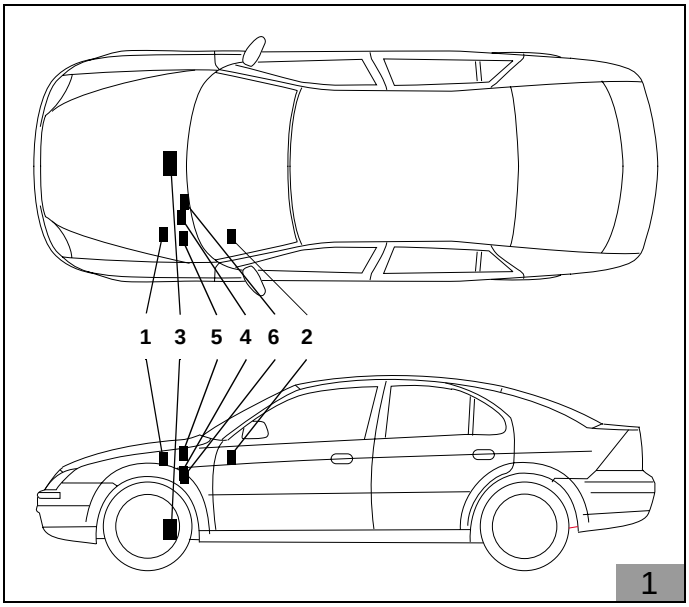
Webasto
Feel the drive

D5W Z Auxiliary Heater



Legend for Figure 1

1 Blade-type fuse holder and blower relay
2 Digital timer
3 Heater
4 Circulating pump
5 Diode group
6 Temperature sensor

Upgrade
D5W Z Auxiliary Heater to Auxiliary Preheating System C

FORD Mondeo

2.0 l TDCI Diesel
2.2 l TDCI Diesel

From model year 2004

All equipment variants

Only applies to left-hand drive cars

See page 2 for validity details

An auxiliary ventilation function is only possible if the summer/winter switch is used – even with Telestart.

IMPORTANT!
Danger warning:
The incorrect installation or repair of Webasto heating and cooling systems may cause a fire or the escape or fatal carbon monoxide. This may result in serious or fatal injuries.
Special company training, technical documentation, special tools and special equipment are required for the installation and repair of Webasto heating and cooling systems.
NEVER attempt to install or repair Webasto heating or cooling systems unless you have completed the company training and thus acquired the required technical skills and unless you have the technical documentation, tools and equipment available to you that are required for completing proper installation and repair work.
ALWAYS follow all Webasto installation and repair manuals and observe all the warnings.
Webasto cannot accept any liability for defects and damage caused by the system being installed by untrained personnel.

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Validity

Manufacturer	Trade name	Type	EC licence no.
FORD	Mondeo	B4Y	e1*98/14*0154*--
FORD	Mondeo	B5Y	e1*98/14*0155*--
FORD	Mondeo	BWY	e1*98/14*0156*--

Engine ID	Engine type	Output in kW	Displacement in cc
D6BA	Diesel	85	1988
FMBA	Diesel	96	1988
QJBA	Diesel	114	2198

NOTE
The vehicle types, engine types and equipment versions not listed in these installation instructions have not been tested.
It may nevertheless be possible to install the system using these installation instructions.

Heater / installation kit

Quantity	Designation	Order no.
1	**Upgrade kit *D5W Z* for FORD Mondeo with auxiliary preheating system**	**90 099 24A**

CAUTION
The kit does not include a control!
The desired control must be ordered separately!

Foreword

These non-binding installation instructions apply to FORD Mondeo 2.0 l and 2.2 l TDCI Diesel cars (see page 2 for validity), model year 2004 and later, with *D5W Z* auxiliary heater, unless technical modifications on the car influence the installation, excluding all liability claims. Depending on the version and equipment in the vehicle, changes may be required to the installation work set out in these installation instructions.
The appropriate engineering conventions and any instructions from the vehicle manufacturer must be observed for the installation work.

Special tools

Clamping claw
Torque wrench for 2 - 10 Nm

General information

- Bare body parts, for example around drilled holes, must be treated with anti-corrosive coating
- Secure hoses, cables and wiring harnesses with cable ties and fit protective hoses around them at chafing points
- Fit edge protectors (opened fuel hose) to sharp edges

Preparations

Interior

- Establish and make a note of the radio security code

Under-bonnet compartment

CAUTION
Disconnect the battery!

- Remove the air filter housing
- Remove the connection hose between the turbocharger and the air filter housing
- Remove the battery cover
- Remove the engine cover
- Use clamping claws to seal off the coolant circuit (drain the coolant if necessary)

Interior

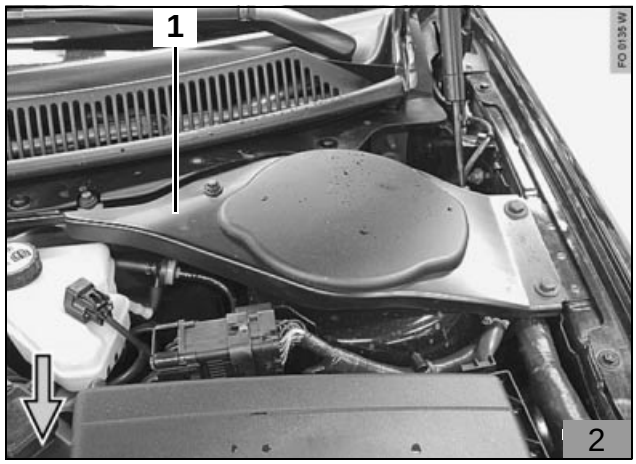
- Remove the footwell trim on the driver side

Circuit diagrams

CAUTION
Refer to the circuit diagrams supplied by the manufacturer for the specific vehicle, particularly if the cable colours or pin assignments are different!

To install the diode group

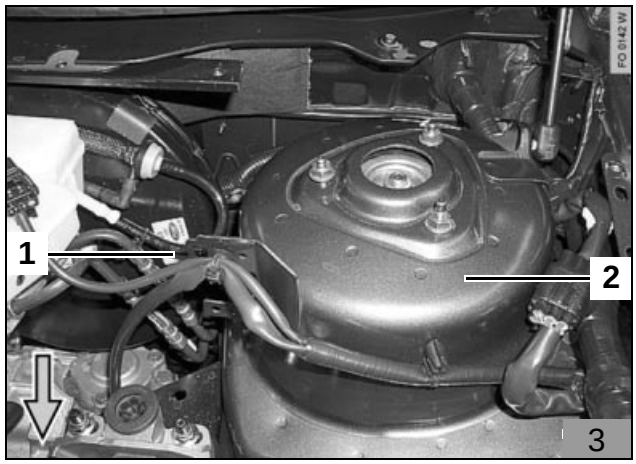
- Remove left shock absorber dome cross-brace (1)



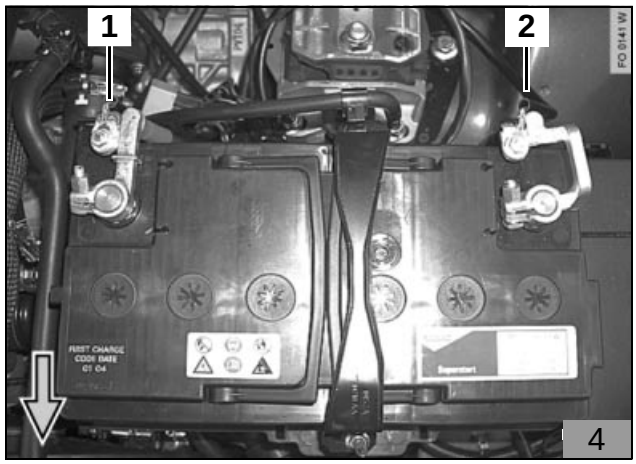
To route the cable harness

NOTE
Loosely position the blade-type fuse holder and the additional relay in position 1 in order to prepare for routing the wiring harness!

- Route the wiring harnesses of the temperature sensor, the circulating pump, the blower and heating control unit and the digital timer along the standard cables behind left MacPherson strut tower (2) to the brake booster and secure with cable ties
- Route the positive and earth cables to the battery

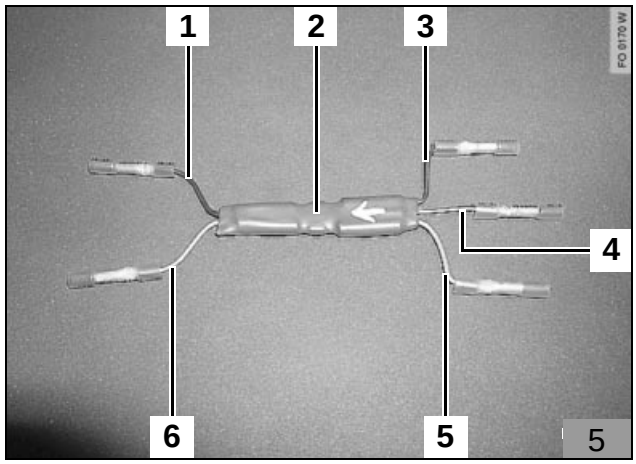


- Connect positive cable (1) to the positive pole of the battery
- Connect earth cable (2) to the negative pole of the battery
- Secure the positive and earth cables using cable ties



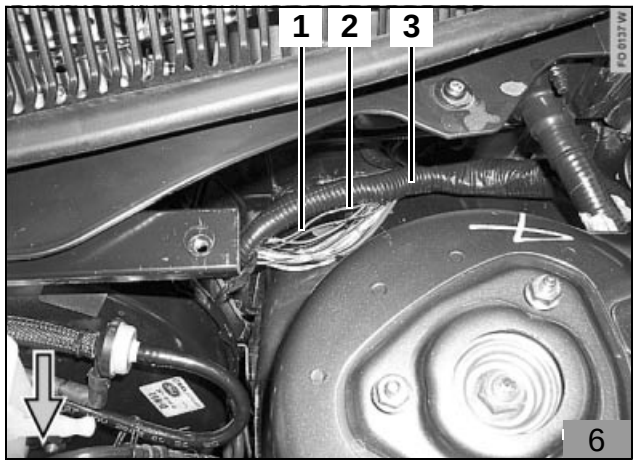
To prepare the diode group

- Crimp butt connectors onto black cable (1, 3), blue cable (5, 6) and white/black cable (4) of diode group (2)

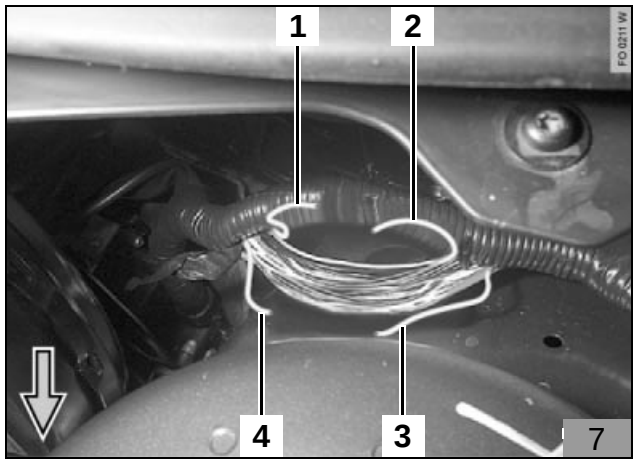


- Open insulating tube (3)
- Expose green/white cable (1), 0.75 mm^2 and green/black cable (2), 0.75 mm^2 of the standard wiring harness

CAUTION
The standard wiring harness contains three green/black cables in total. Two green/black cables have a cross section of 0.5 mm^2, the third has a cross section of 0.75 mm^2.
Only this third cable with a cross section of 0.75 mm^2 is allowed to be cut!
If necessary, use an ohmmeter to check the green/black line for continuity to plug C252 on the auxiliary heater PIN 5!



- Cut green/white cable (1, 2), 0.75 mm^2 and green/black cable (3, 4), 0.75 mm^2 of the standard wiring harness
- Strip the insulation off the ends of green/white cable (1, 2), 0.75 mm^2 and green/black cable (3, 4), 0.75 mm^2

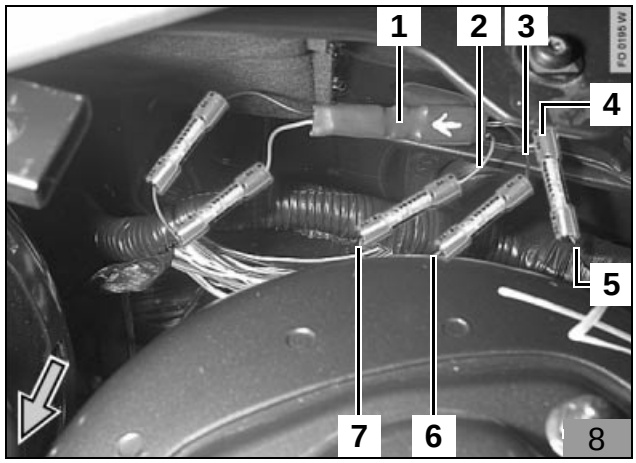


To install the diode group

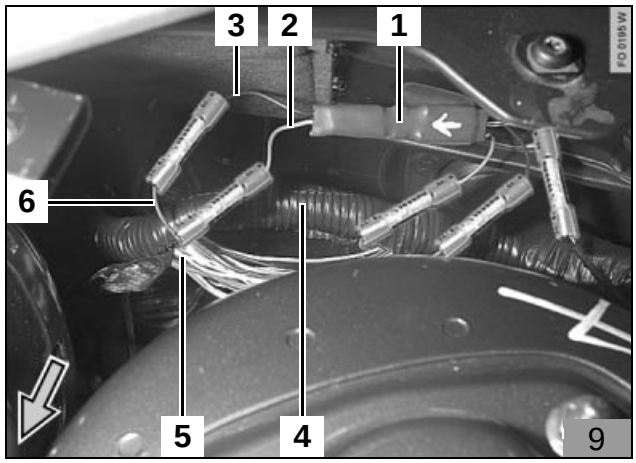
NOTE
The flow direction of the diode must be observed as shown in the figure!

Make the diode group connections as shown in the circuit diagram, Figure 10.

- Connect black/white cable (5) of additional relay K3.1/86 to white/black cable (4) of diode group (1)
- Connect green/white cable (7), 0.75 mm^2, to blue cable (2) of diode group (1)
- Connect green/black cable (6), 0.75 mm^2, to black cable (3) of diode group (1)



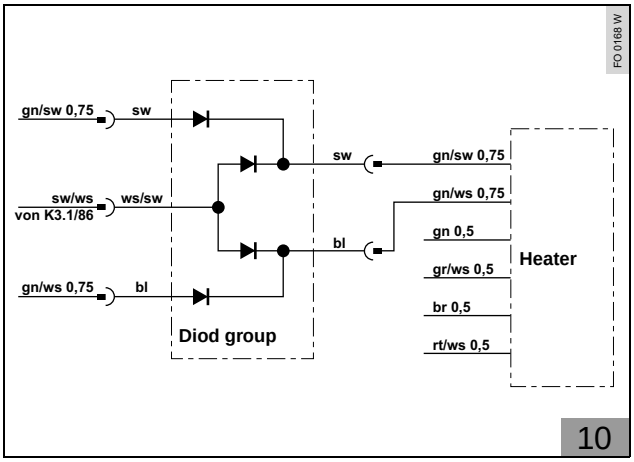
- Connect green/white cable (5), 0.75 mm^2, to blue cable (2) of diode group (1)
- Connect green/black cable (6), 0.75 mm^2, to black cable (3) of diode group (1)
- Insert all cables into insulating tube (4)
- Wrap diode group (1) in insulating tape and attach to insulating tube (4)
- Reinstall left shock absorber dome cross-brace (2/1)



Legend for circuit diagram Figure 10

Cable colours

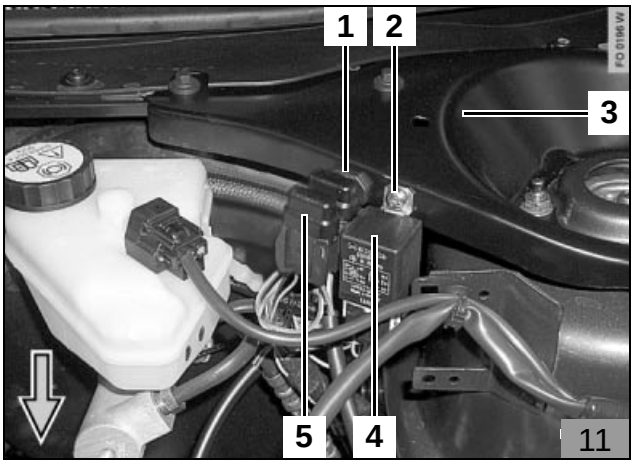
bl	blue
br	brown
gn	green
gr	grey
rt	red
sw	black
ws	white



Blade-type fuse holder, blower and additional relay

To install the blade-type fuse holder, blower and additional relay

- Transfer the hole patterns from blade-type fuse holder (5) and additional relay K3.1 (4) to positions 1 and 2 on shock absorber dome cross-brace (3)
- Drill 4.5 mm diameter holes (1, 2) in shock absorber dome cross-brace (3)
- Use 5.5 x 12 mm self-tapping screws to secure blade-type fuse holder (5) and additional relay K3.1 (4) onto shock absorber dome cross-brace (3)



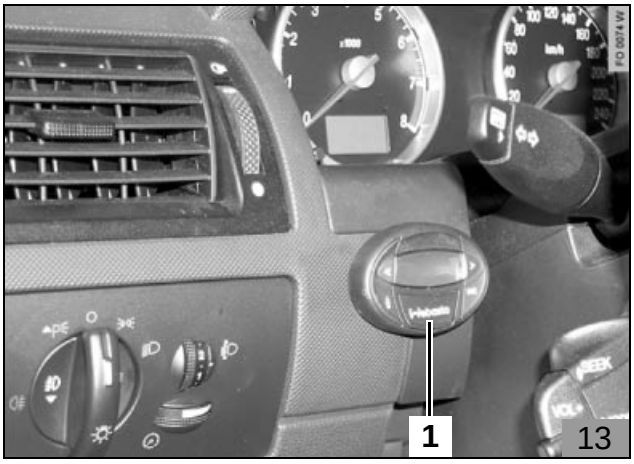
- Route the previously installed wiring harness of the blower control unit and digital timer (see Figure 3) behind the brake force booster along the bulkhead and through the standard cable grommet (1) into the interior
- Route the digital timer wiring harness to the digital timer installation site
- Route green/white cable (20/1) of the blower control unit to the fuse/relay carrier on the A-pillar in the footwell on the driver side

Digital timer installation

CAUTION
Do not press on the LCD display as you install the digital timer!

NOTE
The installation site for digital timer (1) shown in the figure is only a recommendation!
Before installation, please agree the installation site with your customer!

- Affix the drilling template for digital timer (1) in the required position
- Drill two holes using the template
- Remove the template
- Connect the plug of the digital timer wiring harness to digital timer (1)
- Secure digital timer (1) to the instrument panel with the self-tapping screw



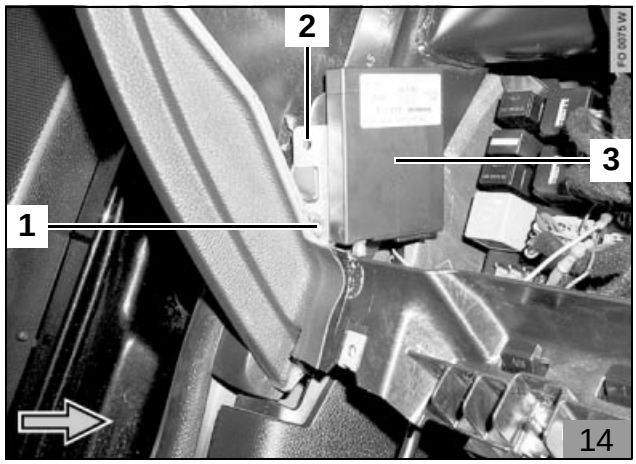
Telestart T70/T80 option

Telestart receiver installation

NOTE
Refer to the supplied general “Installation manual” for the T70/T80 Telestart option!

Telestart receiver (3) is installed on the A-pillar in the footwell on the driver side.

- Drill out holder (2) of Telestart receiver (3) to 6.5 mm diameter at position 1
- Put body washer A 7.4 mm onto the standard stud bolt
- Use collar nut (1) to screw holder (2) onto the existing stud bolt
- Connect Telestart receiver (3)



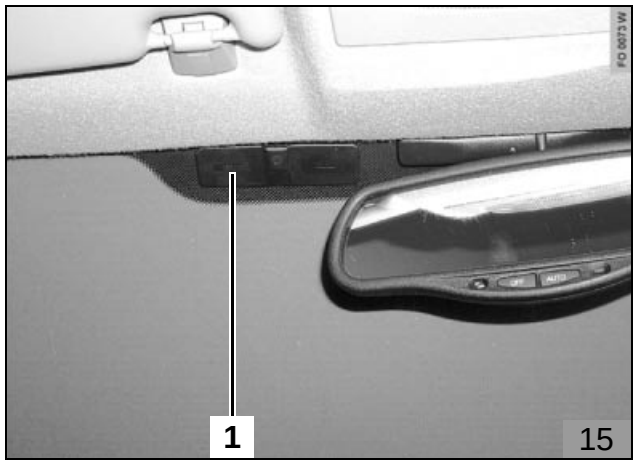
Telestart aerial installation

NOTE
Clean/degrease the area to which the Telestart aerial is to be affixed before you affix it!

The installation position for Telestart aerial (1) is on the front windscreen at the top left next to the rear-view mirror.

- Clean and degrease the part of the windscreen where the aerial is to be installed
- Stick on Telestart aerial (1)

NOTE
Make the connections in accordance with the general “Installation instructions” and secure the cables using cable ties!



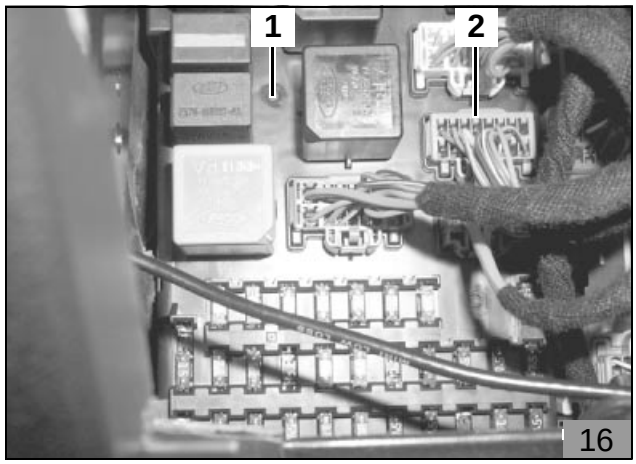
Blower connection

For vehicles with a manual air-conditioning system only

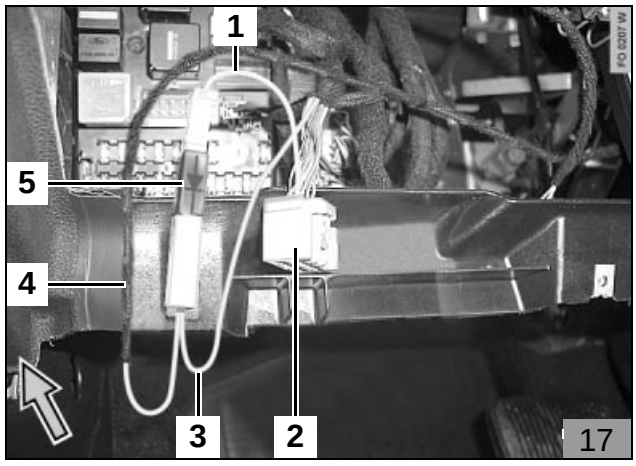
The blower connection is made on fuse/relay holder (1) at the driver side on the left of the footwell, plug C502 (2), PIN 16.

Make the connections as shown in the circuit diagram Figures 18 and 24 with the solder terminals provided.

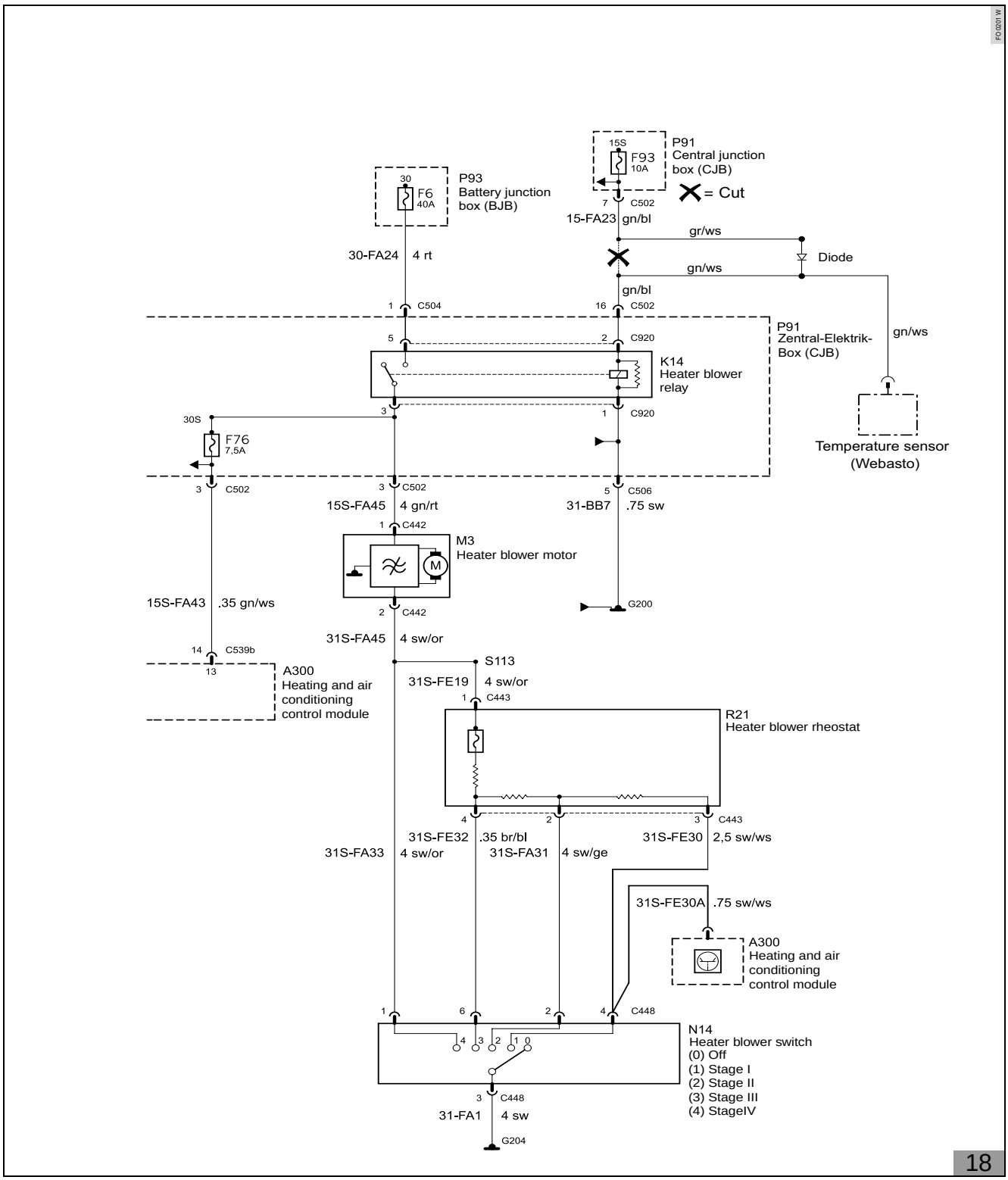
- Pull grey plug C502 (2) off fuse/relay holder (1)



- Cut green/blue cable (1, 3) from standard blade-type fuse F93 to standard heater fan relay K14 approx. 50 mm before plug C502 (2), PIN 16
- Crimp blade receptacle onto green/blue cable (1) from standard blade-type fuse F93 and fit a blade terminal housing
- Connect green/blue cable (1) to the anode of diode (5)
- Connect green/blue cable (3) to standard blower relay K14 to green/white cable (4) of the temperature sensor, crimp on a blade terminal and fit with a blade terminal housing
- Connect combined green/blue cable (3) and green/white cable (4) to the cathode of diode (5)
- Put plug C502 (2) back on



Circuit diagram for manual air-conditioning system



Legend for circuit diagram Figure 18

Cable colours

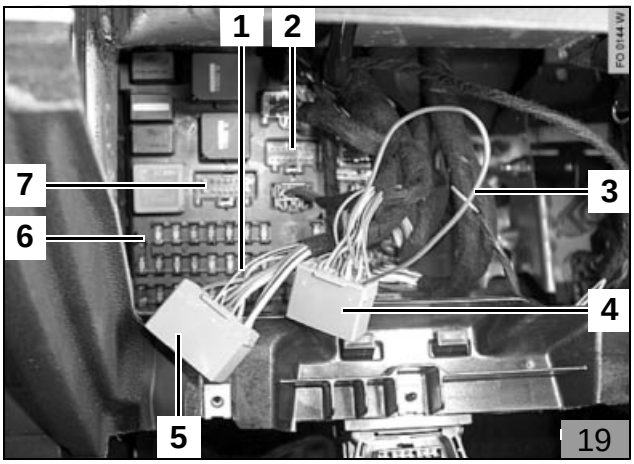
bl	blue	br	brown
ge	yellow	gn	green
gr	grey	or	orange
rt	red	sw	black
ws	white		

For vehicles with automatic air-conditioning system only

The blower connection is in the driver side footwell on the fuse/relay holder.

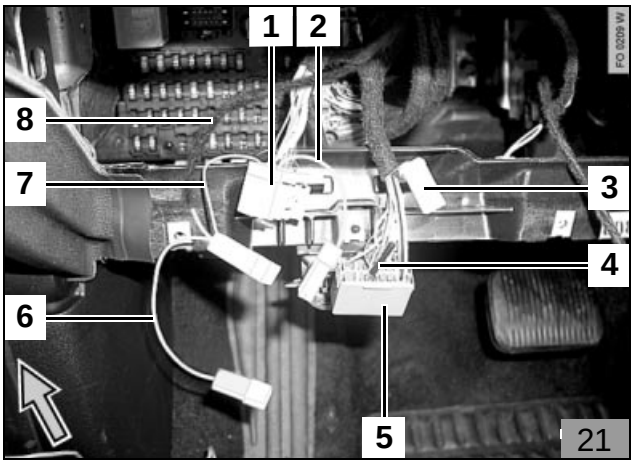
Make the connections as shown in the circuit diagram, Figures 23 and 24.

- Pull grey plug C502 (4) out of slot (2) and green plug (5) out of slot (7) of fuse/relay holder (6)
- Cut green/blue cable (3), 0.75 mm^2, from PIN 7 to PIN 16 from grey plug C502 (4) at position 3
- Cut green/black cable (1), 0.5 mm^2, approx. 20 mm ahead of green plug (5), PIN 10



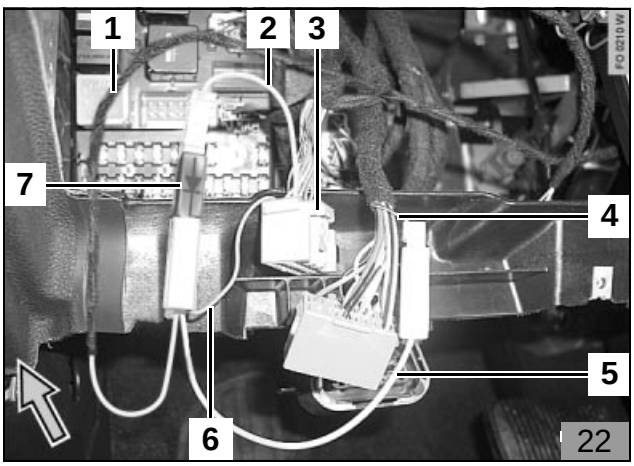
- Strip the insulation off the end of green/white cable (1) from the temperature sensor
- Cut a piece of cable approx. 100 mm long off supplied green/white, 0.75 mm^2 cable, crimp a blade terminal onto one end of the cable and fit with a blade terminal housing

- Insulate and tie back the end of green/black cable (4, 19/1), 0.5 mm^2 and approx. 20 mm long from green plug (5, 19/5), PIN 10
- Crimp blade receptacle onto the other end of green/black cable (3, 19/1), 0.5 mm^2 and fit on a blade terminal housing
- Strip the insulation off the end of green/blue cable (2, 19/3), 0.75 mm^2 from grey plug C502 (1), PIN 7, crimp on a blade receptacle and fit with a blade terminal housing
- Connect the other end of green/blue cable (7, 19/3), 0.75 mm^2 from grey plug C502 (1), PIN 16, together with prepared green/white cable (6), 0.75 mm^2 and 100 mm long, and green/white cable (8, 20/1) from the temperature sensor, crimp on a blade receptacle and fit with a blade terminal housing

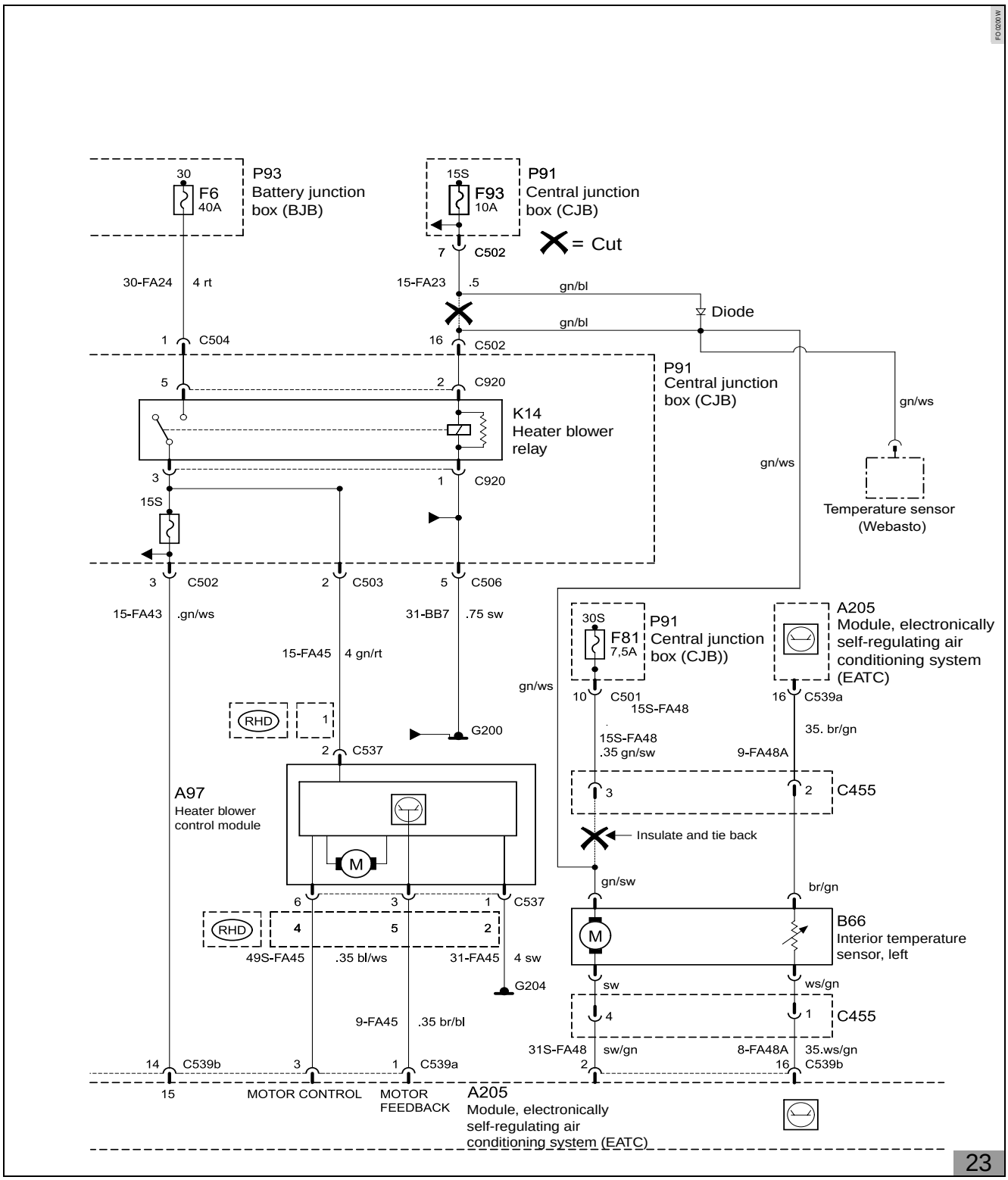


NOTE
The flow direction of diode (7) must be observed as shown in the figure!

- Connect green/blue cable (2, 21/2), 0.75 mm^2 from grey plug C502 (3), PIN 7, to the anode of diode (7)
- Connect combined green/blue cable (6, 21/7), 0.75 mm^2 from grey plug C502 (3), PIN 16, green/white (5, 21/6), 0.75 mm^2, and green/white (1) from the temperature sensor to the cathode of diode (7)
- Connect the prepared end of green/white cable (5, 21/6), 0.75 mm^2 and 100 mm long, to green/black cable (4, 21/3), 0.5 mm^2, from the standard wiring harness



Circuit diagram of the automatic air conditioning system



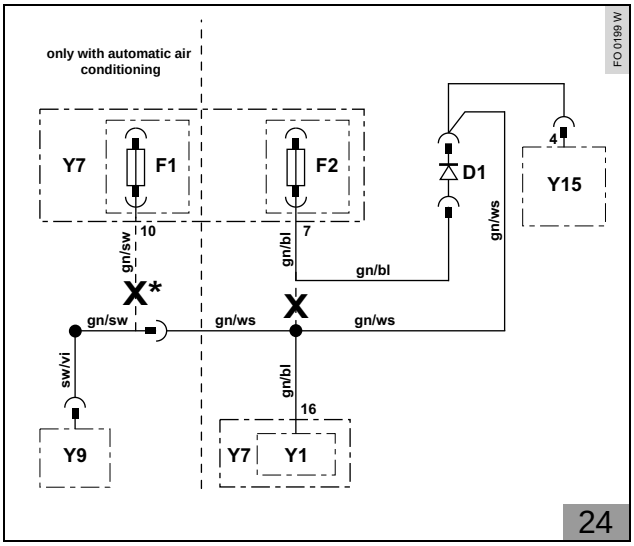
Legend for circuit diagram Figure 23

Cable colours

bl	blue	br	brown
ge	yellow	gn	green
gr	grey	rt	red
sw	black	vi	violet
ws	white		

Circuit diagram - component overview

Legend for circuit diagram Figure 24



Circuit diagram

D1	Diode (Webasto)
F1	Blade-type fuse F81, 7.5 A (vehicle)
F2	Blade-type fuse F93, 10 A (vehicle)
Y1	Blower relay K14 (vehicle)
Y7	Central electrical system P91 (vehicle)
Y9	Internal temperature sensor left B66 (vehicle)
Y15	Temperature sensor (Webasto)

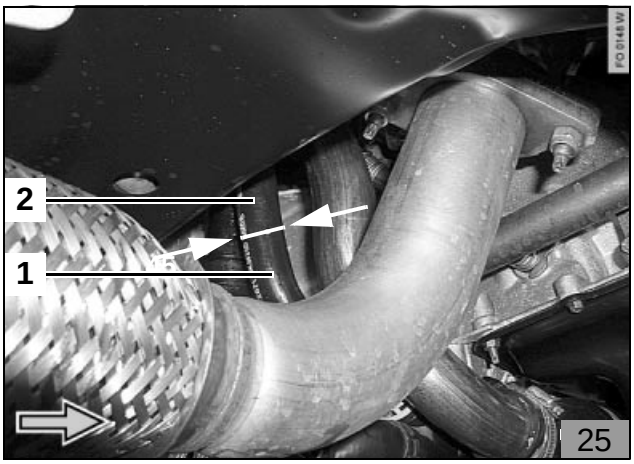
X	Cut
X*	Tie back and isolate

Cable colours

bl	blue
gn	green
gr	grey
sw	black
vi	violet
ws	white

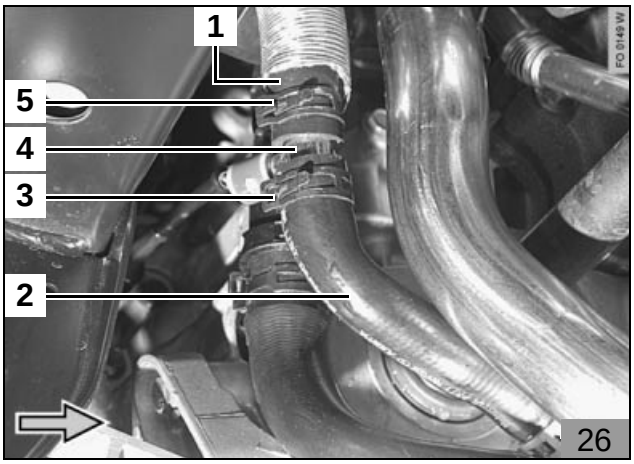
To install the pipe port of the temperature sensor

- Use clamping claws to seal off standard water hose (1, 2) from the heat exchanger water outlet to the engine water inlet at suitable points
- Cut the standard water hose (1, 2) at the marking (arrow)



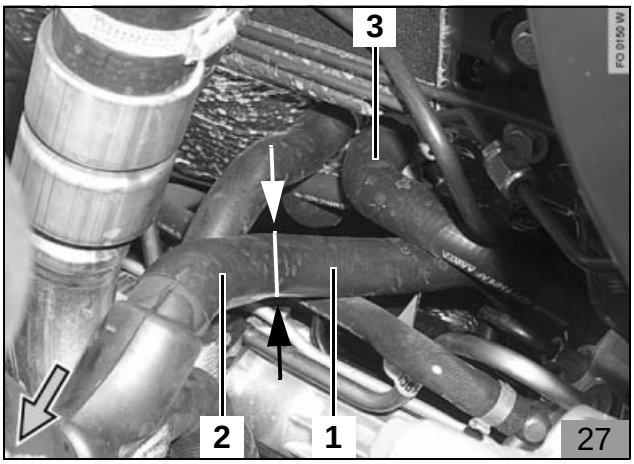
NOTE
The exhaust pipe has been removed here for documentation purposes!

- Push pipe port (4) of the temperature sensor into standard water hose (1, 2) and secure using spring strip clips 25 mm (3, 5)

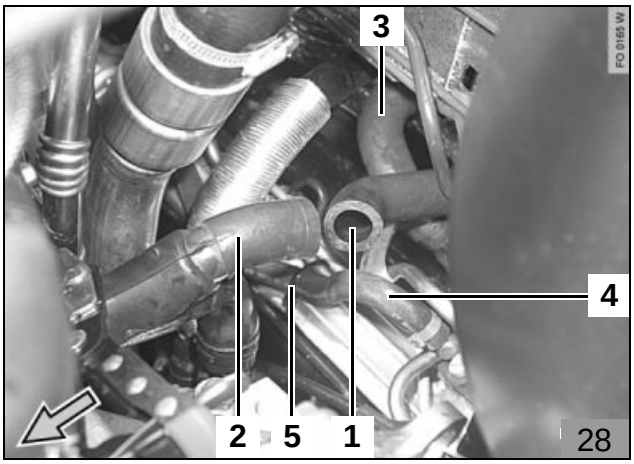


To install the circulating pump

- Use clamping claws to seal off standard water hose (1, 2) from the engine water outlet to the auxiliary heater water inlet at suitable points
- Cut the standard water hose (1, 2) at the marking (arrow)

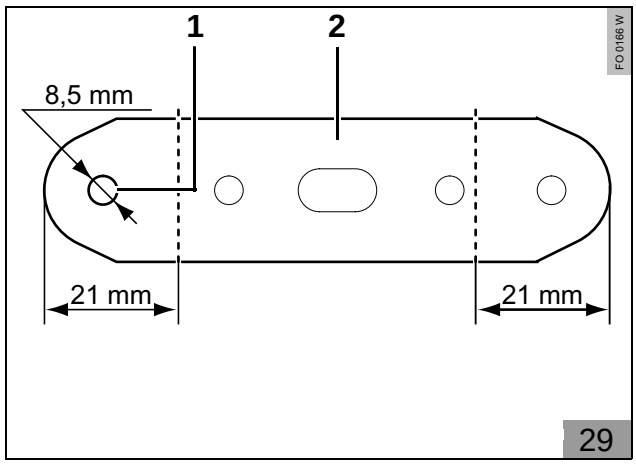


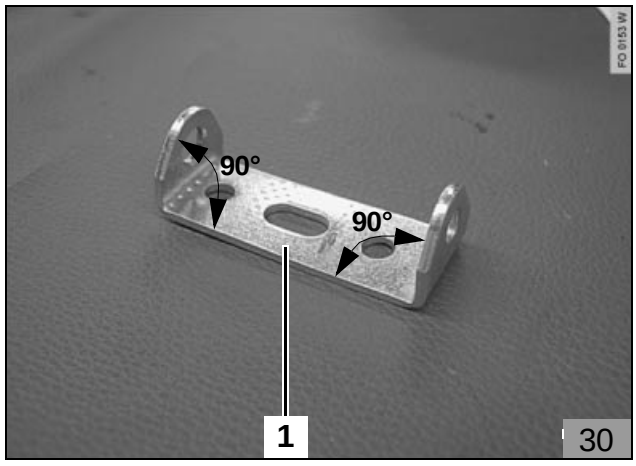
- Route standard water hose (1, 27/1) to the auxiliary heater water inlet after cutting off water hose (2, 27/2) via standard water hose heat exchanger water inlet (3, 27/3)
- Secure bleeder line (4) of power steering using cable tie (5) as illustrated



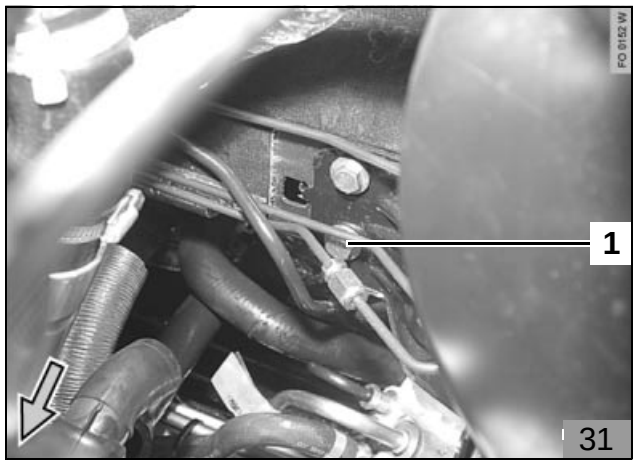
To prepare the perforated strip

- Drill out hole (1) to 8.5 mm diameter
- Bend perforated strip (2, 30/1) as shown in Figures 29 and 30 at 90° angles in each case





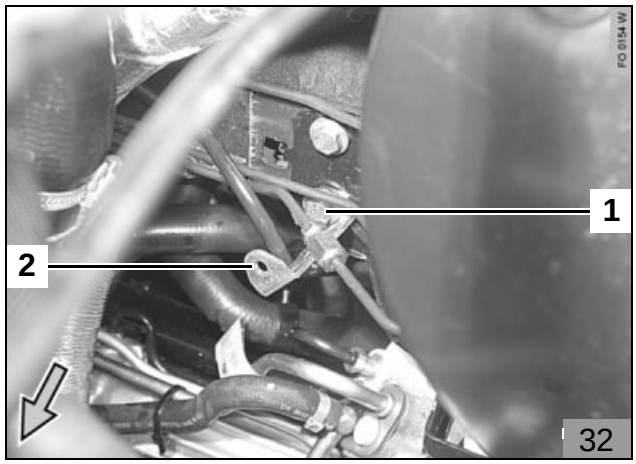
- Unscrew and remove standard M8 bolt (1) from the holder of the ABS hydraulic unit



- Reattach perforated strip (2) to the holder of the ABS hydraulic unit using standard M8 bolt (1) as illustrated

CAUTION
Use bolt securing fluid to secure the standard M8 bolt to prevent it from unscrewing!

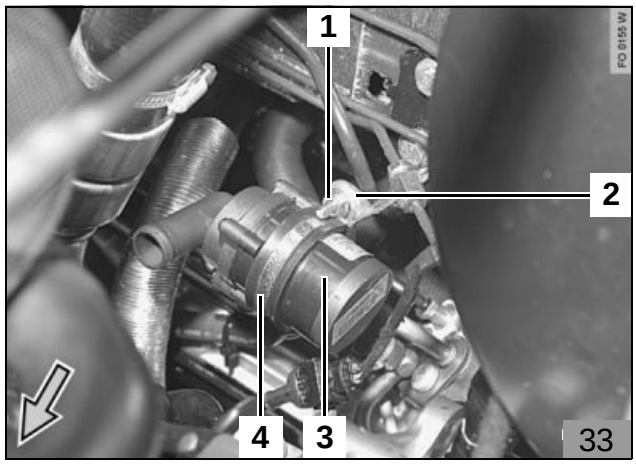
NOTE
Make sure the perforated strip does not chafe against standard components and brake lines!



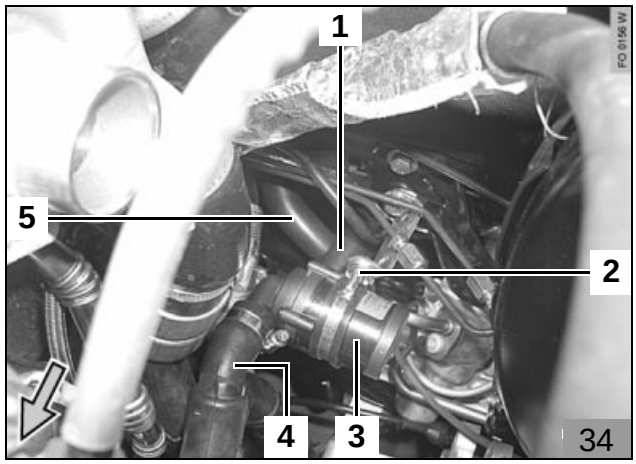
To install the circulating pump

- Push rubberised pipe clip (4) onto circulating pump (3)
- Loosely fit circulating pump (3) onto perforated strip (2) using rubberised pipe clip (4), M6 x 20 mm bolt (1) and M6 collar nut

NOTE
M6 x 20 mm bolt (1) is not tightened until after alignment of the circulating pump (3)!

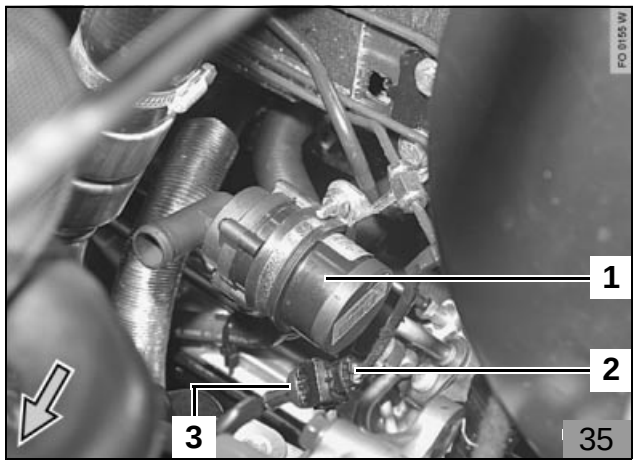


- Push standard water hose (1) to the auxiliary heater water inlet onto circulating pump (3) and secure using a 27 mm diameter hose clip
- Push standard water hose (4) from the engine water outlet onto circulating pump (3) and secure using a 27 mm diameter hose clip
- Align circulating pump (3) and tighten M6 x 20 mm bolt (2, 33/1)
- Secure standard water hoses (1, 5) using the supplied spacer



NOTE
The 2-pin plug for the circulating pump cannot be seen in this figure!

- Connect 2-pin plug (2) to the blue and brown cables of the temperature sensor wiring harness to mating plug (3) of the temperature sensor
- Connect the 2-pin plug to the brown and black cables of the circulating pump wiring harness to the mating plug of the circulating pump (1)
- Secure both 2-pin plug connectors for the circulating pump and the temperature sensor at suitable points using cable ties



Concluding work

- Install all the removed parts in reverse
- Check that all electrical connections are tight
- Secure all loose lines and cables with cable ties
- Connect the car battery
- Affix the filling station sticker in a clearly visible position
- Start the engine, bleed the water system as described in the vehicle manufacturer’s instructions, top up the coolant

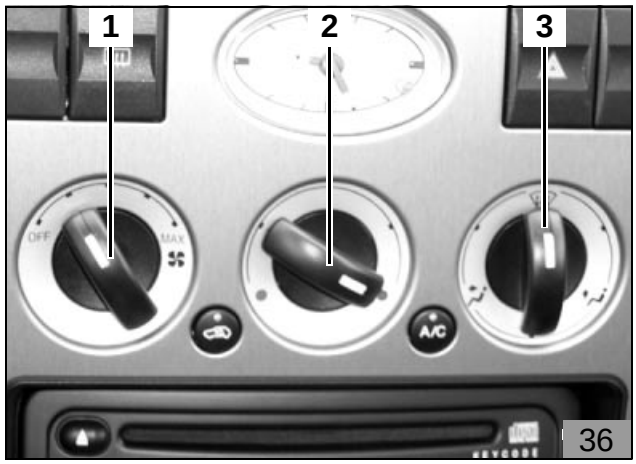
Operating instructions for the end customer

(Cut out and add to the vehicle operating manual.)

Make the following settings before you shut down the car:

For vehicles with a manual air-conditioning system only

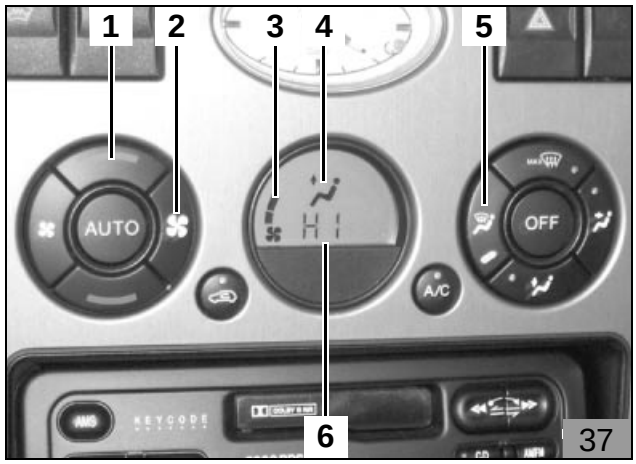
- Blower control (1) to level “1” or level “2” if necessary
- Temperature control (2) to “MAX”
- Air vent (3) to “WINDSCREEN”



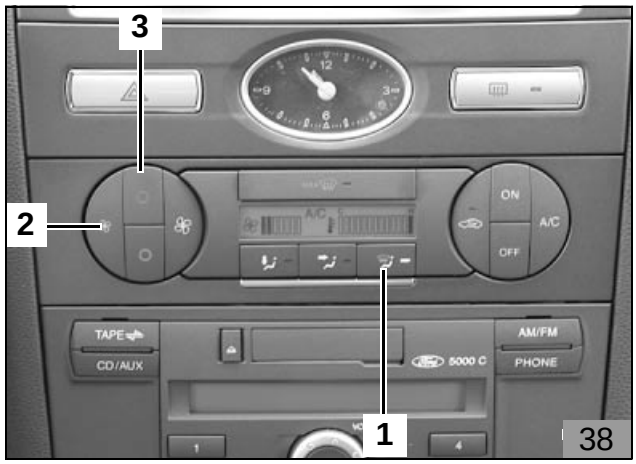
For vehicles with automatic air-conditioning system only

Make the settings shown in Figures 37, 38 or 39 before stopping the vehicle (depending on the equipment in the vehicle):

- Blower controls (2, 3) to level “2” or level “3” if necessary
- Temperature controls (1, 6) to “HI”
- Air vent (4, 5) to “WINDSCREEN”



- Air vent (1) to “WINDSCREEN”
- Blower control (2) to level “2”
- Temperature control (3) to “HI”



- Air vent (1) to “WINDSCREEN”
- Blower control (2) to level “2”
- Temperature control (3) to “HI”

NOTE
The “Blaupunkt Travel EX” radio must be switched off manually before starting up the auxiliary heater!

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Webasto

Feel the drive

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