Water Heater

Webasto
Feel the drive

***Thermo Top E* Parking Heater** e1 00 0003

***Thermo Top C* Parking Heater** e1 00 0002

Installation documentation

Hyundai ix35

Diesel
from model year 2010
Left-hand drive vehicle
2WD / 4WD

WARNING!

Hazard warning:

Incorrect installation or repair of Webasto heating systems may cause a fire or result in the emission of carbon monoxide, which can be fatal. Serious or fatal injuries can be caused as a result.

Specialist company training, technical documentation, specialised tools and equipment are required to install and repair Webasto heating and cooling systems.
Only original Webasto parts must be used. For this, also see the catalog of air and water heater accessories from Webasto.

NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills, or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.

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

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

Webasto does not accept any liability for defects and damage that are attributable to installation by untrained staff.

Ident. No.: 1315759F_EN Fee Euro 10.00

Table of Contents

Validity	2	Preparing installation location	12
Heater/Installation Kit	3	Installing heater	13
Foreword	3	Fuel	14
General Instructions	3	Combustion air	17
Special Tools	3	Coolant circuit	18
Explanatory Notes on Document	4	Exhaust gas	29
Preliminary Work	5	Final Work	32
Heater installation location	5	Template for fuel standpipe	33
Preparing electrical system	6	Operating Instructions for End Customer	34
Electrical system	7		
Fan control for manual air conditioning	8		
Automatic air-conditioning fan control	9		
Remote option (Telestart)	11		

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Hyundai	ix35	EL	e11 * 2007 / 46 * 0104

Engine type	Engine model	Output in kW	Displacement in cm³
D4FB	Diesel	85	1685
D4HA	Diesel	100	1995
D4RA	Diesel	135	1995

Vehicle and engine types, equipment variants and national specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

The installation location of a digital timer and summer/winter switch should be confirmed with the end customer before installation.

Heater/Installation Kit

Quantity	Designation	Order No.:
1	Retail accessories *Thermo Top E / C*	See price list
1	Installation kit Hyundai ix35 2010 Diesel	1315758B
1	Heater control	See price list

Also required for automatic air-conditioning:

Quantity	Designation	Order No.:
1	Automatic air-conditioning kit Hyundai ix35	1315911B

Heater recommended for the respective vehicle class:

Vehicle	Heater
Compact car	Thermo Top E
Mid-size car, estate car	Thermo Top C

The selection of the heater is based on the passenger compartment size of the vehicle and the level of comfort required by the customer.

Foreword

This installation documentation applies to Hyundai ix35 Diesel vehicles - for validity, see page 2 - from model year 2010 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.

However, where this is the case the stipulations in this "installation documentation" and "operating and maintenance instructions" for the *Thermo Top E / C* should be observed.
The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

General Instructions

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.
Sharp edges should be fitted with rub protection (split-open fuel hose).
Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).
The respective settings must be checked and set prior to the installation when installing an IPCU.

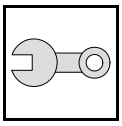
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Hole circle bit 70 mm dia.

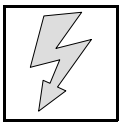
Explanatory Notes on Document

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

Mechanical system

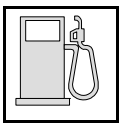


Electrical system



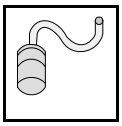
Coolant circuit

Fuel



Exhaust gas

Combustion air



Software

Special features are highlighted using the following symbols:

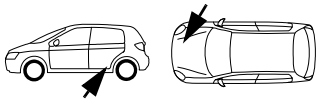
Specific risk of injury or fatal accidents.

Specific risk of damage to components.

Specific risk of fire or explosion.

Reference to general installation instructions of Webas- to 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.

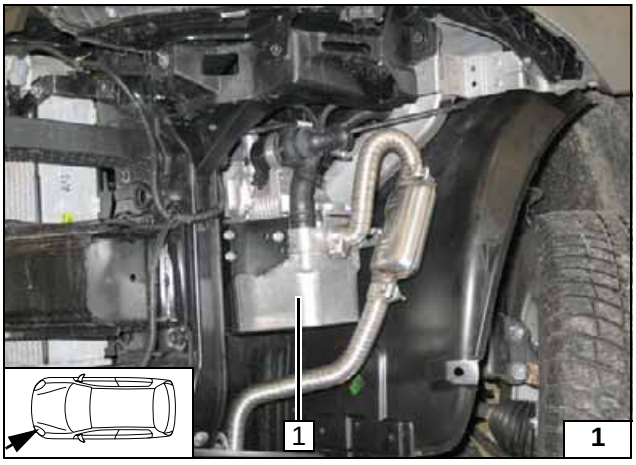
All dimensions are in mm!
Tightening torque of hose clamps = 2.0 + 0.5 Nm!
Tightening torque of Ejot screws, Ejot studs = 10 Nm!

Preliminary Work

WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Depressurise the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Remove the air filter together with the intake hose.
- Completely remove the battery together with the carrier.
- Disconnect the engine control unit and lay it aside.
- Remove the underride protection.
- Remove the underbody trim on the left in front of the tank.
- Release the wheel well trim in the front area.
- Remove the bumper.
- Remove the seat surface of the rear bench seat (a screw fitting is accessible from the luggage compartment).
- Open the tank-fitting service lid.
- Remove the fuel-tank sending unit in accordance with the manufacturer's instructions.
- Remove the entrance strip on the front passenger's side.
- Remove the A-pillar trim in the front passenger's side footwell.
- Remove the glove compartment.
- Pull up the shift lever sleeve (only for digital timer).

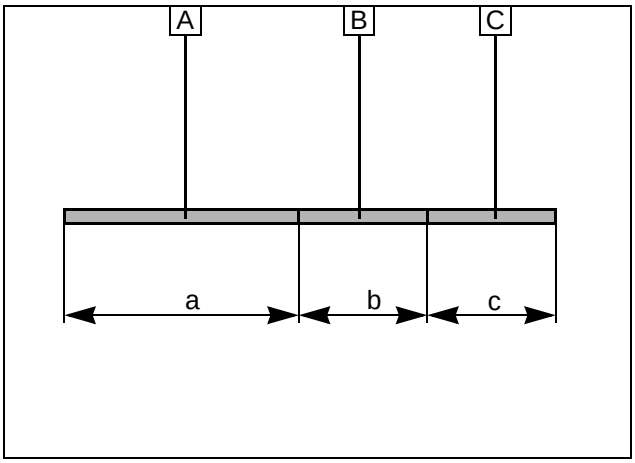
Remove page 34 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



Heater installation location

1 Heater

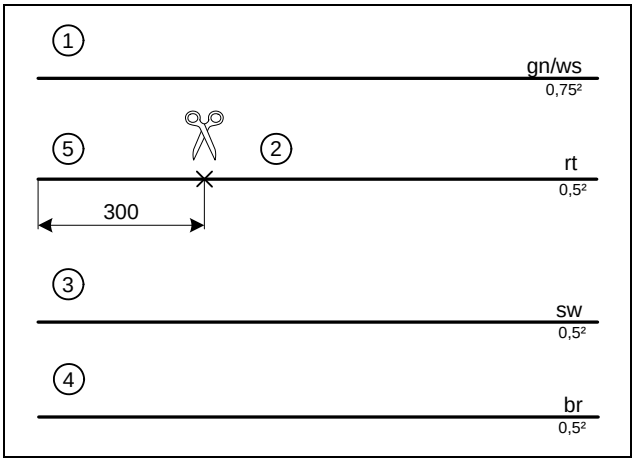
Installation location



Preparing electrical system

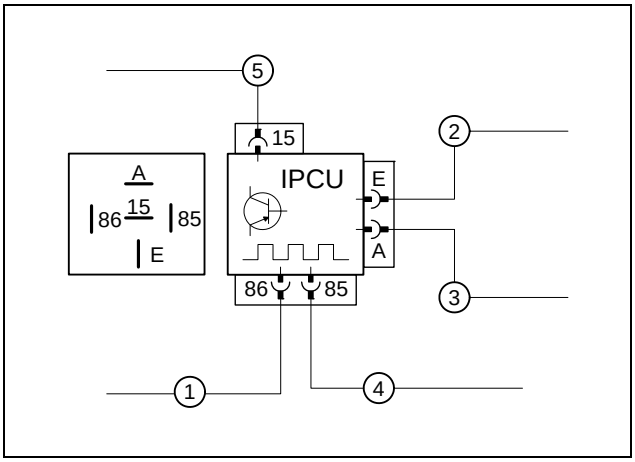
Only with automatic air-conditioning!

Cutting protective sleeving to length



Pull in red (rt) wire ② and black (sw) wire ③ into protective sleeving **A**. Pull green/white (gn/ws) wire ① into protective sleeving **B** and red (rt) wire ⑤ into protective sleeving **C**.

Preparing lines



IPCU view on the contact side!
IPCU is preprogrammed with the default settings of model year 2011. The default values must be checked during the function check on the vehicle and adjusted, if necessary!

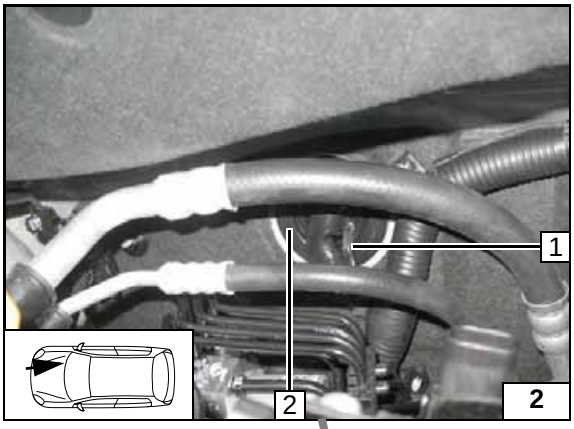
Preparing IPCU

Model year:	**2010**	**2011**
Duty cycle:	100%	100%
Frequency:	14 kHz	1 kHz
Voltage:	4.4V	3.6V
Function:	High side	High side

Electrical system

Wiring harness pass through

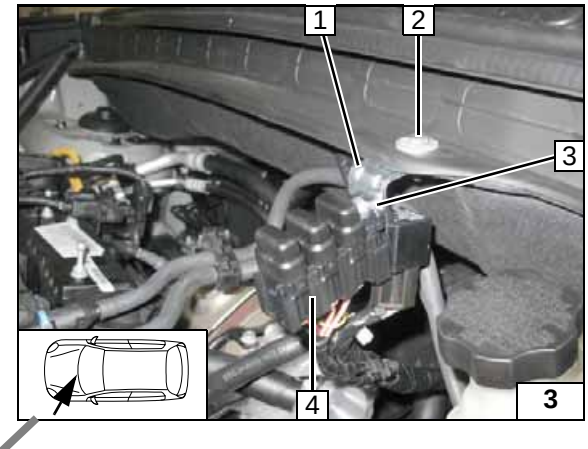
1 Protective rubber plug
2 Wiring harnesses of fan controller, heater control

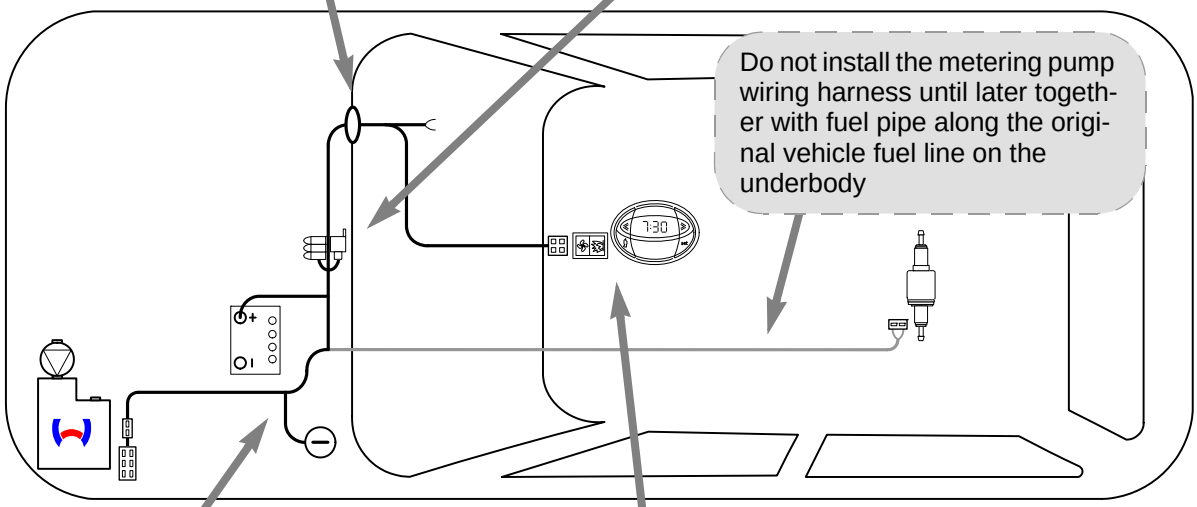


Fuse holder, K3 relay

Loosely mount angle bracket **1**.

2 Remove clip, M6x20 bolt, large diameter washer, flanged nut
3 M5x16 bolt, washer, retaining plate for fuse holder, K3 relay, flanged nut
4 Fuses F1-3 connected

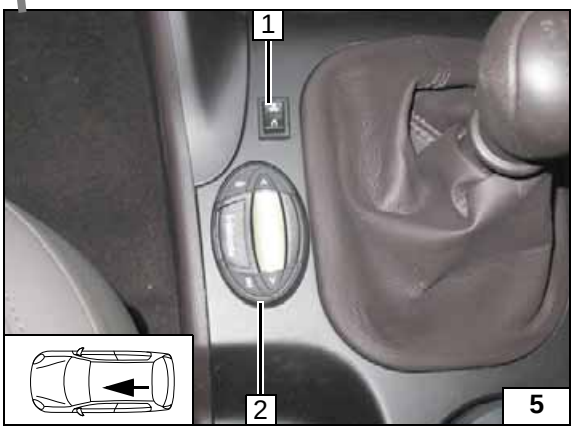




Wiring harness routing diagram

Positive and earth wire

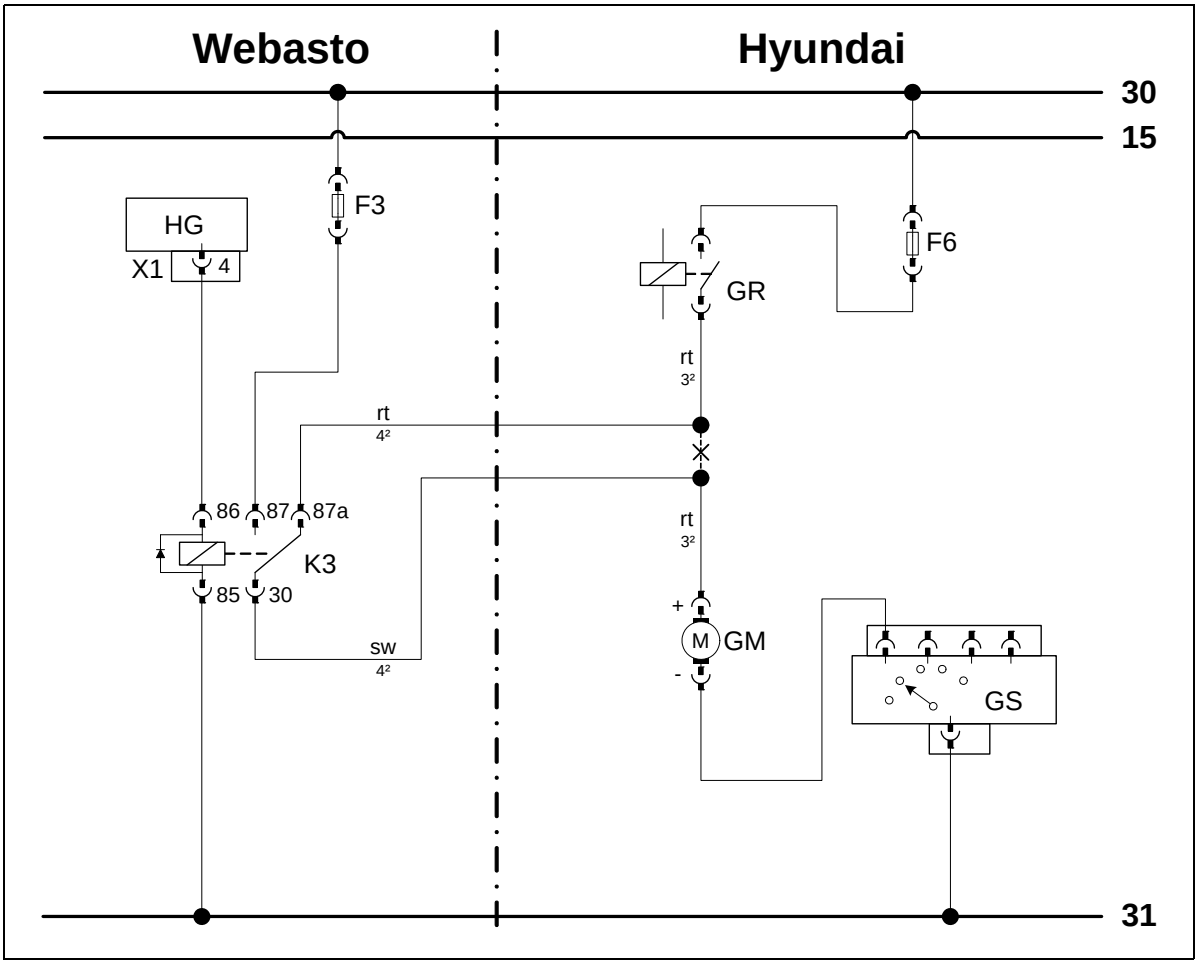
1 Earth wire on original vehicle earth support point
2 Positive wire on positive battery terminal



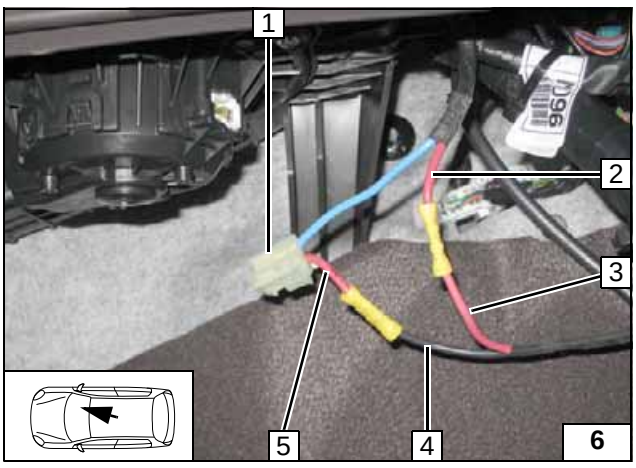
Digital timer, summer/winter switch option

1 12 mm dia. hole, summer/winter switch
2 Digital timer

Fan control for manual air conditioning



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater connector	GR	Fan relay	sw	black
F3	Fuse	GS	Fan switch		
K3	Fan relay	F6	40A fuse		
				X	Cutting point
				Wiring colours may vary.	



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

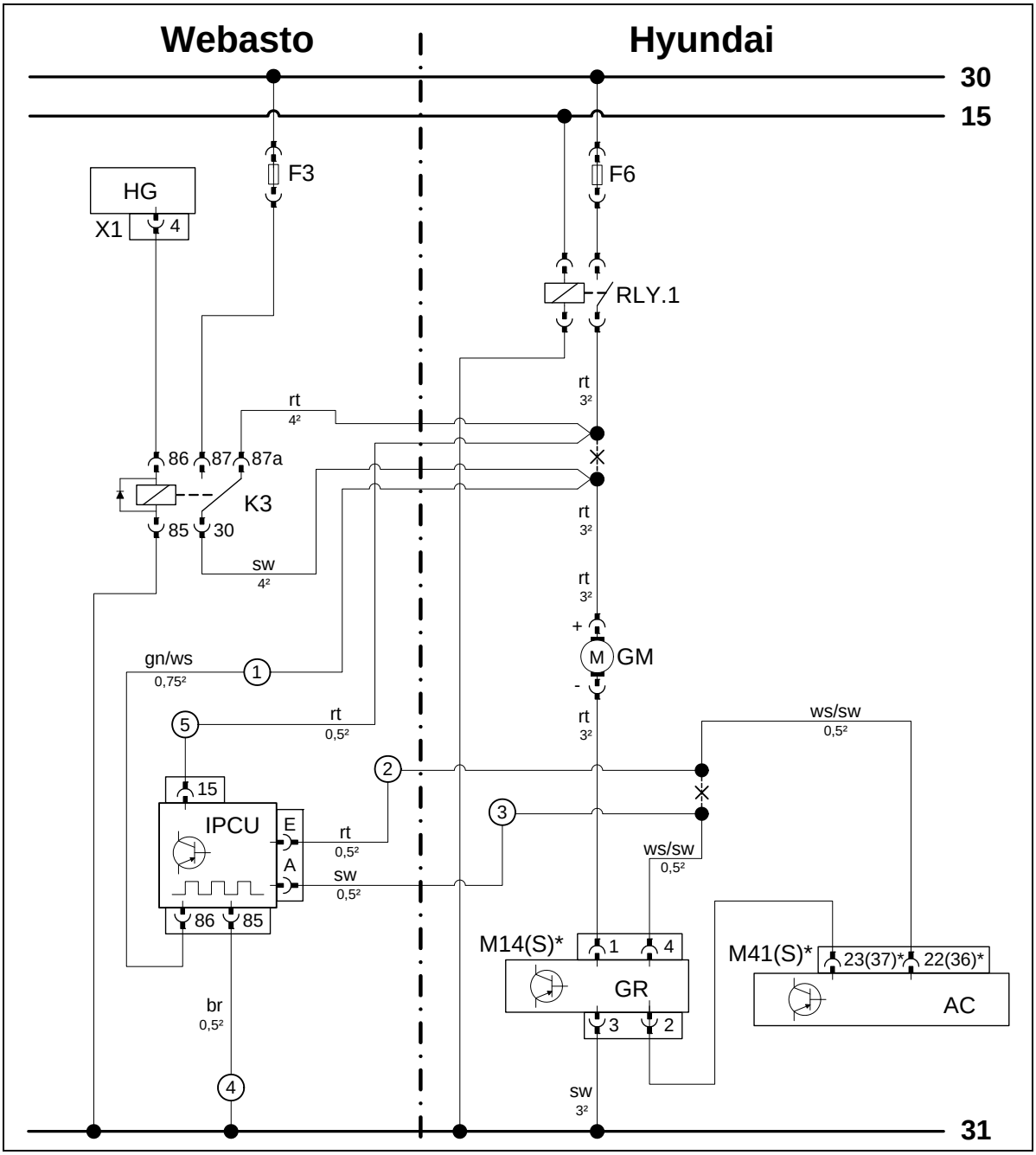
2 Red (rt) wire from fuse
3 Red (rt) wire from K3/87a
4 Black (sw) wire from K3/30
5 Red (rt) wire from connector GM

Wiring diagram

Legend

Connecting fan-motor

Automatic air-conditioning fan control



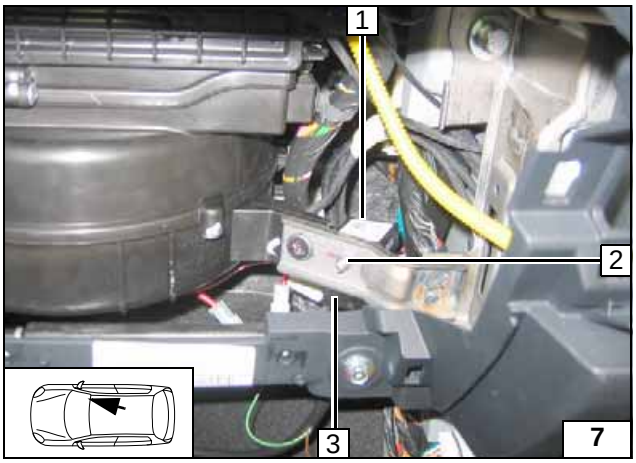
Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater connector	RLY.1	Fan relay	ws	white
F3	25A fuse	GR	Fan controller	sw	black
K3	Fan relay	AC	A/C control unit	br	brown
IPCU	Pulse width modulator	F6	40A fuse	gn	green
		M14(S)	Connector GM		
		M41(S)	AC connector		

IPCU settings		
Model year:	**2010**	**2011**
Duty cycle:	100%	100%
Frequency:	14 kHz	1 kHz
Voltage:	4.4V	3.6V
Function:	High side	High side

*	Specifications in brackets are valid from MY 2011
!	Insulate wire ends and tie back
X	Cutting point
Wiring colours may vary.	

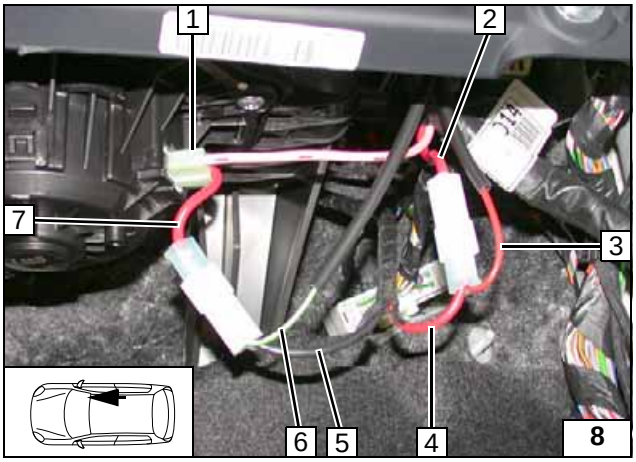
Wiring diagram

Legend



1 IPCU installed
2 M5x16 bolt, large diameter washer [2x], existing hole, flanged nut
3 IPCU socket

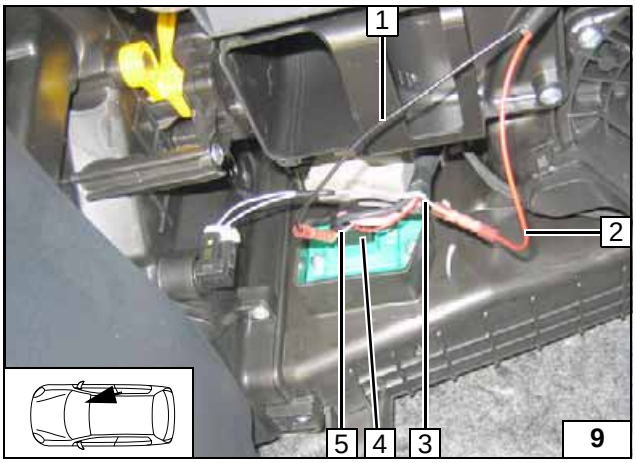
Mounting IPCU



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

2 Red (rt) wire of fan relay
3 Red (rt) wire ⑤ from IPCU/15
4 Red (rt) wire from K3/87a
5 Black (sw) wire from K3/30
6 Green/white (gn/ws) wire ① from IPCU/86
7 Red (rt) wire from connector GM

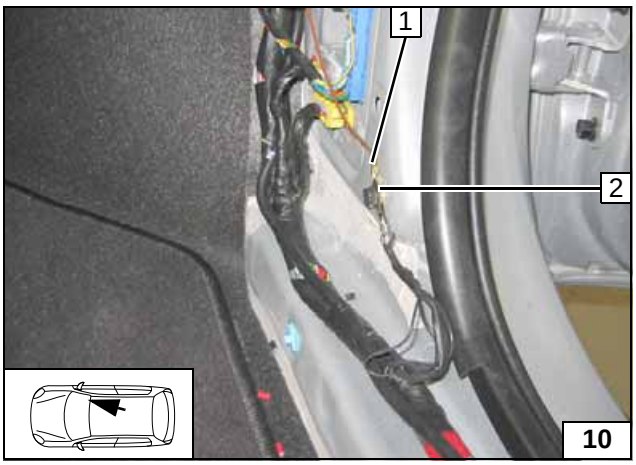
Connecting fan-motor



Connection to 4-pin connector **4** from the fan controller. Produce connections as shown in wiring diagram.

1 Black (sw) wire ③ from IPCU/A
2 Red (rt) wire ② from IPCU/E
3 White/black (ws/sw) wire for A/C control unit pin 22 (36)
5 White/black (ws/sw) wire of connector for fan controller, pin 4

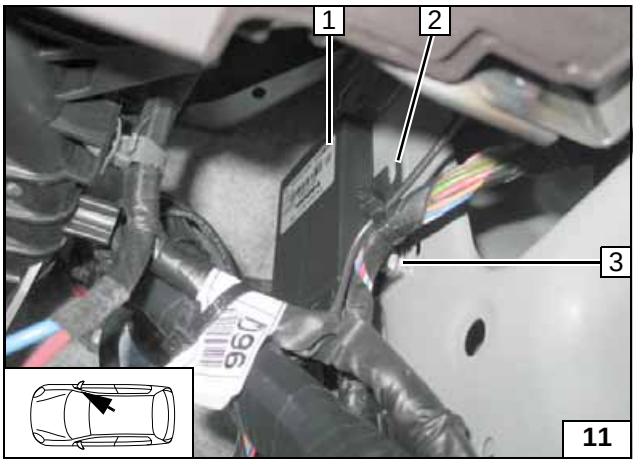
Connecting fan controller



Produce connections as shown in wiring diagram.

1 Brown (br) wire ④ IPCU/85 with cable lug
2 Original vehicle earth point

Connection of earth for IPCU

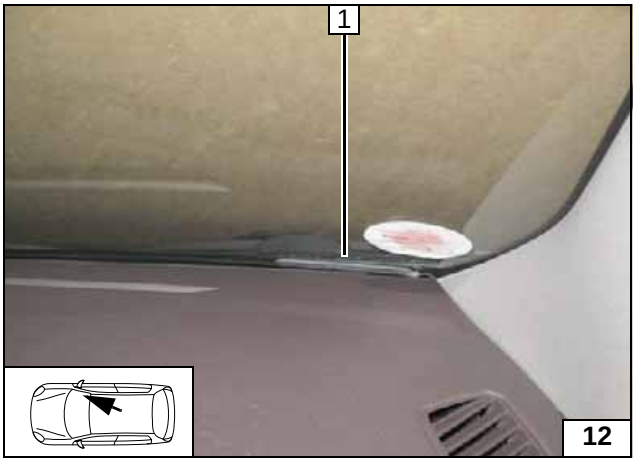


Remote option (Telestart)

Drill out bracket **2** to 6.5 mm dia. at position **3**.

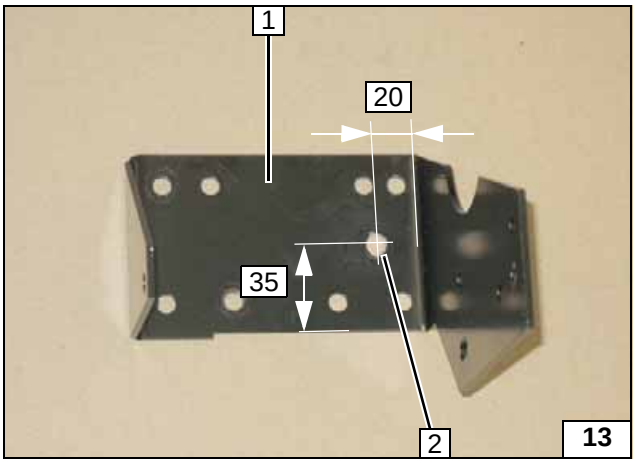
1 Receiver
3 M6x20 bolt, spring lockwasher, existing threaded hole

Mounting receiver



1 Antenna

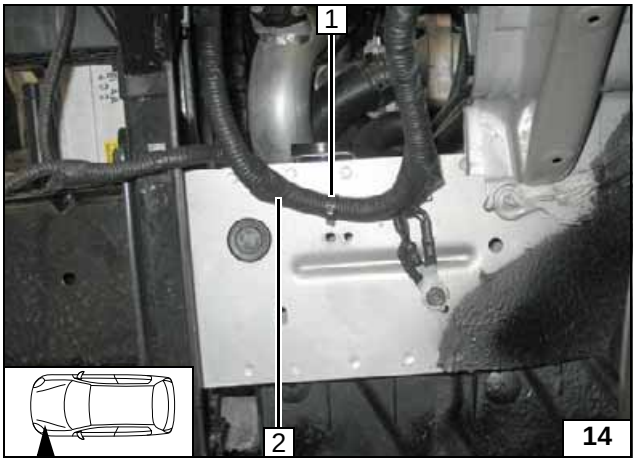
Mounting antenna



Preparing installation location

1 Bracket
2 7 mm dia. hole

Hole in bracket

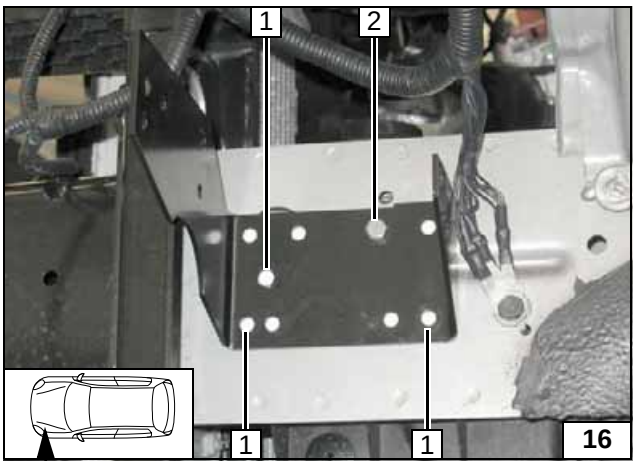


Clip out original vehicle wiring harness at position **1**.

Releasing wiring harness

Install original vehicle retaining clip on position **1** into existing hole.

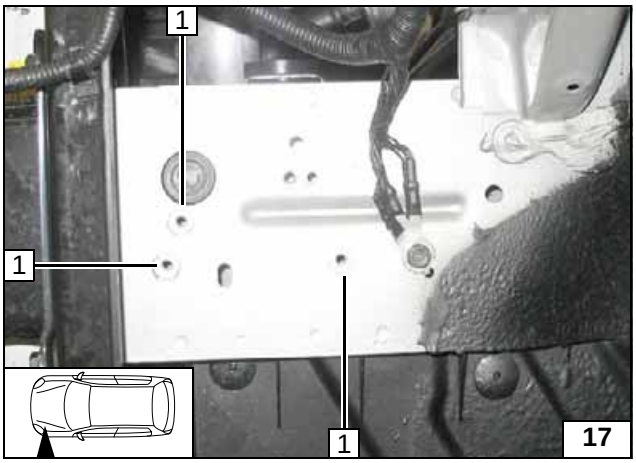
Attaching wiring harness



Align bracket horizontally and loosely install

1 Copy hole pattern [3x]
2 M6x20 bolt, existing threaded hole

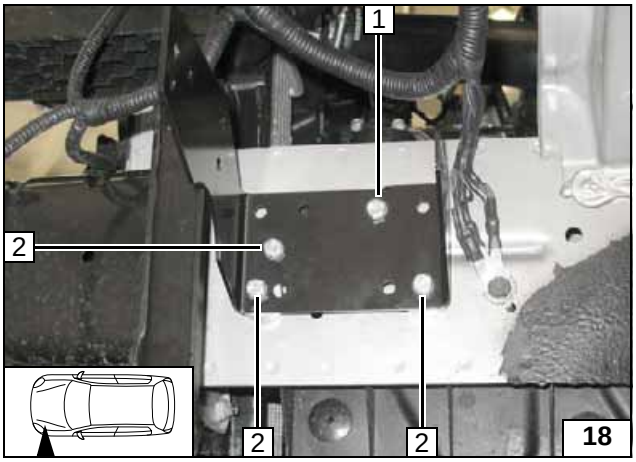
Copying hole pattern



Remove bracket.

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

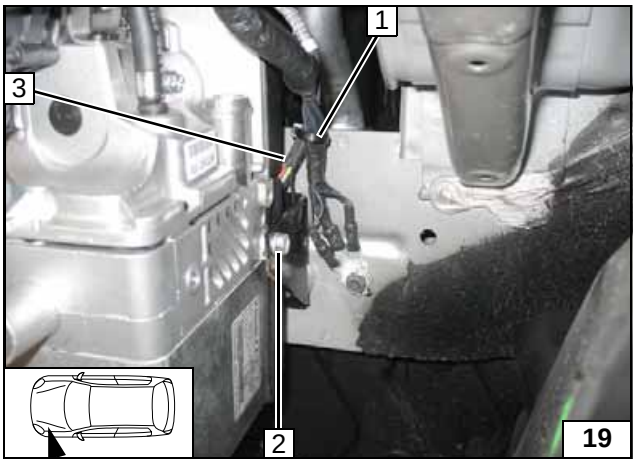
Installing rivet nuts



1 M6x30 bolt, spring lockwasher, 15 mm shim, existing threaded hole
2 M6x30 bolt, spring lockwasher, 15 mm shim [3x each]

Mounting bracket

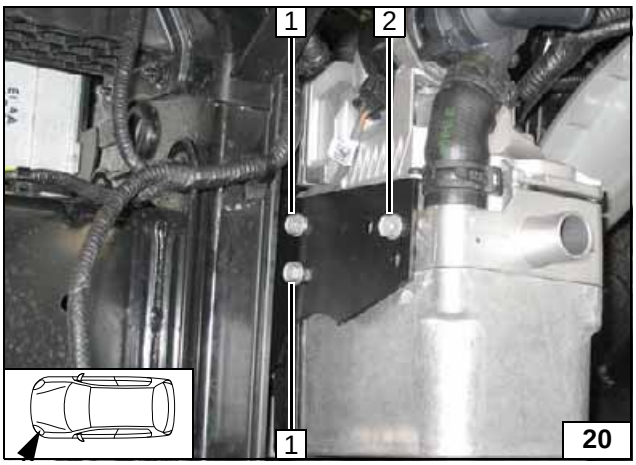
Installing heater



Install wiring harness **3** of heater prior to assembly.

1 Cable tie
2 Ejot screw

Mounting heater



Insert two washers between heater and bracket at position **2**.

1 Ejot screw [2x]
2 Ejot screw, washer [2x]

Mounting heater

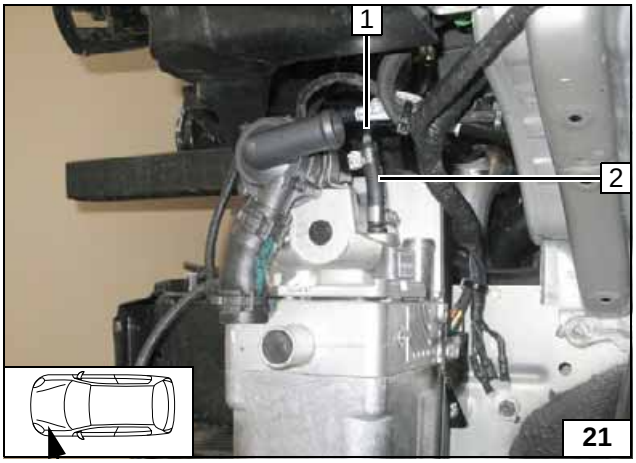
Fuel

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

Catch any fuel running off in a suitable container.

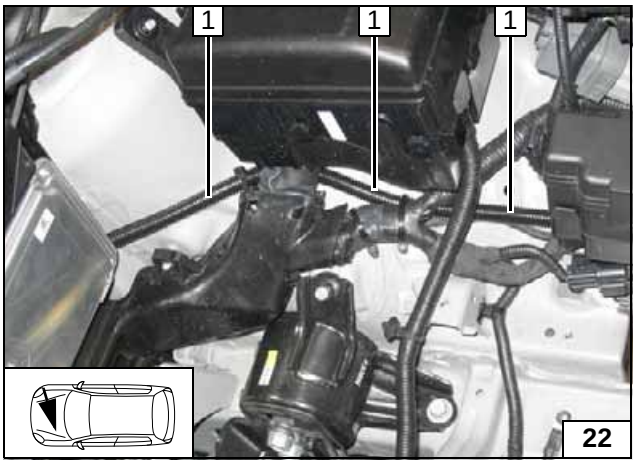
Install fuel line and metering pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



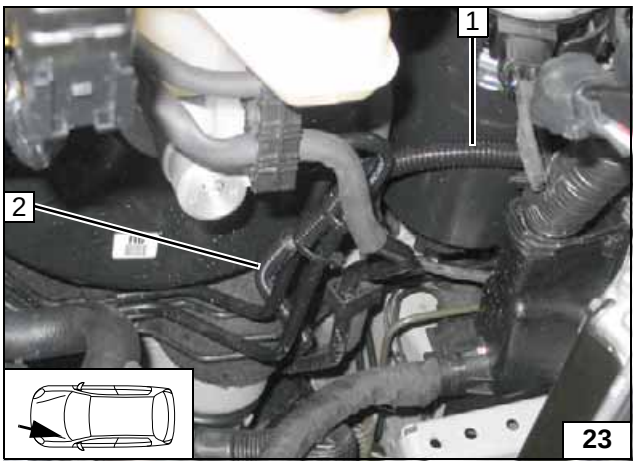
1 Fuel line
2 Hose section, 10 mm dia. clamp [2x]

Connecting heater



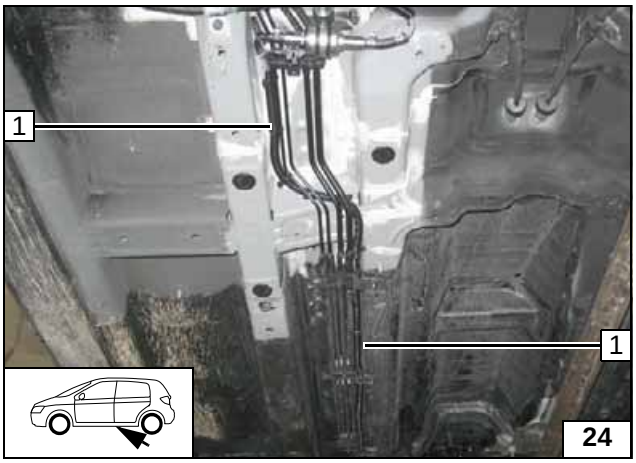
Route fuel line in 1130 mm corrugated tube **1** toward the firewall.

Routing lines



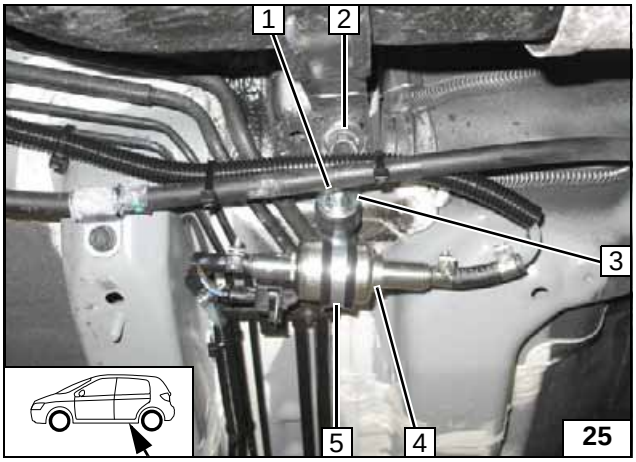
Fuel line in 2010 mm corrugated tube **1**.
Route fuel line and wiring harness of metering pump in corrugated tube **2** toward the underbody.

Routing lines



Route fuel line and wiring harness of metering pump in corrugated tube **1** on original vehicle lines toward the installation location of the metering pump.

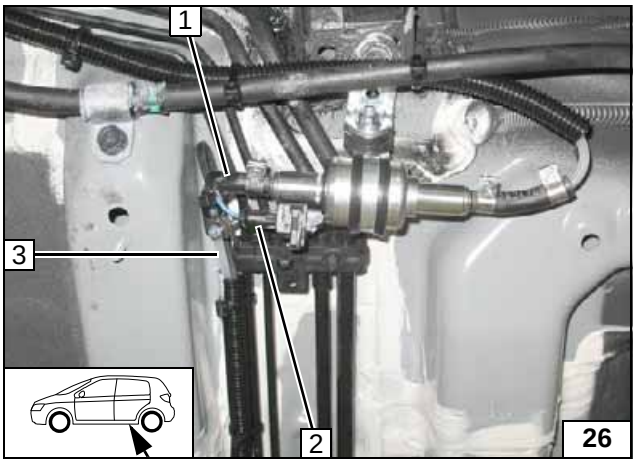
Routing lines



Drill angle bracket **3** in the oblong hole at position **2** to 12.5 mm dia.

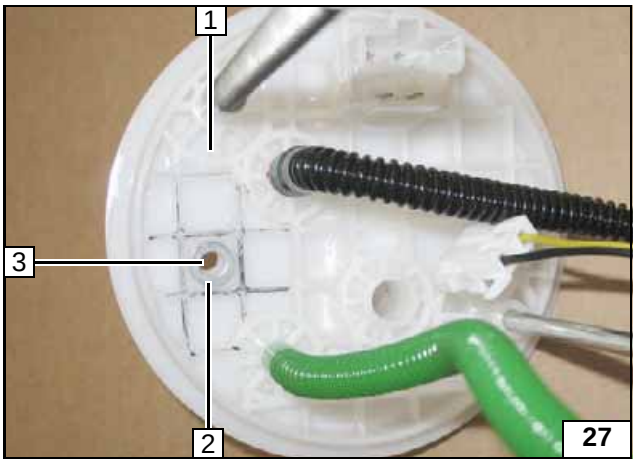
1 Silent block, flanged nut [2x]
2 Original vehicle bolt for fuel tank attachment
4 Metering pump
5 Rubber-coated pipe clamp

Mounting metering pump



1 90° moulded hose, 10 mm dia. clamp [2x]
2 Wiring harness of metering pump, connector mounted
3 Fuel line of heater

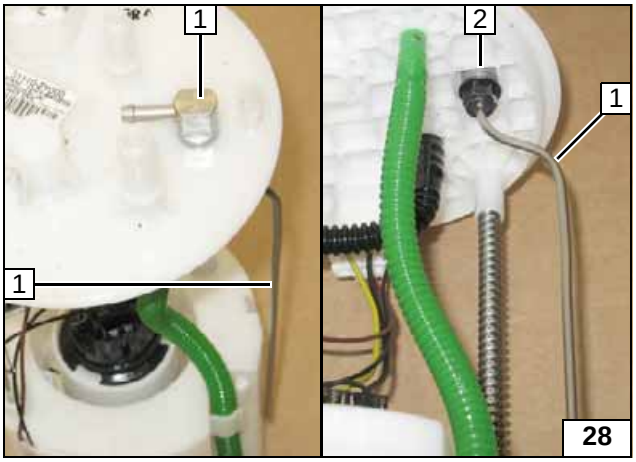
Connecting metering pump



Remove and detach fuel-tank sending unit **1** according to manufacturer's instructions. Position washer (dia. d_a = 12 mm) **2** in the centre between the bars

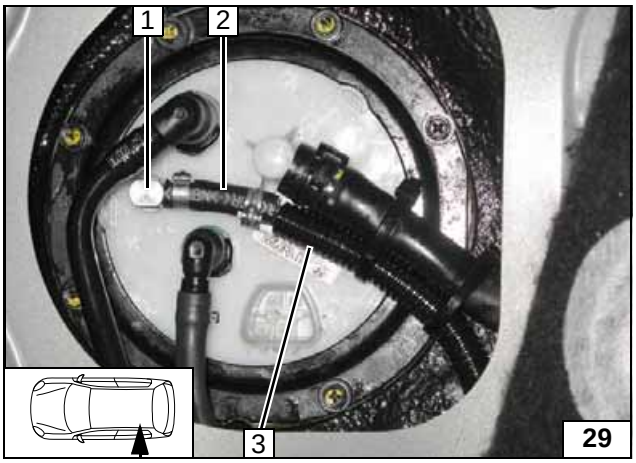
3 Copy hole pattern, 6 mm dia. hole

Fuel extraction



Shape fuel standpipe **1** according to template, cut to length and install. On position **2**, insert five washers, dia. d_a = 12 mm, as height adjustment.

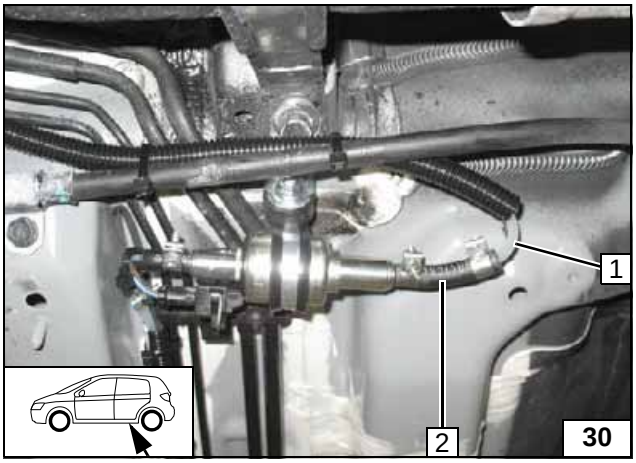
Inserting fuel standpipe



Install fuel-tank sending unit **1** in accordance with manufacturer's instructions. Route fuel line in 1130 mm corrugated tube **3** toward the metering pump.

1 Fuel standpipe
2 Fuel line, hose section, 10 mm dia. Caillau clamp [2x]

Connecting fuel line



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

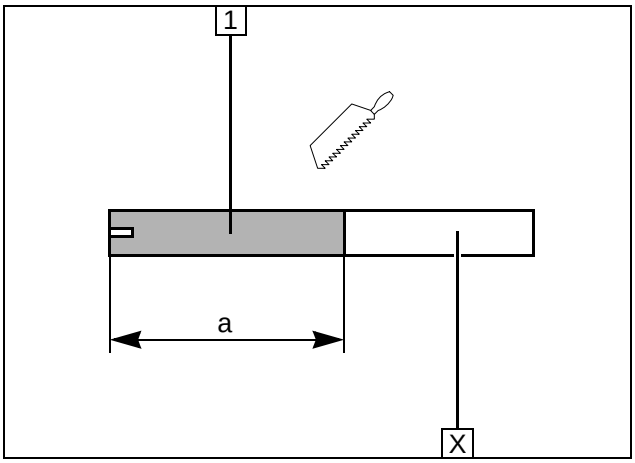
1 Fuel line of fuel standpipe
2 Hose section, 10 mm dia. clamp [2x]

Connecting metering pump

Combustion air

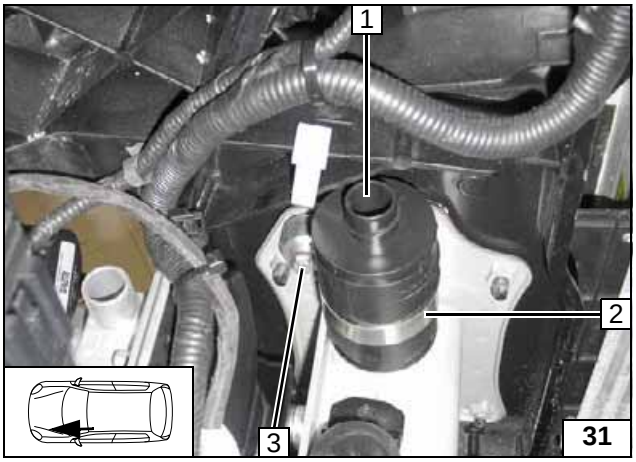
Discard section **X**.

1 Combustion air pipe
a = 210



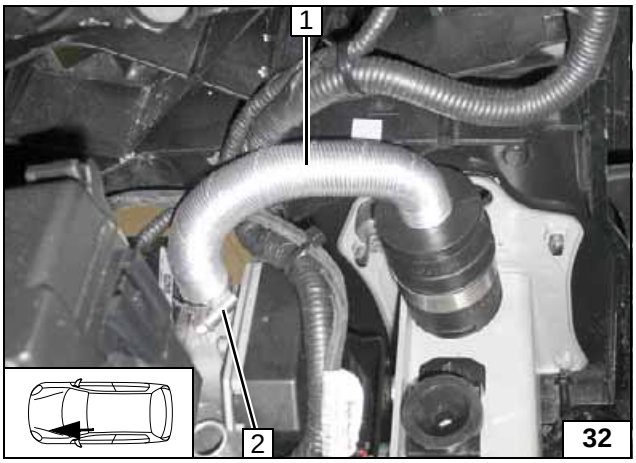
Cutting combustion air pipe to length

1 Silencer
2 48 mm dia. clamp, rubber coating removed
3 M6x30 bolt, spring lockwasher, 15 mm shim, existing threaded hole



Mounting silencer

1 Combustion air pipe
2 27 mm dia. clamp

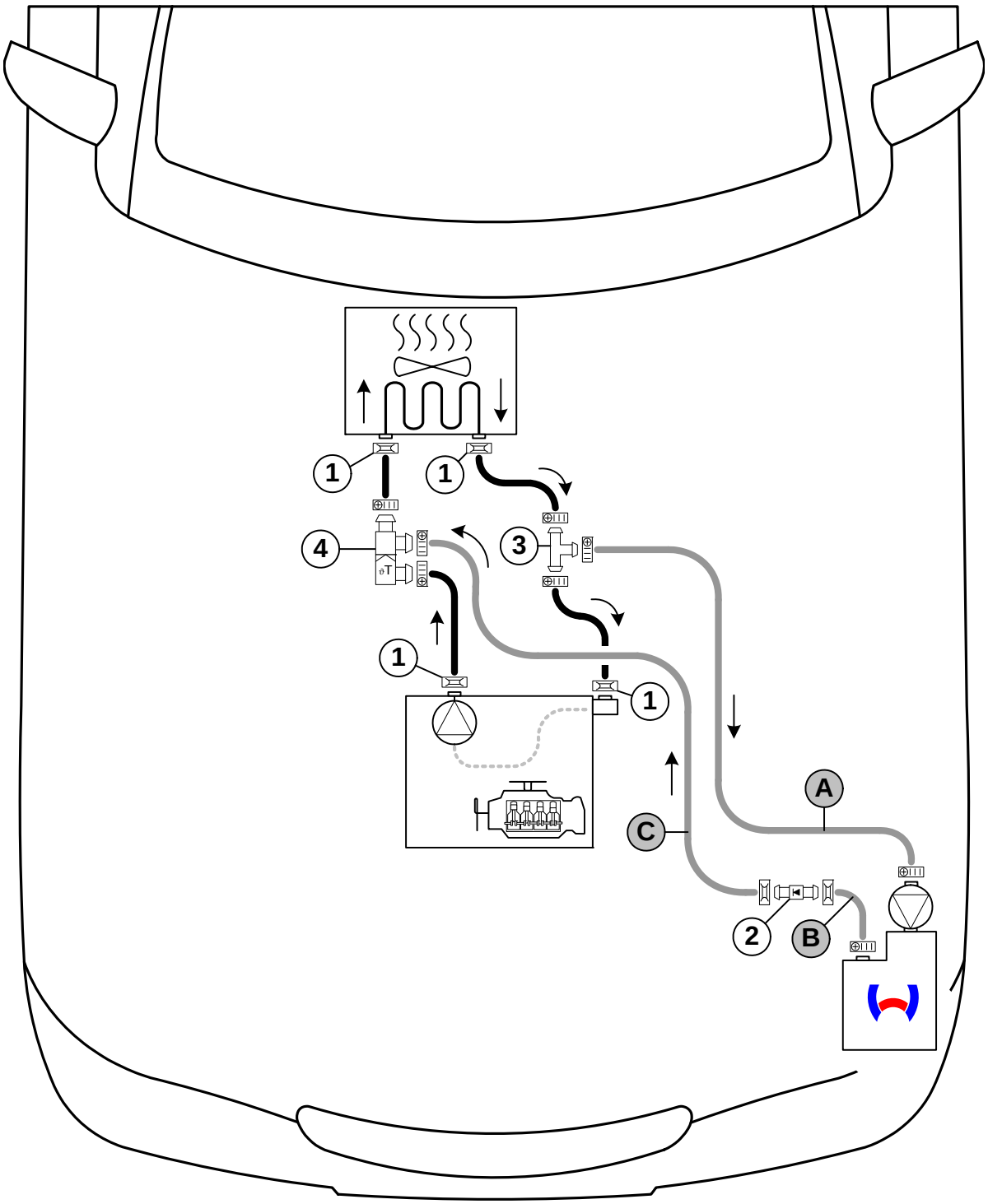


Mounting combustion air pipe

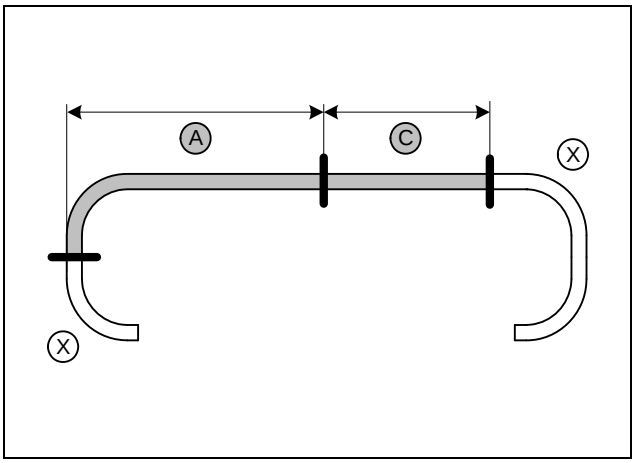
Coolant circuit

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

Hose installation diagram



All spring clips without a specific designation = 27 mm dia. **1** = Original vehicle spring clip .
All hose clamps without a specific designation = 20-27 mm dia. **2** = check valve , 20x20 mm dia.!
3 = T-piece 20x20x20 mm dia.! **4** = combination valve .

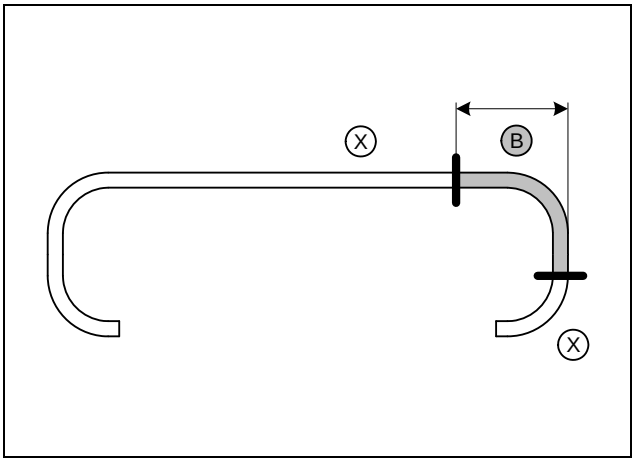


1.7 D

Discard section **X**.

A = 950
C = 660

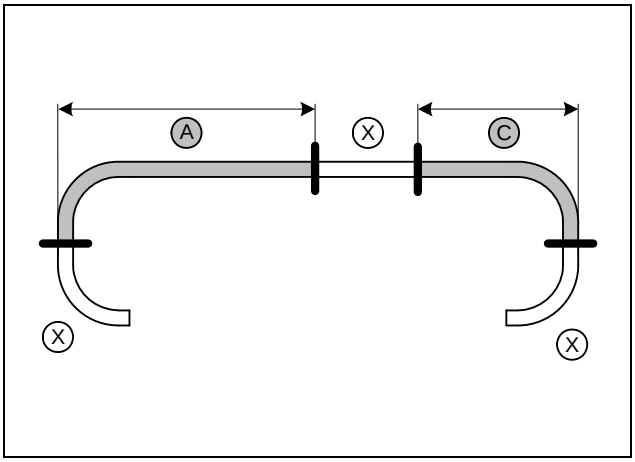
Cutting 18mm dia. hose to length



Discard section **X**.

B = 120

Cutting 20mm dia. hose to length

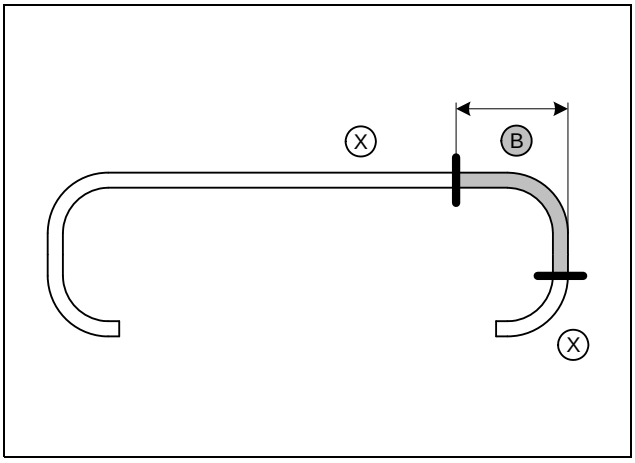


2.0 D

Discard section **X**.

A = 860
C = 610

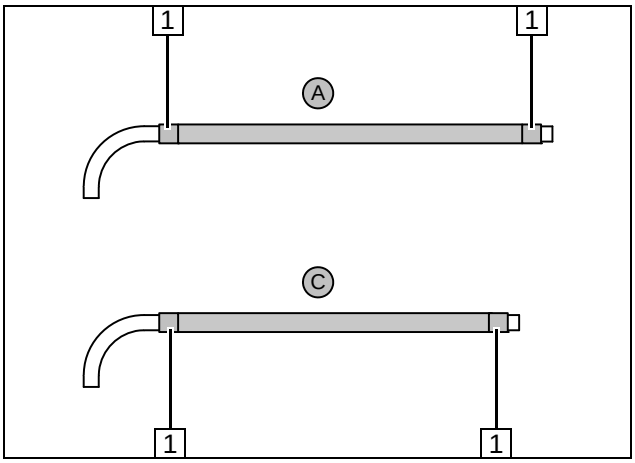
Cutting 18mm dia. hose to length



Discard section **X**.

B = 100

Cutting 20mm dia. hose to length

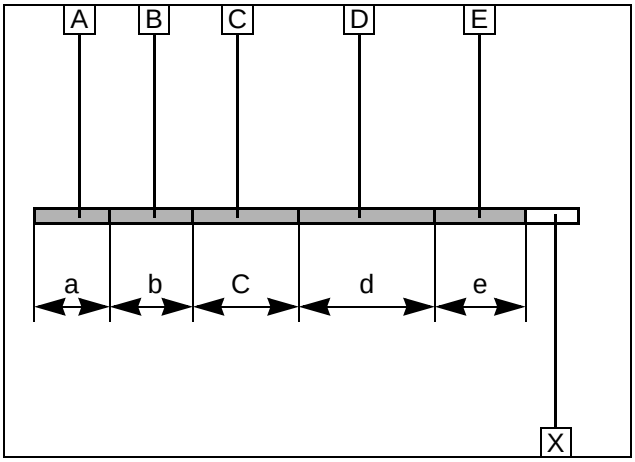


All vehicles

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

1 25 mm long heat shrink plastic tubing [4x]

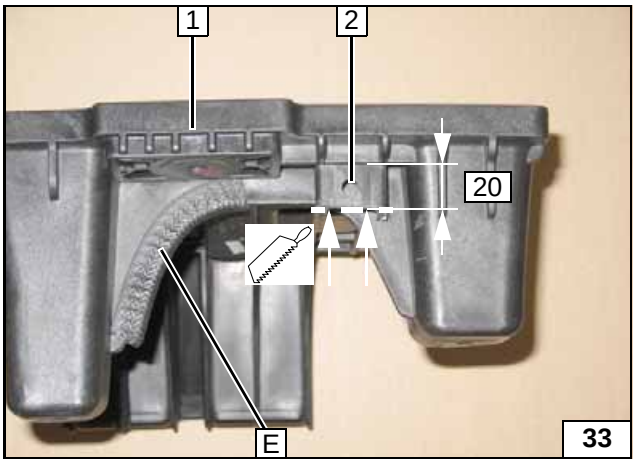
Preparing hoses



Discard section **X**.

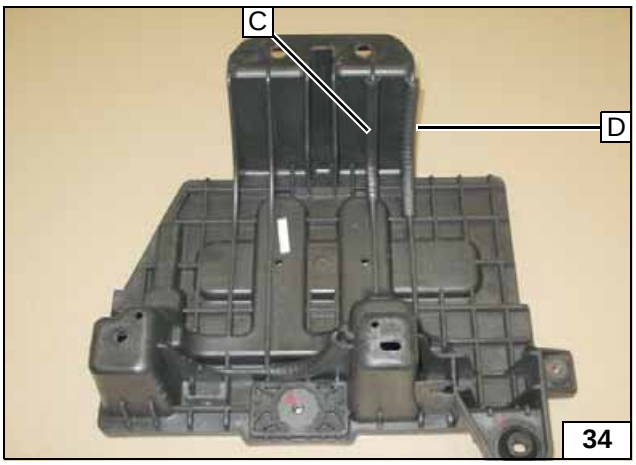
a = 40
b = 70
c = 100
d = 110
e = 80

Cutting edge protection to length



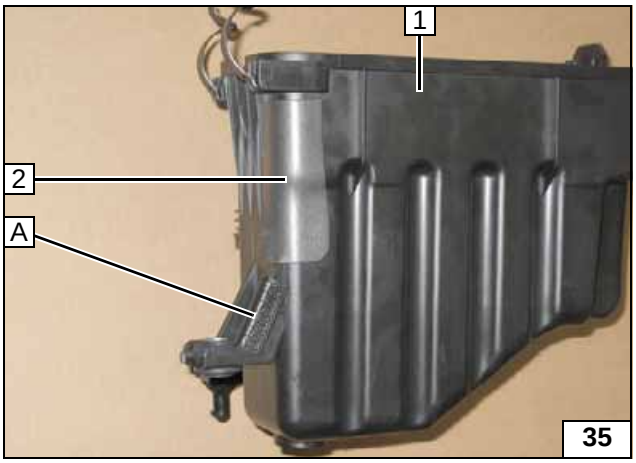
Reduce strut of battery carrier **1** to 20 mm on the marking. 7 mm dia. hole **2** in centre of strut. Install edge protection **E**.

Preparing battery carrier



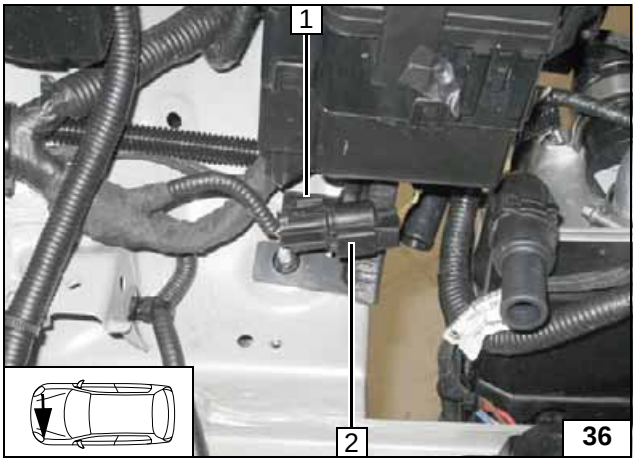
Insert edge protection **C** and **D**.

Preparing battery carrier



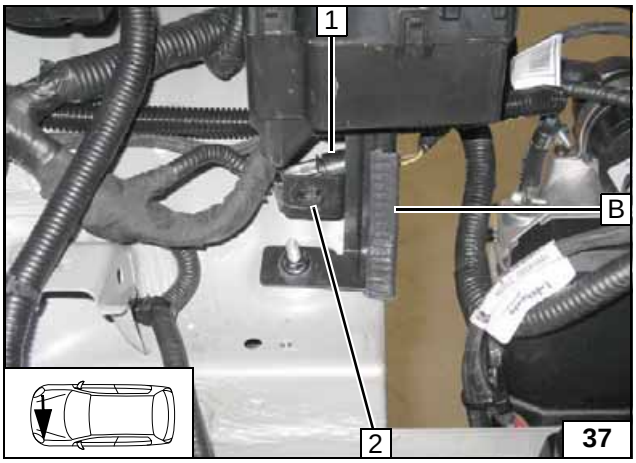
1 Air filter box
A Install edge protection
2 Glue on rub protection

Preparing air filter box



Disconnect plug connection **2** and remove from bracket **1**.

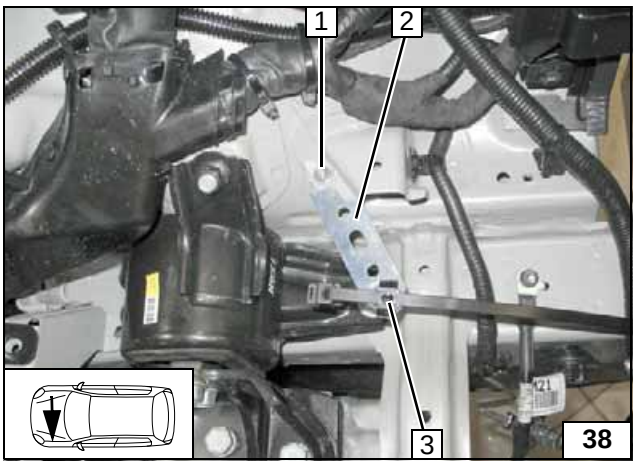
Resetting plug connection



Reconnect connector **1** and insert in bracket **2** from the back.

B Install edge protection

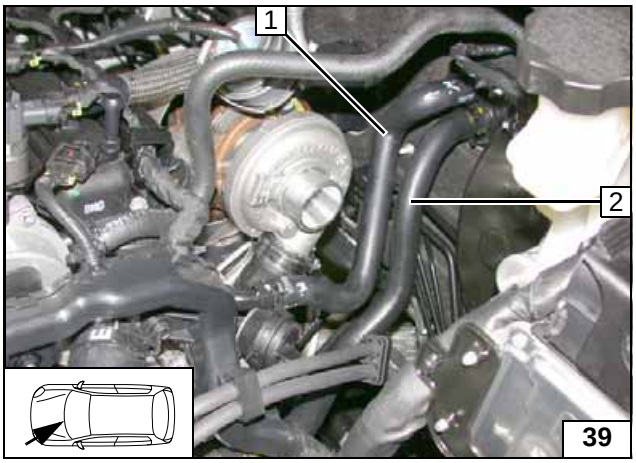
Resetting plug connection



Loosely mount perforated bracket **1**, will be tightened when routing the hoses.

1 M5x16 bolt, large diameter washer, flanged nut, existing hole
3 Clip-type cable tie

Installing perforated bracket

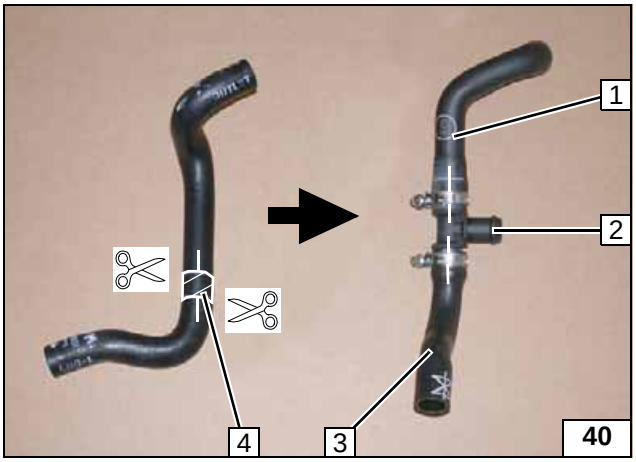


1.7 D

All spring clips [4x] will be re-used!

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

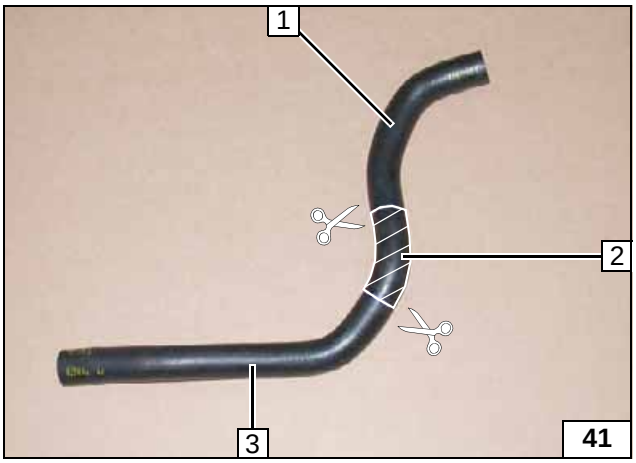
Removing hoses



Mark hose for heat exchanger outlet / engine inlet prior to disconnecting. Cut out a section of 25mm **4** and discard. When installing the T-piece, align hose sections toward each other!

1 Hose section of heat exchanger outlet
2 T-piece 20x20x20
3 Engine inlet hose section

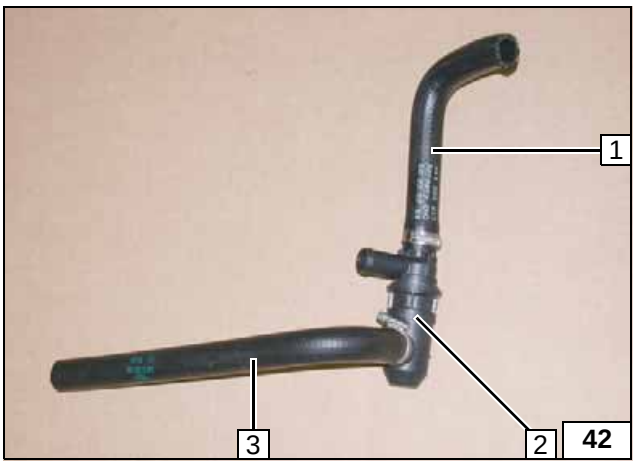
Inserting T-piece



Cut out a section of 90mm **2** from the hose for the engine inlet / heat exchanger outlet and discard.

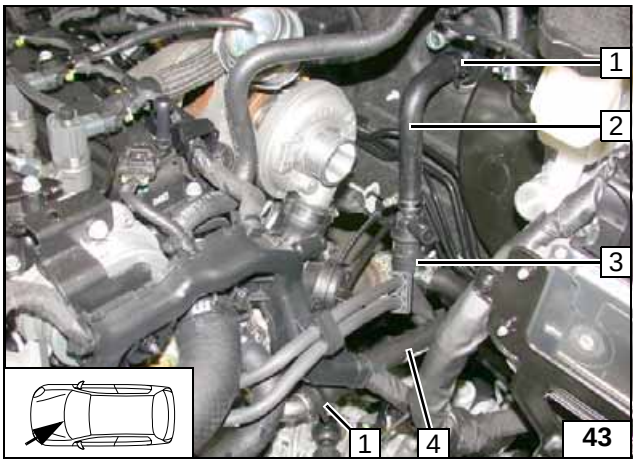
1 Hose section of heat exchanger inlet
3 Engine outlet hose section

Cutting point



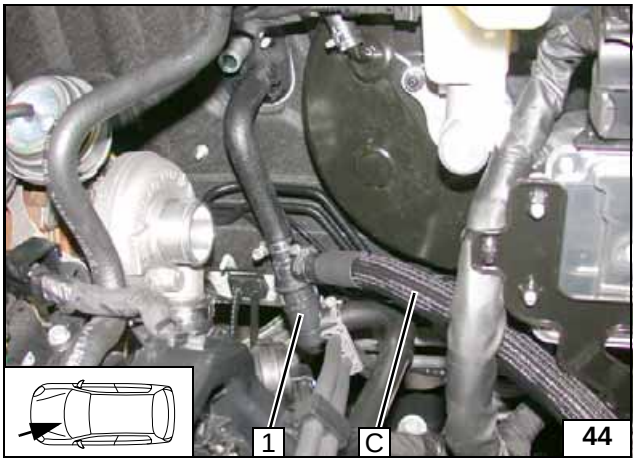
1 Hose section of heat exchanger inlet
2 Combination valve
3 Engine outlet hose section

Inserting combination valve



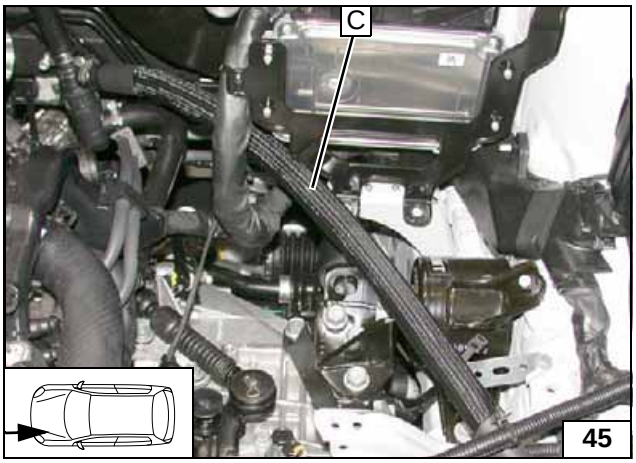
1 Original vehicle spring clip [2x]
2 Hose on heat exchanger inlet
3 Align combination valve
4 Hose of engine outlet

Installing combination valve

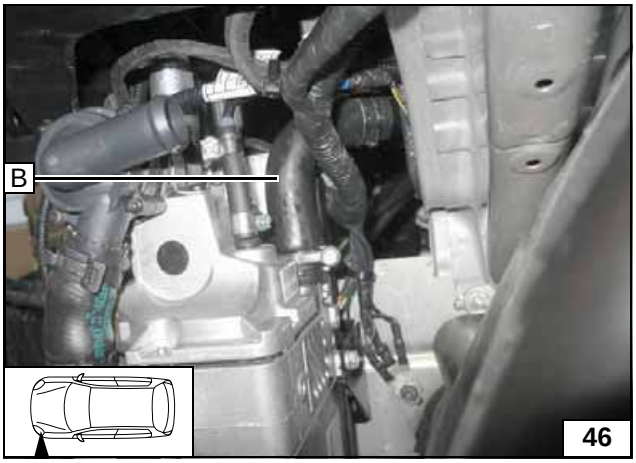


1 Combination valve

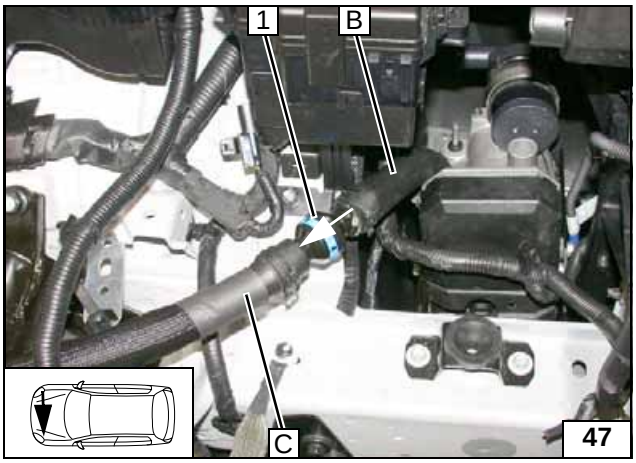
Installing hose C



Routing in engine compartment



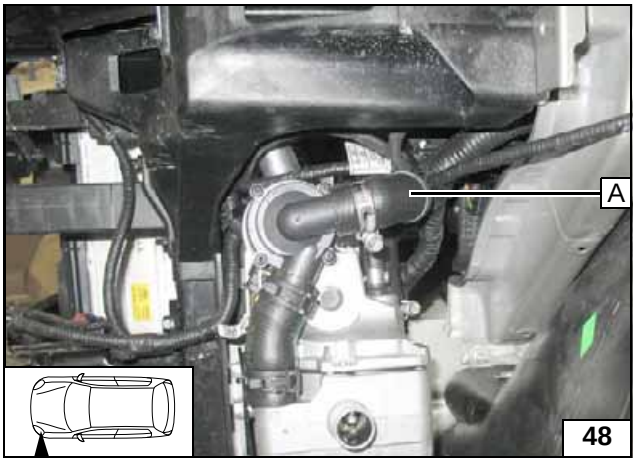
Connecting heater outlet



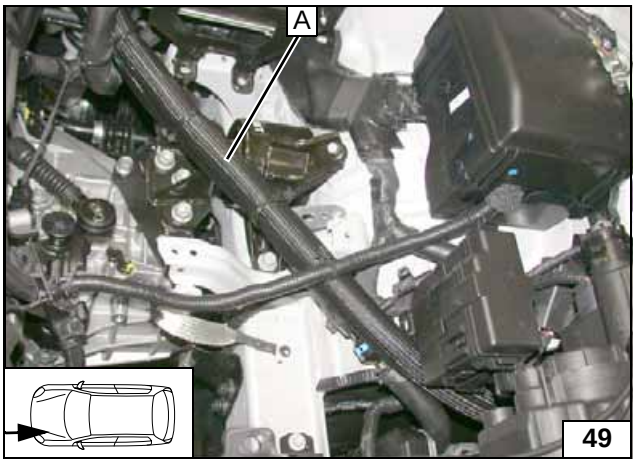
Check direction of flow!

1 Check valve 20x20

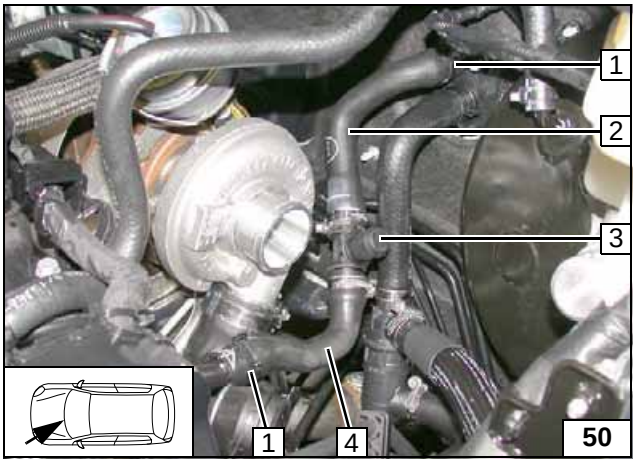
Check valve installation



Connecting heater inlet

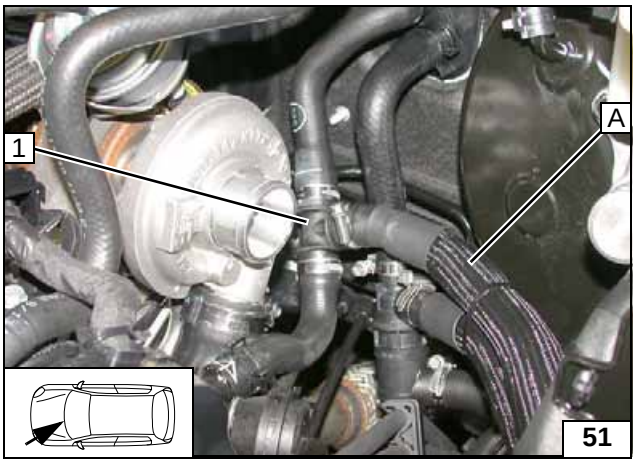


Routing in engine compartment



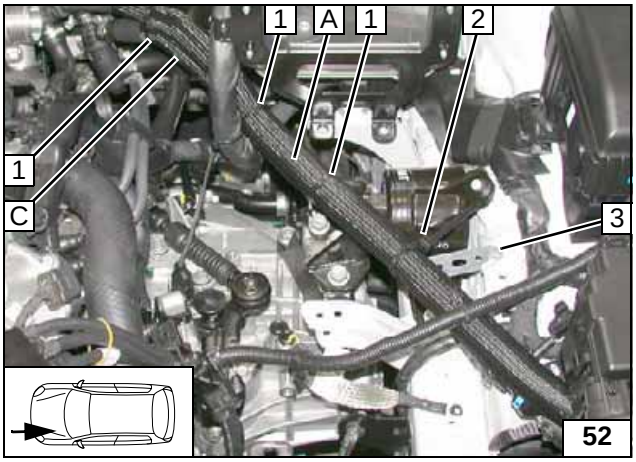
1 Original vehicle spring clip [2x]
2 Hose of heat exchanger outlet
3 Align T-piece 20x20x20
4 Hose of engine inlet

Assembling hoses with T-piece



1 T-piece 20x20x20

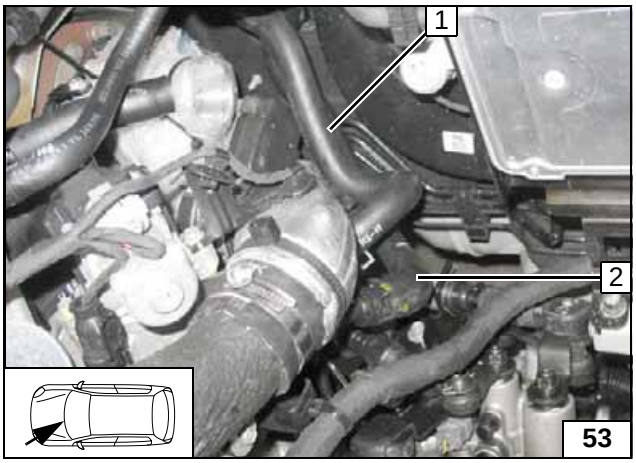
Connecting hose A



Watch for sufficient distance to adjacent components, especially the distance to the transmission bearing (at least 20mm), adjust, if necessary!

1 Cable tie [3x]
2 Close clip-type cable tie
3 Tighten bolt

Aligning hoses

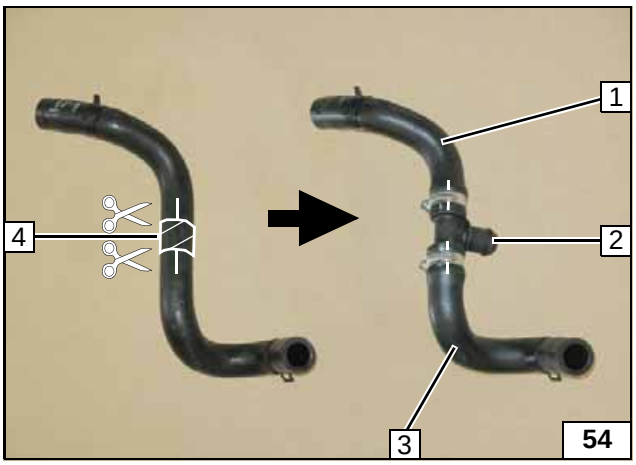


2.0 D

All spring clips [4x] will be re-used!

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

Removing hoses

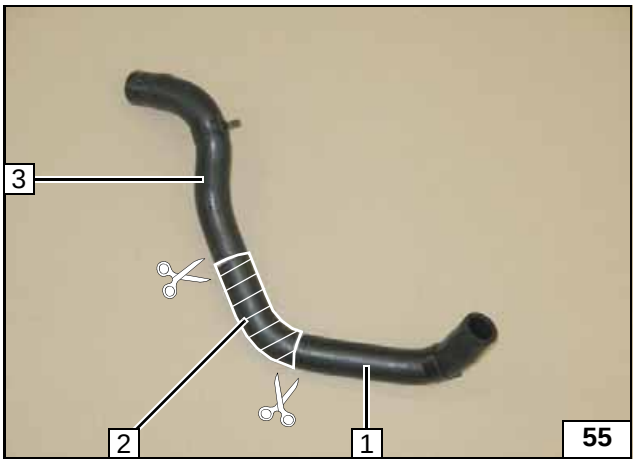


Mark hose for heat exchanger outlet / engine inlet prior to disconnecting. Cut out a section of 25mm **4** and discard. When installing the T-piece, align hose sections toward each other!

1 Hose section of heat exchanger outlet
2 T-piece 20x20x20
3 Engine inlet hose section

Inserting T-piece

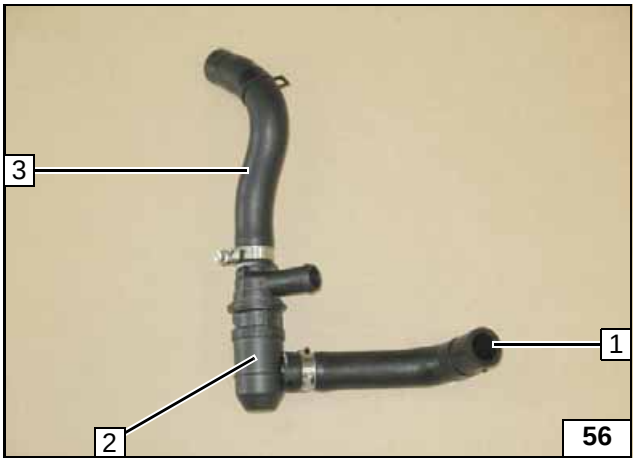
Cutting point



Cut out a section of 90mm **2** from the hose for the engine inlet / heat exchanger outlet and discard.

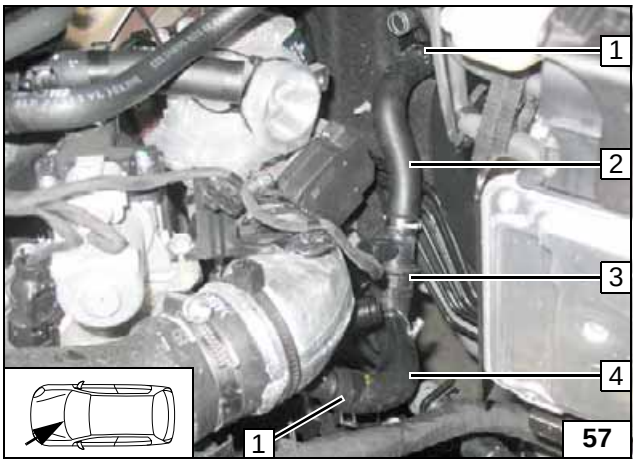
1 Engine outlet hose section
3 Hose section of heat exchanger inlet

Inserting combination valve



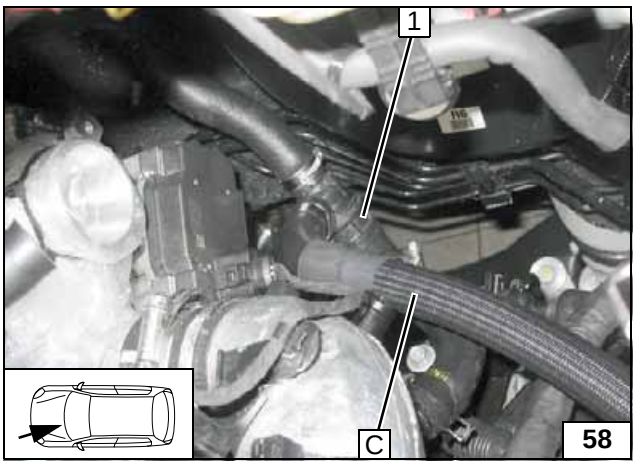
1 Engine outlet hose section
2 Combination valve
3 Hose section of heat exchanger inlet

Installing combination valve

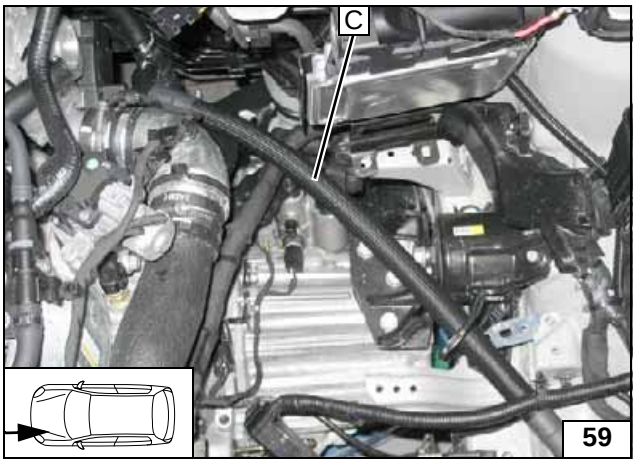


1 Original vehicle spring clip [2x]
2 Hose on heat exchanger inlet
3 Align combination valve
4 Hose of engine outlet

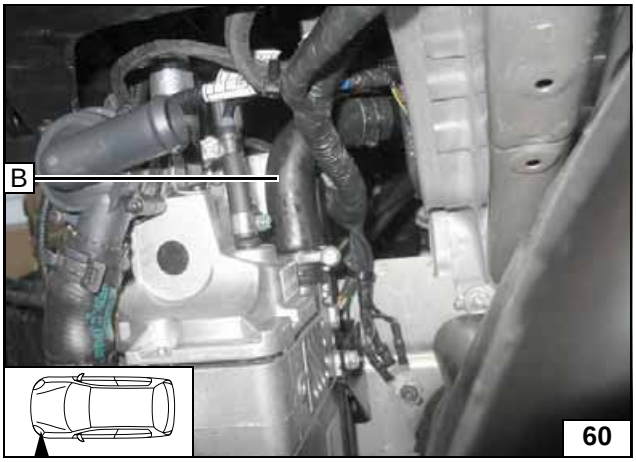
Installing hose C



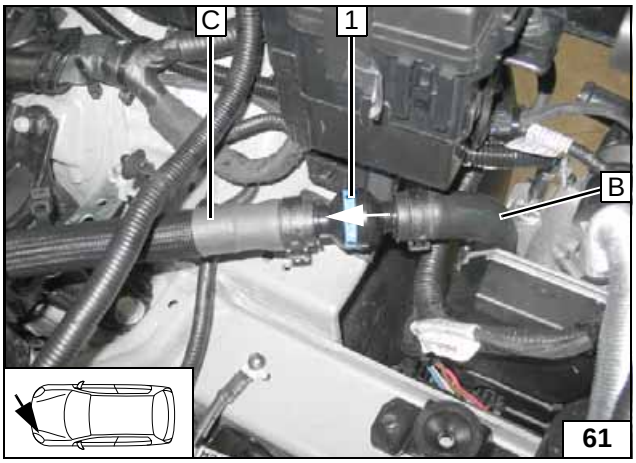
1 Combination valve



Routing in engine compartment



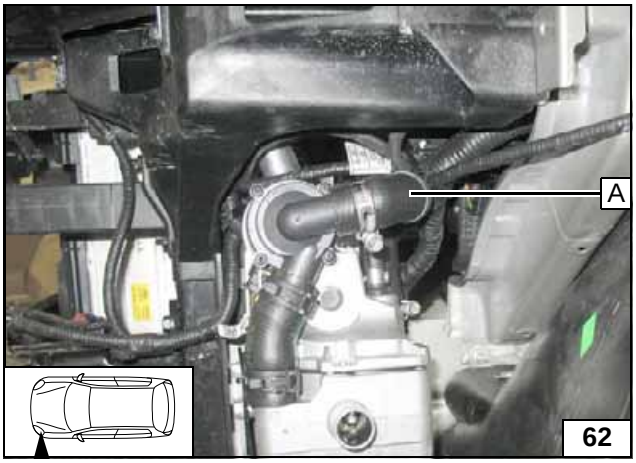
Connecting heater outlet



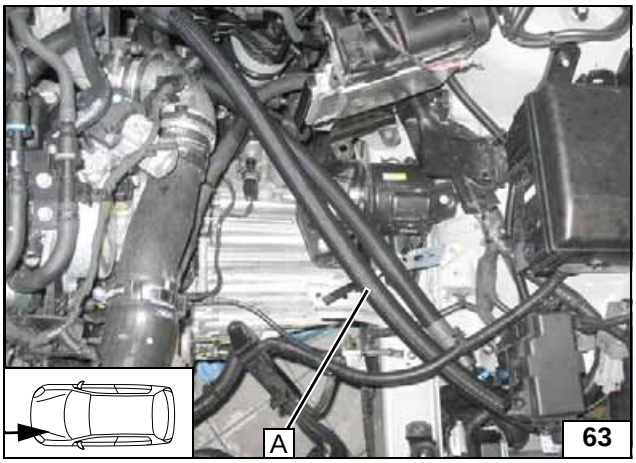
Check direction of flow!

1 Check valve 20x20

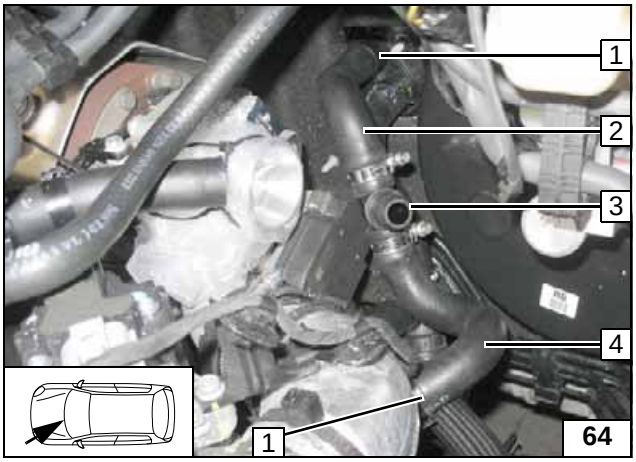
Check valve installation



Connecting heater inlet

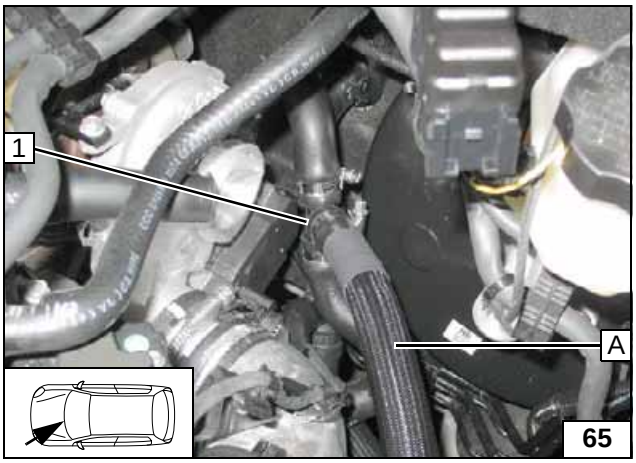


Routing in engine compartment



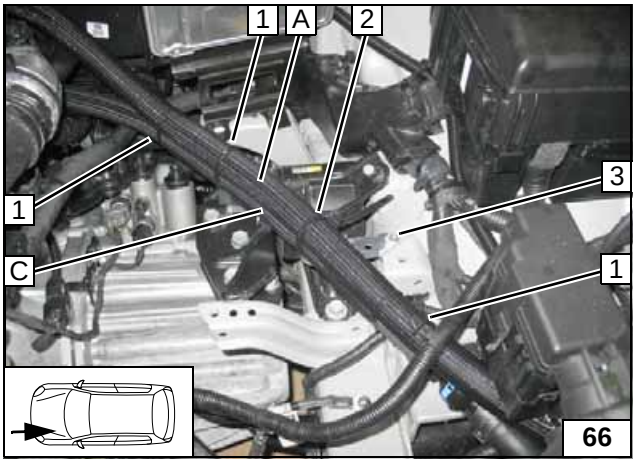
1 Original vehicle spring clip [2x]
2 Hose of heat exchanger outlet
3 Align T-piece 20x20x20
4 Hose of engine inlet

Assembling hoses with T-piece



1 T-piece 20x20x20

Connecting hose A



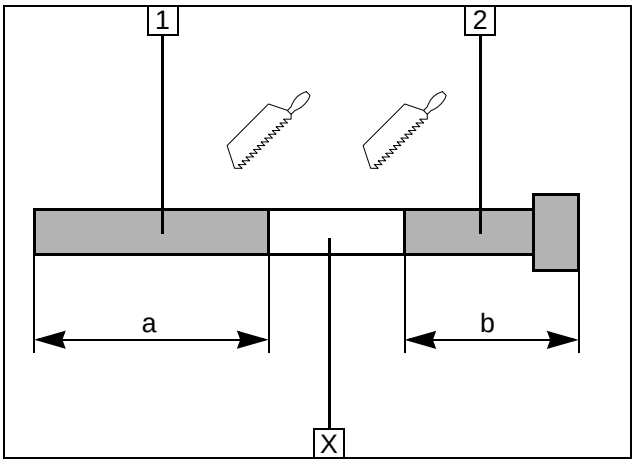
Watch for sufficient distance to adjacent components, especially the distance to the transmission bearing (at least 20mm), adjust, if necessary!

1 Cable tie [3x]
2 Close clip-type cable tie
3 Tighten bolt

Aligning hoses

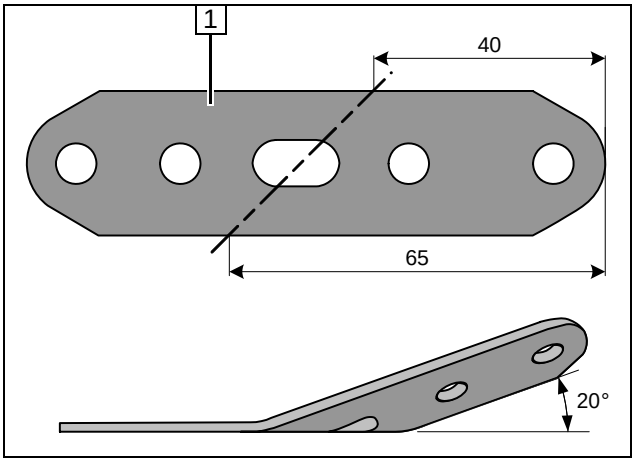
Exhaust gas

Discard section **X**.



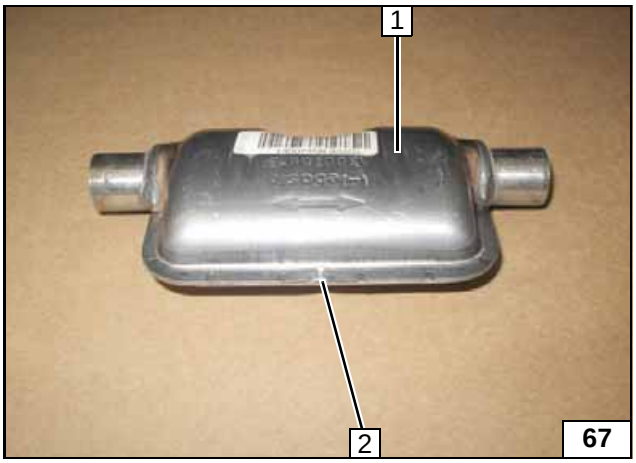
1 Exhaust pipe
a = 235
2 Exhaust end section
b = 390

Preparing exhaust pipe



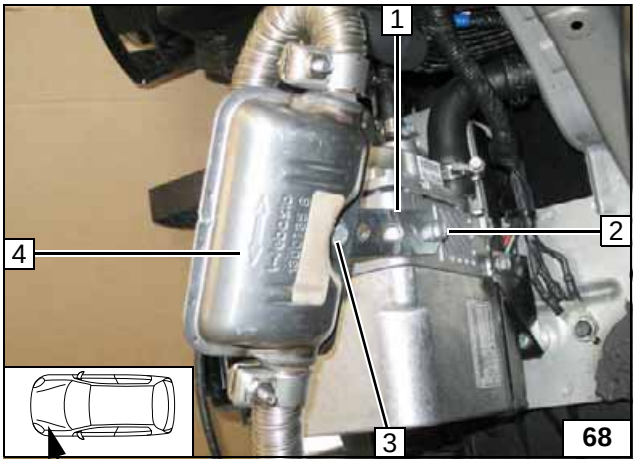
1 Perforated bracket

Bending perforated bracket



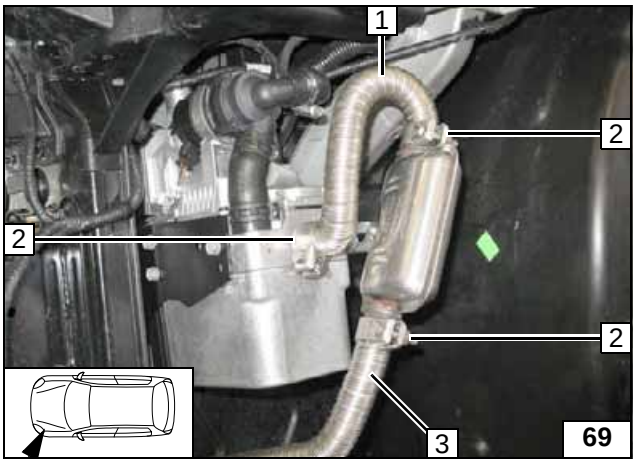
1 Silencer
2 Close the condensed-water drain hole

Closing condensed-water drain hole



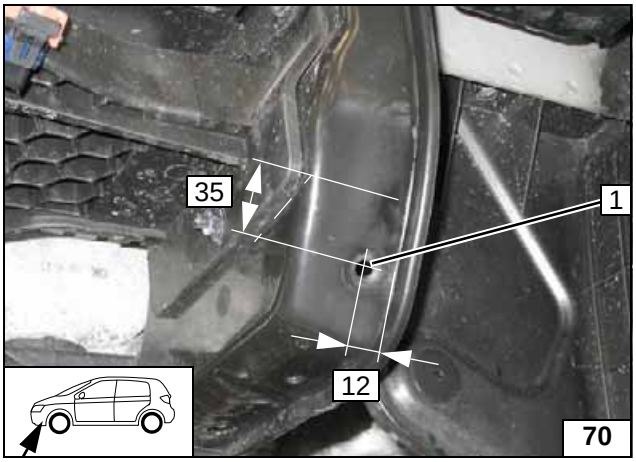
1 Perforated bracket
2 Ejot screw
3 M6x20 bolt, flanged nut
4 Silencer

Mounting silencer



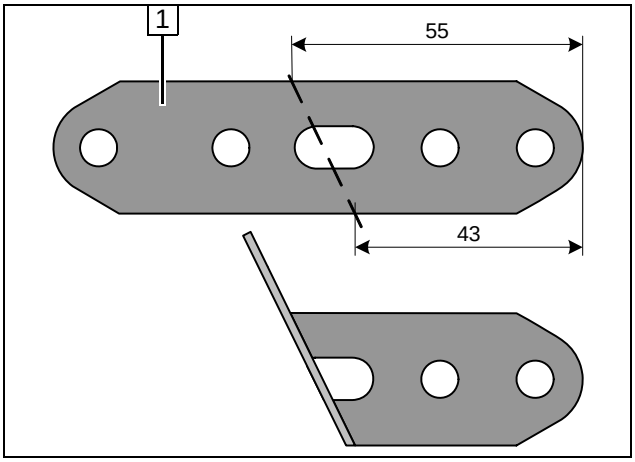
1 Exhaust pipe
2 Hose clamp [3x]
3 Exhaust end section

Mounting exhaust pipe and end section



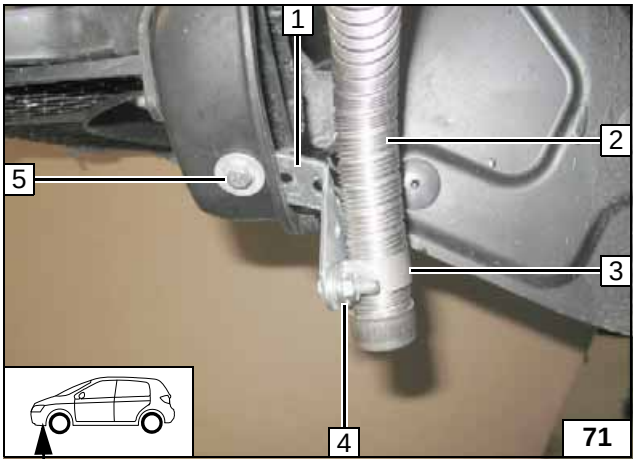
1 7 mm dia. hole

Hole in cross member



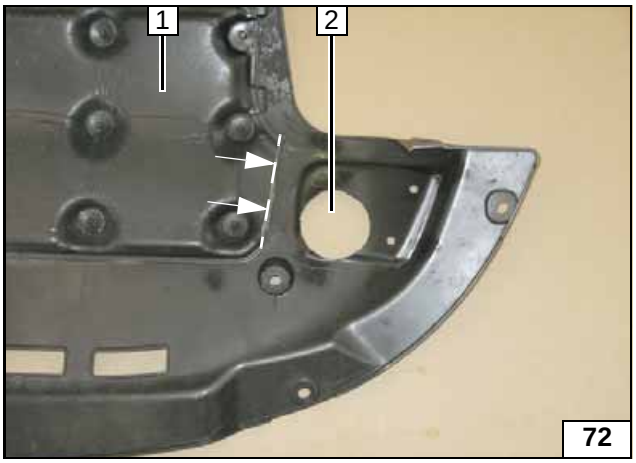
1 Perforated bracket

Bending perforated bracket



1 Perforated bracket
2 Exhaust end section
3 P-clamp
4 M6x20 bolt, flanged nut
5 M6x20 bolt, large diameter washer, flanged nut

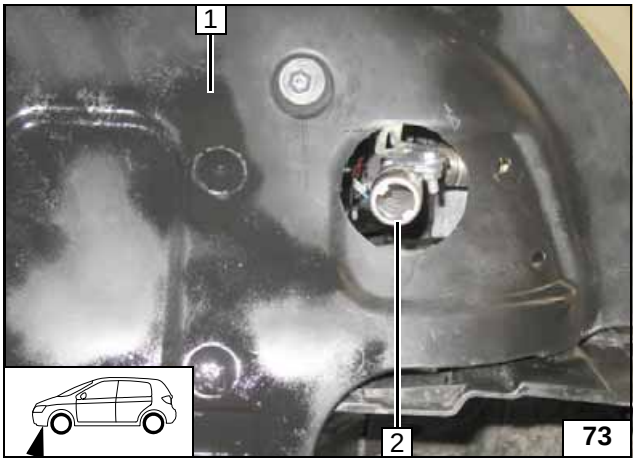
Attaching end section



Cut out insulation in the area of the hole up to the marking!

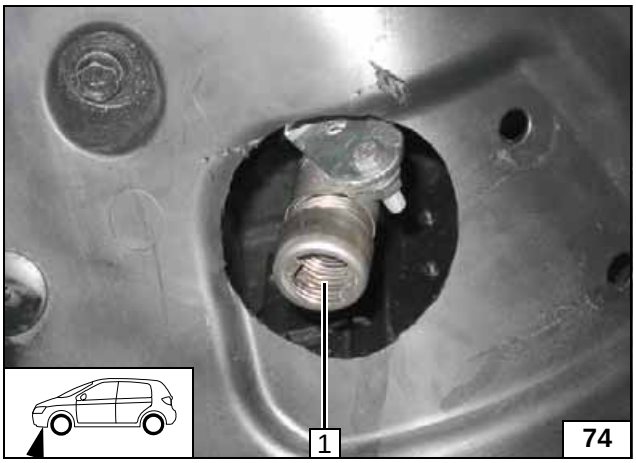
1 Underride protection
2 70 mm dia. hole

Cutting out underride protection



Install underride protection **1**. Position exhaust end section **2** in the centre of the hole

Aligning end section



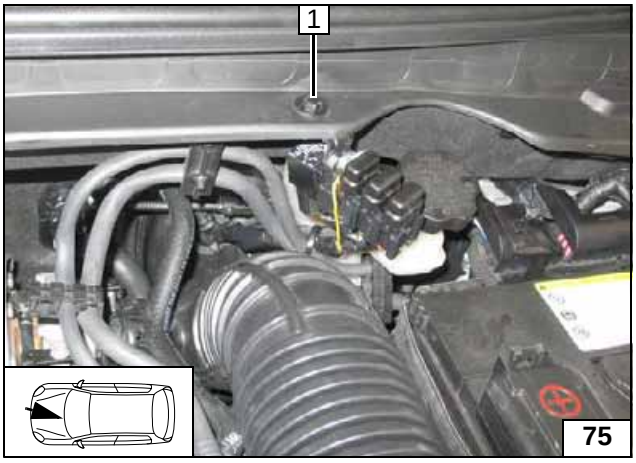
Align exhaust end section **1** flush on the underride protection
Ensure sufficient distance from neighbouring components, adjust if necessary.

Mounting rubber isolator

Final Work

WARNING!
Reassemble the components in reverse order.
Check all hoses, clamps and all electrical connections for firm seating.
Secure all loose wires using cable ties.
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.
- Set digital timer, teach telestart
- Make settings on A/C control panel according to the "Operating Instructions for End Customer".
- Check the proper operation of the parking heater, see the operating instructions/installation instructions.
- Place the "Switch off parking heater before refueling" signboard near the filler neck



After the assembly of the air filter intake hose, align the fuse holder and tighten the bolt on position **1**!

Attaching the fuse holder

Webasto AG
Postfach 80
D-82132 Stockdorf / Germany
National Hotline: 01805 93 22 78
(14 Cent aus dem deutschen Festnetz)
Hotfax: 0395 5592 353
Hotmail: hotline@webasto.de
http://www.webasto.de

Template for fuel standpipe

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 End Customer

Please remove page and add to the vehicle operating instructions.

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

If vehicles have passenger compartment monitoring , this must be deactivated in addition to the vehicle settings for the heating operation.
Instructions for de-activation may be obtained from the operating instructions of the vehicle.

If the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater will then heat in the position Winter and in the position Summer it will only switch on the vehicle fan to ventilate the vehicle interior.

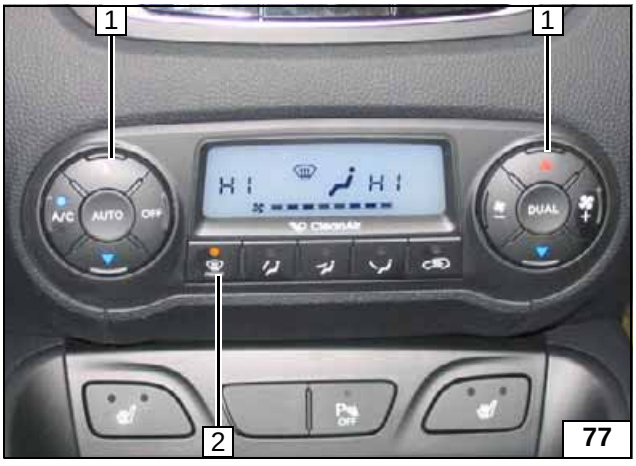
Before parking the vehicle, make the following settings:

Manual air conditioning

76

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

Automatic air-conditioning



77

1 Set temperature to "max."
2 Air outlet to windscreen