Water Heater Unit



Thermo Top E Additional Heater 00 0003

Thermo Top C Additional Heater 00 0002

Thermo Top P Additional Heater 00 0104

Installation Instructions

Seat Leon

Diesel from Model Year 2005 For left-hand drive vehicles only Not with "SEAT Sport" aerodynamics kit



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.

Table of Contents

Validity

Manufacturer	Model	Туре	EG-BE No./ABE
Seat	Leon	1P	e1 * 2001 / 116 * 0052

Engine type	Engine model	Output in kW	Displacement in cm ³
BKC	Diesel	77	1896
BKD	Diesel	103	1968
BMN	Diesel	125	1968

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 Seat Leon Diesel	1311822A	

Also required with automatic air-conditioning:

Quantity	Description	Order No.:
1	IPCU Kit for Climatronic	9013645A

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 Seat Leon Diesel vehicles - 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 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
- Center bit up to 42 mm dia.

Explanatory Notes on Document

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

Mechanical system

Electrical system



Coolant 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.





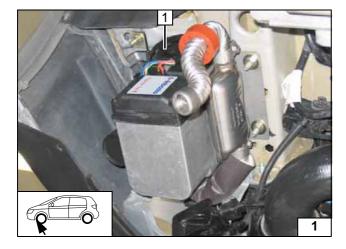
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

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.
- Completely remove the battery
- Remove the air filter together with the intake hose.
- Remove the hand coolant reservoir cap on the left
- Remove the fuse and relay box
- Detach the wheel well trim on the right and left
- Remove the bumper
- Remove the right-hand headlight
- Remove the underride protection on the left
- Open the right-hand fuel sender service lid
- Remove the fuel-tank sending unit in accordance with the manufacturers specifications
- Remove the glove compartment
- Remove the A-pillar trim in the footwell on the front passenger side

Remove page 38 "Operating Instructions for End Customer" and insert with vehicle operating instructions.



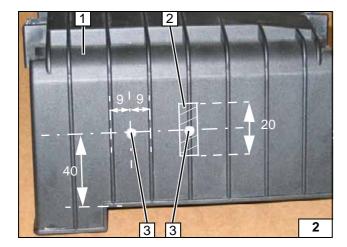
Heater unit installation location

1 Heater unit

Installation location

!

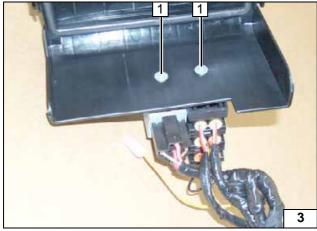




Preparing electrical system

- 1 Cover of fuse/relay carrier2 Cut away rib in shaded area.
- **3** Drill 5.0 mm dia. hole [2x]

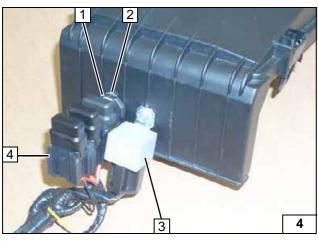
Copying hole pattern



Countersink hole for countersunk head screw 1.



Fuse holder, K3 relay



On vehicle with Climatronic, replace F3 25 A fuse with 3 A fuse!



- 1 Fuse holder retaining plate, M5x12 countersunk bolt, washer, M5 nut
- 2 Large diameter washer between cover and retaining plate
- 3 K3 relay, M5x12 bolt, washer, nut
- 4 Fuse holder

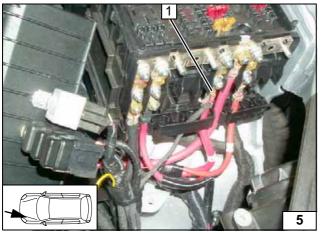
Replacing F3 fuse

Ground wire on ground point below headlight.



1 Positive wire

Power supply





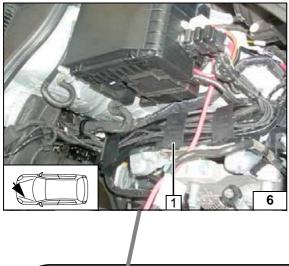
Electrical Connections

Routing in engine compartment

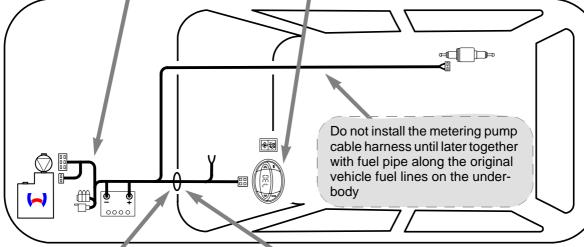
1 Cable duct

Digital timer, summer/winter switch

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

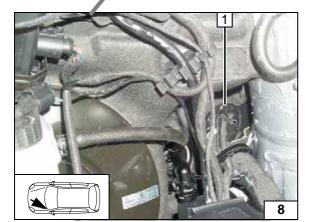






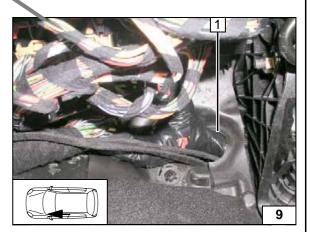


Wiring harness installation diagram



Wiring harness pass through

1 Protective rubber plug

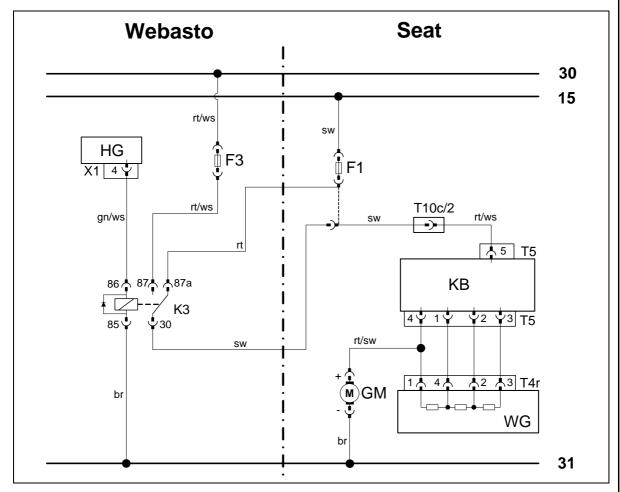


Wiring harness pass through

1 Protective rubber plug



Climatic fan controller

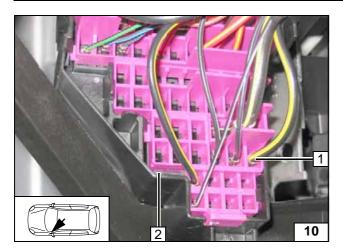


Webasto components		Vehic	Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	F1	Fuse 40A	rt	red	
X1	6-pin connector	KB	Air-conditioning control element	ws	white	
F3	Fuse, 25 A	WG	Resistor group	sw	black	
K3	Fan relay	GM	Fan motor	br	brown	
				gn	green	
				!	Insulate wire ends and tie back	
				Х	Cutting point	
				Wiring colors may vary.		

Wiring diagram

Legend

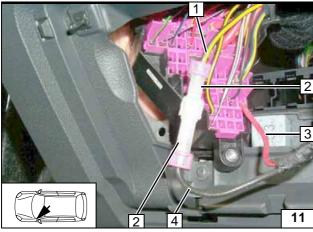




- 1 Unlock 40 A fan fuse, remove 4 mm² black (sw) wire

 2 Fuse carrier

Uncrimp-ing wire



Produce connections as shown in wiring diagram.

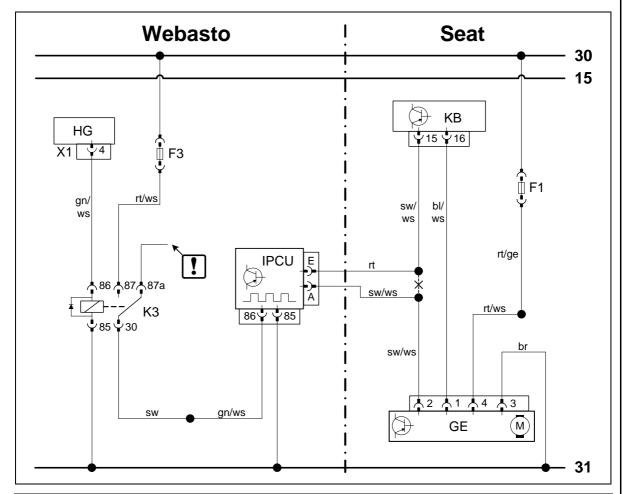


- 4 mm² black (sw) wire
 AMP/housing
 Red (rt) wire to K3/87a
 Black (sw) wire from K3/30

Connecting wires



Climatronic fan controller



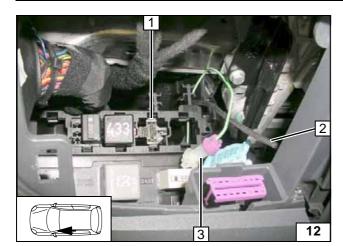
Webasto components		Vehicle components		Colors and symbols	
HG	Heater unit TT-C/E	KB	Climatronic control unit	rt	red
X1	6-pin connector	ge	Fan unit	WS	white
F3	Replace 25 A fuse with 3	F1	Fuse 40A	SW	black
	Α			br	brown
K3	Fan relay			gn	green
IPCU	Pulse width modulator			bl	blue
IPCU adjustment values				ge	yellow
Voltage: 8 V					Insulate wire ends and
Frequency: 400 Hz				9	tie back
Duty cycle: 30 %				X	Cutting point
Function: High-side				Wiring	colors may vary.

i

Wiring diagram

Legend



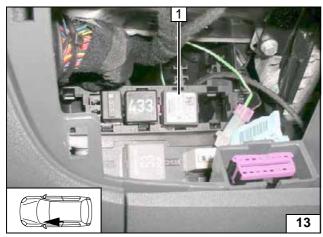


Position of free sockets dependent on vehicle equipment!



- 1 IPCU socket
- 2 Red (rt) and black (sw) wire from IPCU3 Green/white (gn/ws) wire of IPCU/86 with

IPCU socket

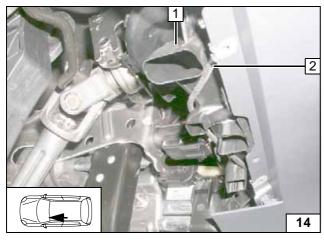


Brown (br) wire from IPCU/85 to original vehicle ground point. Produce connections as shown in wiring diagram.



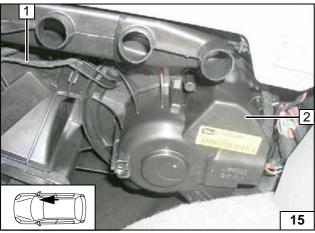
1 IPCU





- 1 Air duct
- 2 IPCU wiring harness

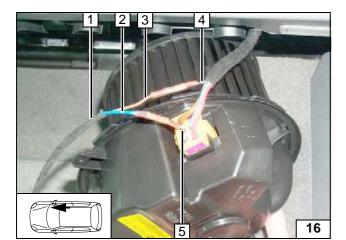
Installing wiring harness to center console



- 1 IPCU wiring harness
- 2 Fan unit

Installing wiring harness to fan motor



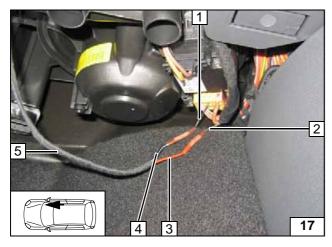


If necessary, detach fan unit by turning to left. Produce connections as shown in wiring diagram.



- 1 Wiring harness from IPCU
- 2 Black/white (sw/ws) wire from IPCU/A
- 3 Red (rt) wire from IPCU/E
- 4 Black/white (sw/ws) wire from Climatronic control unit
- 5 Black/white (sw/ws) wire to connector





Picture shows version without need to detach fan unit!



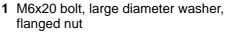
- 1 Black/white (sw/ws) wire to connector
- 2 Black/white (sw/ws) wire from Climatronic control unit
- 3 Red (rt) wire from IPCU/E
- 4 Black/white (sw/ws) wire from IPCU/A
- 5 Wiring harness from IPCU

Connecting fan-motor



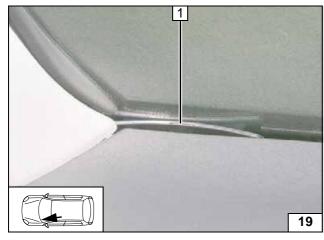


Remote option (Telestart)



- 2 Telestart bracket, hole drilled out to 6.5 mm dia.
- 3 Antenna connector

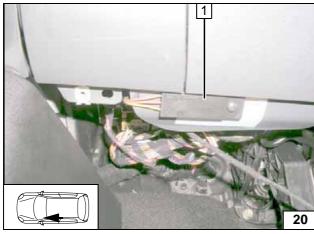




1 Antenna

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Installing antenna

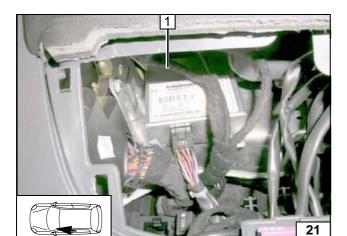


Temperature sensor for HTM100 only

1 Fasten temperature sensor with suitable means

Installing tempera-ture sensor





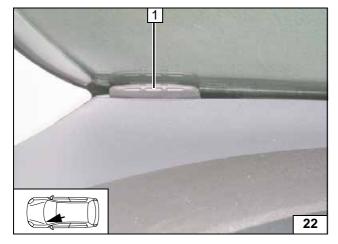
Remote option (Thermo Call)

1 Fasten receiver with suitable means



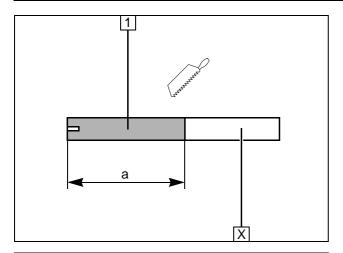
Installing receiver





Installing antenna



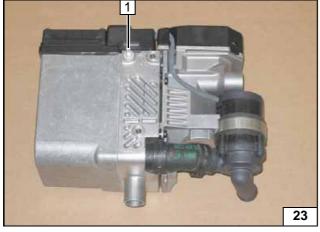


Preparing heater unit

1 Combustion air pipe a = 250 mm

Discard section X

Cutting combustion air pipe to length

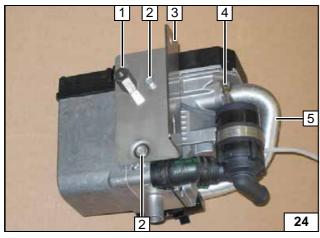


Ejot stud, tightening torque 10 Nm!

1 Ejot stud

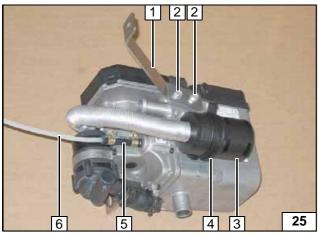


Preassembling heater unit



- 1 Spacer nut, 30 mm
- 2 Ejot screw [2x]
- 3 Bracket
- 4 27 mm dia. hose clamp
- 5 Combustion air pipe

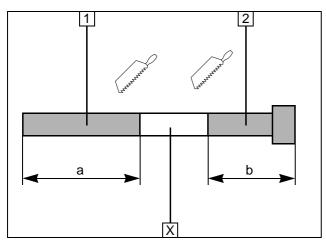
Installing bracket



- 1 Strut
- 2 Ejot screw [2x]
- 3 Combustion-air intake muffler
- 4 Retaining clip in hole
- 5 Hose section, 10 mm dia. hose clamps [2x]
- 6 Fuel line

Installing strut and intake pipe

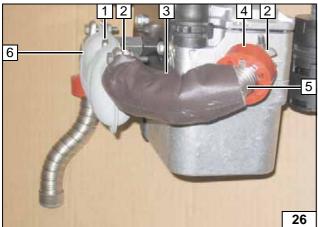




- 1 Exhaust pipe a = 190 mm
- **2** Exhaust end section b = 240 mm

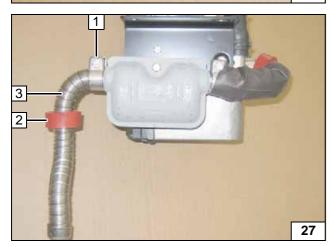
Discard section X

Preparing exhaust pipe



- **1** M6x16 bolt, spring lockwasher
- 2 Hose clamp [2x]
- 3 Protective sleeving
- 4 Red (rt) rubber isolator
- 5 Exhaust pipe
- 6 Muffler

Installing muffler



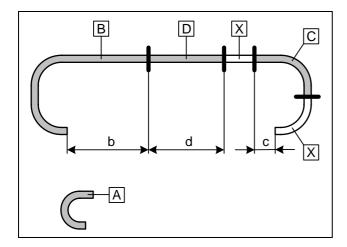
- 1 Hose clamp
- 2 Red (rt) rubber isolator
- 3 Exhaust end section

Installing exhaust end section

Forming exhaust end section







Vehicles without diesel particle filter

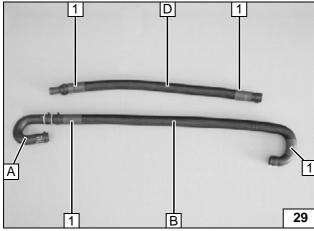
b = 620 mm

c = 100 mm

d = 580 mm

Discard section X

Cutting coolant hoses to length



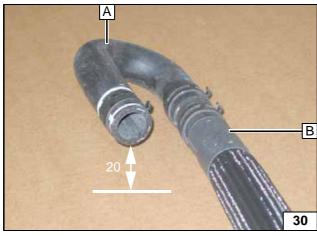
Push braided protection hoses onto hose **D** and **B** and cut to length.

Position hose **A** and **B** as shown in picture

1 Push on heat shrink plastic tubing, shrink down [4x]

B)

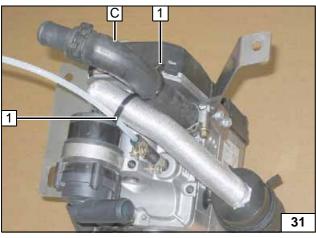
Preassembling coolant hoses



Lift hose A approx. 20 mm from support when connecting.



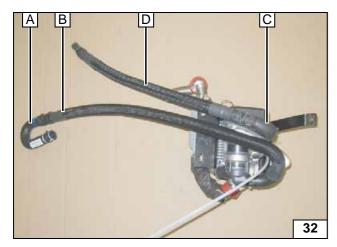
Aligning hoses



1 Cable tie [2x]

Connection to heater unit

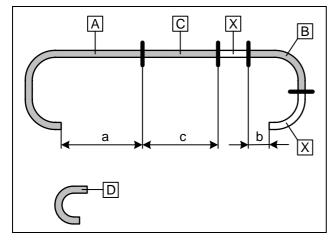




Aligning coolant hoses



Aligning coolant hoses



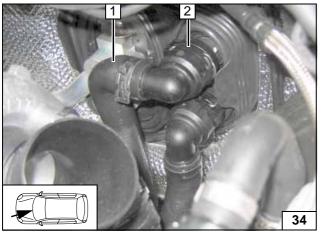
Vehicles with diesel particle filter

a = 880 mm b = 100 mm

c = 880 mm

Discard section ${\bf X}$

Cutting coolant hoses to length

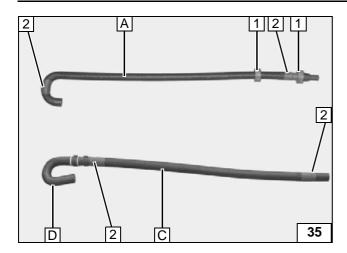


Pull off coupling **2** and remove from hose of heat exchanger inlet **1**. Will be reused.

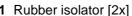


Detaching coupling





Push braided protection hoses onto hose ${\bf A}$ and C and cut to length.



1 Rubber isolator [2x]2 Push on heat shrink plastic tubing, shrink down [2x each]

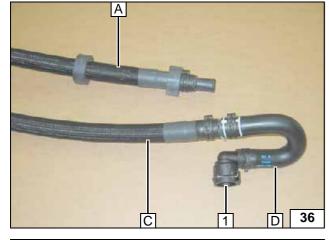


Preparing coolant hoses

Connect coupling piece 1 to hose D.



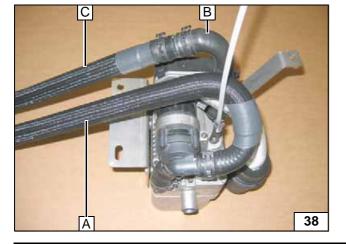
Preparing coolant hoses



1 Cable tie [2x]



heater unit

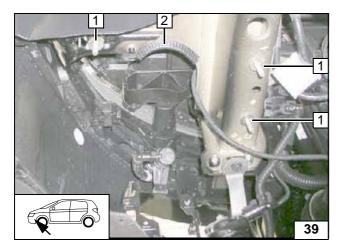


Connection to heater unit

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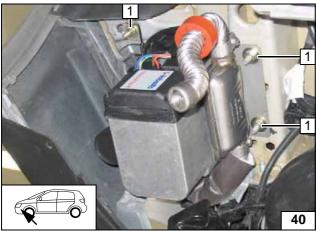


Preparing installation location

Secure large diameter washers from falling with putty etc.

- 1 Large diameter washer on original vehicle stud bolt [3x]
- 2 Edge protection section

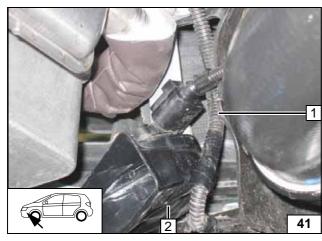
Installing edge protection



Installing heater unit

Large diameter washer, flanged nut M8
 [3x]

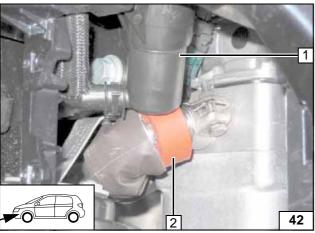
Fastening heater unit



Ensure sufficient distance to neighboring components.

- 1 Wiring harness of front fog lights
- 2 Horn

Aligning exhaust system



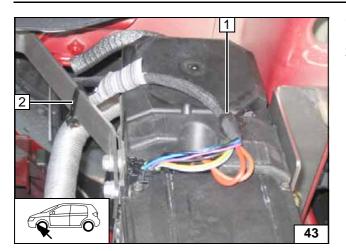
Ensure sufficient distance to neighboring components.

- 1 Headlight washer system
- 2 Position red (rt) rubber isolator

Aligning exhaust system

F





- 1 Clip-type cable tie in pre-perforated hole of heater unit cover
- 2 Cable tie



Fastening wiring harness



Coolant connection without diesel particle filter

WARNING!

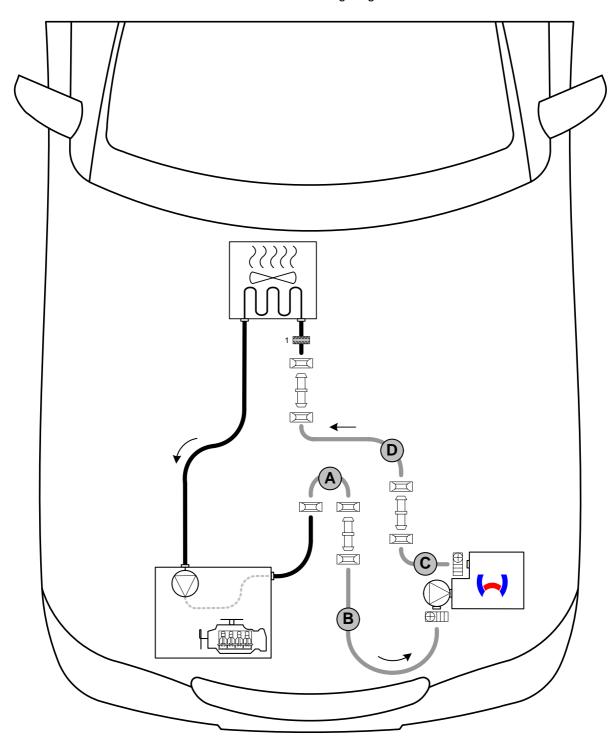
Tighten all hose clamps to 2.0 + 0.5 Nm.

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:



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

All hose clamps without a specific designation = 20-27 mm dia 1 = Black (sw) rubber isolator



Coolant routing diagram



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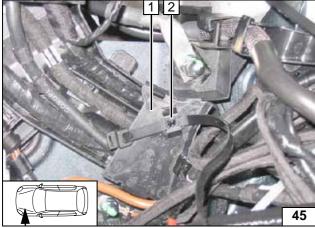




Air filter versions



Version 1



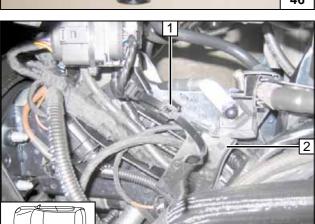
- 1 Cable duct cover
- 2 6 mm dia. hole, clip-type cable tie



Version 1



Version 2



- 1 6 mm dia. hole, clip-type cable tie2 Cable duct cover

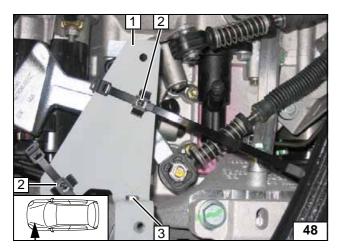


Version 2

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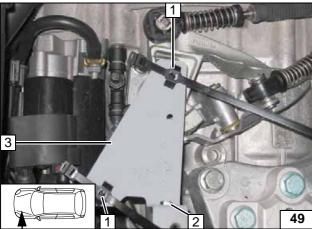


Versions for shifting actuation

- 1 Bracket
- 2 Clip-type cable tie [2x]
- 3 Original vehicle hole, M6x20 bolt, flanged nut



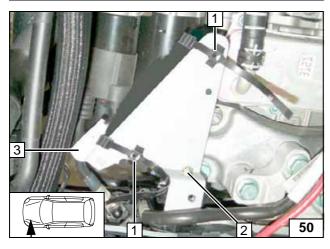
Installing clip-type cable ties, version A



- 1 Clip-type cable tie [2x]
- 2 Original vehicle hole, M6x20 bolt, flanged nut
- 3 Bracket



Installing clip-type cable ties, version B

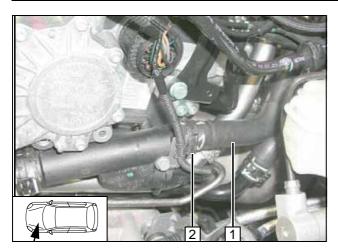


- 1 Clip-type cable tie [2x]
- 2 Original vehicle hole, M6x20 bolt, flanged nut
- 3 Bracket



Installing clip-type cable ties with directshifting manual transmission

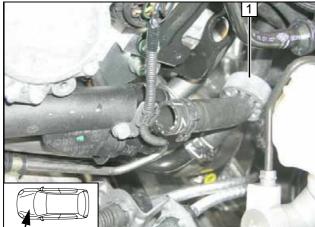




Pull off hose for heat exchanger inlet 1. Clip 2 will be reused!

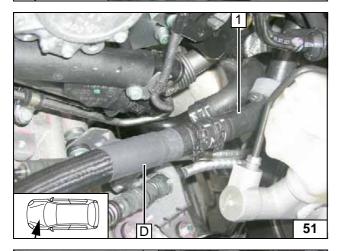


Pulling off hose



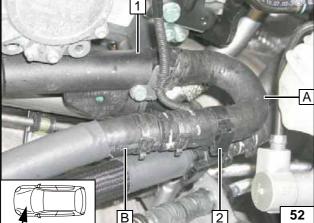
1 Black rubber isolator

Pushing on rubber isolator



1 Hose on heat exchanger inlet

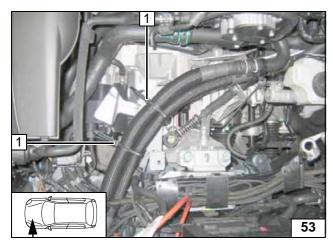
Connection on heat exchanger inlet



- 1 Connection piece for engine outlet2 Spacer

Connection on engine outlet



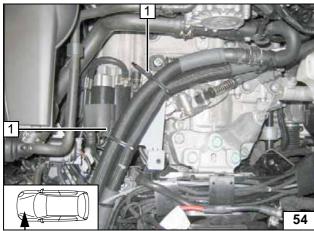


Versions for shifting actuation

Ensure freedom of movement of shifting actuation.

1 Clip-type cable tie [2x]

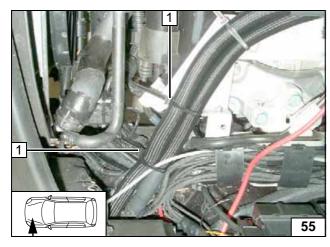
Installing hoses with version A



Ensure freedom of movement of shifting actuation.

1 Clip-type cable tie [2x]

Installing hoses with version B



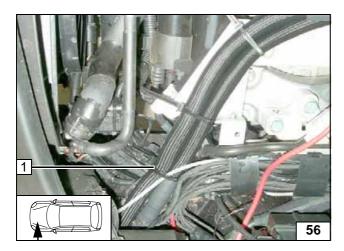
Ensure freedom of movement of shifting actuation.

1 Clip-type cable tie [2x]



Installing hoses with directshifting manual transmission





Air filter versions

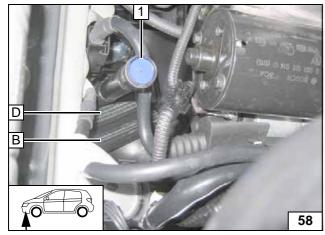
1 Clip-type cable tie

Installing hoses with version 1



1 Clip-type cable tie

Installing hoses with version 2



Test installation of air filter. Hose **D** and **B** are routed in front of line **1** for air filter.



Hose routing



Coolant connection with diesel particle filter

WARNING!

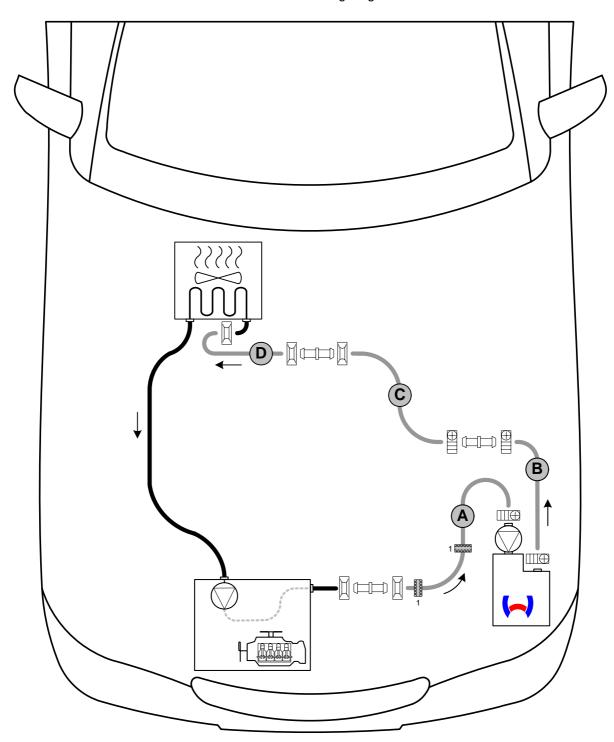
Tighten all hose clamps to 2.0 + 0.5 Nm.

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:



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

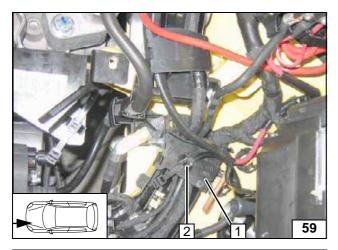
All hose clamps without a specific designation = 20-27 mm dia 1 = Black (sw) rubber isolator = 30 mm dia 1 = Black (sw) rubber isolator = 30 mm dia 1 mm dia 1



Coolant routing diagram

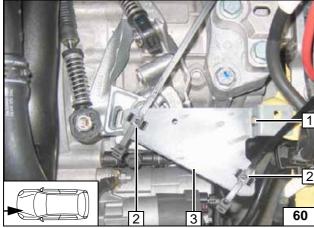






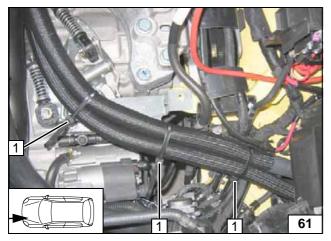
- 1 Cable duct cover
- 2 6 mm dia. hole, clip-type cable tie

Installing clip-type cable tie



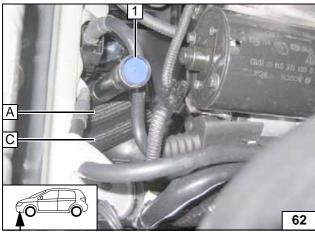
- Original vehicle hole, M6x20 bolt, flanged nut
- 2 Clip-type cable tie [2x]
- 3 Bracket

Installing clip-type cable ties



1 Clip-type cable tie [3x]

Hose routing

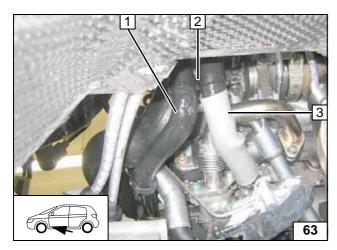


Test installation of air filter. Hose **A** and **C** are routed in front of line **1** for air filter.



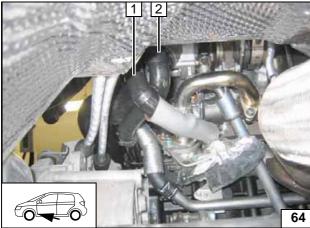
Hose rout-





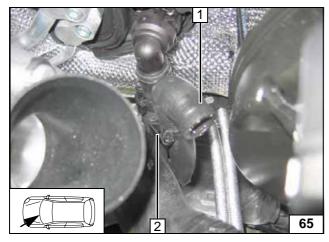
- 1 Hose for heat exchanger outlet
- 2 Cut apart spacer
- 3 Hose on heat exchanger inlet

Installing hose for heat exchanger inlet



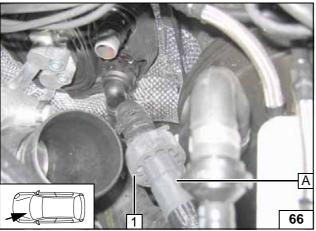
- 1 Route hose for heat exchanger inlet toward left
- 2 Hose for heat exchanger outlet

Installing hose for heat exchanger inlet



- 1 Hose for heat exchanger inlet turned toward front
- 2 Spacer

Installing spacer

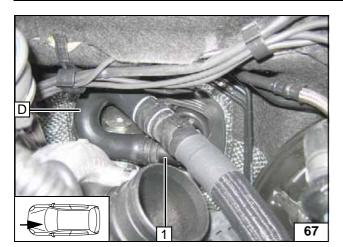


1 Black rubber isolator



Connection to engine outlet

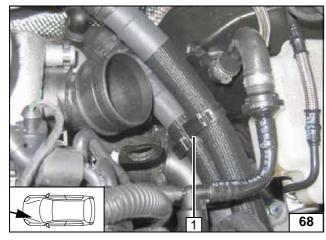




Before connecting, fill the coolant hoses with coolant.

1 Push on coupling piece

Connection on heat exchanger in-



1 Spacer bracket

Installing spacer



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.

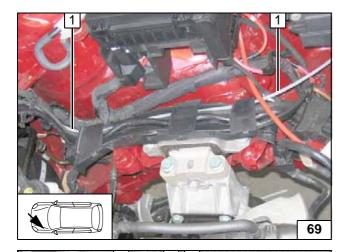
Install fuel line and metering-pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.

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

!

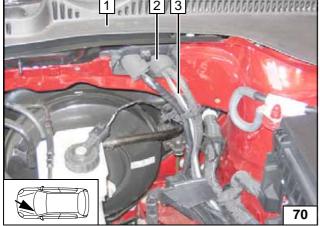
WARNING!

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



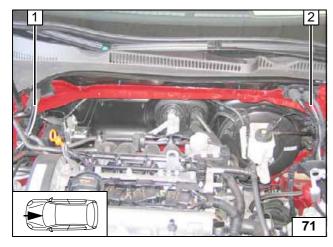
1 Fuel line

Installing lines in cable duct



- 1 Coolant reservoir cap detached
- 2 Pass through
- 3 Wiring harness of metering pump, fuel line

Installing lines in coolant reservoir

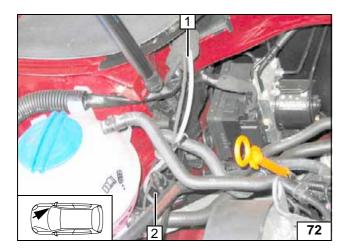


Ensure freedom of movement of wiper linkage.

1 Wiring harness of metering pump, fuel line

Installing lines in coolant reservoir





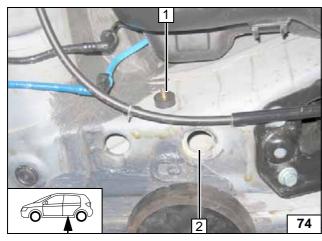
- 1 Wiring harness of metering pump, fuel line
- 2 Original vehicle line duct

Installing lines to underbody



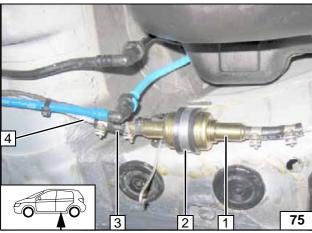
Route lines 1 out of line duct and along original vehicle lines to fuel tank.

Installing lines on underbody



- 1 Noise isolation mounts, large diameter washer, flanged nut
- 2 Remove sealing plug

Installing noise isolation mounts



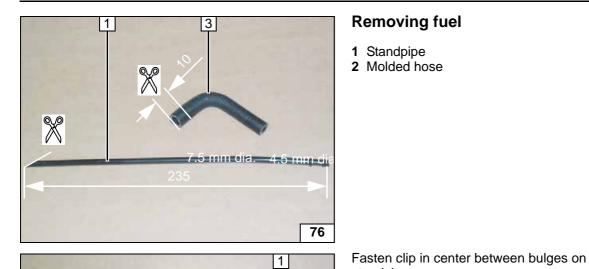
Fuel line from fuel standpipe on pressure side of metering pump [side with connector].



- 1 Metering pump
- 2 Rubber-coated pipe clamp, M6 flanged nut
- **3** Hose section, 10 mm dia. hose clamp [2x]
- 4 Fuel line

Installing metering pump





Removing fuel

1 Standpipe

standpipe.

2 Fuel sender

77

2 Molded hose



Cutting standpipe and molded hose to length



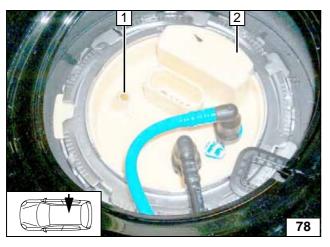
Pre-as-



sembling standpipe and molded hose

Cutting off blind plug



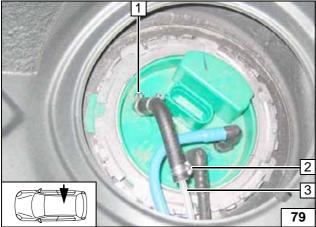


Align curved standpipe toward rear right to prevent impairment of fuel gauge.

- 1 13.5 mm dia. clamp
- 2 10 mm dia. clamp
- 3 Fuel line



Connecting fueltank sending unit









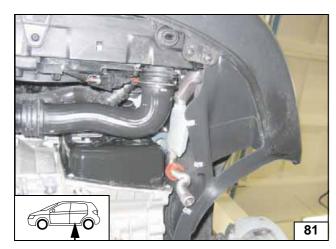
Fuel line from fuel standpipe on intake side of metering pump [side without connector]. Check the position of the components; adjust if necessary. Check that they have free clear-

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

ing to metering pump



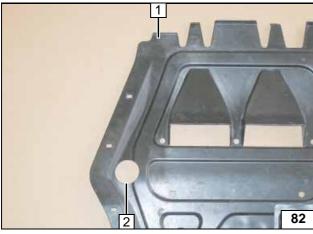




Ensure sufficient distance to neighboring components.



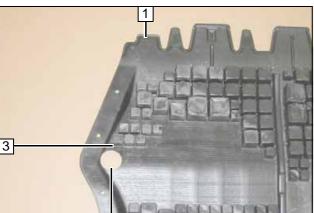
Aligning exhaust system



- 1 Underride protection
- 2 42 mm dia. hole



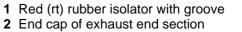
Cutting out underride protection with version 1



- 1 Underride protection
- 2 42 mm dia. hole
- 3 Insulating section removed

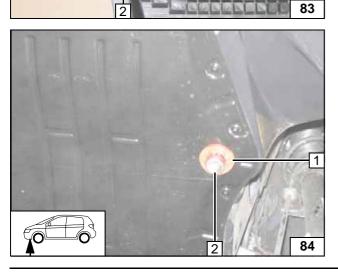


Cutting out underride protection with version 2





Mounting rubber isolator





Final Work

WARNING!

Reassemble disassembled components 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 unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Connect 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.



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(S)

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.

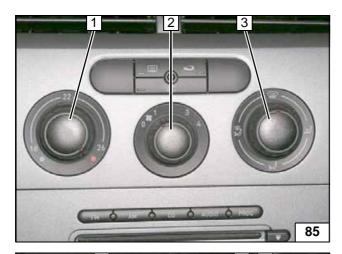
Heating time = driving time

Example:

For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

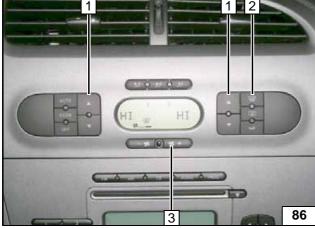
If the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater unit will then switch on heating in the Winter position or only the vehicle fan for ventilating the vehicle interior in the Summer position .

Before parking the vehicle, make the following settings:



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

For vehicles with Climatic



- 1 Set temperature on both sides to "high"
- 2 Air outlet to windshield
- 3 Set fan to level "1", or possibly "2"

For vehicles with Climatronic