

# Water Heater Unit



Feel the drive

**Thermo Top E Additional Heater**  00 0003

**Thermo Top C Additional Heater**  00 0002

**Thermo Top P Additional Heater**  00 0104

## Installation Instructions

### Hyundai Santa Fe

2.2 I CRDi

from Model Year 2006

For left-hand drive vehicles only



#### **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, specialized 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.**

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## Validity

Manufacturer	Model	Type	EG-BE No./ABE
Hyundai	Santa Fe		e11 * 2001/116 * 0270 * ...

Engine type	Engine model	Output in kW	Displacement in cm <sup>3</sup>
D4EB	Diesel	110	2188

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 Unit/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories with desired heater control	See price list
1	Installation kit for Hyundai Santa Fe Diesel	9015630A

**Heater unit recommended for the respective vehicle class:**

Vehicle	Heater unit
Compact car	Thermo Top E
Mid-size car, station wagon	Thermo Top C
Full-size car, van, offroader	Thermo Top P

The selection of the heater unit 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 Hyundai Santa Fe 2.2 I CRDi vehicles - for validity, see page 2 - from model year 2006 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, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* must always 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 edge protectors (split-open plastic hose).

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

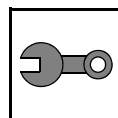
## Special Tools

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

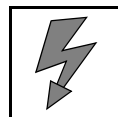
## Explanatory Notes on Document

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.

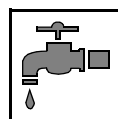
### Mechanical system



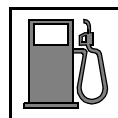
### Electrical system



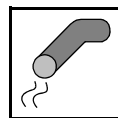
### Coolant connection



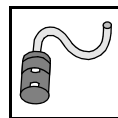
### Fuel connection



### Exhaust system



### Combustion air



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



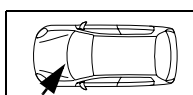
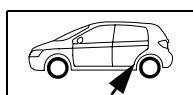
Specific risk of fire or explosion.



Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.



Reference to a special technical feature.

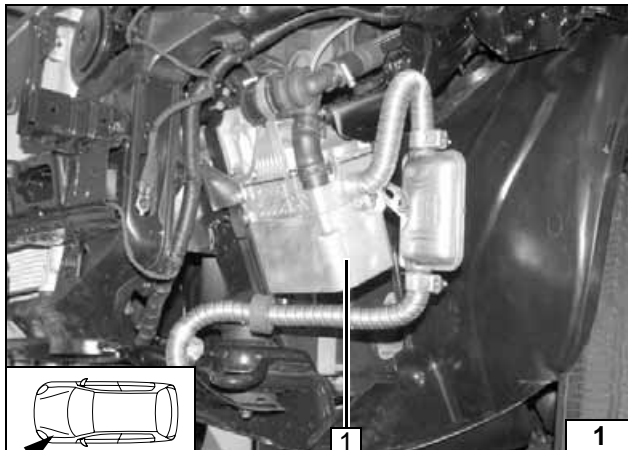


The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

## Preliminary Work

### WARNING!

- Open the fuel tank cap, ventilate the tank.
- Close the tank cap again.
- Disconnect the battery "earth" or "ground" connection.
- Depressurize 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.
- Remove the cover cap from the cable pass through to the engine compartment.
- Disconnect the engine control unit and lay it aside.
- Remove the underride protection on the left
- Remove the bumper
- Remove the left-hand rear bench seat.
- Open the left tank mounting service lid.
- Remove the complete instrument panel trim on the driver's side.
- Remove the A/C control panel.
- Remove the lower instrument panel trim on the front passenger side (only with Thermo Call).
- Please remove page 26 of the "Operating instructions for the end customer" and add this to the vehicle operating instructions.



### Heater unit installation location

- 1 Heater unit

Installation  
location

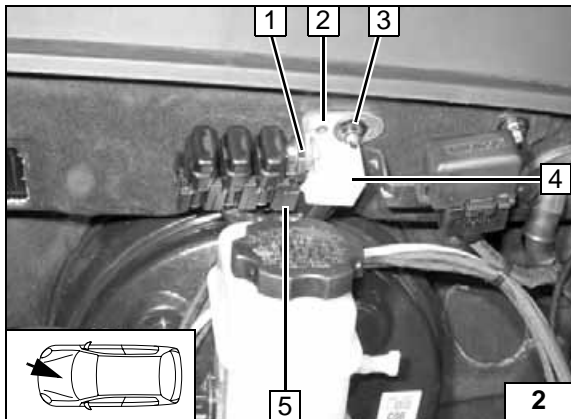


## Electrical Connections



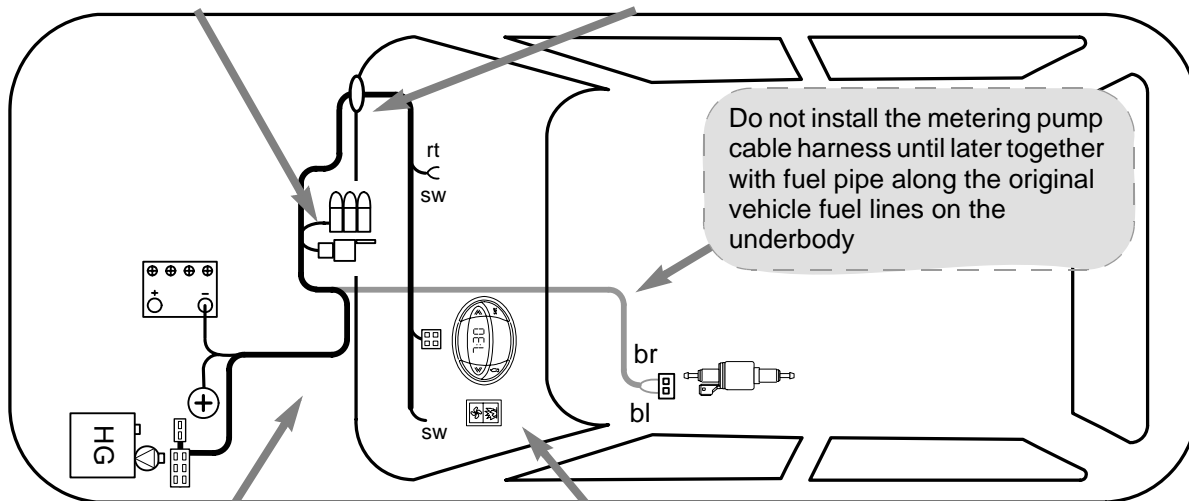
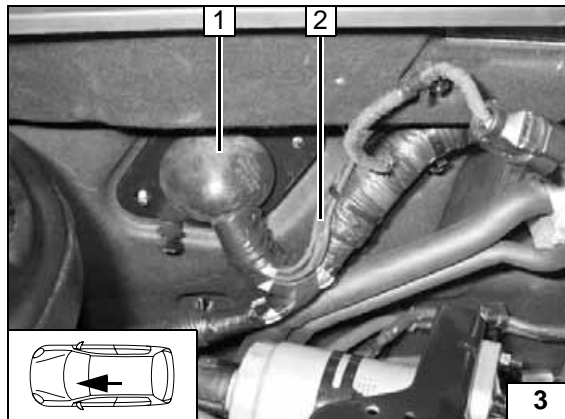
### Fuse holder, relay K3

- 1 M5x16 bolt, washers, nut
- 2 Angle bracket
- 3 Original vehicle stud bolt, washer, flanged nut
- 4 K3 relay
- 5 Retaining plate for fuse holder

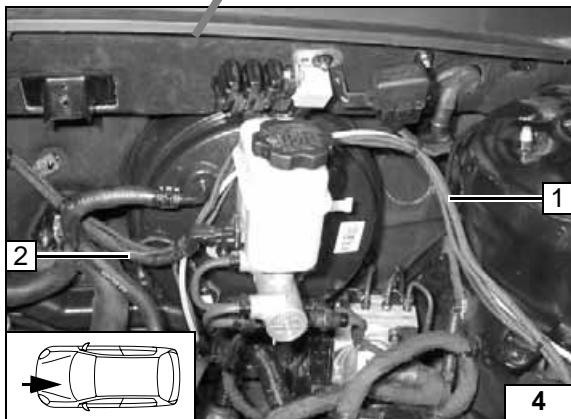


### Wiring harness pass through

- 1 Protective rubber plug
- 2 Wiring harness of fan controller and wiring harness of digital timer

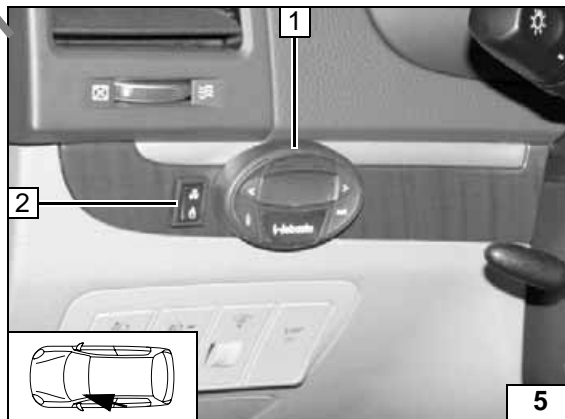


Wiring harness installation diagram



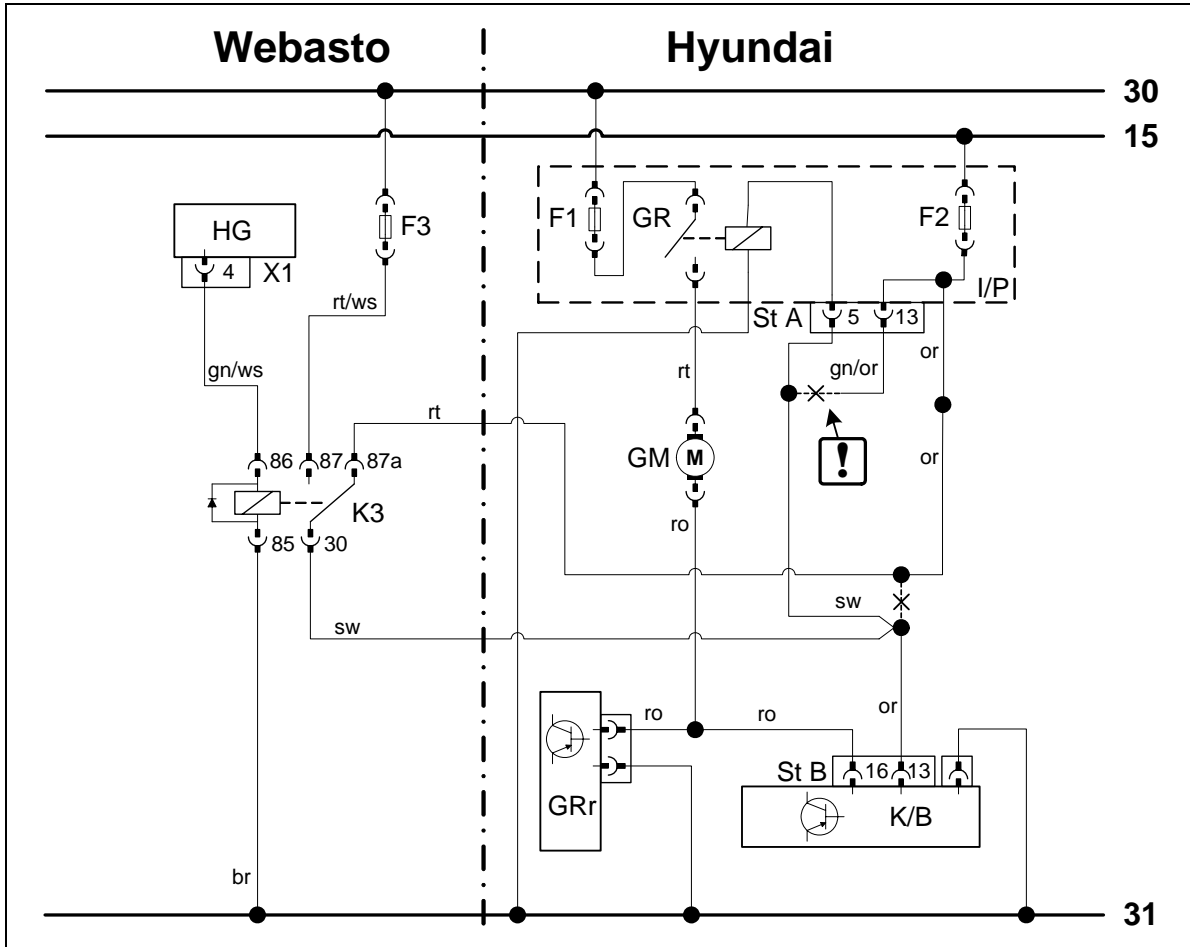
### Wiring harness routing

- 1 Wiring harness of heater unit
- 2 Wiring harness of fan controller and wiring harness of digital timer



### Digital timer, summer/winter switch option

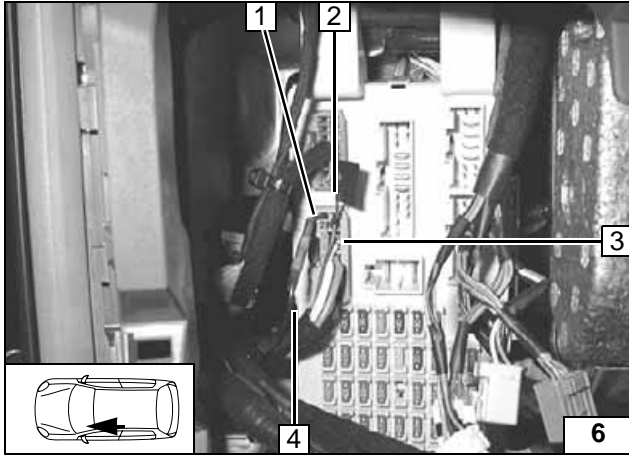
- 1 Digital timer
- 2 Summer/winter switch, drilled hole 12 mm dia.



Wiring diagram for manual air conditioning

Webasto components		Components of Hyundai Santa Fe		Colors and symbols	
HG	Heater unit TT-C/P	GM	Fan motor	rt	red
X1	6-pin connector	GR	Fan relay	ws	white
F3	10 A fuse	K/B	A/C control panel (A/C)	sw	black
K3	Fan relay	F1	Fuse 30A	br	brown
		F2	10 A fuse	gn	green
		I/P	Central electrical box for passenger compartment	or	orange
		St A	Connector, 14-pin I/P-A	ro	pink
		St B	Connector, 26-pin M43-B	Insulate wire ends and tie back	
		GRr	Fan controller		
				X	Cutting point
				Wiring colors may vary.	

Legend



## Fan controller for manual air conditioning

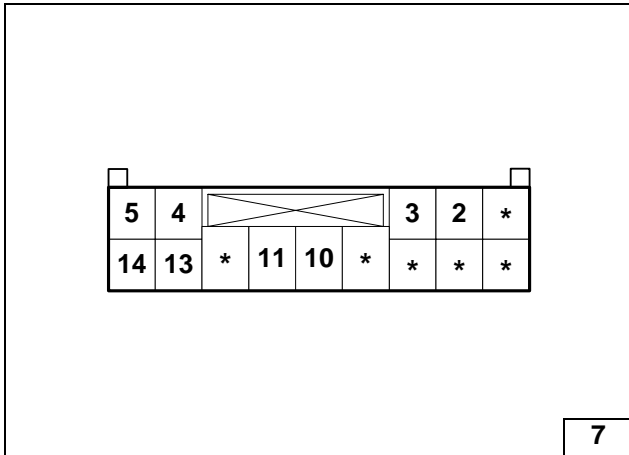
Connection to connector I/P-A 3 from central electrical box. Produce connections as shown in wiring diagram.

- 1 Green/orange (gn/or) wire to I/P-A/5
- 2 Insulate green/orange (gn/or) wire from I/P-A/13 and tie back
- 4 Additional black (sw) wire to A/C control panel

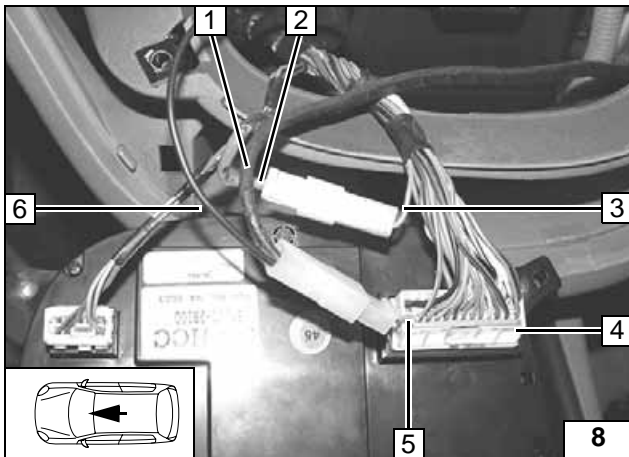
**Con-  
nection to  
central  
electrical  
box**



View of contact side



**Connector  
I/P-A**



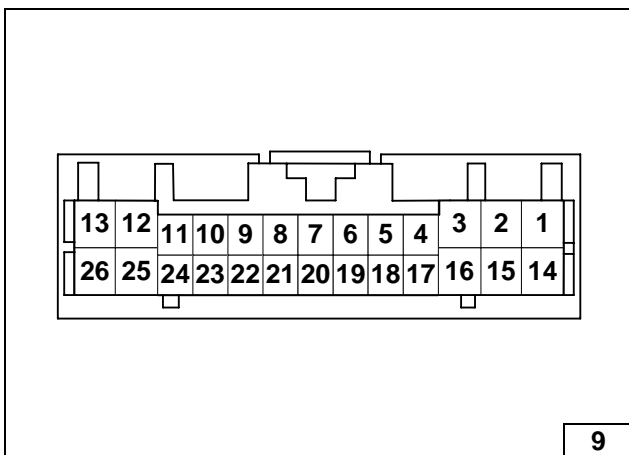
Connection on 26-pin connector M43-B 4 from A/C control panel. Produce connections as shown in wiring diagram.

- 1 Black (sw) wire from K3/30
- 2 Red (rt) wire to K3/87a
- 3 Orange (or) wire from central electrical box
- 5 Orange (or) wire to M43-B/13 A/C control panel
- 6 Additional black (sw) wire from fan relay

**Con-  
necting fan  
controller**



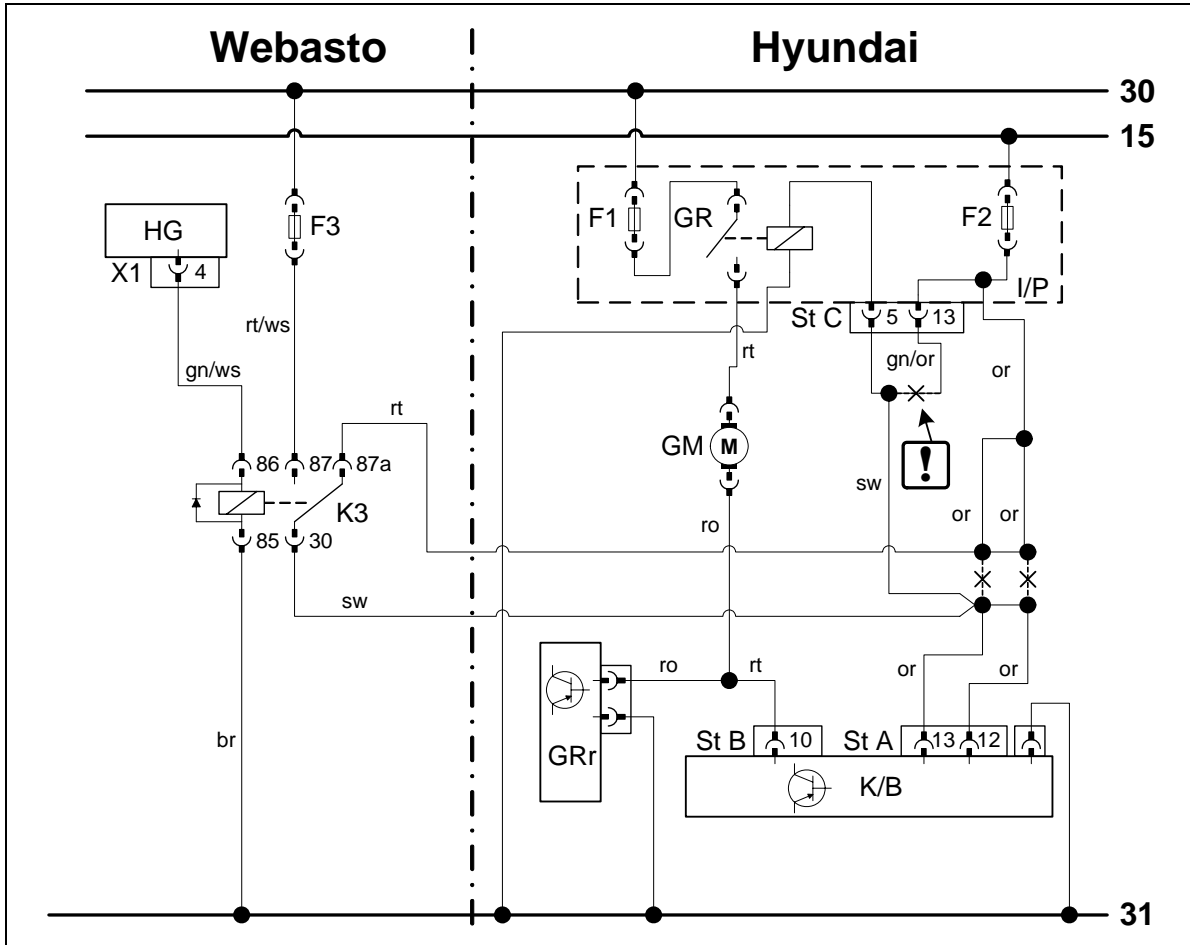
View of contact side



**Connector  
M43-B**



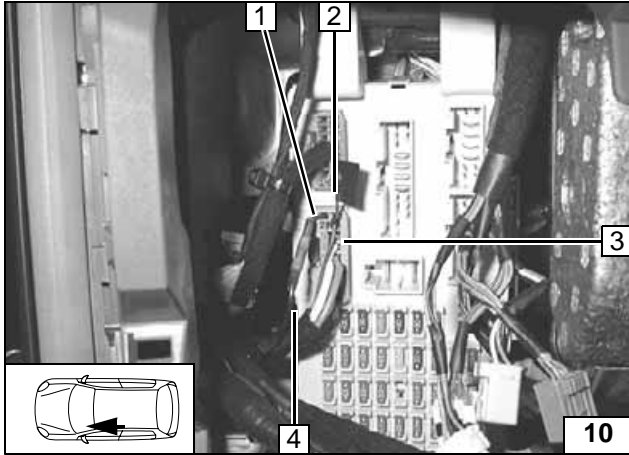




Automatic air-conditioning circuit diagram

Webasto components		Components of Hyundai Santa Fe		Colors and symbols	
HG	Heater unit TT-C/P	GM	Fan motor	rt	red
X1	6-pin connector	GR	Fan relay	ws	white
F3	10 A fuse	K/B	A/C control panel (A/C)	sw	black
K3	Fan relay	F1	Fuse 30A	br	brown
		F2	10 A fuse	gn	green
		I/P	Fuse box	or	orange
		St A	Connector, 26-pin M41-A	ro	pink
		St B	Connector, 22-pin M41-B		
		St C	Connector, 14-pin I/P-A	!	Insulate wire ends and tie back
		GRr	Fan controller		
				X	Cutting point
				Wiring colors may vary.	

Legend



## Automatic air-conditioning fan controller

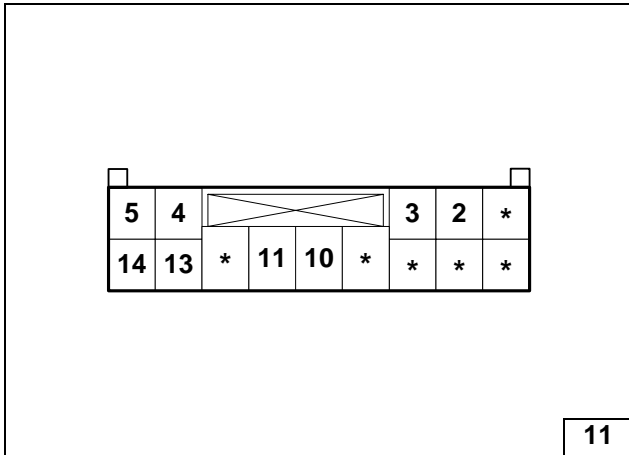
Connection to connector I/P-A 3 from central electrical box. Produce connections as shown in wiring diagram.

- 1 Green (gn) wire to I/P-A/5
- 2 Insulate green (gn) wire from I/P-A/13 and tie back
- 4 Black (sw) wire to A/C control panel

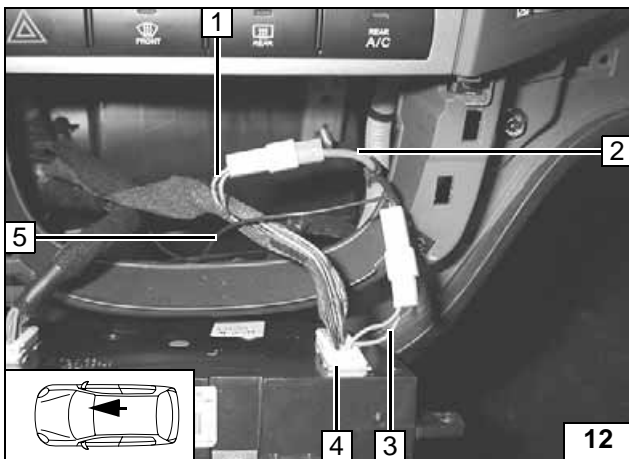


Con-  
nection to  
central  
electrical  
box

View of contact side



Connector  
I/P-A



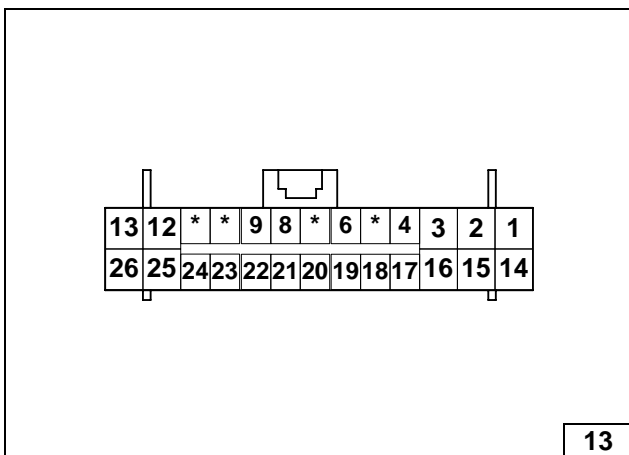
Connection on 26-pin connector M43-B 4 from A/C control panel. Produce connections as shown in wiring diagram.

- 1 Orange (or) wire (2x) from central electrical box
- 2 Red (rt) wire to K3/87a
- 3 Orange (or) wire (2x) to connector M41-A
- 4 Connector
- 5 Black (sw) wire from fan relay



Con-  
necting  
A/C control  
panel

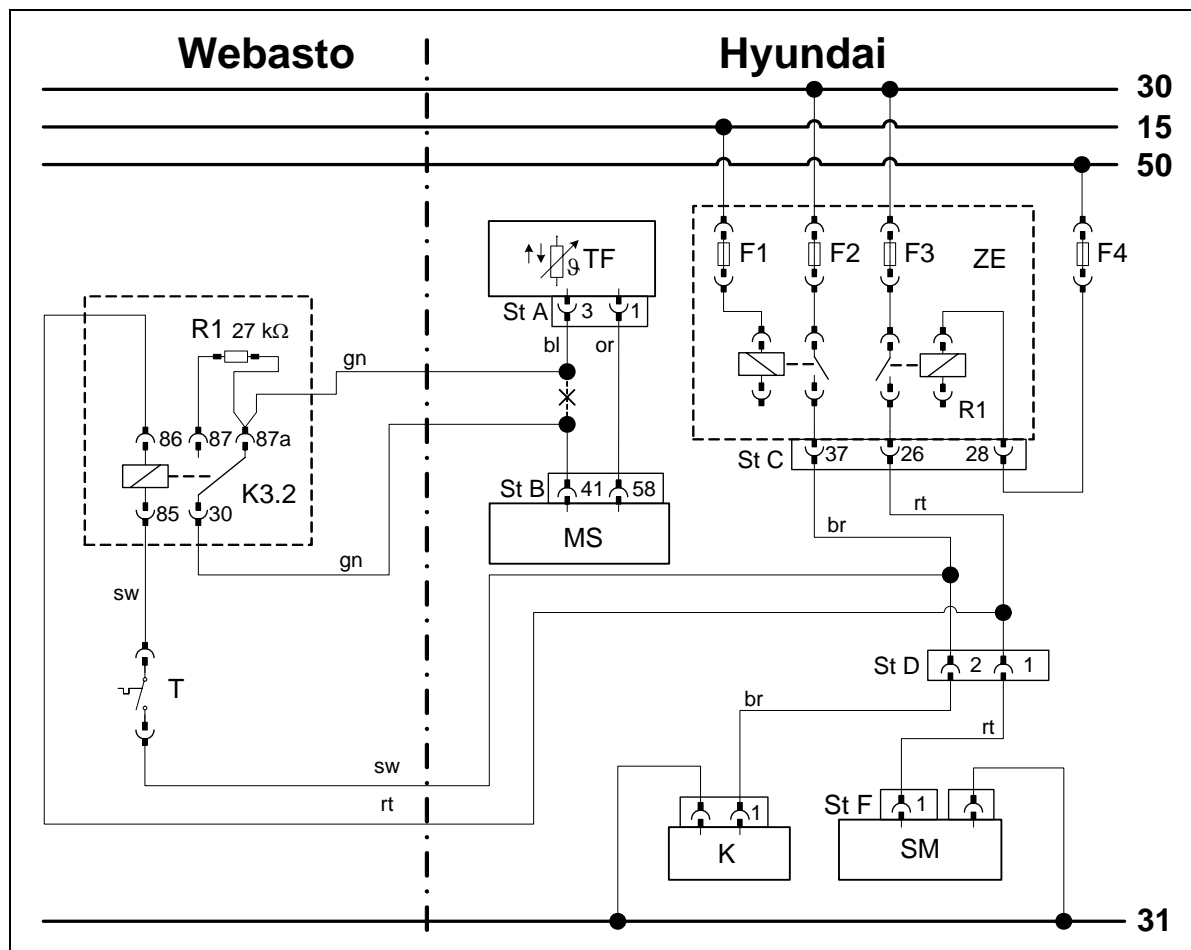
View of contact side



Connector  
M41-A



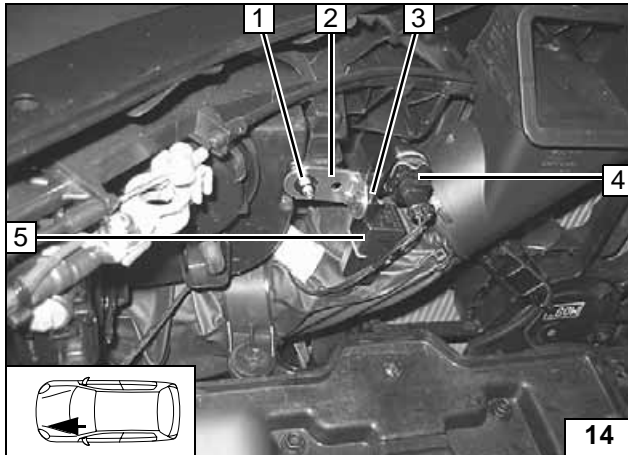
## Cold starting option kit



Wiring diagram for cold starting kit

Webasto components		Components of Hyundai Santa Fe		Colors and symbols	
K3.2	Additional relay	TF	Coolant temperature sensor	rt	red
T	Temperature switch	MS	Engine control unit ECM	ws	white
		K	A/C compressor/magnetic clutch	sw	black
		SM	Starter motor	br	brown
		St A	Connector, 3-pin C204	gn	green
		St B	Connector, 60-pin C230A	or	orange
		St C	Connector U/H-B	bl	blue
		St D	Connector, 4-pin EE201		
		St E	Connector U/H-C		
		St F	Connector E203		
		R1	Starting relay		
		ZE	Central electrical box		
		F1	Fuse <b>Sensor1</b> 10 A		
		F2	Fuse <b>A/CON</b> 10 A		
		F3	Fuse <b>IGN2</b> 40 A	X	Cutting point
		F4	Fuse <b>Start</b> 10 A	Wiring colors may vary.	

Legend

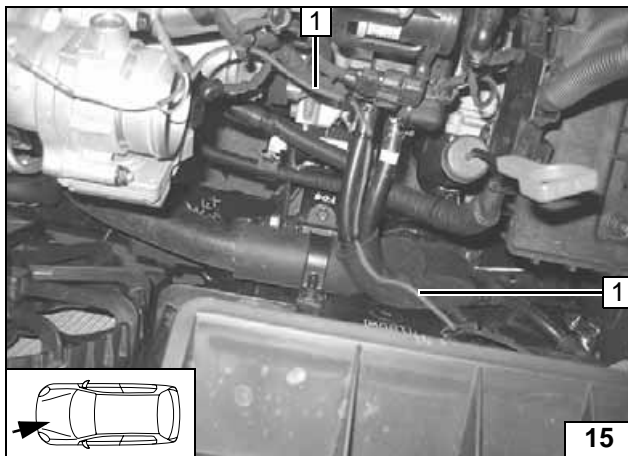


Fasten temperature switch 4 and additional relay 5 as shown.

- 1 Original vehicle bolt
- 2 Angle bracket
- 3 M4x16 bolt, large diameter washers, nut on angle bracket

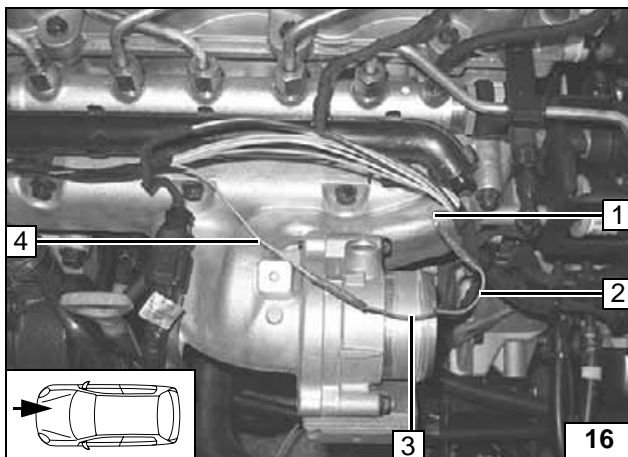


**Fastening  
switch and  
relay**



1 Route wiring harness as shown

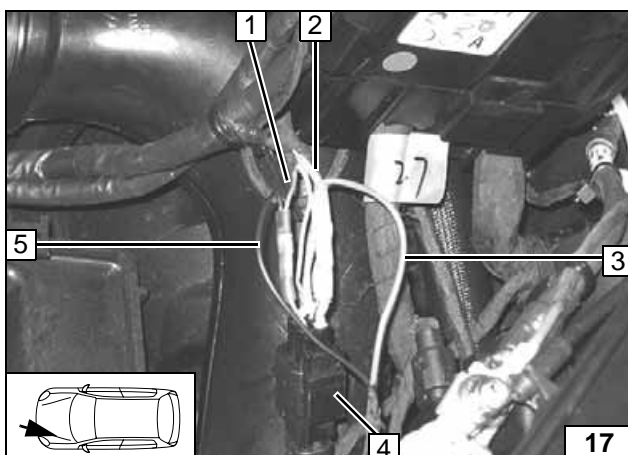
**Routing  
wiring  
harness**



Produce connections as shown in wiring diagram.

- 1 Blue (bl) wire to engine control unit
- 2 Green (gn) wire to K3.2/30
- 3 Green (gn) wire from K3.2/87a
- 4 Blue (bl) wire from coolant temperature sensor of vehicle

**Con-  
necting  
relay**

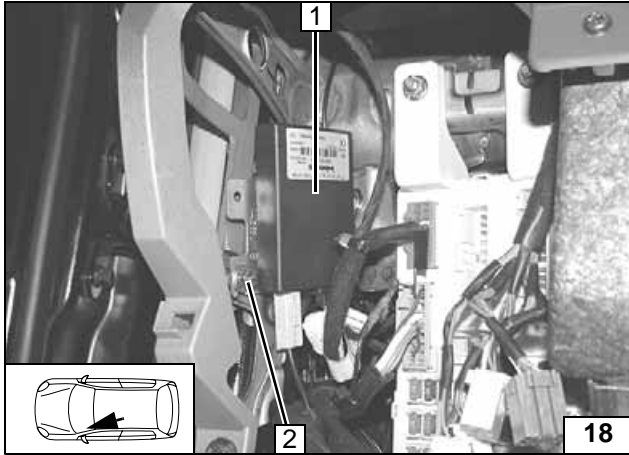


Produce connections as shown in wiring diagram.

- 1 Brown (br) wire from connector U/H-B/37
- 2 Red (rt) wire from connector U/H-B/26
- 3 Red (rt) wire from K3.2/86
- 4 Connector EE201
- 5 Black (sw) wire to temperature switch



**Con-  
necting  
switch/  
relay**

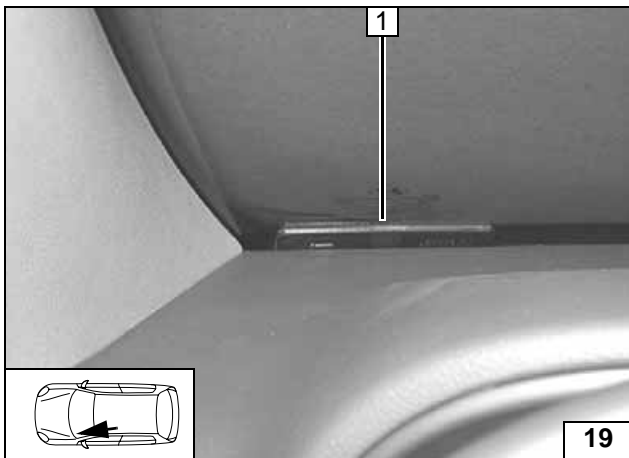


## Remote option (Telestart)

- 1 Receiver
- 2 M5x16 bolt, washer, flanged nut on existing hole

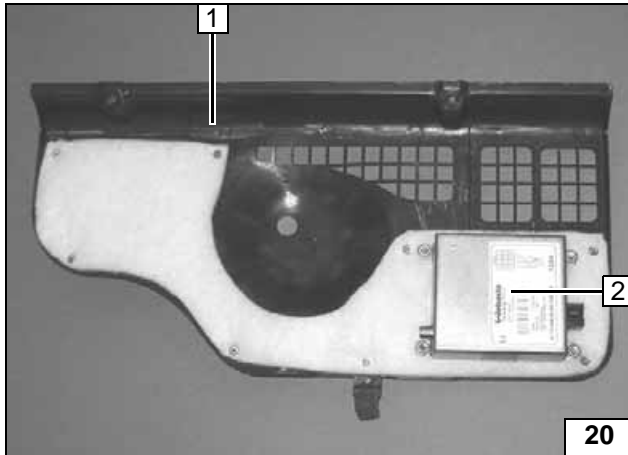


**Installing receiver**



- 1 Antenna

**Installing antenna**

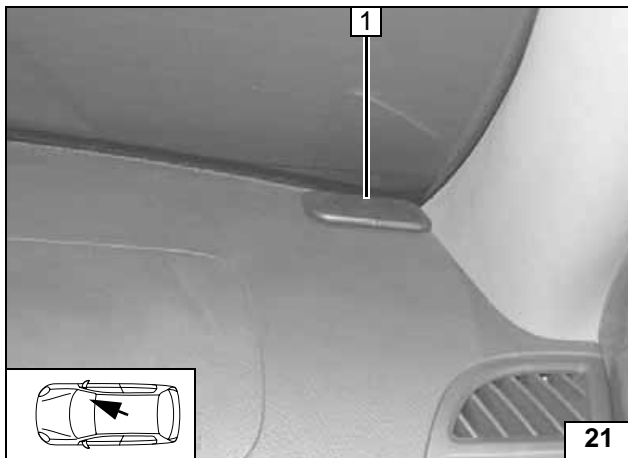


## Remote option (Thermo Call)

- 1 Lower instrument panel trim on front passenger side
- 2 Receiver, M5x20 bolts, flanged nuts, washer [4x each]

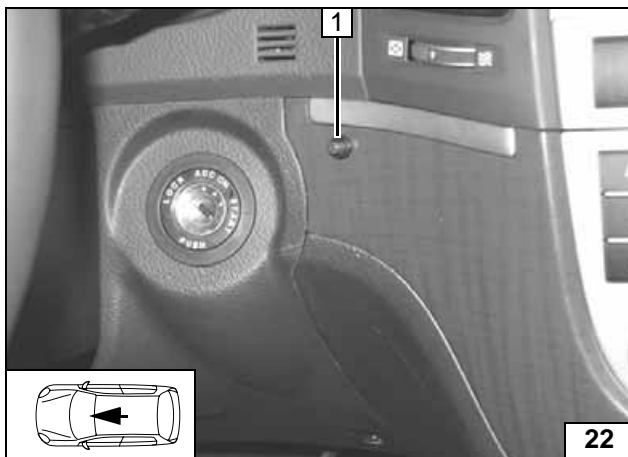


Installing receiver



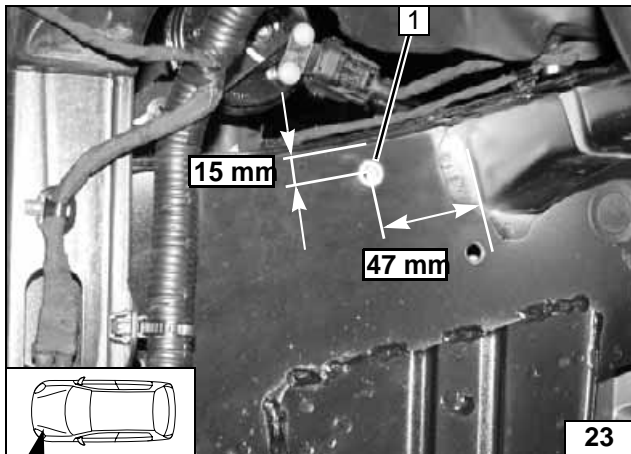
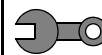
- 1 Antenna

Installing antenna



- 1 Pushbutton

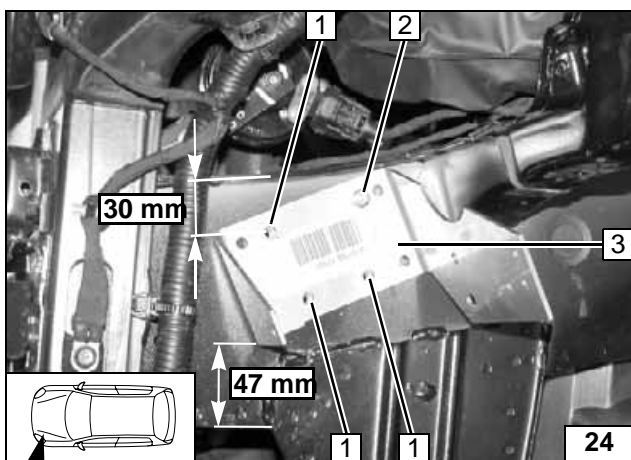
Installing push button



## Preparing installation location

- 1 Install rivet nut in 9.1 mm dia. hole

Installing rivet nut

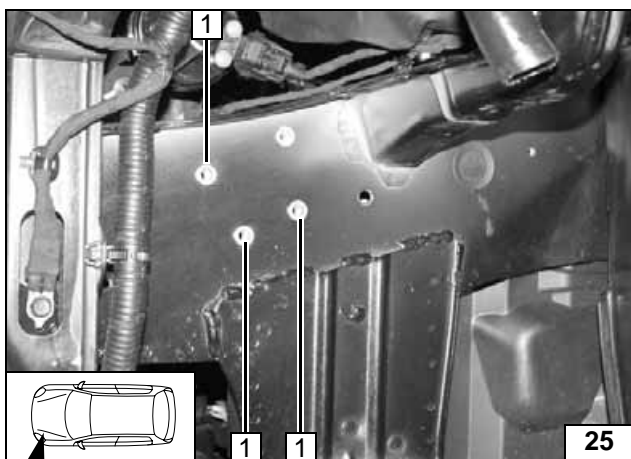


Loosely premount bracket 3.

- 1 Copy hole pattern [3x]
- 2 M6x30 bolt on rivet nut



Copying hole pattern

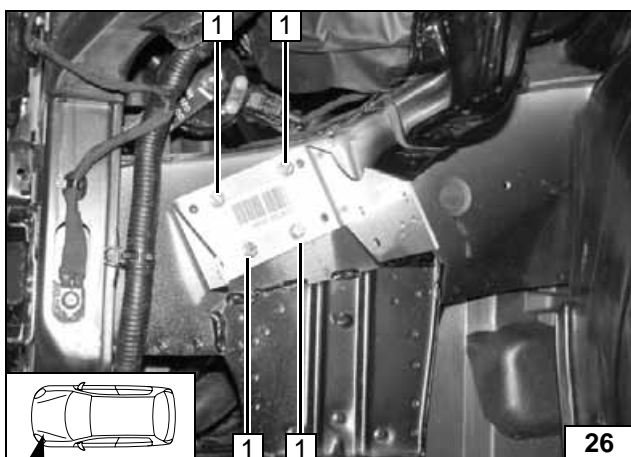


Remove bracket.

- 1 9.1 mm dia. hole; mount rivet nuts [3x]

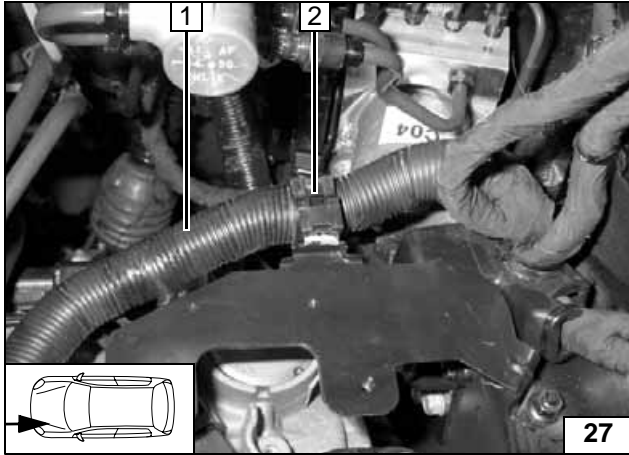
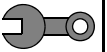


Installing rivet nut



- 1 M6x30 bolt, spring lockwasher, 5 mm shim [4x each] on prepared rivet nuts

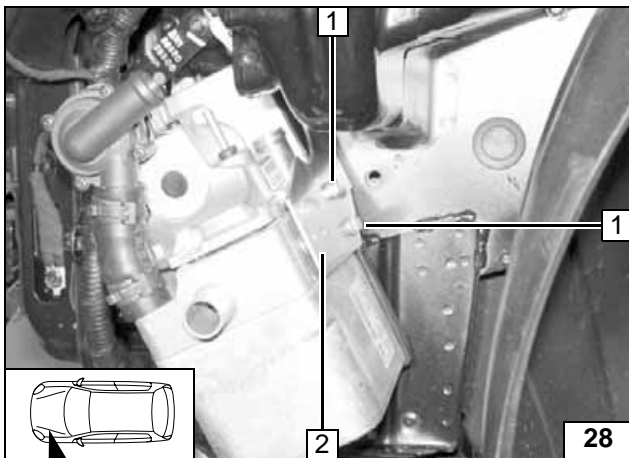
Installing bracket



Remove retaining clip **2** from original vehicle wiring harness **1**, turn 180° and mount at position **2**.



**Turning retaining clip**



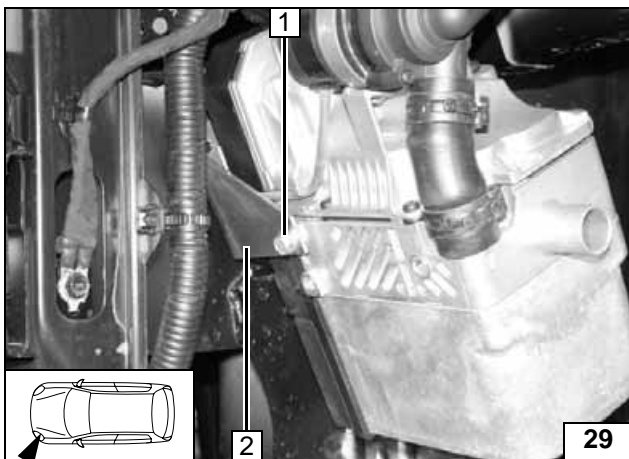
### Installing heater unit

Tighten E-JOT screws to 10 Nm!

- 1 E-jot screw [2x]
- 2 Bracket



**Installing heater unit**



E-jot screw bolt, tightening torque 10 Nm!

- 1 E-jot screw
- 2 Bracket



**Installing heater unit**





**Coolant connection**

**WARNING!**

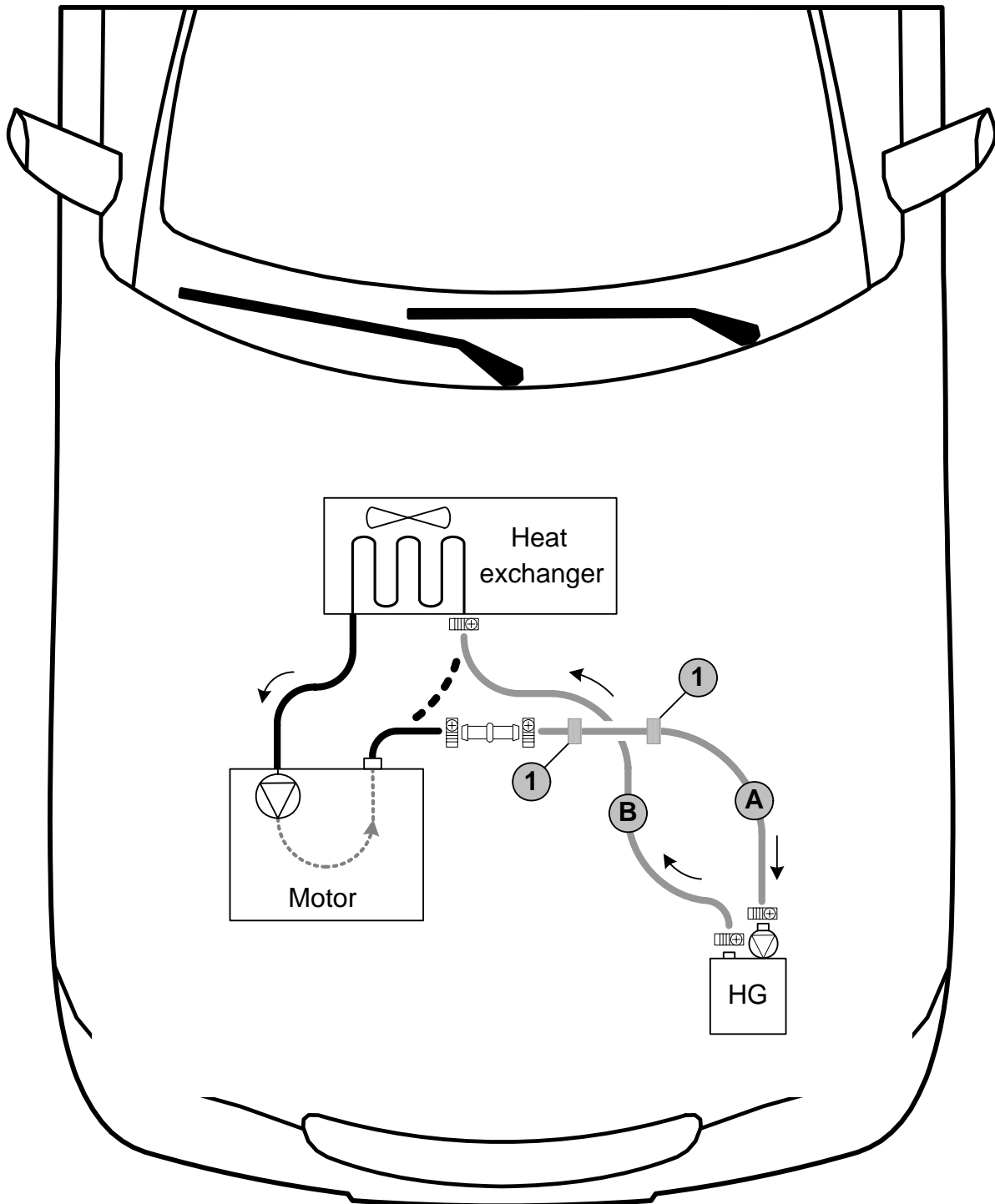
Tighten all hose clamps to 2.0 + 0.5 Nm.

Any coolant running off should be collected using an appropriate container!

Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties.

Position hose clamps and spring band clamps so that no other hose can be damaged.

The connection should be "inline" based on the following diagram:

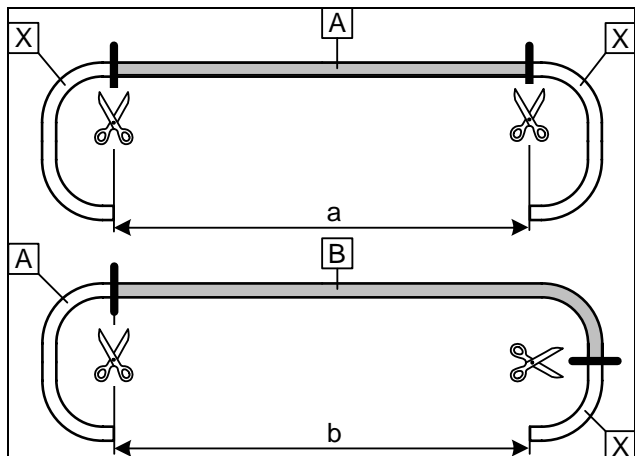
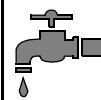


Coolant routing diagram

All hose clamps = 20-27 mm dia.! Connecting pipe = dia. 20x20!

1 = Black (sw) rubber isolator [2x]

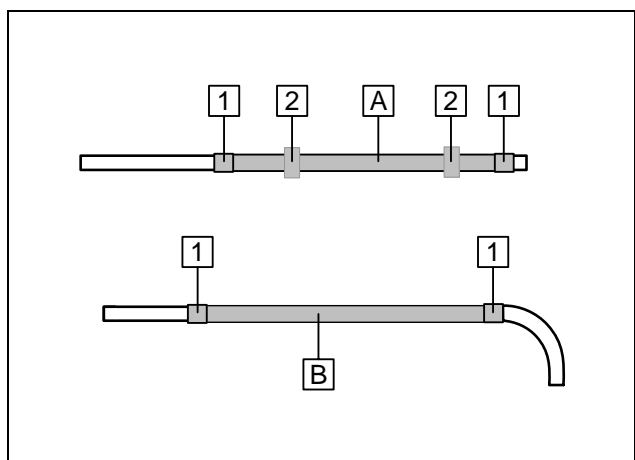




a = 1310 mm  
b = 1170 mm

Discard sections X

Cutting coolant hoses to length

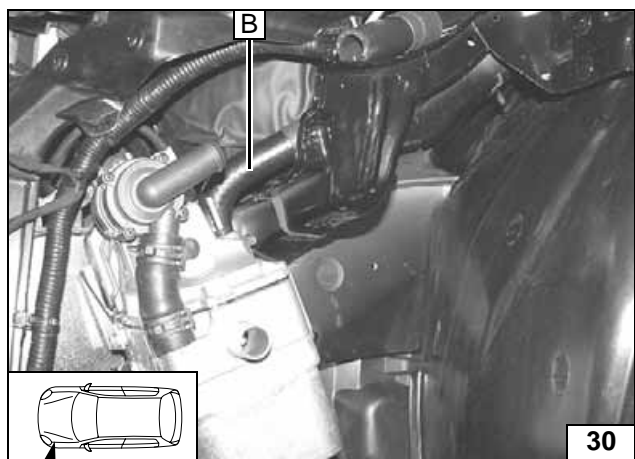


Push braided protection hoses onto hose A and B. Cut heat shrink plastic tubing to length. Push on rubber isolator.

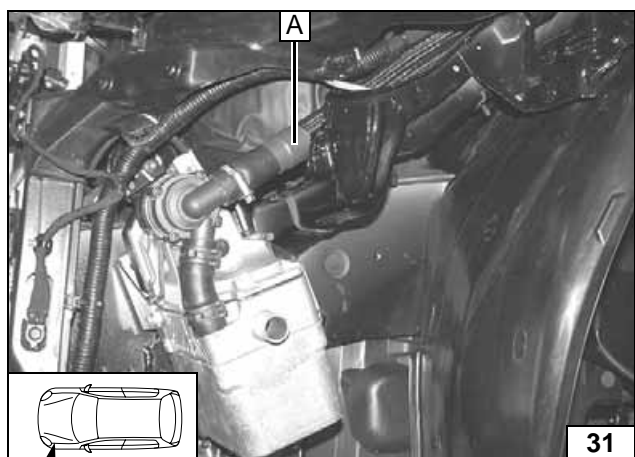
- 1 25 mm heat shrink plastic tubing [4x]
- 2 Black (sw) rubber isolator [2x]



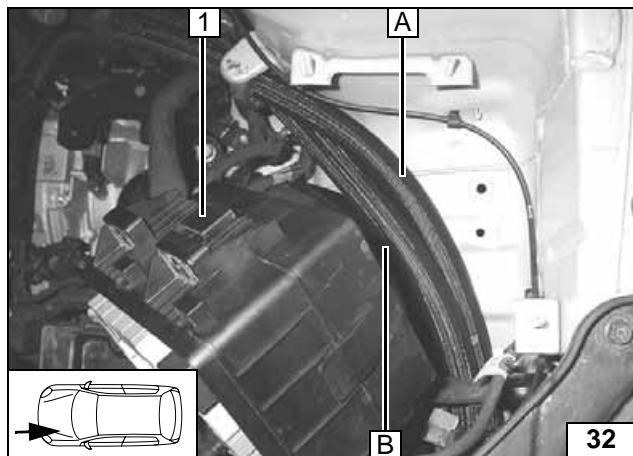
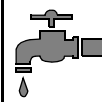
Preparing coolant hoses



Con-  
nection on  
heater unit  
outlet



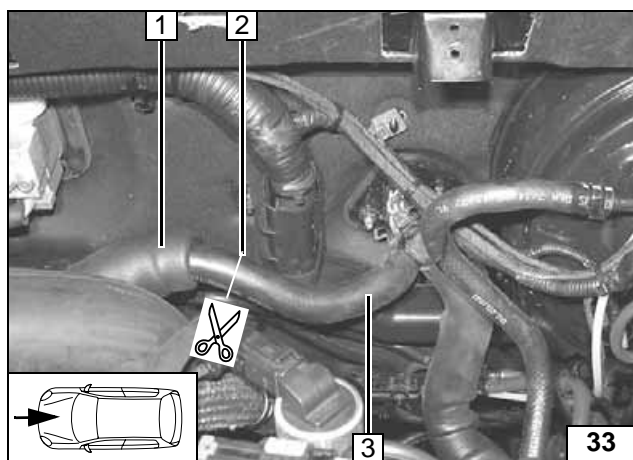
Con-  
nection on  
heater unit  
inlet



Detach central electrical box **1** and lay aside; remount after routing hose. Ensure sufficient distance to neighboring components.

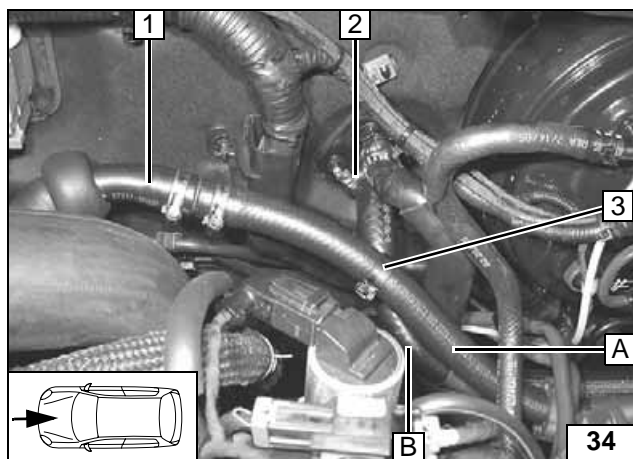


**Routing under central electrical box**



- 1 Push back heat protection hose
- 2 Cutting point
- 3 Remove hose section and discard

**Preparing connection**

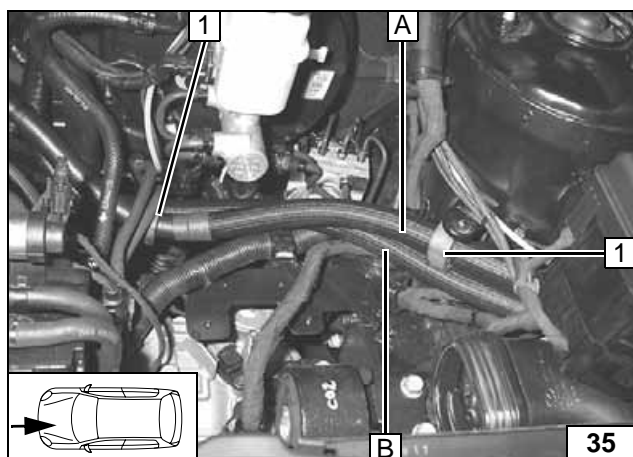


Before connecting, fill the coolant hoses with coolant.

- 1 Hose of engine outlet
- 2 Heat exchanger inlet
- 3 Spacer bracket



**Connecting engine and fan heat exchanger**



- 1 Black (sw) rubber profile [2x]

**Aligning rubber isolator**



## Fuel Connection

### CAUTION!

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

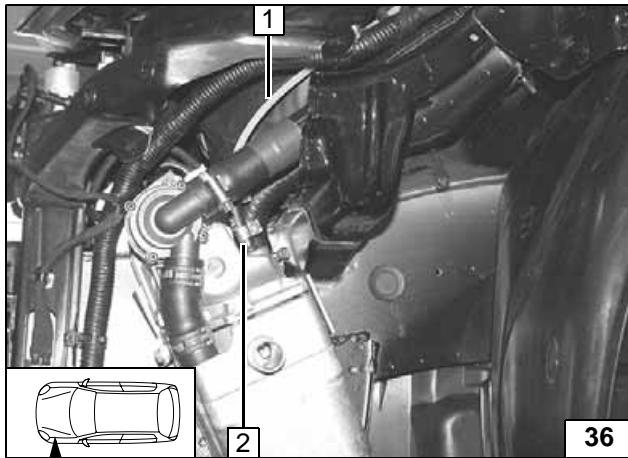
Catch any fuel running off with an appropriate container.

Install fuel line and metering-pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.

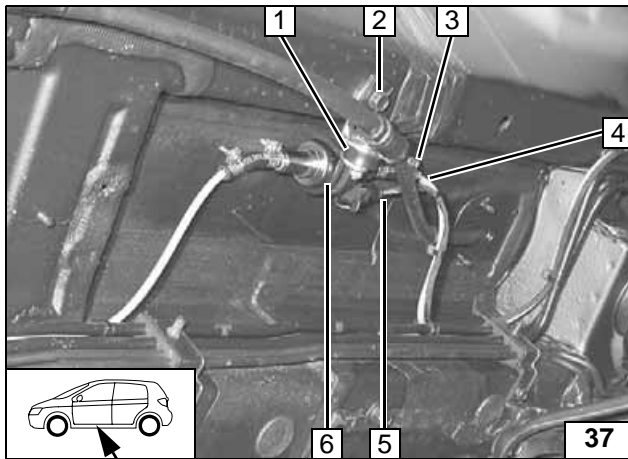
Mount the fuel line and wiring harness with rub protection on sharp edges.

### WARNING!

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

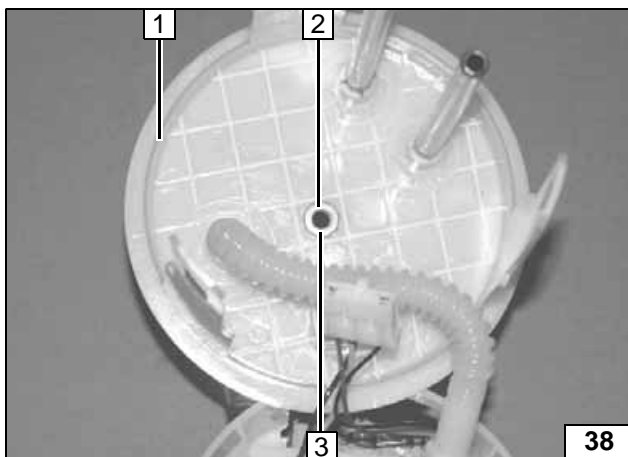


- 1 Mecanyl fuel line
- 2 Hose section with 10 mm dia. hose clamp [2x]



Ensure proper installation position of metering pump, see "Installation Instructions". Connect fuel line from heater unit 4 to pressure side of metering pump [side with connector].

- 1 Angle bracket, rubber buffer, flanged nut [2x]
- 2 Original vehicle bolt with bracket for handbrake cable
- 3 Hose section, 10 mm dia. hose clamp [2x]
- 5 Wiring harness of metering pump, single-wire seal, tab connector, connector housing
- 6 Metering pump, rubber-coated p-clamp



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

- 1 Fuel-tank sending unit
- 2 6 mm dia. washer
- 3 Copy hole pattern, 6 mm dia. hole



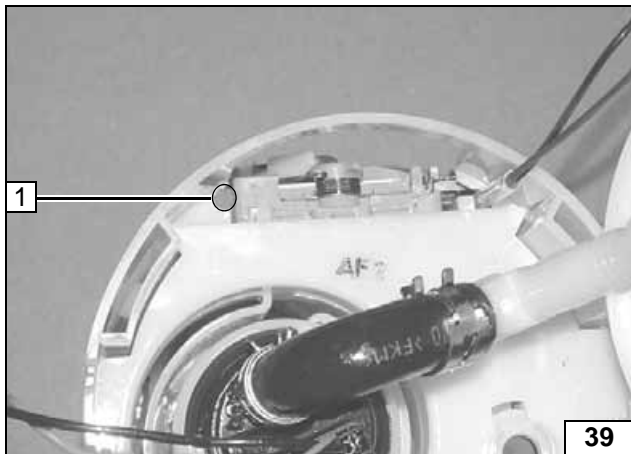
Con-  
nection to  
heater unit



Installation  
location of  
metering  
pump

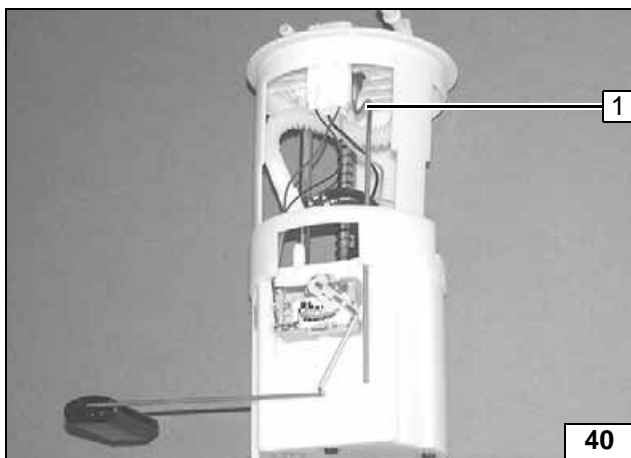


Hole for  
fuel  
standpipe



Cut out pass through for fuel standpipe 1 as shown.

Hole for fuel standpipe

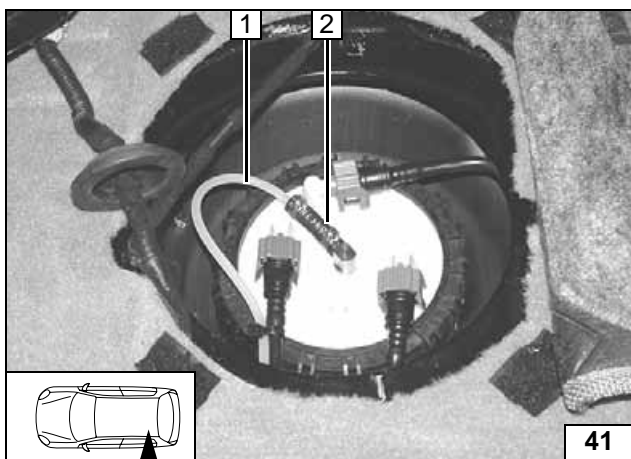


Shape fuel standpipe according to template, cut to length and install, see "installation instructions". Ensure freedom of movement of fuel level sensor.



1 Fuel standpipe

Installing fuel standpipe

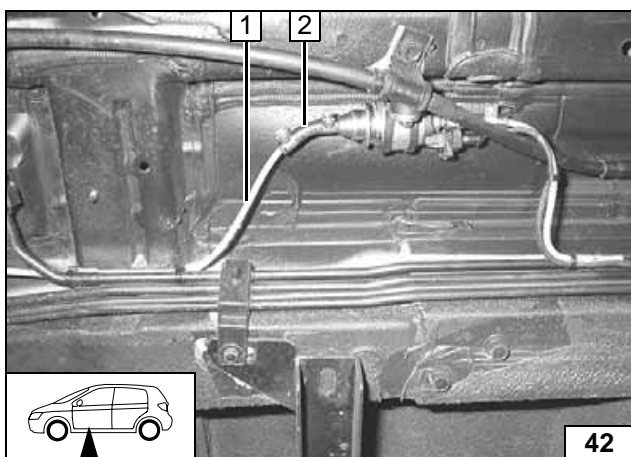


Install fuel-tank sending unit according to manufacturer's specifications



1 Mecanyl fuel line  
2 Hose section, 10 mm dia. hose clamp [2x]

Installing fuel-tank sending unit

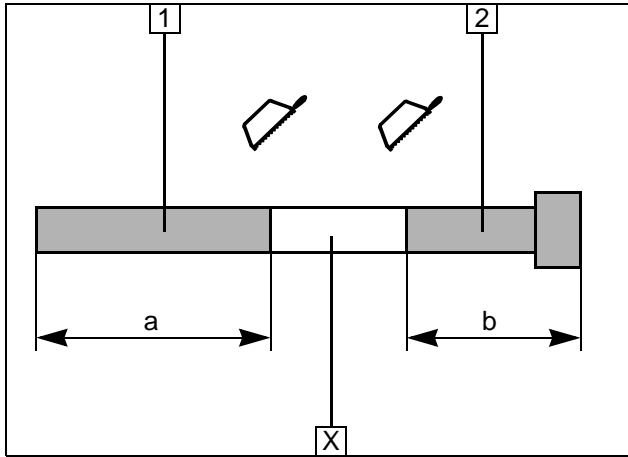


Fuel line from the tank extracting device 1 on the intake side of the metering pump [side without connector]. Check the position of the components; adjust if necessary. Check that they have free clearance.



2 Hose section, 10 mm dia. hose clamp [2x]

Connecting to metering pump

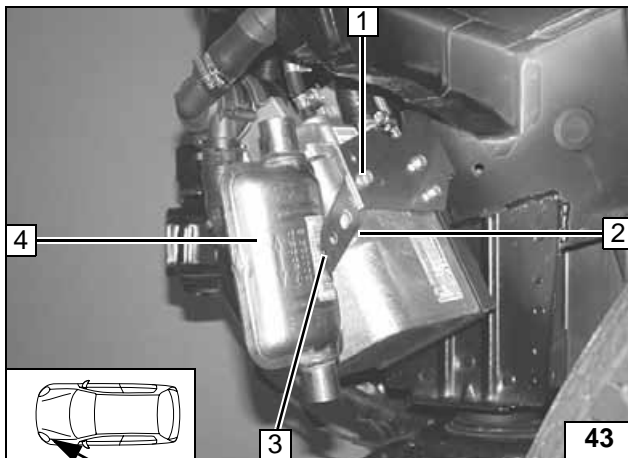


## Exhaust system

- 1 Exhaust pipe  
a = 235 mm
- 2 Exhaust end section  
b = 380 mm

Discard section X

Preparing exhaust pipe

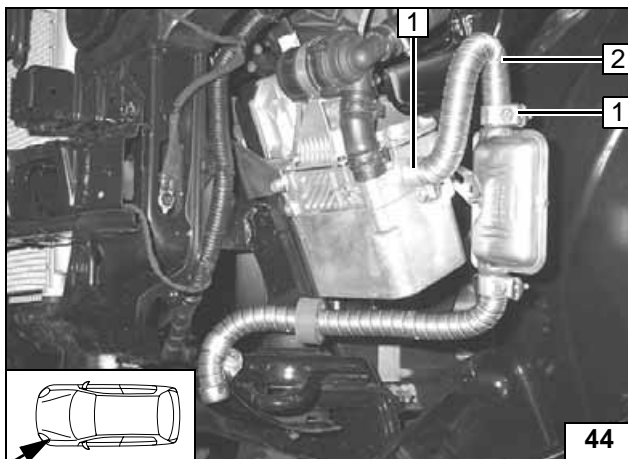


Bend perforated bracket 2 according to template.

- 1 E-jot screw, tightening torque 10 Nm!
- 3 M6x20 bolt, flanged nut
- 4 Exhaust muffler

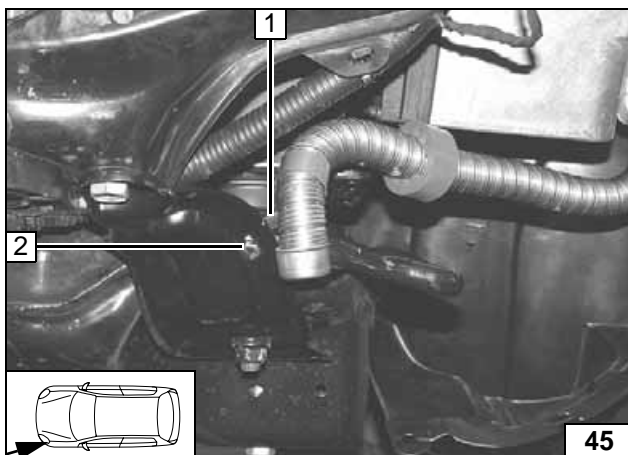


Installing muffler



- 1 Hose clamp [2x]
- 2 Exhaust pipe

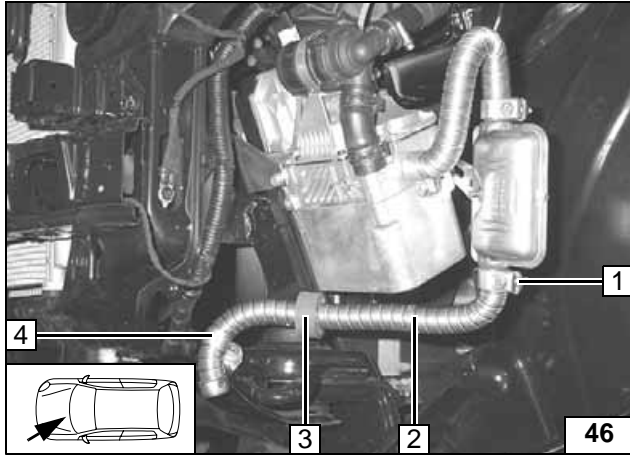
Installing exhaust pipe



Drill 6 mm dia. hole in cross member at position 2. Fasten angle bracket 1 with M6x20 bolt 2, large diameter washer and flanged nut.

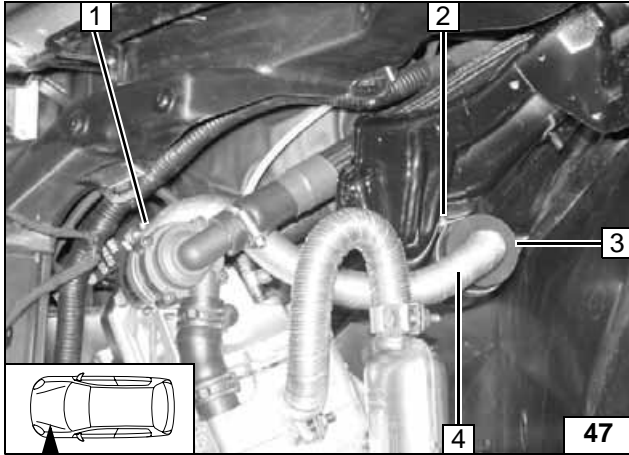
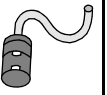


Bracket for exhaust end section



- 1 Hose clamp
- 2 Exhaust end section
- 3 Red (rt) rubber isolator
- 4 P-clamp, M6x20 bolt, flanged nut on angle bracket

**Installing  
exhaust  
pipe and  
end  
section**



## Combustion air

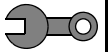
Remove rubber coating from p-clamp.

- 1 27 mm dia. hose clamp
- 2 M6x20 bolt, 48 mm dia. p-clamp, large diameter washer [2x], flanged nut on hole in cross member
- 3 Combustion-air intake muffler
- 4 Combustion-air intake pipe



**Installing combustion air pipe**





## Final Work

### WARNING!

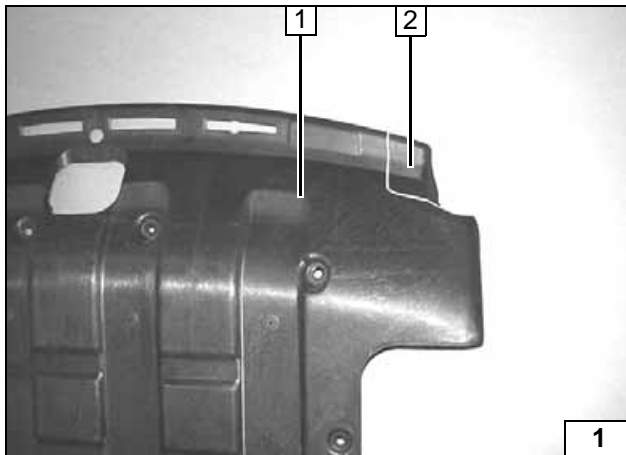
Reassemble the disassembled components in reverse order.

Check all hoses, hose, spring and Caillau clamps, as well as all electrical connections for firm seating. Secure all loose cables using cable ties.

Only use manufacturer-approved coolant.

Spray the heater unit 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.
- Set the manual air conditioning or automatic air conditioning according to the "operating instructions for the end customer".
- Check the proper operation of the additional heater, see the operating instructions/installation instructions.
- Attach the "Switch off additional heater before refueling" sticker to the left-hand B-pillar.



- 1 Underride protection
- 2 Discard section cut out for pass through of exhaust end section

**Cutting out  
underride  
protection**

# Webasto

*Feel the drive*

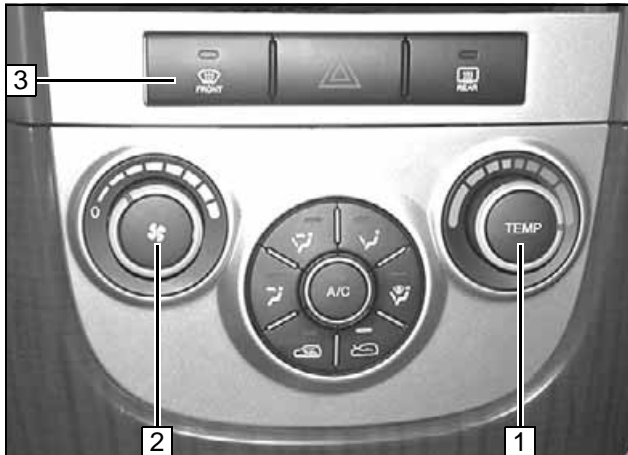
Webasto AG  
Postfach 80 - 82132 Stockdorf, Germany - Hotline +49-  
(0)1805-932278  
Hotfax +49-(0)395-5592-353 - <http://www.webasto.de>

## Operating Instructions for End Customer

Please remove page and add to the vehicle operating instructions.



Before parking the vehicle, make the following settings:



- 1 Set temperature to "max."
- 2 Set fan to level "2", or possibly "3"
- 3 Direct air outlet toward windshield



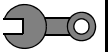
- 1 Air outlet to windshield
- 2 Set temperature to "HI"
- 3 Set fan to level "2"

For vehicles with manual air conditioning

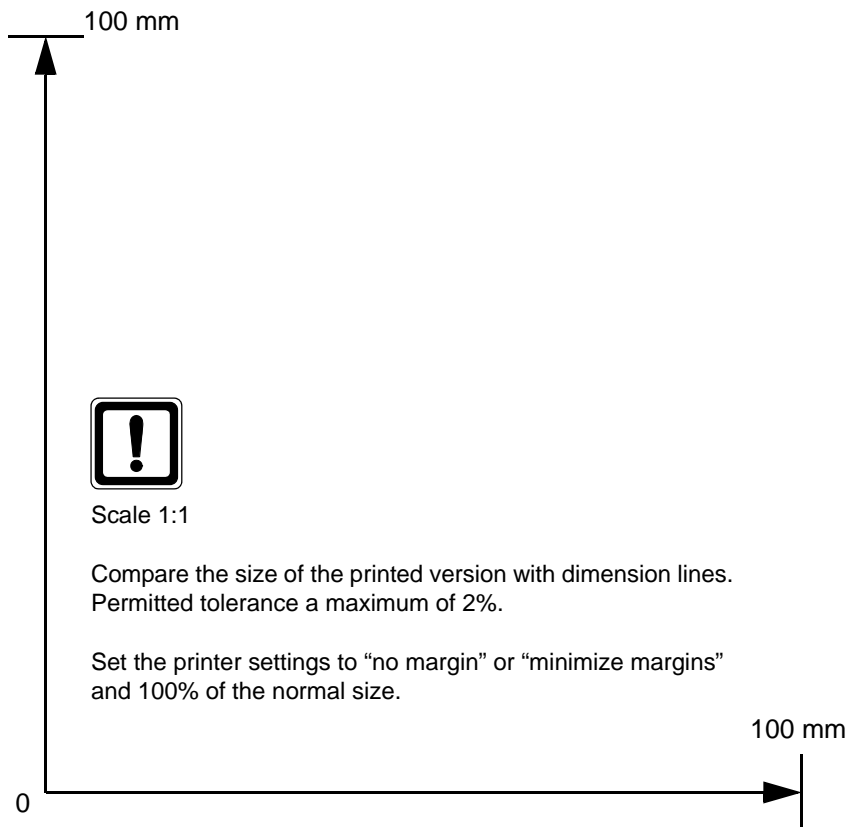
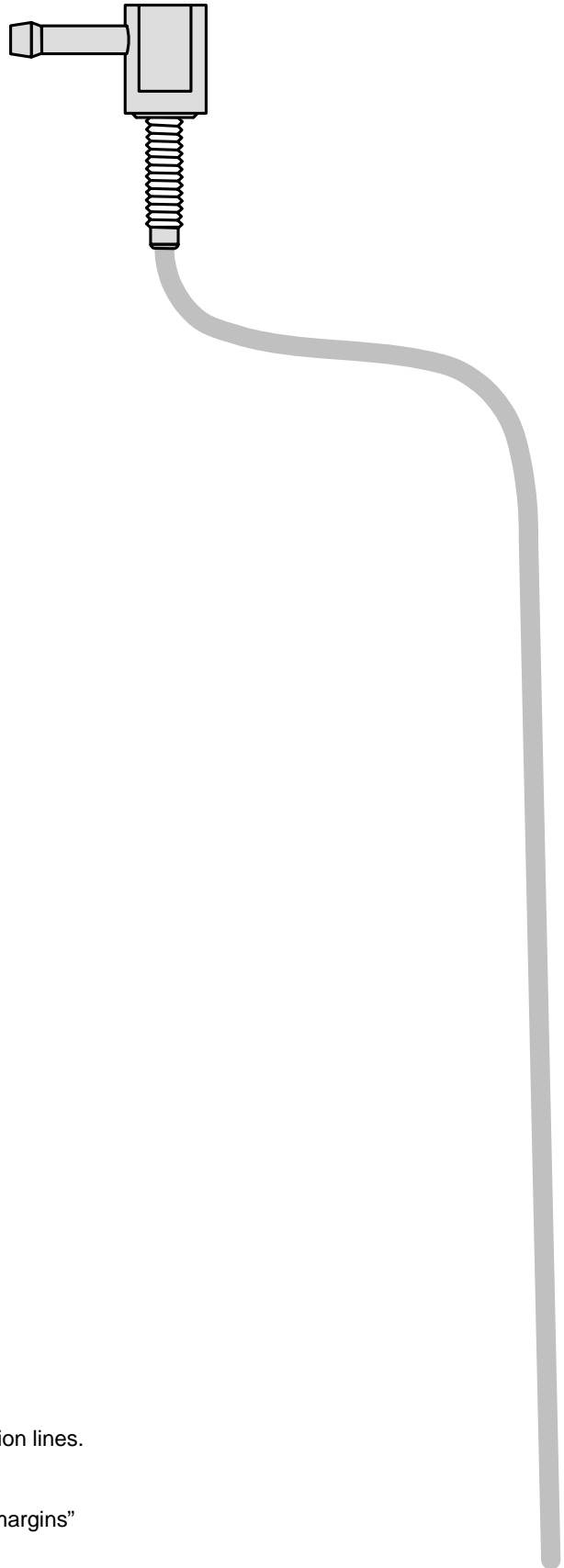
For vehicles with automatic air conditioning

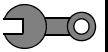
**When operating over short distances, it is recommended that additional electrical consumers not be used!**

**Rule of thumb for operating additional heater: driving time = heating time!**



Template for Fuel Standpipe





**Template for Perforated  
Fastening Strap**

