

'Webasto Standard' A/C Control

Installation Documentation Ford Mondeo / S-Max / Galaxy / Edge (CD 4)

Validity

Manufacturer	Model	Type	Model year	EG BE No. / ABE
Ford	Mondeo	BA7	From model year 2015	e13 * 2001 / 116 * 0249 * ...
Ford	S-Max / Galaxy	WA 6	From model year 2015	e13 * 2001 / 116 * 0185 * ...
Ford	Edge	SBF	From model year 2016	e1 * 2007 / 46 * 1524 * ...

Left-hand drive vehicle

Verified equipment variants: Automatic air-conditioning

Not verified: Passenger compartment monitoring

Ford Mondeo / S-Max / Galaxy / Edge (CD 4)

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Necessary Components

- Additional kit 'Webasto Standard' A/C control for Ford Mondeo / S-Max / Galaxy / Edge (CD 4): **1324011B**

Information on Validity

This installation documentation applies only in combination with:

- Installation kit for Ford Mondeo / S-Max / Galaxy (CD 4) petrol and diesel 2015: **1323974_**
and installation documentation for Ford Mondeo / S-Max / Galaxy (CD 4): **1323975_**

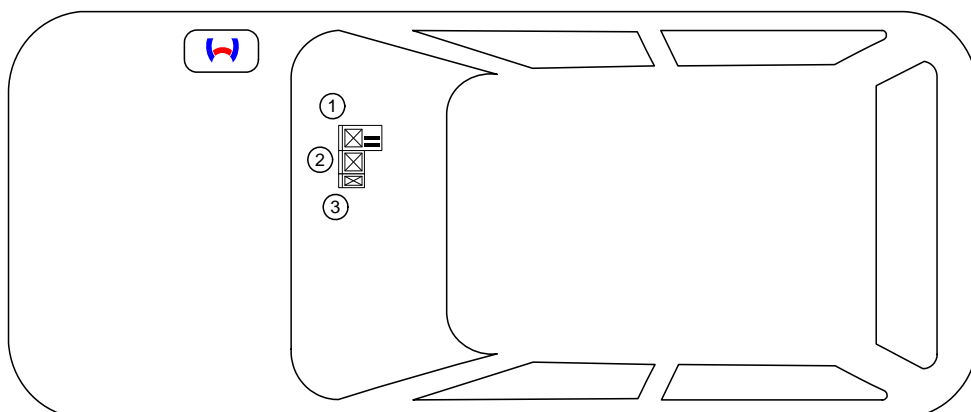
or

- Installation kit for Ford Edge diesel 2016: **1325266_**
and installation documentation for Ford Edge: **1325265_**

Installation Overview

Legend:

1. Passenger compartment relay and fuse holder
2. PWM GW
3. Relay K2



Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair



The improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide, leading to serious injury or death.



To install and repair Webasto heating and cooling systems you need to have completed a special company training course and have the appropriate technical documentation, special tools and special equipment.



Installation and repair may ONLY be carried out by persons trained and certified in a Webasto training course. NEVER try to install or repair Webasto heating or cooling systems if you have not completed a Webasto training course, you do not have the necessary technical skills and you do not have the technical documentation, tools and equipment available to ensure that you can complete the installation and repair work properly.

Only use genuine Webasto parts. See the Webasto air and water heaters accessories catalogue for this purpose.

1.2 Operation

To ensure safe operation, we recommend having the heater checked every two years by an authorised Webasto dealer, especially when used over a long period and/or under extreme environmental conditions.

Do not operate the heater in closed rooms due to the danger of poisoning and suffocation.

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel diesel (DIN EN 590) or petrol (DIN EN 228).

The heater may not be cleaned with a high-pressure cleaner.

1.3 Please note

ALWAYS follow all Webasto installation and operating instructions and observe all warnings.

To become familiar with and understand all functions and properties of the heater, the operating instructions must be read carefully and observed at all times.

For proper, safe installation and repair work, the installation instructions with all warnings and safety information must be carefully read and observed at all times. Please always contact a workshop authorised by Webasto for all installation and repair work.

Important

Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.

This liability exclusion particularly applies to improper installations and repairs, installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.

The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components have to audibly click into place during installation.

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components!

The initial startup is to be executed with the Webasto Thermo Test Diagnosis.

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 04 5627

Note

The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

Note

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

2.1 Excerpt from ECE regulation 122 (heating system) paragraph 5 for the installation of the heater

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

2.1.1. Subject to paragraph 2.1.2, combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

2.4. Exhaust system

2.4.1. The exhaust outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

Information on Validity

This installation documentation applies to Ford Mondeo / S-Max / Galaxy Petrol and diesel vehicles from model year 2015 and later as well as Ford Edge diesel vehicles from model year 2016 and later - for validity, see page 1 - , assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this 'installation documentation'.

Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

Technical Information

Special Tools

- Automatic wire stripper, 0.2 - 6mm²
- Crimping pliers for cable lug / tab connector, 0.5 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Webasto Thermo Test Diagnosis with current software

Dimensions

- All dimensions are in mm.

Tightening torque values

Tighten bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

Explanatory Notes on Document

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

Special features are highlighted using the following symbols:

Mechanical System



Electrical System



Software



Specific risk of damage to components.



Specific risk due to electrical voltage.



Specific risk of injury or fatal accidents.



Specific risk of fire or explosion.



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



Reference to a special technical feature.



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



Tightening torque according to the manufacturer's vehicle-specific documents.



Preliminary Work

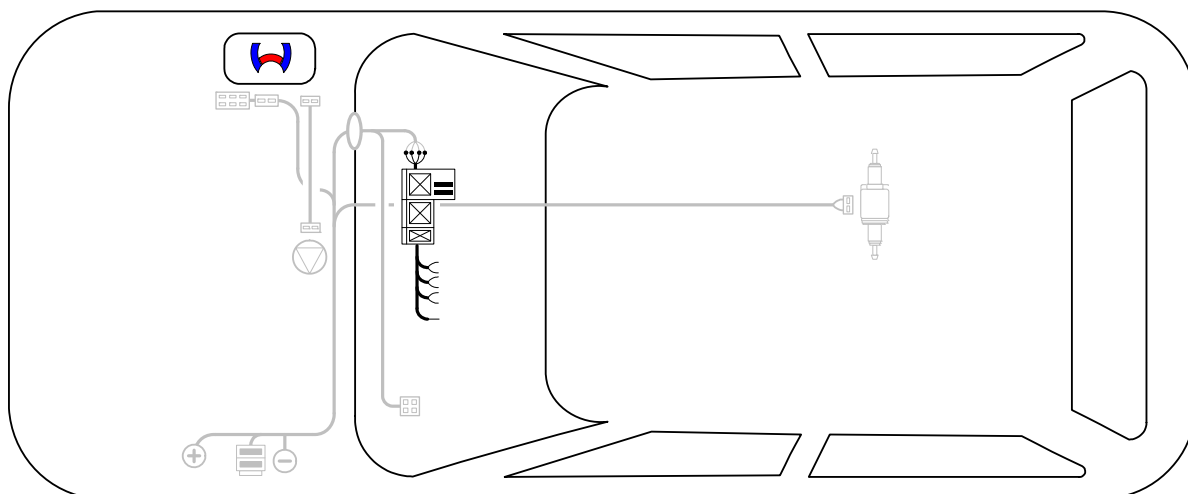
Vehicle



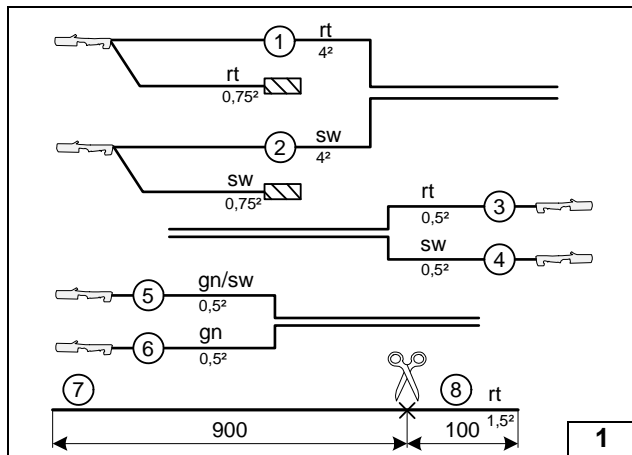
- Disconnect the battery.
- Remove the lower footwell trim on the front passenger's side.
- Remove the trim strip and air outlet trim above the glove box.
- Remove the glove box.
- Remove the shift lever trim (see installation instructions).
- Remove the A/C control panel trim (see installation instructions).
- Remove the A/C control panel (see installation instructions).
- Remove the centre tunnel trim on the right, loosen on the left side in the footwell.
- Loosen the storage compartment under the A/C control panel.



Electrical System



Wiring harness routing diagram for passenger compartment



Preparing Electrical System

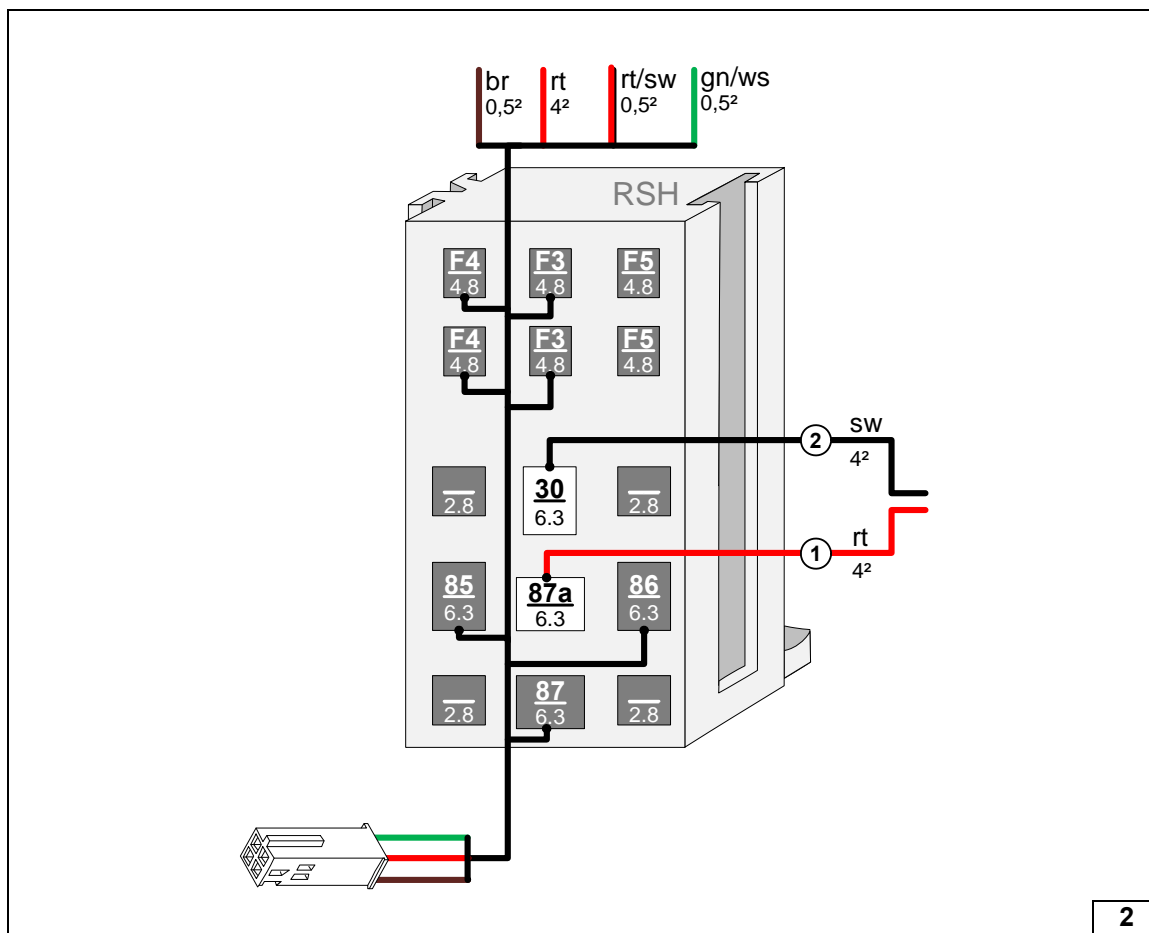
Wire sections retain their numbering in the entire document.

Pull wire ⑦ into protective sleeving.

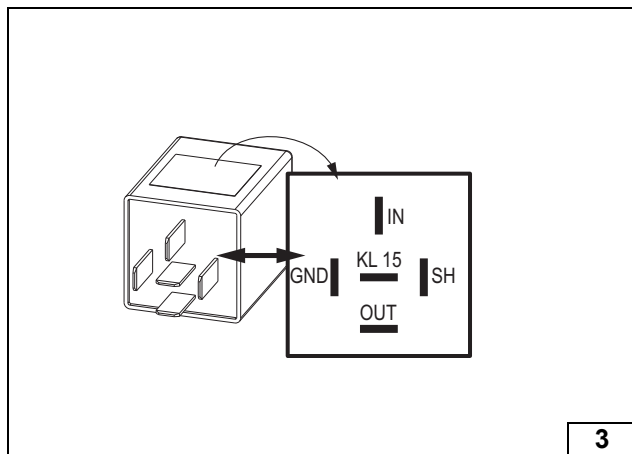
- ① Red (rt) wire of fan wiring harness
- ② Black (sw) wire of fan wiring harness
- ③ Red (rt) wire from wiring harness of PWM control
- ④ Black (sw) wire from wiring harness of PWM control
- ⑤ Green/black (gn/sw) wire of isolating relay wiring harness
- ⑥ Green (gn) wire of isolating relay wiring harness



Cutting to length / assigning wires



Connecting wires to relay and fuse holder socket of passenger compartment

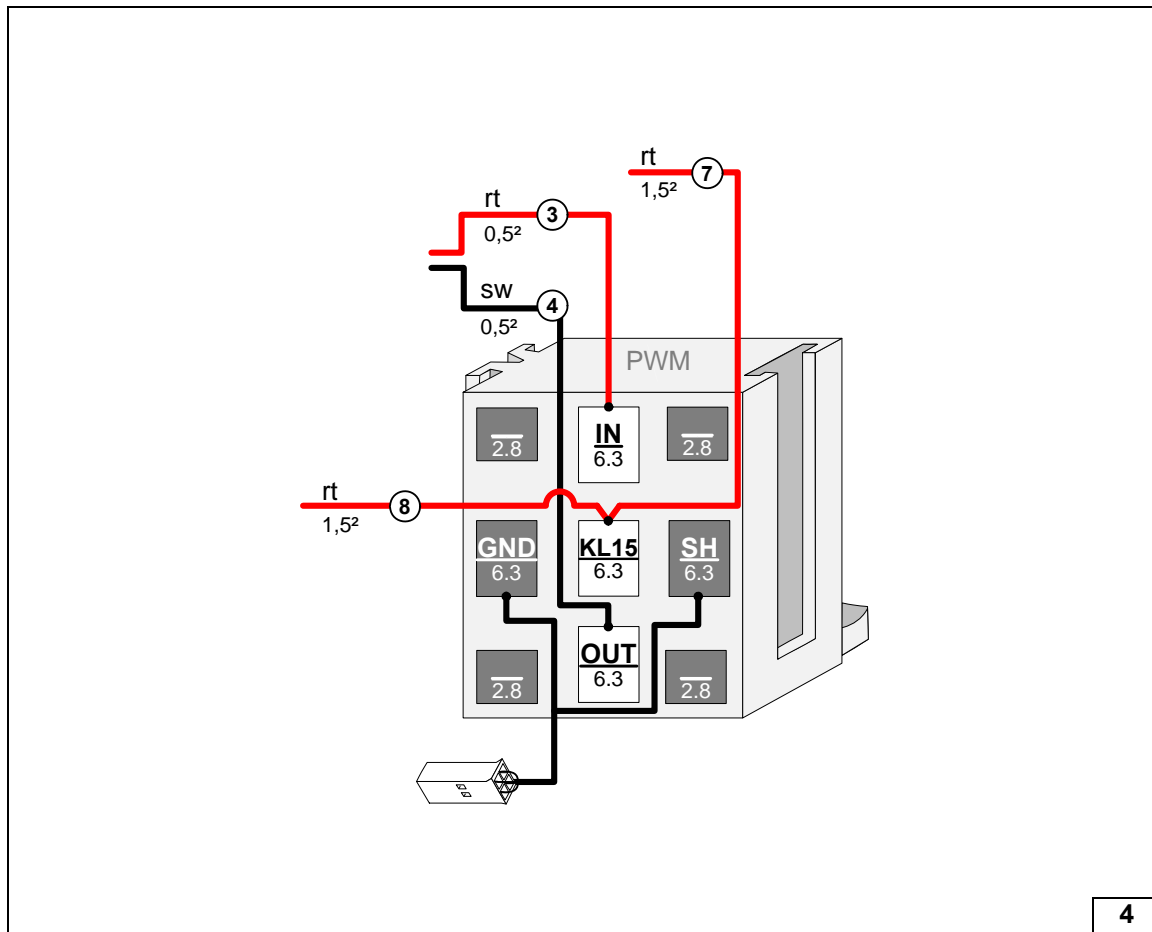


Check the PWM Gateway settings when starting up the heater and adjust if necessary.

Settings:

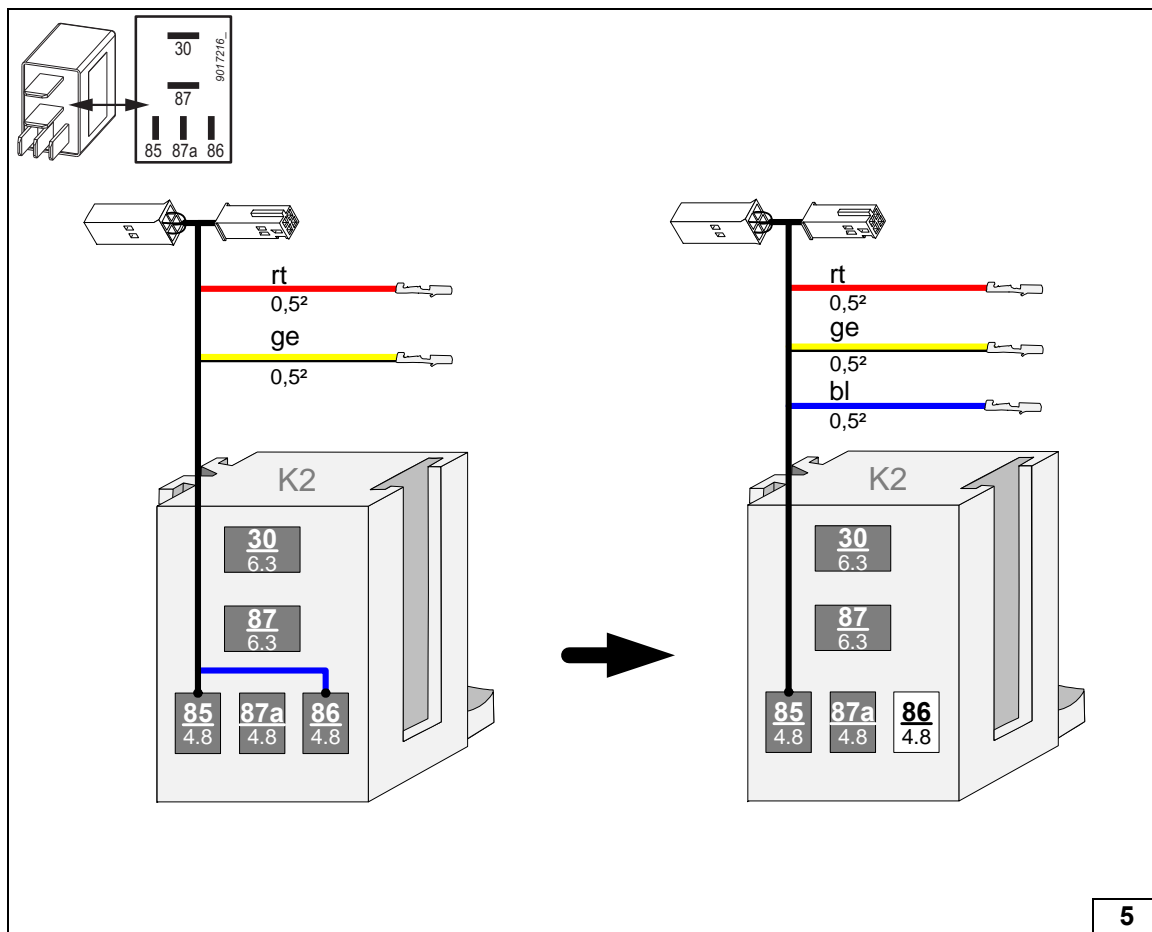
- Duty cycle: 70%
- Frequency: 100Hz
- Voltage: not relevant
- Function: Low side

View of PWM GW



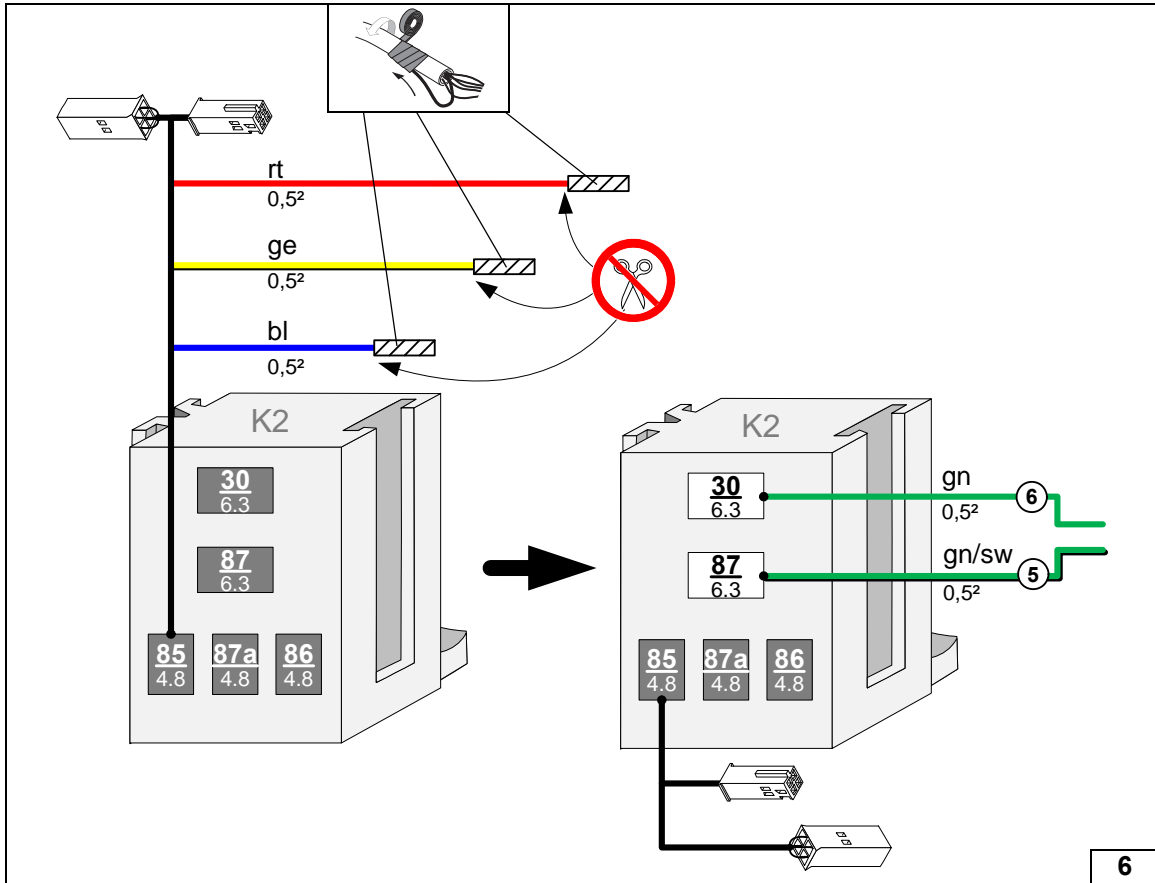
Connecting wires to PWM GW socket

4



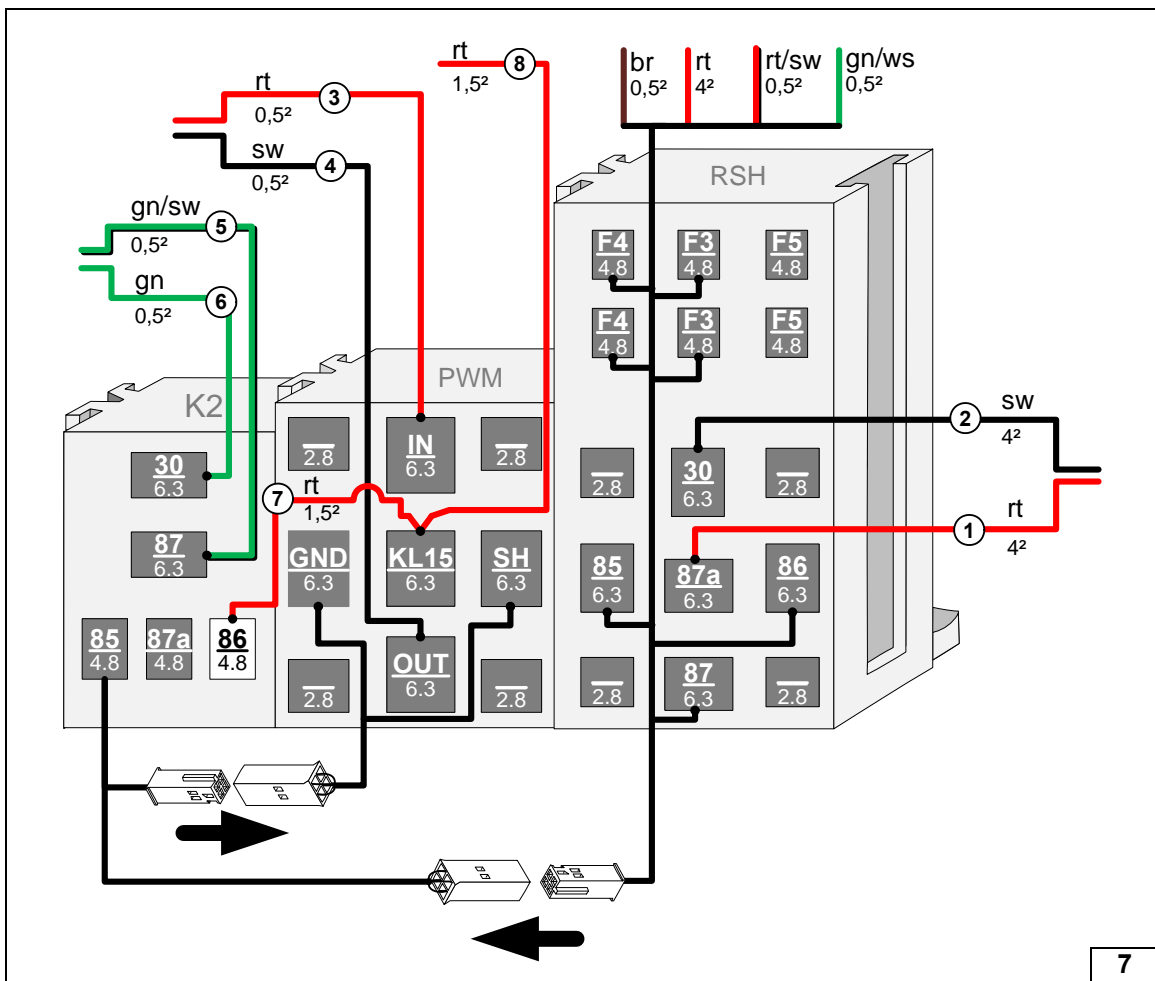
Detaching blue (bl) wire from relay K2 socket, terminal K2/86

5



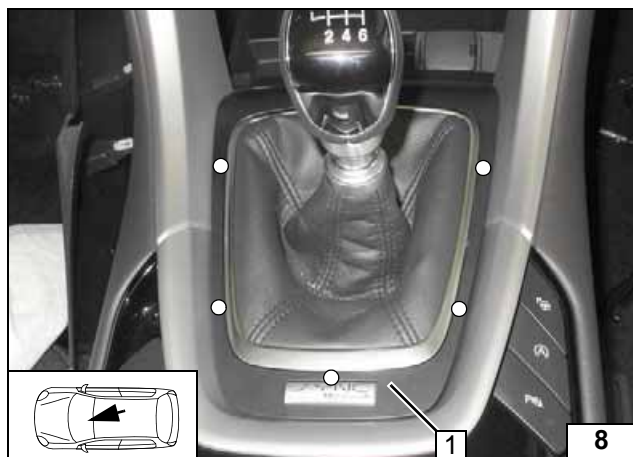
Insulating relay K2 wires / connecting wires

6



Interlocking PWM GW, passenger compartment relay and fuse holder and relay K2 sockets, inserting connector into bushing, connecting wire

7



A/C Control Panel Installation Instructions for Mondeo

- 1 Shift lever trim
- Fastening points, clipped on (one hidden behind shift lever)



Removing shift lever trim



- 1 A/C control panel trim/ display
- Fastening points, clips

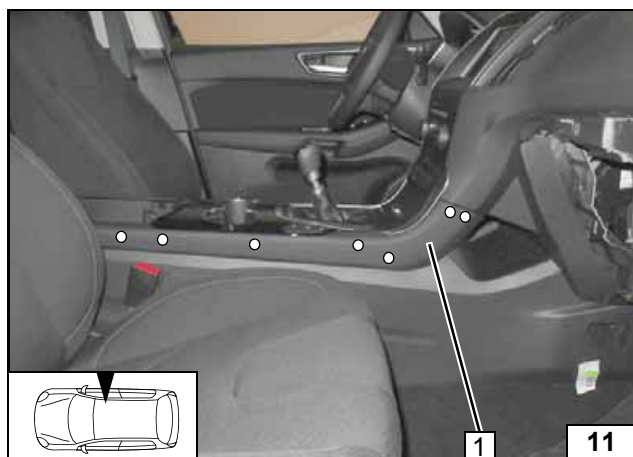


Removing A/C control panel trim/ display



- 1 A/C control panel
- 2 Remove original vehicle bolts [4x]

Removing A/C control panel and pulling off connector [2x]



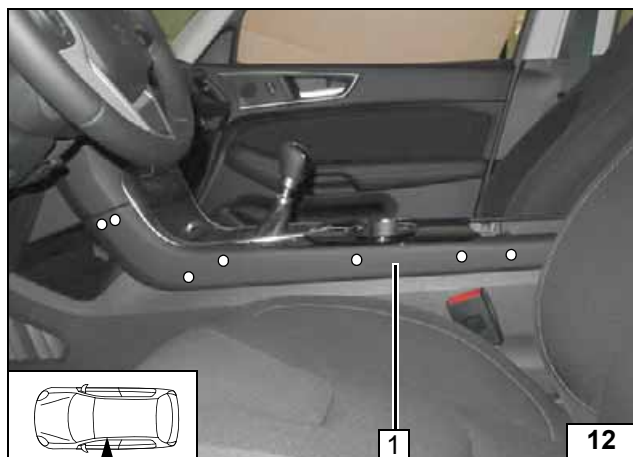
A/C Control Panel Installation Instructions for S-Max/ Galaxy/ Edge

Shown on S-Max!

- 1 Centre console trim on the right
- Fastening points, clipped on (one hidden behind the seating)



Removing centre console trim on the right



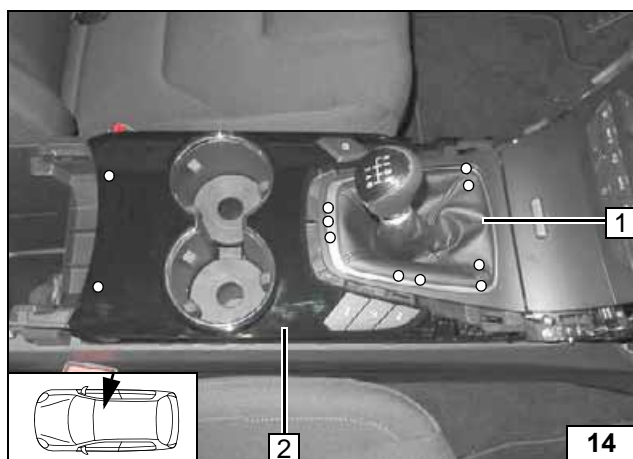
- 1 Centre console trim on the left
- Fastening points, clipped on (one hidden behind the seating)

Removing centre console trim on the left



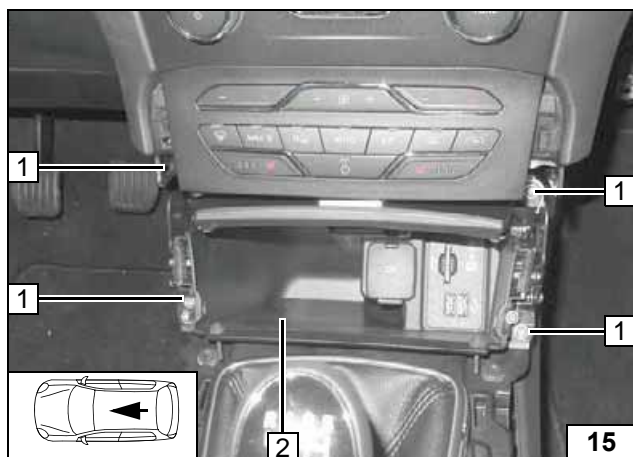
- 1 Centre console trim piece
- Fastening points

Removing centre console trim piece



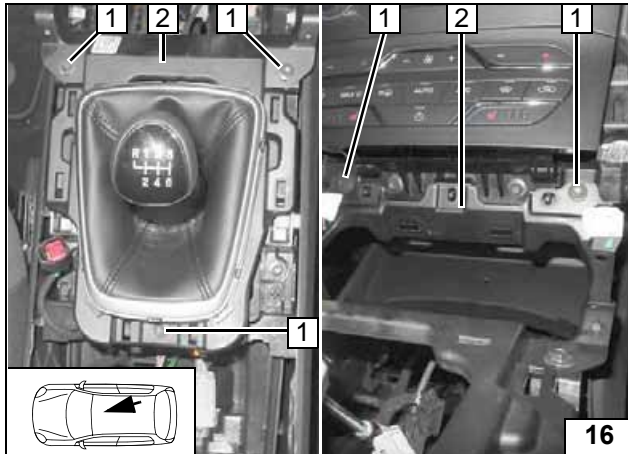
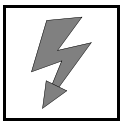
- 1 Shift lever boot
- 2 Centre console cover
- Fastening points (two hidden behind shift lever)

Removing cover of centre console



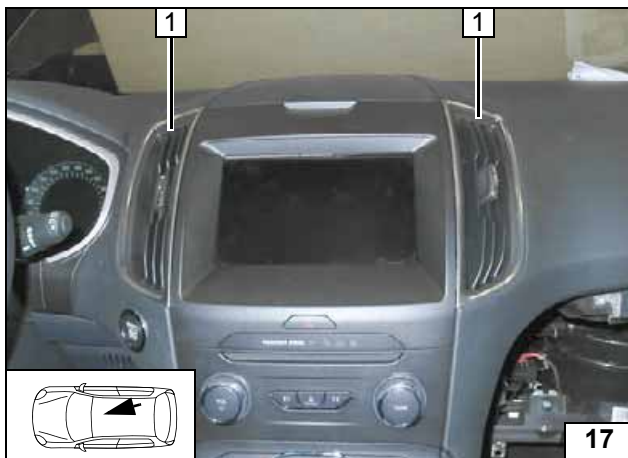
- 1 Original vehicle bolt [4x]
- 2 Storage compartment

Removing storage compartment



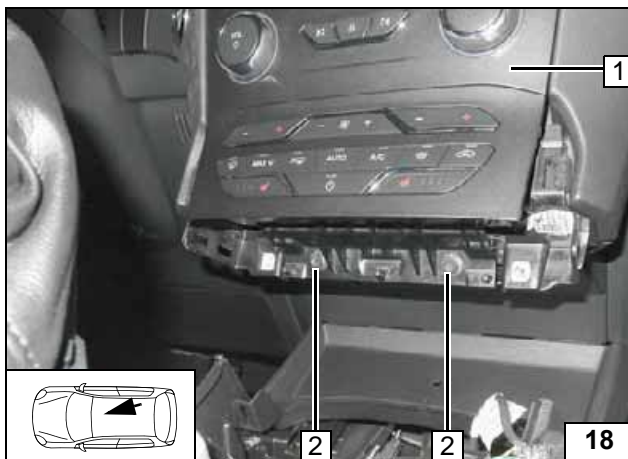
- 1 Original vehicle bolt [5x]
- 2 Centre console frame

Removing frame of centre console



- 1 Air outlet nozzle [2x]

Removing air outlet nozzle



- 1 Instrument panel operating console
- 2 Original vehicle bolt [2x]

Removing instrument panel operating console

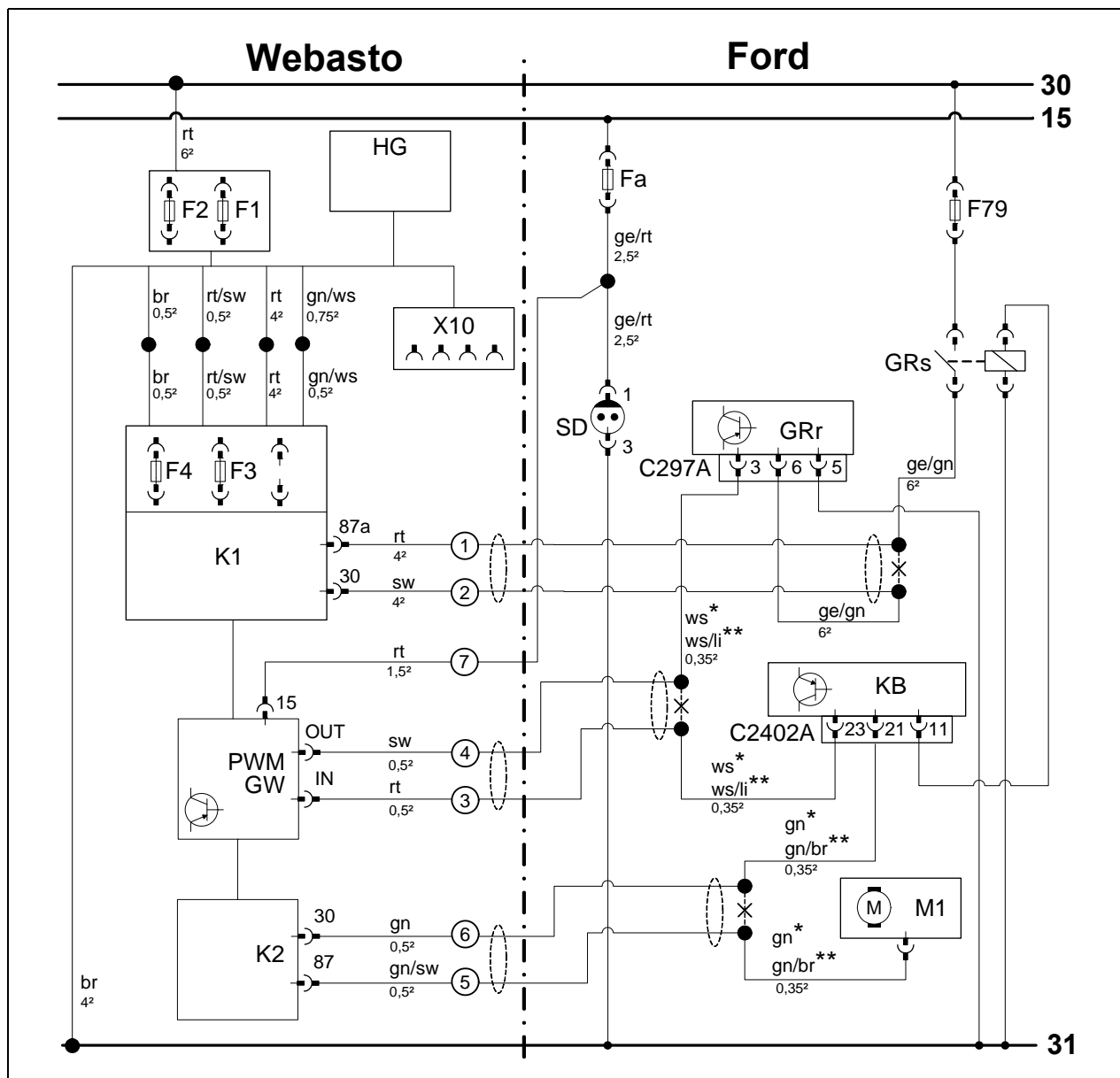


- 1 Instrument panel operating console
- Fastening points

Removing instrument panel operating console



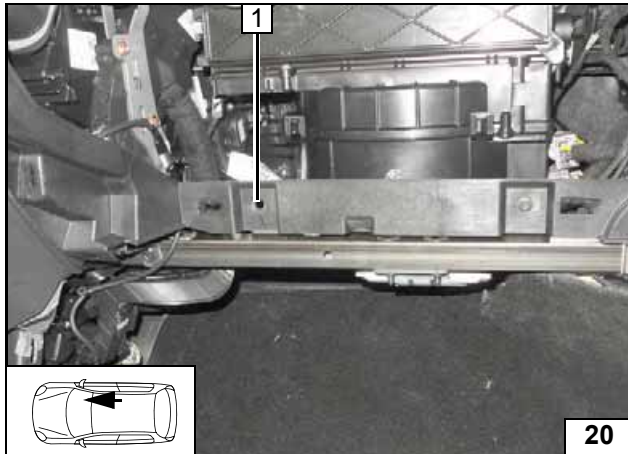
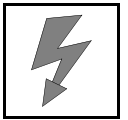
System Wiring Diagram



System wiring diagram for automatic A/C

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	Fa	Fuse	rt	red
F1	20A fuse	F79	40A fuse	sw	black
F2	30A fuse	GM	Fan motor	ge	yellow
X10	4-pin connector of heater control	GRs	Fan relay	gn	green
F3	1A fuse	SD	12 V socket outlet	br	brown
F4	25A fuse	GRr	Fan controller	ws	white
K1	Fan relay	C297A	Connector of GRr	li	purple
PWM GW	Pulse width modulator	KB	A/C control panel		
K2	Isolating relay	C2402A	Connector of KB		
PWM GW settings:		M1	Air distribution flap positioning motor		
Duty cycle: 70%				*	Mondeo
Frequency: 100Hz				**	S-Max / Galaxy / Edge
Voltage: not relevant				X	Cutting point
Function: Low side					Wiring colours may vary.

Legend



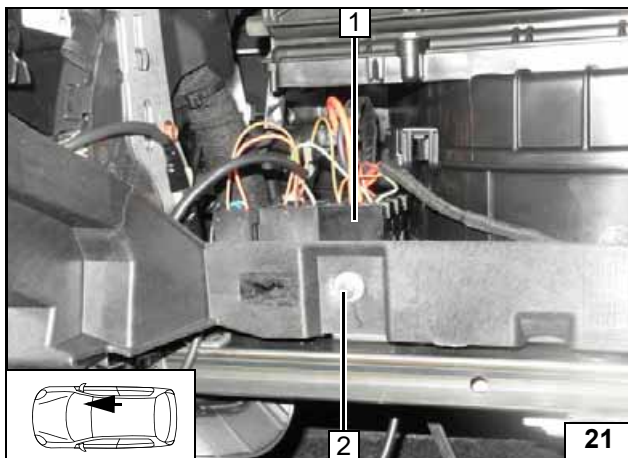
Fan Controller

All vehicles

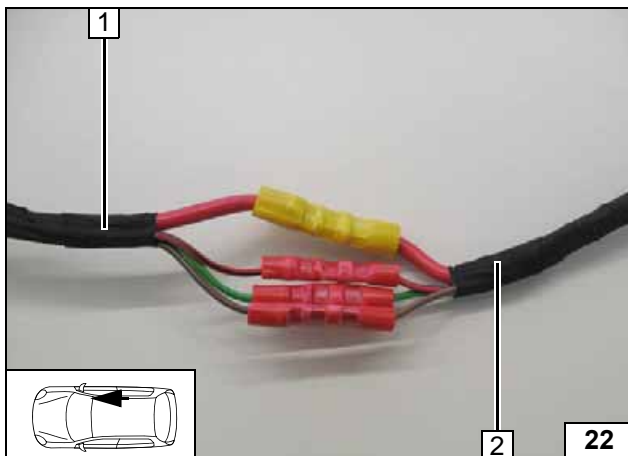
Next work steps are shown on a Mondeo but apply to all vehicles!

Produce all following electrical connections as shown in the wiring diagram.

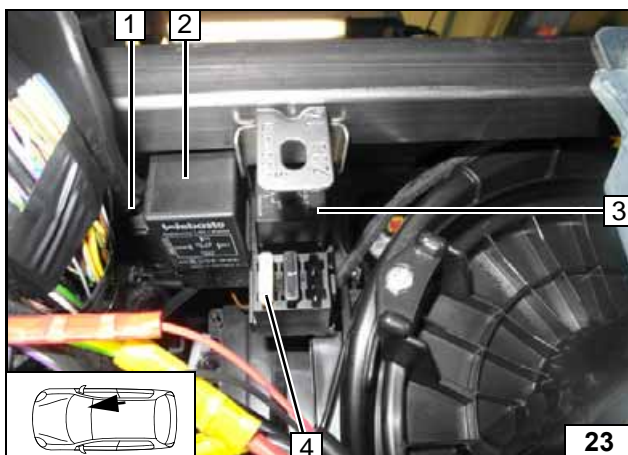
- 1 Remove and discard original vehicle bolt



- 1 Passenger compartment relay and fuse holder
- 2 M5x16 bolt, large diameter washer [2x], nut



- 1 Passenger compartment relay and fuse holder wiring harness
- 2 Heater wiring harness



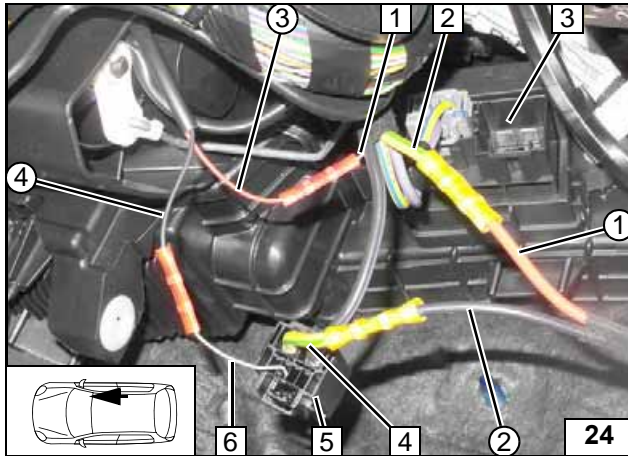
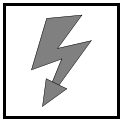
- 1 Relay K2
- 2 PWM GW
- 3 Relay K1
- 4 25A fuse F4

Removing original vehicle bolt

Installing passenger compartment relay and fuse holder, PWM GW socket and relay K2

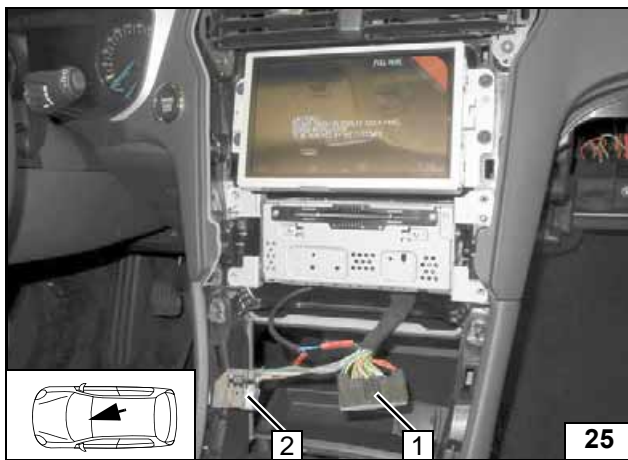
Connecting same colour wires of wiring harnesses

Installing relay K1 / K2, PWM GW and fuse F4



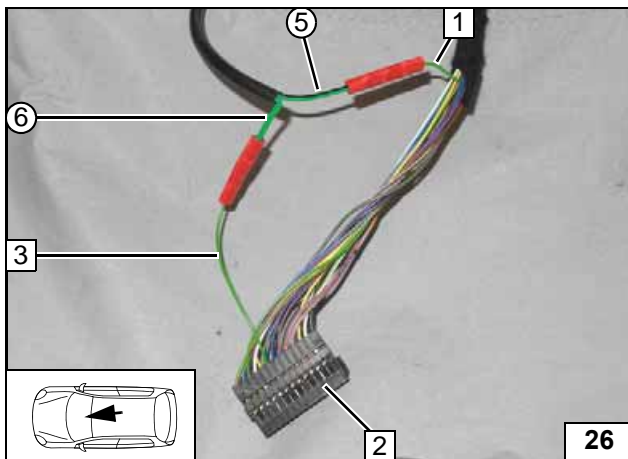
- 1 White* (ws) or white/purple** (ws/li) wire of connector C2402A KB/pin 23
- 2 Yellow/green (ge/gn) wire of GRs
- 3 Fan controller GRr
- 4 Yellow/green (ge/gn) wire of connector C297A GRr/ pin 6
- 5 Connector C297A GRr
- 6 White* (ws) or white/purple** (ws/li) wire of connector C297A GRr/pin 3
- ① Red (rt) wire of K1/87a, fan wiring harness
- ② Black (sw) wire of K1/30, fan wiring harness
- ③ Red (rt) wire from PWM GW/ IN of PWM control wiring harness
- ④ Black (sw) wire from PWM GW/ OUT of PWM control wiring harness

**Connect-
ing fan con-
troller**



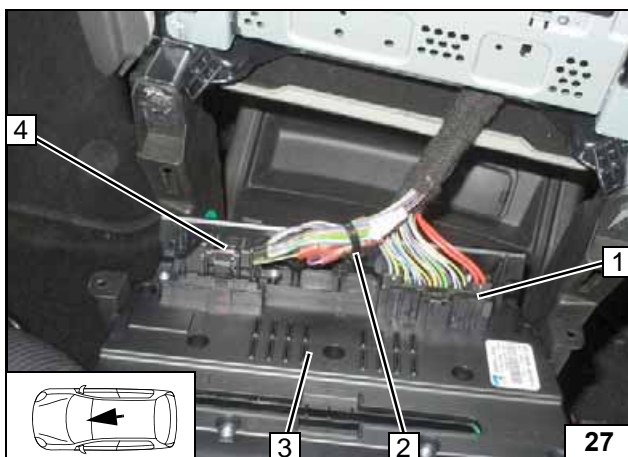
- 1 Connector C2402B of A/C control panel
- 2 Connector C2402A of A/C control panel

**View of A/C
control pan-
el conec-
tor**



- 1 Green* (gn) or green/brown** (gn/br) wire from air distribution flap positioning motor
- 2 Connector C2402A of A/C control panel
- 3 Green* (gn) or green/brown** (gn/br) wire of connector C2402A KB/pin 21
- ⑤ Green/black (gn/sw) wire from K2/87 of isolating relay wiring harness
- ⑥ Green (gn) wire from K2/30 of isolating relay wiring harness

**Connecting
A/C control
panel**

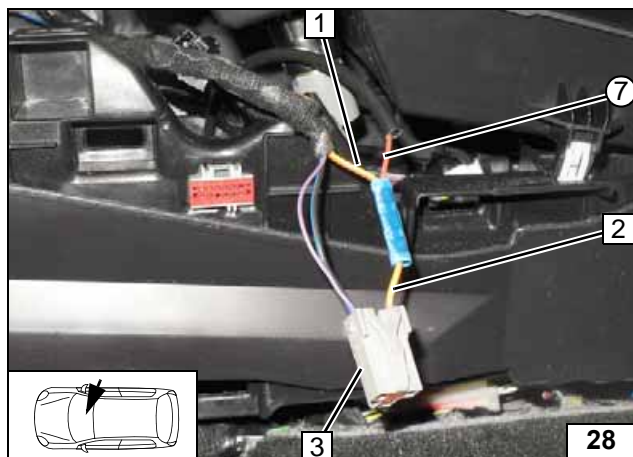


Secure wires using cable tie 2 .

- 1 Connector C2402B of A/C control panel
- 3 A/C control panel
- 4 Connector C2402A of A/C control panel



**Installing
connector
[2x]**



- 1 Yellow/red (ge/rt) wire of fuse Fa
- 2 Yellow/red (ge/rt) wire of connector SD/ pin 1
- 3 Connector 12V-socket outlet
- ⑦ Red (rt) wire of PWM GW/ KL 15

Connection
of socket
outlet 12V



Final Work



Warning:

Final work is not carried out until the installation of the heater in the vehicle has been completed. Check all electrical connections for firm seating. Insulate and tie back loose lines.



- **Checking fan function. Checking fan speed in parking heating mode. Target value of approx. $\frac{1}{3}$ of the maximum speed. If required, the programming of the PWM-Gateway must be adjusted using the Webasto Thermo Test Diagnosis (WTT).**
- **Make settings on the A/C control panel according to the 'operating instructions'.**

Operating Instructions for Mondeo / Edge

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

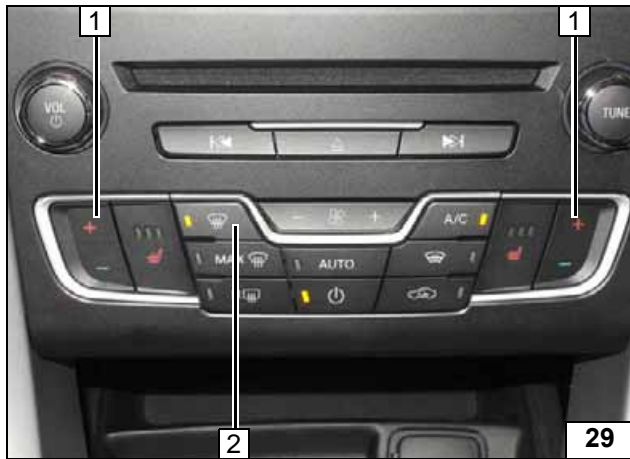
Example:

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

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.

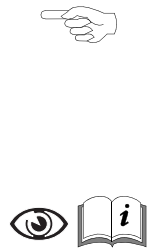
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

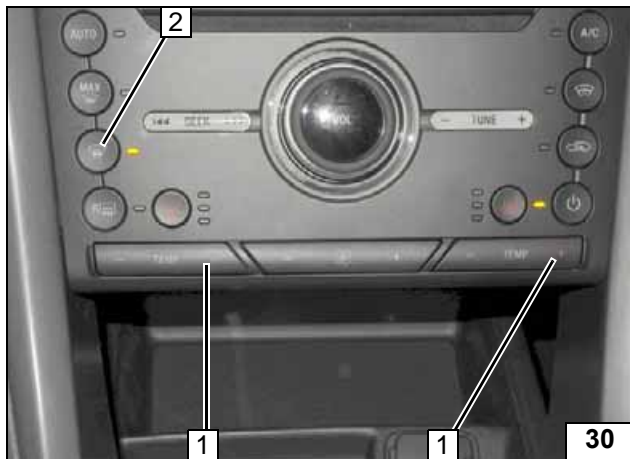


Fan speed need not be pre-set.

- 1 Set temperature on both sides to 'HI'
- 2 Air outlet to windscreen



A/C control panel Version 1



Fan speed need not be pre-set.

- 1 Set temperature on both sides to 'HI'
- 2 Air outlet to windscreen



A/C control panel Version 2



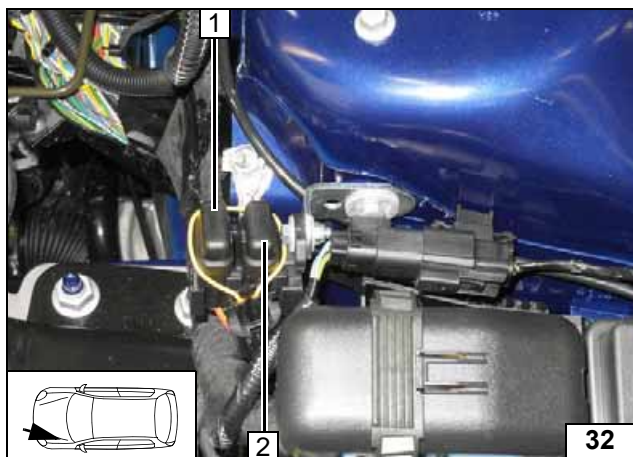
Fan speed need not be pre-set.

- 1 Set temperature on both sides to 'HI'
- 2 Air outlet to windscreen



A/C control panel Version 3



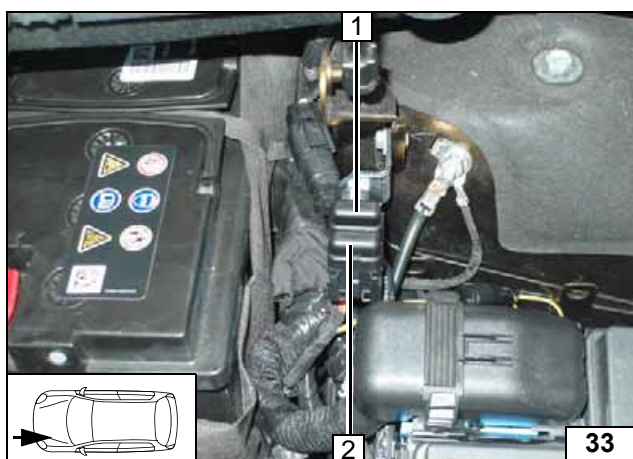


Mondeo

- 1 20A heater fuse F1
- 2 30A passenger compartment main fuse F2



Engine compartment fuses

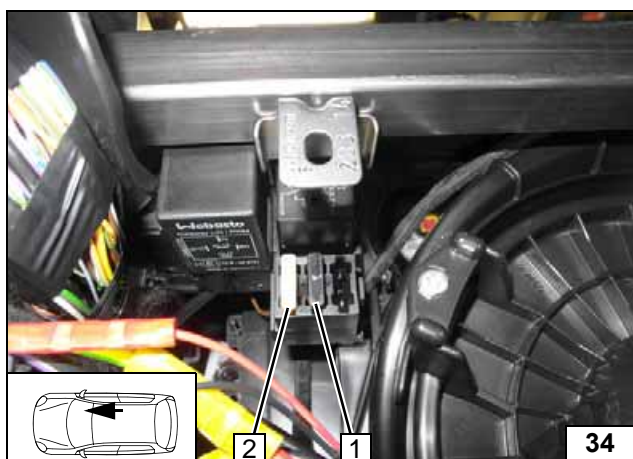


Edge

- 1 30A passenger compartment main fuse F2
- 2 20A heater fuse F1



Engine compartment fuses



All vehicles

- 1 1A heater control fuse F3
- 2 25A fan fuse F4



Passenger compartment fuses

Operating instructions S-Max / Galaxy

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

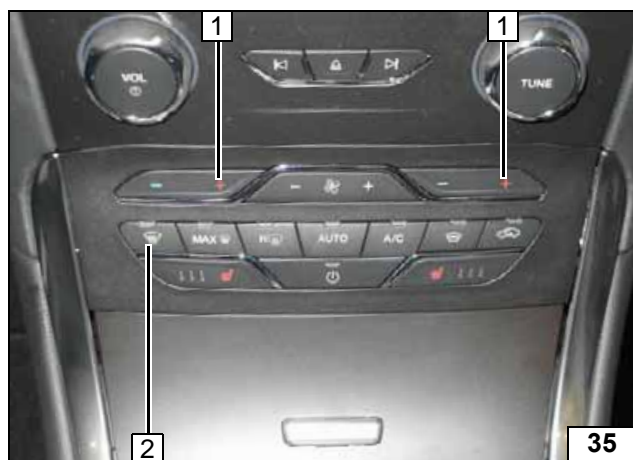
Example:

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

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.

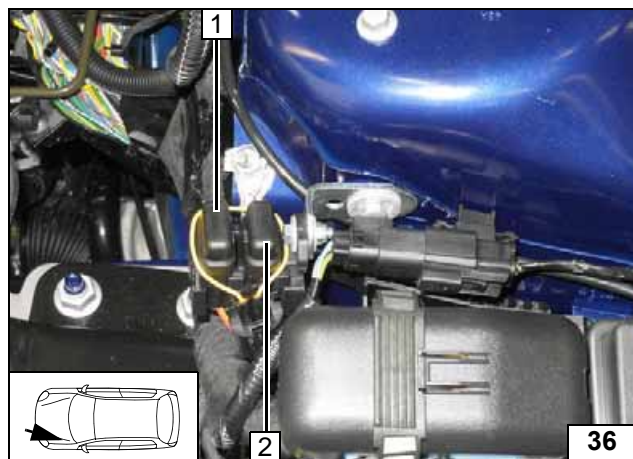
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following settings:

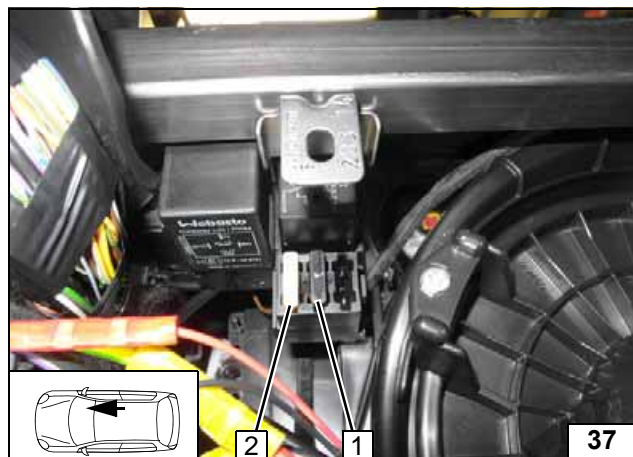


Fan speed need not be pre-set.

- 1 Set temperature on both sides to 'HI'
- 2 Air outlet to windscreen



- 1 20A heater fuse F1
- 2 30A passenger compartment main fuse F2



- 1 1A heater control fuse F3
- 2 25A fan fuse F4



A/C control panel

Engine compartment fuses

Passenger compartment fuses