Water Heater

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

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

Installation instructions

Ford Kuga

Diesel
from Model Year 2008
Left-hand drive vehicle
Not for AWD

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.

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.

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

Ident. No.: 1314179B_EN Fee Euro 10.00

Table of contents

Validity

Manufacturer	Model	Type	EG-BE-No. / ABE
Ford	Kuga	DM 2	e13 * 2001 / 116 * 0109* ...

Engine type	Engine model	Output in kW	Displacement in cm³
D4204T	Diesel	100	1997

Vehicle and engine types, equipment variants and national specifications not listed in these installation instructions have not been tested. However, installation according to these installation instructions 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 with desired heater control	See price list
1	Installation kit for Ford Kuga Diesel	1314178A
1	Kit for automatic air-conditioning on Ford Focus from Model Year 2006	9015495A

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

These installation instructions apply to Ford Kuga Diesel vehicles - for validity, see page 2 - from model year 2008 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 these installation instructions.

However, where this is the case the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/E* 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 must be provided with rub protection (cut-open fuel hose)!
Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

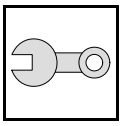
Special tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Metric thread-setter kit

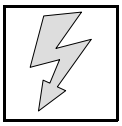
Explanatory notes on document

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.

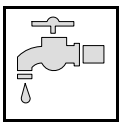
Mechanical system



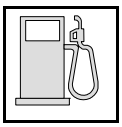
Electrical system



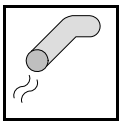
Water



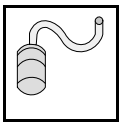
Fuel



Exhaust gas



Combustion air



Software

Special features are highlighted using the following symbols:

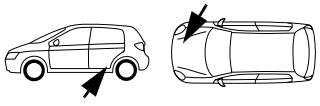
Specific risk of injury or fatal accidents.

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.

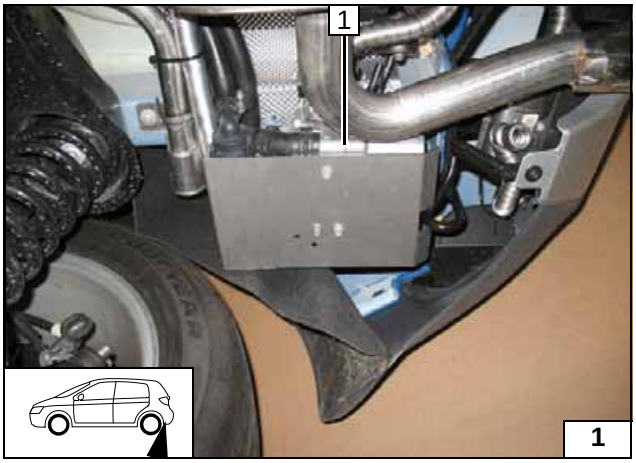
All dimensions are in mm!
Tightening torque of hose clamps = 2.0 + 0.5 Nm!
Tightening torque of Ejot screws, Ejot studs = 10 Nm!

Preliminary work

WARNING!

- Open the fuel tank cap and vent the fuel tank.
- Close the fuel tank cap again.
- Disconnect the battery earth connection.
- Depressurise the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove year that does not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Remove the glove compartment.
- Remove the engine cover (if present).
- Remove the underbody trim before the right-hand rear wheel (if present).
- Drain the fuel tank and remove it according to the manufacturer's instructions.
- Remove fuel-tank sending unit in accordance with manufacturer's instructions.
- Remove the glove compartment.
- Remove the footwell trim on the front passenger side.
- Remove the A-pillar trim in the front passenger side footwell.
- Remove the A/C control panel according to the manufacturer's instructions (only with automatic air-conditioning)

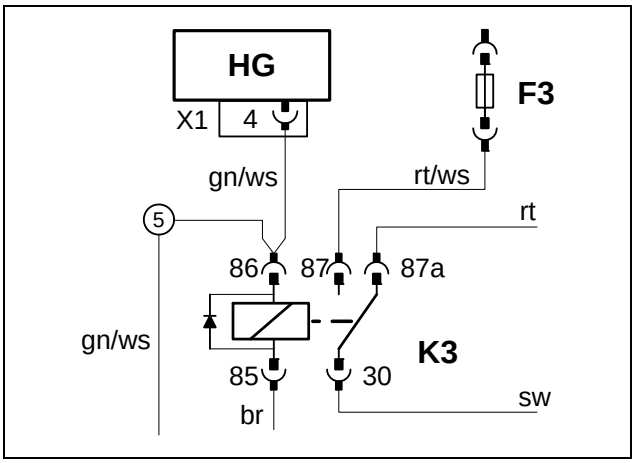
Remove page 33 "Operating instructions for end customer" and add to the vehicle operating instructions.



Heater installation location

1 Heater

Installation location

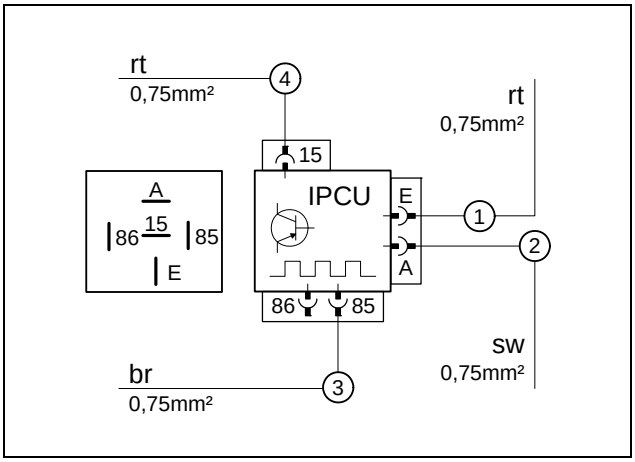


Preparing electrical system

Only with automatic air-conditioning

Connect additional green/white (gn/ws) wire **5** to K3/86.

Preparing K3 relay



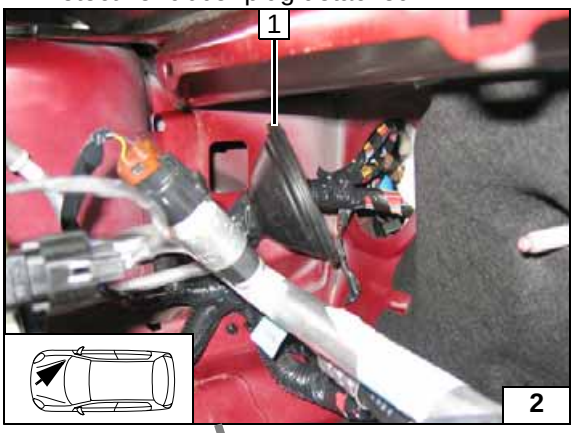
Connect wires to IPCU.
IPCU view on contact side.
Connect 6 mm dia. cable lug to end of brown (br) wire from IPCU/85 **3**.

Premounting IPCU

Electrical system

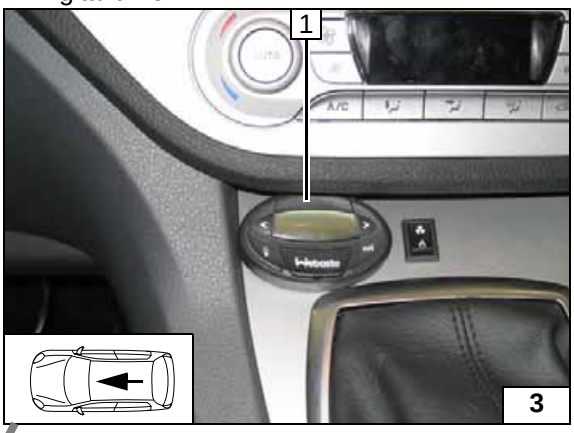
Wiring harness pass through

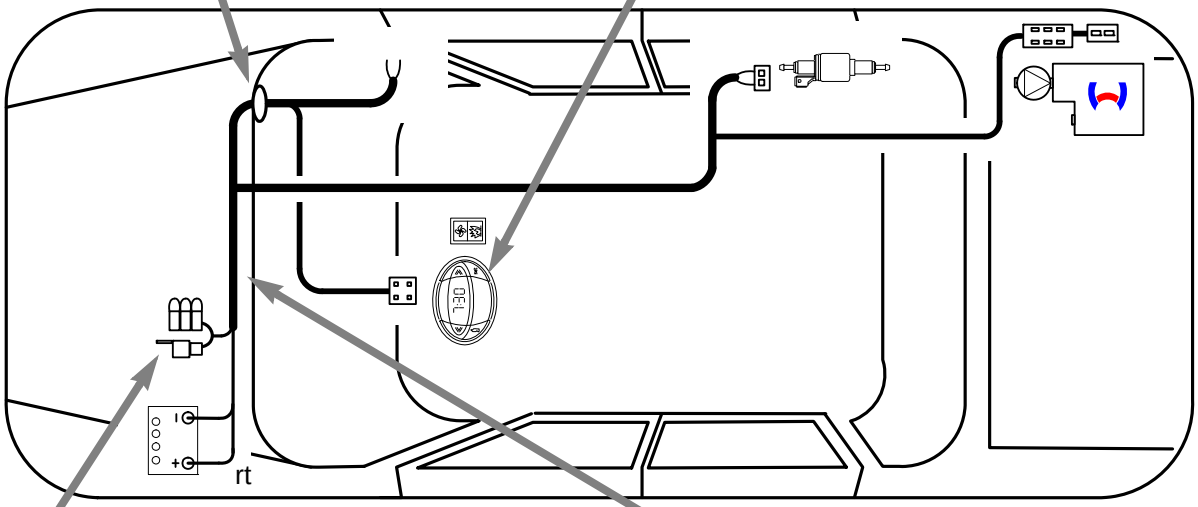
1 Protective rubber plug detached



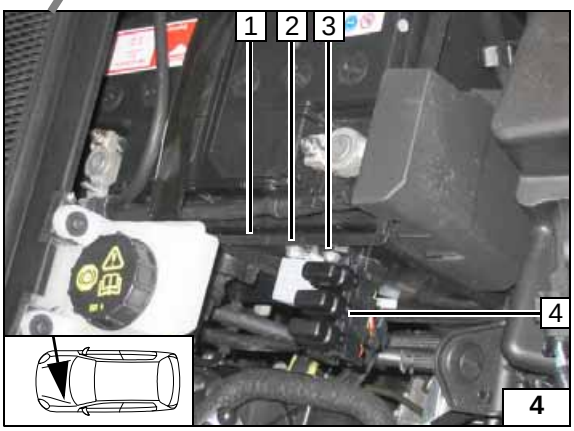
Digital timer

1 Digital timer





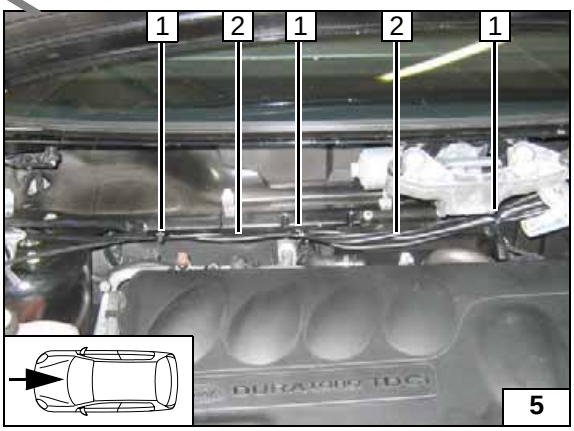
Wiring harness routing diagram



Fuse holder, K3 relay

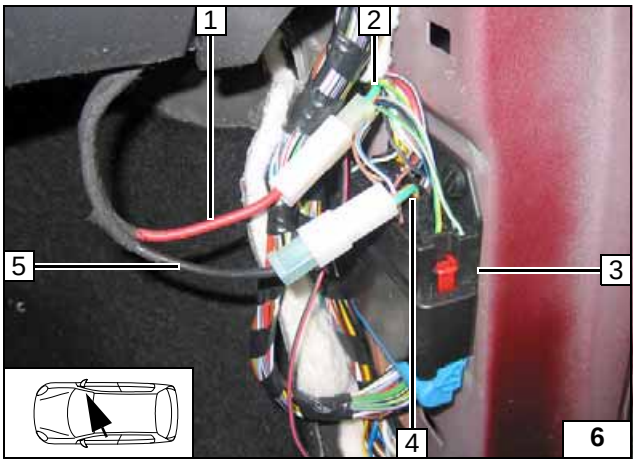
Remove trim for drilling; countersink holes for M5 countersunk head screws from inside.

1 Battery trim
2 K3 relay, 5 mm dia. hole, M4x16 countersunk head screw, flanged nut
3 Fuse holder, 5 mm dia. hole, M4x16 countersunk head screw, flanged nut
4 Fuse holder mounted



Wiring harness routing

1 Cable ties [3x] on existing holes
2 Wiring harness



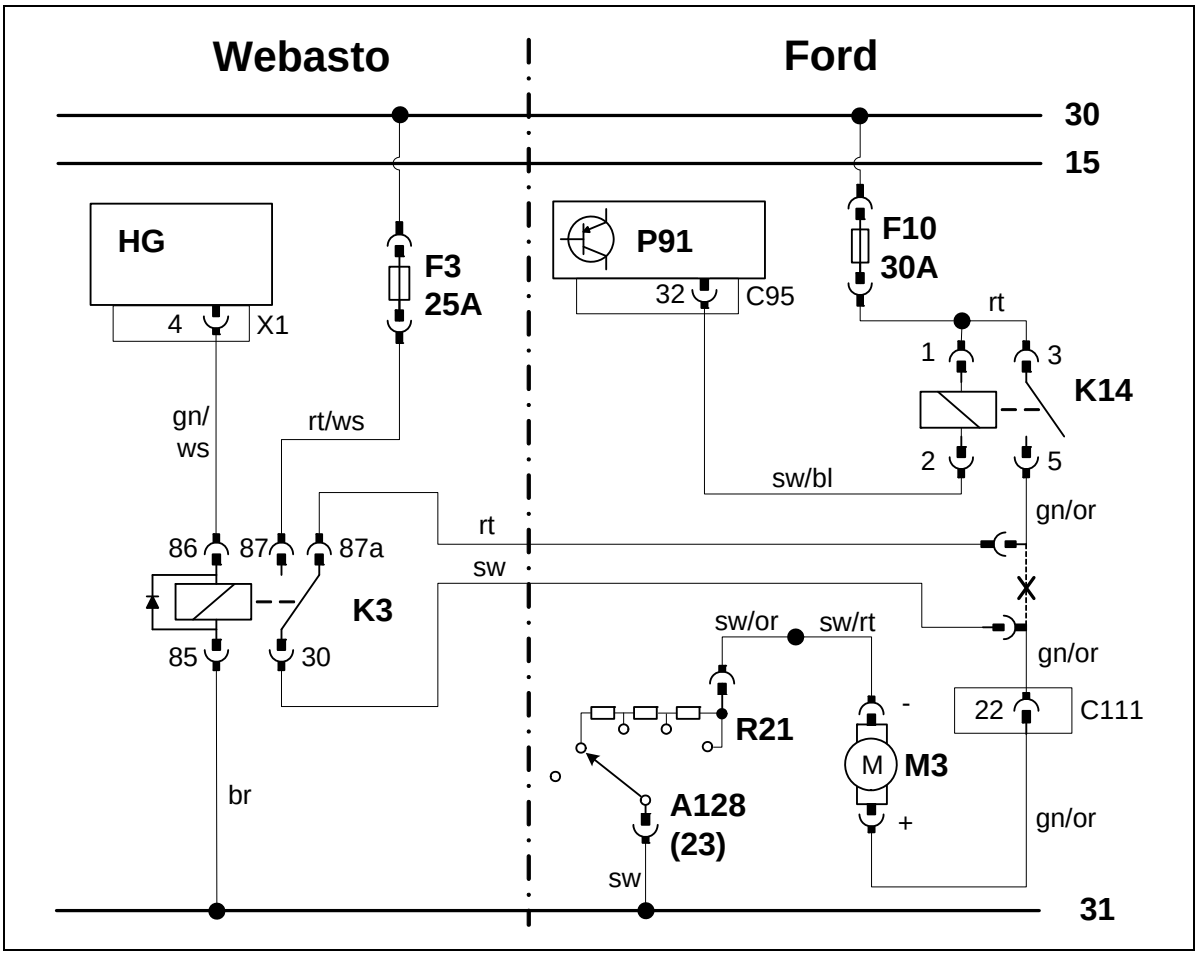
Fan control for manual air conditioning

Connection is carried out on connector C111, Pin 22, at bottom of right-hand A-pillar. Produce connections as shown in wiring diagram.

1 Red (rt) wire to K3/87a
2 Green/orange (gn/or) wire from original vehicle fan relay K14
3 Connector C111
4 Green/orange (gn/or) wire of connector C111, Pin 22
5 Black (sw) wire to K3/30

Connecting fan motor

Wiring diagram

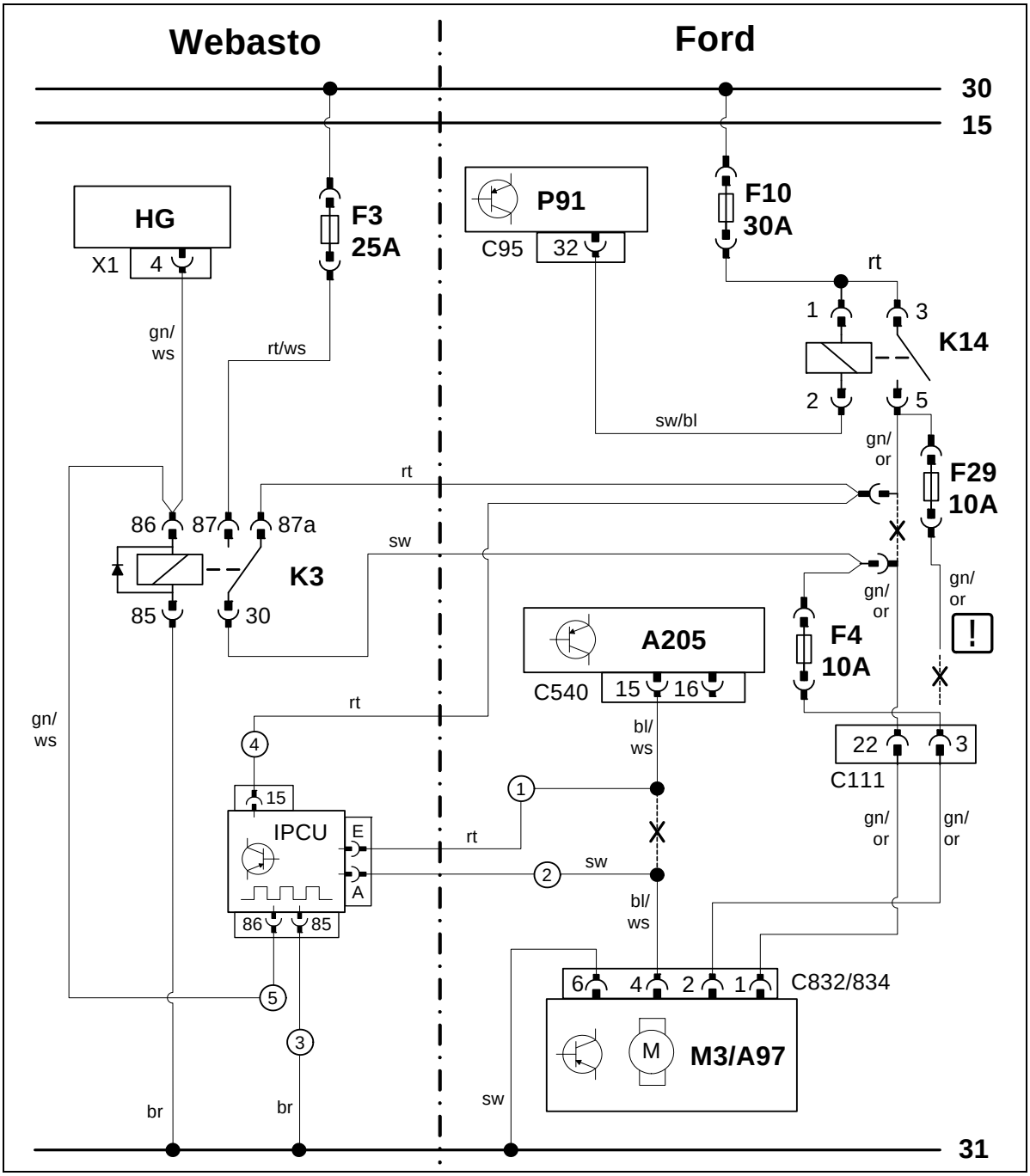


Legend

Webasto components		Ford components		Colours and symbols	
HG	Heater TT-C/E	F10	Fan fuse	rt	red
X1	Connector on heater	K14	Fan relay	ws	white
F3	Fan fuse	P91	Central electrical box	sw	black
K3	Fan relay	C95	Connector on P91	br	brown
		C111	Connector on right-hand A-pillar	gn	green
				bl	blue
		M3	Fan motor	or	orange
		R21	Resistor group		
		A128	Heater control module		
		23	Fan switch		
				X	Cutting point

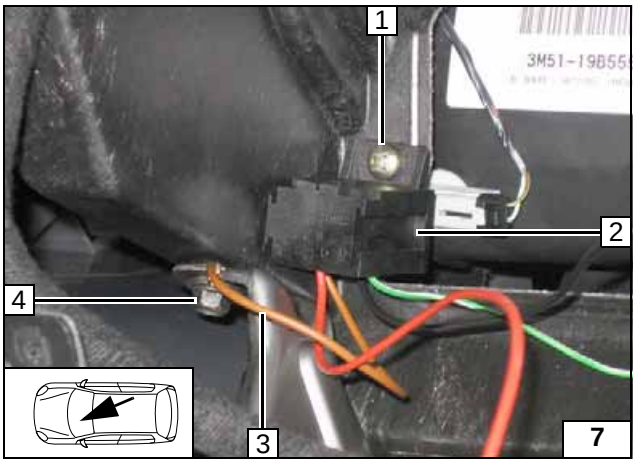
Automatic air-conditioning fan control

Wiring diagram



Webasto components		Vehicle components		Colours and symbols	
HG	Heater TT-C/E	F10	Fan fuse	rt	red
F3	Fan fuse	K14	Fan relay	ws	white
K3	Fan relay	C111	Connector on right-hand A-pillar	sw	black
IPCU	Intelligent Pulse Control Unit			br	brown
		P91	Central electrical box	gn	green
X1	Connector on heater	C95	Connector on P91	bl	blue
F4	Fuse 10A	M3	Fan unit	or	orange
		C832/834	Connector on M3/A97	!	Insulate wire ends and tie back
		A205	A/C control module (EATC)		
		C540	Connector on A205	X	Cutting point

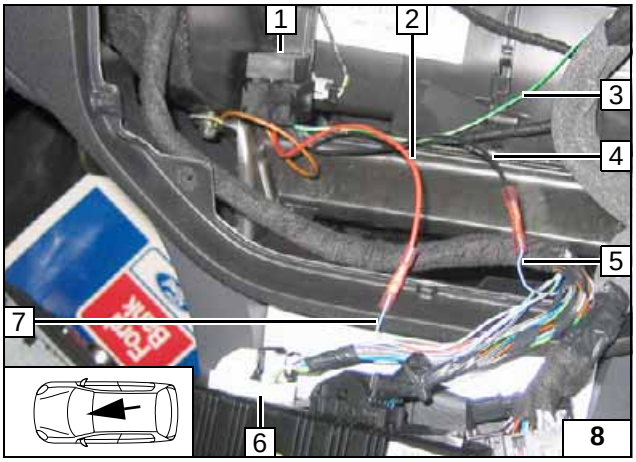
Legend



Automatic air-conditioning fan control

1 4 mm dia. hole, 5.5x13 self-tapping screw
2 IPCU socket
3 Brown (br) wire of IPCU/85
4 6 mm dia. cable lug, original vehicle bolt

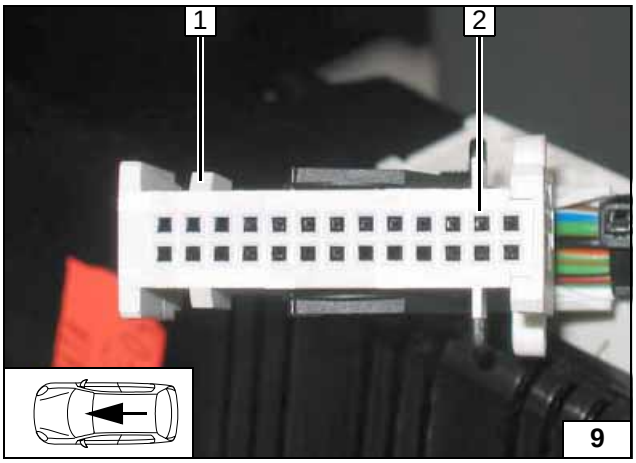
IPCU fastening



Connection is carried out on 26-pin connector C540, Pin 15.
Produce connections as shown in wiring diagram.

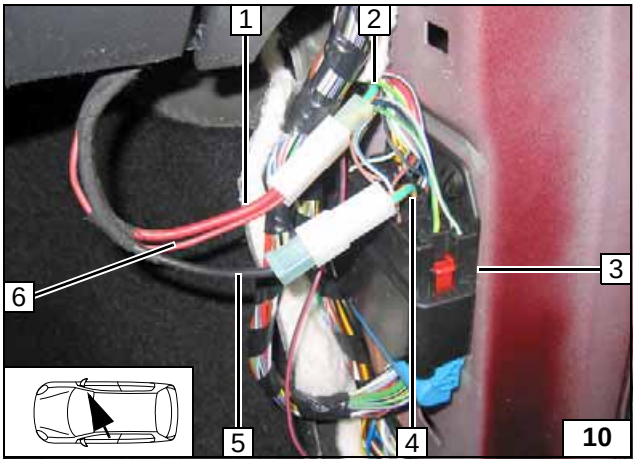
1 Connect IPCU
2 Red (rt) wire of IPCU/E
3 Gray/white (gr/ws) wire of K3/86
4 Black (sw) wire of IPCU/A
5 Blue/white (bl/ws) wire to fan unit
6 Connector C540
7 Blue/white (bl/ws) wire of A/C control panel

Connecting A/C control panel



1 Connector C540
2 Pin 15

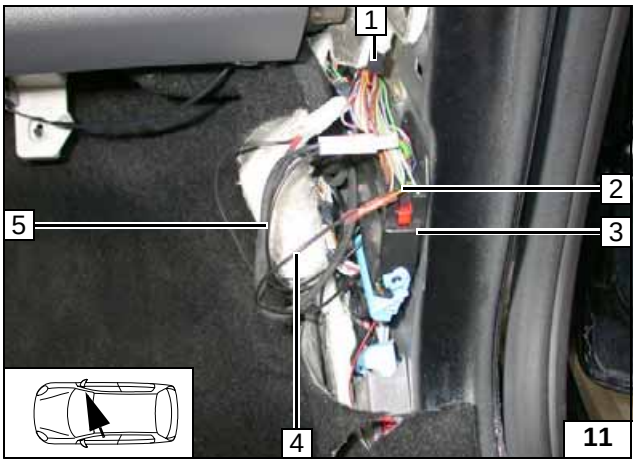
View of connector



Connection is carried out on connector C111, Pin 22, at bottom of right-hand A-pillar.
Produce connections as shown in wiring diagram.

1 Red (rt) wire to K3/87a
2 Green/orange (gn/or) wire from original vehicle fan relay K14
3 Connector C111
4 Green/orange (gn/or) wire of connector C111, Pin 22
5 Black (sw) wire to K3/30
6 Red (rt) wire of IPCU/15

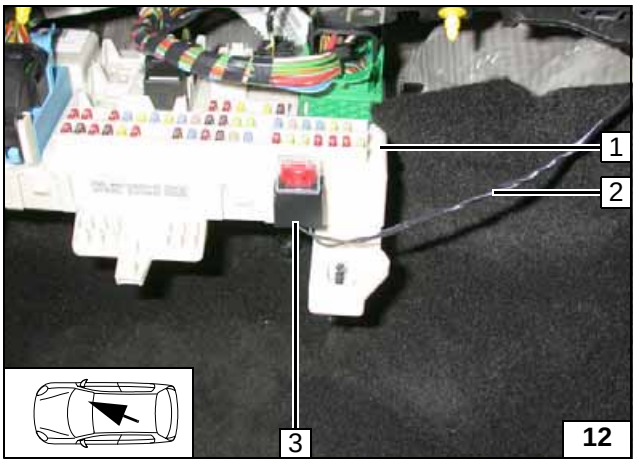
Connecting K3 relay to fan unit



Produce connections as shown in wiring diagram.

1 Cut off green/orange (gn/or) wire of C111/3 and insulate
2 Green/orange (gn/or) wire of C111/3
3 Connector C111
4 Black (sw) wire of F4
5 Black (sw) wire of F4

Connecting IPCU to fan unit



Complete fuse holder with materials provided and fasten it with double-sided adhesive tape. Produce connections as shown in wiring diagram.

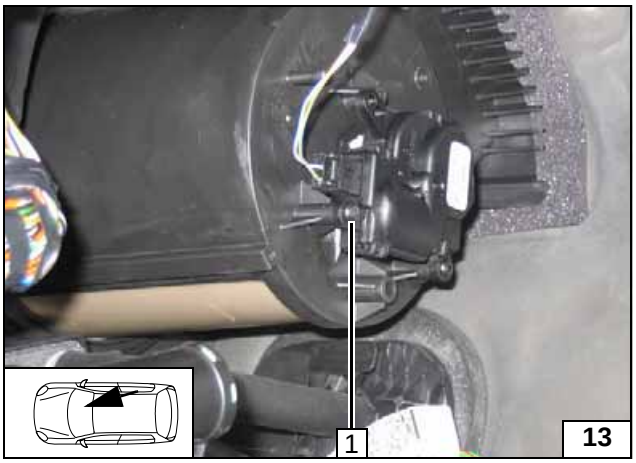
1 Central electrical box in right-hand footwell
2 Black (sw) wires, 500 mm
3 Fuse holder, 10 A fuse

Fuse F4

Remote option (Telestart)

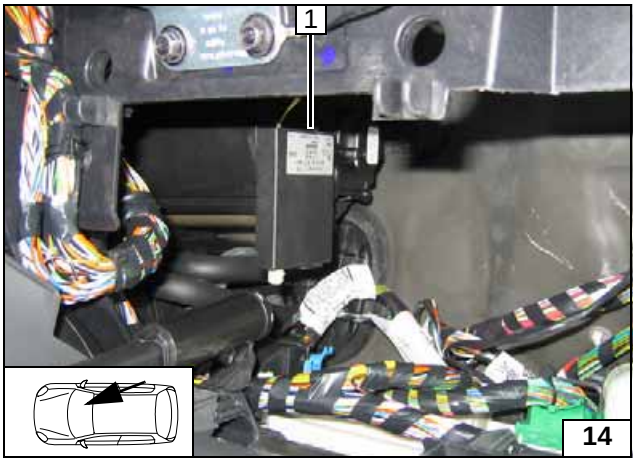
Receiver is mounted on existing bolt on positioning motor.

Installation location of receiver



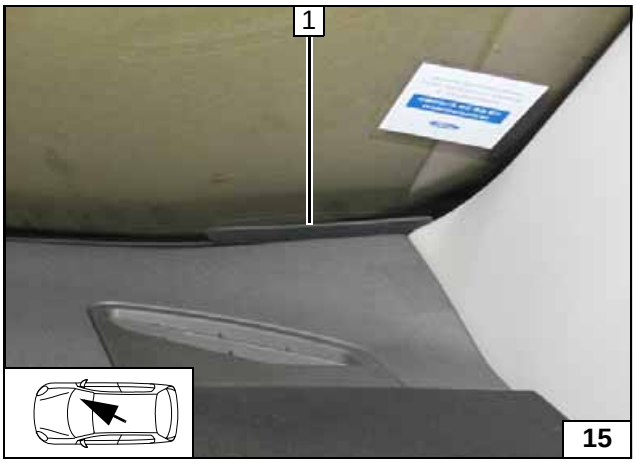
1 Original vehicle bolt

Mounting receiver



1 Receiver

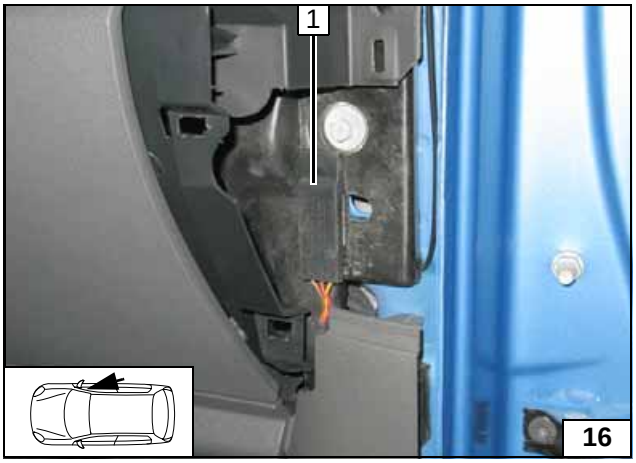
Mounting antenna



1 Antenna

Temperature sensor for HTM100 only

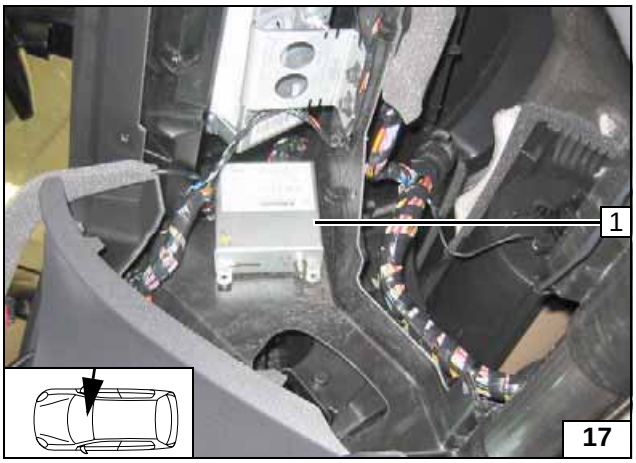
Mounting temperature sensor



1 Fasten temperature sensor with adhesive tape

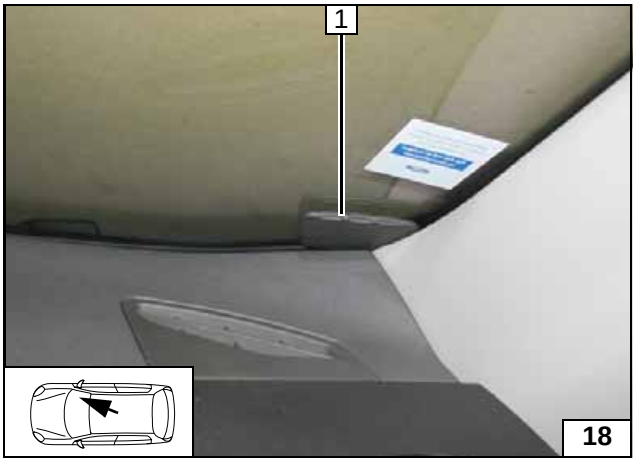
Thermo Call option

Mounting receiver



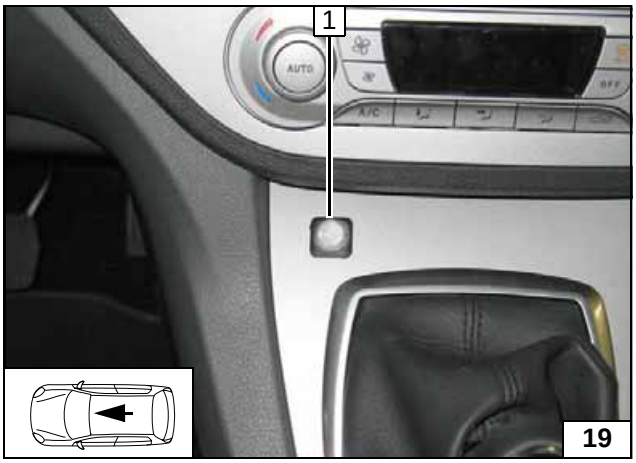
1 Fasten receiver with adhesive tape

Mounting antenna



1 Antenna

Mounting push button



1 Push button

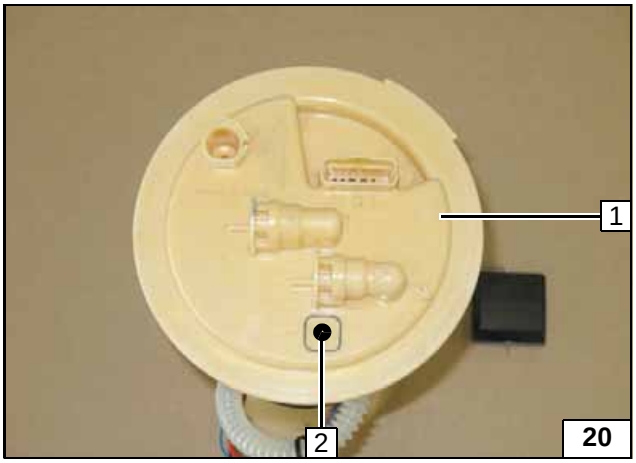
Fuel

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

Collect any discharged fuel 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.

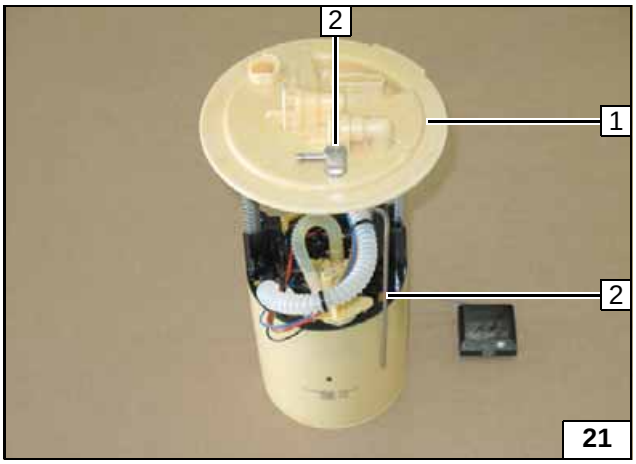
WARNING!
The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.



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

2 6 mm dia. hole

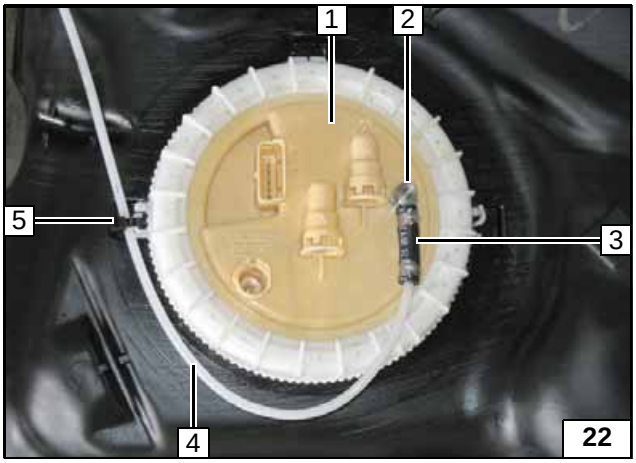
Removing fuel



Shape fuel standpipe **2** according to template, cut to length and install.

1 Fuel-tank sending unit

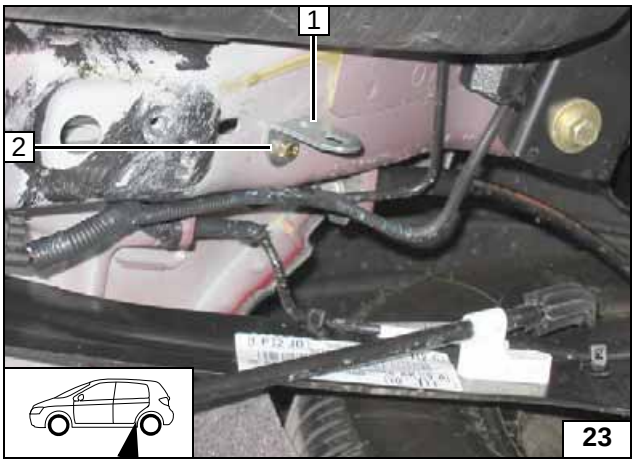
Installing fuel standpipe



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

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

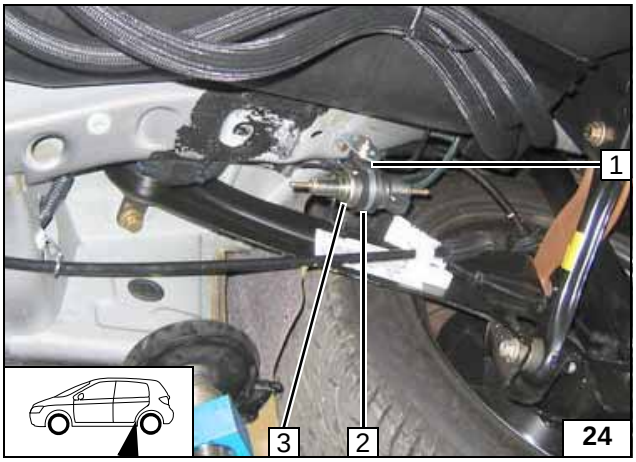
Connecting fuel line



Installation location on right next to vehicle fuel tank.

1 Angle bracket
2 M6x20 bolt, spring lockwasher on existing threaded insert

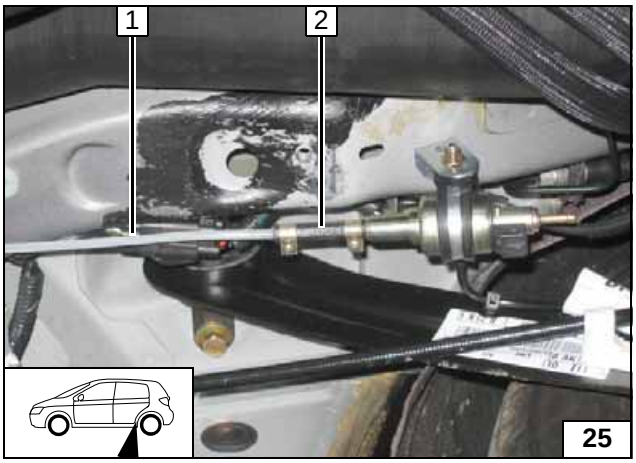
Mounting metering pump



Slide metering pump **3** as far upward as possible in oblong hole.

1 Silent block, flanged nut [2x]
2 Rubber-coated p-clamp

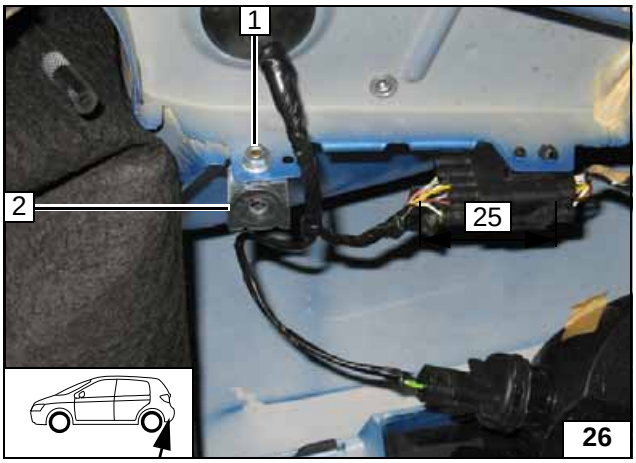
Mounting metering pump



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

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

Connecting fuel line

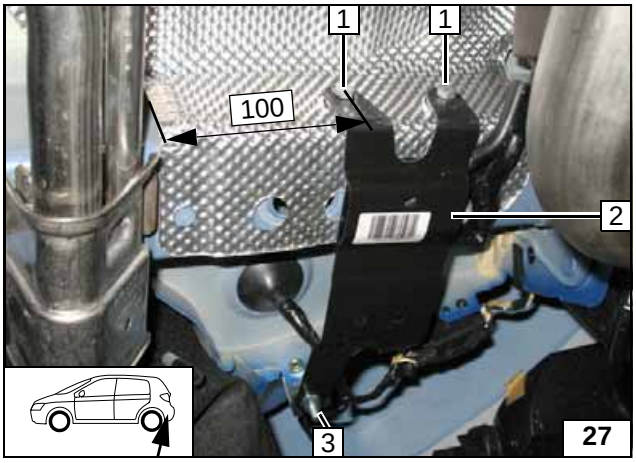


Preparing installation location

Loosely mount angle bracket **2** on existing hole.

1 M6x20 bolt, large diameter washer, flanged nut

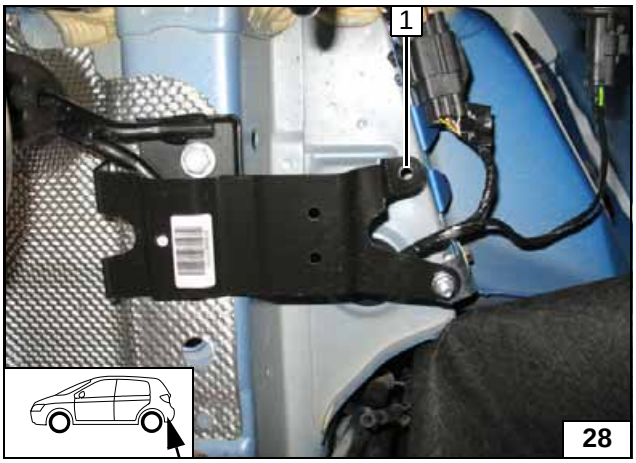
Mounting angle bracket



Bend bracket **2** in accordance with template and loosely install on angle bracket.
Copy hole pattern **1** [2x].

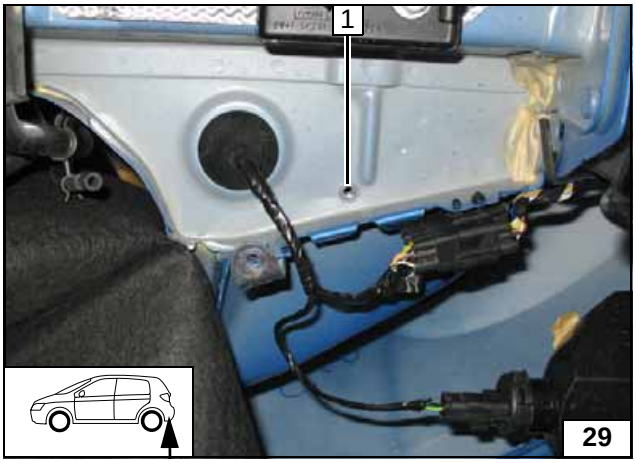
3 M6x20 bolt, flanged nut on angle bracket

Copying hole pattern



Copy hole pattern **1** .

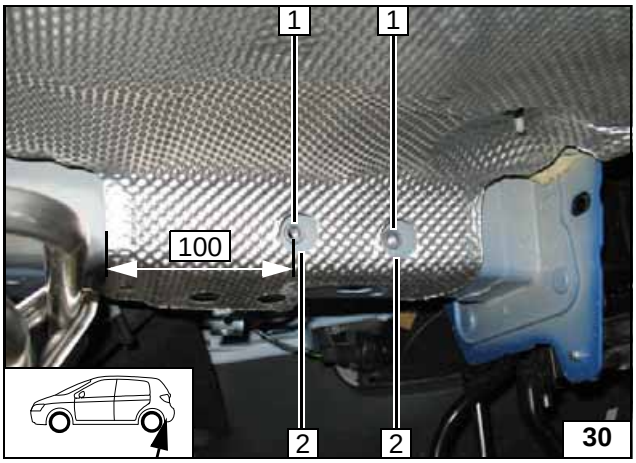
Copying hole pattern



Remove bracket.

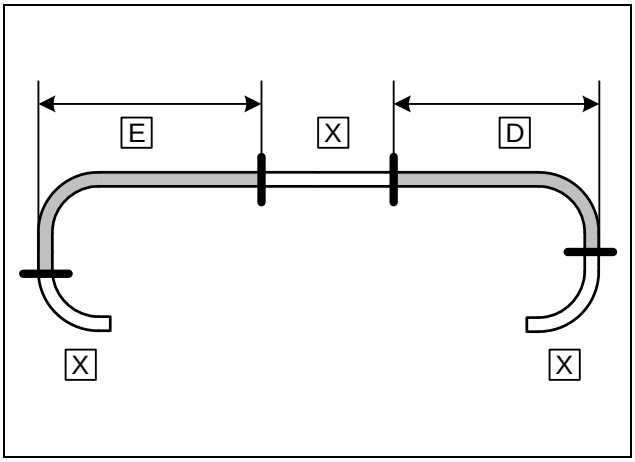
1 Drill 9.1 mm dia. hole; install rivet nut

Installing rivet nut



1 9.1 mm dia. hole [2x]; mount rivet nut [2x]
2 26 mm dia. hole [2x]

Installing rivet nut



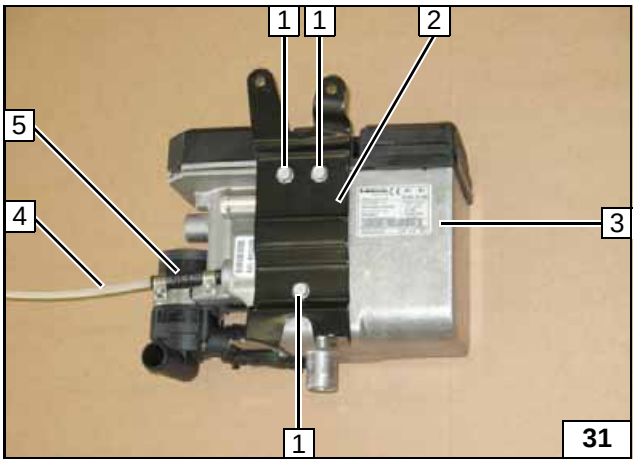
Preparing heater

Hose **E** with long 90° elbow.

d = 750
e = 900

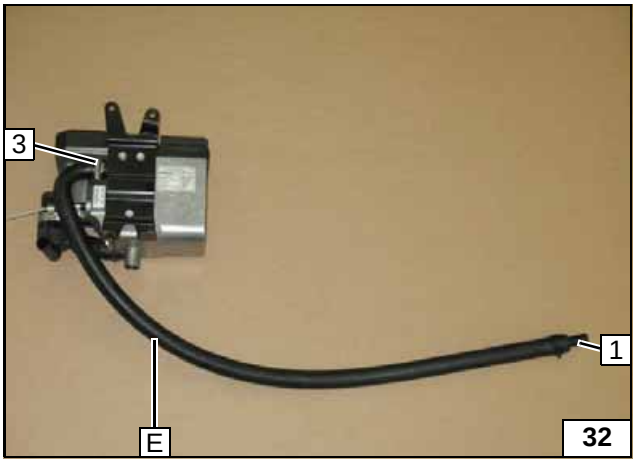
Discard section **X**

Cut 20“ coolant hose to length



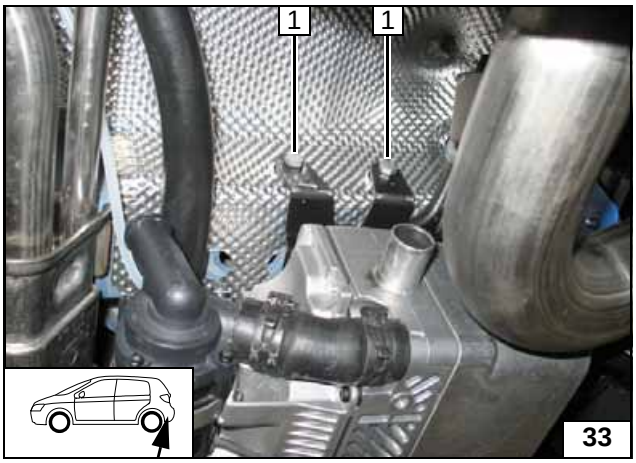
1 Ejot screw [3x]
2 Bracket
3 Heater
4 Fuel line
5 Hose section, 10 mm dia. clamp [2x]

Premounting heater



1 20x15 connecting pipe, 27 mm dia. spring clip
2 27 mm dia. clamp

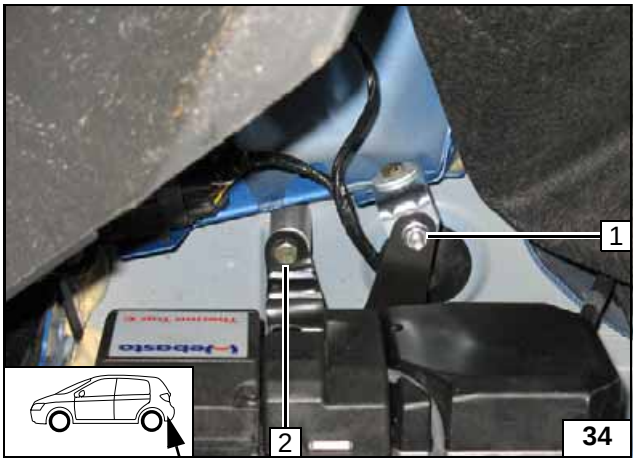
Premounting heater



Installing heater

1 M6x20 bolt, spring lockwasher, 10 mm shim

Mounting heater



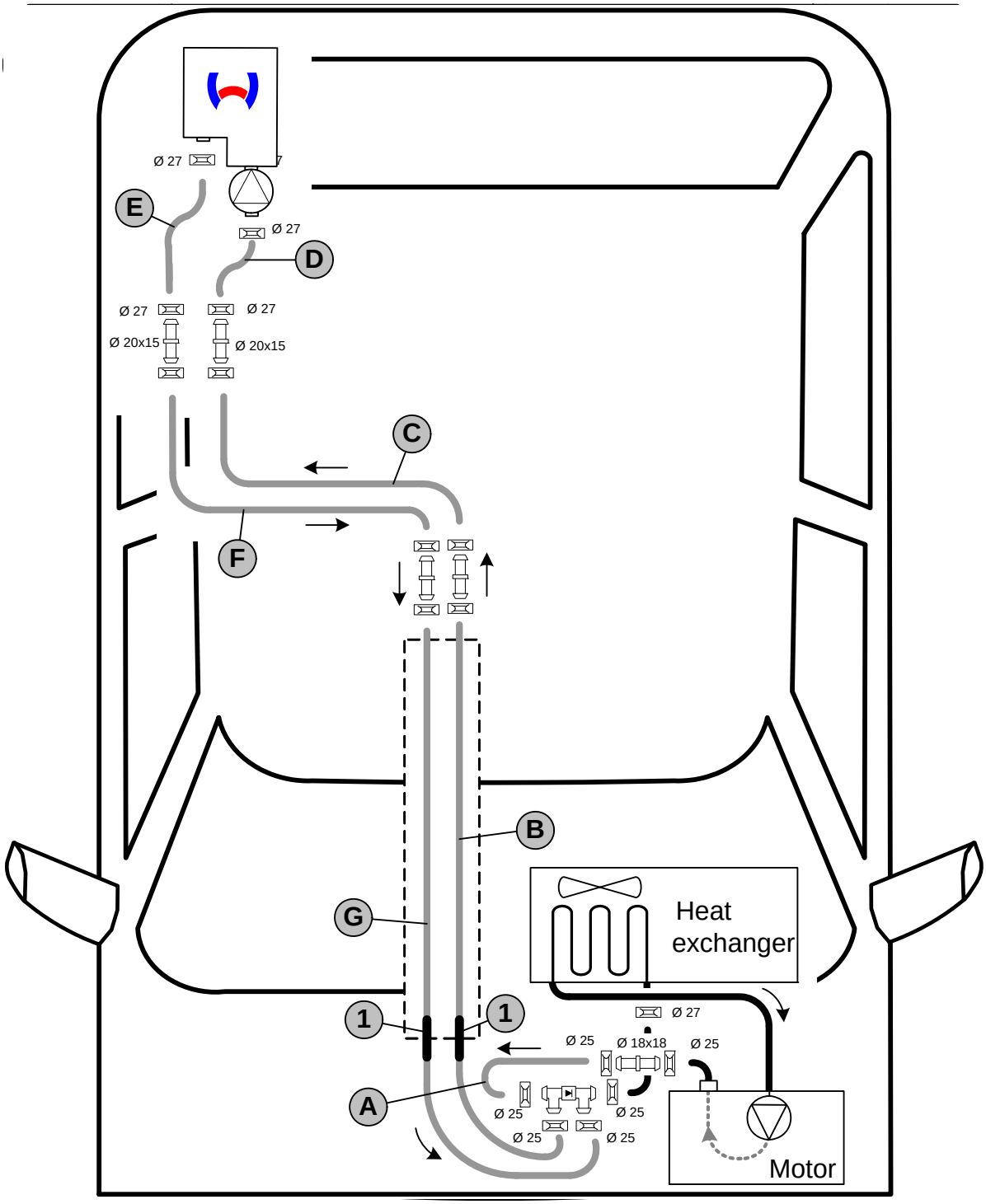
1 M6x20 bolt, flanged nut
2 M6x60 bolt, spring lockwasher, 40 mm shim

Mounting heater

Coolant

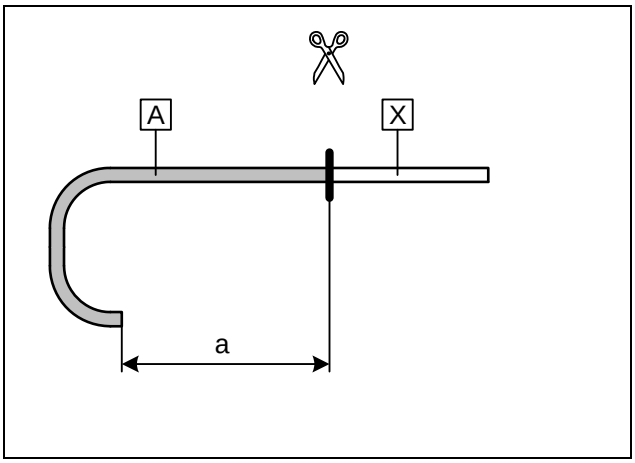
WARNING!
Any coolant running off should be collected in an appropriate container. Route coolant hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. When installing the coolant hose, the heater must be filled with coolant.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

Coolant routing diagram



All spring clips without a specific designation = 22 mm dia. All connecting pipes = 15x15 dia.

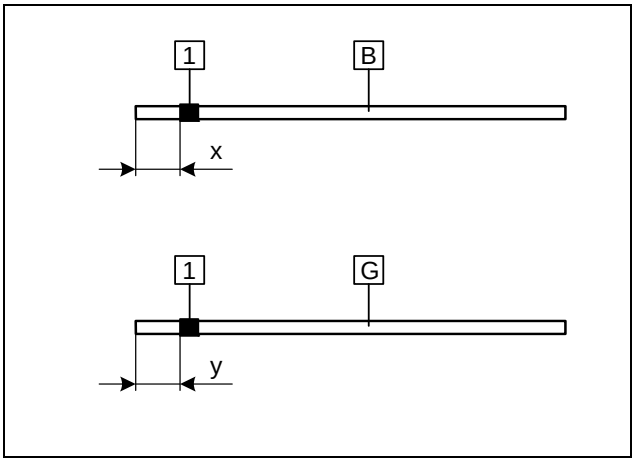
Cutting 18" coolant hose to length



a = 210

Discard section **X**

Preparing 15" coolant hoses

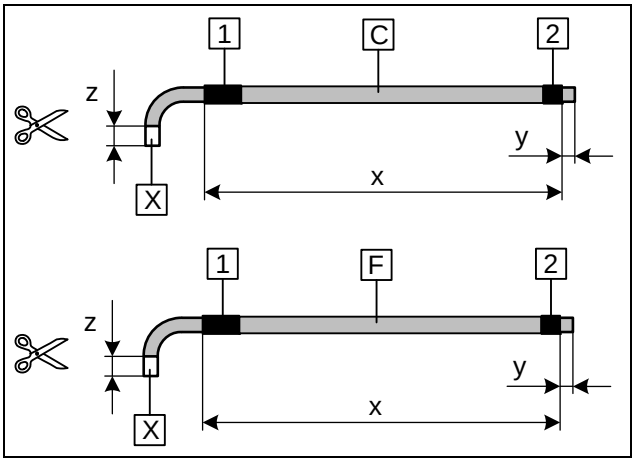


Slide heat shrink plastic tubing **1** [2x] onto hoses **B** and **G** (straight, 2,400 mm in length) and shrink.

x = 660
y = 610

1 100 mm heat shrink plastic tubing [2x]

Preparing 15" coolant hoses

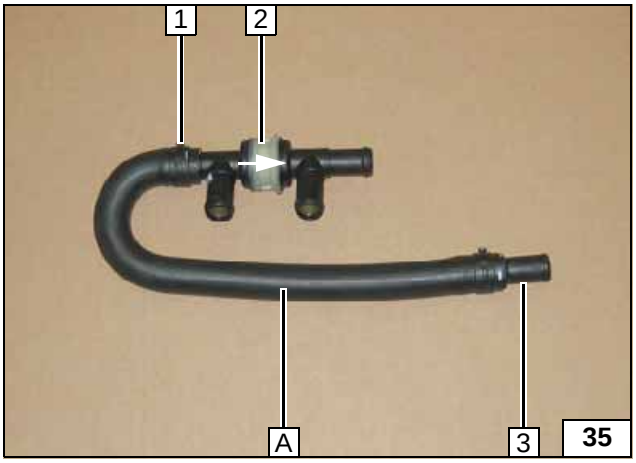


Shorten hose **C** and **F** by 20 mm at 90° elbow; discard section **X**.
Push braided protection hoses onto hose **C** and **F**. Push on heat shrink plastic tubing and shrink.

x = 1,400 mm, entire braided protection hose
y = 25mm
z = 20mm

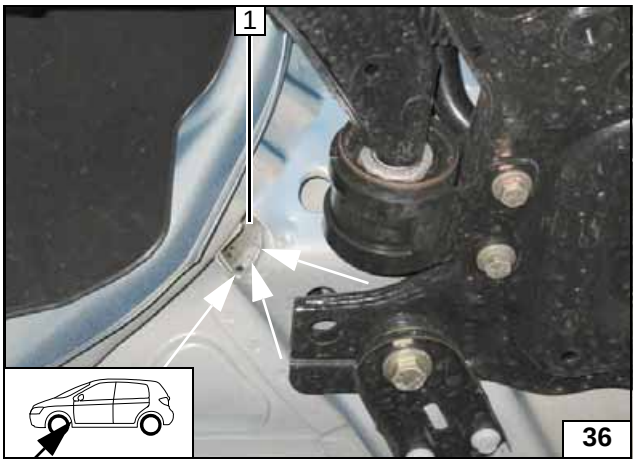
1 100mm heat shrink plastic tubing [2x]
2 50 mm heat shrink plastic tubing [2x]

Preparing check valve



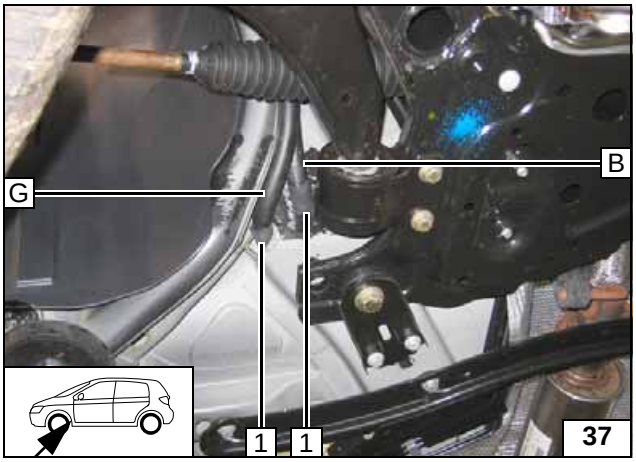
Watch direction of flow of check valve.

1 25 mm dia. spring clip
2 Check valve
3 18x18 connecting pipe, 25 mm dia. spring clip



Widen pass through in frame side member at position **1**
(Bend downward at marking).

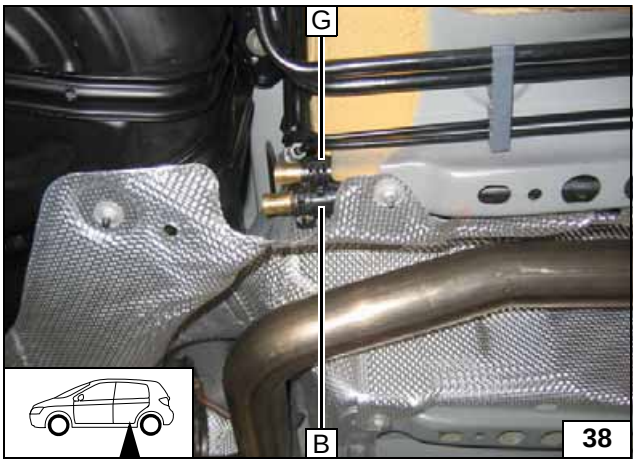
Widening pass through



Install prepared hoses **B** and **G** with longer ends in right-hand frame side member. Also push heat shrink plastic tubing **1** into frame side member in process. Watch any bolts present in frame side member.

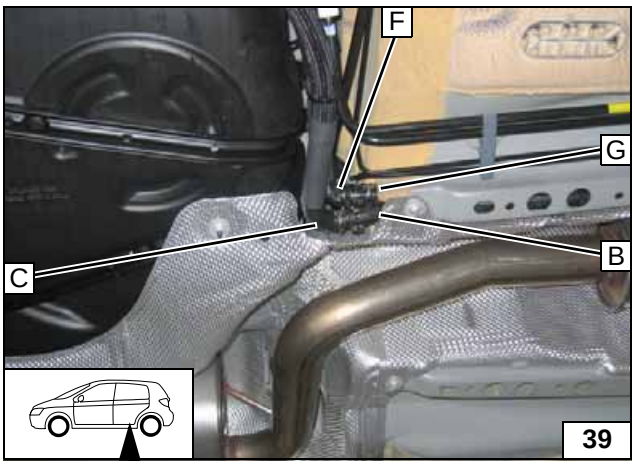
1 Heat shrink plastic tubing

Routing hoses B and G



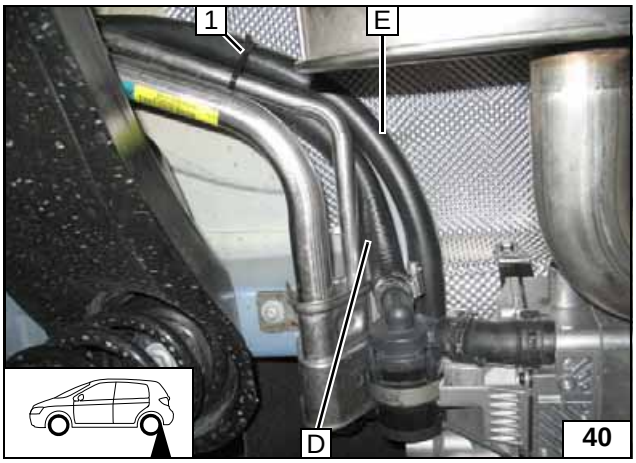
Position hoses **B** and **G** on frame side-member exit and cut to length.

Routing hoses B and G



Connect 90° elbow of hoses **C** and **F** to hoses **B** and **G** and route next to fuel tank to heater.

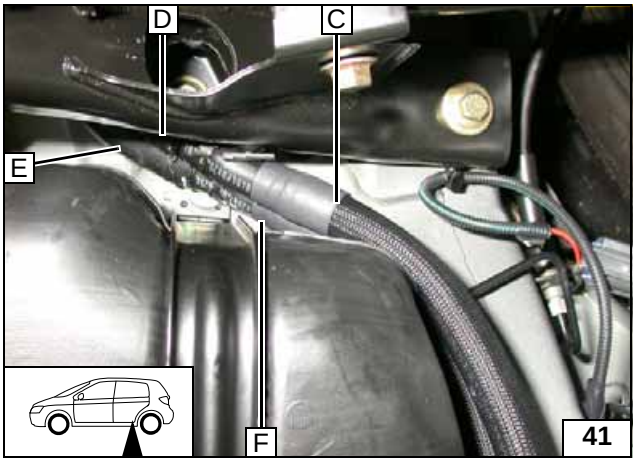
Routing to heater



Fasten 90° elbow from hose **D** on heater inlet.

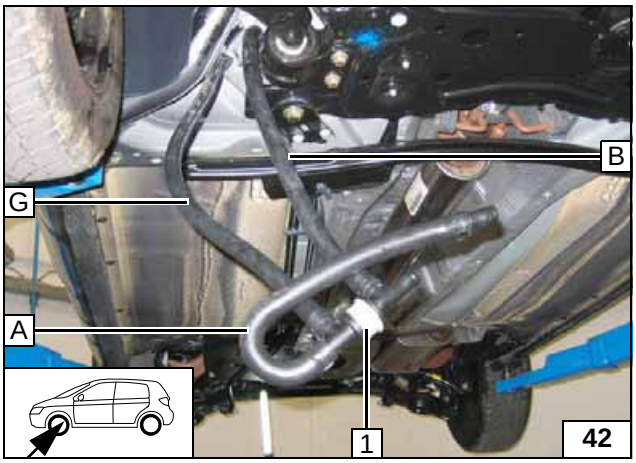
1 Cable tie

Connecting heater



Connect hoses **D** and **C** and hoses **E** and **F** with each other.

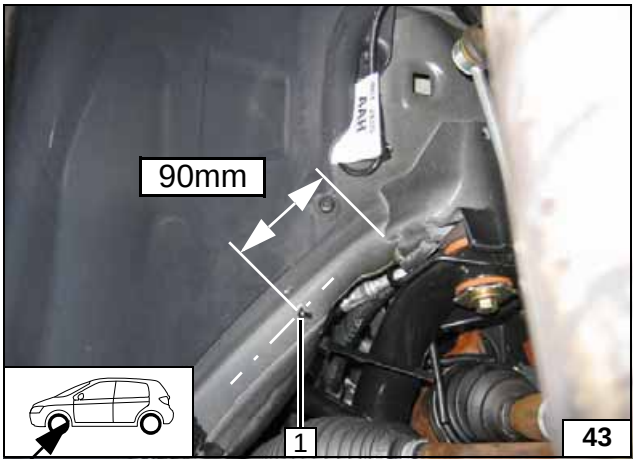
Connecting hoses



Connect prepared assembly to hose **B** and **G**.

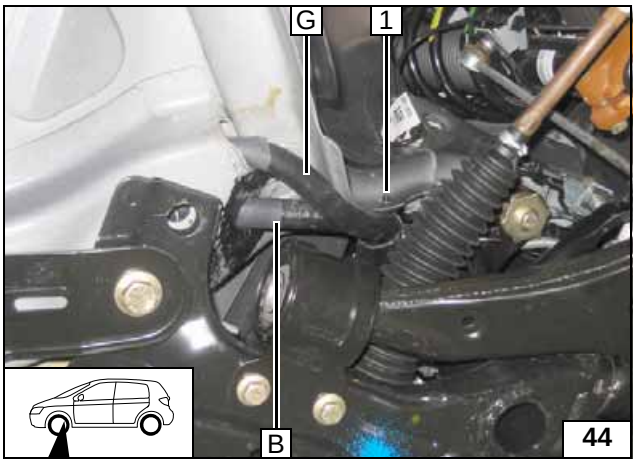
1 Check valve

Connecting check valve



1 6.2 mm dia. hole

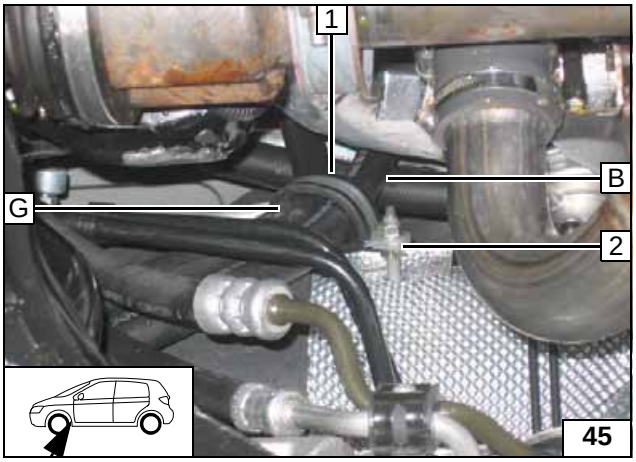
Hole for cable tie clip



Install cable tie clip in hole at position **1**.
Route prepared assembly with check valve on firewall upward to cutting point.
Fasten hose **B** and **G** together with cable tie clip.

1 Cable tie clip in prepared hole

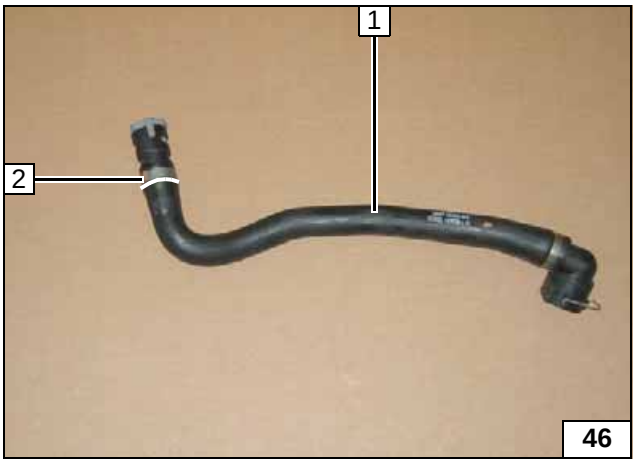
Routing in engine compartment



Fasten hose **B** and **G** together with rubber-coated p-clamp on original vehicle stud bolt.

1 34 mm dia. rubber-coated p-clamp
2 Original vehicle stud bolt, flanged nut [2x]

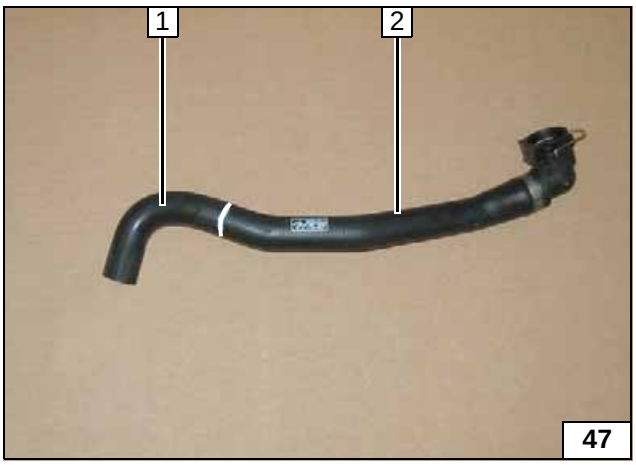
Routing to firewall



Remove original vehicle hose on engine outlet to heat exchanger inlet **1** and cut at marking.
Cut open clamp at position **2**. Remove remainder of hose from coupling.

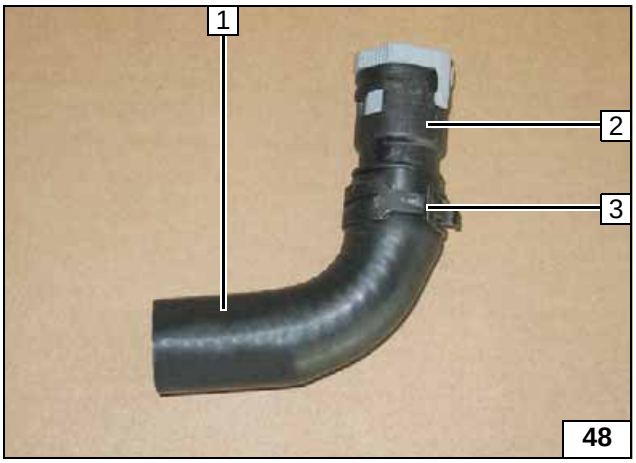
Warning:
Do not damage coupling from heat exchanger inlet.

Remove original vehicle hose



Cut off hose section at marking. Hose section **1** will be reused. Remount hose section of engine outlet **2** on connection piece of engine outlet.

Separating original vehicle hose

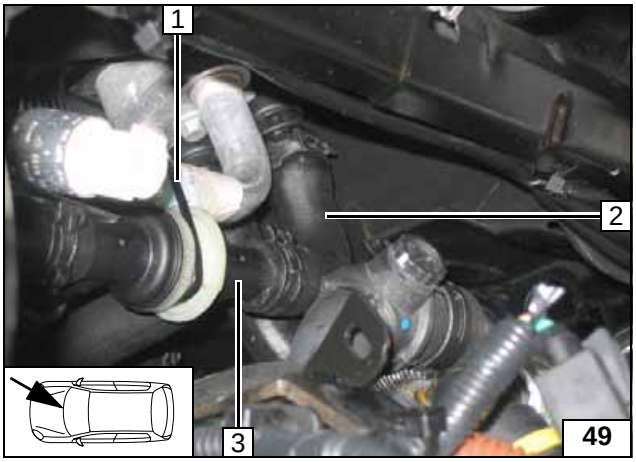


Mount coupling from heat exchanger inlet **2** at cutting point of hose section **1** again and fasten with 27 mm dia. spring clip **3**.

Warning:
Coding of coupling must face downward.

Mount coupling again on heat exchanger inlet. (Hose section **1** faces to right)

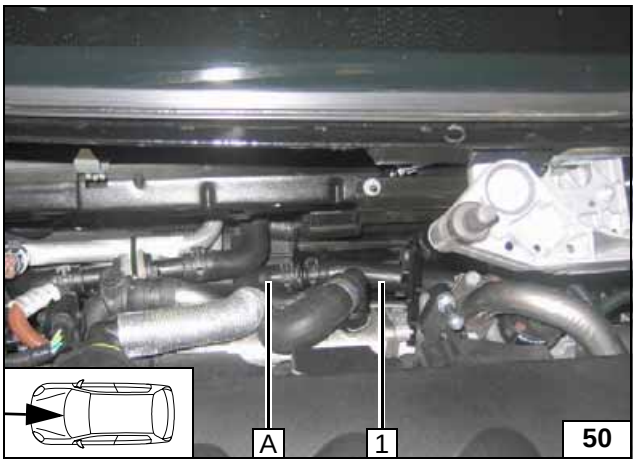
Premounting coupling



Before connecting, fill the coolant hoses with coolant.

1 Cable tie
2 Hose section of heat exchanger inlet
3 Check valve

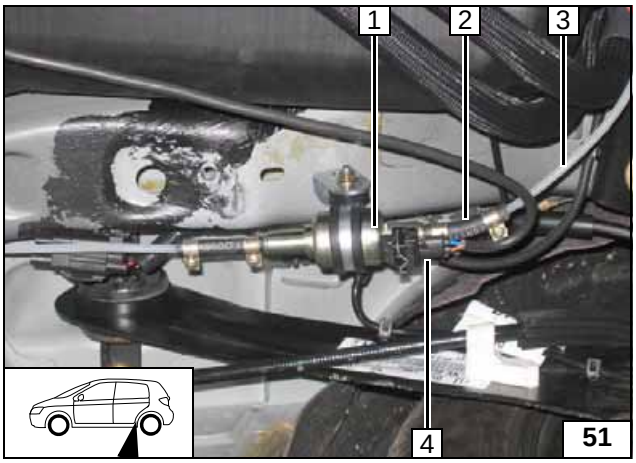
Connecting heat exchanger inlet



Connect hose **A** to prepared hose section on engine outlet.

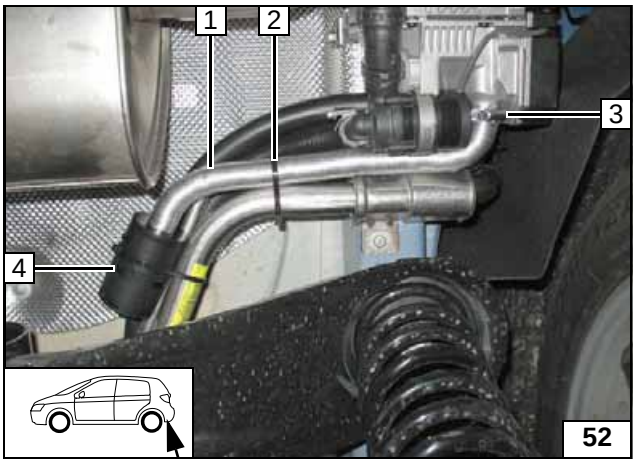
1 Engine outlet hose section

Connecting engine output



Fuel on heater

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

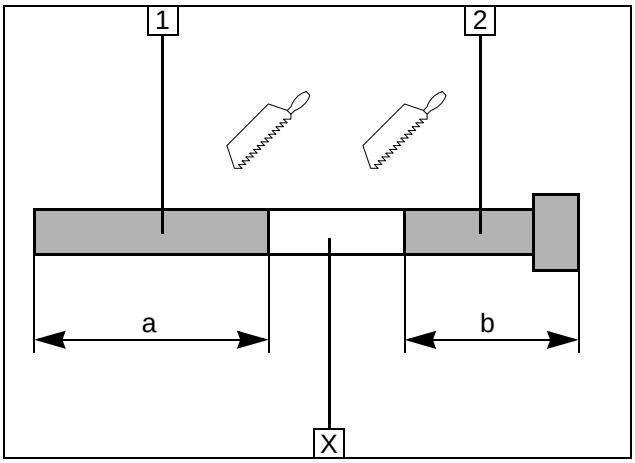


Combustion air

1 Combustion air pipe
2 Cable tie
3 27 mm dia. clamp
4 Silencer

Mounting combus-tion air pipe

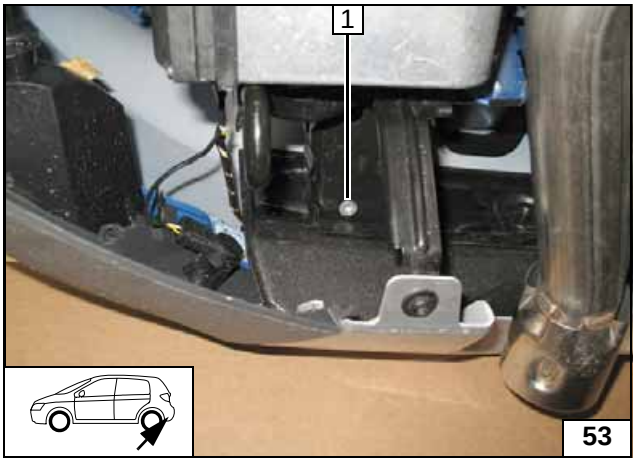
Exhaust gas



1 Exhaust pipe
a = 480
2 Exhaust end section
b = 600

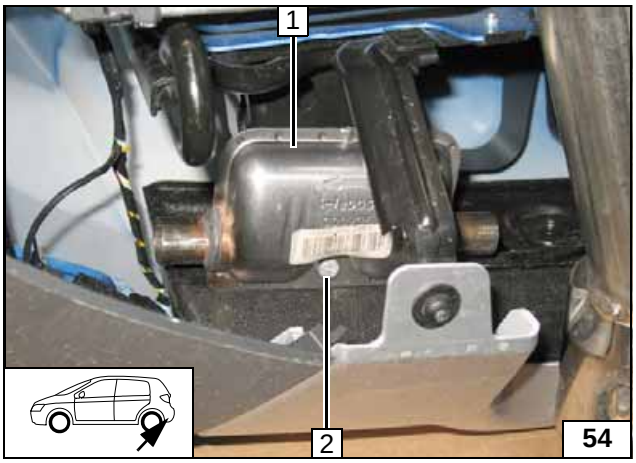
Discard section **X**

Preparing exhaust pipe



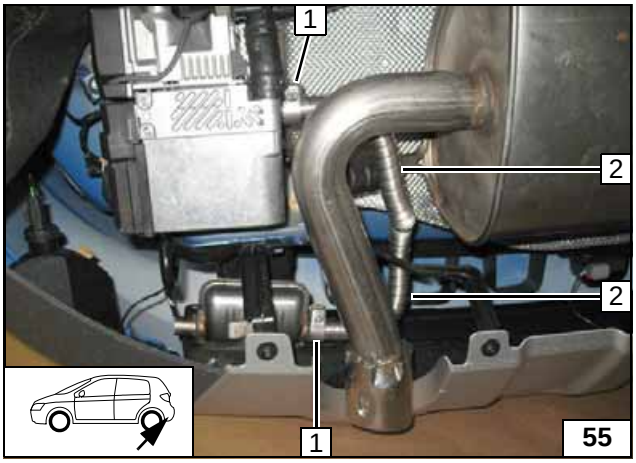
1 Rivet nut in existing hole

Installing rivet nut



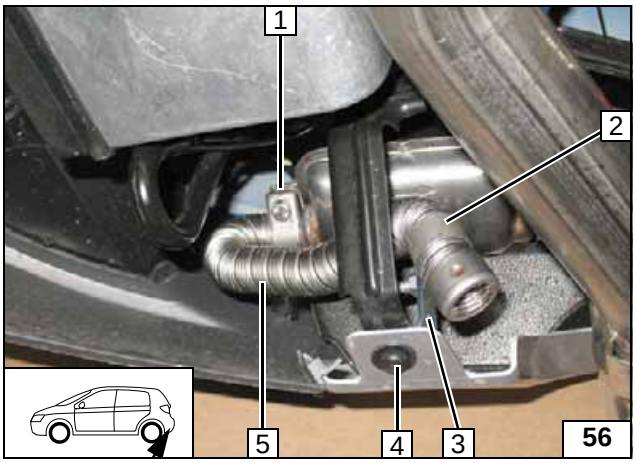
1 Exhaust silencer
2 M6x50 bolt, spring lockwasher, 30 mm shim

Mounting silencer



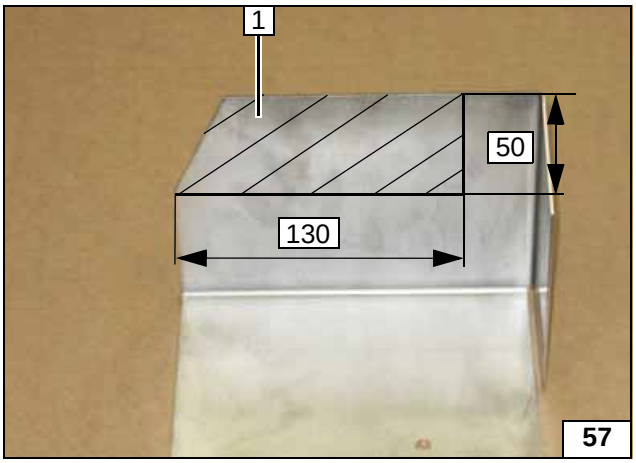
1 Hose clamp [2x]
2 Exhaust pipe

Mounting exhaust pipe



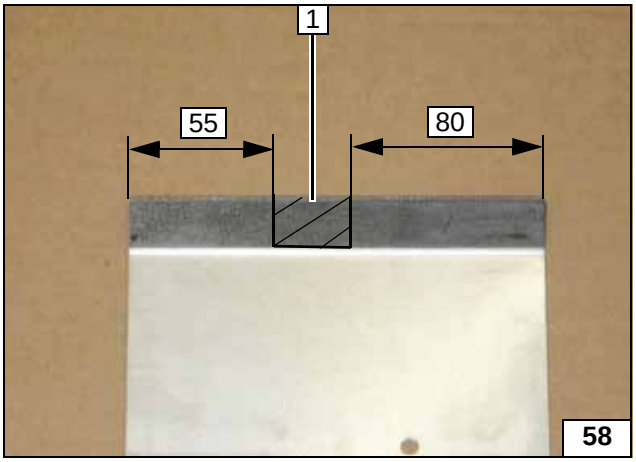
1 Hose clamp
2 P-clamp, M6x20 bolt, flanged nut on angle bracket
3 Angle bracket
4 Original vehicle bolt
5 Exhaust end section

Mounting exhaust end section



Cutting out guard plate

1 Discard section



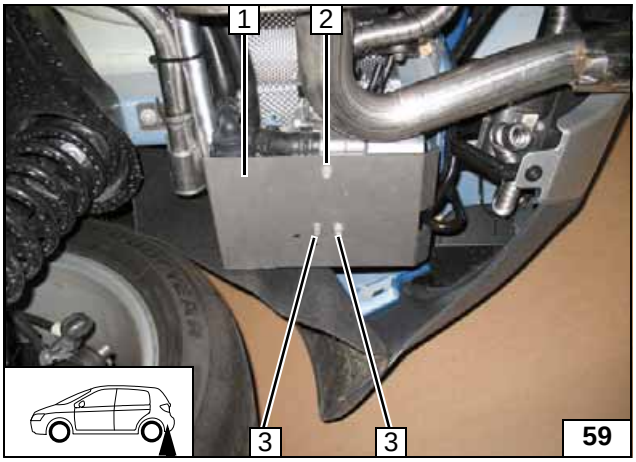
1 Discard section

Cutting out guard plate

Final Work

WARNING!
Mount removed parts in reverse order.
Check all hoses, clamps and all electrical connections for firm seating.
Secure all loose cables using cable ties.
Only use manufacturer-approved coolant.
Spray 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 the digital timer.
- 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.
- Attach the "Switch off parking heater before refueling" adhesive label to the left-hand B-pillar.

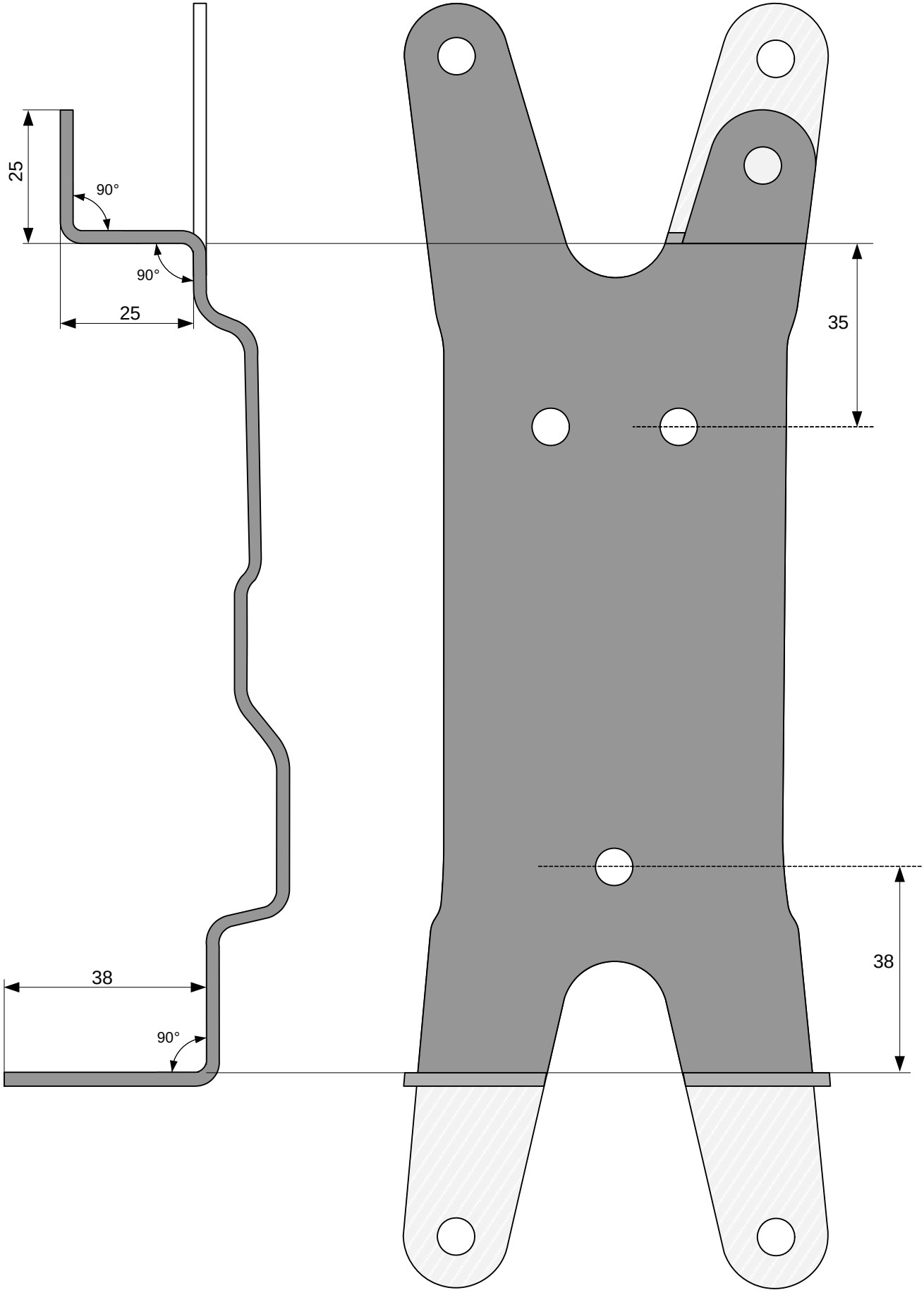


Mounting guard plate

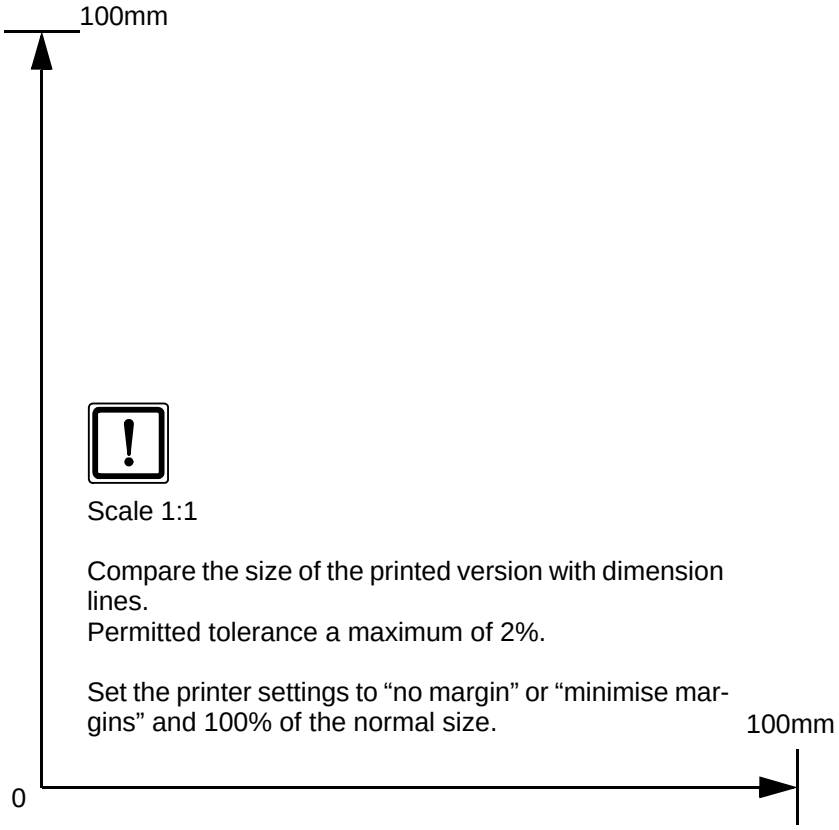
1 Guard plate
2 Ejot screw, washer [2x]
3 Ejot screw [2x]

Webasto AG
Postfach 80 - 82132 Stockdorf
Hotline 01805 / 932278 - Hotfax 0395 / 5592-353
http://www.webasto.de

Template for heater bracket



Template for fuel standpipe



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.

Operating instructions for end customer

Please remove page and add to the vehicle operating instructions.

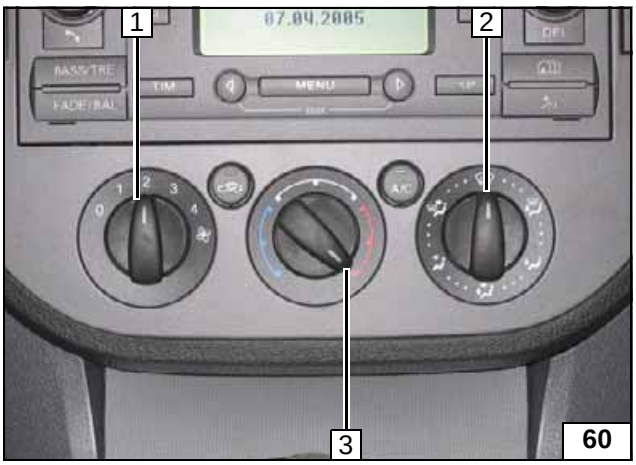
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

On vehicles with passenger compartment monitoring, this must be deactivated during heating.

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.

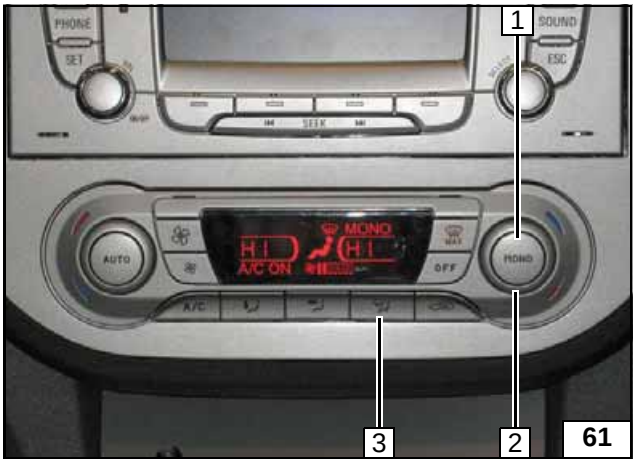
Before parking the vehicle, make the following settings:

Manual air conditioning



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

Automatic air-conditioning



1 "Mono" button
2 Set temperature to "HI"
3 Air outlet to windscreen