Water heater

Webasto
Feel the drive

Thermo Top C Parking heater

e1
00 0002

Thermo Top E Parking heater

e1
00 0003

Installation documentation

Hyundai Tucson

2.0 Petrol and Diesel
from Model Year 2005
Left-hand drive vehicle
Manual transmission

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.: 1303238B_EN Fee Euro 10.00 Webasto AG

Table of Contents

Validity

Manufacturer	Model	Type	EG-BE No./ABE
Hyundai	Tucson	JM	e4*2001 / 116*0087*00

Engine type	Engine model	Output in kW	Displacement in cm
G4GC	Petrol	104	1975
D4EA	Diesel	83	1991

Vehicle types, engine types and equipment variants not listed in these 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	Description	Order No.:
1	Retail accessories *Thermo Top E / C*	See price list
1	Installation kit Hyundai Tucson 2005 2.0 Petrol and Diesel	1303234A
1	Heater control	See price list

Heater recommended for the respective vehicle class:

Vehicle	Heater
Compact car	Thermo Top E
Mid-size car, station wagon	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 Tucson 2.0 Petrol and Dieselvehicles - for validity, see page 2 - from model year 2005 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 the "installation documentation", the "operating instructions" and the "installation 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.Insulate loose wire ends and tie back
Sharp edges should be fitted with rub protection (split-open plastic hose).
Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

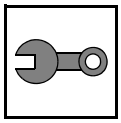
Special Tools

- Torque wrench for 2.0 - 10 Nm
- Hose clamping pliers
- Riveting pliers

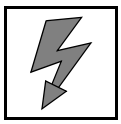
Explanatory Notes on Document

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

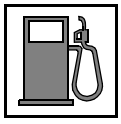


Electrical system

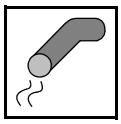


Coolant circuit

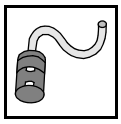
Fuel



Exhaust gas



Combustion air



Special features are highlighted using the following symbols:

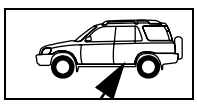
Specific risk of injury or fatal accidents.

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.

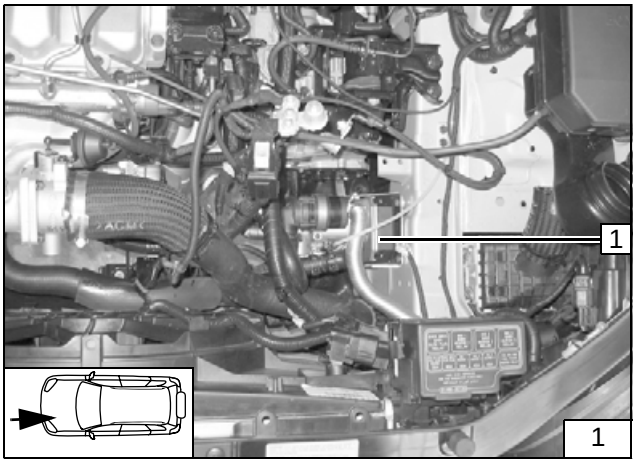


The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

Preliminary Work

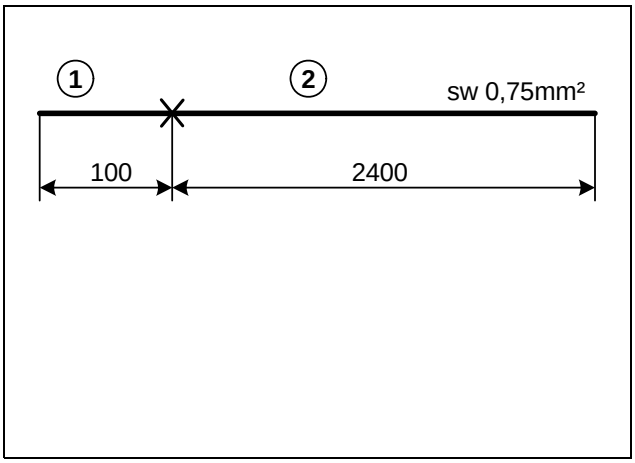
Warning!

- 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 battery.
- Remove the entire air filter
- Only with Diesel:Remove pipe between intercooler and engine
- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Remove the underride protection
- Detach rear left seat
- Open the left tank-fitting service lid.
- Remove trim and centre console
- Only with automatic air-conditioning:Release A/C control panel



Heater installation location

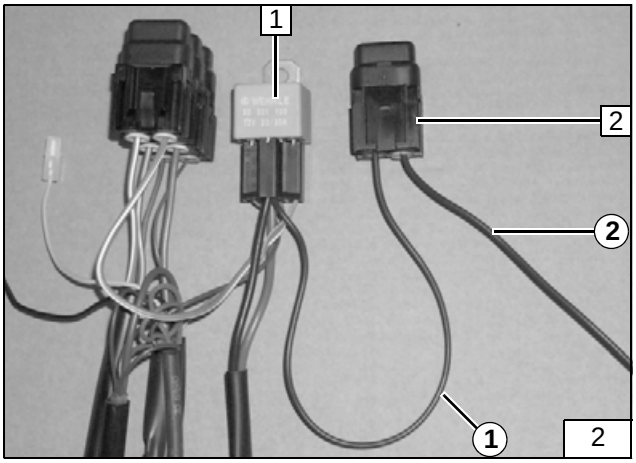
(**1**) Heater



Preparing electrical system

Only with automatic air-conditioning

Cutting wires to length



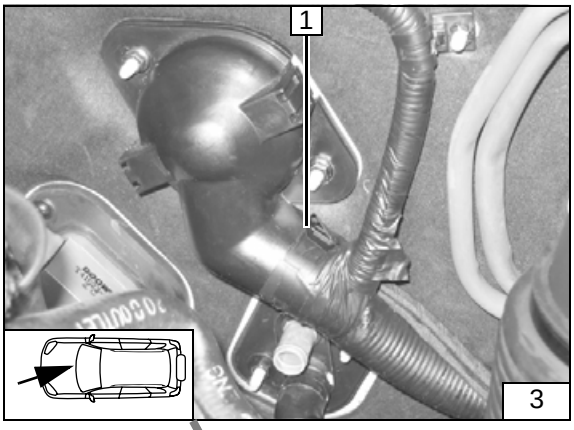
Establish connections according to wiring diagram of automatic air-conditioning with attached flat spring contacts, single-wire sealings and tab receptacle.

(**1**) Relay K3, connection 30
(**2**) Fuse holder F4 with fuse 3A

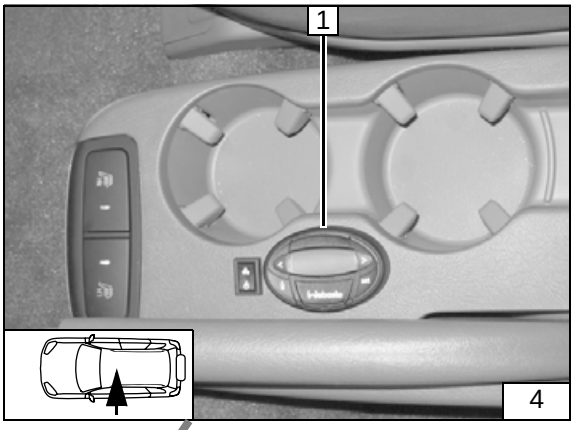
Connecting fuse F4

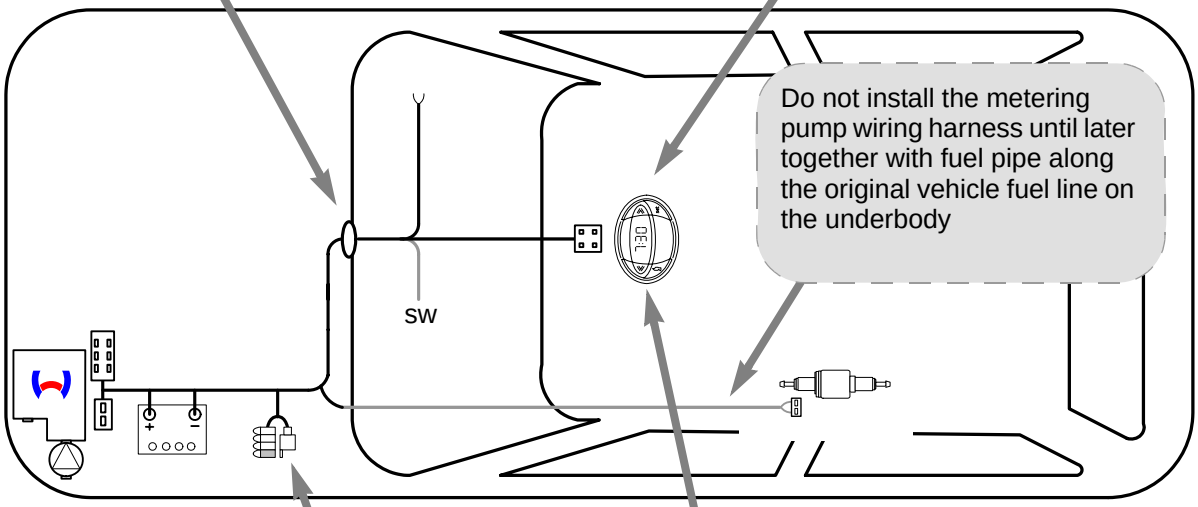
Cut provided 2500 mm long protective sleeving to length and slide on to wire (**2**).

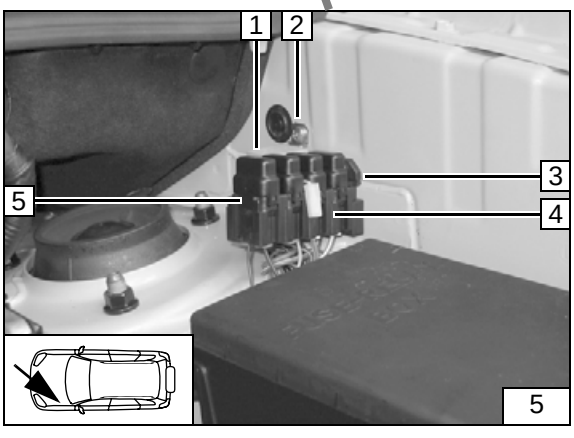
Wiring harness pass through
(**1**) Protective rubber plug



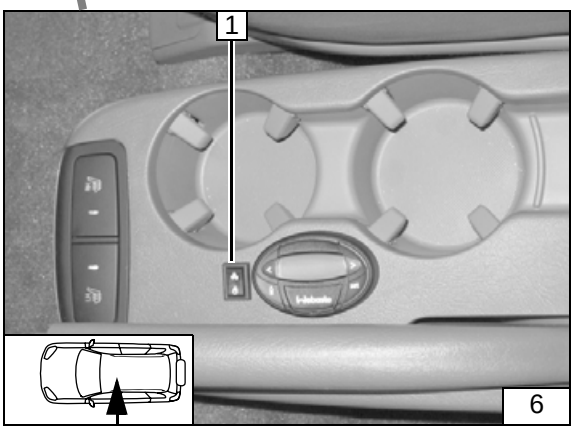
Digital timer
(**1**) Digital timer





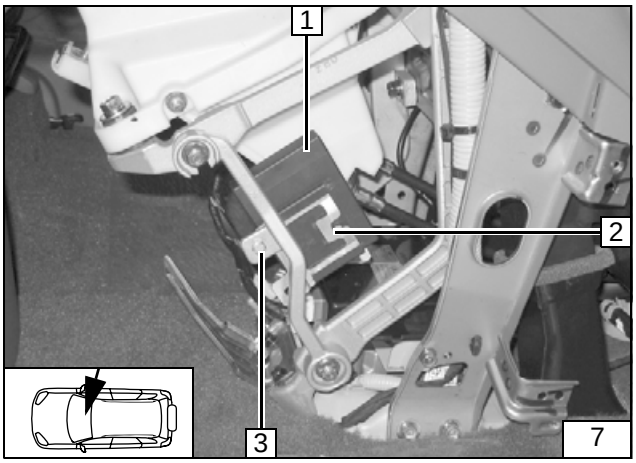


Fuse holder, K3 relay
(**1**) K3 relay
(**2**) 4 mm dia. hole, 5.5x9.5 self-tapping screw
(**3**) Retaining plate, 4 mm dia. hole, 5.5x9.5 self-tapping screw
(**4**) Fuse holder plugged in
(**5**) Fuse F4 (only with automatic air-conditioning)



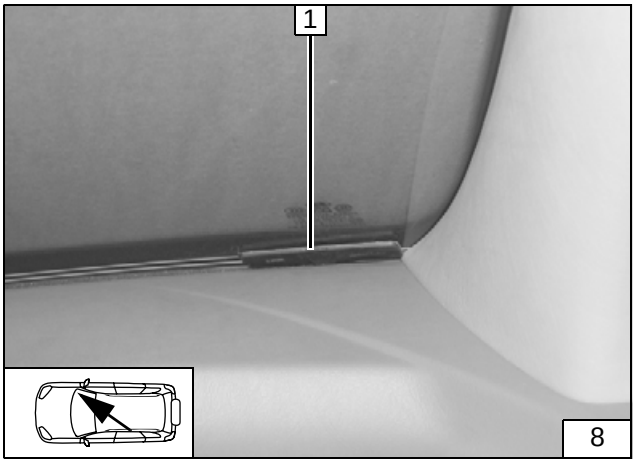
Summer/winter switch option
(**1**) Summer/winter switch, 12 mm dia hole.

Remote option (Telestart)



(**1**) Receiver
(**2**) Bracket
(**3**) M5 bolt, nut

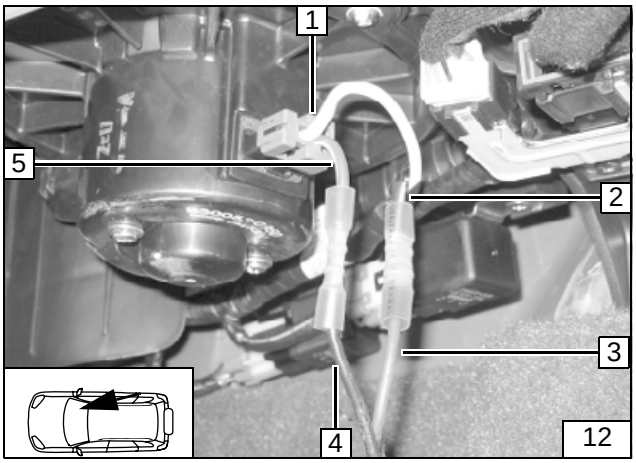
Installing receiver



(**1**) Antenna

Installing antenna

Establish all connections according to provided general EBA and fasten wires with cable ties

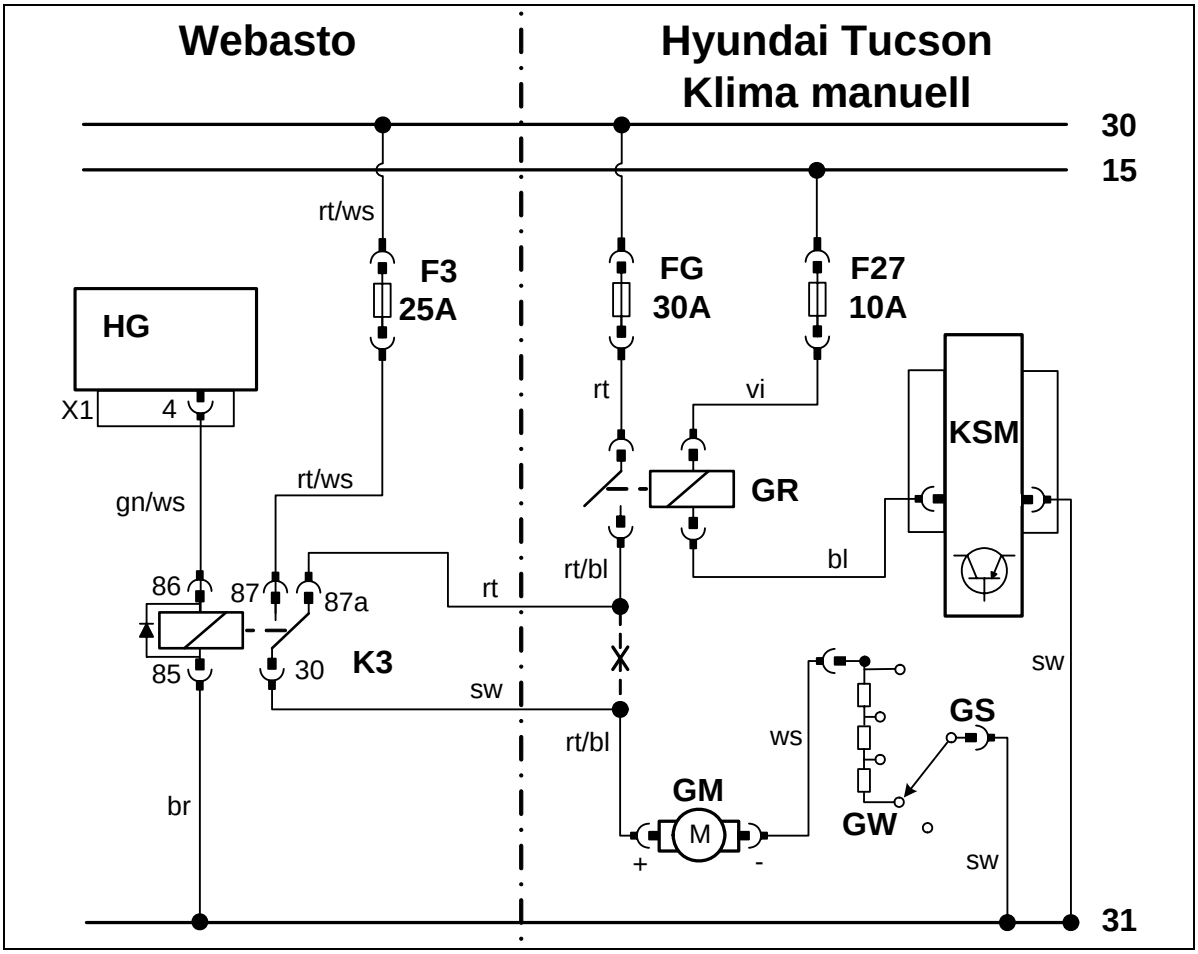


Fan controller for manual air conditioning

Connection to 2-pin connector **(1)** from the fan motor.
Make connections as shown in wiring diagram with the yellow connectors provided.

(**1**) Connector
(**2**) Red/blue (rt/bl) wire from original vehicle fan relay
(**3**) Red (rt) wire from K3/87a
(**4**) Black (sw) wire from K3/30
(**5**) Red/blue (rt/bl) wire of fan motor

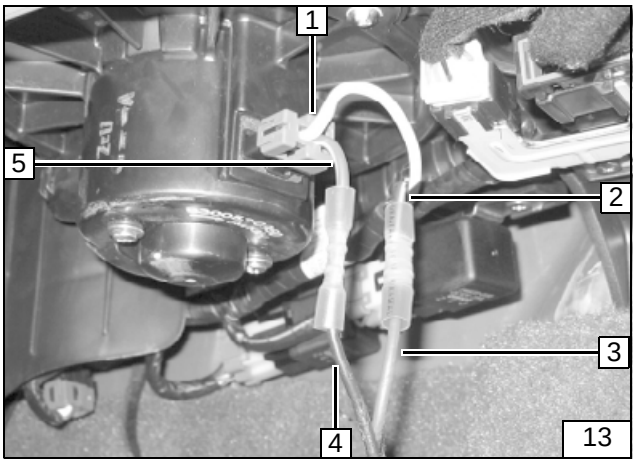
Fan controller



Manual air-conditioning wiring diagram

Webasto components		Hyundai components		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater connector	GR	Fan relay	ws	white
		KSM	Air-conditioning control module	sw	black
F3	Fuse	GW	Fan resistor	br	brown
K3	Fan relay	GS	Fan switch	gn	green
		FG	Fan fuse	bl	blue
		F27	Fuse 27	vi	violet
				X	Cutting point
				Wiring colours may vary.	

Legend

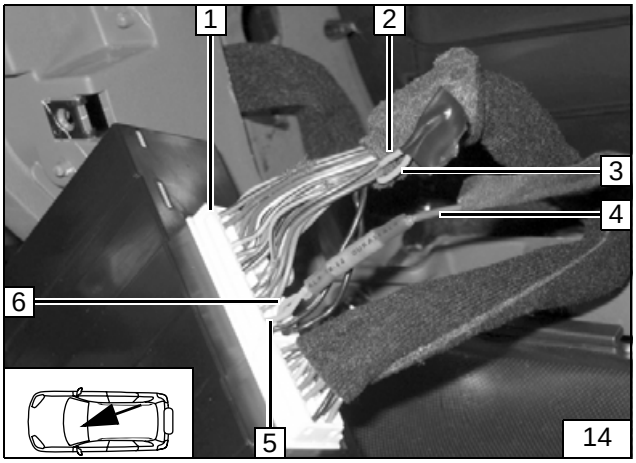


Automatic air-conditioning fan controller

Connection of fan motor on 2-pin connector **(1)**. Make connections as shown in wiring diagram with the yellow connectors provided.

(**1**) Connector
(**2**) Red/white (rt/ws) wire from original vehicle fan relay
(**3**) Red (rt) wire from K3/87a
(**4**) Black (sw) wire from K3/30
(**5**) Red/white (rt/ws) wire of fan motor

Fan controller

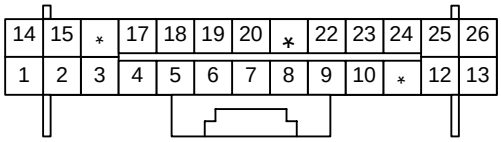


Connection of air conditioning control module on 26-pin connector M41/1 **(1)**.
Make connections according to wiring diagram with provided red shrink connector (crimp and shrink).

(**1**) Connector M41/1
(**2**) Violet (vi) wire from F27
(**3**) Violet (vi) wire from F27
(**4**) Black (sw) wire from F4
(**5**) Violet (vi) wire to connector M41/1 Pin 25
(**6**) Violet (vi) wire to connector M41/1 Pin 12

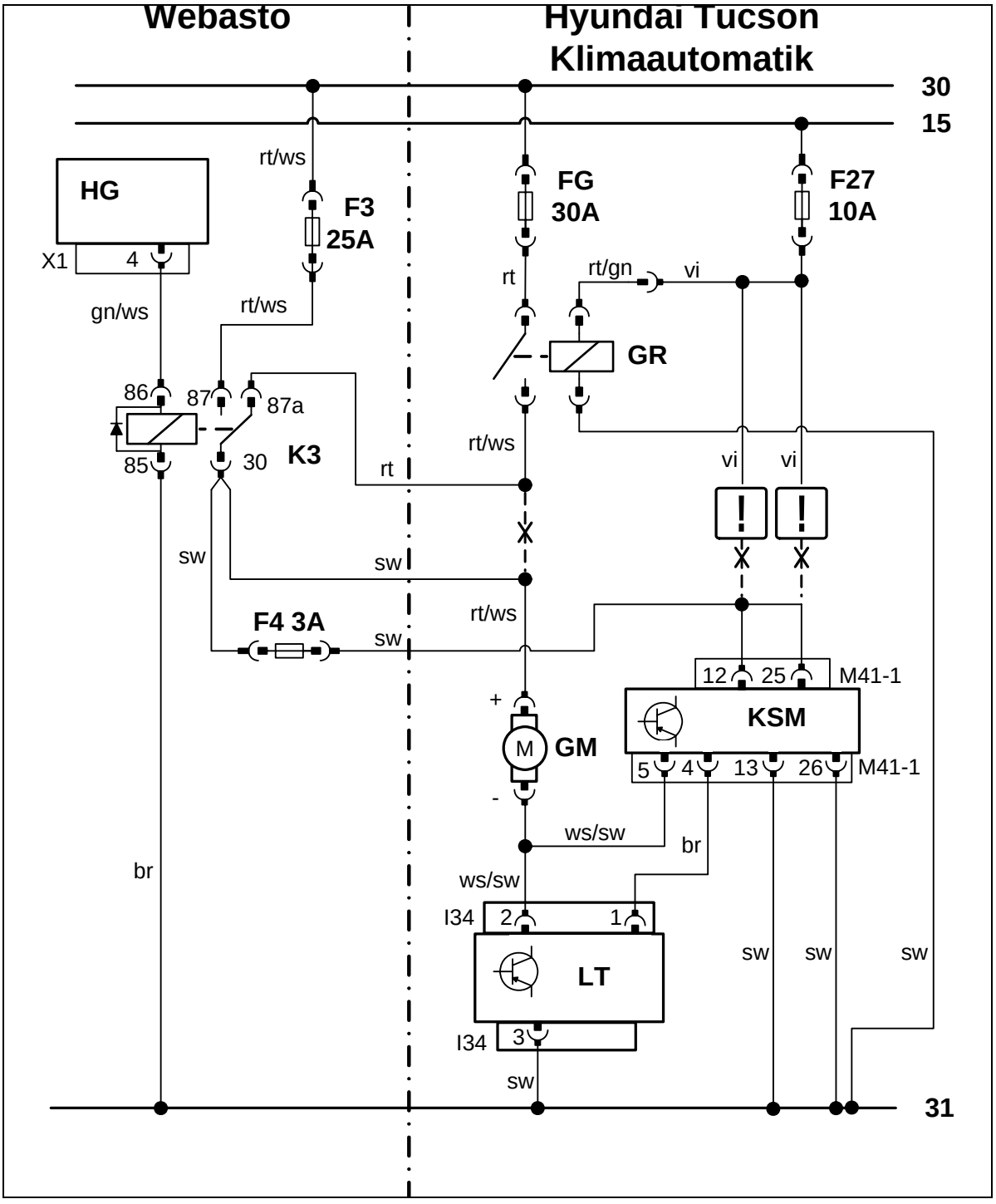
Fan controller

M41/1



Contact side perspective

Connector view

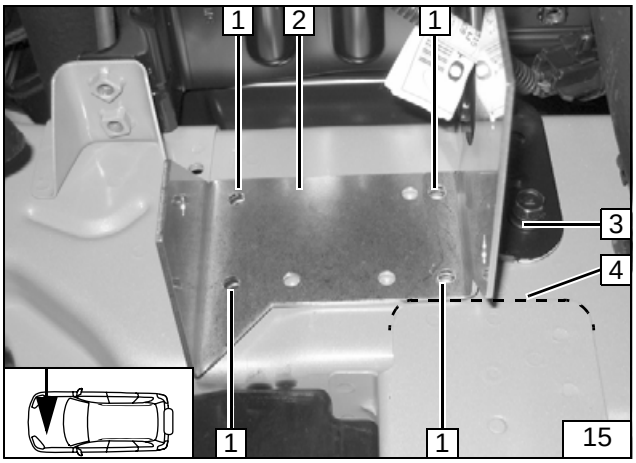


Automatic air-conditioning wiring diagram

Webasto components		Hyundai components		Colours and symbols	
HG	Heater TT-C/E	GM	Fan motor	rt	red
X1	6-pin heater connector	GR	Fan relay	ws	white
		KSM	A/C control module	sw	black
F3	Fuse	LT	Power transistor	br	brown
K3	Fan relay	FG	Fan fuse	gn	green
		F27	Fuse 27	vi	violet
		M41-1	25-pin connector		
		I34	3-pin connector	!	Insulate wire end and tie back
				X	Cutting point
				Wiring colours may vary.	

Legend

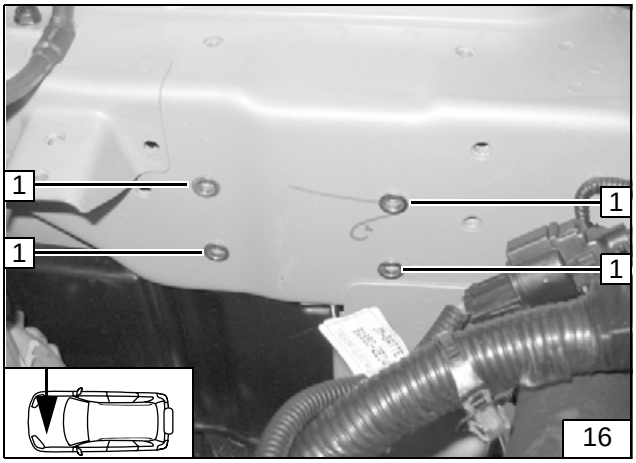
Preparing installation location



View from below.
Place bracket **(2)** on battery carrier **(3)** and edge **(4)**

(**2**) Bracket
(**3**) Battery carrier
(**4**) Edge
(**1**) Copy hole pattern [4x]

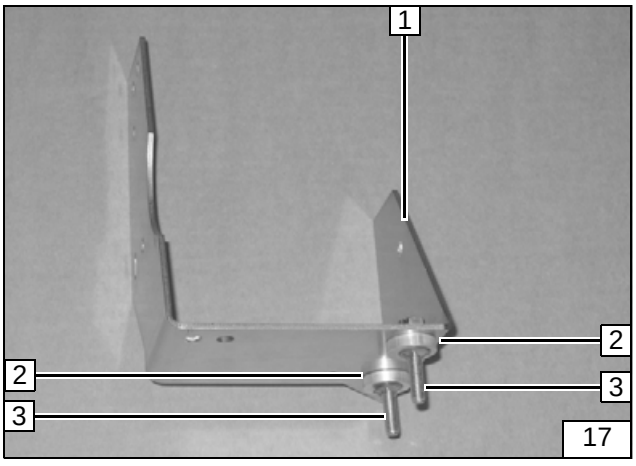
Copying hole pattern



View from above.
Remove battery carrier.

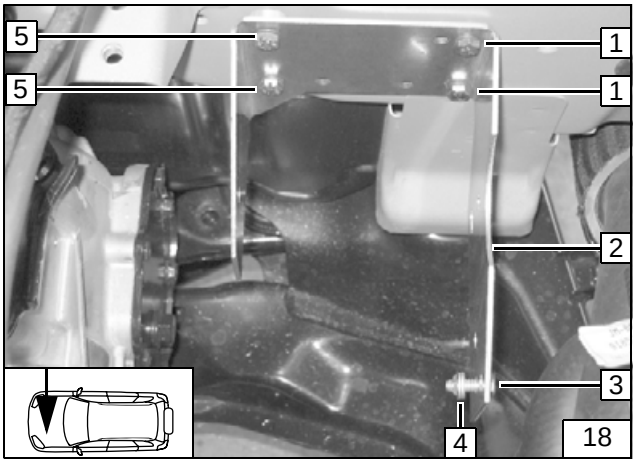
(**1**) Drill 9.1 mm dia. hole; mount rivet nuts [4x]

Installing rivet nuts



(**1**) Bracket
(**3**) M6x30 bolt, spring lockwasher [2x]
(**2**) 5mm shim, pin lock [2x]

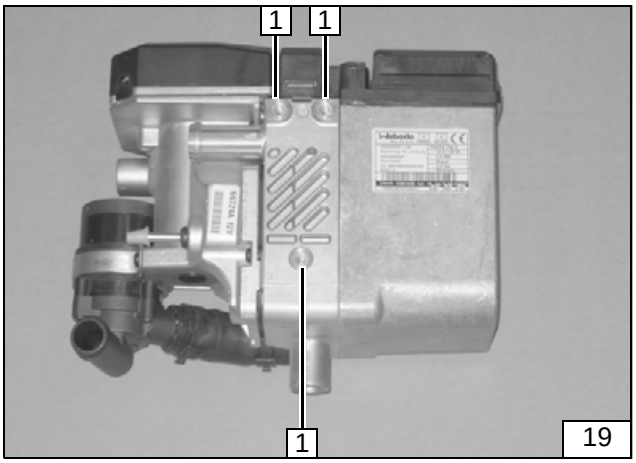
Premount bracket



Insert Ejot screw **(3)** in lower hole.

(**2**) Bracket
(**5**) M6x30 bolt [2x, premounted]
(**1**) M6x20 bolt, spring lockwasher [2x]
(**3**) Ejot screw (from front)
(**4**) 2 washers, pin lock (from rear)

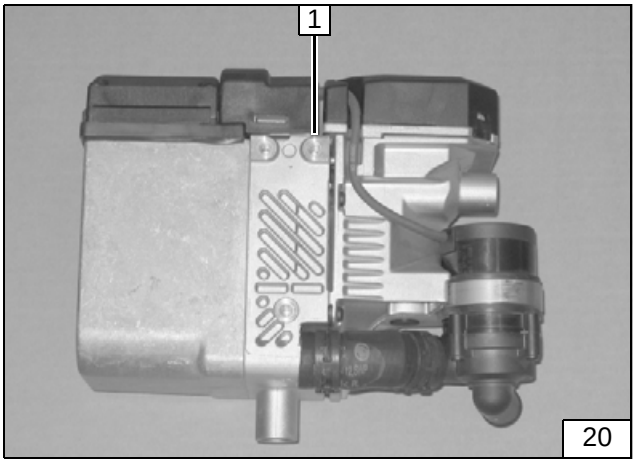
Installing bracket



Preparing heater

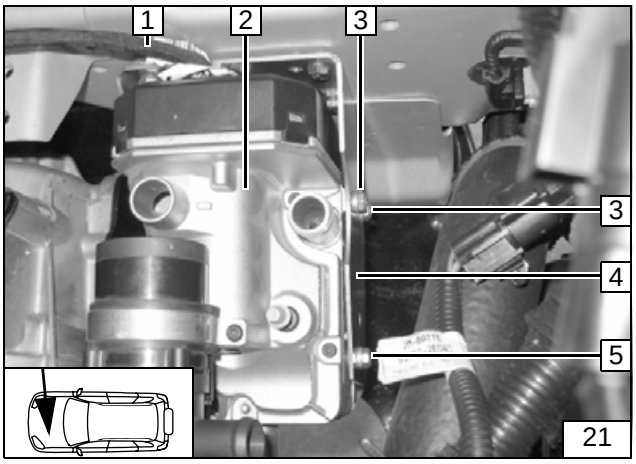
Tap threads in holes **(1)** with Ejot screw

(**1**) Threaded hole [3x]



Tap threads in hole **(1)** with Ejot screw

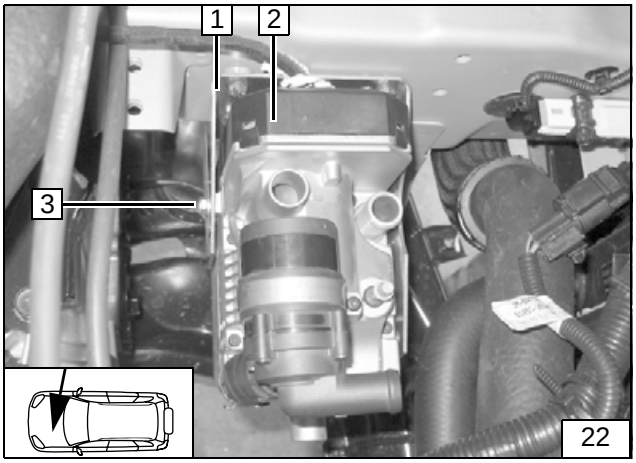
(**1**) Threaded hole



Installing heater

Ejot screws, 10 Nm tightening torque
Before installing the heater, plug in wiring harness **(1)**.

(**1**) Wiring harness
(**2**) Heater
(**4**) Bracket
(**3**) Ejot screw [2x]
(**5**) Ejot screw [premounted]



Ejot screw, 10 Nm tightening torque

(**2**) Heater
(**1**) Bracket
(**3**) Ejot screw

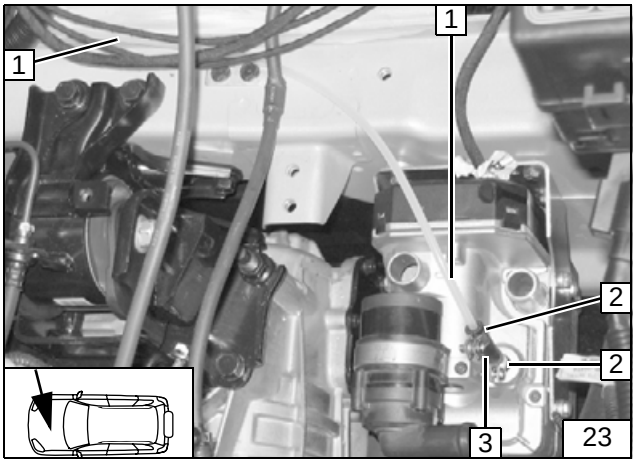
Fuel

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.

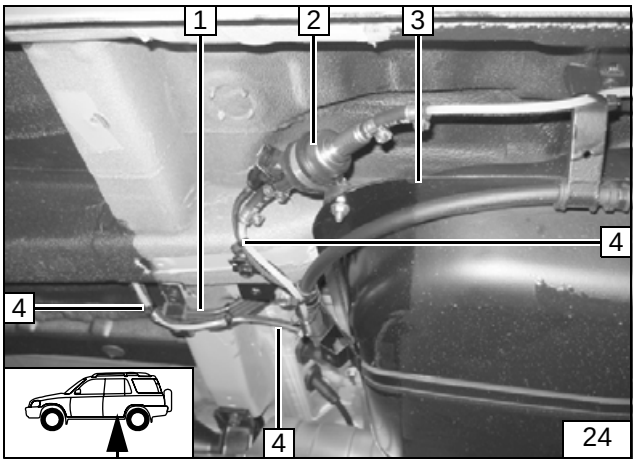
Install fuel line and metering-pump wiring harness so that they are protected against stone impact.Unless specified otherwise, always fasten using cable ties.
Mount the fuel line and wiring harness with rub protection on sharp edges.

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



(**1**) Mecanyl fuel line
(**2**) 10 mm dia. hose clamp [2x]
(**3**) Hose section

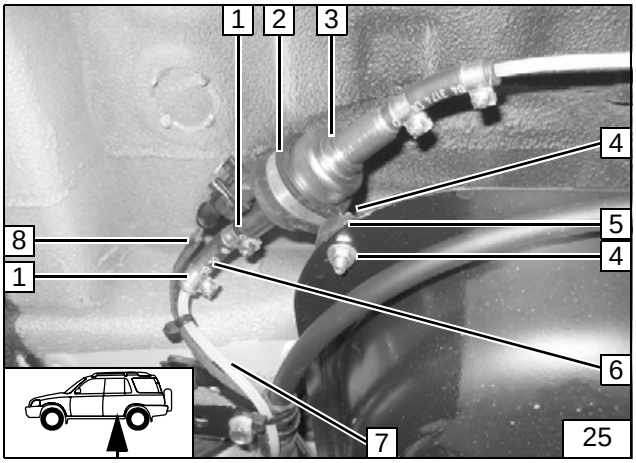
Connection to heater



Installation location of metering pump **(2)** is on left in front of vehicle fuel tank.

(**1**) Original vehicle fuel lines
(**2**) Metering pump
(**3**) Vehicle fuel lines
(**4**) Wiring harness of metering pump and Mecanyl fuel line

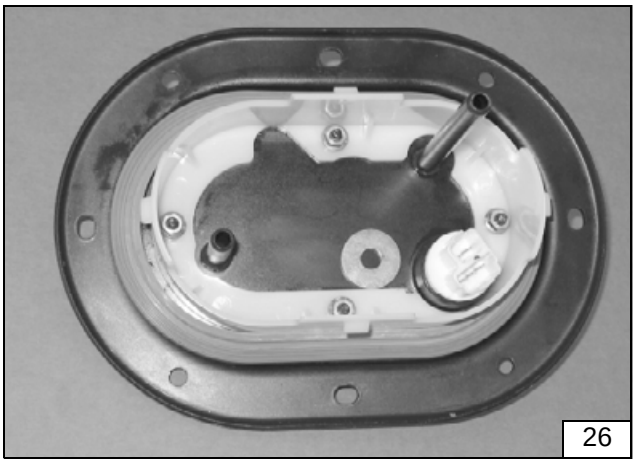
Routing wires



Ensure proper installation position of metering pump, see "Installation Instructions".
Fuel line from heater on pressure side of metering pump (side with connector).

(**3**) Metering pump
(**2**) Rubber-coated pipe clamp
(**5**) Silent block
(**4**) M6 Flanged nut [2x]
(**8**) Wiring harness, plug-in contacts, single-wire seals, connector housing
(**7**) Fuel line from heater
(**1**) 10 mm dia. hose clamp [2x]
(**6**) Hose section

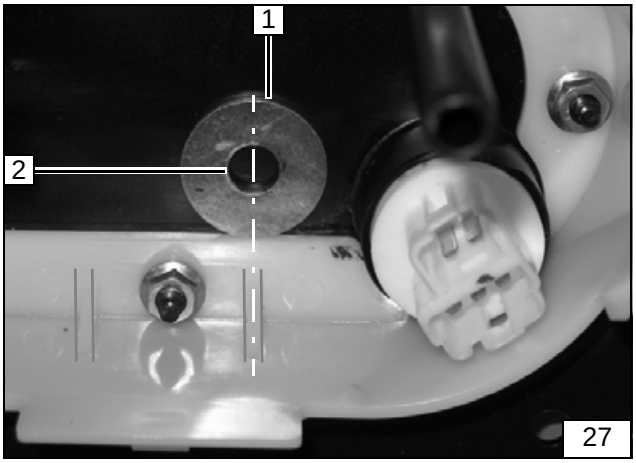
Installing metering pump



Petrol

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

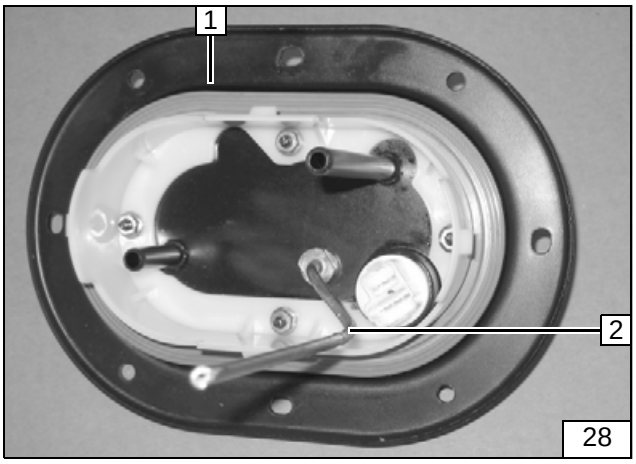
Removing and dismantling fuel tank sending unit



Place 22 mm dia. large diameter washer **(1)** as shown on fuel tank sending unit.

(**1**) 22mm dia. large diameter washer
(**2**) Copy hole pattern, 6.0mm dia. hole

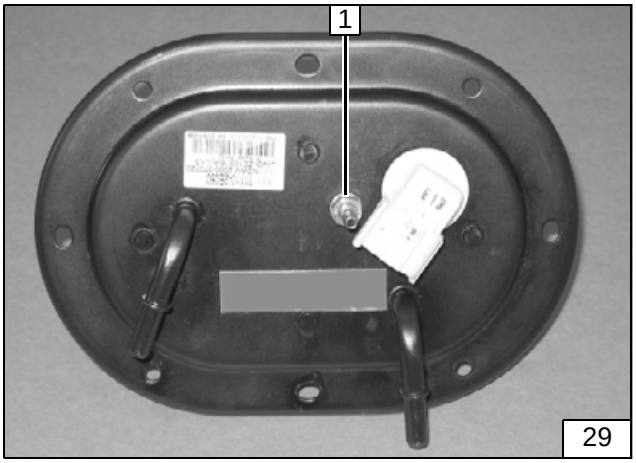
Drilling hole in fuel-tank sending unit



Shape fuel standpipe **(2)** according to template, cut to length and install, see "installation instructions".

(**1**) Fuel tank sending unit
(**2**) Fuel standpipe

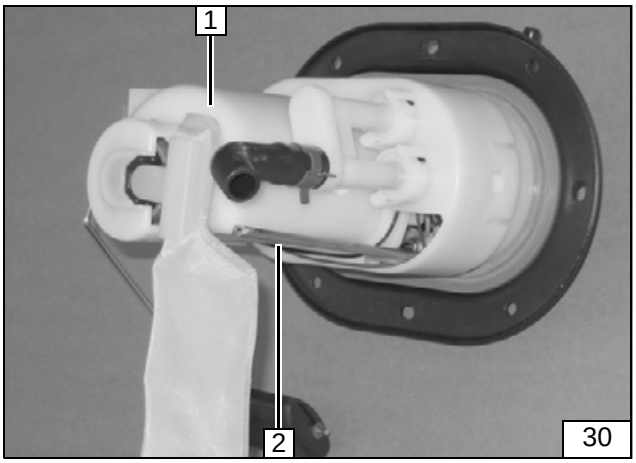
Inserting fuel standpipe



Mount fuel standpipe **(1)**, see "Installation Instructions"

(**1**) Fuel standpipe

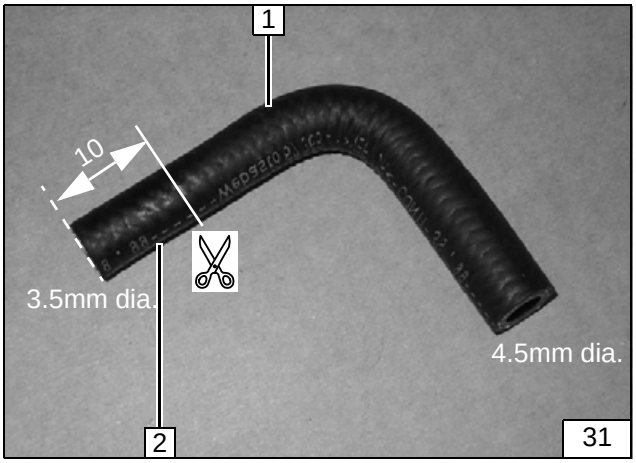
Mounting fuel standpipe



Complete fuel tank sending unit **(1)** in accordance with manufacturer's instructions.
Ensure that the fuel standpipe **(2)** can move freely.Correct position if necessary

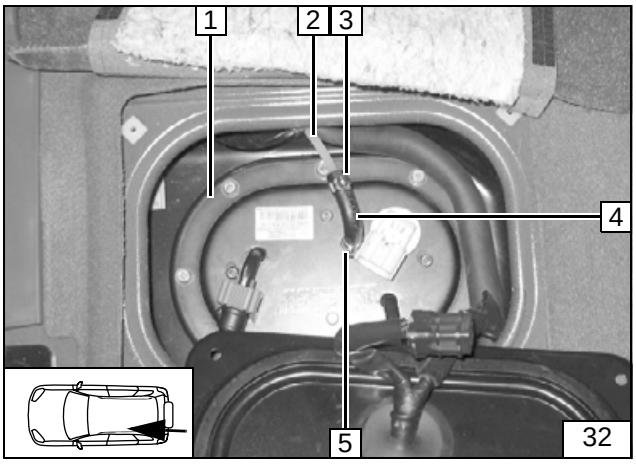
(**1**) Fuel tank sending unit
(**2**) Fuel standpipe

Completing fuel tank sending unit



(**1**) Moulded hose 3.5mm dia. x 4.5mm dia
(**2**) Discard cut-off section

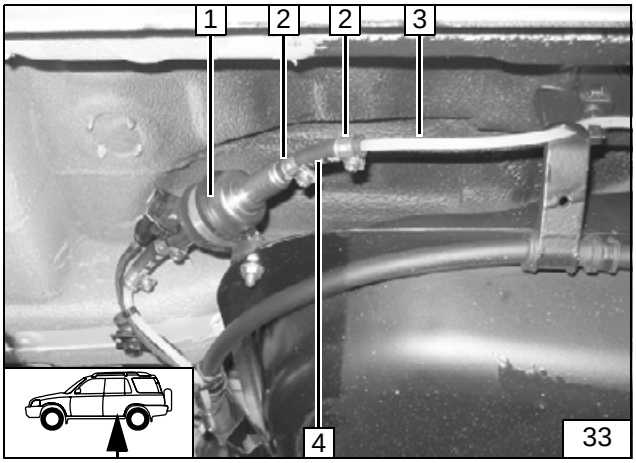
Shorten moulded hose



Install fuel-tank sending unit **(1)** in accordance with manufacturer's instructions.
Fasten moulded hose **(4)** with shortened side on fuel standpipe

(**1**) Fuel tank sending unit
(**2**) Remaining section of fuel line
(**3**) 10 mm dia. Caillau clamp
(**4**) Moulded hose
(**5**) 9mm dia. Caillau clamp

Installing fuel-tank sending unit



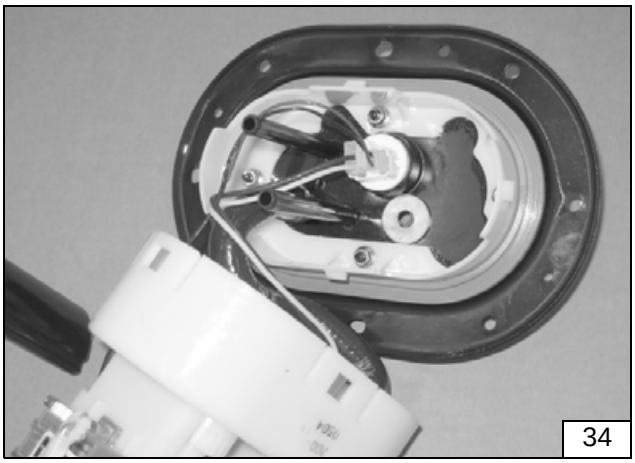
Fuel line from fuel standpipe on intake side of metering pump (side without connector).

(**1**) Metering pump
(**3**) Fuel line
(**4**) Hose section
(**2**) 10 mm dia. hose clamp [2x]

Connection to metering pump

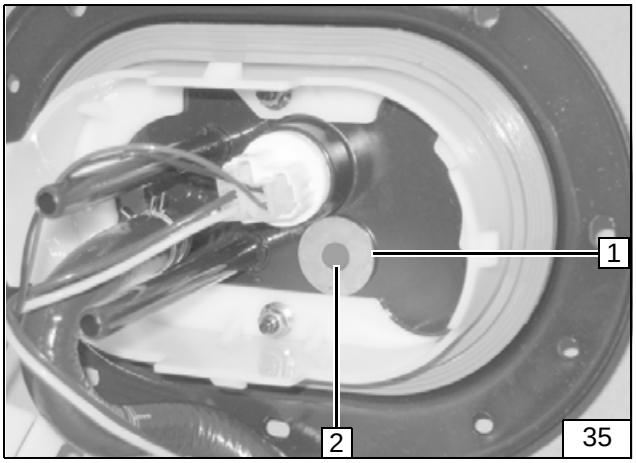
Align Mecanyl lines and wiring harness of metering pump along entire length and fasten with cable ties

Diesel



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

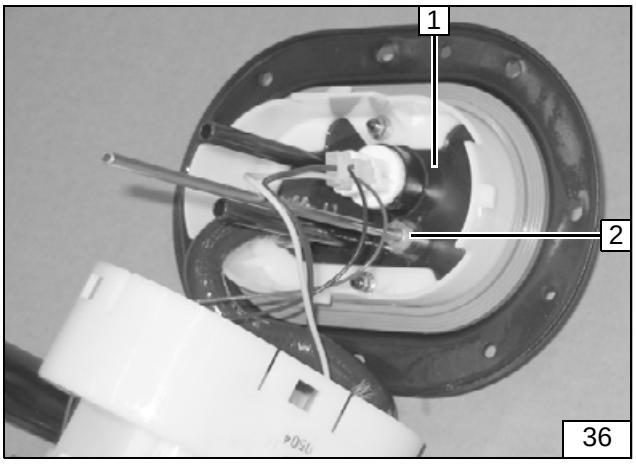
Removing and dismantling fuel tank sending unit



Place 22 mm dia. large diameter washer **(1)** as shown on fuel tank sending unit.

(**1**) 22mm dia. large diameter washer
(**2**) Copy hole pattern, 6.0mm dia. hole

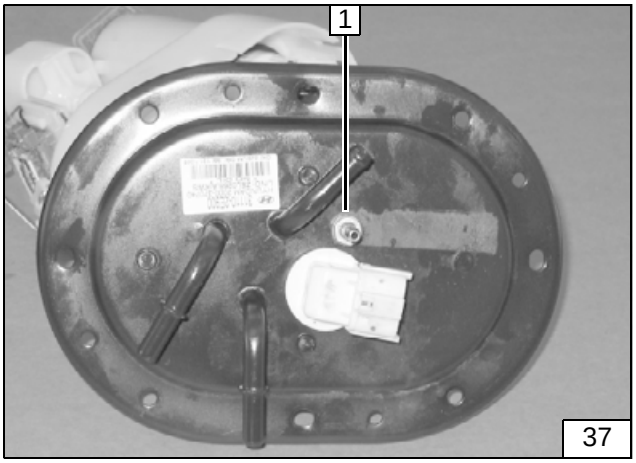
Drilling hole in fuel-tank sending unit



Cut fuel standpipe **(2)** to length according to template and insert, see "installation instructions".

(**1**) Fuel tank sending unit
(**2**) Fuel standpipe

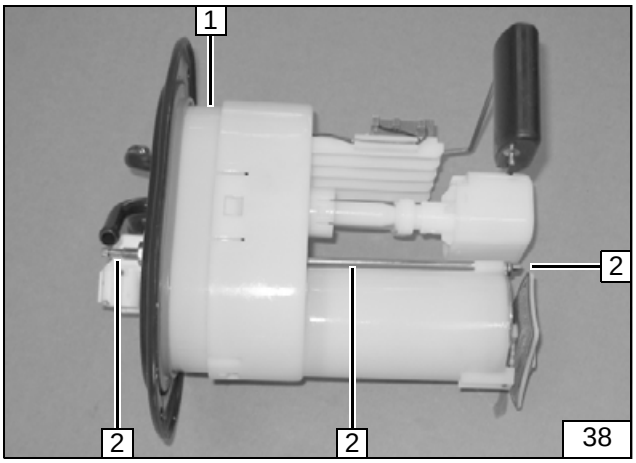
Inserting fuel standpipe



Mount fuel standpipe **(1)**, see "Installation Instructions"

(**1**) Fuel standpipe

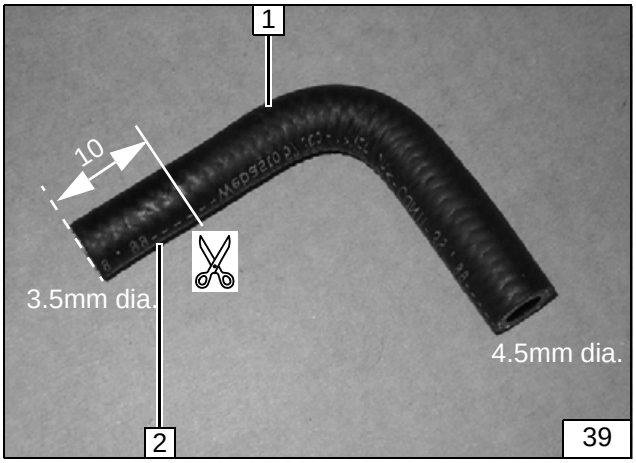
Mounting fuel standpipe



Complete fuel tank sending unit **(1)** in accordance with manufacturer's instructions. Ensure that the fuel standpipe **(2)** can move freely.Correct position if necessary

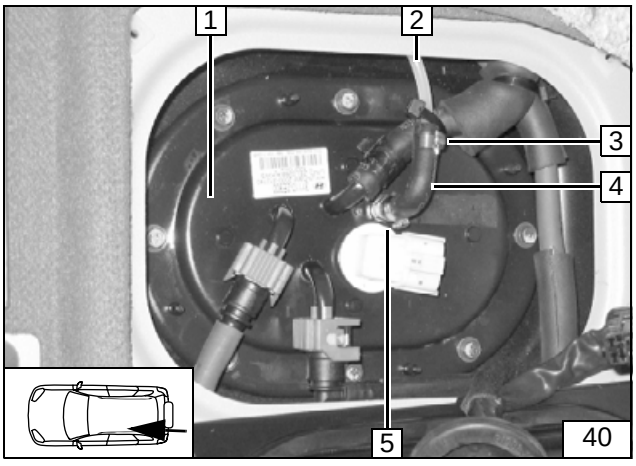
(**1**) Fuel tank sending unit
(**2**) Fuel standpipe

Completing fuel tank sending unit



(**1**) Moulded hose 3.5mm dia. x 4.5mm dia
(**2**) Discard cut-off section

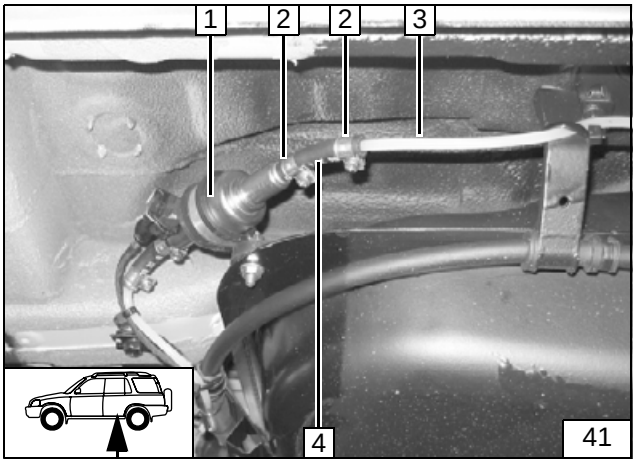
Shorten moulded hose



Install fuel-tank sending unit **(1)** in accordance with manufacturer's instructions. Fasten moulded hose **(4)** with shortened side on fuel standpipe

(**1**) Fuel tank sending unit
(**2**) Remaining section of fuel line
(**3**) 10 mm dia. Caillau clamp
(**4**) Moulded hose
(**5**) 9mm dia. Caillau clamp

Installing fuel-tank sending unit



Fuel line from fuel standpipe on intake side of metering pump (side without connector).

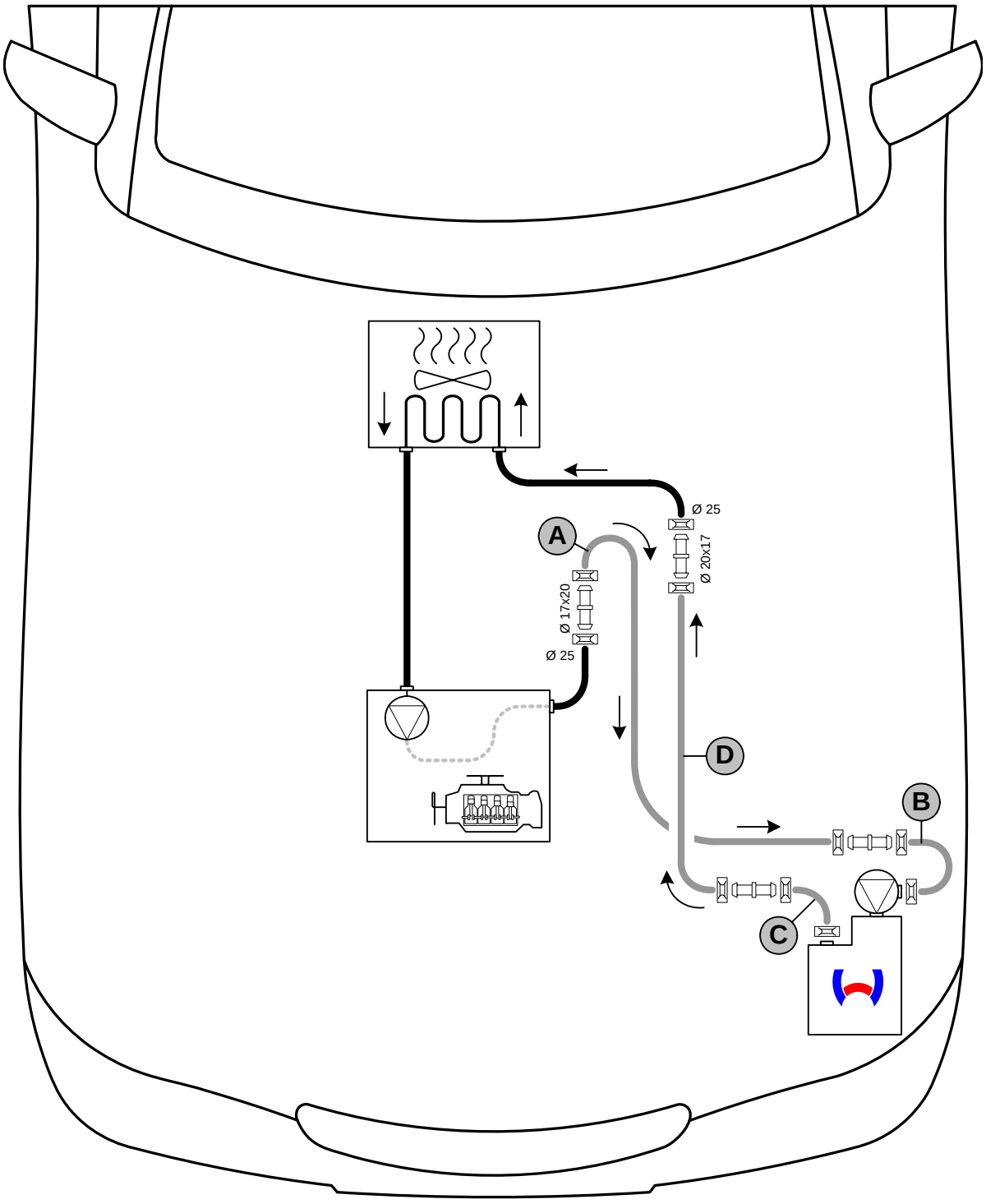
(**1**) Metering pump
(**3**) Fuel line
(**4**) Hose section
(**2**) 10 mm dia. hose clamp [2x]

Connection to metering pump

Align Mecanyl lines and wiring harness of metering pump along entire length and fasten with cable ties

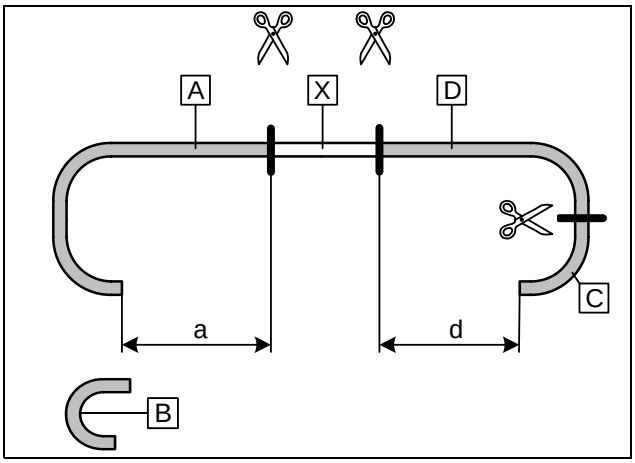
Coolant circuit for petrol

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 no other hose can be damaged.When installing the hoses, the heater must be filled with coolant.
The connection should be "inline" based on the following diagram:



Hose installation diagram

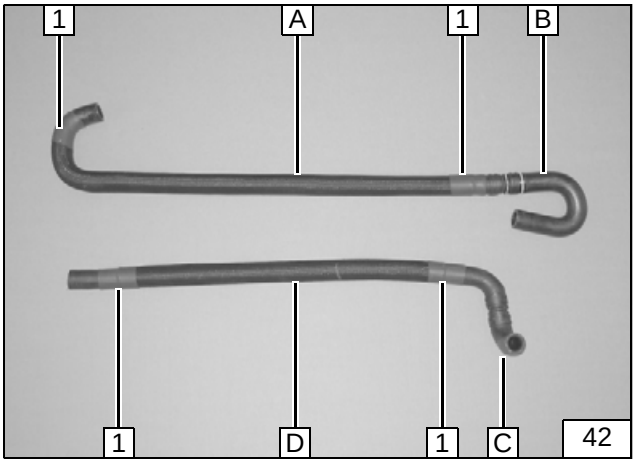
All spring clips without a specific designation = 27 mm dia.
All connecting pipes without a specific designation = dia. 20x20 mm.



Hose **B** = provided 180º moulded hose
Discard section **X**

a = 550
d = 550

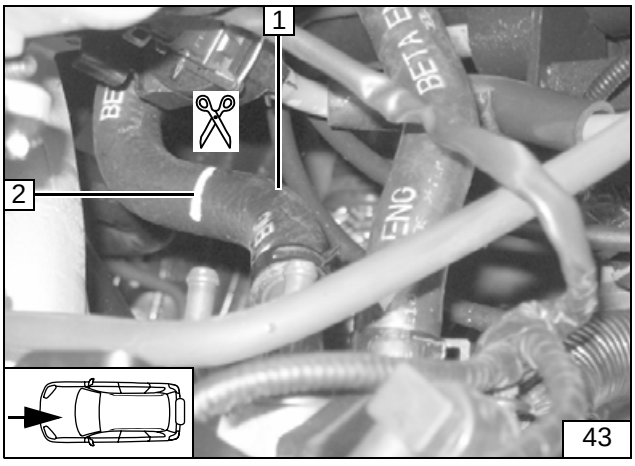
Preparing hoses



Push braided protection hoses onto hose **A** and **D** and cut to length.
Connect hose **A** and **B**.
Connect hose **C** and **D**.

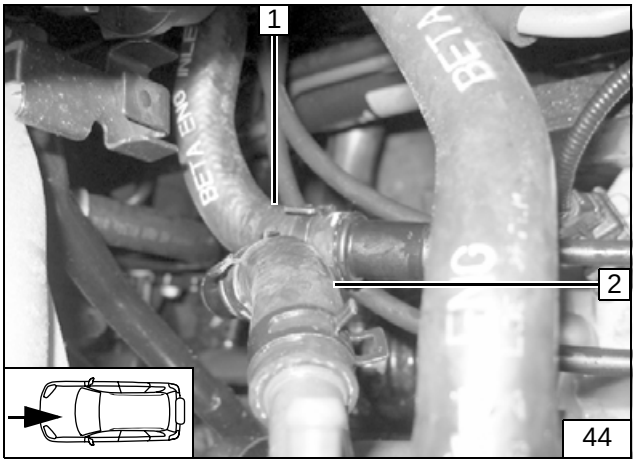
(**1**) Cut heat shrink plastic tubing at the centre, slide on, and shrink [4x]

Preparing hoses



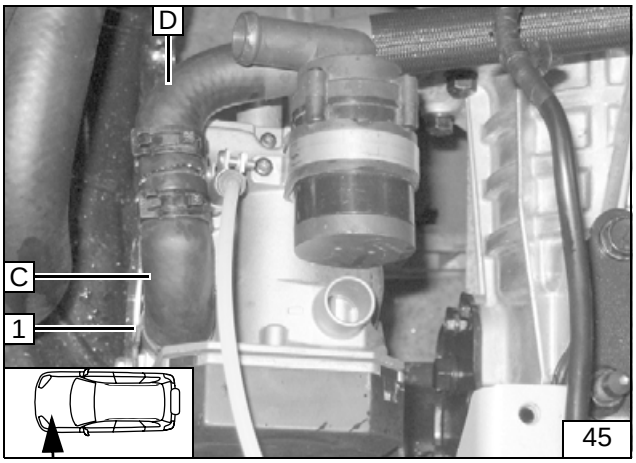
(**1**) Hose of engine outlet
(**2**) Cutting point

Cutting point



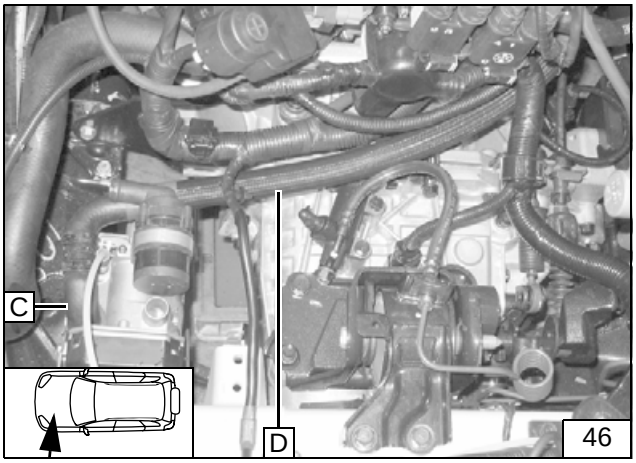
(**1**) Hose section of heat exchanger inlet
(**2**) Engine-outlet hose section

Installing connecting pipes

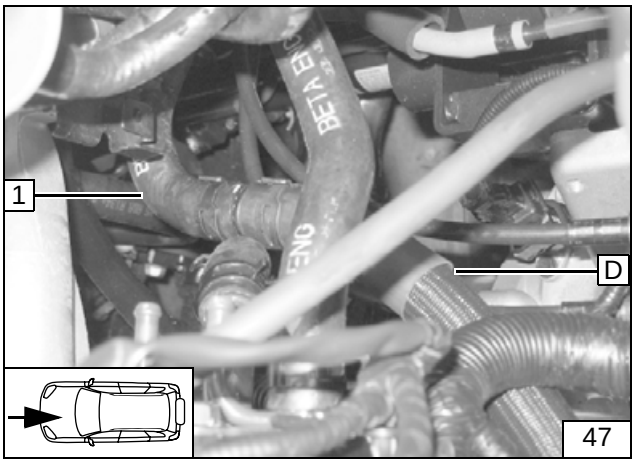


(**1**) Heater outlet

Connecting at heater outlet



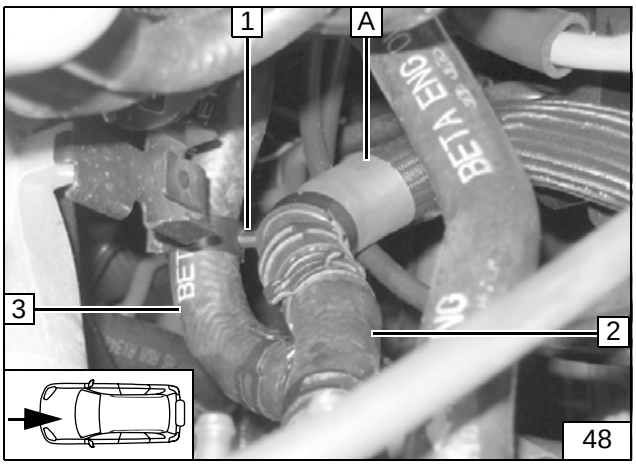
Routing Hose D



Before connecting, fill the coolant hoses with coolant.

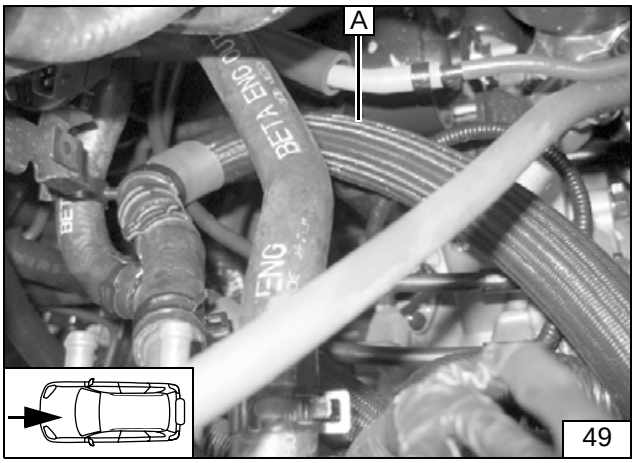
(**1**) Hose section of heat exchanger inlet

Connecting hose D with heat exchanger inlet

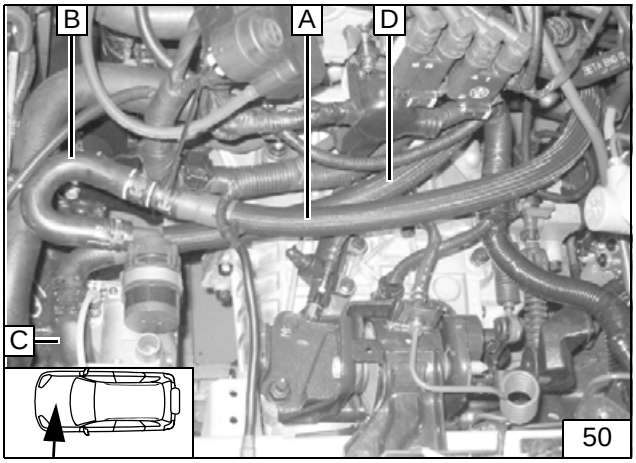


(**2**) Engine-outlet hose section
(**1**) Spacer bracket on hose **A** and hose section on heat exchanger inlet
(**3**) Hose section of heat exchanger inlet

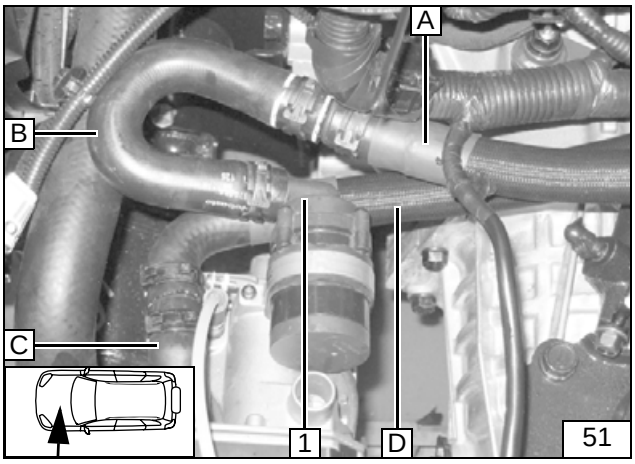
Connecting engine outlet



Routing Hose A



Routing hose A and B.



Before connecting, fill the coolant hoses with coolant.

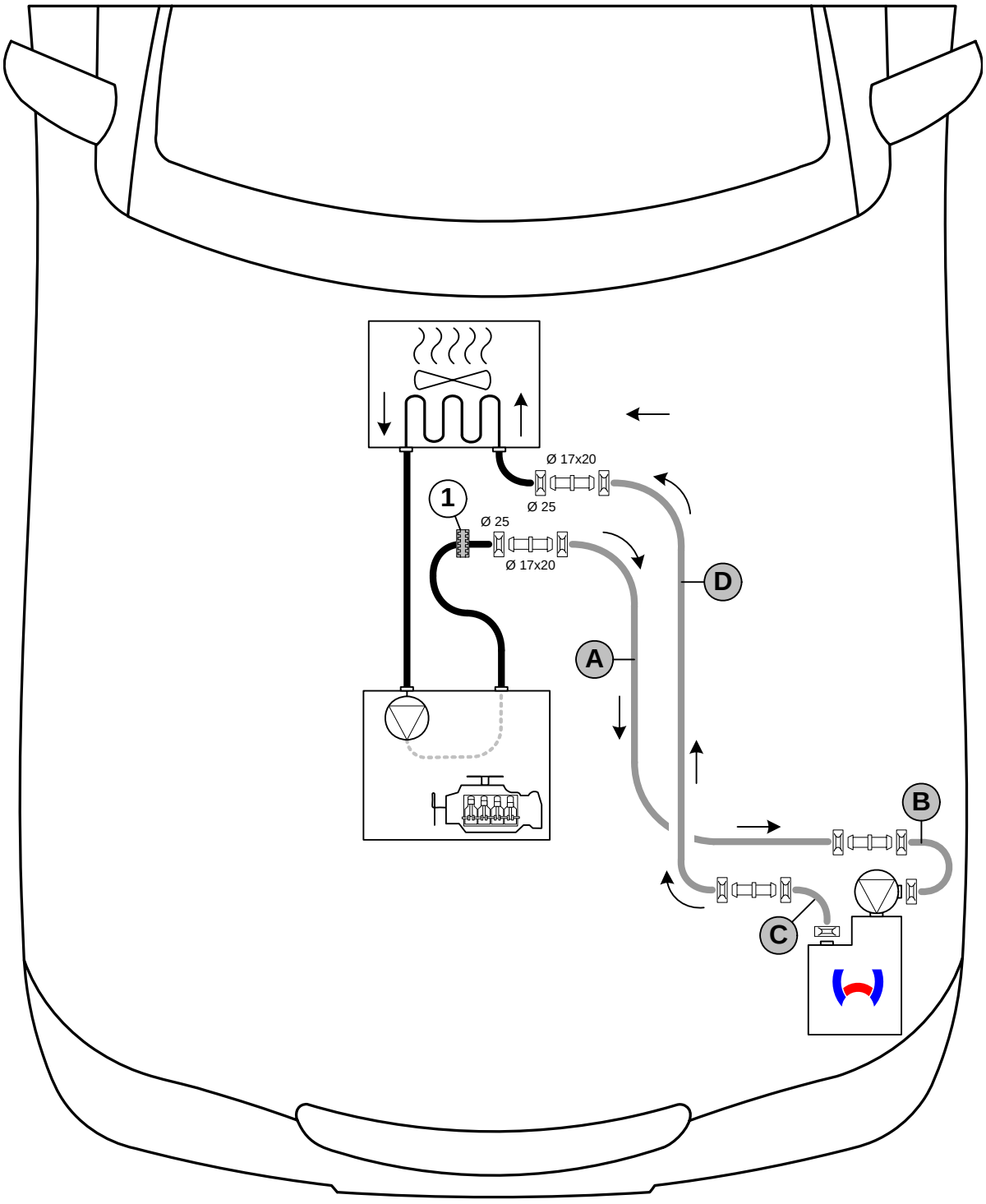
(**1**) Heater inlet

Connecting heater inlet

Align hoses **A, B, C, D** along entire length and fasten with cable ties.

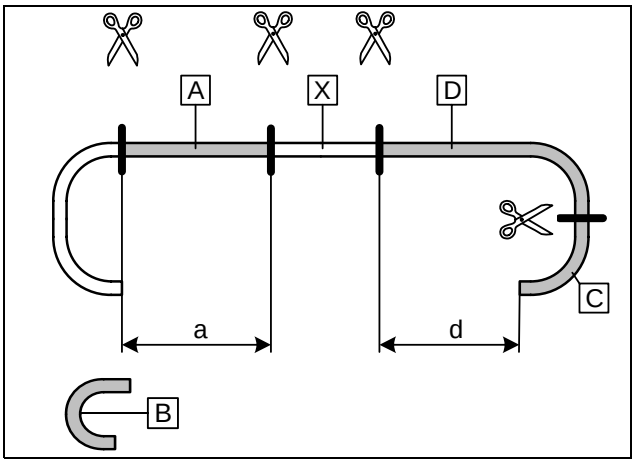
Coolant circuit on diesel

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 no other hose can be damaged.When installing the hoses, the heater must be filled with coolant.
The connection should be "inline" based on the following diagram:



Hose installation diagram

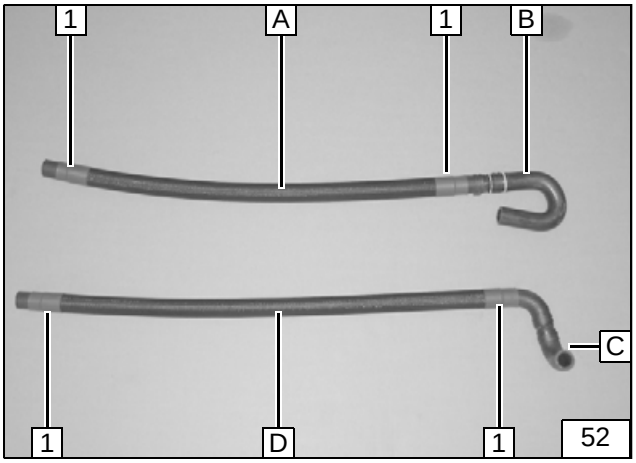
All spring clips without a specific designation = 27 mm dia.
All connecting pipes without a specific designation = dia. 20x20 mm.**1** = Black (sw) rubber isolator



Hose **B** = provided 180º moulded hose
Discard section **X**

a = 660
d = 720

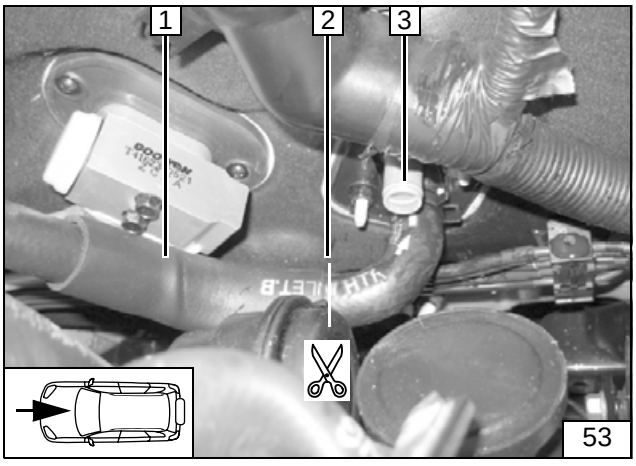
Cutting hoses to length



Push braided protection hoses onto hose **A** and **D** and cut to length.
Connect hose **A** and **B**.
Connect hose **C** and **D**.

(**1**) Cut heat shrink plastic tubing at the centre, slide on, and shrink [4x]

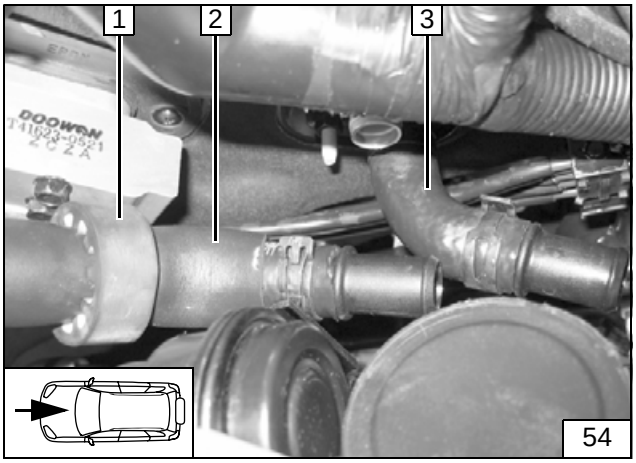
Preparing hoses



For a better view, the hose must be dismantled from the heat exchanger outlet **(3)**.

(**1**) Hose of engine outlet
(**2**) Cutting point
(**3**) Heat exchanger outlet

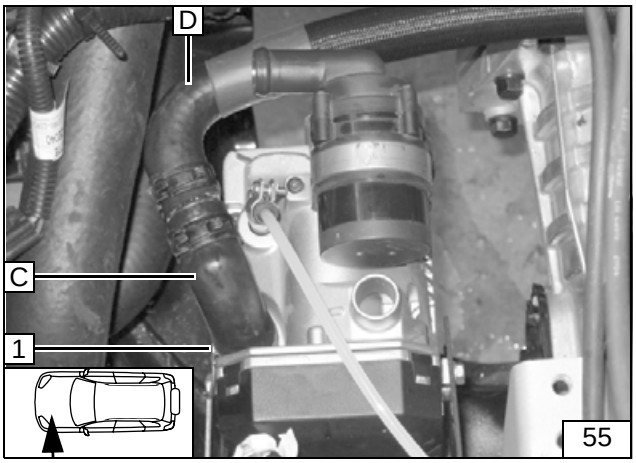
Cutting point



Detach hose section of heat exchanger inlet **(3)**, turn to the left and fasten again with original clamp

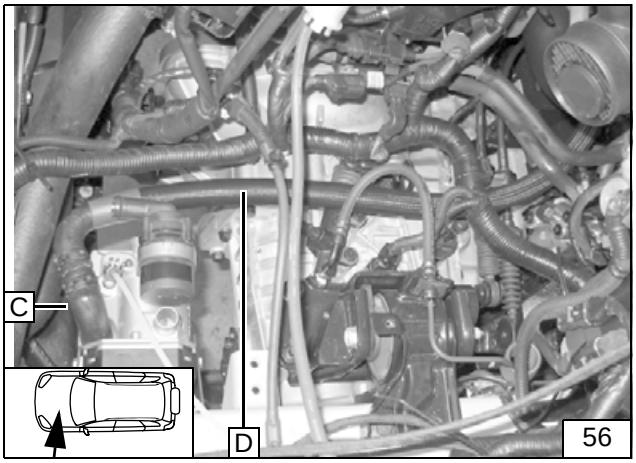
(**1**) Slide on lack rubber profile
(**2**) Engine-outlet hose section
(**3**) Hose section of heat exchanger inlet

Installing connecting pipes

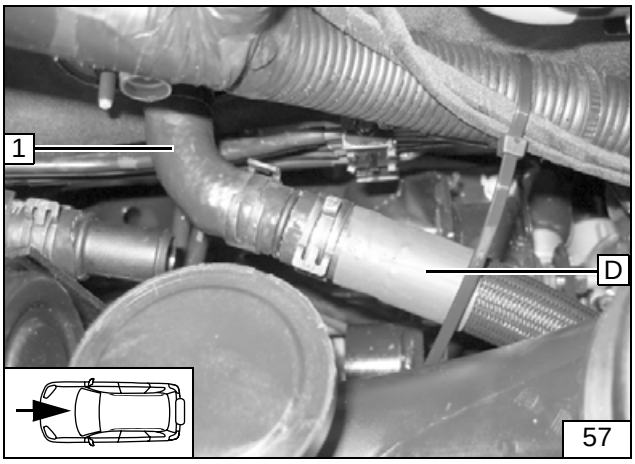


(**1**) Heater outlet

Connection at heater outlet



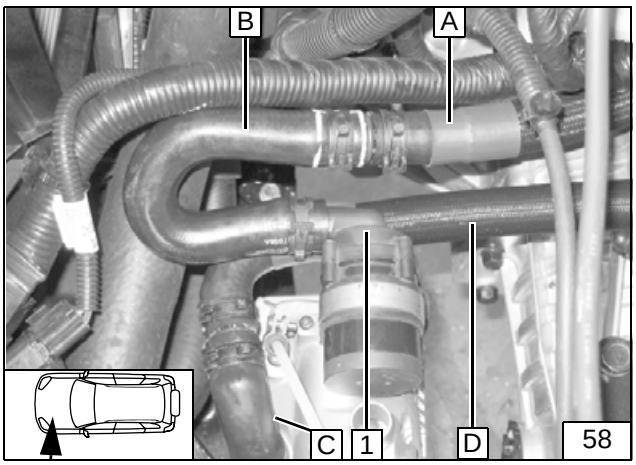
Routing Hose D



Before connecting, fill the coolant hoses with coolant.

(**1**) Hose section of heat exchanger inlet

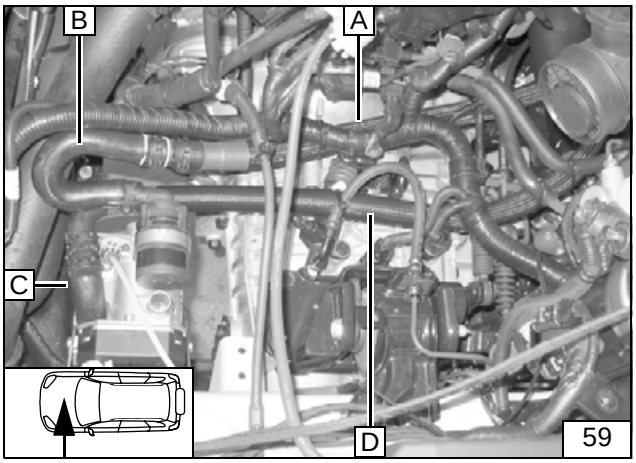
Connecting heat exchanger inlet

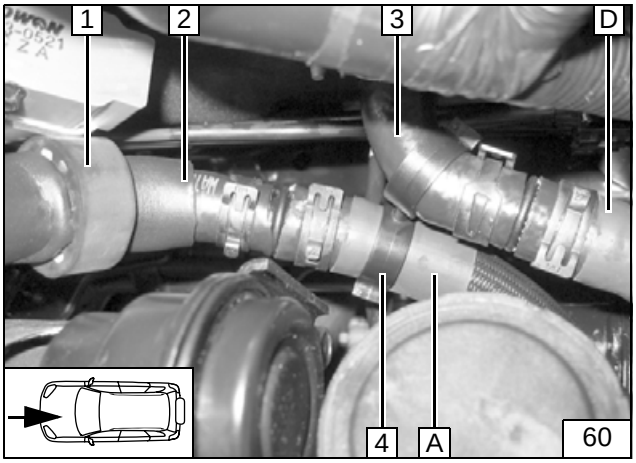


(**1**) Heater inlet

Connection at heater inlet

Routing hose A and B.



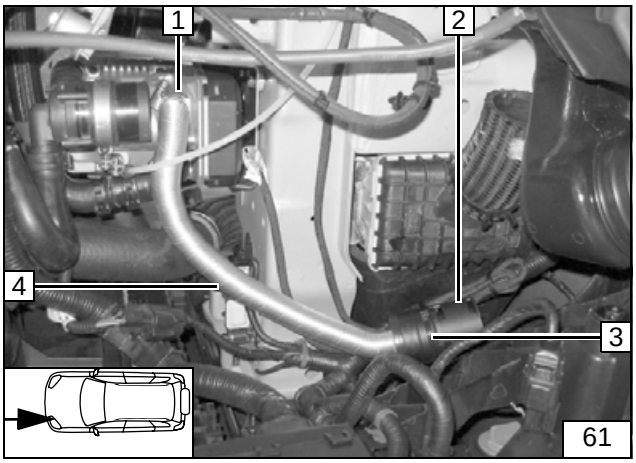


Before connecting, fill the coolant hoses with coolant.

Connect hose A with engine outlet

(**1**) Black rubber profile
(**2**) Engine-outlet hose section
(**4**) Spacer bracket on hose A and hose section on heat exchanger inlet
(**3**) Hose section of heat exchanger inlet

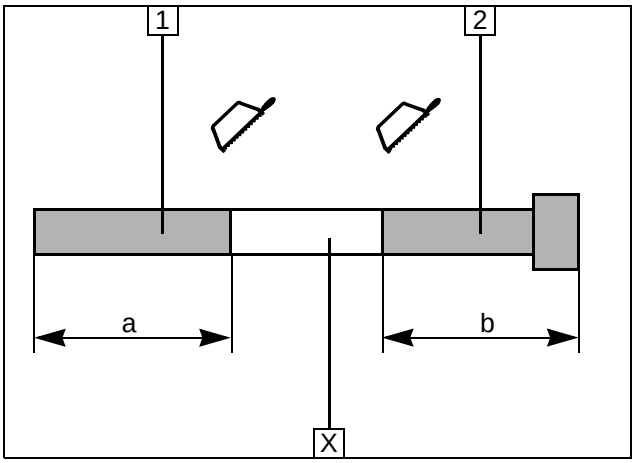
Align hoses **A, B, C, D** along entire length and fasten with cable ties.



Combustion air

Ensure proper installation position of combustion-air intake silencer, see "Installation Instructions"
Installation location under head light.

(**4**) Combustion air pipe
(**1**) 27 mm dia. hose clamp
(**2**) Silencer
(**3**) Cable tie

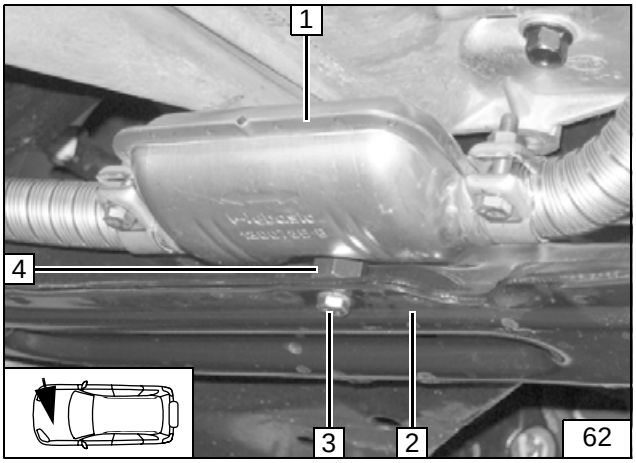


Exhaust gas

(**1**) Exhaust pipe
a = 380
(**2**) Exhaust end section
b = 320

Discard section **X**

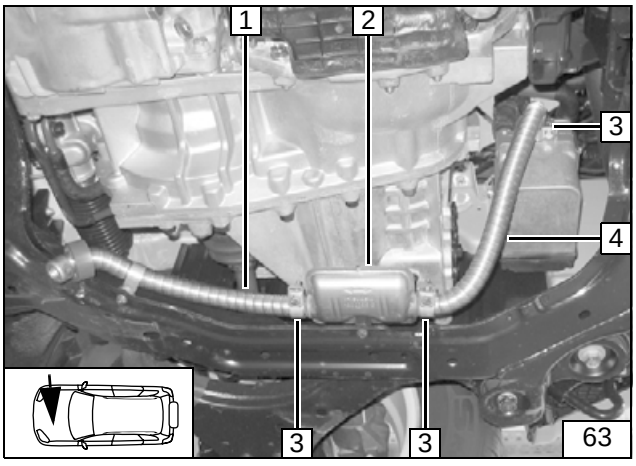
Cutting exhaust pipe to length



Copy hole pattern of bolt **(3)** as shown on edge of cross member **(2)** and drill 6.5mm dia. hole

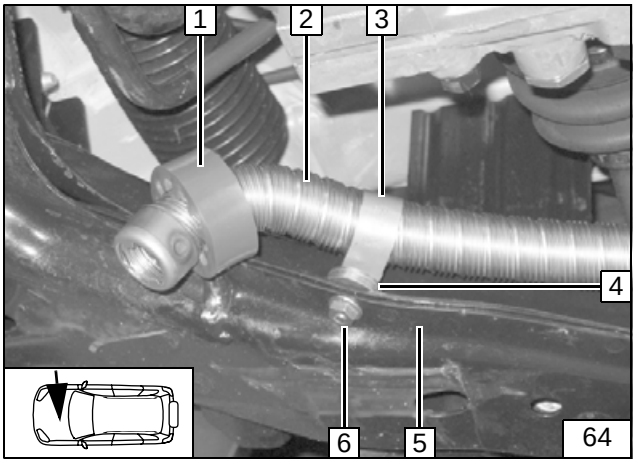
(**3**) M6x12 bolt, spring lockwasher
(**2**) Cross member
(**4**) M6x20 spacer nut
(**1**) Exhaust silencer (fastened with M6x12 bolt and spring lockwasher from above to the spacer nut)

Installing exhaust silencer



(**4**) Exhaust pipe
(**3**) Hose clamp [3x]
(**2**) Exhaust silencer
(**1**) Exhaust end section

Installing exhaust pipe and end section



Copy hole pattern of bolt **(6)** as shown on edge of cross member **(5)** and drill 6.5mm dia. hole
Insert 2 large diameter washers **(4)** between pipe clamp **(3)** and cross member **(5)**.
Align exhaust outlet and rubber profile **(1)** as shown.

(**2**) Exhaust end section
(**3**) P-clamp
(**4**) Large diameter washer [2x]
(**5**) Cross member
(**6**) M6x20 bolt, flanged nut
(**1**) Red rubber profile

Installing exhaust end section

Final Work

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

- **Connect the battery**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.**
- **Set digital timer, teach telestart transmitter**
- **Make settings on A/C control panel according to the "Operating Instructions for End Customer".**
- **Place the "Switch off parking heater before refueling" signboard near the filler neck**
- **See installation instructions for initial start-up and function check**

Webasto
Feel the drive

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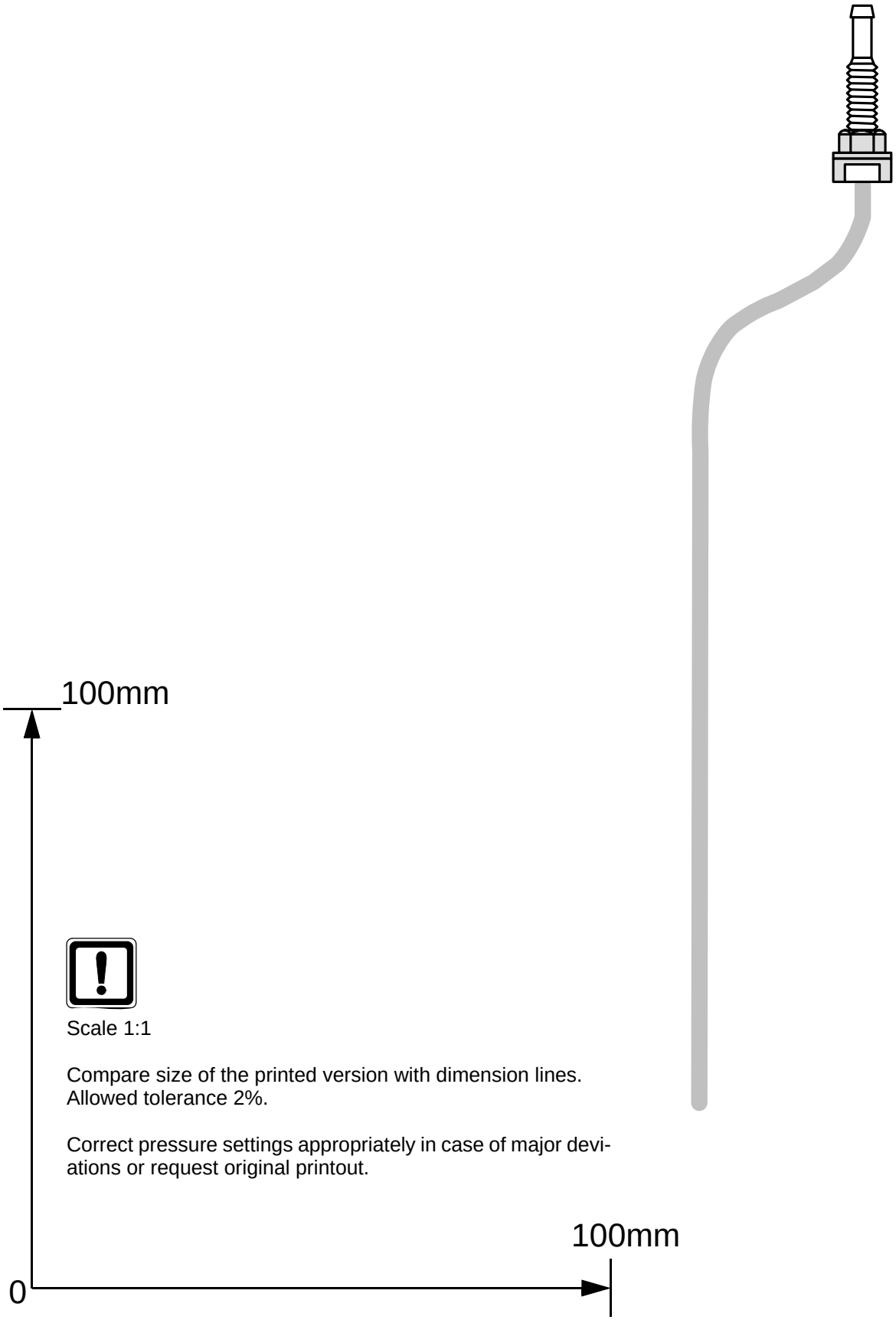
Hotfax: 0395 5592 353
Hotmail: technikcenter@webasto.com
http://www.webasto.com

Template for Petrol Fuel Standpipe

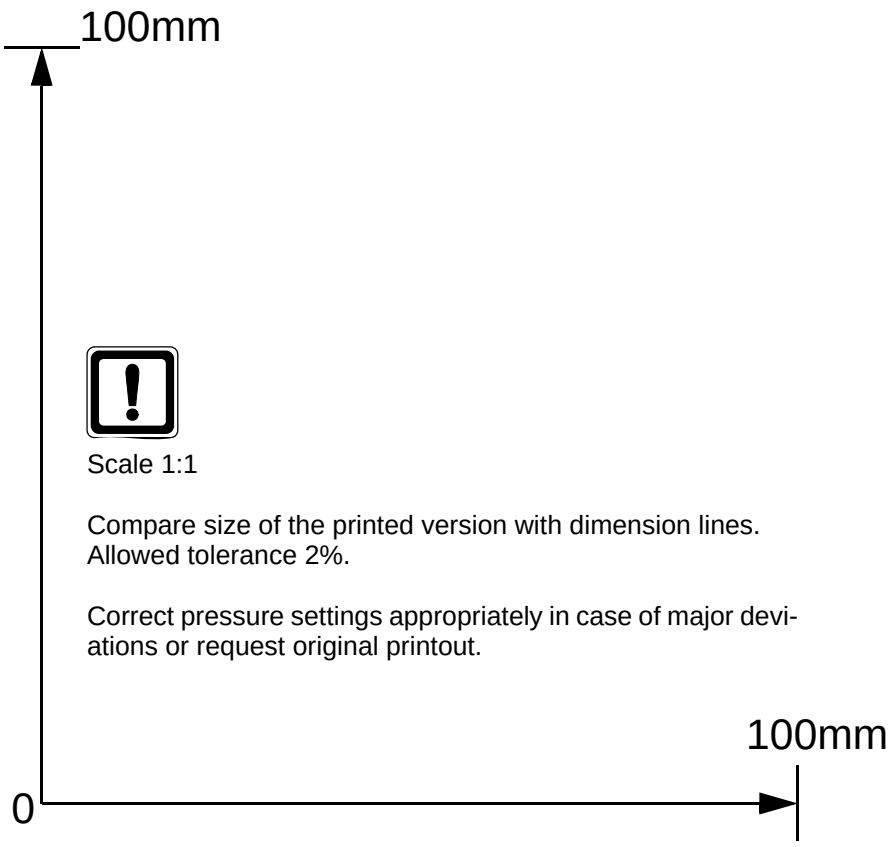


Scale 1:1

Compare size of the printed version with dimension lines.
Allowed tolerance 2%.

Correct pressure settings appropriately in case of major deviations or request original printout.

Template for Diesel Fuel Standpipe



Scale 1:1

Compare size of the printed version with dimension lines.
Allowed tolerance 2%.

Correct pressure settings appropriately in case of major deviations or request original printout.

Operating Instructions for End Customer

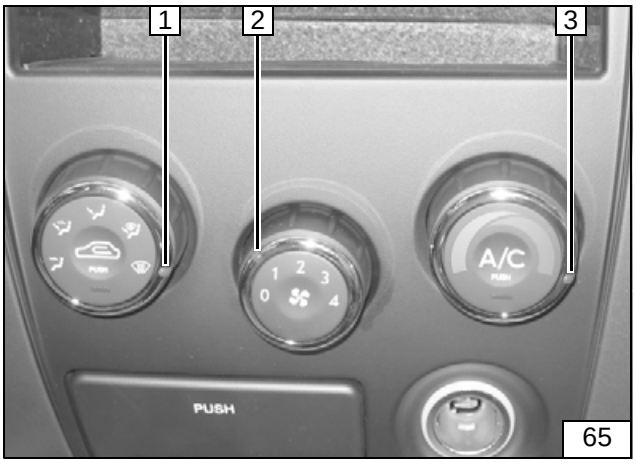
Please remove page and add to the vehicle operating instructions.

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 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.

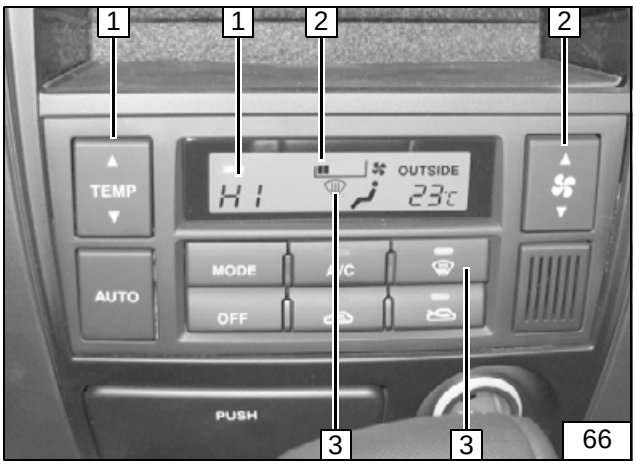
Before parking the vehicle, make the following settings:

For vehicles without automatic air-conditioning



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

For vehicles with automatic air-conditioning



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