INSTALLATION RECOMMENDATION
HYDRONIC S3 – D 5 E IN THE FORD RANGER MY2019

THIS INSTALLATION RECOMMENDATION APPLIES TO VEHICLES FROM MODEL YEAR 2019 WITH THE FOLLOWING MOTORISATION:

2.0 l cubic capacity / 4 cylinder in-line engine TDCi / 96 kW - 130 HP
2.0 l cubic capacity / 4 cylinder in-line engine TDCi / 125 kW - 170 HP
2.0 l cubic capacity / 4 cylinder in-line engine TDCi / 157 kW - 213 HP

CONTENTS

This installation recommendation documents the installation of the Hydronic S3 heater in a vehicle from model year 2019 with the following equipment:

- **with air-con or**
- **with automatic air-conditioning**
- **with manual gearbox or**
- **with automatic gearbox**

PLEASE NOTE!

This installation recommendation is valid for the above mentioned vehicle to the exclusion of all liability claims.
Deviating model years and/or deviating equipment may result in modifications to this installation recommendation.
It is therefore mandatory to check the feasibility of installing the heater in the vehicle before starting work.
All liability claims resulting from modifications to the vehicle are excluded.

Installation time: approx. 5.5 hours

1 INTRODUCTION

SPECIAL TEXT FORMATS, PRESENTATIONS AND PICTURE SYMBOLS

In this installation recommendation, special text formats and picture symbols are used to emphasise different contents. Please refer to the following examples for their meanings and appropriate action.

SPECIAL TEXT FORMATS AND PRESENTATIONS

- This dot (▪) denotes a list, which is started by a heading.
  - If an indented dash (–) follows a “dot”, this list is a sub-section of the black dot.

PICTURE SYMBOLS

DANGER!

This information points out a potential serious or fatal danger. Ignoring this information can result in severe injuries.

➔ This arrow indicates the appropriate precaution to take to avert the danger.

CAUTION!

This information points out a dangerous situation for a person and / or the product. Ignoring this information can result in injuries to people and / or damage to equipment.

➔ This arrow indicates the appropriate precaution to take to avert the danger.

PLEASE NOTE!

These remarks contain recommendations for use and useful tips for the operation, installation and repair of the heater.

SAFETY INSTRUCTIONS FOR INSTALLATION AND REPAIR

DANGER!

Improper installation or repair of Eberspächer heaters can cause a fire or result toxic exhaust entering the inside of the vehicle.
This can cause serious and even fatal risks.

➔ Only authorised and trained persons may install the heater according to the specifications in the technical documents or repair it using original spare parts.

➔ Installation and repairs by unauthorised and untrained persons, repairs using non-original spare parts and without the technical documents required for installation and repair are dangerous and therefore are not permitted.

➔ Installation according to this installation recommendation may only be carried out in conjunction with the respective unit-related technical description, installation instructions, operating instructions and maintenance instructions.
This document must be carefully read through before / during installation and repair and followed throughout. Particular attention is to be paid to the official regulations, the safety instructions and the general information.

PLEASE NOTE!

- The relevant rules of sound engineering practice and any information provided by the vehicle manufacturer are to be observed during the installation and repair.
- When carrying out electric welding on the vehicle, the positive cable at the battery should be disconnected and earthed to protect the control box.

LIABILITY CLAIM / WARRANTY

Eberspächer does not accept any liability for defects and damage, which are due to installation or repair by unauthorised and untrained persons.
Compliance with the official regulations and the safety instructions is prerequisite for liability claims.
Failure to comply with the official regulations and safety instructions leads to exclusion of any liability of the heater manufacturer.

ACCIDENT PREVENTION

General accident prevention regulations / health and safety regulations and the corresponding workshop, company and operating safety instructions are to be observed.

1 INTRODUCTION

ADDITIONAL INFORMATION ON THE VALIDITY OF THE INSTALLATION RECOMMENDATION

The installation recommendation is valid for the vehicle with the engine and gearbox options listed in the following.

ENGINE AND GEARBOX OPTIONS

Cubic capacity	kW / HP	Gearbox
2.0 l	96 / 130	6 S
2.0 l	125 / 170	10 AT / 6 S
2.0 l	157 / 213	10 AT / 6 S

6 S = 6 gear manual gearbox

10 AT = 10-gear automatic gearbox

PLEASE NOTE!

- The installation recommendation is not valid for right-hand drive vehicles.
- Vehicle models, engine types and feature options not listed in this installation recommendation, have not been tested.
  Installation according to this installation recommendation can still be possible.

INITIAL STARTUP OF THE HEATER OR FUNCTIONAL TEST

- After installation or carrying out a repair on the heater, the coolant circuit and the whole fuel supply system must be carefully vented. Comply with the instructions issued by the vehicle manufacturer.
- Open all heating circuits before the trial run (set the temperature controller to “hot”).
- During the heater trial run, all water and fuel connections must be checked for leaks and secure, tight fit.
- If faults occur while the heater is running, use a diagnostic unit to correct the cause of the fault.

PARTS REQUIRED FOR INSTALLATION

QUANTITY	DESIGNATION	ORDER NO.
1	Hydronic S3, EasyStart Remote+, vehicle-specific installation kit	25 2941 05 00 00
		A66SX 18D561 DF
Must also be ordered for vehicles with manual AirCon:		
1	Aircon kit with fan control box	24 8800 09 00 24
		A66SX 18D561 GB
The following must also be ordered for vehicles with automatic air-con:		
1	Aircon kit with fan control box	24 8800 09 00 21
		A66SX 18D561 FE

SPECIAL TOOLS REQUIRED

- Necessary torque wrench
- Anti-corrosion agent
- Pliers for spring band clamps
- Crimping tool
- Blind rivet nut insertion tool

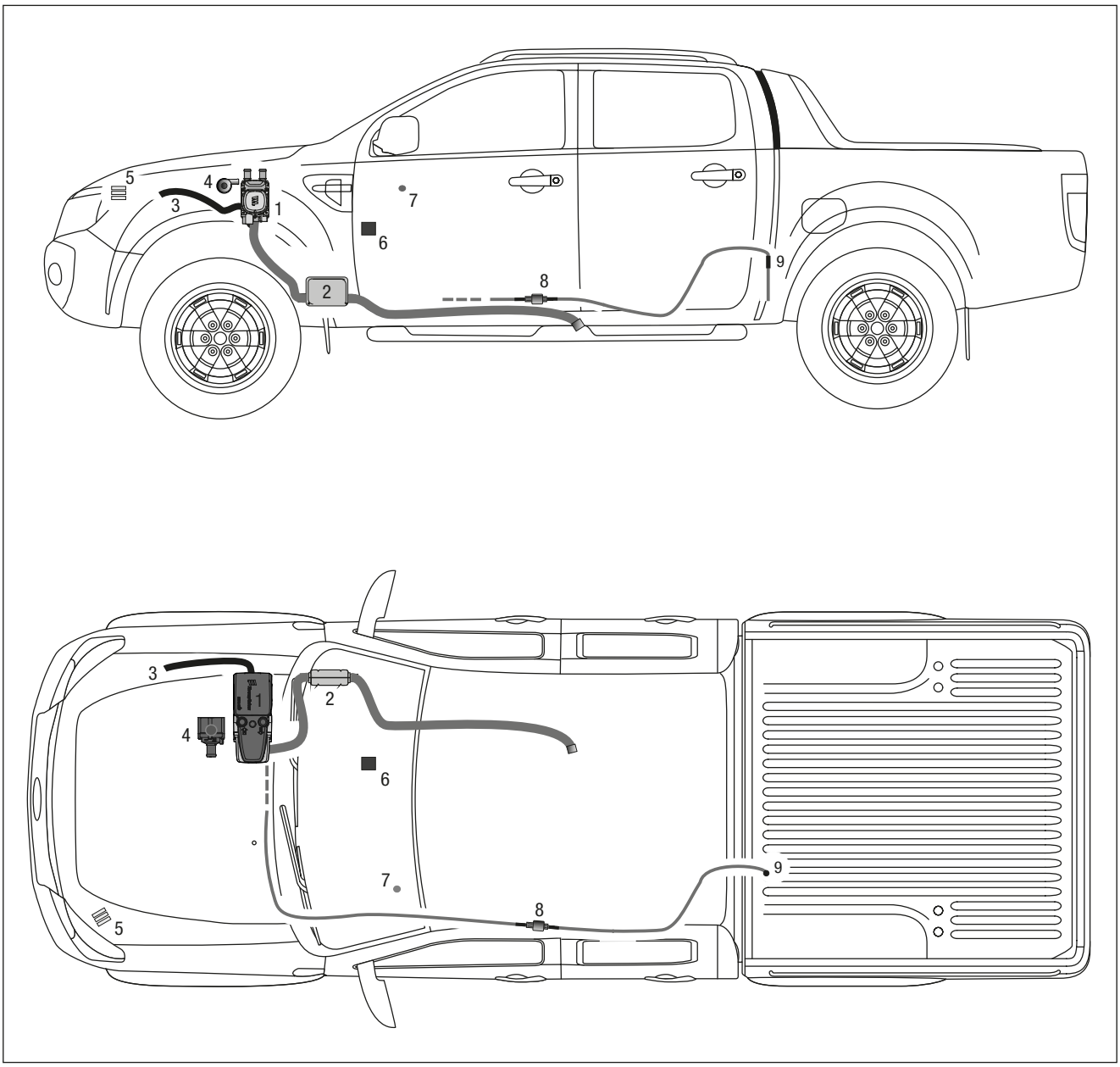
TIGHTENING TORQUES

If no tightening torques are specified, tighten the screw connections (hexagon screw and hexagon nut) according to the following table:

Part name	Tightening torques
Hex screw M6	10 $^{+1}$ Nm
Hex screw M8	20 $^{+2}$ Nm
Hex screw M10	45 $^{+2}$ Nm
Torx screw M6 x 14.5	6 $^{+0.5}$ Nm
Screw M4 x 16	3 $^{+0.5}$ Nm
Screw M5 x 10	5 $^{+0.5}$ Nm
Pipe clip for exhaust pipe	7 $^{+1}$ Nm
Hose clip for water hose	3 $^{+0.5}$ Nm
Hose clip for combustion air pipe	3 $^{+0.5}$ Nm
Hose clip for fuel pipe	1 $^{+0.2}$ Nm

1 INTRODUCTION

INSTALLATION DRAWING



1 Heater Hydronic S3
2 Exhaust pipe with exhaust silencer
3 Combustion air tube
4 Water pump
5 Fuse holder
6 “EasyFan” fan control box (GSG)
7 EasyStart Remote+ button
8 Metering pump
9 Tank extractor

2 PREPARATION OF THE VEHICLE

PREPARATORY WORK ON THE VEHICLE

- Disconnect the battery
- Remove glove compartment
- Remove the aircon control unit
- Remove top engine cover
- Remove top radiator cover
- Remove air filter box
- Remove cooling water storage tank
- Drain coolant into a clean container
- Lower tank (depending on type)

Remove the air filter box according to the manufacturer's instructions.

Protect the air intake hose to keep out any dirt particles.

Fig. 1
① Air filter box

Remove the cooling water storage tank according to the manufacturer's instructions.

Fig. 2
① Cooling water storage tank

3 PRELIMINARY ASSEMBLY

PREPARE THE FUEL PIPE (INTAKE LINE)
(see Fig. 3)

Use a hot air blower to heat and straighten the fuel pipe L=1500 mm (INTAKE LINE) over a length of approx. 300 mm.
Push the 3.5 mm Ø end of the 7.5/3.5 mm Ø adapter onto the fuel pipe (INTAKE LINE).
Push the quick-release coupling onto the fuel pipe (INTAKE LINE) and connect with the 7.5/3.5 mm Ø adapter. Position the quick-release coupling with the dimensions as shown and fasten the 7.5/3.5 mm Ø adapter to the quick-release coupling and the fuel pipe (INTAKE LINE) using one clamp each. Bevel the end of the fuel pipe by 45°. Pull sponge rubber hose over the fuel pipe (INTAKE LINE) as shown.
Push a 3.5 x 3 mm Ø fuel hose, 50 mm long, onto the other end of the fuel pipe and fasten with a 9 mm Ø clip ($1^{+0.2}$ Nm).

Fig. 3
① Pull a sponge rubber hose over the fuel pipe (INTAKE LINE)
② Adapter 7.5/3.5 mm Ø
③ Quick-acting coupling
④ Fuel hose, 3.5 x 3 mm Ø

PREPARE FUEL PIPE (DELIVERY LINE)
(see Fig. 4)

Push the 3.5 mm Ø of the 4.5/3.5 mm Ø adapter onto the fuel pipe L=2800 mm (DELIVERY LINE) and fasten with a 9 mm Ø clip ($1^{+0.2}$ Nm).
Pull a sponge rubber hose over the fuel pipe (DELIVERY LINE) as shown.
Push a 3.5 x 3 mm Ø fuel hose, 50 mm long, onto the other end of the fuel pipe and fasten with a 9 mm Ø clip ($1^{+0.2}$ Nm).
Fasten the metering pump cable L=3000 mm to the fuel pipe (DELIVERY LINE) every 300 mm using insulating tape.
Mount the 4.5/3.5 mm Ø adapter to the fuel connection of the heater.

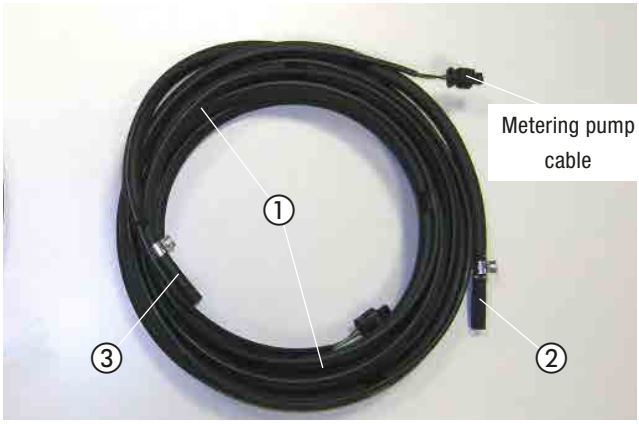


Fig. 4
① Fuel pipe (delivery line) with sponge rubber hose
② Adapter 4.5/3.5 mm Ø
③ Fuel hose 3.5 x 3 mm Ø, 50 mm long

PREASSEMBLE METERING PUMP
(see Fig. 5)

Insert the metering pump in the rubber bracket as shown.

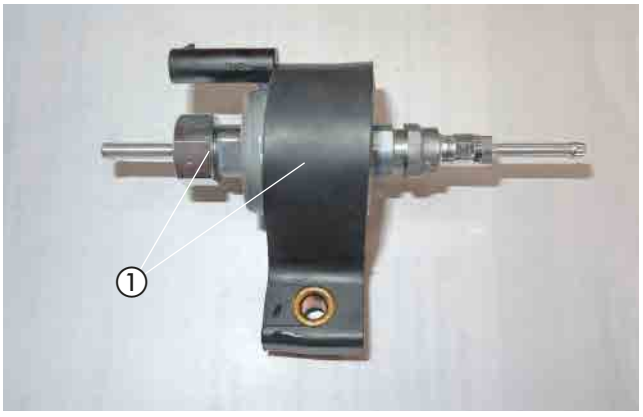


Fig. 5
① Insert metering pump in rubber bracket

3 PRELIMINARY ASSEMBLY

PREPARE HEATER
(see Figs. 6 and 7)

Mount the two angled water inlet socket connections on the heater as shown, see “Installation steps”.

Remove the duplicate nameplate from the heater.

Fig. 6
① Heater
② Mount water connection socket

Installation steps

- Grease the O-ring (5) and insert in the groove at the connection socket.
- Fit the connection socket (3 or 4) in the cut-outs of the sensor cover (2). The collar of the connection socket is above the cover.
- Position the connection socket with the gearing in the sensor cover and fix accordingly.
- Fit the sensor cover on the heater with the connection socket pointing forwards.
- Press the connection socket completely into the corresponding holes on the heat exchanger.
- Adjust the direction for the angled connection socket:
  – Raise the sensor cover up to the collar of the connection socket
  – Turn the connection socket in the required direction
  – Push the sensor cover down and readjust the position of the connection socket so that the toothed edges engage again
- Fasten sensor cover with M5 x 18 (1) screw
  (torque $6.5^{+0.5}$ Nm).

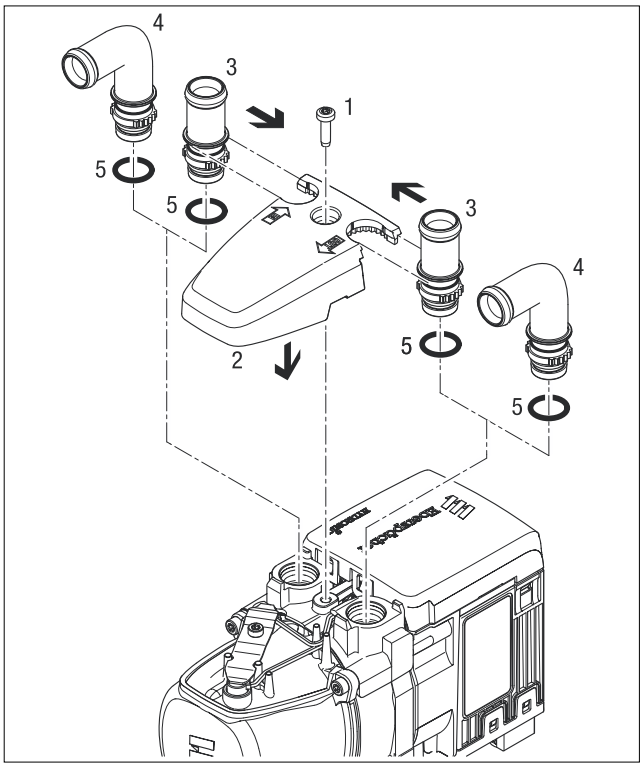


Fig. 7

1 M5 x 18 screw
2 Sensor cover
3 Connection socket, straight
4 Angled connection socket
5 O-ring

3 PRELIMINARY ASSEMBLY

ADHERE DUPLICATE NAMEPLATE
(see Fig. 8)

Fit the duplicate nameplate on the B-pillar on the driver's side as shown.

Fig. 8
① Fit duplicate nameplate

PREMOUNT WATER PUMP
(see Fig. 9)

Insert the water pump in water pump bracket as shown in the figure.

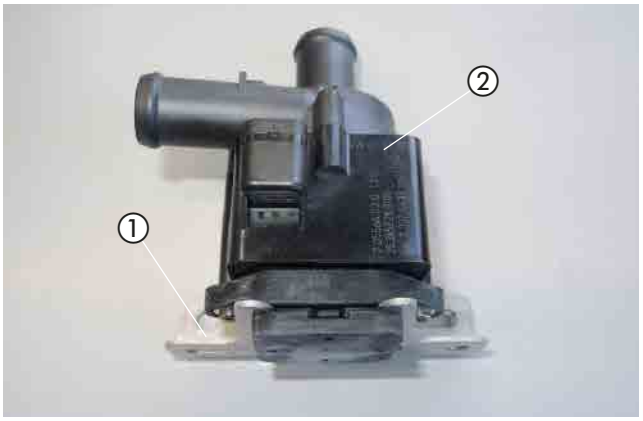


Fig. 9
① Bracket, water pump
② Water pump

3 PRELIMINARY ASSEMBLY

PROVIDE AND PREPARE WATER HOSES
(see Fig. 10)

Provide and prepare the water hoses.

PLEASE NOTE!

The water hoses are connected “inline” to the water circuit , refer to the Technical Description, in the chapter on “Installation” and here the section on “Connection to the Cooling Water Circuit”.

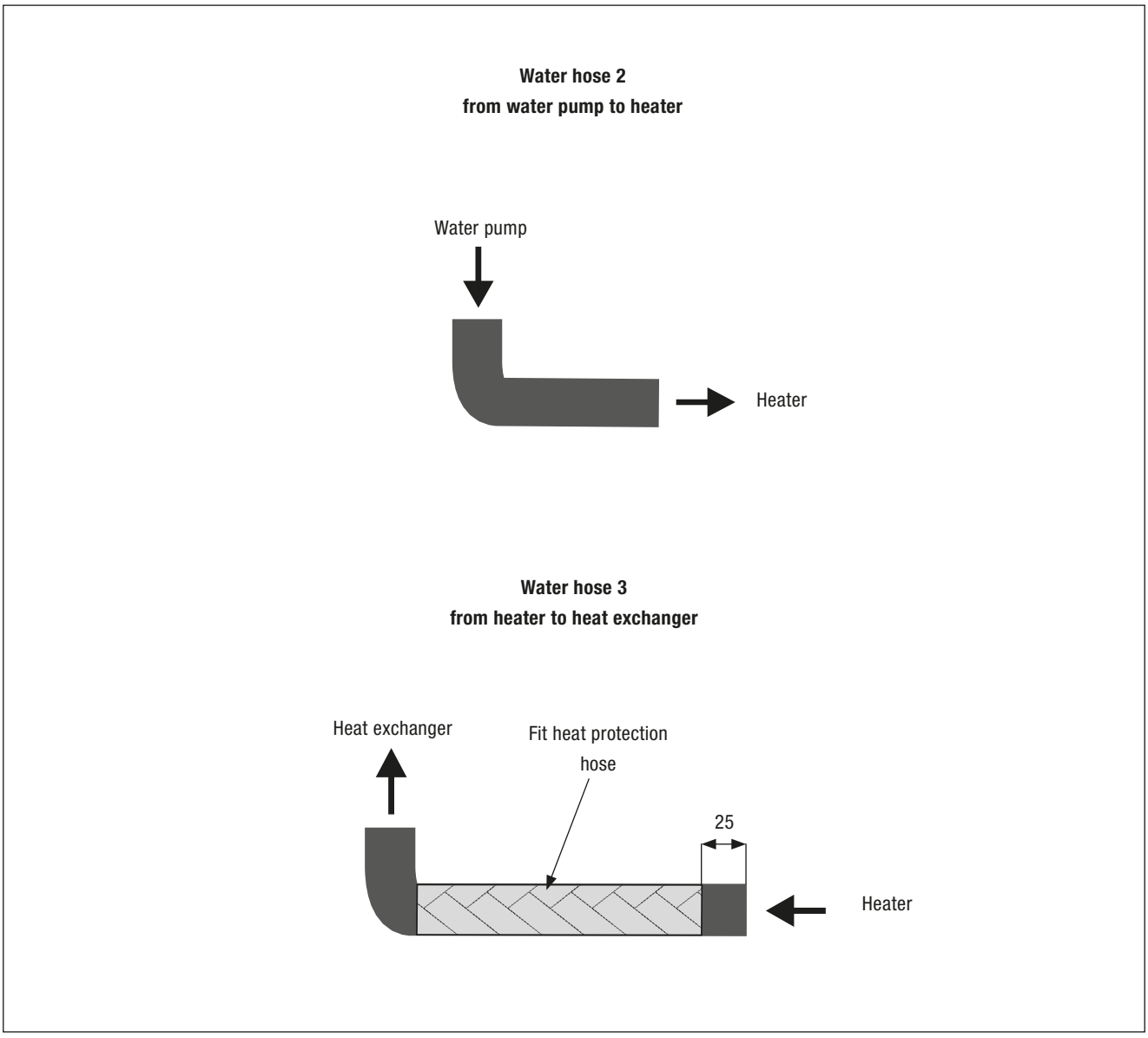


Fig. 10

3 PRELIMINARY ASSEMBLY

PREPARE EXHAUST SYSTEM
(see Figs. 11 to 13)

Use an M6 x 12 screw (10^{+1} Nm), a B6 body washer and an M6 nut to align and fasten the holder for the exhaust silencer (22.9000.50.7403) to the exhaust silencer as shown.

The arrow on the exhaust silencer faces towards the exhaust pipe end.

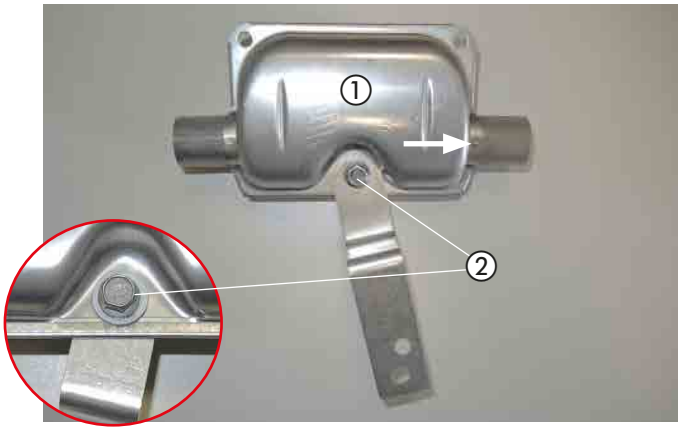


Fig. 11
① Exhaust silencer
② Mount the holder

Push a piece of exhaust insulation onto the exhaust pipe.
Shorten another piece of exhaust insulation to a length of L=180 mm and push onto the exhaust pipe.

Also push a 28 mm Ø clip onto the exhaust pipe and fasten the Z-bracket (20.1533.88.0007) to the clip as shown using an M6 x 16 screw and M6 nut (10^{+1} Nm).

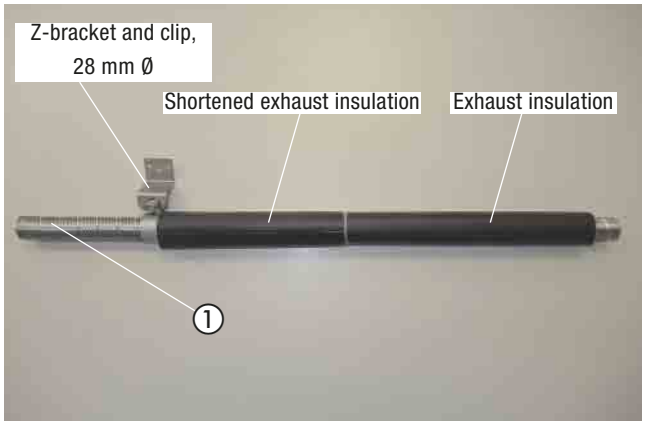


Fig. 12
① Prepare the exhaust pipe

Push three pieces of exhaust insulation onto the exhaust pipe end as shown.
Also push a 28 mm Ø clip onto the exhaust pipe end and fasten the holder (22.9000.50.8802) to the clip as shown using an M6 x 16 screw and M6 nut (10^{+1} Nm).
Similarly, push a 34 mm Ø clip onto the exhaust pipe end and fasten the holder (22.9000.50.8802) to the clip as shown using an M6 x 16 screw and M6 nut (10^{+1} Nm).

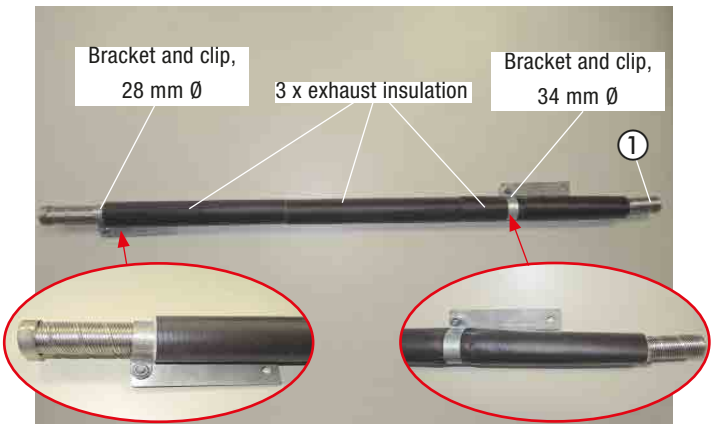


Fig. 13
① Prepare exhaust end pipe

3 PRELIMINARY ASSEMBLY

PREASSEMBLE HEATER
(see Figs. 14 and 15)

Mount the prepared water pump, as shown, in the holes of the heater jacket using two self-threading screws M 6 x 16.

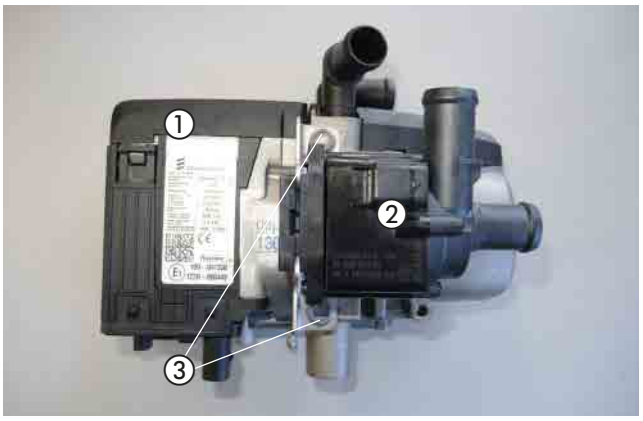


Fig. 14
① Heater
② Install prepared water pump
③ 2 x self-threading screws M6 x 16

Connect water hose 2 as shown to the discharge end of the water pump and to the water inlet socket of the heater, and fasten each with a spring band clamp.

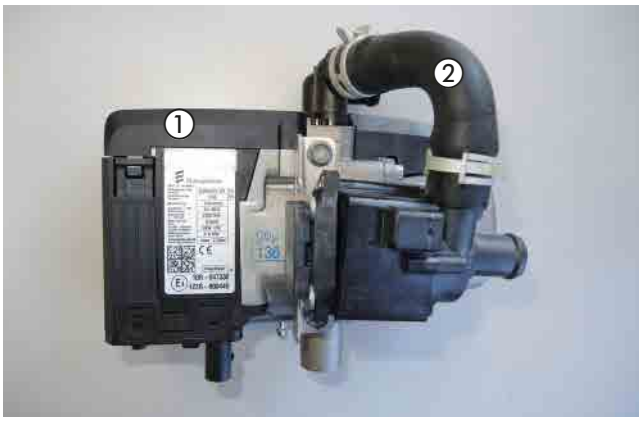


Fig. 15
① Heater
② Mount water hose 2

3 PRELIMINARY ASSEMBLY

PREMOUNT FAN CONTROL BOX
(see Fig. 16)

Use two M4 x 10 screws and two M4 nuts to fix the fan control box to the holder (22.9000.50.0131) as shown.

Fig. 16
① Mount fan control box to holder

PREMOUNT FUSE AND RELAY BLOCK
(see Fig. 17)

Mount the fastening clip (156.31.029) for the diagnostic connector on the holder for the fuse and relay block as shown.
Use two M4x12 screws and two M4 plastic expanding rivets to fix the fuse holder to the holder for the fuse block (22.1000.51.4800).

Fit the diagnostic connector to the fastening clip.

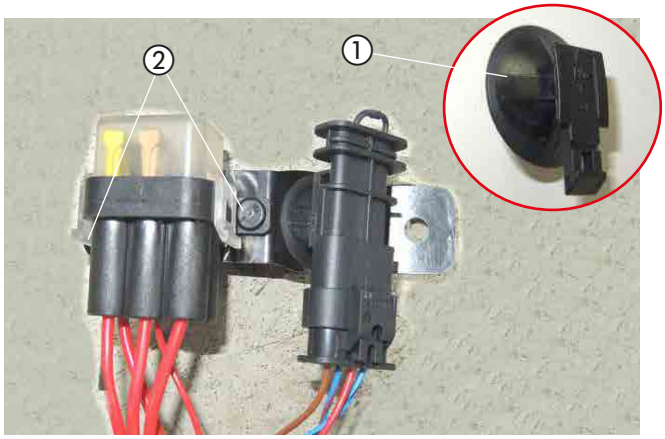


Fig. 17
① Mount fastening clip
② Mount the fuse block on the holder

PREPARE STATIONARY PART OF THE EASYSTART REMOTE+
(see Fig. 18)

Insert a cable tape in each of the side fastening points of the stationary part of the EasyStart Remote+ as shown.

Fig. 18
① Stationary part of the EasyStart Remote+ prepared

4 INSTALLATION

PREPARE THE INSTALLATION POSITION
(see Figs. 19 to 21)

On the right side of the engine partition, above the grommet, undo the fastening clip from the stud bolt.
Next to the grommet, cut into the insulation matting as shown.
Fold the insulation matting up to the left.

The fastening clip will be needed again later!

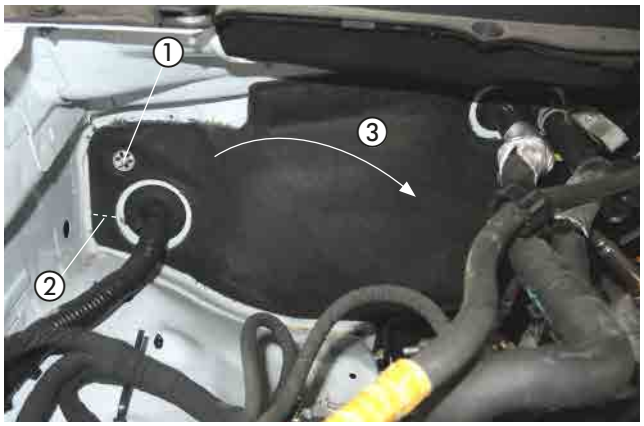


Fig. 19
① Undo the fastening clip
② Cut into insulation matting
③ Fold insulation matting up

Make three markings on the exposed, embossed surface with the dimensions as shown (and according to the hole pattern of the unit bracket).

PLEASE NOTE!
Deburr all drilled holes and treat with anti-corrosion agent.

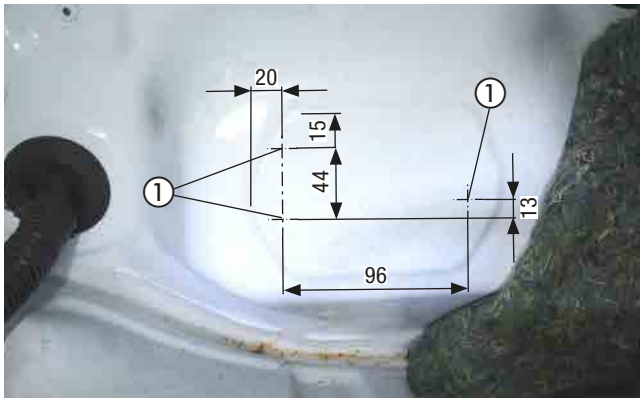


Fig. 20
① Markings

Drill a 10 mm Ø hole at each of the markings.
Insert an M6 blind rivet nut in each of the drilled holes.

Put the insulation matting back in position.
Make a notch in the insulation matting over the drilled holes.
Fasten the insulation mat back on the stud bolt using the fastening clip.

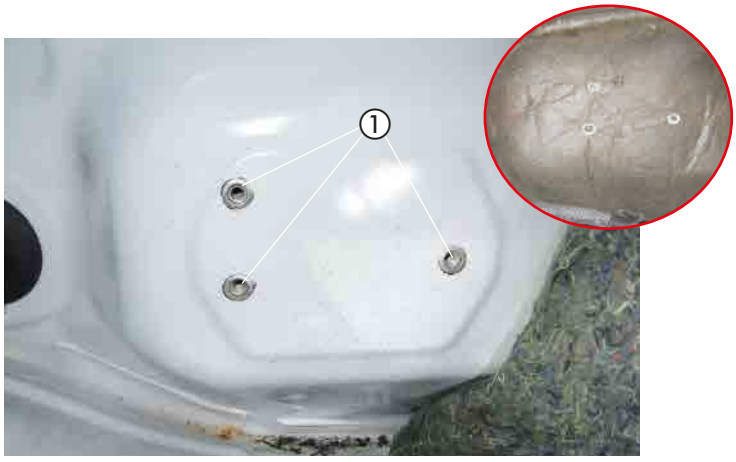


Fig. 21
① 10 mm Ø holes drilled and M6 blind rivet nuts inserted

4 INSTALLATION

MOUNT THE HEATER AND LAY THE COMBUSTION AIR PIPE
(see Figs. 22 to 24)

Fit the unit bracket to the prepared fastening points with three M6 x 20 screws (10^{+1} Nm) as shown.

Fig. 22
① Mount unit bracket

Insert the preassembled heater into the unit bracket and fasten using an M6 x 16 (6^{+2} Nm) self-threading screw.

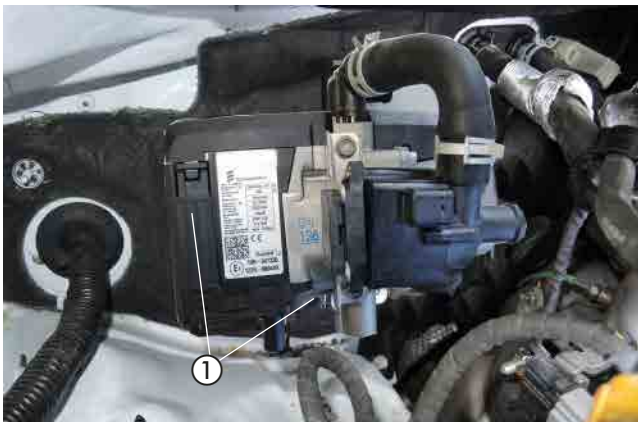


Fig. 23
① Install heater

Use a 16-25 mm Ø hose clip to connect the combustion air pipe to the heater and lay in the protected area along the right-hand splash wall, towards the headlight.

Use cable ties to fix the combustion air pipe in suitable places.

⚠ CAUTION!
Lay the combustion air pipe so that only clean, dry combustion air can be drawn in through the heater.

Fig. 24
① Connect and lay combustion air pipe

4 INSTALLATION

CONNECT AND LAY WATER HOSES
(see Figs. 25 to 28)

Pull the water flow hose off the connection socket of the heat exchanger socket (the left-hand water hose on the heat exchanger, viewed in travel direction) by undoing the clamp.

After undoing the clamp, turn the water flow hose by approx. 90° to the right.

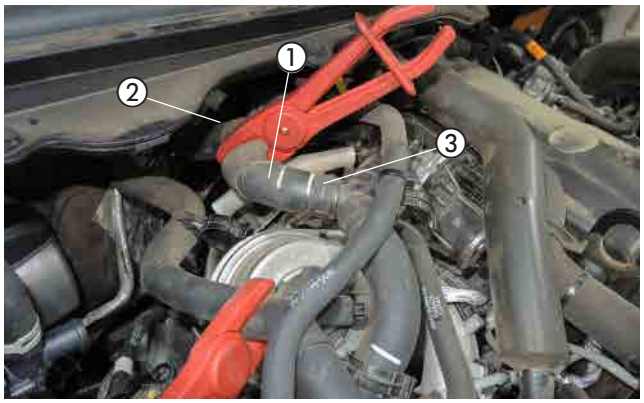


Fig. 25
① Water flow hose
② Remove the clamp
③ Undo the clamp and turn the hose through approx. 90°

Shorten the vehicle's water flow hose with the dimensions shown.

Fig. 26
① Shorten the water flow hose

Connect the vehicle's water flow hose to the intake end of the water pump using a 20-32 mm Ø hose clip ($3^{-0.5}$ Nm) as shown.
Connect water hose 3 to the water outlet connection socket of the heater using a spring band clamp and to the water connection socket to the heat exchanger using a 20-32 mm Ø hose clip ($3^{-0.5}$ Nm) as shown.

⚠ CAUTION!
Secure all hose connections with spring band clamps or hose clips. Protect the water hoses against chafing and secure in suitable places using rotatable line holders.

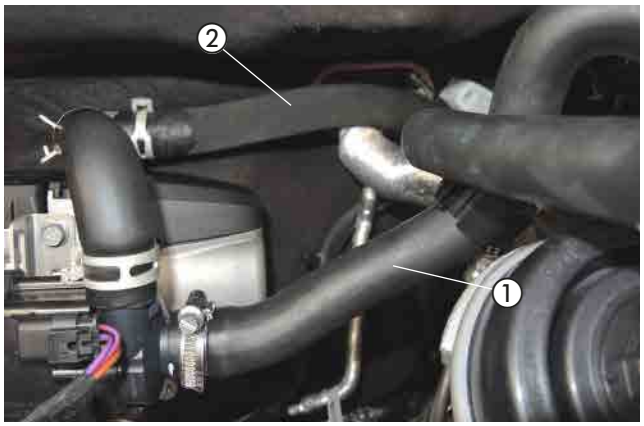
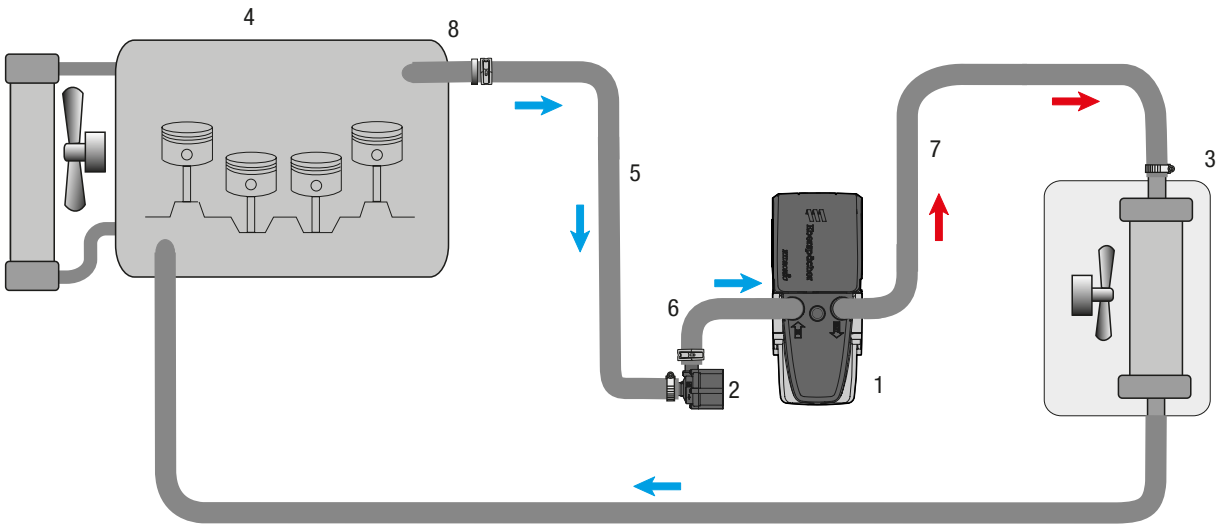


Fig. 27
① Connect water hose 1
② Connect water hose 3

4 INSTALLATION



1 - Heater Hydronic S3
2 - Water pump
3 - Vehicle heat exchanger
4 - Engine
5- Vehicle water flow hose
6- Water hose 2
7- Water hose 3
8- Vehicle water flow hose
- Spring band clip
- Hose clip, 20 – 32 mm Ø

Fig. 28

4 INSTALLATION

INSTALL EXHAUST SILENCER AND CONNECT EXHAUST PIPES
(see Figs. 29 to 34)

On the outside of the front right chassis beam behind the front wheel, remove the middle clip of the rubber trim and fold the trim forwards. Drill the existing exposed hole open to 9 mm Ø and insert an M6 blind rivet nut with 9 mm Ø outer diameter.

Fold the rubber cover back again and fasten.

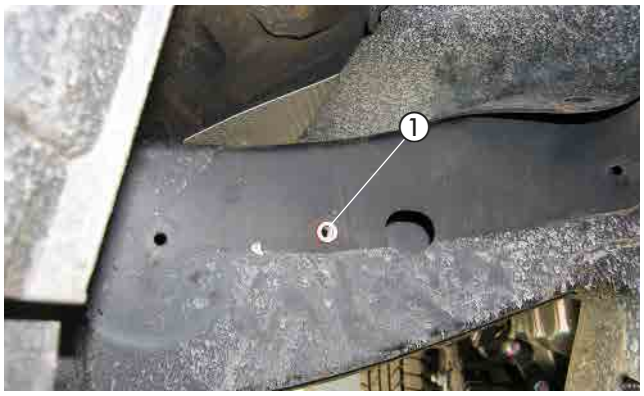


Fig. 29
① 9 mm Ø hole drilled open and M6 blind rivet nut inserted

For the holder of the exhaust silencer and the exhaust pipe, make a cutout in the right front rubber trim as shown.
Fit the premounted exhaust silencer with the holder to the prepared fastening point using an M6 x 16 screw (10+1 Nm) and a B6 body washer.
Mark a drilling point in the upper fastening point 7 mm Ø on the bracket of the exhaust silencer and drill a 3.5 mm Ø hole in the front left-hand chassis beam.
Fit an M6 x 19 self-tapping screw in the drilled hole.
The arrow on the exhaust silencer marks the direction of flow and points to the rear.
Lay the premounted exhaust pipe from the exhaust silencer forwards and then up to the heater.
Use the pipe clip (7^{+1} Nm) to connect the exhaust pipe to the inlet connection of the exhaust silencer.

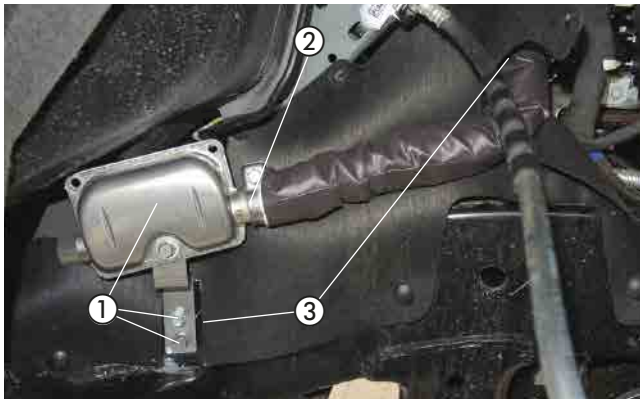


Fig. 30
① Mount the exhaust silencer
② Mount the exhaust pipe
③ 2 x Cut here

Fasten the exhaust pipe with the Z-bracket (20.1533.88.0007) to the existing 6.5 mm Ø hole on the level of the wing panel as shown, using an M6 x 16 screw (10^{+1} Nm), an M6 nut and a B6 body washer.

Use a pipe clip (7^{+1} Nm) to connect the exhaust pipe to the exhaust connection of the heater.

PLEASE NOTE!
Deburr all finished holes and treat with anti-corrosion agent.

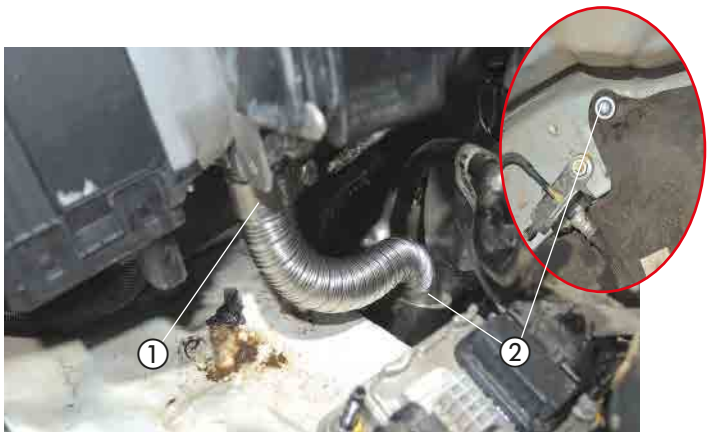


Fig. 31
① Connect the exhaust pipe
② Exhaust pipe fastened with 28 mm Ø clip and Z-bracket

4 INSTALLATION

Use the pipe clip (7^{+1} Nm) to connect the exhaust pipe end to the exhaust outlet connection of the exhaust silencer.

Route the exhaust pipe end to the middle of the vehicle above the brake line and the vehicle's exhaust system.

Fig. 32
① Connect exhaust pipe end
② Fold rubber trim to the left and make corresponding cuts

Fasten the exhaust pipe end to the fastening screw of the heat shield plate using the 34 mm Ø clip and the holder (22.9000.50.8802).

Fig. 33
① Shape exhaust pipe end
② Mount the holder

Fasten the exhaust pipe end to the fastening screw of the heat shield plate using the 28 mm Ø clip and the holder (22.9000.50.8802).
Shape the exhaust pipe end vertically downwards as shown.

⚠ CAUTION!
When laying the exhaust pipes, ensure they are at a sufficient distance from adjacent body components and lead harnesses.

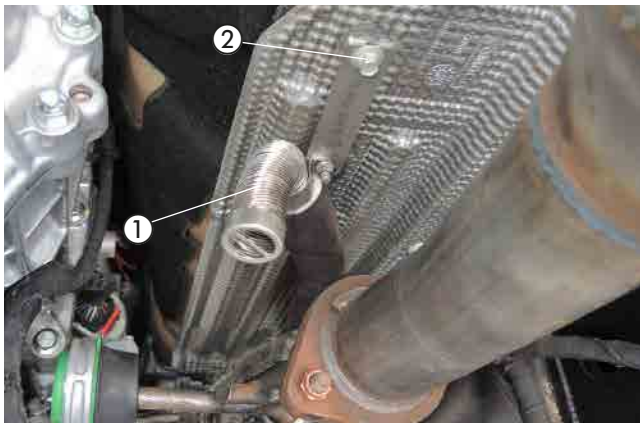


Fig. 34
① Shape exhaust pipe end
② Mount the holder

4 INSTALLATION

CONNECT AND LAY FUEL PIPE
(see Figs. 35 and 41)

Mount the fuel pipe (delivery line) with the 4.5/3.5 mm Ø adapter on the fuel socket of the heater using a 10 mm Ø hose clip, lay in the bend upwards and further up to the vehicle underbody.
Secure the fuel pipe (delivery line) with two rotatable line holders.

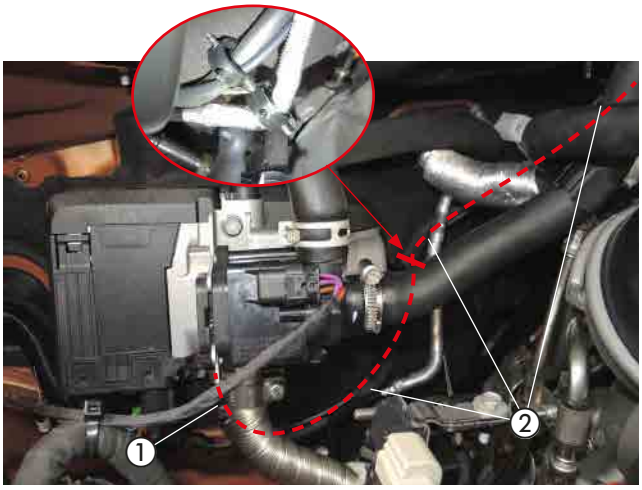


Fig. 35
① Mount fuel pipe (delivery line) with 4.5/3.5 mm Ø adapter
② Lay fuel pipe

Lay the fuel pipe (delivery line) together with the metering pump cable along the engine partition to the left and on to the left-hand vehicle underbody and fasten with two rotatable line holders to the vehicle hose.

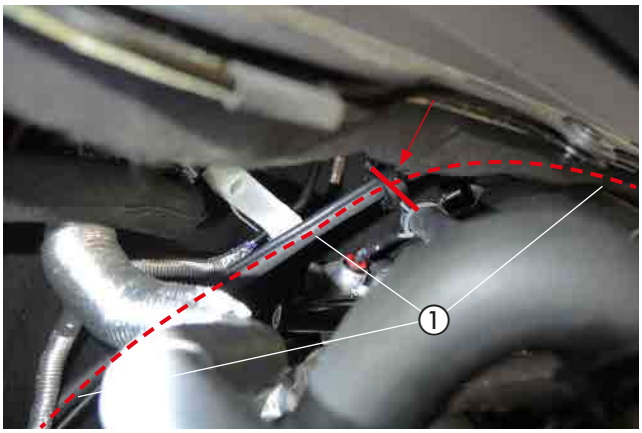


Fig. 36
① Lay fuel pipe (delivery line) and metering pump cable

Take the fuel pipe (delivery line) together with the metering pump cable further downwards to the vehicle underbody and use four rotatable line holders to fasten to the vehicle hose.

⚠ CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

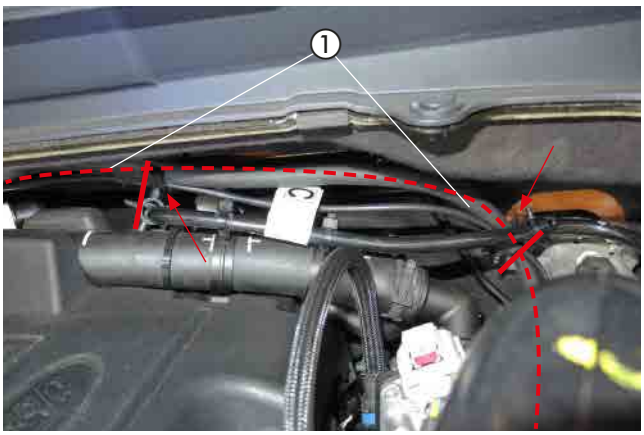


Fig. 37
① Lay the fuel pipe (delivery line) and metering pump cable and secure using 4 x rotatable line holders

4 INSTALLATION

Take the fuel pipe (delivery line) together with the metering pump cable further downwards and secure to the vehicle aircon pipe using two rotatable line holders.

CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and steering parts.

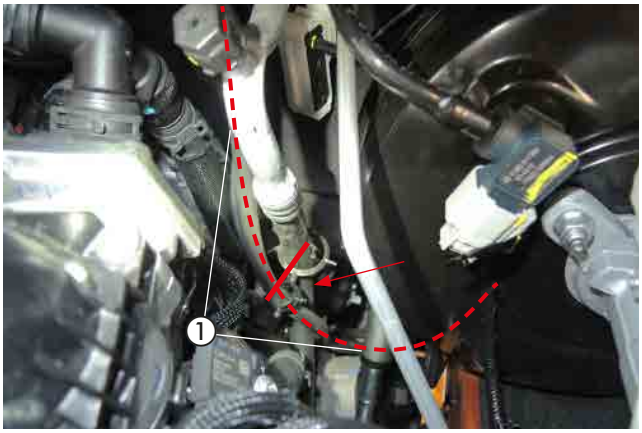


Fig. 38
① Lay the fuel pipe (delivery line) and metering pump cable and secure using 2 x rotatable line holders

In the left wheel arch, fold the rubber trim upwards at the rear and take the fuel pipe (delivery line) together with the metering pump cable further to the rear to the installation position of the metering pump in front of the tank and secure to the vehicle fuel line using four rotatable line holders.

CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

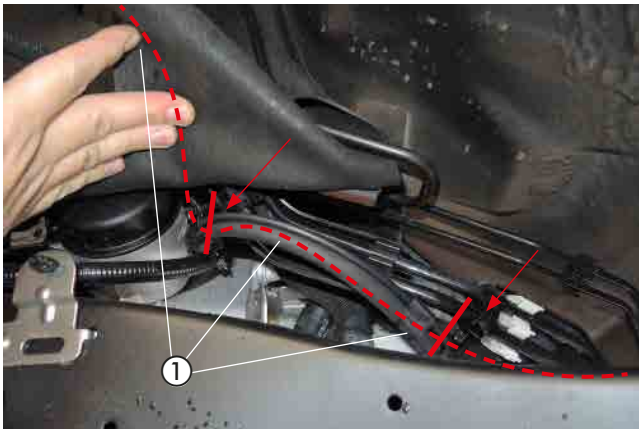


Fig. 39
① Lay fuel pipe (delivery line) and metering pump cable

Take the fuel pipe (delivery line) together with the metering pump cable further to the rear to the installation position of the metering pump in front of the tank and secure to the vehicle fuel line using eight rotatable line holders.

CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

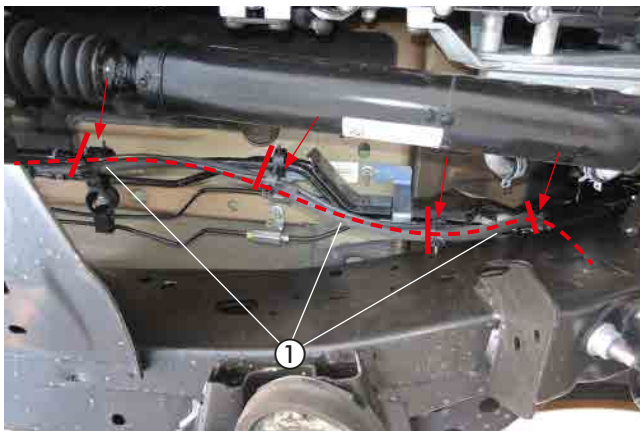


Fig. 40
① Lay the fuel pipe (delivery line) and metering pump cable and secure using 8 x rotatable line holders

4 INSTALLATION

Take the fuel pipe (delivery line) together with the metering pump cable further to the rear to the installation position of the metering pump in front of the tank and secure to the vehicle fuel line using four rotatable line holders.

⚠ CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

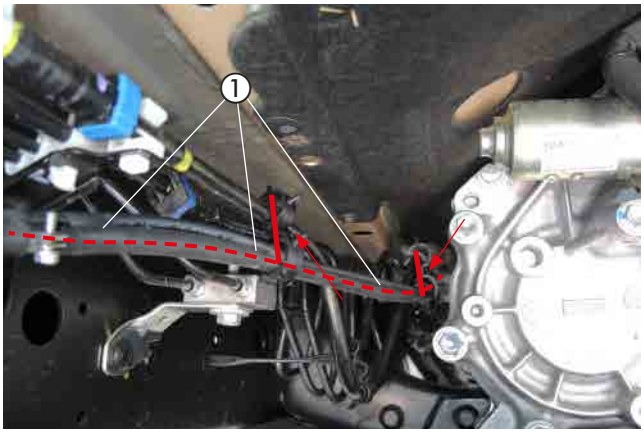


Fig. 41
① Lay the fuel pipe (delivery line) and metering pump cable and secure using 2 x rotatable line holders

4 INSTALLATION

MAKE TANK CONNECTION
(see Figs. 42 to 44)

Cut approx. 3 mm off the slanted connection of the tank fitting.

⚠ CAUTION!
When opening the connection socket, ensure that no dirt gets into the tank or the supply lines.

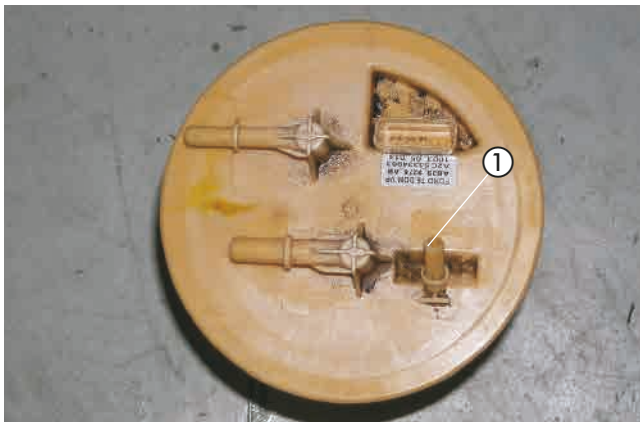


Fig. 42
① Open pipe connection socket

Route the preassembled fuel pipe (intake line) through the pipe connection sockets in the tank as shown and insert the quick-release coupling at the pipe connection socket.

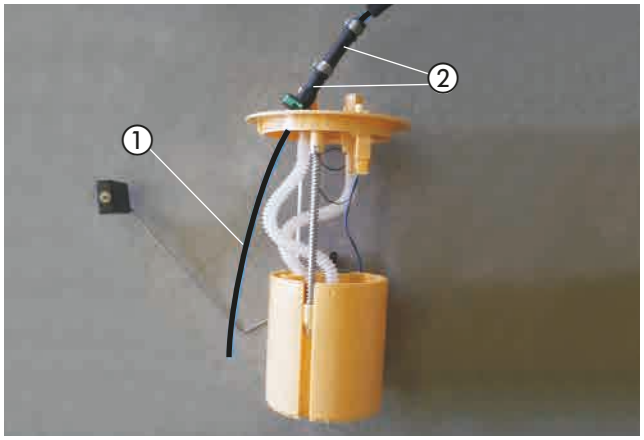


Fig. 43
① Fuel pipe (intake line)
② Quick-acting coupling with 7.5 x 3.5 mm Ø reducer

Use cable ties to secure the fuel pipe (intake line) along the vehicle's fuel lines.

Re-install the fuel tank.

⚠ CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

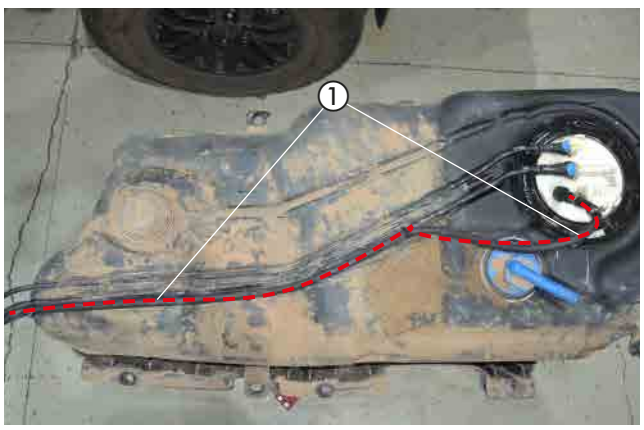


Fig. 44
① Route fuel pipe (intake line)

4 INSTALLATION

INSTALL AND CONNECT THE METERING PUMP
(see Figs. 45 to 47)

Insert an M6 blind rivet nut with 10 mm Ø outer diameter in the existing 10 mm Ø hole on the inside of the rear left-hand chassis beam in front of the tank as shown.

Fig. 45
① Insert M6 blind rivet nut with 10 mm Ø outer diameter

Use an M6 x 25 screw and a B6 body washer to mount the prepared metering pump in the already mounted M6 blind rivet nut.
Ensure it is installed with at least a 15° rising gradient on the pressure side.
Connect the fuel pipe (delivery line) from the heater to the 3.5 x 3 mm Ø fuel hose at the discharge end of the metering pump.
Route the fuel pipe (intake line) from the tank extractor to the metering pump and connect with the 3.5 x 3 mm Ø fuel hose to the intake connection of the metering pump.
Secure the metering pump cable twice with insulating tape to the mounted 3.5 x 3 mm Ø fuel hose on the pressure (discharge) side.
Connect the connector to the metering pump.

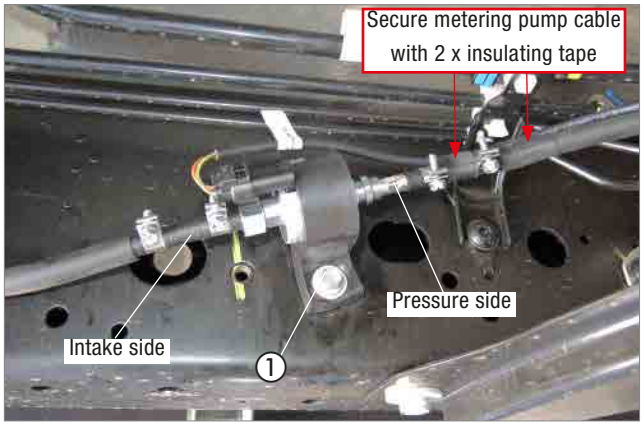


Fig. 46
① Mount the metering pump

⚠ CAUTION!
Secure all hose connections with hose clips.

Secure the fuel pipe (intake line) from the fuel tank to the vehicle fuel line using two rotatable line holders and in the existing 6 mm Ø hole on the left-hand chassis beam using a cable tape with clip, as shown.

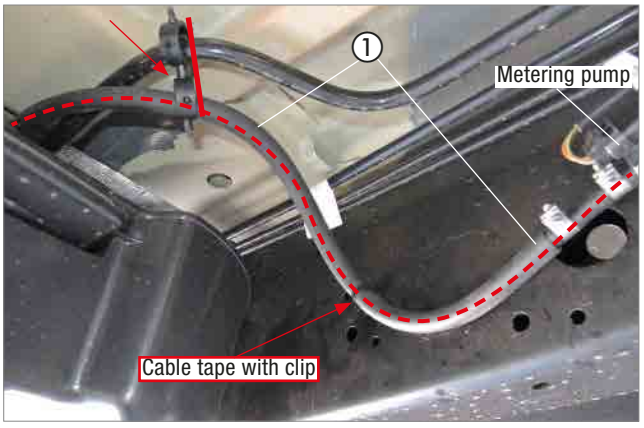


Fig. 47
① Route fuel pipe (intake line)

4 INSTALLATION

MOUNT FUSE BLOCK
(see Figs. 48 to 50)

To fasten the fuse block holder, drill a 9 mm Ø hole in the headlamp bracket on the left in front of the battery with the dimensions shown.

PLEASE NOTE!
Deburr all finished holes and treat with anti-corrosion agent.

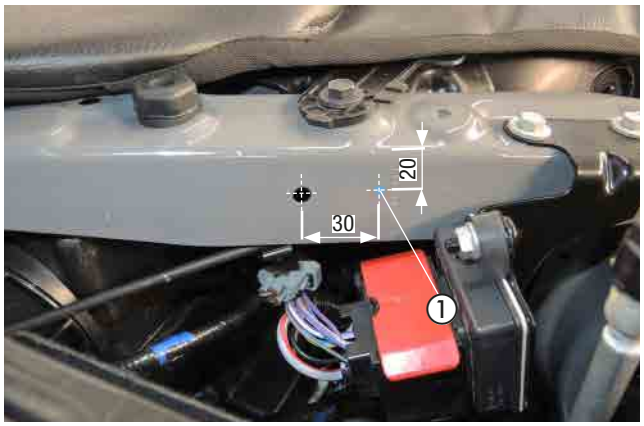


Fig. 48
① Fastening point for fuse and relay block

Insert an M6 blind rivet nut with 9 mm Ø outer diameter in the drilled 9 mm Ø hole.

Fig. 49
① Insert M6 blind rivet nut

Mount the prepared bracket with the fuse block to the fastening point as shown using an M6 x 16 screw (10^{+1} Nm).

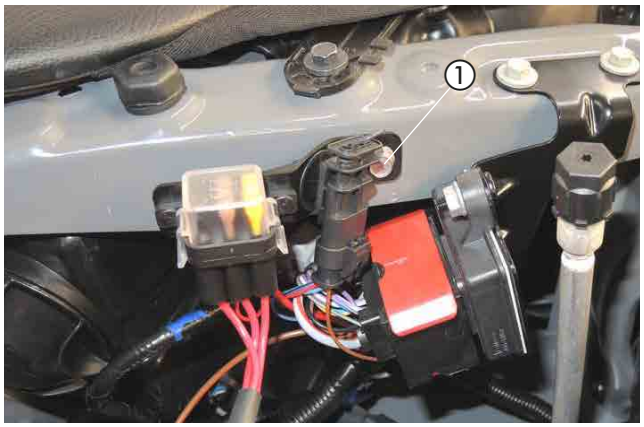


Fig. 50
① Fuse and relay block, mount with holder

4 INSTALLATION

CABLE LAYING
(see Figs. 51 to 53)

Lay the “fan control box” and “control unit” cable looms from the heater cable loom to the right, along the radiator support to the vehicle's grommet, on the right of the engine partition.
Secure the “fan control” and “control unit” cable looms from the heater cable loom to the left and right of the radiator support using a cable tape with clip in each case, after removing the vehicle cable tape.
Plug in the connector of the main cable harness, the connector of the water pump cable and the power supply cable loom to the heater.
Connect the connector of the water pump cable to the water pump.

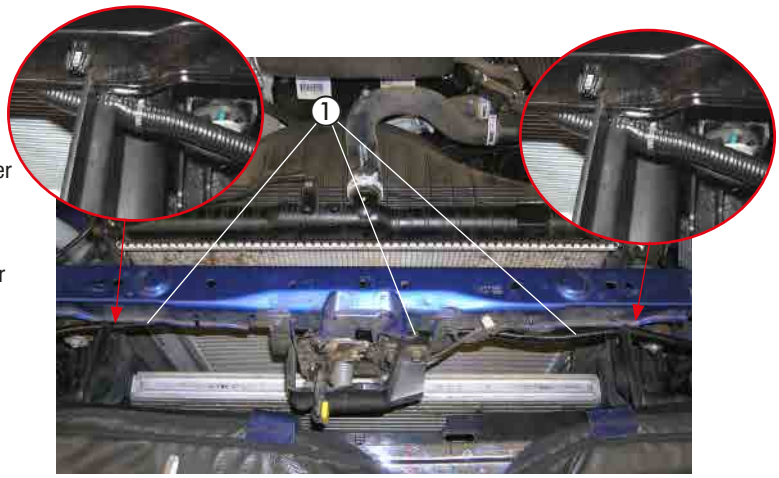


Fig. 51
① Lay cable looms

On the right side of the engine partition at the vehicle's grommet, open the additional grommet by cutting off the dummy socket.

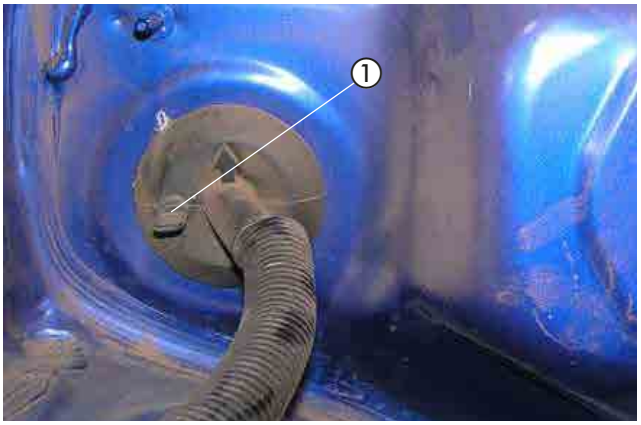


Fig. 52
① Vehicle cable grommet: Cut off dummy socket

Take the “fan control box” and “control unit” cable looms into the vehicle interior through the exposed cable leadthrough in the cable grommet.
Take the vehicle interior cable loom consisting of:

- Cable 1 mm² sw/rt
- 3-wire control unit cable loom
- 4-pin fan control box cable loom

lay through the cable grommet on the right-hand side of the engine partition into the interior of the vehicle.

⚠ CAUTION!
When laying the cable looms, ensure they are at an adequate distance from hot vehicle and heater parts. Use cable ties to fix the cable looms in suitable places.

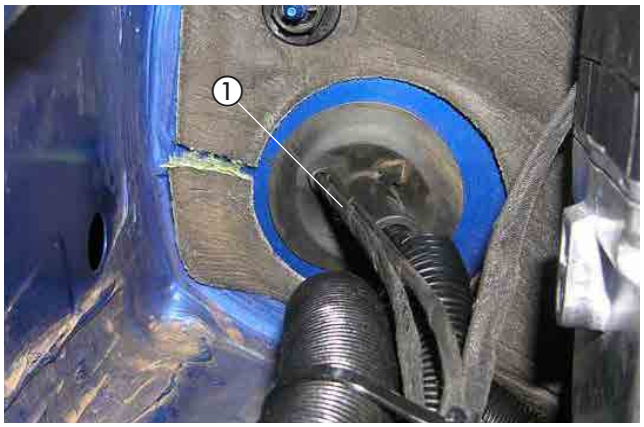


Fig. 53
① Vehicle cable grommet: Lay cable looms

4 INSTALLATION

FAN CONTROL
(see Figs. 54 to 58)

PREPARE LEAD HARNESS FROM “EASYFAN” FAN CONTROL BOX

At the 8-pin black connector of the “EasyFan” fan control box lead harness, fit a butt-type connector rt onto the cable 0.5 mm² sw/rt as shown.

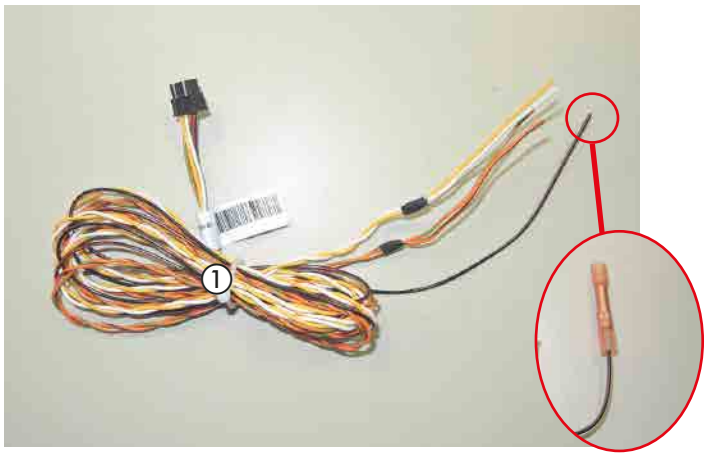


Fig. 54
① Lead harness “EasyFan” fan control box

Mount the prepared fan control box with the holder to the strut on the right side behind the instrument panel toward the centre console, in the existing 6.5 mm Ø hole with an M6 x 12 screw and an M6 nut (10^{+1} Nm).

Slot the 4-pin black connector from the “EasyFan” lead harness and the 8-pin black connector from the “EasyFan” lead harness into the fan control box as shown.

Fig. 55
① Mount prepared fan control box

Connect the 0.5 mm² sw/rt cable from the “control unit” cable loom with the 0.5 mm² sw/rt cable from the fan control box as shown in the circuit diagram using an 0.5 - 1.5 mm² butt-type connector.

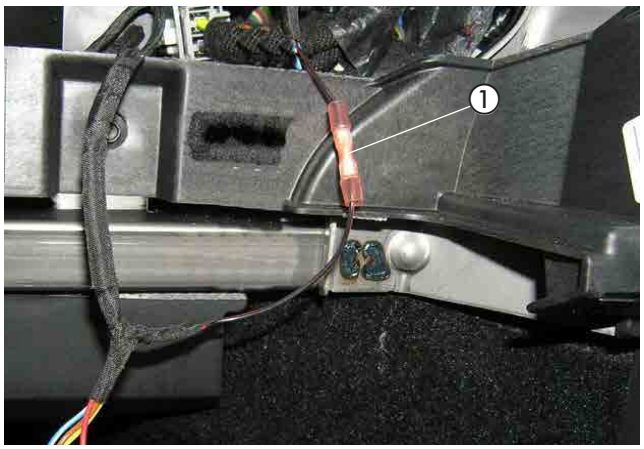


Fig. 56
① Connect 0.5 mm² sw/rt cable

4 INSTALLATION

Disconnect the 0.35 mm² gr/or cable (pin 17) from the 26-pin black connector of the aircon control and connect the 0.5 mm² ge and 0,5 mm² or/gn cables using two red butt-type connectors as shown in the circuit diagram.

Disconnect the 0.35 mm² vi/or cable (pin 18) from the 26-pin black connector of the aircon control and connect the 0.5 mm² ws and 0,5 mm² or/br cables using two red butt-type connectors as shown in the circuit diagram.

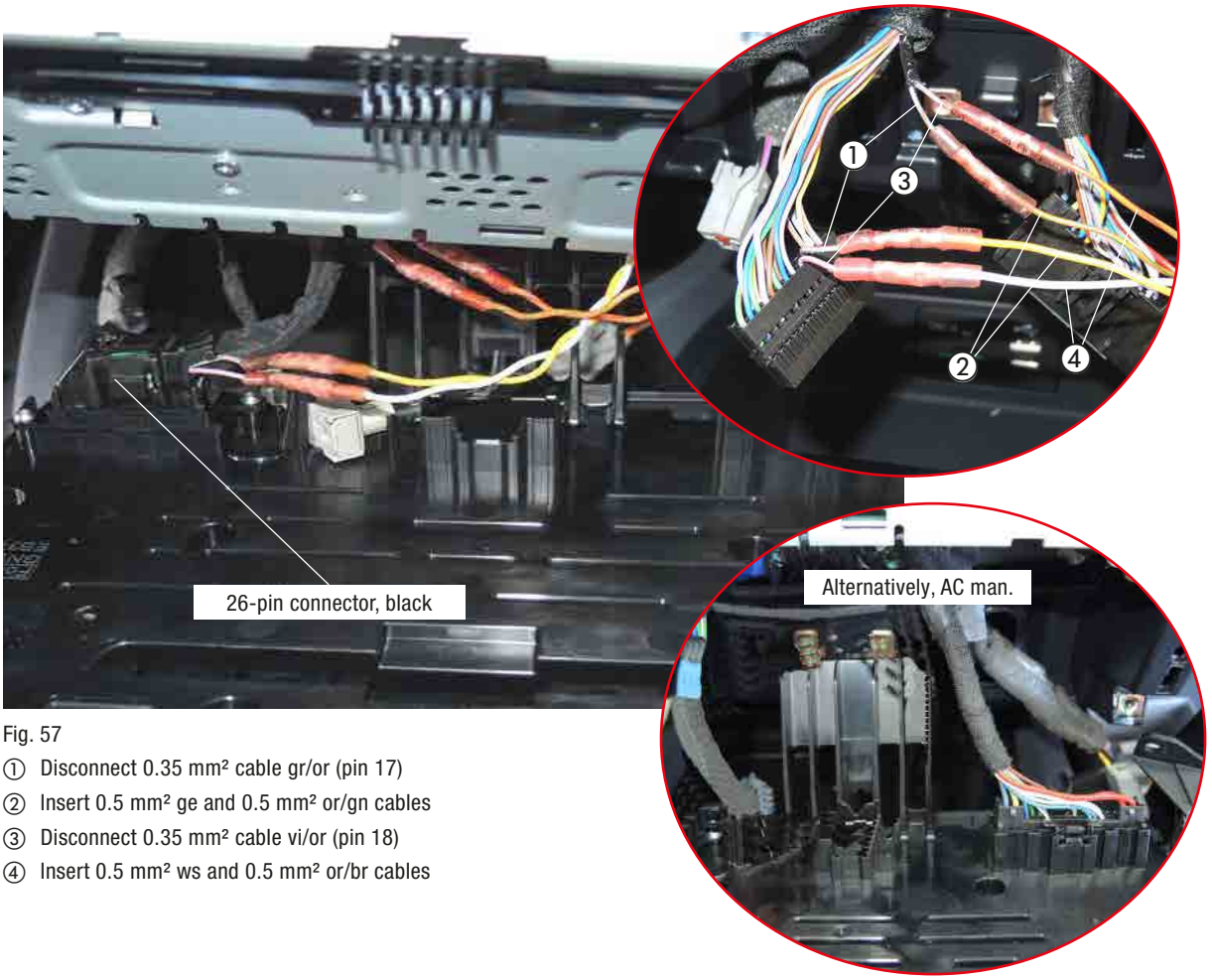


Fig. 57

① Disconnect 0.35 mm² cable gr/or (pin 17)
② Insert 0.5 mm² ge and 0.5 mm² or/gn cables
③ Disconnect 0.35 mm² cable vi/or (pin 18)
④ Insert 0.5 mm² ws and 0.5 mm² or/br cables

4 INSTALLATION

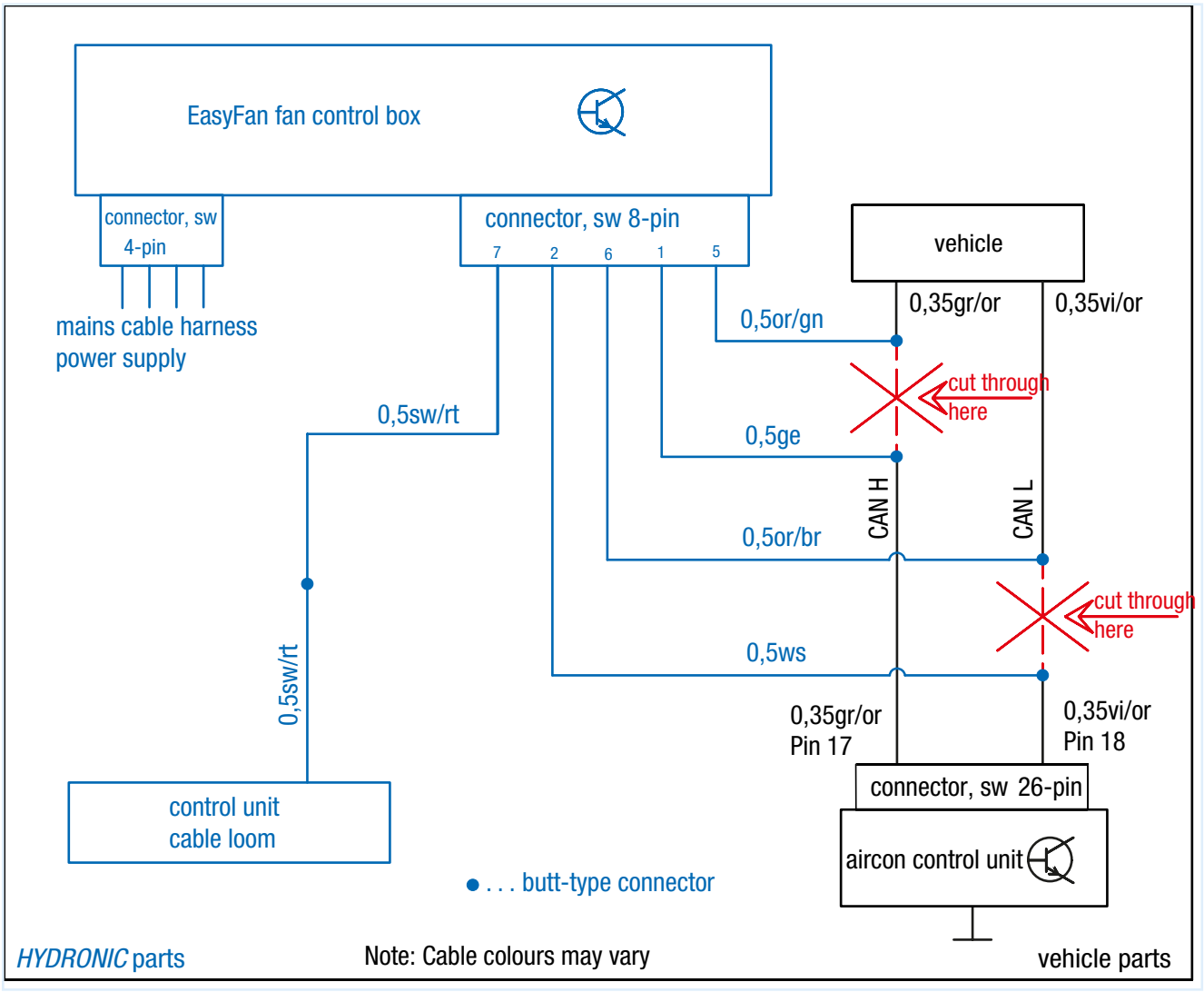


Fig. 58

POWER SUPPLY
(see Fig. 59)

Lay the 4 mm² rt positive cable to the vehicle battery and connect with the A8 cable lug to the positive terminal as shown.

Lay the 2.5 mm² br earth cable to the vehicle battery and connect with the A6 cable lug to the negative terminal as shown.

Fig. 59
① Positive cable
② Negative cable

4 INSTALLATION

INSTALL EASYSTART REMOTE+ RADIO REMOTE CONTROL
(Alternative suggestion - consult with the customer)
(see Figs. 60 to 62)

The EasyStart Remote+ is installed according to the Technical Description for the EasyStart Remote+ Radio Remote Control; see the “Installation Instructions” section.

Mount the button of the EasyStart Remote+ to the trim moulding on the left next to the steering wheel.
To do so, drill a 10 mm Ø hole and insert the button in the hole.

Fig. 60
① Mount the button of the EasyStart Remote+

Fit the EasyStart Remote+ temperature sensor to the steering column trim in the footwell on the driver's side.

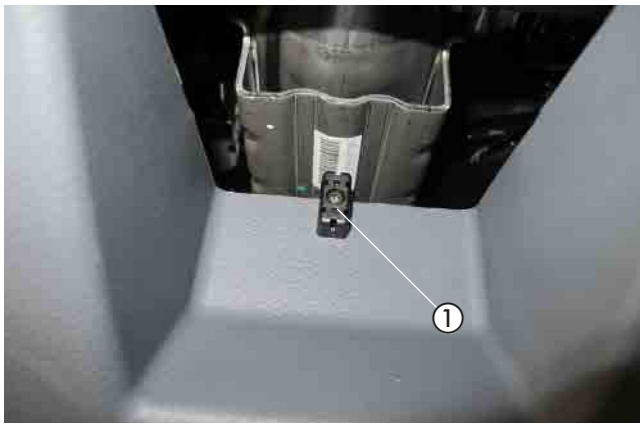


Fig. 61
① Mount the temperature sensor of the EasyStart Remote+

Mount the stationary part of the EasyStart Remote+ between the vehicle's two cable looms behind the A-pillar cover in the footwell on the driver's side using the two cable ties as shown.

Connect the antenna cable of the EasyStart Remote+ to the stationary part, take it to the left and lay it in the rubber door seal on the driver's side.

Lay the cables from the installed button and temperature sensor together with the “Control unit” cable loom to the installed position of the stationary part and connect to the stationary part.

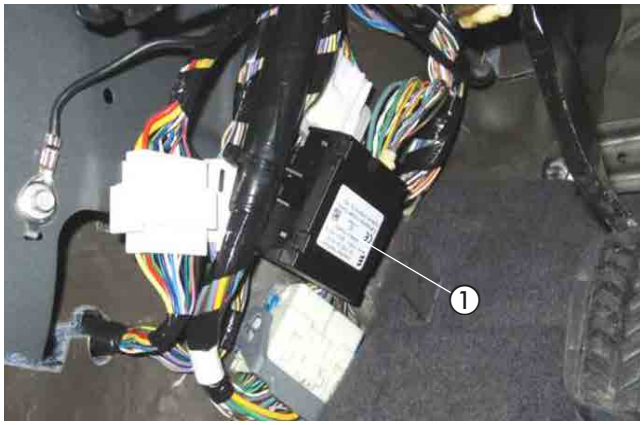


Fig. 62
① Mount the stationary part of the EasyStart Remote+

⚠ CAUTION!
Use cable ties to fix any excessive length of antenna cable underneath the instrument panel.

5 FOLLOWING INSTALLATION

POSITION LABEL
(see Fig. 63)

Stick the “Refuelling” information sticker in the tank flap as shown.

Fig. 63
① “Refuel” label

COMPLETE THE VEHICLE

- Install all removed parts in the reverse order.
- Reconnect the battery.
- Check that the hoses, hose clips and pipe clamps as well as all electrical connections are fitted securely.
- Use cable ties to secure all loose cables, lines, etc.
- Restore all the vehicle's programmed settings (radio, window lift, etc.).
- Fill the cooling system, start the engine, vent the cooling system and check for leaks, top up any missing cooling liquid up to the marking (arrow).
- Stick the “Refuelling” information sticker in the tank flap.
- Please also note and follow the vehicle manufacturer's information on filling and venting the cooling system.
- Read and observe all official regulations and safety instructions in the Technical Description.
- Program the control unit and place the operating instructions in the glove compartment.

CAUTION!
Fill the cooling system only with the coolant liquid specified by the vehicle manufacturer.

STARTING UP THE HEATER

- Switch on the heater at the control unit.
  See Operating Instructions - Control.

6 PARTS OVERVIEW

Fig. 64

INITIAL COMMISSIONING (EASYSTART REMOTE+)

CARRY OUT INITIAL COMMISSIONING
For initial commissioning, the following steps must be carried out one after the other.

INSERT THE BATTERY INTO THE MOBILE UNIT
Insert the supplied battery in the mobile unit, as described in the EasyStart Remote+ operating instructions, in the “Maintenance / Replacing the Battery” chapter. Do not activate the mobile unit yet.

APPLYING THE OPERATING VOLTAGE
The operating voltage is applied by inserting the fuse into the fuse holder.

AUTOMATIC DETECTION
Five seconds after applying the operating voltage the button's LED starts to light up. The radio remote control now checks which heater is connected and configures the user prompting of the mobile unit.

TEACHING THE MOBILE UNIT
If the button's LED starts to flash, the mobile unit can be taught.

NOTE ON THE ADD TEACHING MODE
The **Add** function can be used to teach up to 4 mobile units to one stationary unit; but only one mobile unit can make contact with the stationary unit

Notes on the AddE teaching mode
The **AddE** is only used to teach the current mobile unit. All previously taught mobile units are deleted.

PLEASE NOTE!

If the mobile unit is not taught within 30 seconds, the button's LED indicator goes out.
Press the button until the LED starts to flash. Then teach the mobile unit.

TEACH MOBILE UNIT - ADD TEACH MODE

Press the or button, Add is displayed.

Confirm Add teach mode by pressing the button.

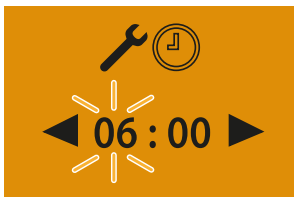
Teach mobile unit - AddE teach mode
Use the or button to select **AddE**.

Confirm AddE teach mode with the button.

INITIAL COMMISSIONING (EASYSTART REMOTE+)

AFTER CONFIRMING ADD OR ADDE

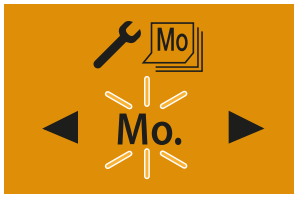
SET THE TIME
Use the ◄ or ► button to set the hours



Press the ▭ button to confirm the setting

Use the ◄ or ► button to set the minutes

- Press the ▭ button to confirm the setting
- Set weekday: Use the ◄ or ► button to set the weekdays



Press the ▭ button to confirm the setting. Then configure the EasyStart Remote+.

TEACH AN ADDITIONAL MOBILE UNIT
Press the button installed in the vehicle until the button's LED starts to flash.
Press the ▭ or ▭ button on the mobile unit, **Add** is displayed.

Confirm teach mode with the ▭ button.

The additional mobile unit is taught.

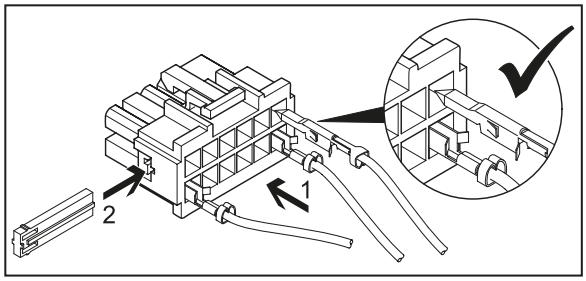
CONFIGURE EASYSTART REMOTE+

The system must be configured according to its use.

PIN CONFIGURATION (EASYSTART REMOTE+)

CONNECTING THE CONNECTOR HOUSING TO THE STATIONARY PART

Attach the tab connector to the control unit lead harness.
Clip the control unit lead harness and the button lead harness into 12-pin connector housing.
(Connector housing pin assignment)
Push the contact locking device into the connector housing.
Connect the 12-pin connector housing to the stationary part.



PLEASE NOTE!

- When installing the connector, ensure that the locking tongues always face the middle of the connector. Only in this position do the tongues latch into the housing (see sketch).

PIN ASSIGNMENT AT THE STATIONARY PART

PIN	SIGNAL	CABLE COLOUR
1	Terminal 30 (plus)	red
2	-	
3	Terminal 31 (minus)	brown
4	JE diagnostics / DAT cable	blue / white / vi
5	-	
6	Button LED (+)	red / yellow
7	Button (+)	brown / yellow
8	Button (-)	brown
9	Temp (-)	brown / white
10	Temp (+)	grey
11	-	
12	-	

Connector housing chamber assignment -XB12 (assignment seen from the cable inlet side)

DIAGNOSTICS

EASYSTART TIMER / REMOTE+ WORKSHOP MENU

The service functions listed in the following can be displayed, read out and / or changed via the vehicle workshop menu.

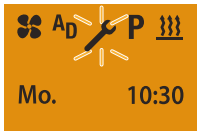
NOTE!

- A reset (remove 5A fuse) is necessary to activate some functions. To do this, not and follow the relevant note under “Comments” of the “Service functions overview”.
- To correct the fault, refer to the heater's repair instructions.

OPENING THE VEHICLE WORKSHOP MENU

Display ON, the Start display appears.

Use the ◄ or ► button to select the 🔧 symbol in the Menu bar.



Confirm the SETTINGS menu item by pressing the ▭ button.

Press the ▭ LONGPRESS button for longer than 5 sec.; the Workshop menu is displayed.

Press the ◄ or ► button to select the required function, e.g. »2: Select temperature unit, °C or °F« and confirm by pressing the ▭ button.

Use the ◄ or ► button to select the temperature units °C or °F.

Press the ▭ button to confirm the selection.

Press the ▭ button to exit the workshop menu.

SERVICE FUNCTIONS OVERVIEW

Menu item	Service function	Comments
1.1.1:	Heater 1 – display current fault	The heater must be switched on to detect current faults. “no diag” is displayed if no diagnostics cable is connected.
1.1.2:	Heater 2 – display current fault	The heater must be switched on to detect current faults. “no diag” is displayed if no diagnostics cable is connected.
1.2.1:	Heater 1 – read out fault memory F1 – F5	Display fault memory F1 – F5 with error code, e.g.: F1: 12. “no diag” is displayed if no diagnostics cable is connected.
1.2.2:	Heater 2 – read out fault memory F1 – F5	Display fault memory F1 – F5 with error code, e.g.: F1: 12. “no diag” is displayed if no diagnostics cable is connected.
1.3.1:	Heater 1 – delete fault memory F1 – F5	Select the delete → function by pressing the ▭ button, the DEL display appears, flashing, press the ▭ button to confirm. “no diag” is displayed if no diagnostics cable is connected.
1.3.2:	Heater 2 – delete fault memory F1 – F5	Select the delete → function by pressing the ▭ button, the DEL display appears, flashing, press the ▭ button to confirm. “no diag” is displayed if no diagnostics cable is connected.
1.4.1:	Heater 1 – read out operating hours counter	Operating time is displayed in minutes. “no diag” is displayed if no diagnostics cable is connected.
1.4.2:	Heater 2 – read out operating hours counter	Operating time is displayed in minutes. “no diag” is displayed if no diagnostics cable is connected.

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