Water Heater



Thermo Top V Parking Heater



Installation instructions

Ford S-MAX / Galaxy (CD 34*) from Model 2006 Ford Mondeo (CD 34*) from Model 2007

Gasoline
Left-hand drive vehicle
Automatic air-conditioning



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.

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

Ident. No.: 1311519F_EN Fee Euro 10.00 © Webasto AG

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Validity

Manufacturer	Model	Туре	EG-BE No./ ABE
Ford (D)	S-MAX	WA 6	e13 * 2001/116 * 0185 *
Ford (D)	Galaxy	WA 6	e13 * 2001/116 * 0185 *
Ford (D)	Mondeo	BA 7	e13 * 2001/116 * 0249 *

S-MAX

Engine type	Engine model	Output in kW	Displacement in cm ³
AO	Gasoline	107	1999
HU	Gasoline	162	2521

Galaxy

Engine type	Engine model	Output in kW	Displacement in cm ³
AO	Gasoline	107	1999

Mondeo

Engine type	Engine model	Output in kW	Displacement in cm ³
AO	Gasoline	107	1999
M14	Gasoline	118	2261
HU	Gasoline	162	2521

The installation location of a digital timer or push button should be confirmed with the end customer before installation.

Heater / delivery scope

Delivery scope:

Quantity	Description	Order No.
1	Delivery scope of Ford S-Max / Galaxy / Mondeo Diesel	1311400B
	without control element	

Required additionally for vehicles with automatic air conditioning:

Quantity	Description	Order No.
1	Kit for Automatic Air-Conditioning	1311421A

Optional heater control either:

Quantity	Description	Order No.
1	Digital timer	9010869A
1	Telestart T80	9010870A
1	Telestart T91	9016028A
1	Thermo Call II	9016027A

Required additionally when using Thermo Call and Telestart

Quantity	Description	Order No.
1	Y-Cable	9001505A

Foreword

These installation instructions apply to gasoline vehicles Ford S-MAX / Galaxy from model year 2006 and Ford Mondeo vehicles from model year 2007 - for validity, see page 2 - assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Vehicle and engine types, equipment variants and national specifications not listed in these installation instructions have not been tested. The installation must be according to these "installation instructions" - Changes are not allowed.

The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

However, where this is the case the stipulations in these "installation instructions" and "operating instructions" for the *Thermo Top V* should be observed.

A fault may have been stored in the fault memory "Heating, ventilation and air conditioning" by the operation of the parking heater. This must be deleted in accordance with the manufacturer's specifications.

General instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties.

Sharp edges must be provided with rub protection (cut-open fuel hose)!

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

Special tools

- Torque wrench for 2.0 10 Nm
- Hose clamping pliers
- Metric thread-setter kit
- Unlocking tool, Ford No.: GV 3301 (4x)

Explanatory notes on document

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

Mechanical system

Electrical system



Water



Fuel



Exhaust gas



Combustion air



Software



Special features are highlighted using the following symbols:



Specific risk of injury or fatal accidents.



Specific risk of damage to components.



Specific risk of fire or explosion.



Reference to these, the general installation instructions of the Webasto operating elements and to vehicle-specific documents of the manufacturer



Reference to a special technical feature.





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

All dimensions are in mm! Install fuel connections without impacts.

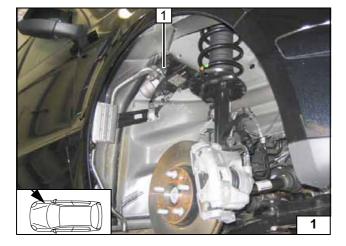
Tightening torque of 5x13 heater bolts = 7Nm!

Tightening torque of 5x15 bolt of water connection piece retaining plate = 7Nm!

Preliminary work

WARNING!

- Open the fuel tank cap and vent the fuel 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.
- Mount the information sign on the cover of the diagnosis connection.
- Remove the engine design cover.
- Remove the battery and the battery carrier.
- Remove the air filter box.
- Remove the windshield wipers (S-MAX and Galaxy only).
- Remove the coolant reservoir cap (S-MAX and Galaxy only).
- Remove the coolant reservoir trim in the engine compartment (S-MAX and Galaxy only).
- Remove the bracket of the coolant hoses (S-MAX and Galaxy only); or loosen (Mondeo only)
- Remove the right front wheel.
- Remove the wheel well trim on the right.
- Remove the lower engine cover.
- Remove the cover of the fuel line under the vehicle (S-MAX and Galaxy only)
- Remove the front-axle support cover (Mondeo only)
- Remove the fuel tank in accordance with the manufacturers specifications.
- Remove the switch or trim strip above the A/C control panel/radio or A/C/navigation control unit [clipped in] (S-MAX and Galaxy only).
- Remove the A/C control panel/radio or A/C/navigation control unit.
- Remove the glove compartment.
- Remove the cover of the A-pillar trim on the right (S-MAX and Galaxy only).
- Remove the cover of the centre console/shift lever cover.
- Remove the lower instrument panel trim on the front passenger side (Mondeo only).
- Detach the fuse box [SJB] and fold it down.



Heater installation location

1 Heater

Installation location





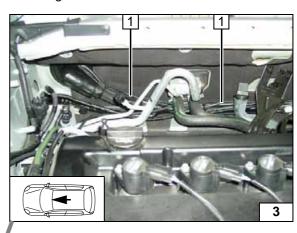
Electrical system

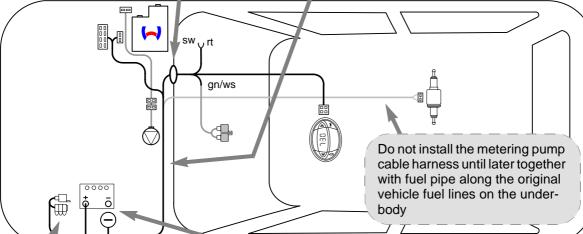
Wiring harness pass through

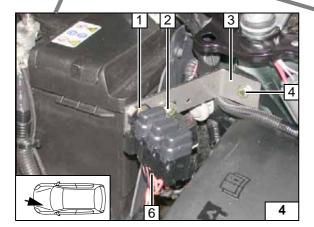
1 Protective rubber plug

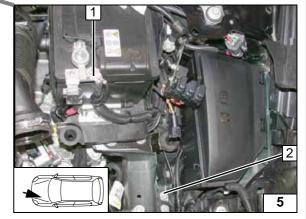
Routing in engine compartment

1 Wiring harness of heater









Fuse holder, K3 relay

Drill out hole at position 1 to 5.5 mm dia.

- 1 Retaining plate of fuse holder, M5x16 bolt, washers, nut
- 2 K3 relay, M5x16 bolt, washers, nut
- 3 Fuse holder
- **4** M6x12 bolt, original vehicle hole, M6 flanged nut

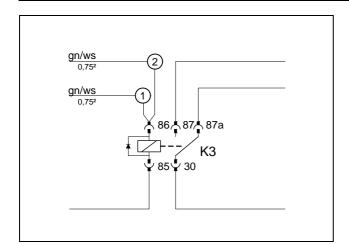
Power supply for wiring harness of heater

- 1 Connection of positive battery terminal
- 2 Original vehicle ground point

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Wiring harness installation diagram



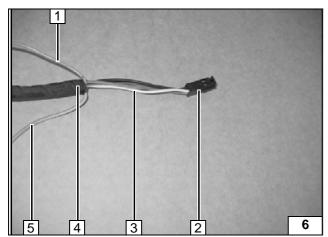


Preparing electrical system

Install 2,500 mm green/white (gn/ws) wire section **1** in included protective sleeving.



Premounting wiring harness



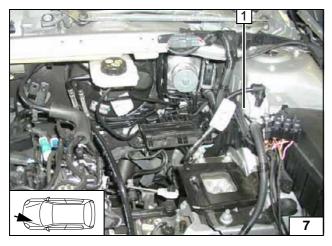
Preparing wiring harness

Mount yellow (ge) wire 3 in free socket of 4-pin connector 2.

- 1 Insulate brown (br) wire and tie back
- 4 Wiring harness of heater
- 5 Insulate violet (vi) wire and tie back



Preparing wiring harness



Route wiring harness of heater **1** along original vehicle wiring harness and secure with cable ties.

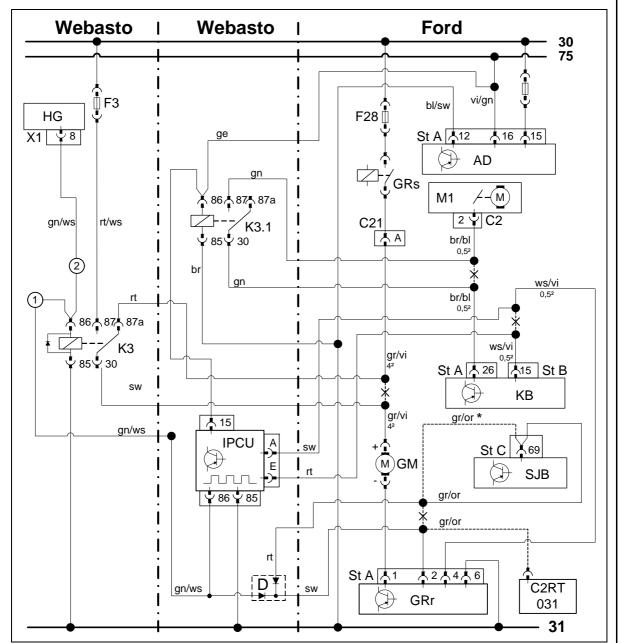


Routing in engine compart-ment



Control of automatic air-conditioning version A

Vehicle equipment if violet/green (vi/gn) wire is present on radio connector A, PIN 16.



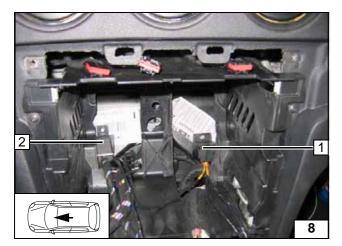
Webasto components		Vehicle (components	Colours and symbols	
HG	TT-V heater	GM	Fan motor	rt	red
X1	8-pin connector	GRs	Fan relay	ws	white
F3	Fuse 25A	GRr	Fan controller	sw	black
K3	Fan relay	KB	A/C control panel	br	brown
K3.1	Additional relay	F28	Fan fuse	gn	green
IPCU	Pulse width modulator	M1	Positioning motor of air flap	bl	blue
D	Diodes integrated in wir-	SJB	Smart Junction Box	ge	yellow
	ing harness	C21	Black connector	vi	violet
IPCU a	djustment values	AD	Radio	gr	gray
Voltage	e: 10 V	C2T031	Receiver WFS		
Frequency: 400 Hz		*	depending on equipment		
Duty cy	/cle: 37 %			X	Cutting point
Function: Low-side				Wiring	colours may vary.

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Wiring diagram

Legends





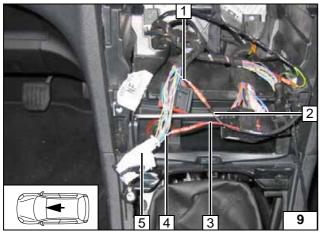
Cut dual lock 1x in centre.

Fasten relay K3.1 2 and IPCU 1 with dual lock as shown.

Watch space requirement of A/C control unit or radio and their wiring harnesses.



Installing IPCU and K3.1 relay



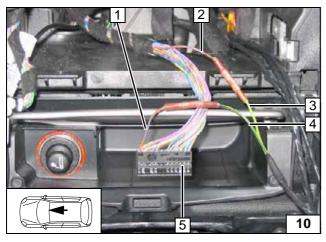
Connection on white (ws) connector B **5** from A/C control panel, Pin 15.

Make connections as shown in wiring diagram with existing connectors.

- 1 White/violet (ws/vi) wire to fan controller
- 2 Black (sw) wire from IPCU/A
- 3 Red (rt) wire from IPCU/E
- 4 White/violet (ws/vi) wire from connector of A/C control panel

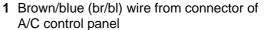


Connection of A/C control panel / IPCU



Connection on black (sw) connector A **5** from A/C control panel, Pin 26.

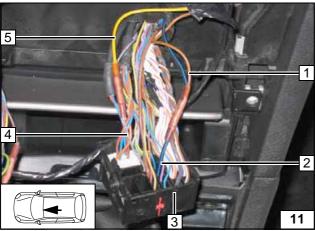
Make connections as shown in wiring diagram with existing connectors.



- 2 Brown/blue (br/bl) wire to flap positioning motor
- 3 Green (gn) wire from K3.1/87
- 4 Green (gn) wire from K3.1/30



Connection of A/C control panel / K3.1 relay



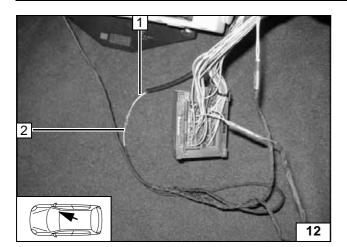
Connection on connector **3** from radio. Make connections as shown in wiring diagram with existing connectors.

- 1 Brown (br) wire from K3.1/85
- 2 Black/blue (sw/bl) wire (ground)
- 4 Violet/green (vi/gn) wire (Terminal 75)
- 5 Yellow (ge) wire from K3.1/86



Connection of K3.1 to radio



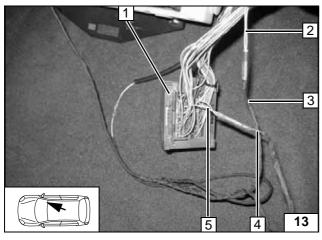


Produce connections as shown in wiring diagram.

- 1 Green/white (gn/ws) wire from K3/86
- 2 Green/white (gn/ws) wire



Connection of green/whit e (gn/ws) wire from K3/86



Connection on blue (bl) connector **1**, Pin 69. Produce connections as shown in wiring diagram.

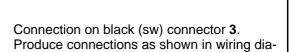


Depending on vehicle equipment, two cables may be present on Pin 69.

- 2 Gray/orange (gr/or) wire to fan controller (see wiring diagram)
- 3 Black (sw) wire
- 4 Red (rt) wire
- **5** Gray/orange (gr/or) wire to SJB connector (see wiring diagram)

tion of SJB connector

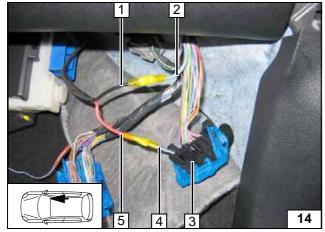
Connec-





- 1 Black (sw) wire from relay K3/30
- 2 Gray/violet (gr/vi) to fan motor
- 4 Gray/violet (gr/vi) wire
- 5 Red (rt) wire from relay K3/87a



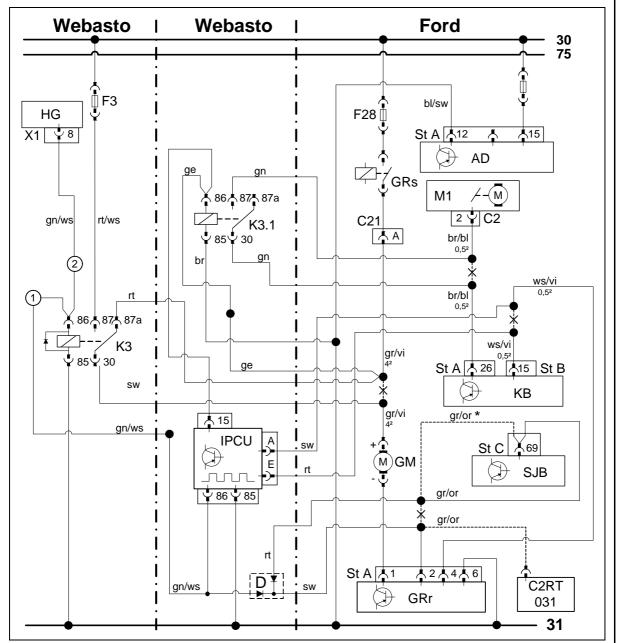


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Control of automatic air-conditioning version B

Vehicle equipment if violet/green (vi/gn) wire is not present on radio connector A, PIN 16.



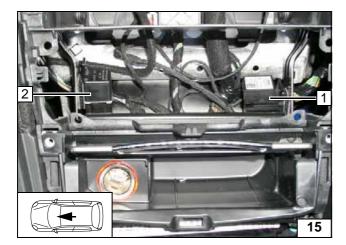
Webasto components		Vehicle (components	Colours and symbols	
HG	TT-V heater	GM	Fan motor	rt	red
X1	8-pin connector	GRs	Fan relay	ws	white
F3	Fuse 25A	GRr	Fan controller	sw	black
K3	Fan relay	KB	A/C control panel	br	brown
K3.1	Additional relay	F28	Fan fuse	gn	green
IPCU	Pulse width modulator	M1	Positioning motor of air flap	bl	blue
D	Diodes integrated in wir-	SJB	Smart Junction Box	ge	yellow
	ing harness	C21	Black connector	vi	violet
IPCU a	djustment values	AD	Radio	gr	gray
Voltage: 10 V		C2T031	Receiver WFS		
Frequency: 400 Hz		*	depending on equipment		
Duty cycle: 37 %				Χ	Cutting point
Functio	n: Low-side			Wiring	colours may vary.

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Wiring diagram

Legends





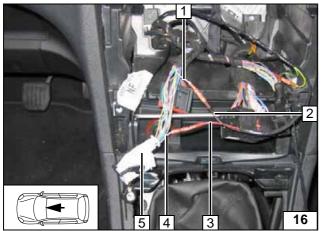
Cut dual lock 1x in centre.

Fasten relay K3.1 2 and IPCU 1 with dual lock as shown.

Watch space requirement of A/C control unit or radio and their wiring harnesses.



Installing IPCU and K3.1 relay



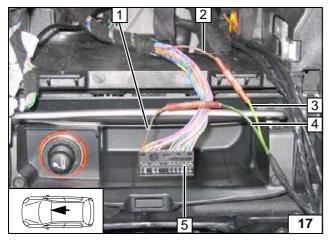
Connection on white (ws) connector B **5** from A/C control panel, Pin 15.

Produce connections as shown in wiring diagram.

- 1 White/violet (ws/vi) wire to fan controller
- 2 Black (sw) wire from IPCU/A
- 3 Red (rt) wire from IPCU/E
- 4 White/violet (ws/vi) wire from connector of A/C control panel

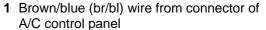


Connection of A/C control panel / IPCU



Connection on black (sw) connector A **5** from A/C control panel, Pin 26.

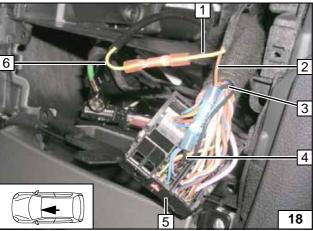
Produce connections as shown in wiring diagram.



- 2 Brown/blue (br/bl) wire to flap positioning motor
- 3 Green (gn) wire from K3.1/87
- 4 Green (gn) wire from K3.1/30



Connection of A/C control panel / K3.1 relay



Connection on connector **5** from radio. Produce connections as shown in wiring diagram.

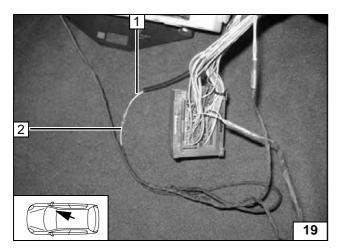
Connect yellow (ge) wire 1 from K3.1/86 to yellow (ge) wire 6 and route in protective sleeving into footwell on front passenger side.

- 2 Brown (br) wire from K3.1/85
- 3 Black/blue (sw/bl) wire (ground)
- 4 Black/blue (sw/bl) wire (ground) from connector Pin 12



Connection of K3.1/85 on radio



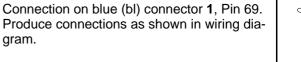


Produce connections as shown in wiring diagram.

- 1 Green/white (gn/ws) wire from K3/86
- 2 Green/white (gn/ws) wire



Connection of green/whit e (gn/ws) wire from K3/86





Depending on vehicle equipment, two cables may be present on Pin 69.

- 2 Gray/orange (gr/or) wire to fan controller (see wiring diagram)
- 3 Black (sw) wire
- 4 Red (rt) wire

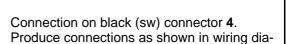
2

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5 Gray/orange (gr/or) wire to SJB connector (see wiring diagram)

tion of SJB connector

Connec-

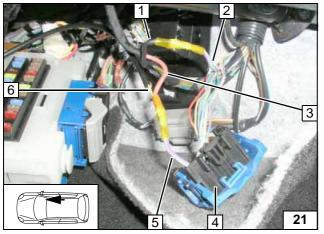




- 1 Black (sw) wire from relay K3/30
- 2 Gray/violet (gr/vi) to fan motor
- 3 Red (rt) wire from relay K3/87a
- 5 Gray/violet (gr/vi) from connector
- 6 Yellow (ge) wire from relay K3.1/86

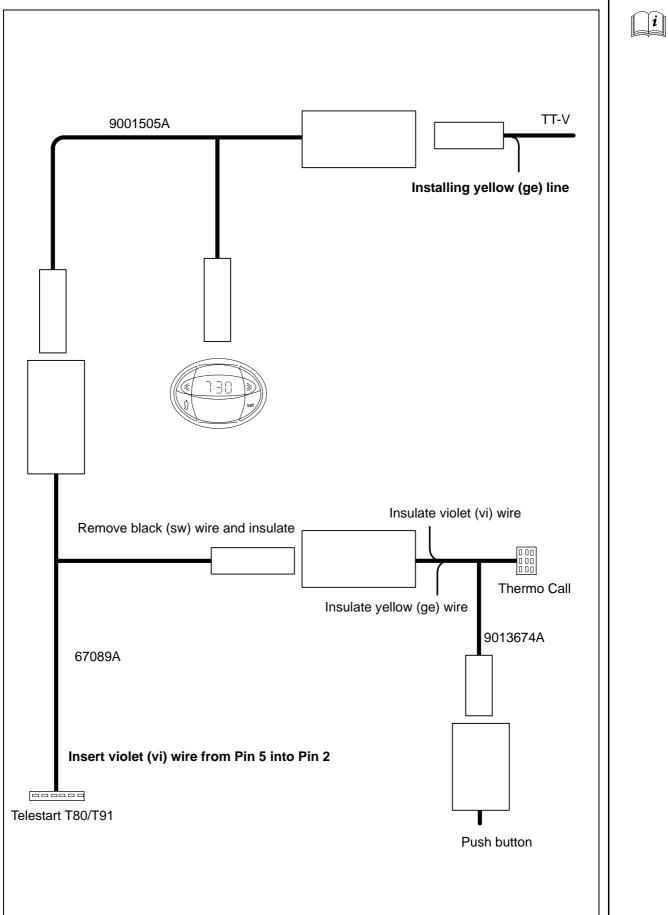


Connecting fan motor

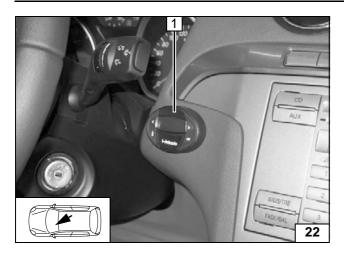




Connection diagram for heater control







Digital timer

S-MAX / Galaxy Version A

1 Digital timer

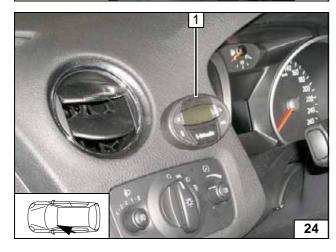
Installing digital timer



S-MAX / Galaxy Version B

1 Digital timer

Installing digital timer

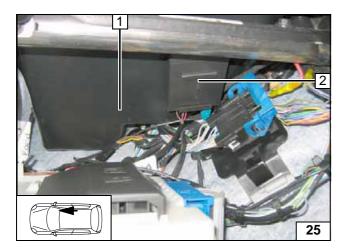


Mondeo

1 Digital timer

Installing digital timer



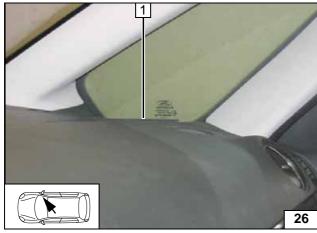


Remote option (Telestart)

S-MAX / Galaxy

- 1 Underside of glove compartment2 Telestart receiver, dual lock

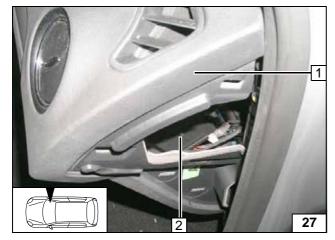




1 Antenna



Installing antenna



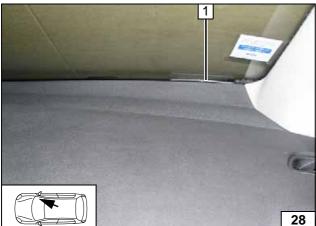
Mondeo

- 1 Instrument panel on front passenger side2 Telestart receiver, dual lock



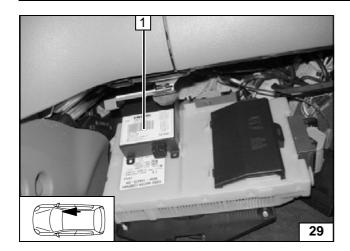
Installing receiver





Installing antenna





Thermo Call option

S-MAX and Galaxy

1 Thermo Call, dual lock

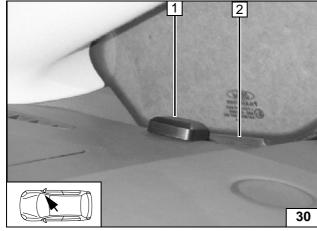


Installing receiver





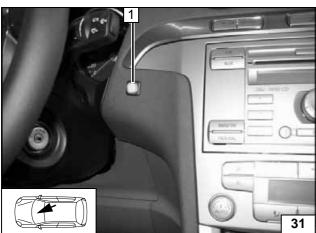
Installing antenna



1 Push button



Installing push button







Mondeo

1 Thermo Call, dual lock



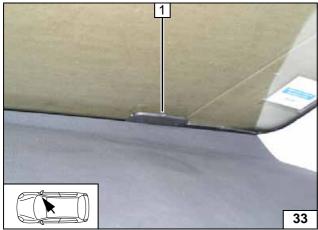
Installing receiver



1 Antenna



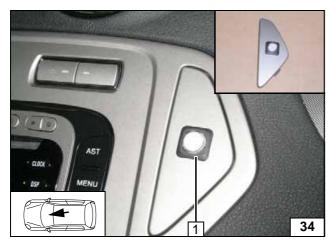
Installing antenna



1 Push button

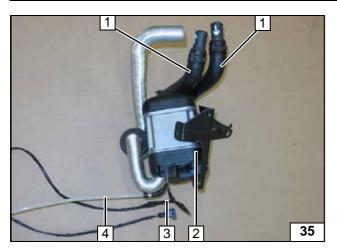


Installing push but-ton



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Premounting heater

Mark premounted coolant hoses 1 [2x] in accordance with direction of flow and connect adapter wiring harness of circulating pump 3.

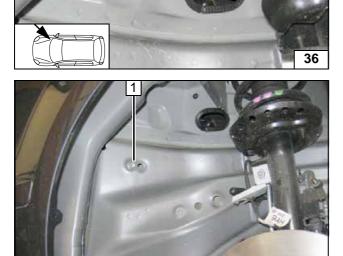
- 2 Heater
- **4** Fuel line, moulded hose, 10 mm dia. hose clamp



Install cable grommet 1 and edge protection section 2.



tion loca-



Mount M6 rivet nuts 1 [2x] in existing holes as shown.



Installing rivet nuts





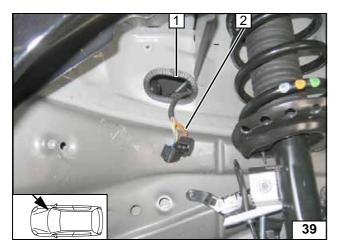
Preparing exhaust pipe



1311519F_EN 19

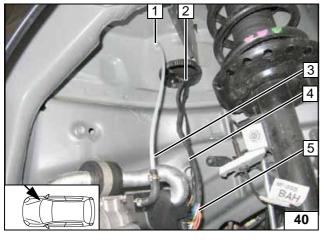
37





- 1 Pass through
- 2 Wiring harness of heater

Installing wiring harness of heater



Installing heater

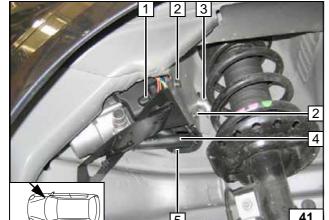
Guide fuel line 3 through grommet 1 into engine compartment.

Route adapter cable of circulating pump 4 through pass through 2 into engine compartment.

Connect wiring harness of heater to heater 5.



Installing heater



Loosely mount heater 1 as shown.

- 2 M6x20 bolt [2x], spring lockwasher [2x], large diameter washer [2x]
- 3 Combustion air pipe
- 4 Coolant hoses
- **5** Pass through



Installing heater



Install exhaust system 4 on heater 2 as shown.

Ensure sufficient distance to neighbouring components.

- 1 Hose clamp
- 3 M6x20 screw, spring lock washer, washer



Installing exhaust pipe

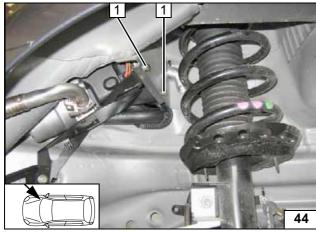






1 M6x20 screw, spring lock washer, washer

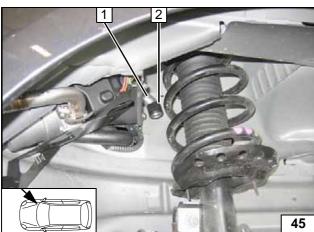
Installing exhaust pipe



Tighten M6 bolt 1 [2x].



Installing heater



Screw protective cap 2 onto intake hose 1.



Installing protective cap on combustion air pipe



Fuel

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.

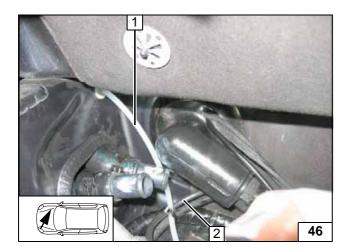
Install fuel line and metering-pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties.

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

!

WARNING!

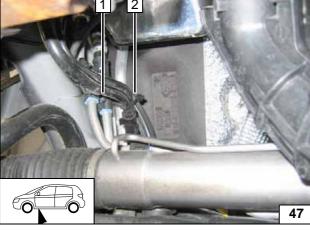
The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



Route fuel line 1 and metering-pump wiring harness 2 to underbody and secure on original vehicle lines with cable ties.



Routing lines

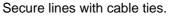


Route fuel line and metering-pump wiring harness **2** to underbody and secure on original vehicle **1** with cable ties.



Routing lines

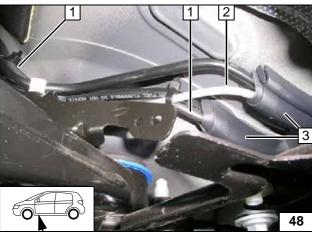




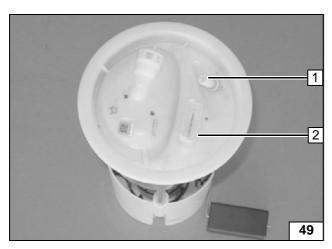
- 1 Metering pump wiring harness2 Fuel line
- 3 Cover of original vehicle fuel lines



Routing lines into cover



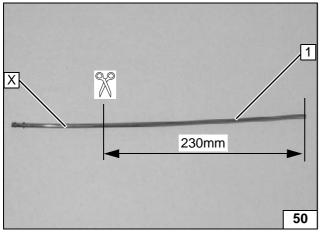




Remove fuel-tank sending unit 1 in accordance with manufacturer's specifications.
Cut approx. 3 mm off blind connection 1.



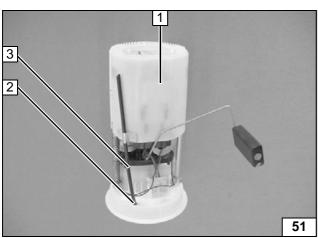
Removing fuel



Shorten standpipe 1 as shown in Figure. Discard section **X**.



Preparing standpipe

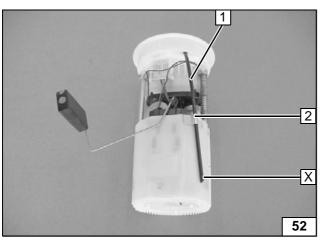


Slide standpipe **3** at least 15 mm into existing opening **2** and fix in place with a suitable contact adhesive.



1 Fuel sender



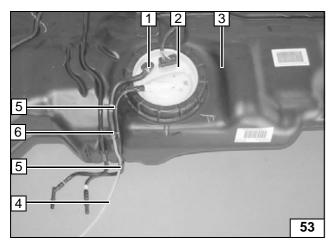


Fix standpipe **1** as shown with retaining clip **2**. Angle standpipe **1** at Position X.



Installing standpipe

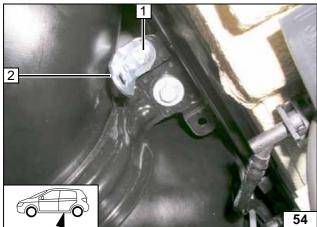




Install fuel-tank sending unit 2 according to manufacturer's instructions in fuel tank 3. Mount hose coupling 1 on connection piece.

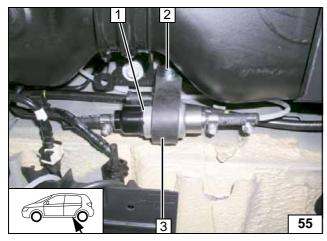
- 4 500 mm fuel line
- 5 Cable tie [2x]
- 6 10 mm dia. Caillau clamp

Installing fuel standpipe



- 1 M6x20 bolt, large diameter washer, flanged nut
- 2 Angle bracket

Installing metering pump

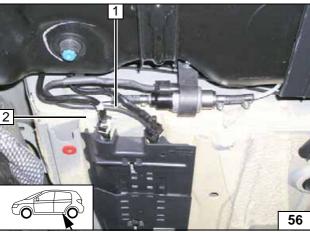


Check the position of the components; adjust if necessary. Check that they have free clearance.



- 1 Metering pump
- 2 M6x20 bolt, washer, flanged nut
- 3 Metering pump bracket

Installing metering pump

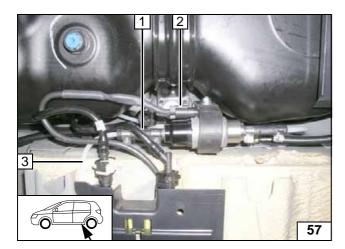


Route fuel line **2** and wiring harness of metering pump **1** along original vehicle fuel line and secure with cable ties.



Routing lines





Fuel line from heater **3** on pressure side of metering pump.

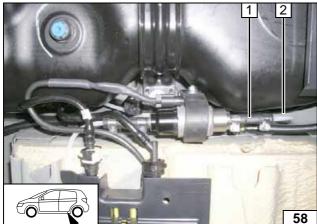
Check the position of the components; adjust if necessary. Check that they have free clearance.

Remount cover of fuel lines.

- 1 Hose section, 10 mm dia. hose clamp [2x]
- 2 Wiring harness of metering pump, connector mounted



Connecting metering pump



Fuel line from fuel standpipe **2** on intake side of metering pump.

Check the position of the components; adjust if necessary. Check that they have free clearance.

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

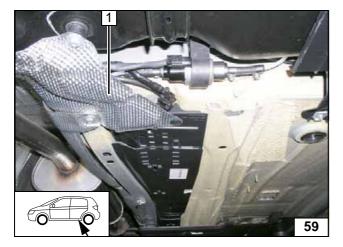


Connecting metering pump





Installing cover





Coolant circuit

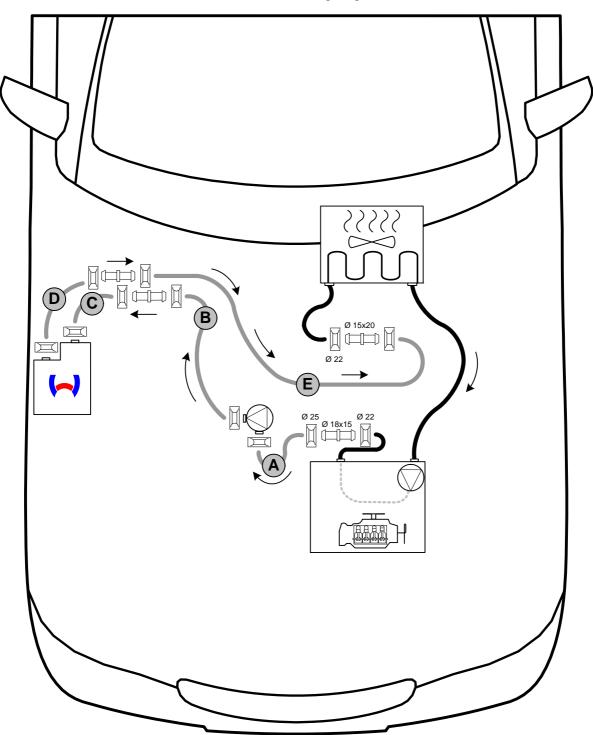
WARNING!

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



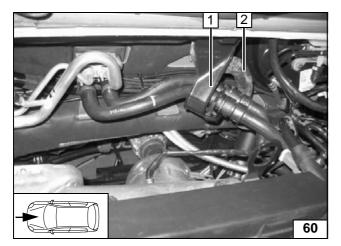
Hose routing diagram



All clamps without a specific designation = 27 mm dia. spring clips. All connecting pipes without a specific designation = 20x20mm dia.



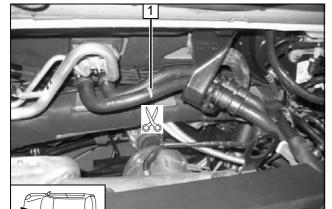




Remove hose bracket 1; will be reused (on S-MAX and Galaxy) or loosen (on Mondeo)! Unclip water drain hose 2; will be reused.



Preliminary work

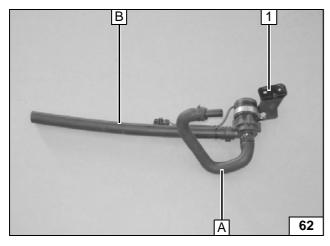


1 Cutting point

61

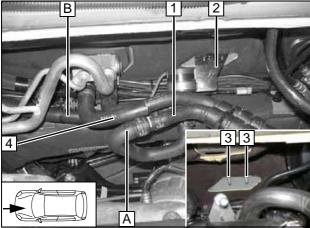


Cutting point



Install moulded hose A on premounted circulating pump **1** according to diagram.

Premounting circulating pump

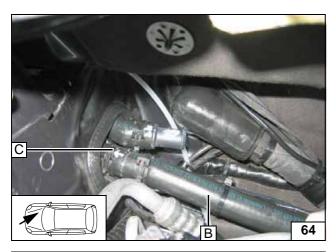


See coolant connection diagram. Installation of the circulating pump is carried out on original vehicle stud bolt **3** [2x]!

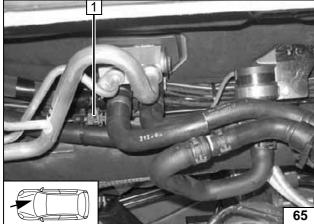
- 1 Hose section on engine outlet
- 2 Bracket of circulating pump, plastic nuts [2x]
- 4 Hose section on heat exchanger inlet

Connection to engine outlet



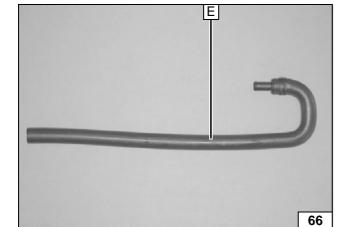


Connection of heater inlet



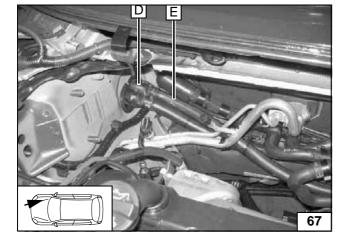
1 Adapter cable of circulating pump, cable of circulating pump

Connecting adapter wiring harness of circulating pump



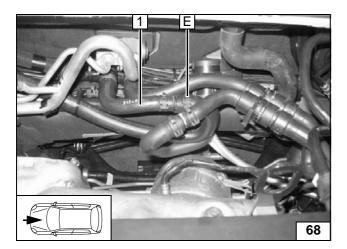


Moulded hose E



Connection of heater outlet



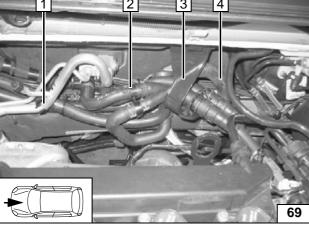


Before connecting, fill the coolant hoses with coolant.

1 Hose on heat exchanger inlet



Connection to heat exchanger inlet

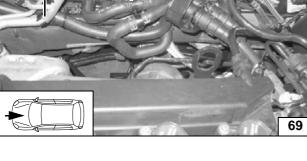


Remount original vehicle hose bracket 3 and water drain hose 4.



- 1 Hose bracket between A/C line and hose E
- 2 Hose bracket

Installing hose bracket





Final Work

WARNING!

Mount removed parts in reverse order.

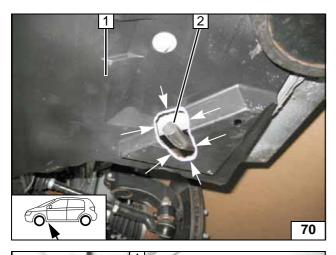
Check all hoses, clamps and all electrical connections for firm seating.

Secure all loose cables using cable ties.

Only use manufacturer-approved coolant.

Spray heater components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Connect the battery.
- Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.
- Bleed the fuel system according to the manufacturer's instructions.
- Set the digital timer.
- Make A/C control panel adjustments according to "operating instructions"
- Check the function of the parking heater, see the "operating instructions"
- Place signboard "Switch off parking heater before refuelling" in the area of the filling connecting piece
- Decode the radio according to the manufacturer's instructions

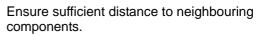


Cut out at marking in lower trim 1 (if installed) in area of exhaust outlet 2.



[i]

Cutting out underride protection

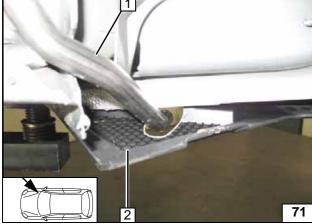




2 Lower trim



Exhaust outlet





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