Webasto
Feel the Drive

***Thermo Top Evo* Parking Heater**

E1
00 0258

Installation Documentation
Chevrolet Spark

Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Chevrolet	Spark	KL1M	e4 * 2007 / 46 * 0129 * ...

Motorisation	Fuel	Transmission type	Output in kW	Displacement in cm³	Engine code
1.0	Petrol	5-gear SG	50	995	AJF
1.0	Petrol	5-gear SG	50	995	DUN

SG = Manual Transmission

starting with model year 2011
Left-hand drive vehicle

Verified equipment variants: Manual air-conditioning
Front fog light
Emission standard Front fog lightEuro 5

Not verified: Passenger compartment monitoring
Automatic air-conditioning

Total installation time: approx. 5.5 hours

Chevrolet Spark

Table of Contents

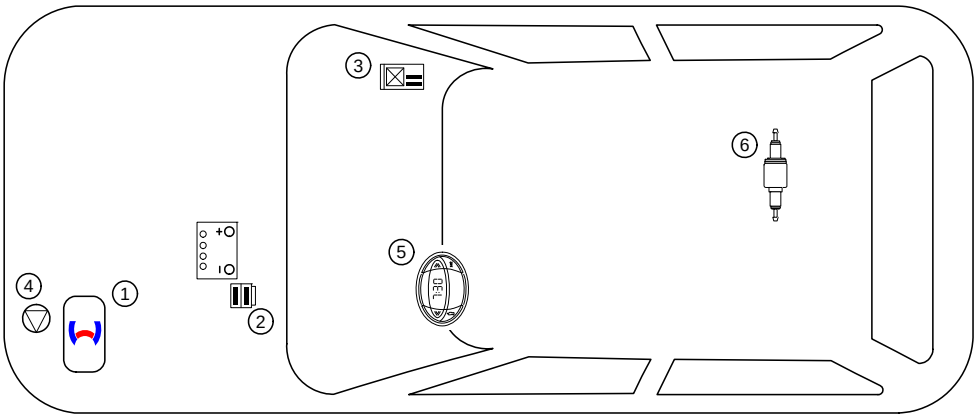
Necessary Components

- Basic delivery scope for *Thermo Top Evo* based on price list
- Installation kit for Chevrolet Spark 2011 Petrol: **1317008B**
- Heater control based on price list and in consultation with end customer
- In case of Telestart, control light in accordance with price list and upon consultation with end customer

Installation Overview

Legend:

1. Heater
2. Fuse holder of engine compartment
3. Relay and fuse holder of passenger compartment
4. Circulating pump
5. Digital timer
6. 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.

Notes on Operating and Installation Instructions

1 Important Infomation (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 227).

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

1.3 Please note

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

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

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

Important

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

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

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

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

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

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

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

When installing an IPCU, the corresponding settings must be checked or adjusted before the installation.

2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 03 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

For vehicles with an EU permit, no entry in accordance with § 19 Sub-Section 4 of Annex VIII b to the Road Traffic Act is required.

2.1 Excerpt from the directive 2001/56/EC Appendix VII 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 operation indicator 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 the 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.

Chevrolet Spark

Notes on Validity

This installation documentation applies to the vehicles Chevrolet Spark Petrol - see page 1 for validity - starting with model year 2011 and later, if technical changes to the vehicle do not influence the installation, excluding any liability claims. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to these "installation instructions".

Vehicle and motor types, equipment variants and other specifications that were 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

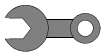
Dimensions
- All dimensions are in mm.

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

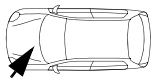
Specific risk of damage to components

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



Chevrolet Spark

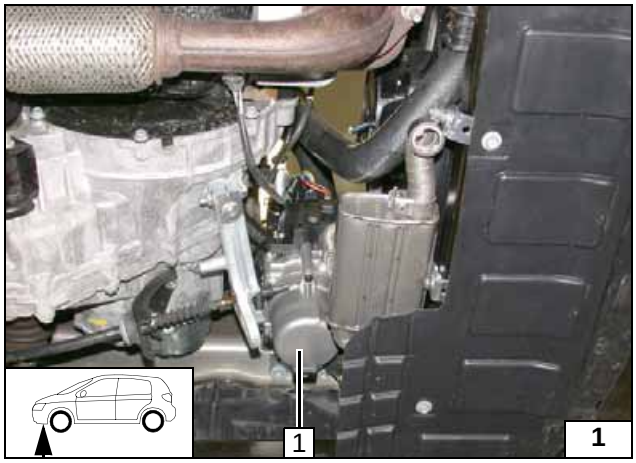
Preliminary Work

Vehicle

- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Unclamp and remove battery
- Remove complete air filter with intake hose
- Fold rear bench seat bench
- Open the middle tank-fitting service lid
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the glove compartment.

Heater

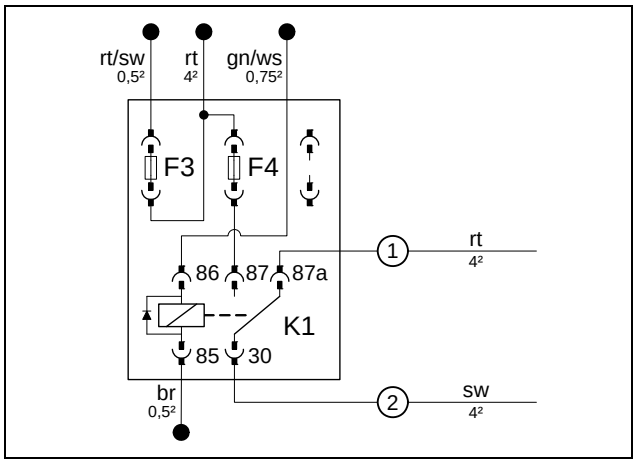
- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) in the appropriate place in the engine compartment.



Installation Location of Heater

1 Heater

Installation location

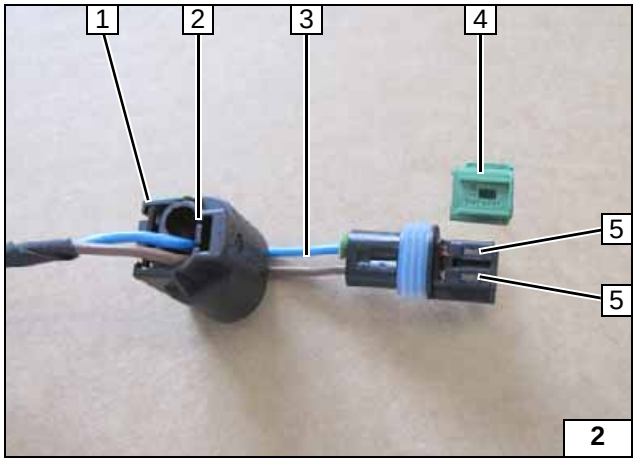


Preparing Electrical System

Wire sections retain their numbering in the entire document.
Produce connections as shown in wiring diagram. K1 relay is inserted after installing the relay and fuse holder of the passenger compartment.

① Red (rt) wire from K1/87a
② Black (sw) wire from K1/30

Preparing relay and fuse holder of passenger compartment



Complete connector of metering pump again after routing. Pin assignment is not relevant.

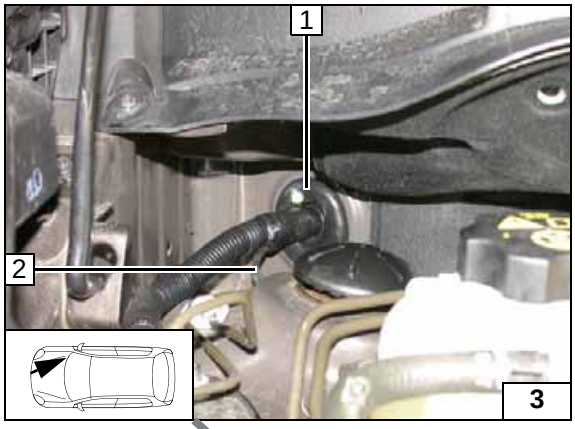
1 Connector housing
2 Lock
3 Blue (bl) and brown (br) wires
4 Coding
5 Timer lock

Dismantling connector

Electrical System

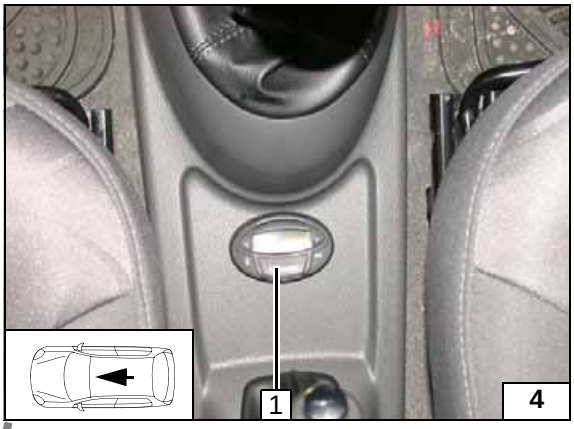
Wiring harness pass through

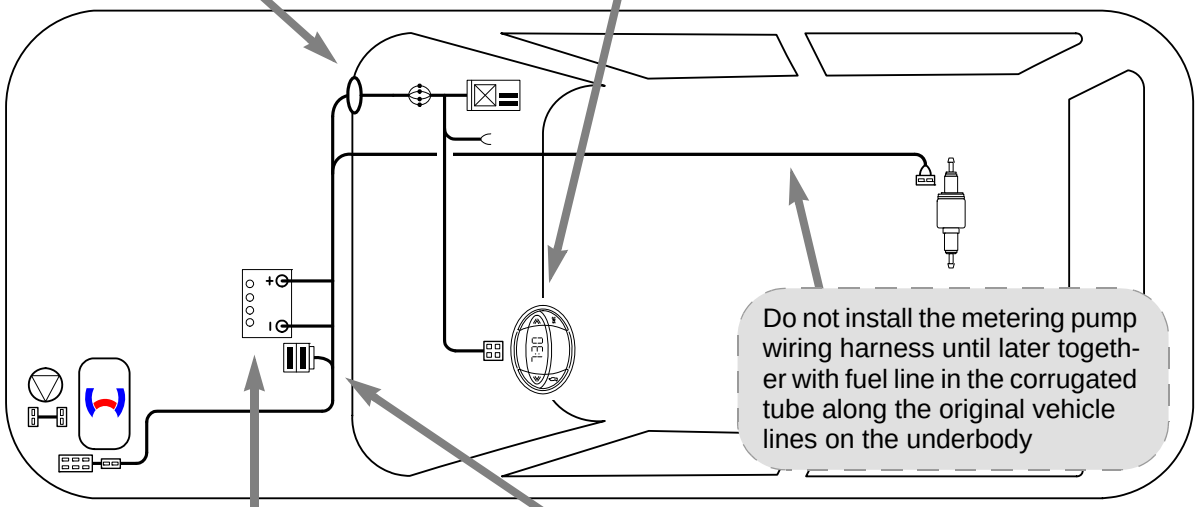
1 Protective rubber plug
2 Heater wiring harnesses, heater control



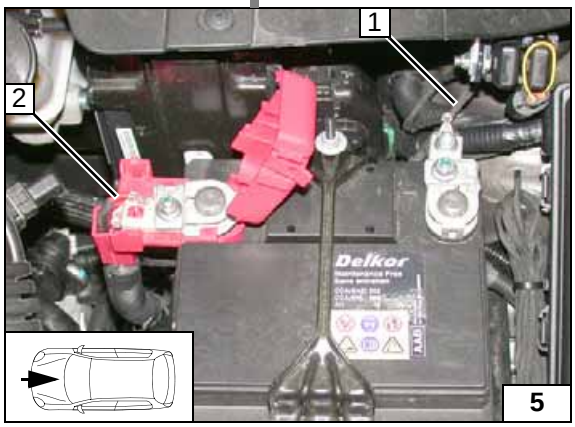
Digital timer

1 Digital timer



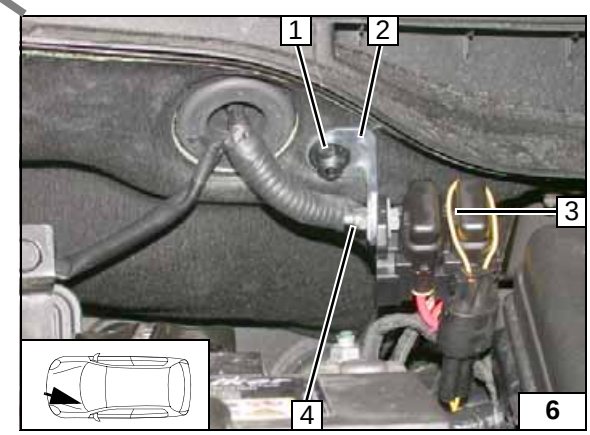


Wiring harness routing diagram



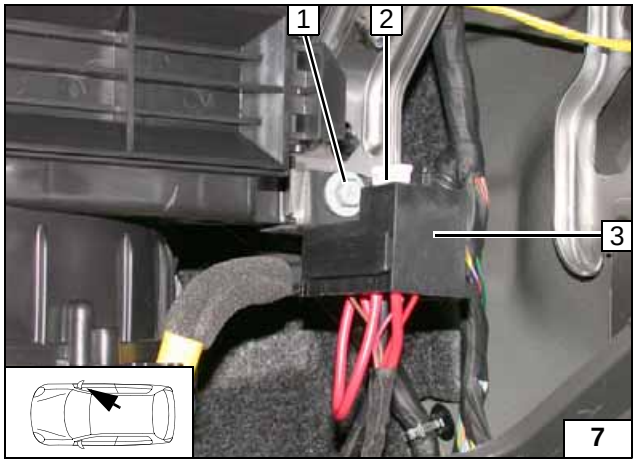
Positive and earth wire

1 Earth wire on negative terminal of battery
2 Positive wire on positive terminal of battery



Fuse holder of engine compartment

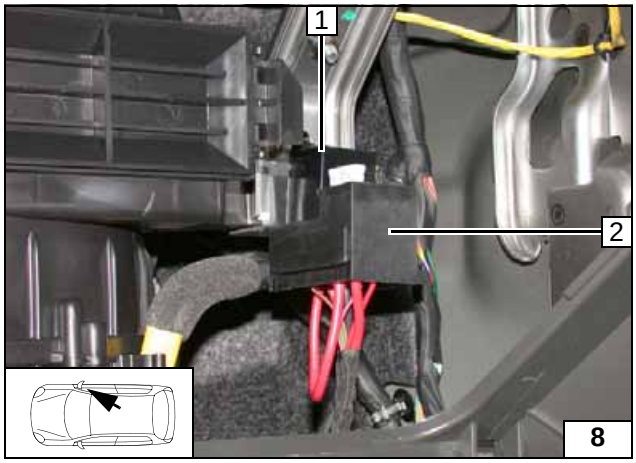
1 Plastic nut, original vehicle stud bolt
2 Angle bracket
3 Fuses F1-2
4 M5x16 bolt, washer [2x], fuse holder retaining plate, nut



Mounting relay and fuse holder of passenger compartment

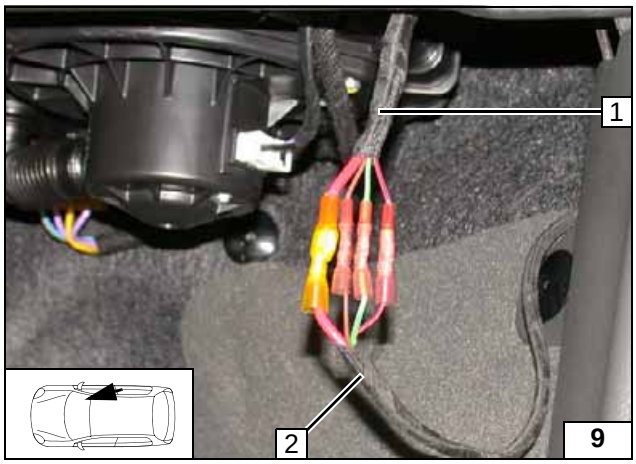
1 Original vehicle bolt
2 25A fan fuse F4
3 Relay and fuse holder of passenger compartment

Mounting relay and fuse holder of passenger compartment



1 K1-relay
2 Relay and fuse holder of passenger compartment

Mounting K1-relay

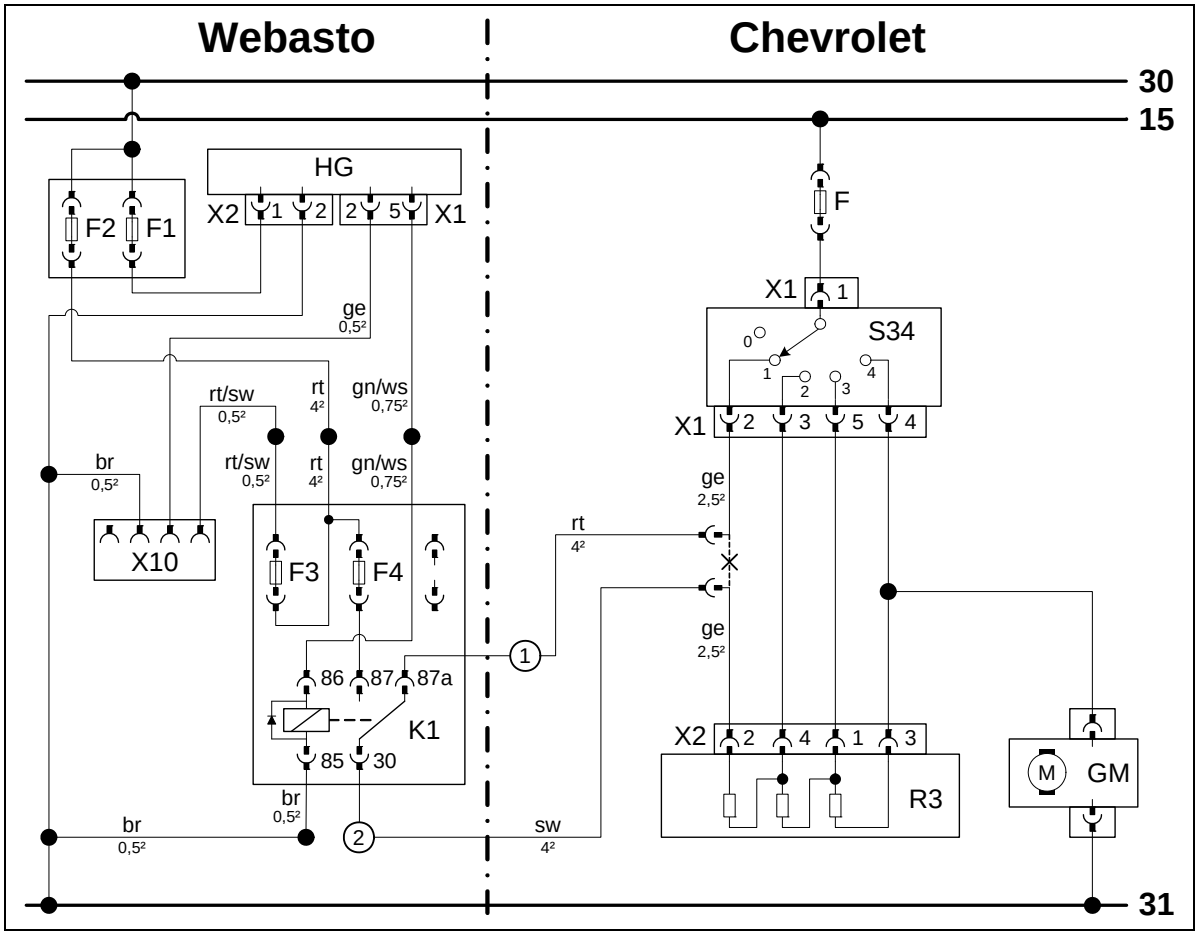


Connect wiring harness of passenger compartment relay and fuse holder **1** with wiring harness of heater **2** according to the wiring diagram using same-colour wires.

Connecting wiring harnesses

Fan Controller up to MY 2012

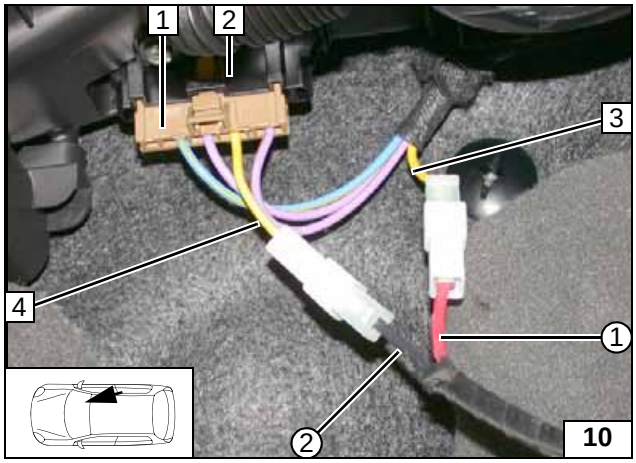
Wiring diagram



Legend

Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-Evo	F	25A fuse	rt	red
X1	6-pin heater connector	X1	5-pin connector S34	sw	black
X2	2-pin heater connector	S34	Fan switch	ge	yellow
X10	4-pin connector of heater control	GM	Fan motor	gn	green
		X2	4-pin connector R3	or	orange
K1	Fan relay	R3	Resistor group	ws	white
F1	20A fuse			br	brown
F2	30A fuse				
F3	1A fuse			X	Cutting point
F4	25A fuse			Wiring colours may vary.	

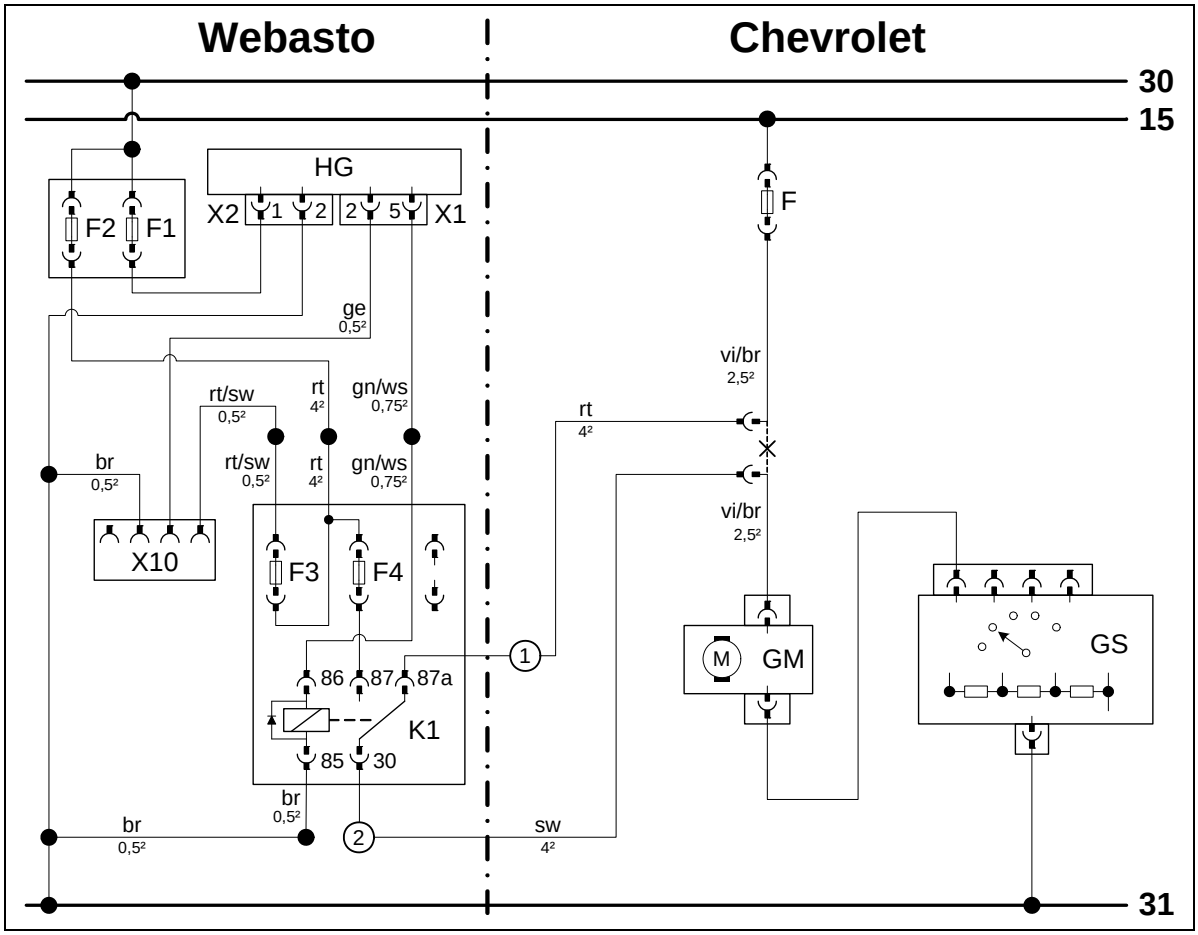
Connecting resistor group



Connection to 4-pin connector X2 **1** from R3 (resistor group) **2**. Produce connections as shown in wiring diagram.

3 Yellow (ge) wire of fan switch
4 Yellow (ge) wire to connector X2 of Pin 2 (Level 1 control)
① Red (rt) wire from K1/87a
② Black (sw) wire from K1/30

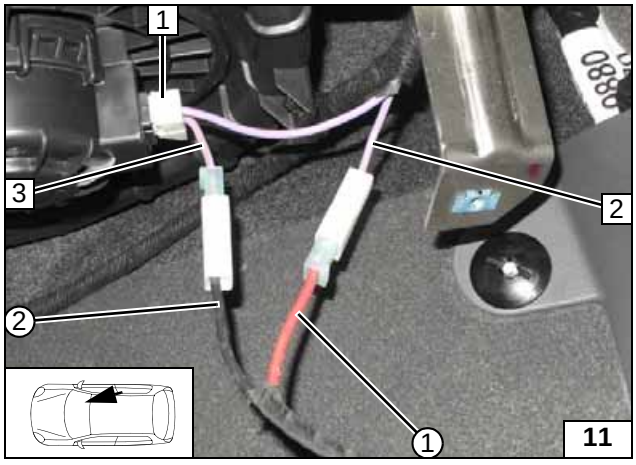
Fan Controller from MY 2013



Wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-Evo	F	25A fuse	rt	red
X1	6-pin heater connector	X1	5-pin connector S34	sw	black
X2	2-pin heater connector	GS	Fan switch / resistor group	ge	yellow
X10	4-pin connector of heater control			gn	green
		GM	Fan motor	or	orange
K1	Fan relay			ws	white
F1	20A fuse			br	brown
F2	30A fuse				
F3	1A fuse			X	Cutting point
F4	25A fuse			Wiring colours may vary.	

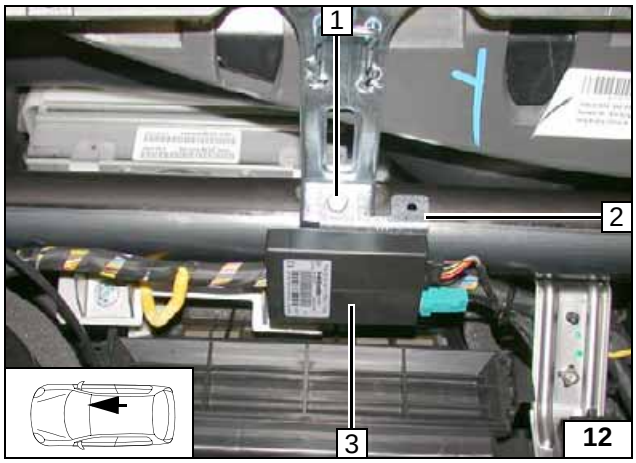
Legend



Connection to 2-pin connector **1** from the fan motor. Produce connections as shown in wiring diagram.

2 Violet/brown (vi/br) wire of fuse
3 Violet/brown (vi/br) wire of fan motor connector
① Red (rt) wire from K1/87a
② Black (sw) wire from K1/30

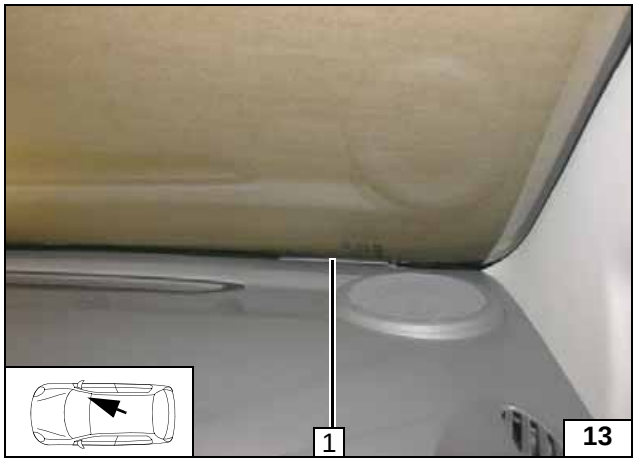
Connection of fan motor



Remote Option (Telestart)

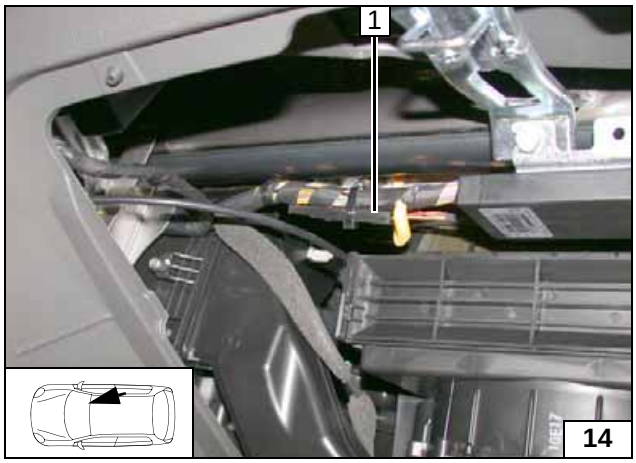
1 Original vehicle bolt
2 Bracket
3 Receiver

Installing receiver



1 Antenna

Installing antenna

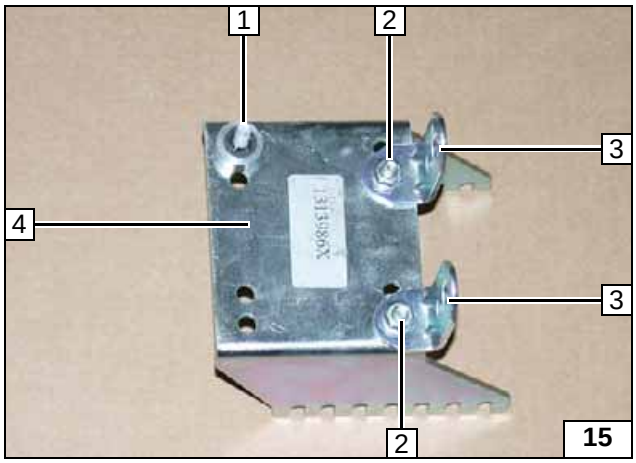


Temperature sensor T100 HTM

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

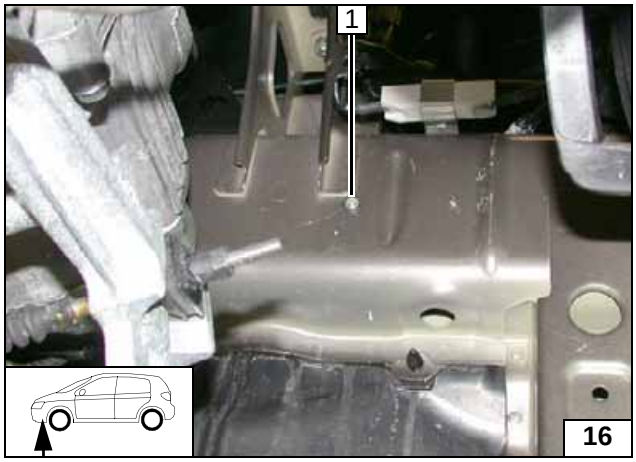
Installing temperature sensor

Preparing Installation Location



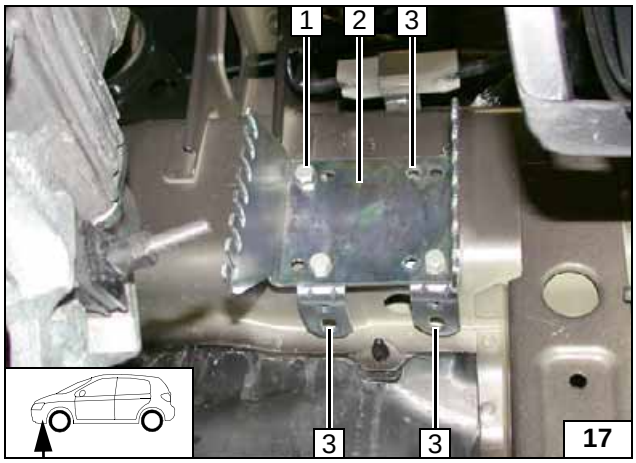
1 M6x30 bolt, spring lockwasher, 8 mm shim, pin lock
2 M6x16 bolt, flanged nut [2x each]
3 Angle bracket [2x]
4 Bracket

Preparing bracket



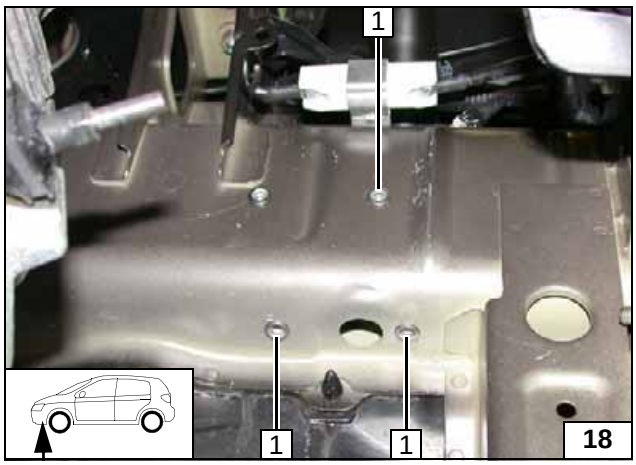
1 Drill out 9.1 mm dia. hole, rivet nut

Installing rivet nut



1 M6x30 bolt, spring lockwasher
2 Loosely mount bracket
3 Copy hole pattern [3x]

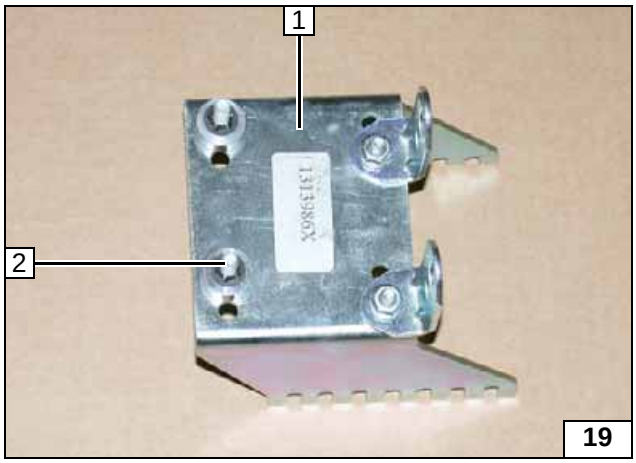
Copying hole pattern



Remove bracket.

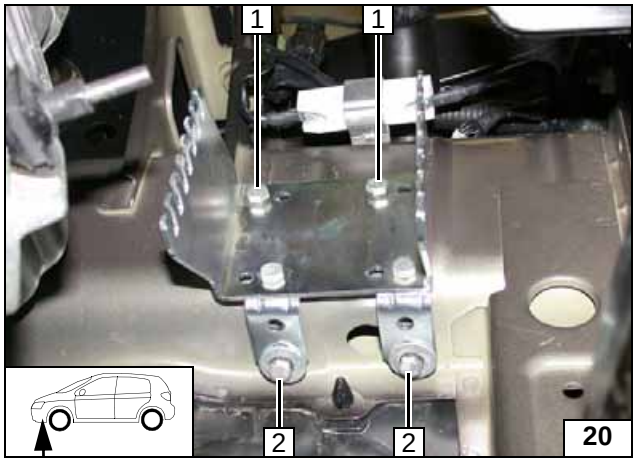
1 9.1mm dia. hole; rivet nut [3x each]

Installing rivet nut



1 Bracket
2 M6x30 bolt, spring lockwasher, 8 mm shim, pin lock

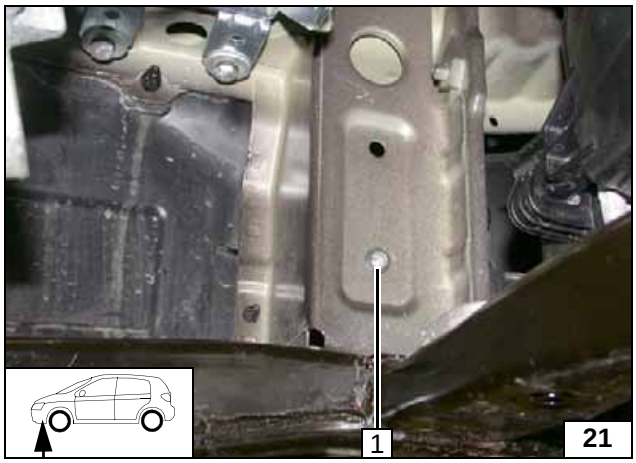
Completing bracket



Insert a 5mm shim at position **2** between frame side member and angle bracket.

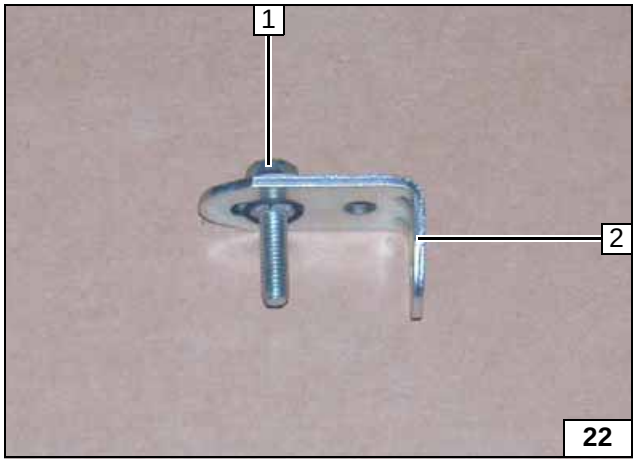
1 M6x30 bolt, spring lockwasher [2x each]
2 M6x25 bolt, spring lockwasher, large diameter washer, 5mm shim [2x each]

Installing bracket



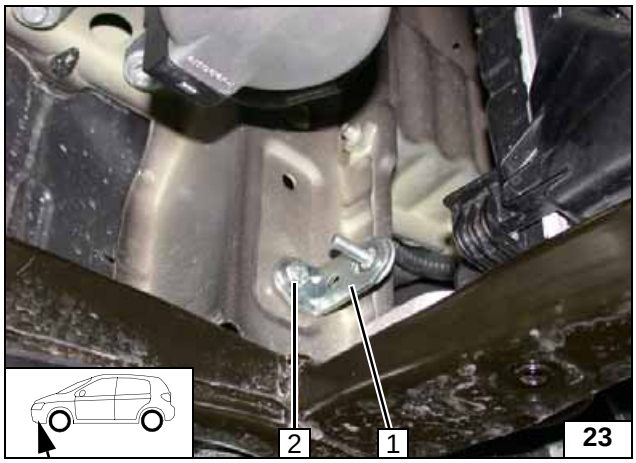
1 Drill out 9.1 mm dia. hole, rivet nut

Installing rivet nut



1 M6x25 bolt, large diameter washer, pin lock
2 Angle bracket

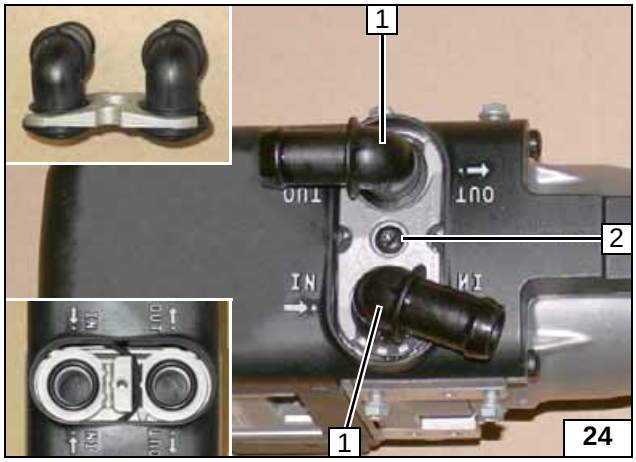
Preparing angle bracket



1 Angle bracket
2 M6x20 bolt, spring lockwasher

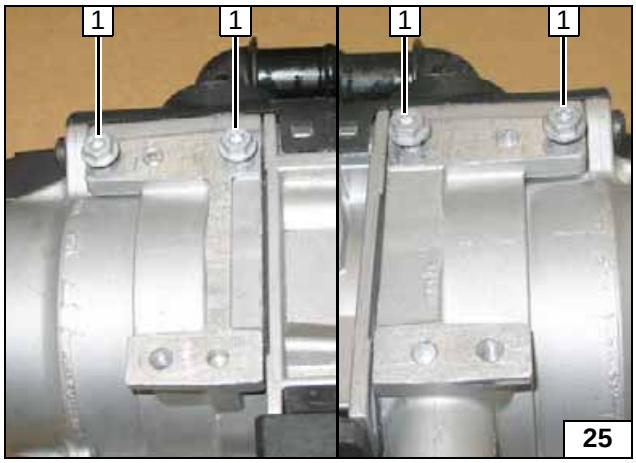
Installing angle bracket

Preparing Heater



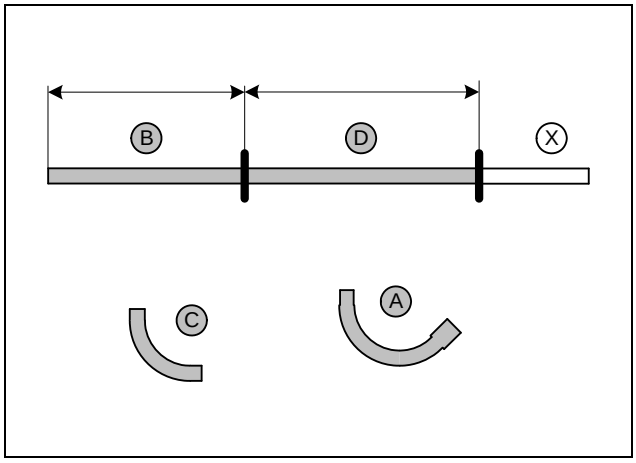
1 Water connection piece, sealing ring [2x each]
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection pieces



Precut thread with 5x13 self-tapping bolts **1** [4x] and mount loosely (screw in a maximum of 3 thread pitches).

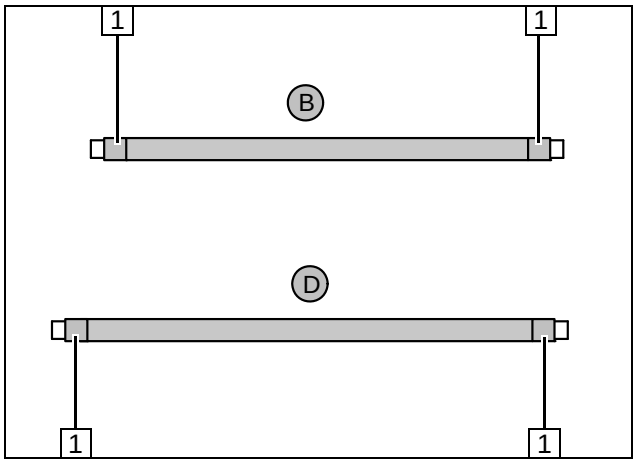
Premounting bolts loosely



Discard section X.
Hose **A** = 135°, 15x20mm dia. moulded hose
Hose **C** = 90°, 18x18mm dia. moulded hose

	up to MY 2012	from MY 2013
B =	510	510
D =	660	630

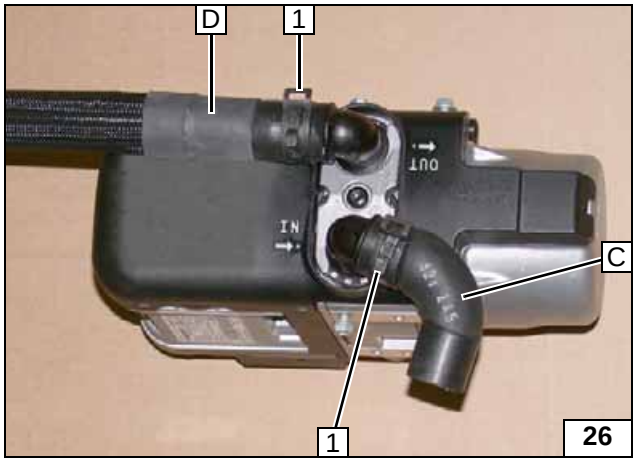
Cutting hoses to length



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

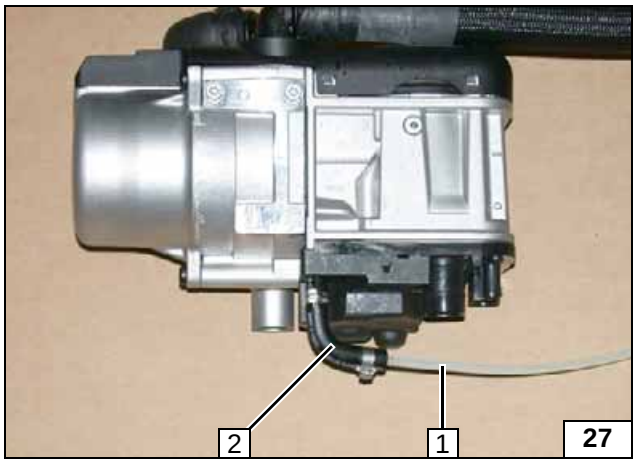
1 50 mm long heat shrink plastic tubing [4x]

Preparing hoses



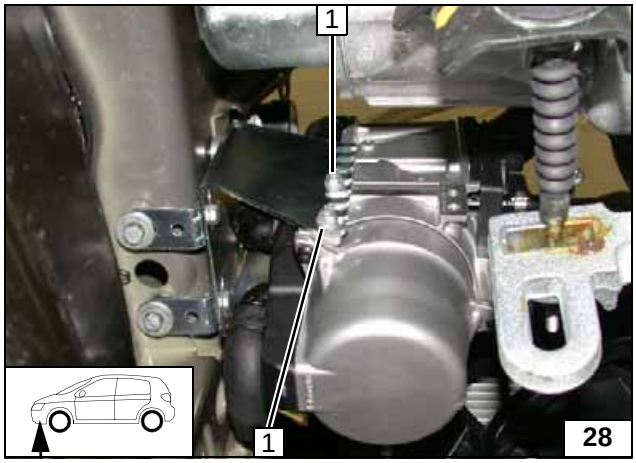
1 25 mm dia. spring clip [2x]

Premounting hoses



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

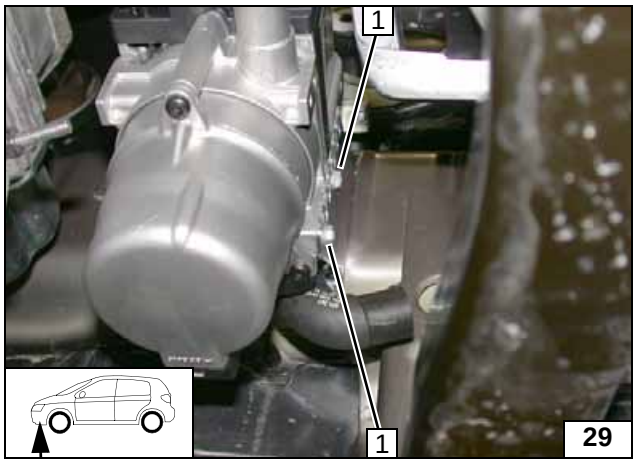
Premounting fuel hose on heater



Installing Heater

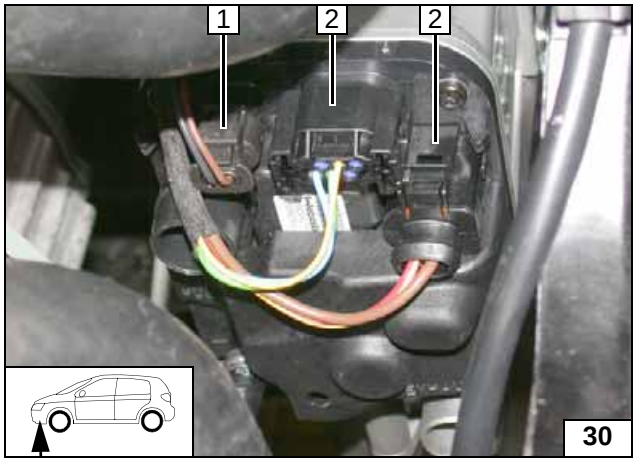
1 Tighten 5x13 self-tapping bolt [2x] (lowest hole pattern)

Installing heater



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

Installing heater



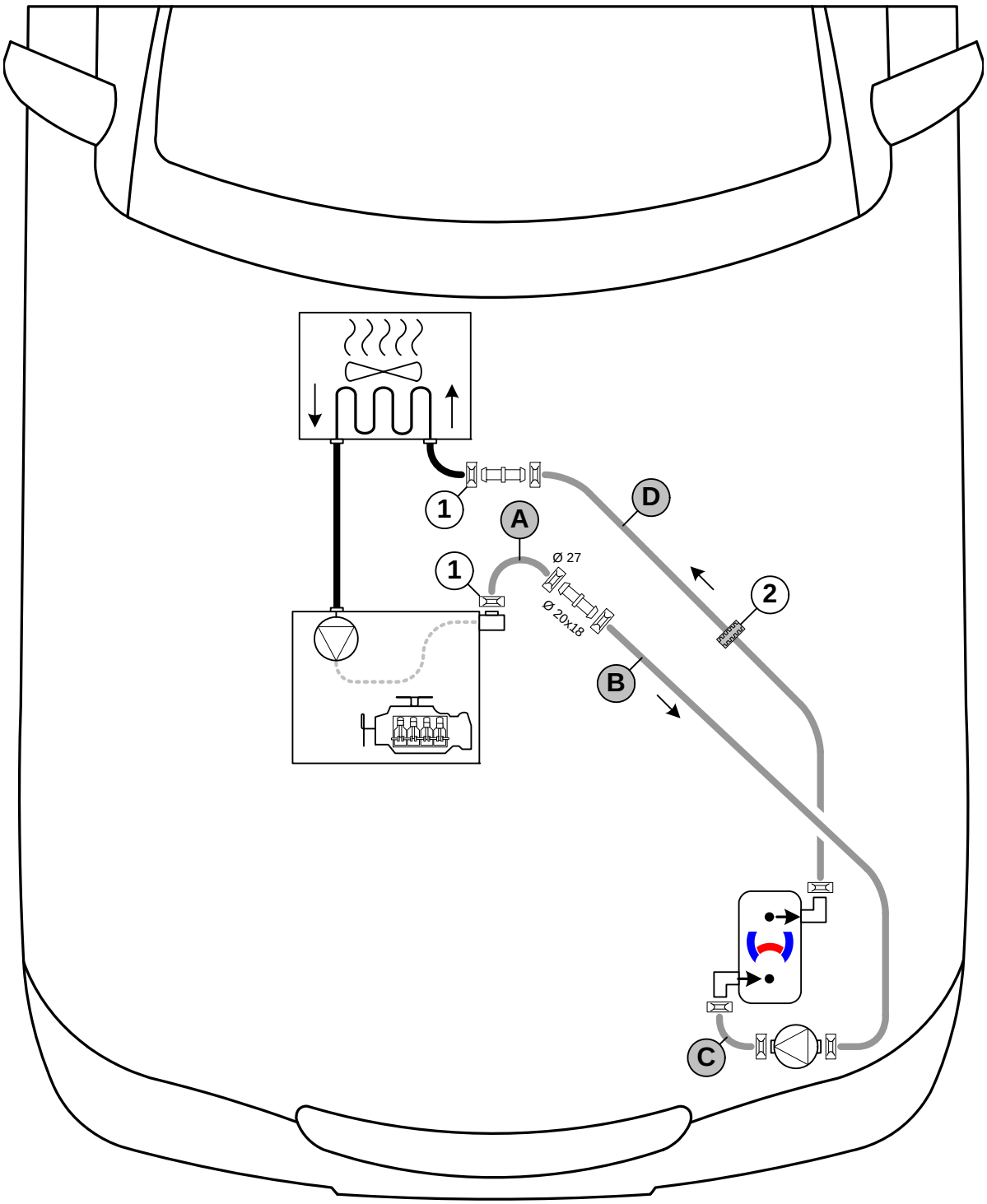
1 Wiring harness of circulating pump
2 Wiring harness of heater [2x]

Installing wiring harness

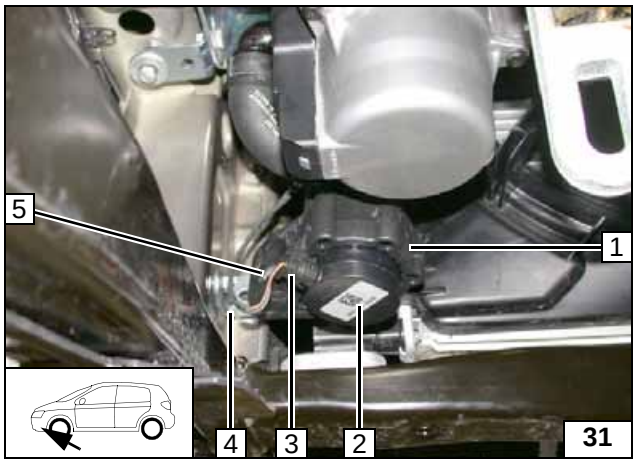
Coolant Circuit

WARNING!
Any coolant running off should be collected in an appropriate container. Install coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. When installing the hoses, the heater must be filled with coolant.
The connection should be "inline" based on the following diagram:

Hose routing diagram



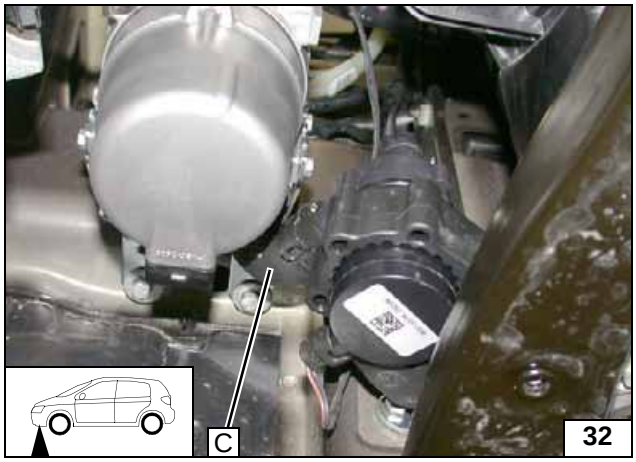
All non-designated spring clips = 25mm dia.
Not designated connecting pipe = 18x18mm dia.
1 = Original vehicle spring clip. **2** = Black (sw) rubber isolator (from MY 2013)!



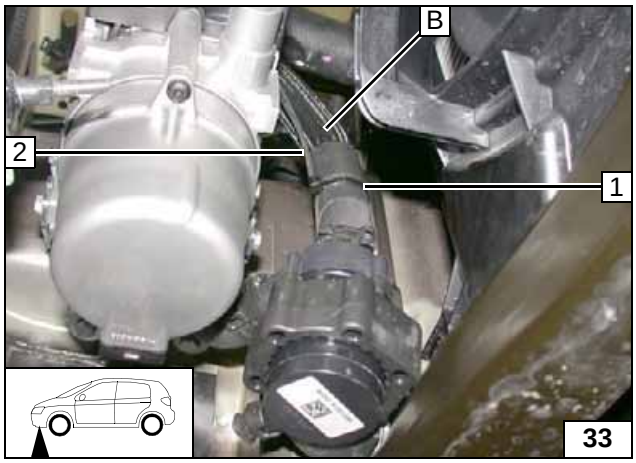
All vehicles

1 Mounting of circulating pump
2 Circulating pump
3 Wiring harness of circulating pump
4 Angle bracket
5 Flanged nut

Installing circulating pump

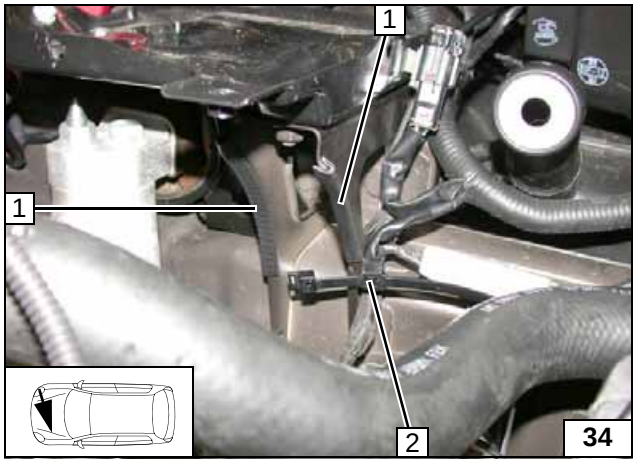


Connecting circulating pump



1 Cable tie
2 Wiring harness of circulating pump

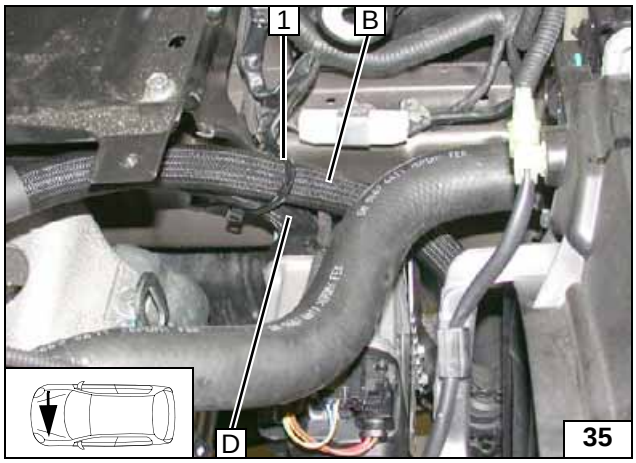
Connecting circulating pump



Up to MY 2012

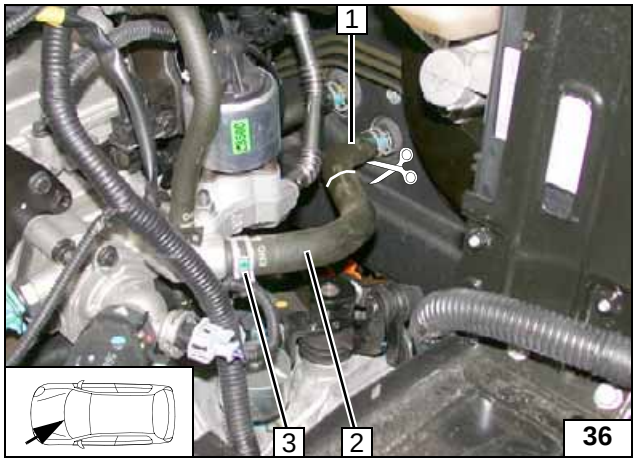
1 100 mm edge protection [2x]
2 Clip-type cable tie, existing hole

Preparing routing



1 Close clip-type cable tie

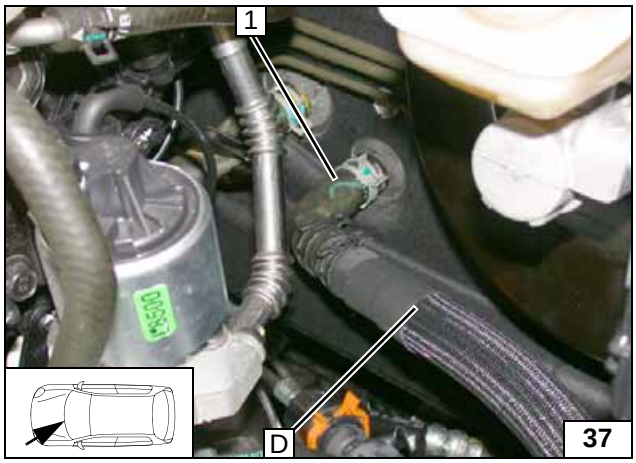
Routing in engine compartment



Cut off hose on engine outlet/heat exchanger inlet **1** at marking. Remove hose section from engine outlet **2** and discard. Spring clip **3** will be reinserted.

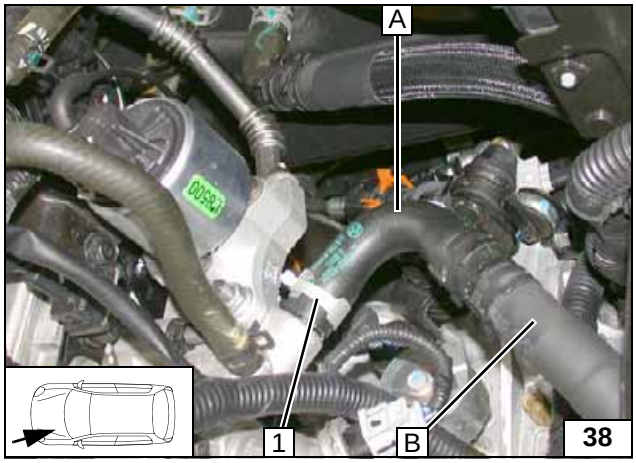
2 Hose section on heat exchanger inlet

Cutting point



1 Hose on heat exchanger inlet

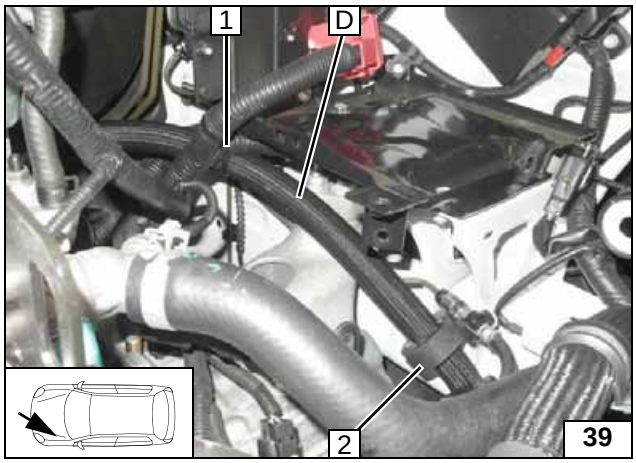
Connection of heat exchanger inlet



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

1 Original vehicle spring clip

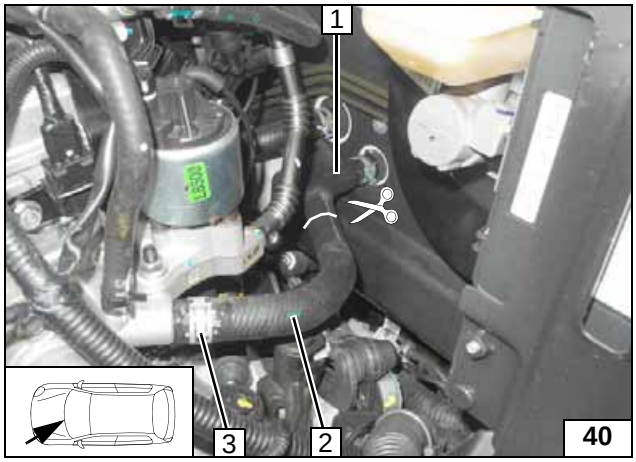
Connecting engine outlet



From MY 2013

1 Cable tie
2 Slide on black (sw) rubber isolator and align to original vehicle line

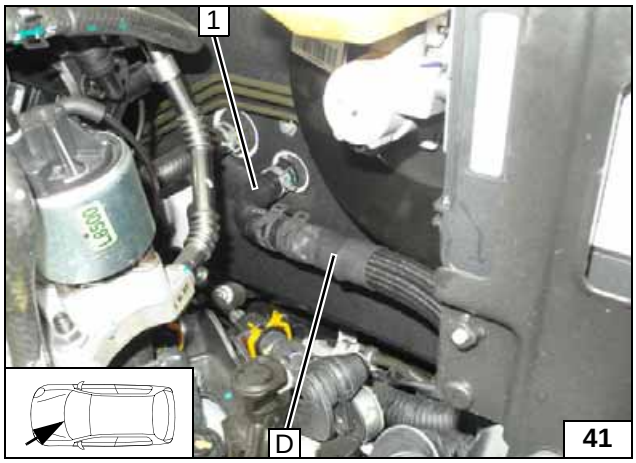
Routing in engine compartment



Cut off hose on engine outlet/heat exchanger inlet **1** at marking. Remove hose section from engine outlet **2** and discard. Spring clip **3** will be reinserted.

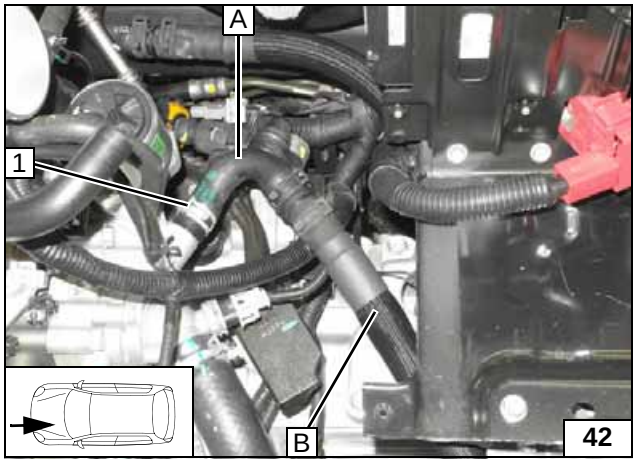
2 Hose section on heat exchanger inlet

Cutting point



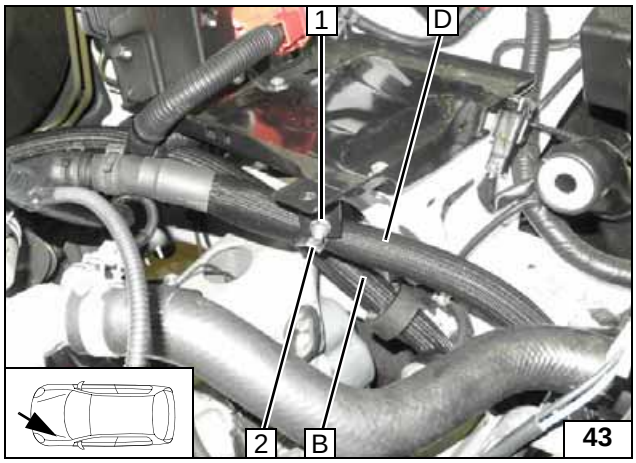
1 Hose on heat exchanger inlet

Connection of heat exchanger inlet



1 Original vehicle spring clip

Connecting engine outlet



Ensure sufficient distance from neighbouring components, correct if necessary.

1 M6x20 bolt, flanged nut, existing hole
2 Rubber-coated p-clamp 25mm dia.

Aligning hoses

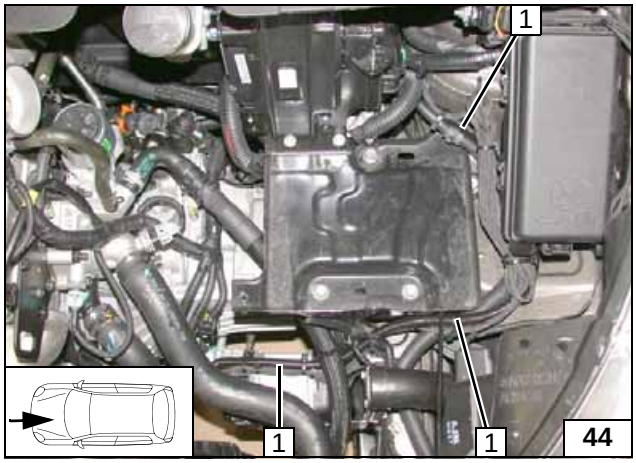
Fuel

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

Catch any fuel running off in an appropriate container.

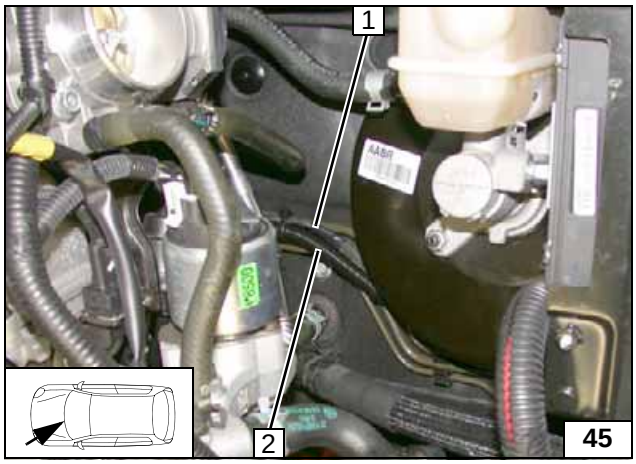
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



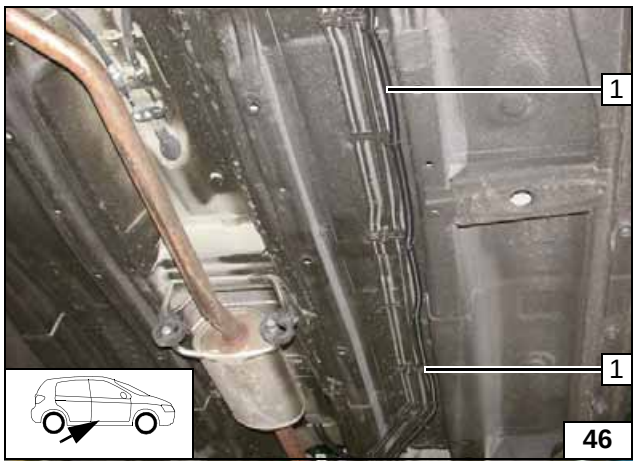
Route fuel line in 1130mm corrugated tube **1** to firewall.

Installing lines



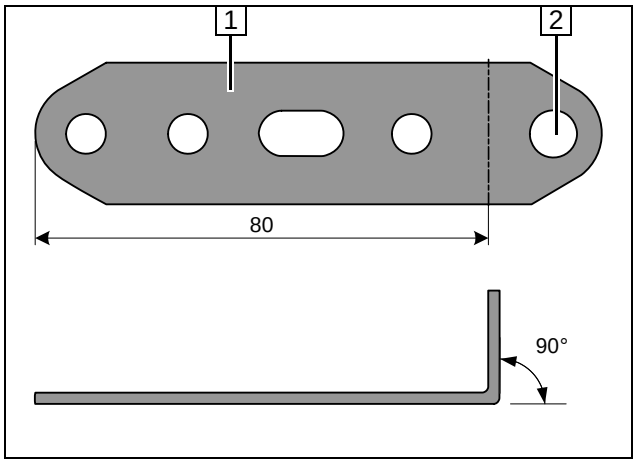
Route fuel line in corrugated tube **2** and wiring harness of metering pump **1** to original vehicle lines at the right vehicle side.

Installing lines



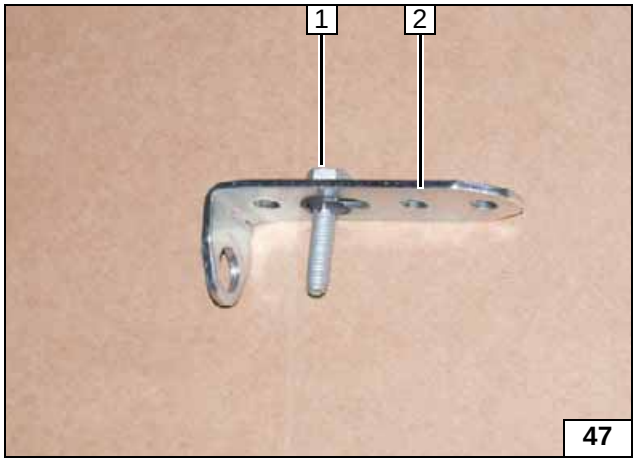
Route fuel line and wiring harness of metering pump in 2100mm corrugated tube **1** to installation location of metering pump.

Installing lines



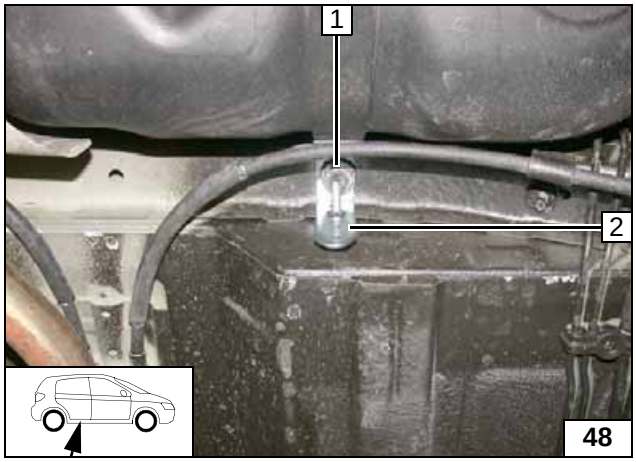
1 Perforated bracket
2 Drill out 8.5 mm dia. hole

Preparing perforated bracket



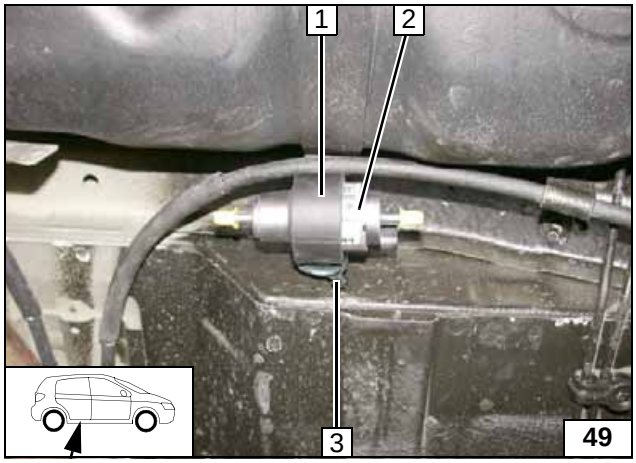
1 M6x25 bolt, pin lock
2 Perforated bracket

Preparing perforated bracket



1 Original vehicle bolt
2 Perforated bracket

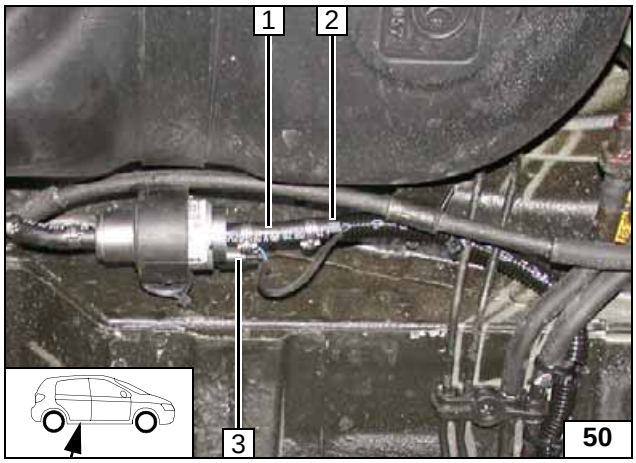
Installing perforated bracket



Attach mounting of metering pump **1** with support bracket and flanged nut on M6x25 bolt.

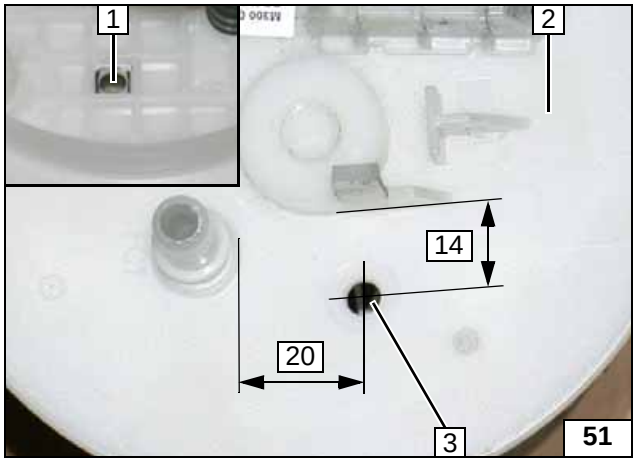
2 Metering pump
3 Cable tie

Installing metering pump



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

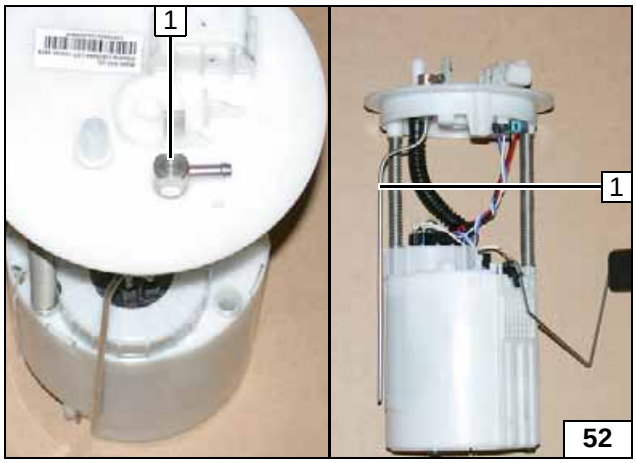
Connecting metering pump



Remove fuel-tank sending unit **2** according to manufacturer's specifications. Check hole pattern at centre between the bars (see small figure) - before drilling hole.

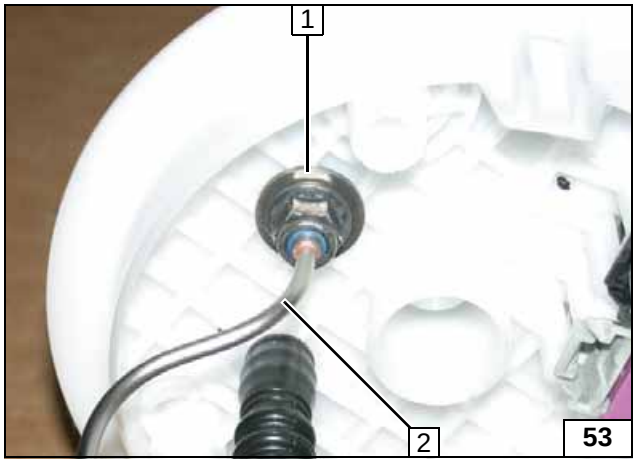
3 Copy hole pattern, 6mm dia. hole

Fuel extraction



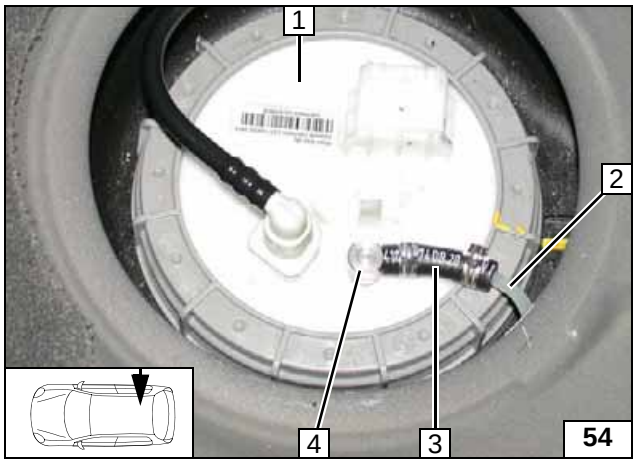
Shape fuel standpipe **1** according to template, and cut to length. Insert washer outer dia. d_a = 17.6mm between fuel tank sending unit and fuel standpipe **1** (see following image).

Installing fuel standpipe



1 Washer outer dia. = 17.6 mm
2 Fuel standpipe

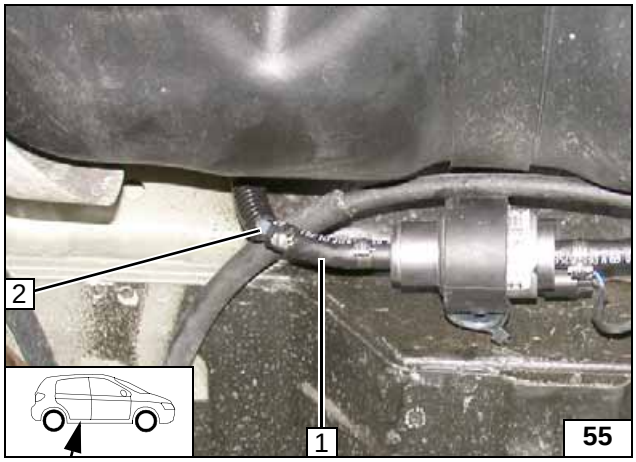
Installing fuel standpipe



Install fuel-tank sending unit **1** according to manufacturer's specifications.

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

Connecting fuel line



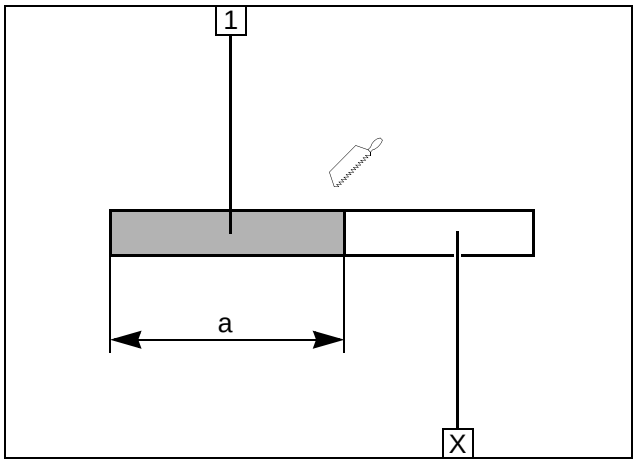
Check the position of the components; adjust if necessary. Check that they have freedom of movement.

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

Connecting metering pump

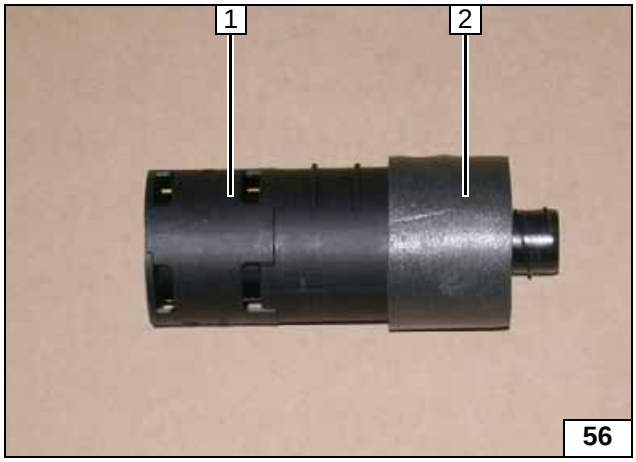
Combustion Air

Discard section X.



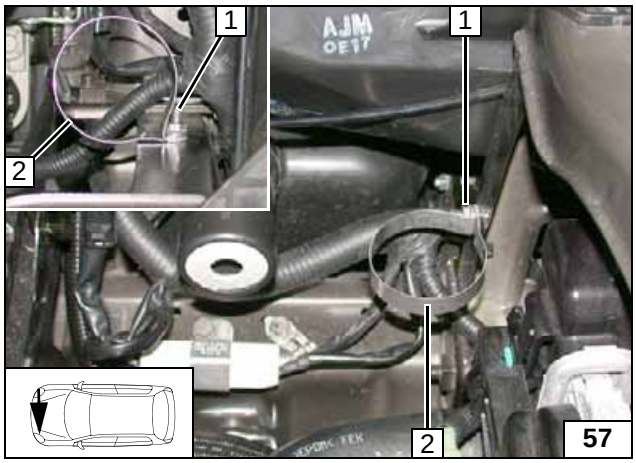
1 Combustion air pipe
a = 630

Cutting combustion air pipe to length



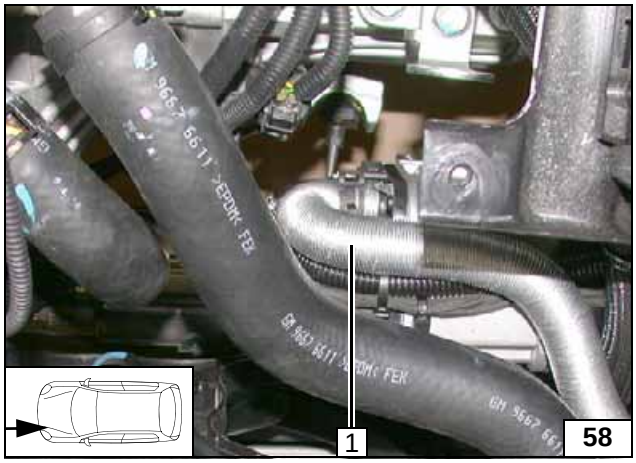
1 Silencer
2 Paste insulation protection strip

Preparing silencer



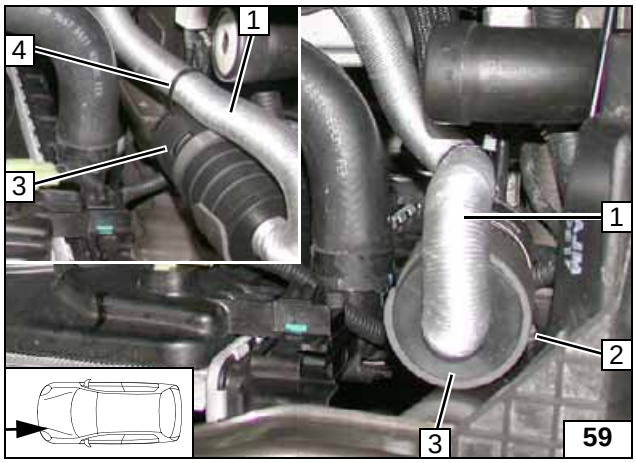
1 M5x16 bolt, large diameter washer, flanged nut, existing hole
2 Install 51mm dia. clamp loosely

Mounting clamp loosely



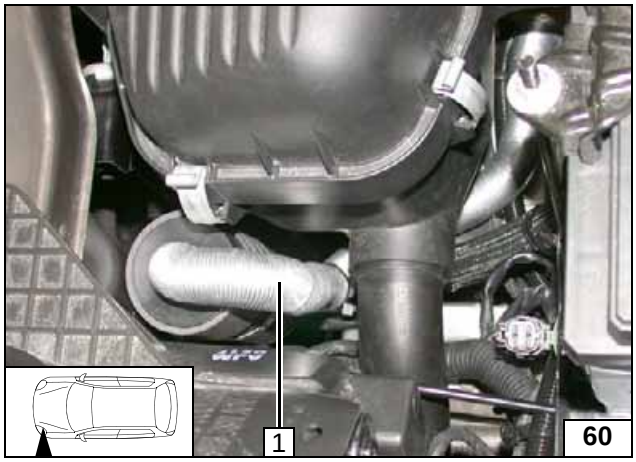
1 Combustion air pipe

Installing combustion air pipe



1 Combustion air pipe
2 Tighten bolt
3 Silencer
4 Cable tie

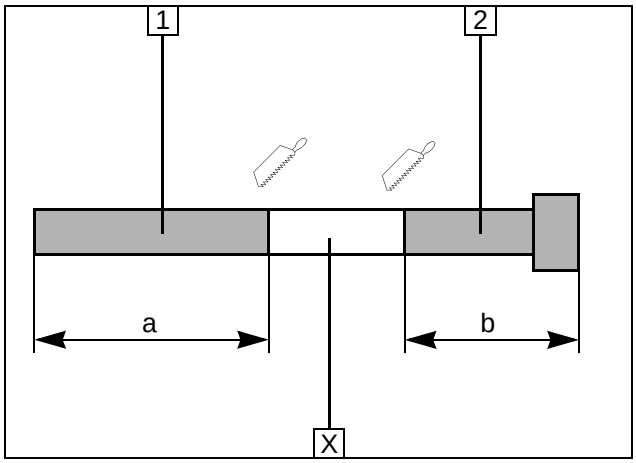
Installing silencer



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Combustion air pipe

Aligning combustion air pipe

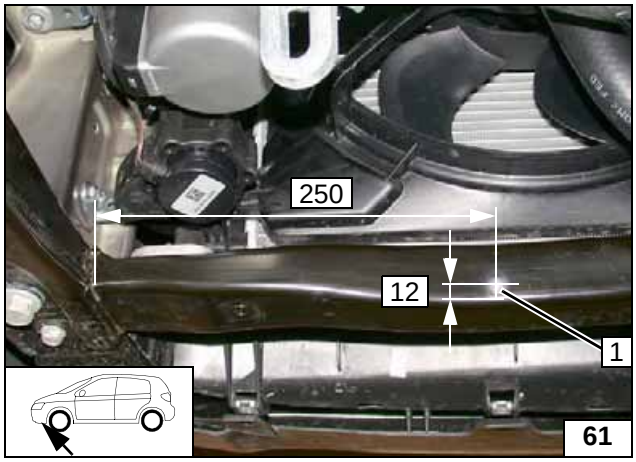


Exhaust Gas

Discard section X.

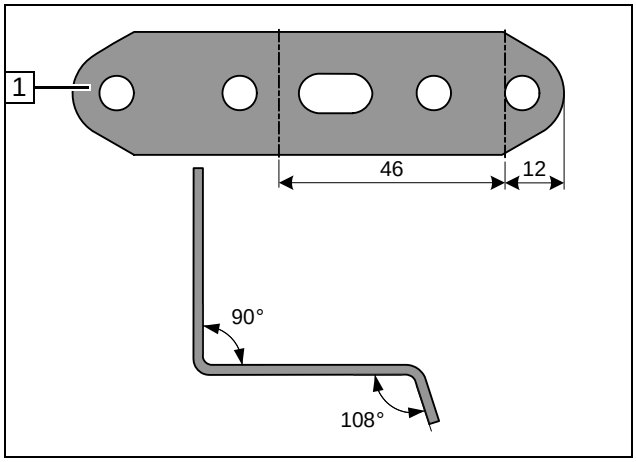
Preparing exhaust pipe

1 Combustion air pipe
a = 280
2 Exhaust end section
b = 110



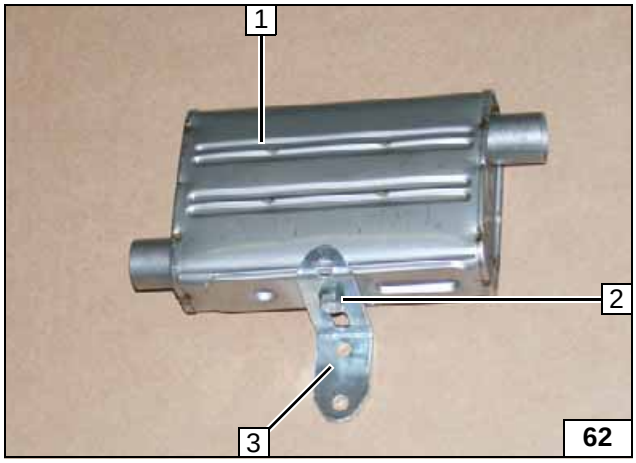
Installing rivet nut

1 9.1mm dia. hole; rivet nut



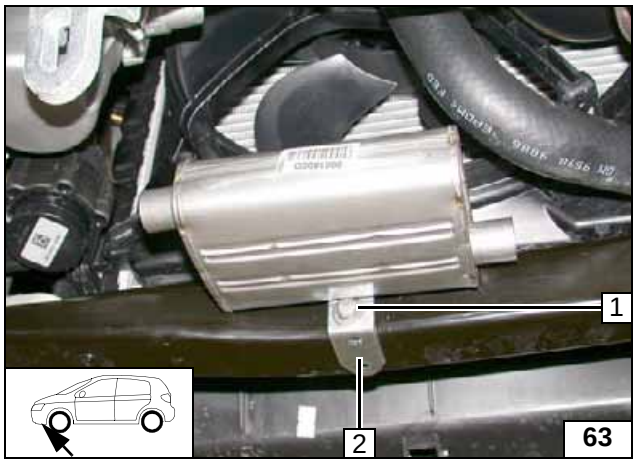
Angling down perforated bracket

1 Perforated bracket



Premounting silencer

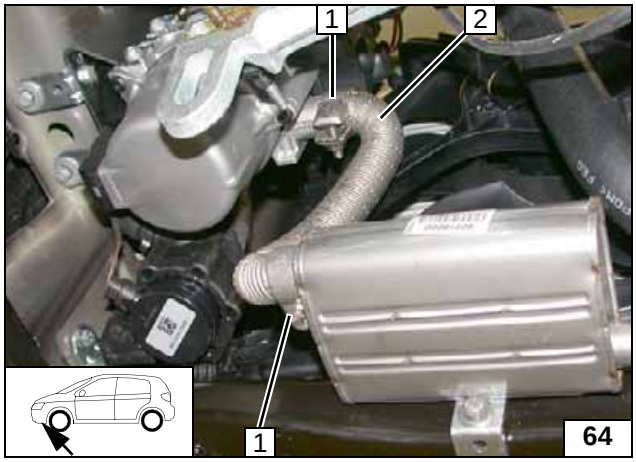
1 Silencer
2 M6x16 bolt, spring lockwasher
3 Perforated bracket



Insert 5mm shim at position **1** between cross member and perforated bracket **2**.

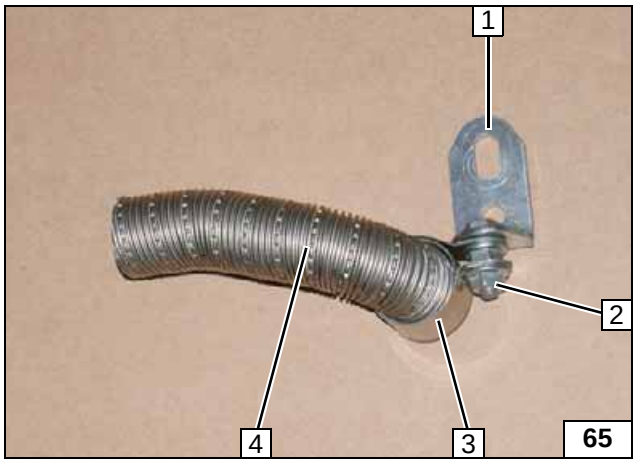
1 M6x25 bolt, spring lockwasher, large diameter washer, 5mm shim

Installing silencer



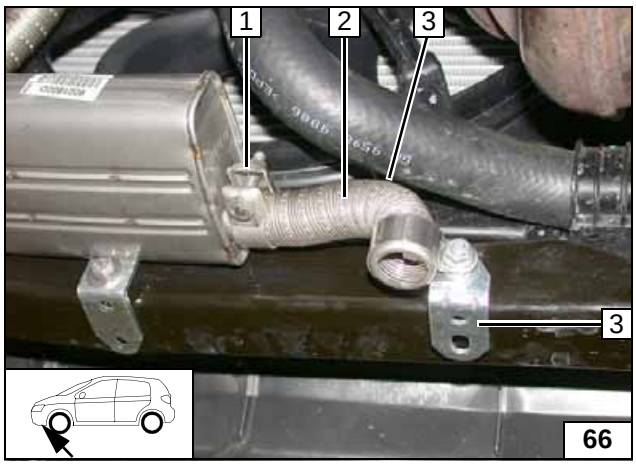
1 Hose clamp [2x]
2 Exhaust pipe

Installing exhaust pipe



1 Angle bracket
2 M6x20 bolt, flanged nut [2x]
3 P-clamp
4 Exhaust end section

Premounting exhaust end section



Ensure sufficient distance from neighbouring components, minimal distance of 30mm from original vehicle hose on position **3**.

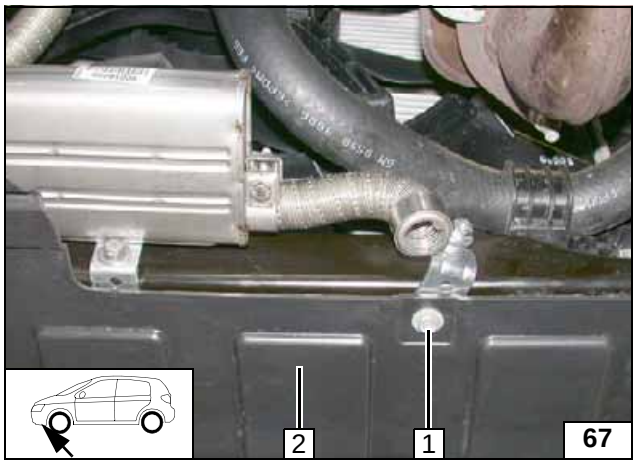
1 Hose clamp
2 Exhaust end section
3 Align angle bracket

Mounting exhaust end section

Final Work

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

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Adjust digital timer, teach Telestart transmitter.**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place signboard "Switch off parking heater before refuelling" in the area of the filler neck**
- **For initial startup and function check, see installation instructions**



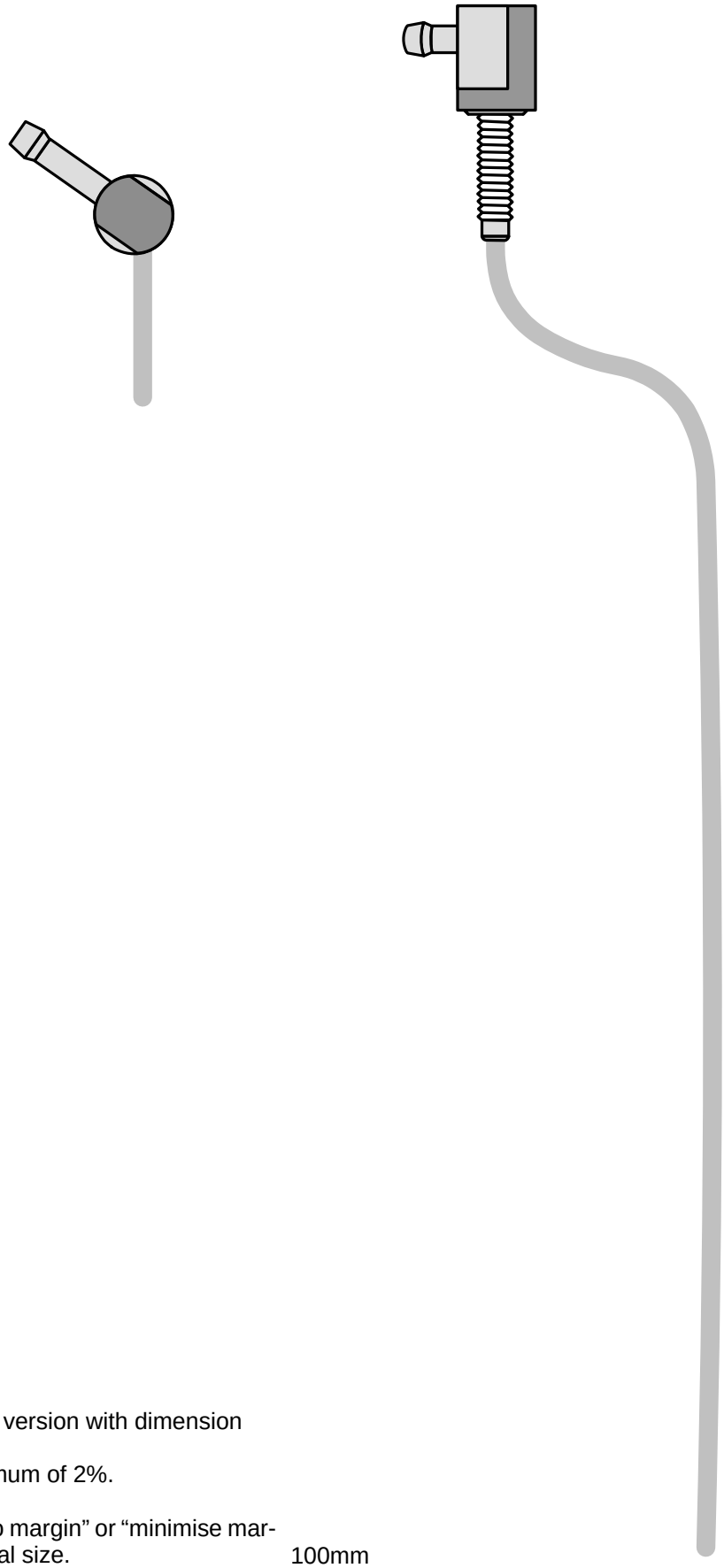
Align exhaust end section. Ensure sufficient distance from neighbouring components, correct if necessary.

1 Original vehicle bolt, flanged nut
2 Underride protection

Fastening exhaust end section

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

Fuel Standpipe Template



100mm

Scale 1:1

Compare 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

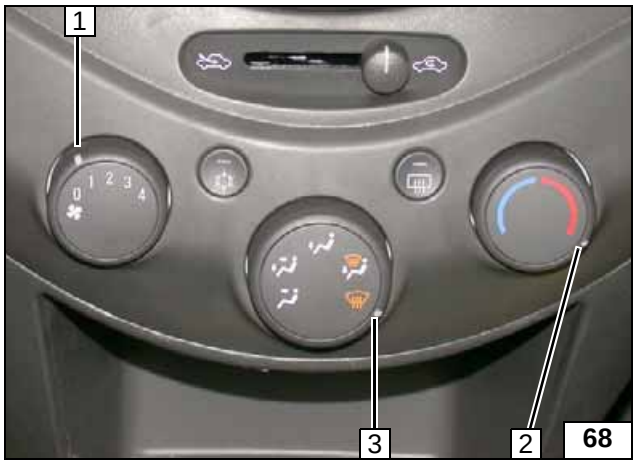
Operating Instructions up to MY 2012

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.

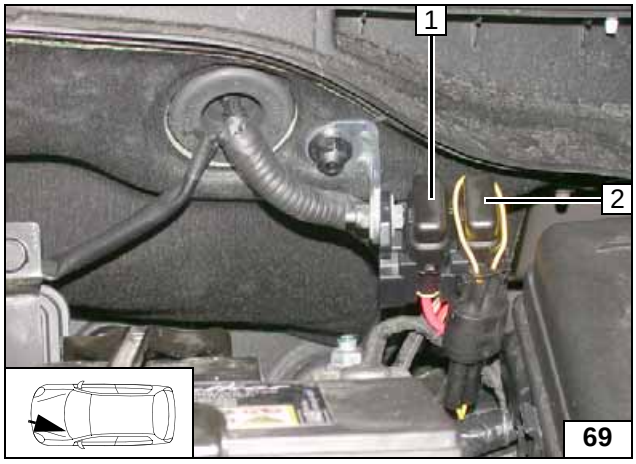
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating operation .
Instructions for the deactivation can be taken from the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



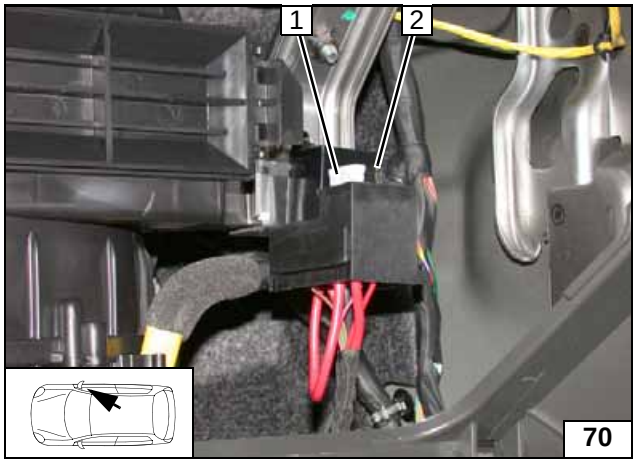
1 Set fan to level "1"
2 Set temperature to "max."
3 Air outlet to windscreen

A/C control panel



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

Fuses of engine compartment



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

Fuses of passenger compartment

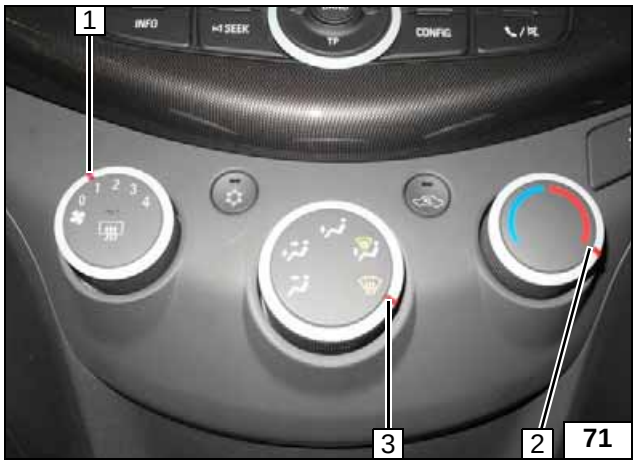
Operating Instructions from MY 2013

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.

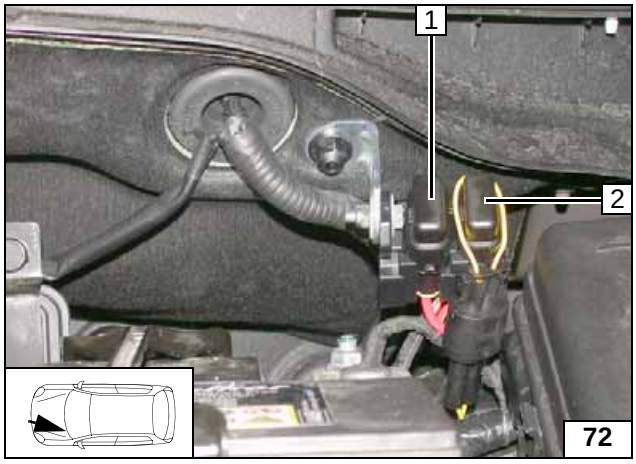
Passenger compartment monitoring, if installed, must be deactivated in addition to vehicle settings for the heating operation .
Instructions for the deactivation can be taken from the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:



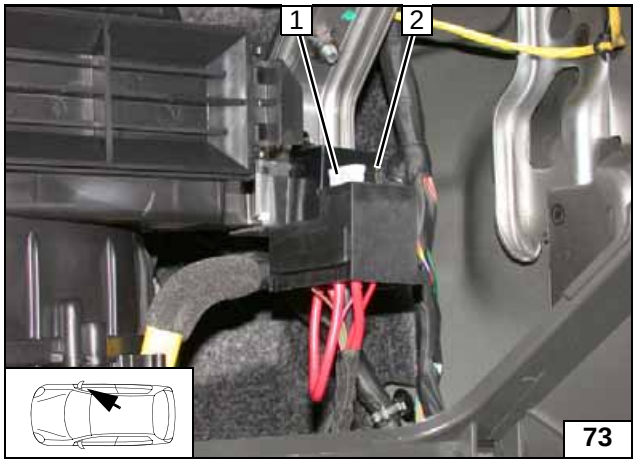
1 Set fan to level "1", max. "2"
2 Set temperature to "max."
3 Air outlet to windscreen

A/C control panel



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

Fuses of engine compartment



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

Fuses of passenger compartment