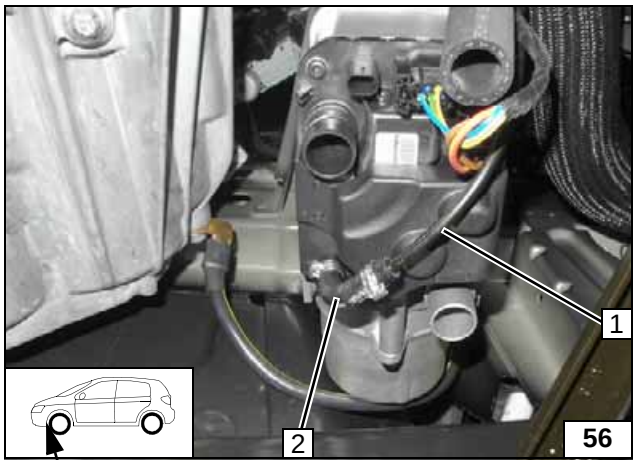
Removing metering pump connector

Connector X7



55

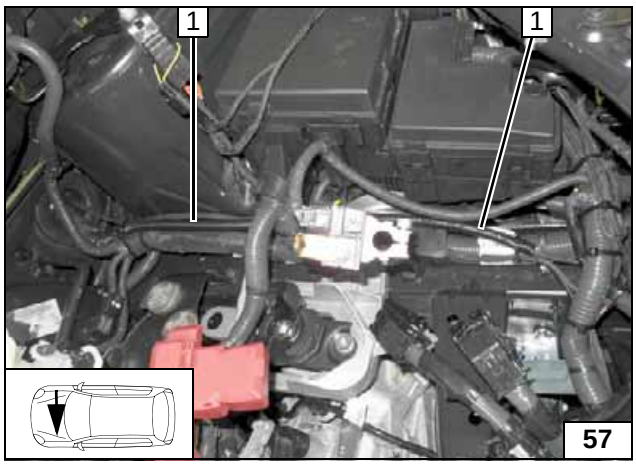
Connecting heater



56

1 Route fuel line upwards
2 90° moulded hose, 10 mm dia. clamp [2x]

Routing lines



57

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

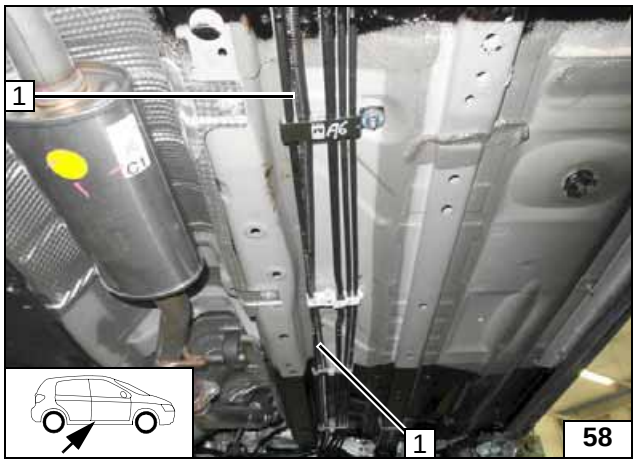
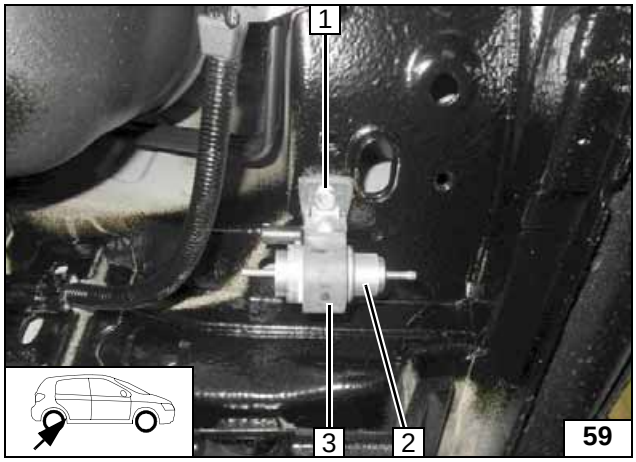


Figure shows petrol vehicle!

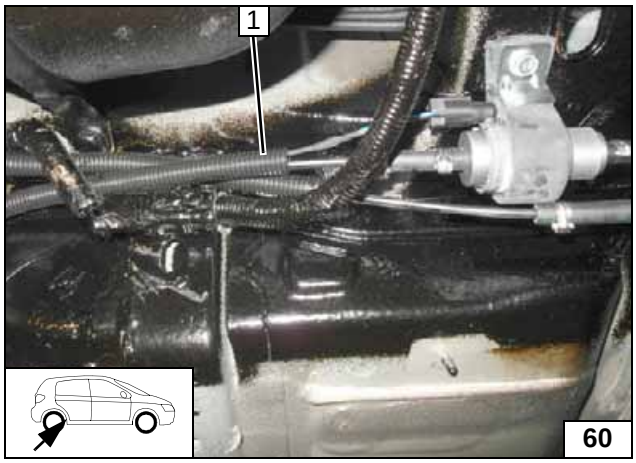
Route fuel line and wiring harness of metering pump in 10 mm dia. corrugated tube **1** along original vehicle fuel lines to the rear.

Routing lines



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

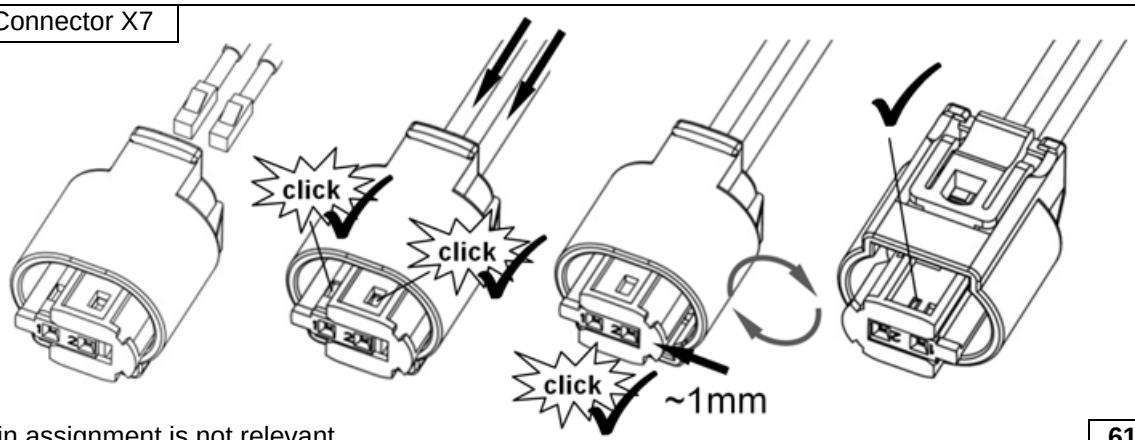
Installing metering pump



Route fuel line and wiring harness of metering pump in 10mm dia. corrugated tube **1** and route to the installation location of the metering pump.

Routing lines

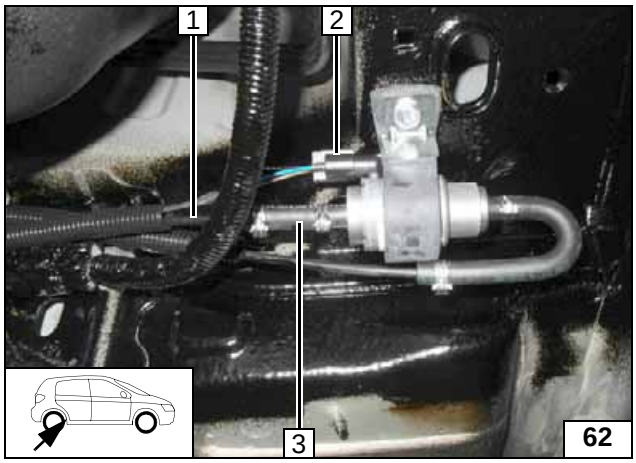
Connector X7



Pin assignment is not relevant.

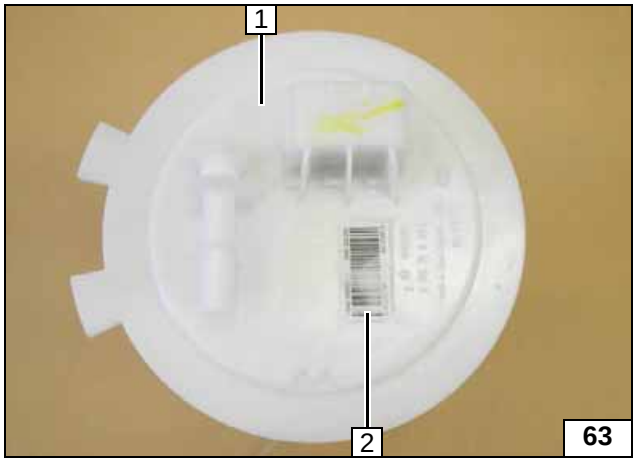
61

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]

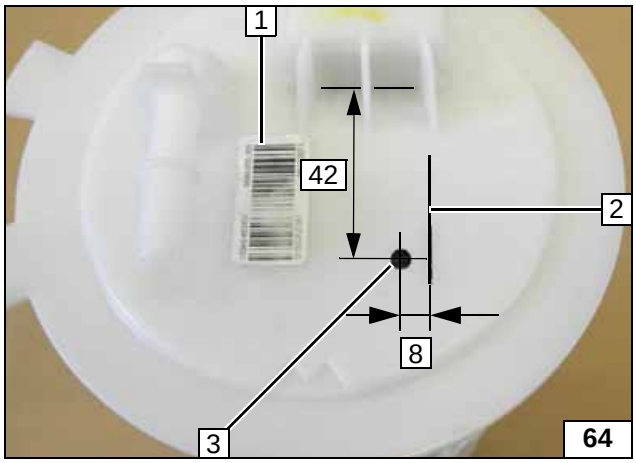
Connecting metering pump



Petrol

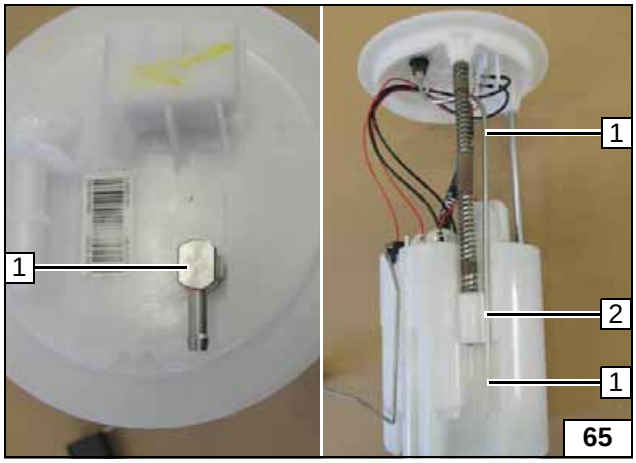
Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Loosen sticker **2** and reaffix according to the image below.

Fuel extraction



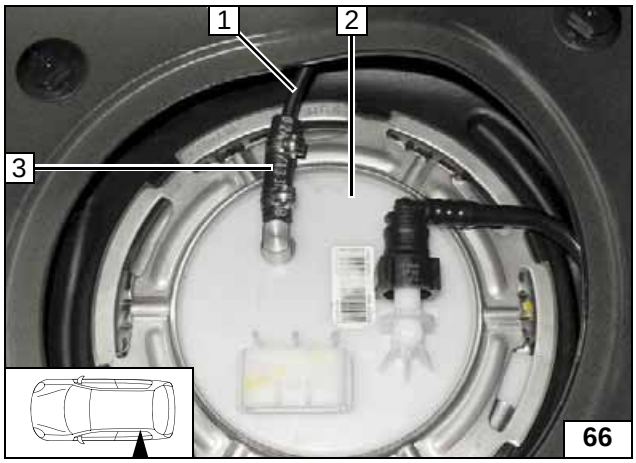
1 Sticker offset
2 Existing formed ridge
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Shape fuel standpipe **1** according to template and cut to length. Engage fuel standpipe **1** in existing groove at position **2**.

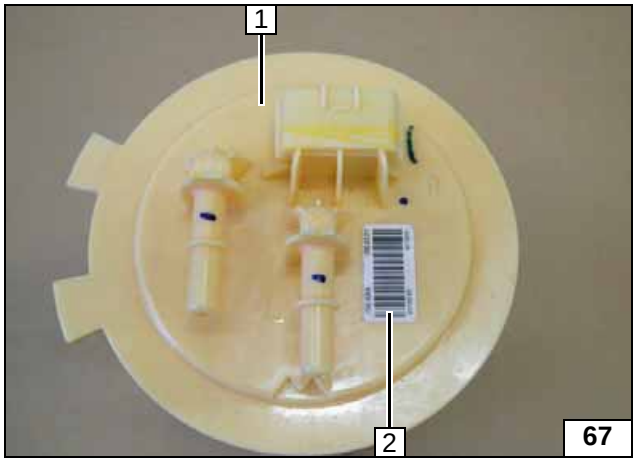
Installing fuel standpipe



Install fuel-tank sending unit **2** and connect in accordance with manufacturer's instructions.

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

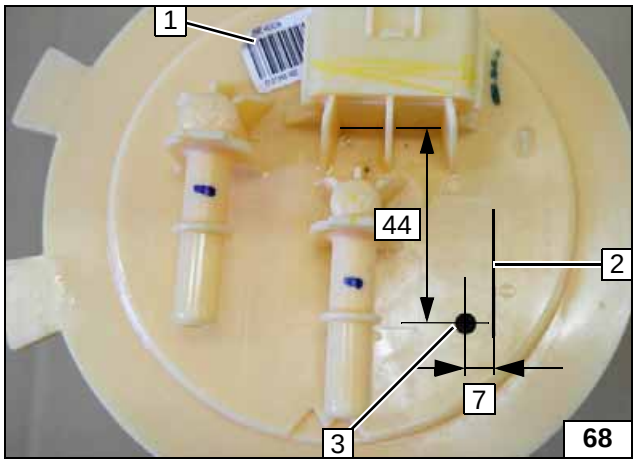
Connecting fuel line



Diesel

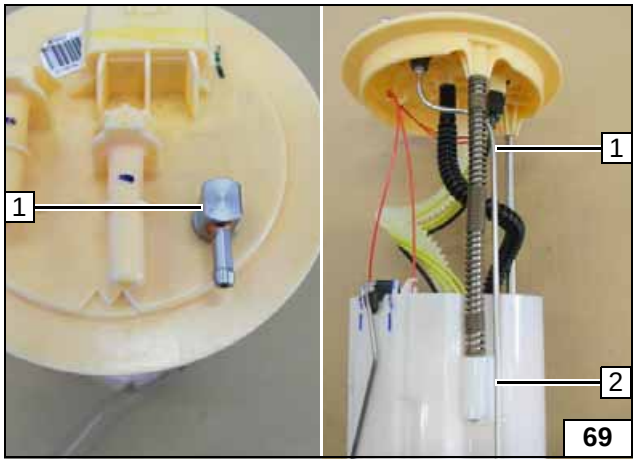
Remove fuel-tank sending unit **1** in accordance with manufacturer's instructions. Loosen sticker **2** and reaffix according to the image below.

Fuel extraction



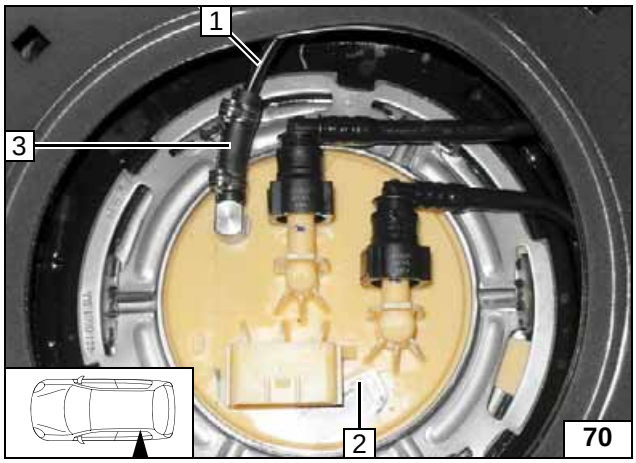
1 Sticker displaced
2 Existing formed ridge
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Shape fuel standpipe **1** according to template and cut to length. Engage fuel standpipe **1** in existing groove at position **2**.

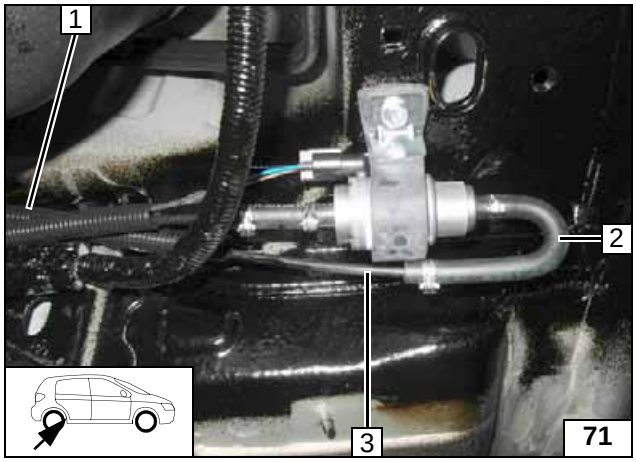
Installing fuel standpipe



Install fuel-tank sending unit **2** and connect in accordance with manufacturer's instructions.

1 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.

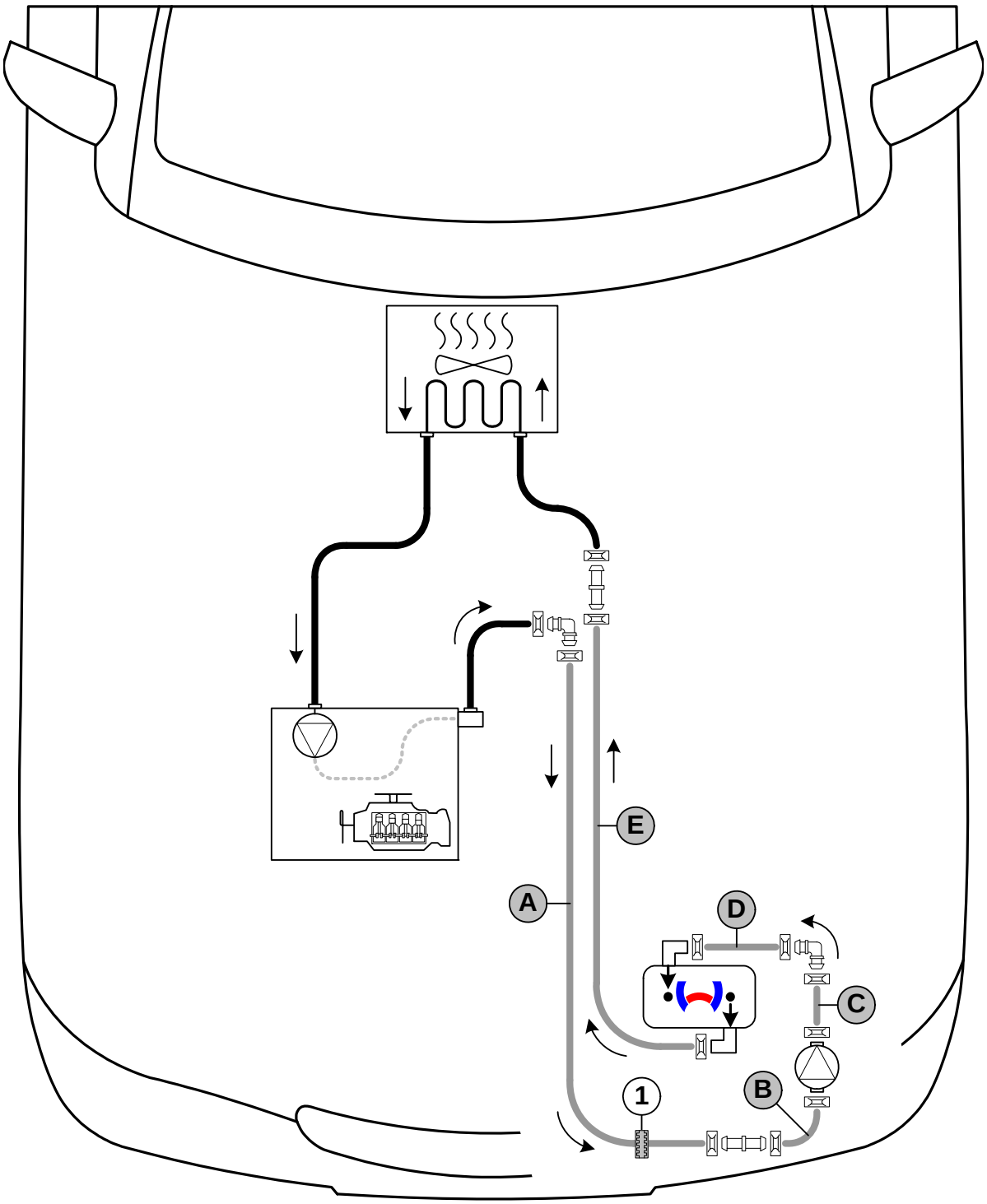
2 180° moulded hose, 10 mm dia. clamp [2x]

Connecting metering pump

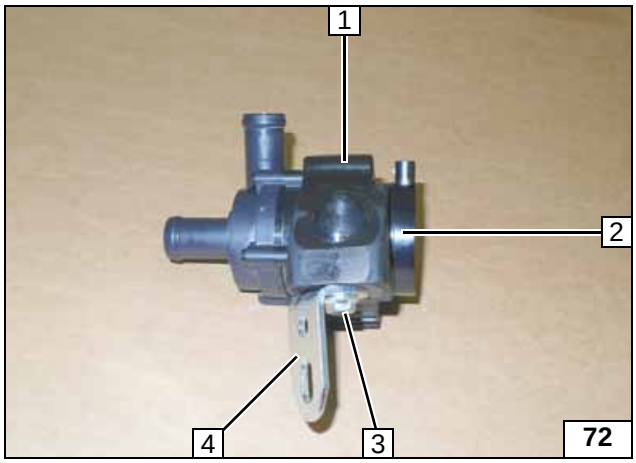
Coolant Circuit for Petrol Engines

WARNING!
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

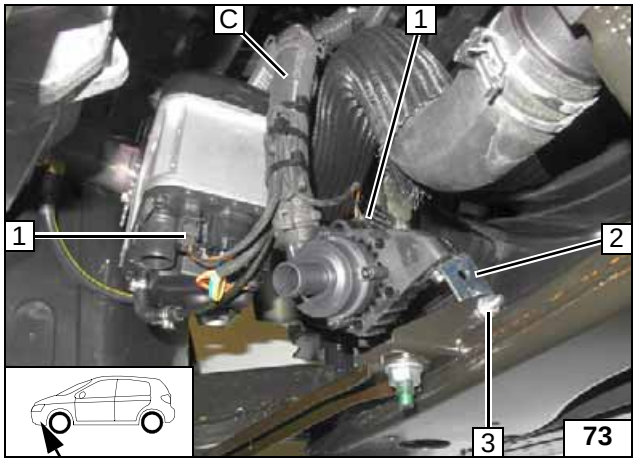


All spring clips = 25mm dia. **1** = Black (sw) rubber isolator.
All connecting pipes and = 18x18mm dia.



1 Circulating pump mounting bracket
2 Circulating pump
3 M6x25 bolt, flanged nut
4 Angle bracket

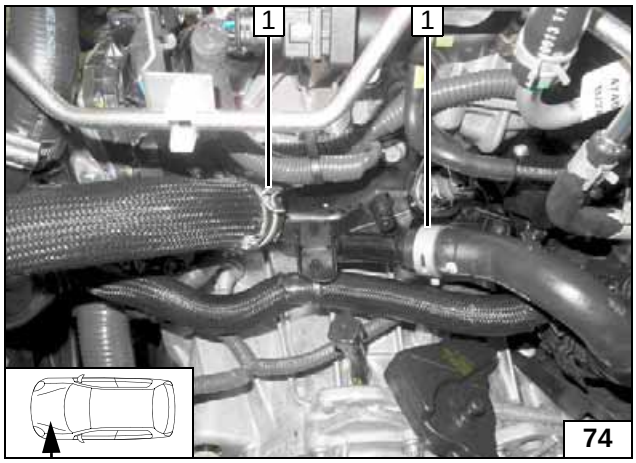
Premounting circulating pump



Install hose **C** . Connect wiring harness for circulating pump **1** [2x] and use cable ties to secure to hose **C**.

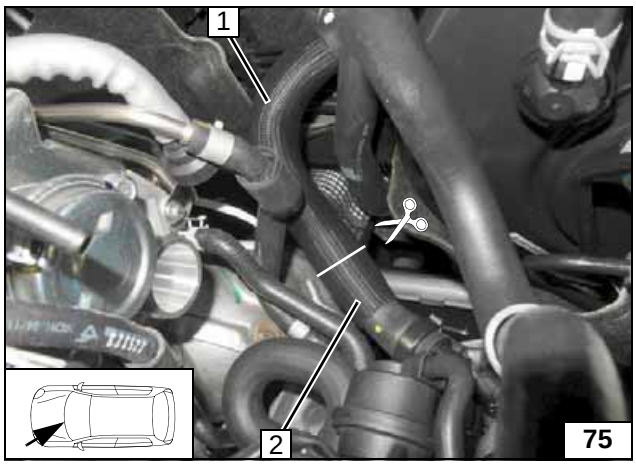
2 Angle bracket
3 M6x20 bolt, flanged nut, existing hole

Installing circulating pump



Align spring clips **1** [2x] as shown.

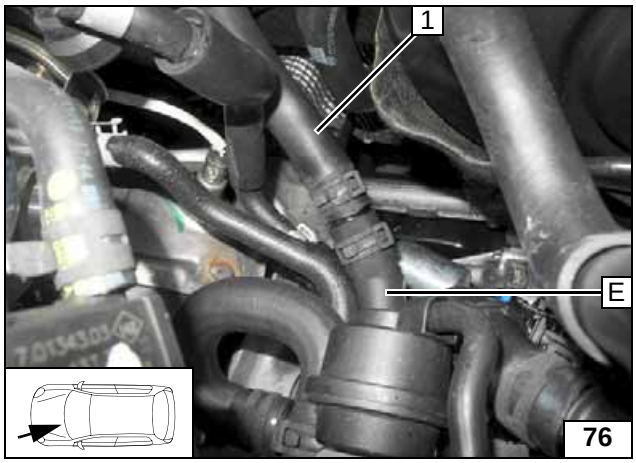
Aligning clips



Cut engine outlet / heat exchanger inlet hose at the marking. Remove braided protection hose from the hose for the engine outlet / heat exchanger inlet.

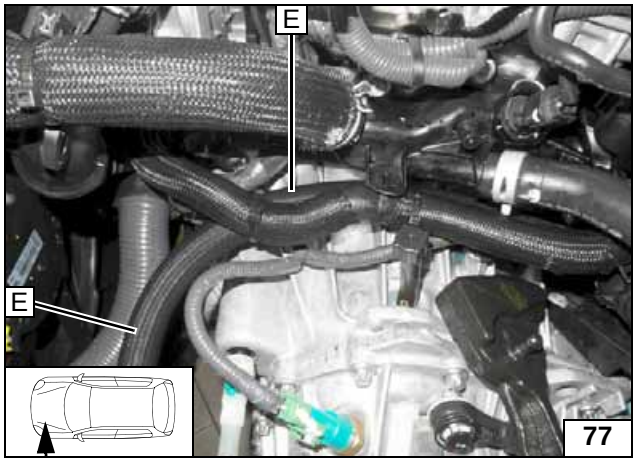
1 Hose section of heat exchanger inlet
2 Engine outlet hose section

Cutting point

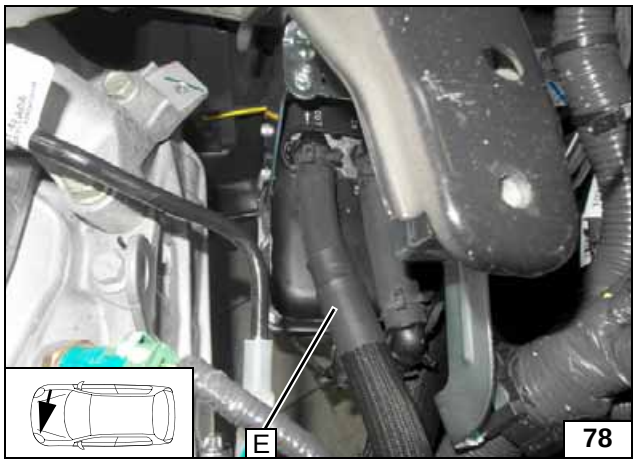


1 Hose on heat exchanger inlet

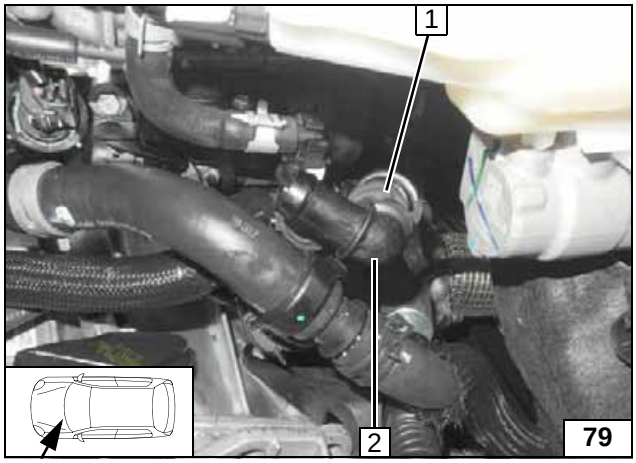
Connecting heat exchanger inlet



Routing in engine compartment



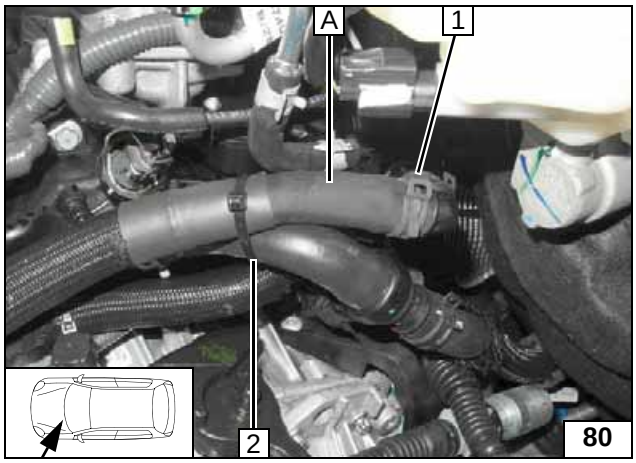
Connecting heater outlet



Turn the coupling piece on the engine outlet connection piece by 180°.

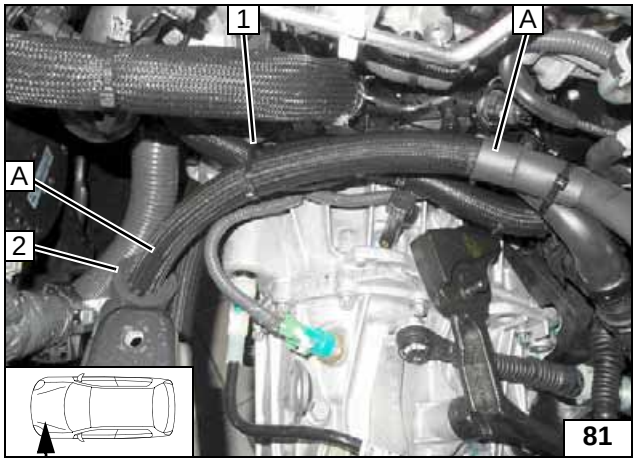
1 Hose of engine outlet
2 Assemble 90° connecting pipe

Connecting engine outlet



1 Hose of engine outlet
2 Cable tie

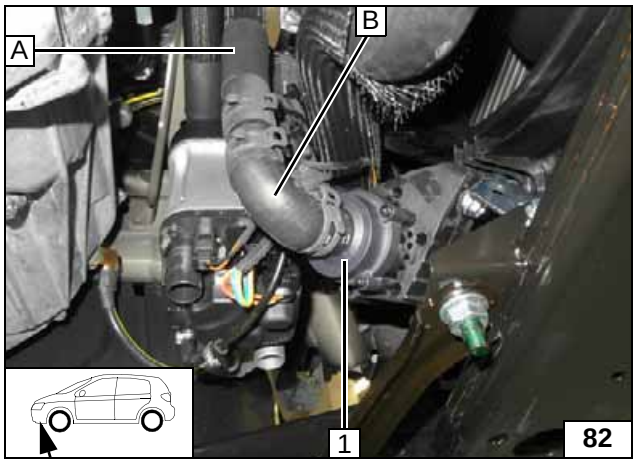
Connecting engine outlet



Slide black (sw) rubber isolator **2** onto hose **A**.

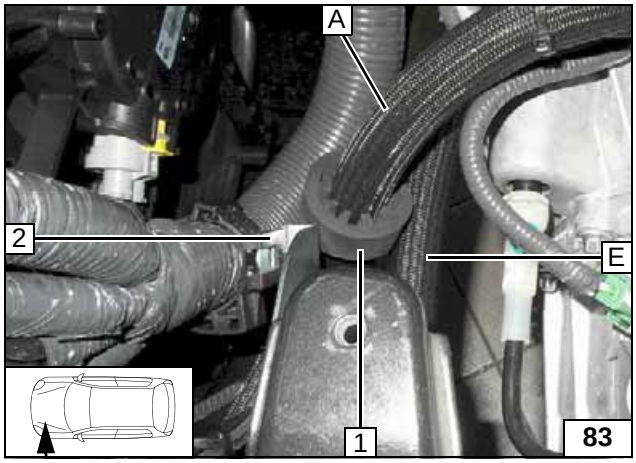
1 Cable tie

Routing in engine compartment



1 Circulating pump

Connecting circulating pump



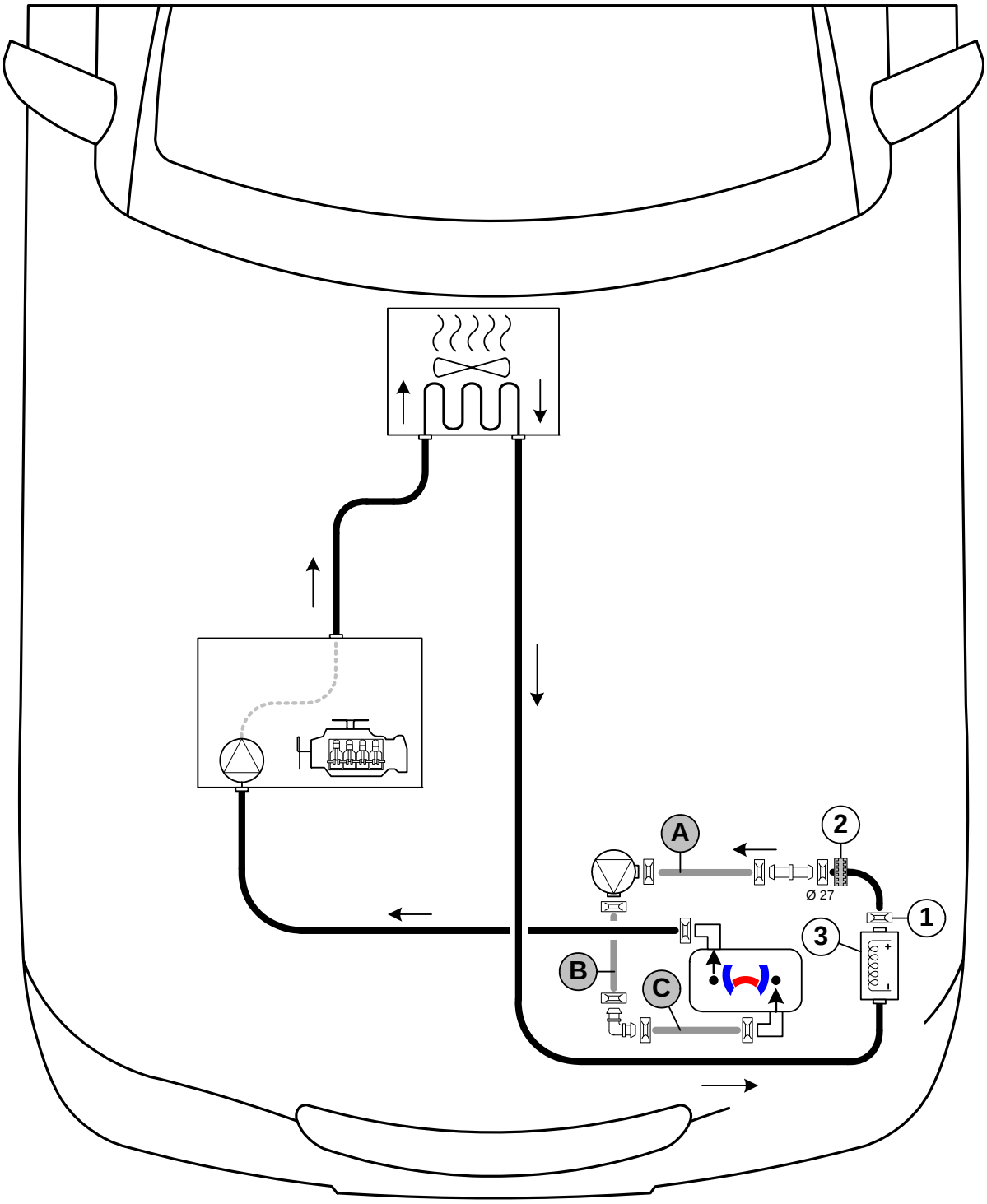
Align black (sw) rubber isolator **1** between hose **E** and original vehicle bracket **2**. Align hoses. Ensure sufficient distance to neighbouring components, adjust if necessary.

Aligning rubber isolator

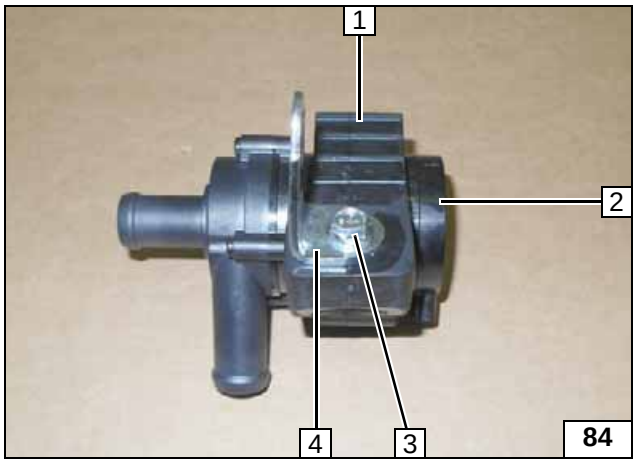
Coolant Circuit for Diesel Engines

WARNING!
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

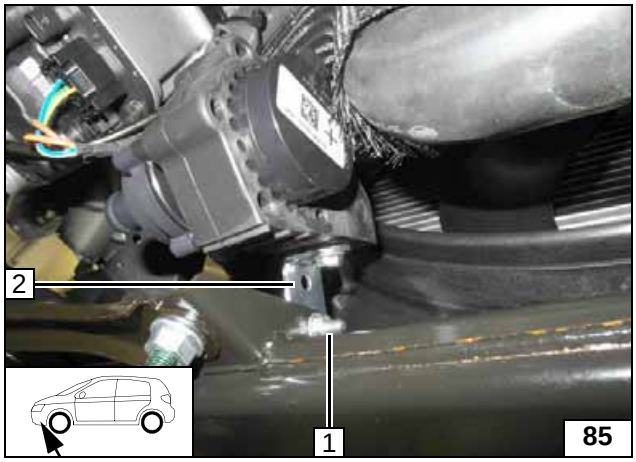


All spring clips without a specific designation = 25mm dia. **1** = Original vehicle spring clip .
2 = Black (sw) rubber isolator . Connecting pipe = 18x18mm dia.! Connecting pipe = 18x20mm dia.
3 = Electric auxiliary heater



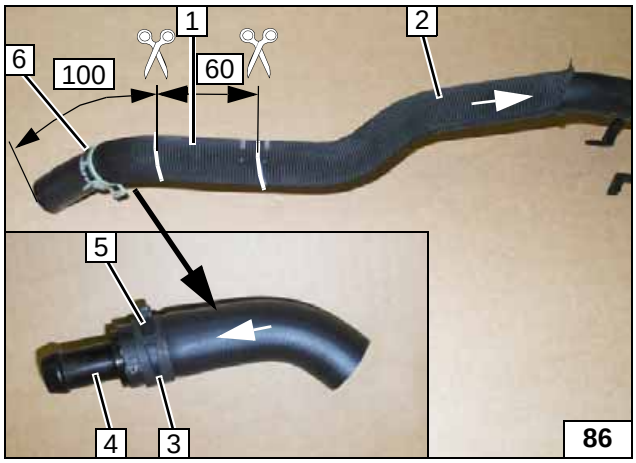
1 Circulating pump mounting bracket
2 Circulating pump
3 M6x25 bolt, flanged nut
4 Angle bracket

Premounting circulating pump



1 M6x20 bolt, flanged nut, existing hole
2 Angle bracket

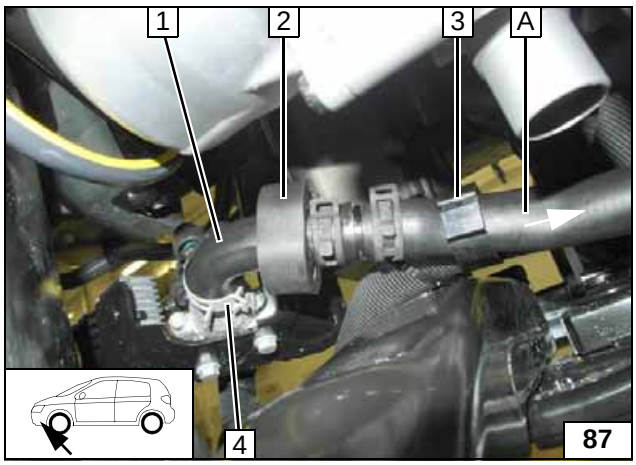
Installing circulating pump



Remove fabric protective hose on hose for electric auxiliary heater outlet / engine inlet and separate at the markings.

1 Discard section (60mm)
2 Hose section for engine inlet is reassembled on the engine inlet later
3 27mm dia. spring clip
4 20x18mm dia. connecting pipe
5 Mark new direction of flow on hose section for electric auxiliary heater outlet (100mm)
6 Original vehicle spring clip will be reused

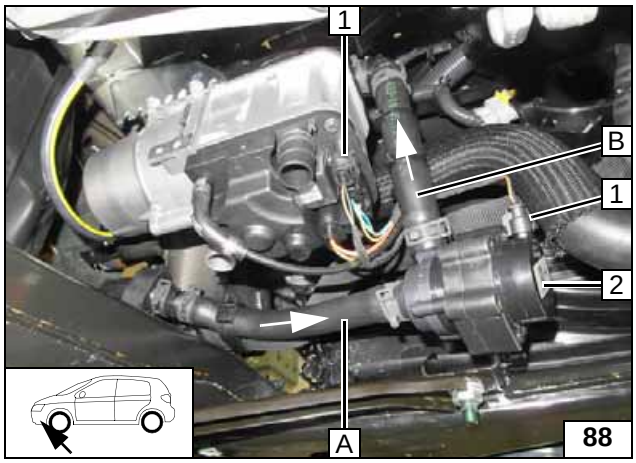
Separating hose



Slide black (sw) rubber isolator **2** onto hose section of electric auxiliary heater outlet **1** and align.

3 Original vehicle hose bracket
4 Original vehicle spring clip

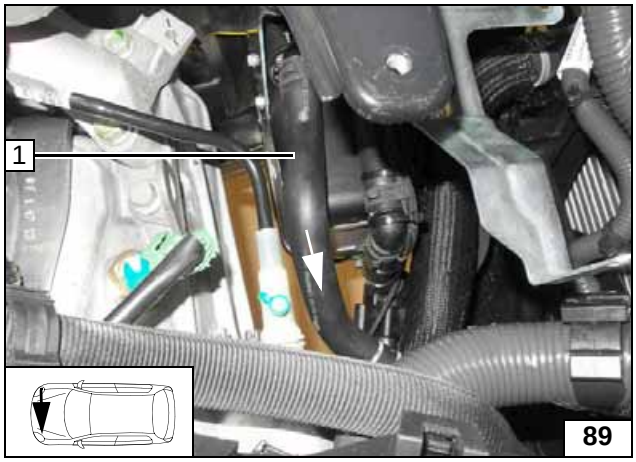
Connecting electric auxiliary heater outlet



Connect wiring harness of circulating pump **1** [2x] and use cable ties to secure to hose **B**

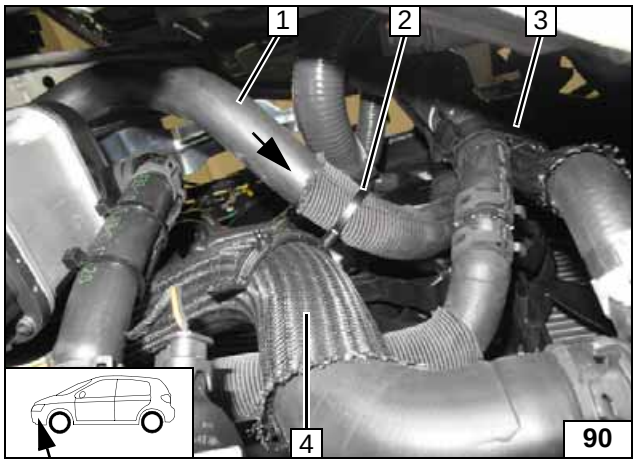
2 Circulating pump

Connecting circulating pump



Reassemble hose section for engine inlet **1** at the engine inlet, route towards the heater and connect at the heater outlet.

Connecting heater outlet

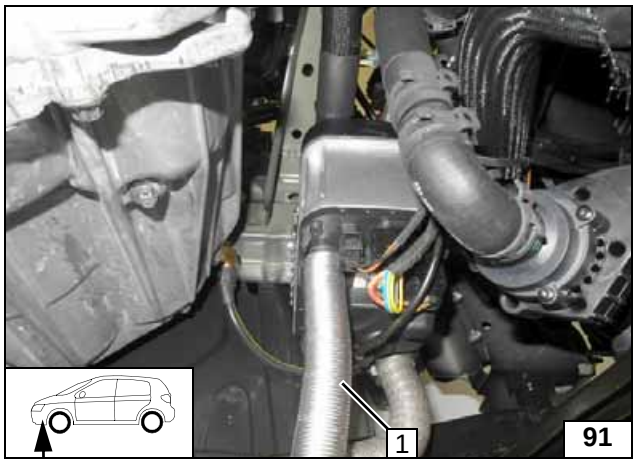


Align hoses. Ensure sufficient distance to neighbouring components, adjust if necessary.

1 Hose on heater outlet / engine inlet
2 Original vehicle hose bracket
3 Original vehicle hose bracket
4 Radiator hose

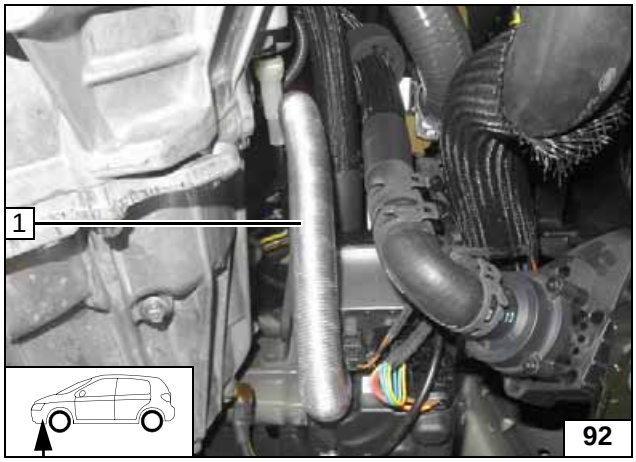
Inserting hose bracket

Combustion Air



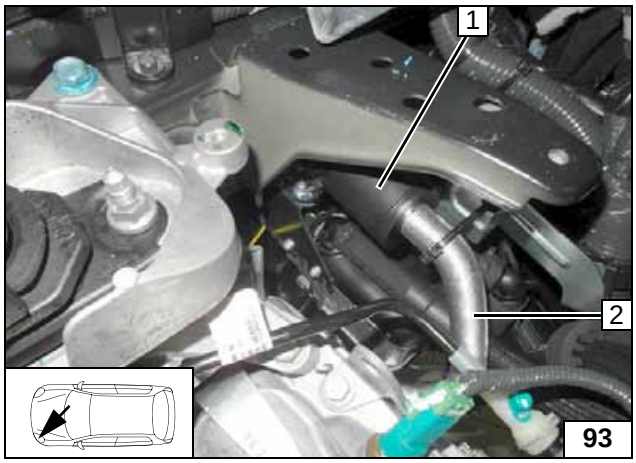
1 Combustion air pipe

Installing combustion air pipe



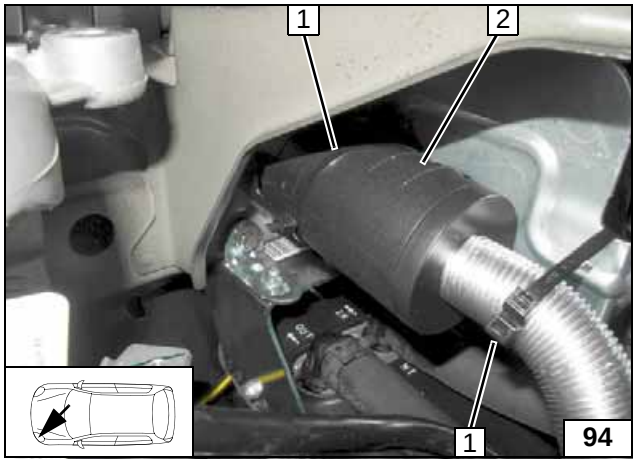
Route combustion air pipe **1** upwards as shown.

Installing combustion air pipe



1 Silencer
2 Combustion air pipe

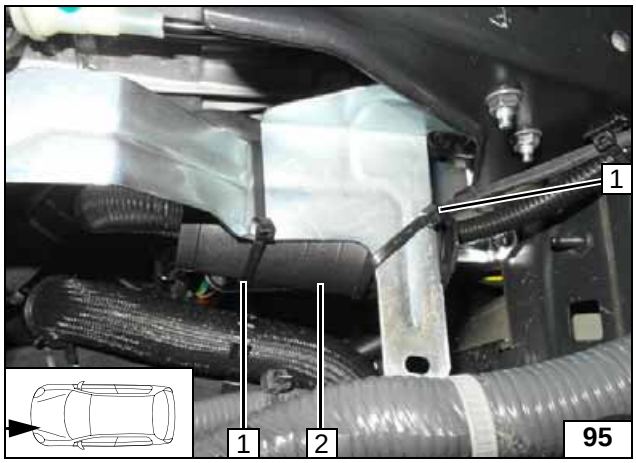
Mounting silencer



Petrol

1 Cable tie [2x]
2 Silencer

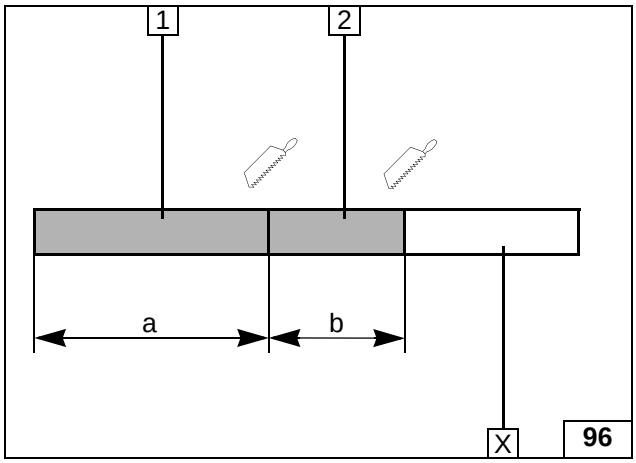
Securing silencer



Diesel

1 Cable tie [2x]
2 Silencer

Securing silencer

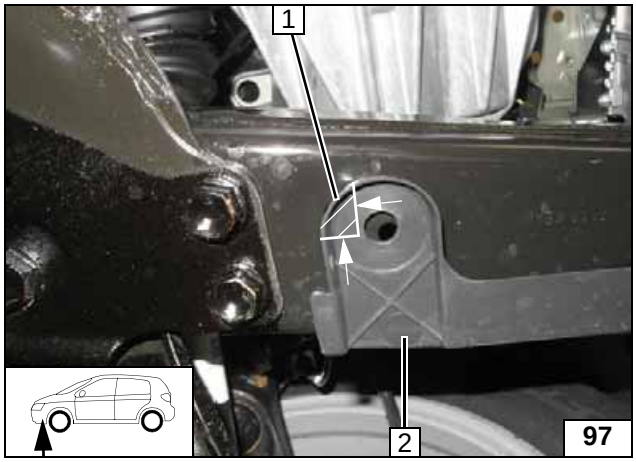


Exhaust Gas

Discard section **X**.

1 Exhaust pipe
a = 280
2 Exhaust end section
b = 170

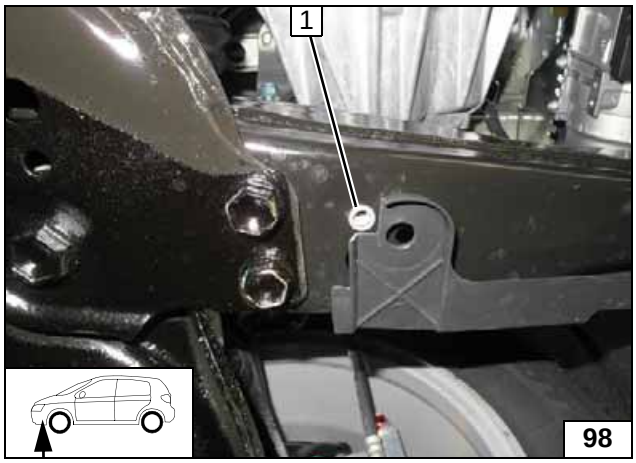
Preparing exhaust pipe



Cut out wheel well trim **2** at the marking.

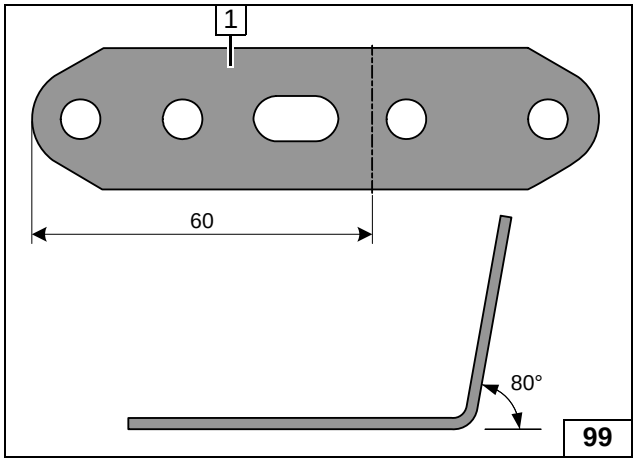
1 Discard section

Cutting out wheel well trim



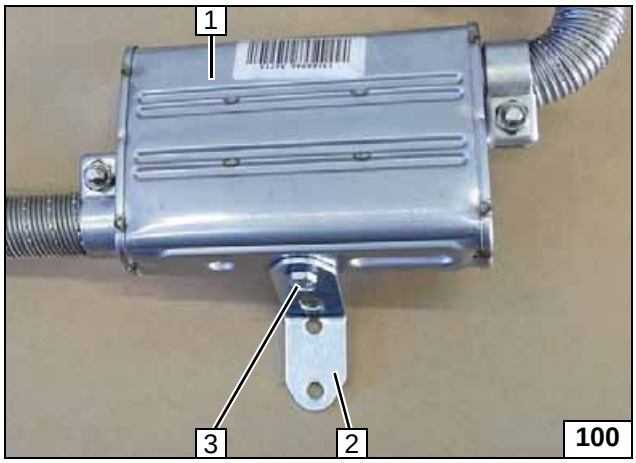
1 Drill 9.1 mm dia. hole; rivet nut

Installing rivet nut



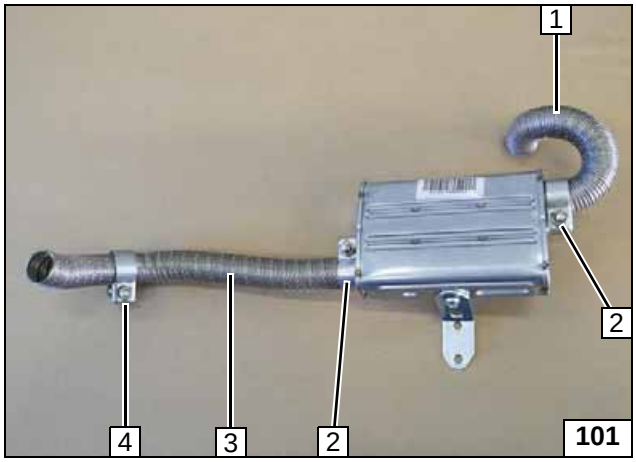
1 Perforated bracket

Preparing perforated bracket



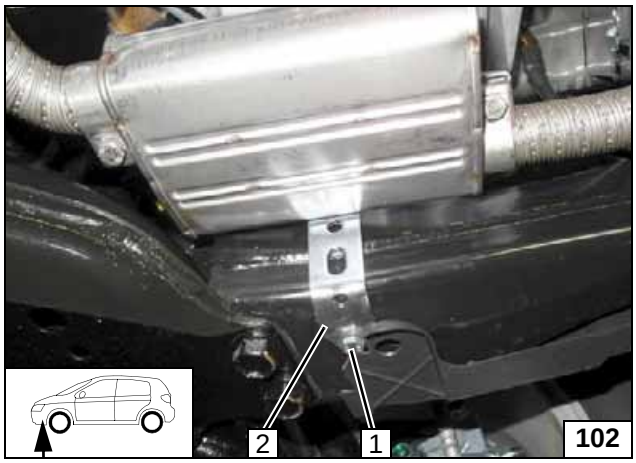
1 Silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Premounting silencer



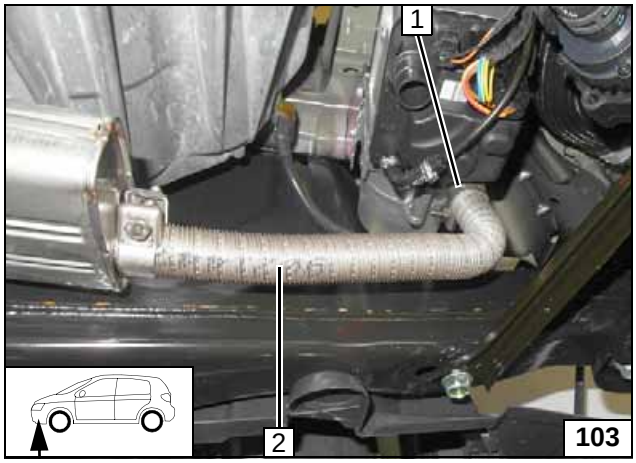
1 Exhaust end section
2 Hose clamp [2x]
3 Exhaust pipe
4 Push on hose clamp

Premounting exhaust pipe and exhaust end section



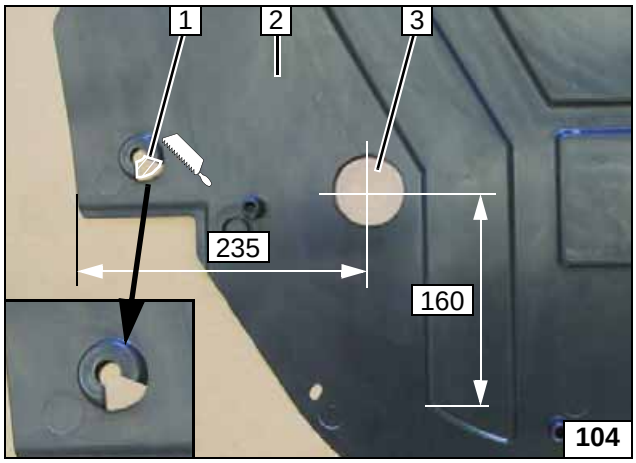
1 M6x20 bolt, spring lockwasher
2 Perforated bracket

Mounting silencer



1 Hose clamp
2 Exhaust pipe

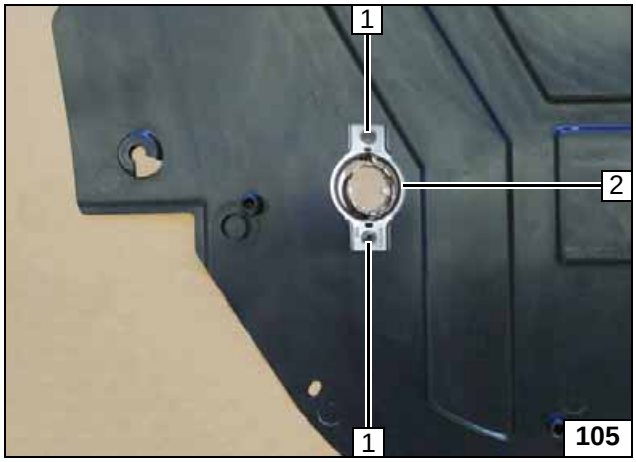
Mounting exhaust pipe



Cut out underride protection **2** at marking **1** (required to secure the exhaust silencer). Discard section **1**.

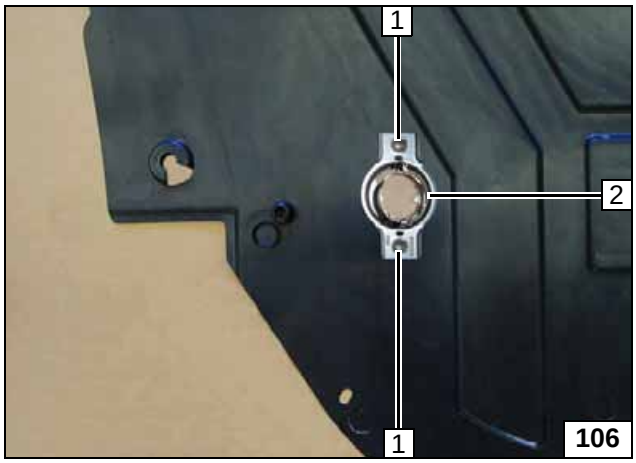
3 Hole (as per work step 1 of the installation instructions)

Hole in underride protection



Shorten exhaust end fastener **2** as shown in image. Position exhaust end fastener **2** as per work step 3 of the installation instructions and copy hole pattern **1** [2x] and hole **1** [2x] as per work step 4 of the installation instructions.

Copying hole pattern



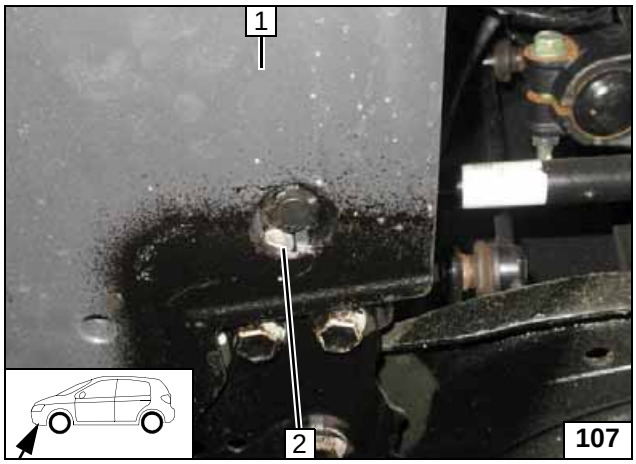
1 5x13 self-tapping screw [2x] as per work step 5 of the installation instructions
2 Exhaust end fastener

Mounting exhaust end fastener

Final Work

WARNING!
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).

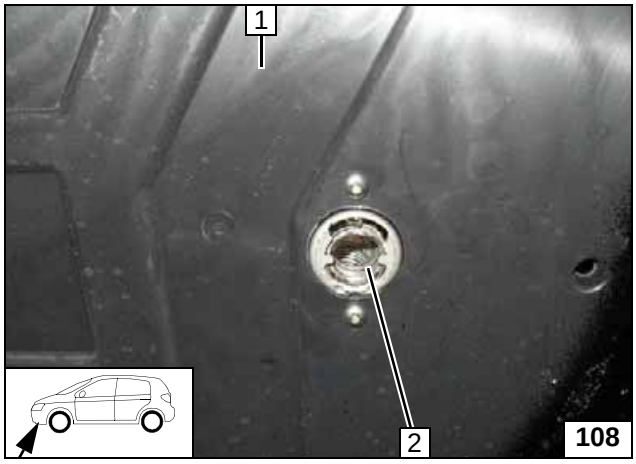
- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications**
- **Adjust SmartControl CAR, teach Telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Apply the caution 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")!**



Recess in underride protection **1** for M6x20 bolt and perforated bracket at position **2**. Ensure freedom of movement, rework recess if necessary.

1 Underride protection

Mounting underride protection



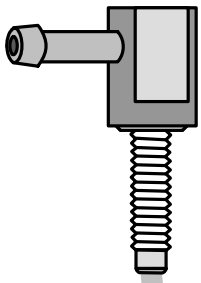
Install exhaust end section **2** as per work steps 6 - 8 of the installation instructions.

1 Underride protection

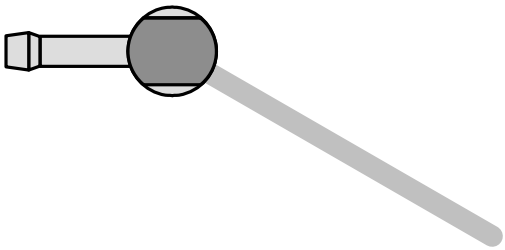
Mounting exhaust end section

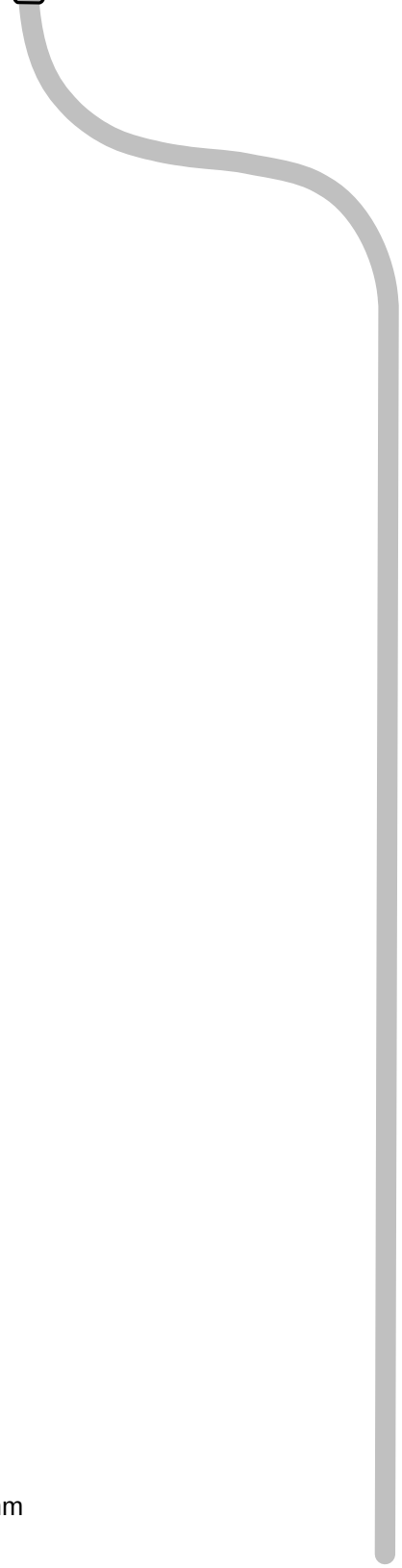
Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

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

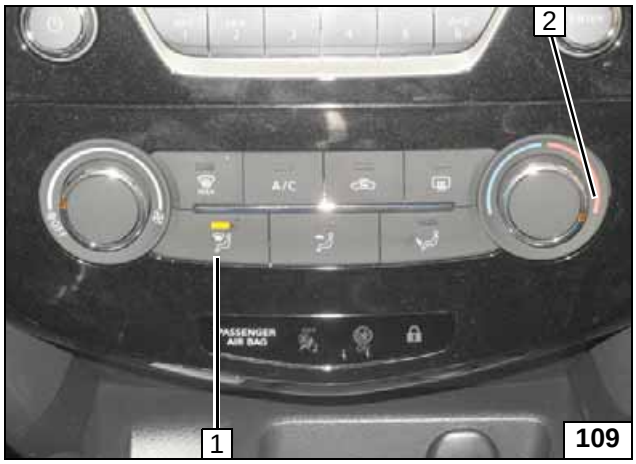
Operating Instructions for Manual Air-Conditioning

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.

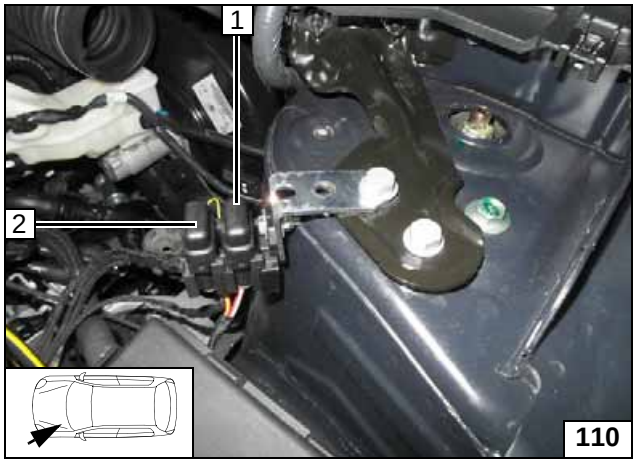
Before parking the vehicle, make the following settings:



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

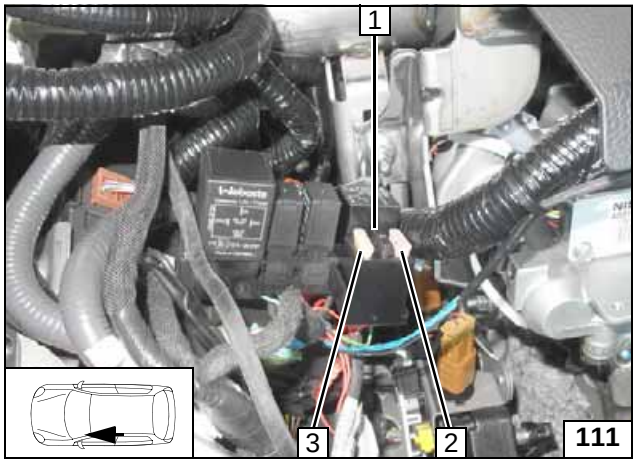
1 Air outlet to windscreen
2 Set temperature to "HI"

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 additional fuse F5
3 25A fan fuse F4

Passenger compartment fuses

Webasto
Feel the Drive

Operating Instructions for Automatic Air-Conditioning

Please remove page and add to the vehicle operating instructions.

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

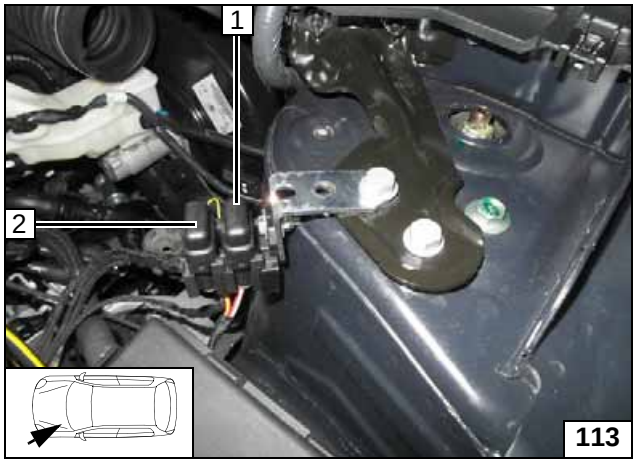
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating cycle.
Deactivation instructions can be found in the operating instructions of the vehicle.

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.

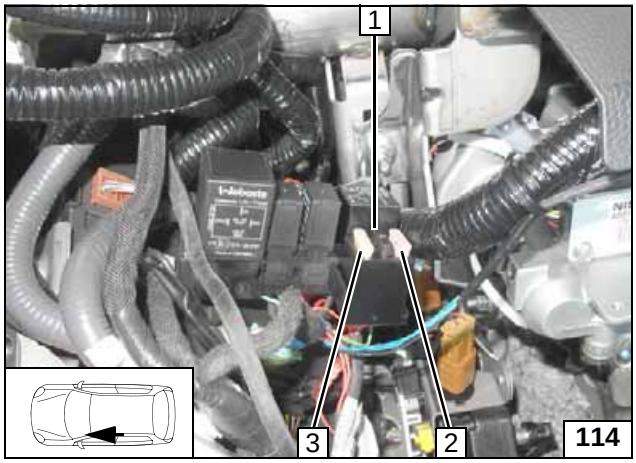
1 Air outlet to windscreen
2 Set temperature on both sides to "HI"

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 additional fuse F5
3 25A fan fuse F4

Passenger compartment fuses