INSTALLATION RECOMMENDATION
HYDRONIC S3 – D 5 E IN THE ISUZU D-MAX



THIS INSTALLATION RECOMMENDATION APPLIES TO VEHICLES FROM MODEL YEAR 2020 WITH THE FOLLOWING MOTORISATION:

1.9 l cubic capacity / 4 cylinder in-line engine / 120 kW - 163 HP

A WORLD OF COMFORT

Eberspächer

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This installation recommendation documents the installation of the Hydronic S3 heater in a vehicle of model year 2020 with the following equipment:

- **with 2-zone automatic AirCon**
- **with 6-gear manual gearbox or automatic gearbox**
- **Single Cab, Space Cab or Double Cab**

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. 7 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
1.9 l	120 / 163	6S
1.9 l	120 / 163	6A

6S = 6-gear manual gearbox

6A= 6 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 - D 5 E	25 2934 05 0000
1	Vehicle-specific installation kit	24 8000 35 0105
EasyStart control unit as chosen:		
1	EasyStart Web	22 1000 34 7800
1	EasyStart Remote+	22 1000 34 1700
1	EasyStart Remote	22 1000 34 8100

SPECIAL TOOLS REQUIRED

- Necessary torque wrench
- Anti-corrosion agent
- Crimping tool

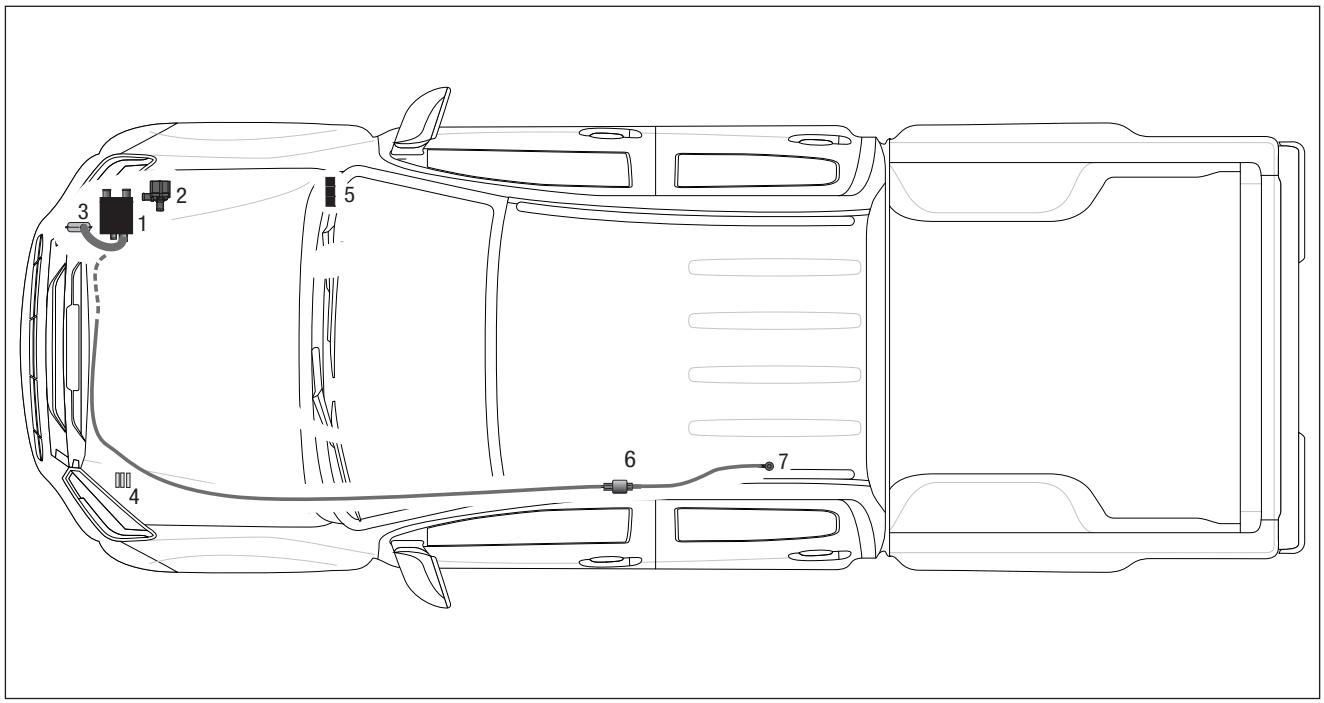
TIGHTENING TORQUES

If no tightening torques are specified, tighten the screw connections 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
M4 x 16 screw	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 Water pump
3 Exhaust silencer
4 Fuse holder
5 Fan relay / IPCU / change-over relay
6 Metering pump
7 Tank extractor

2 PRELIMINARY ASSEMBLY

PREPARATORY WORK ON THE VEHICLE

- Disconnect the battery
- Remove glove compartment
- Remove radio with trim
- Dismantle the front bumper
- Remove the sub-cowling
- Depressurise the cooling system
- Drain coolant into a clean container
- Remove tank or drain at least 20 cm

PREPARE HEATER
(see Figs. 1 and 2)

Mount the elbowed water connection socket to the heater as shown.

Remove the duplicate nameplate from the heater.



Fig. 1
① Heater prepared with 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 gearing engages again
- Fasten sensor cover with M5 x 18 (1) screw
  (tightening torque $6.5^{+0.5}$ Nm).

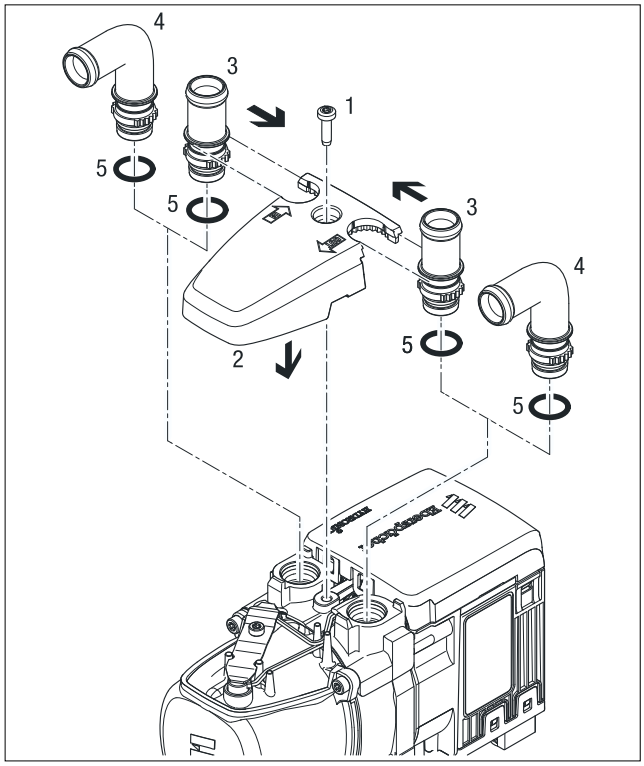


Fig. 2
1 M5 x 18 screw
2 Sensor cover
3 Connection socket, straight
4 Angled connection socket
5 O-ring

2 PRELIMINARY ASSEMBLY

PRE-ASSEMBLE THE UNIT BRACKET
(see Fig. 3)

Mount the unit bracket to the holding plate using 4 M6 x 12 screws as shown.

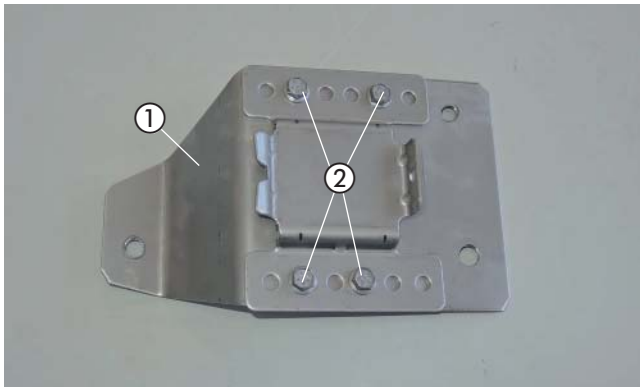


Fig. 3
① Holding plate
② Unit bracket mounted

PREMOUNT WATER PUMP
(see Fig. 4)

Fit the holder (5701) to the water pump holder as shown.

Insert the water pump in the water pump holder.

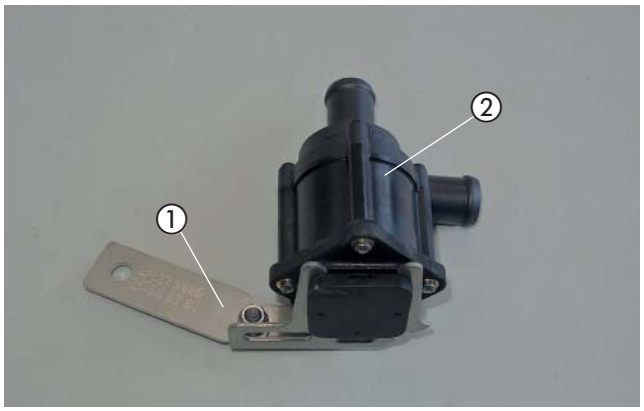


Fig. 4
① Bracket 5701
② Water pump preassembled

PREMOUNT METERING PUMP
(see Fig. 5)

Fasten the holder 22 1000 50 7000 with an M6 x 25 screw and a B6 body washer to the rubber holder of the metering pump and align as shown.

Insert the metering pump in the rubber holder as shown.

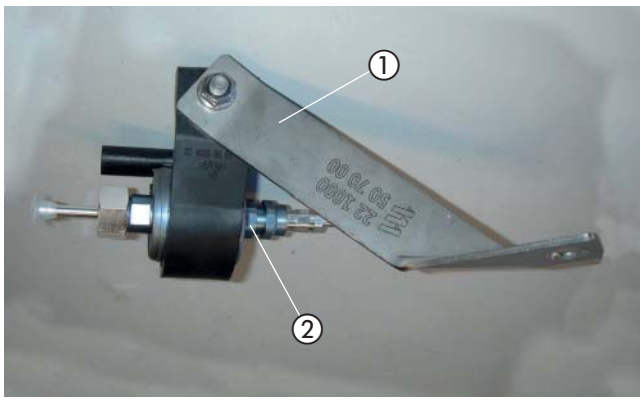


Fig. 5
① Holder 22 1000 50 7000
② Metering pump inserted in rubber holder

2 PRELIMINARY ASSEMBLY

PREMOUNT FUSE BLOCK HOLDER
(see Fig. 6)

Fasten the fuse block to the fuse block holder using two M4 expanding plastic rivets as shown.

Fasten the diagnostic connector to the connector holder and insert in the holder.

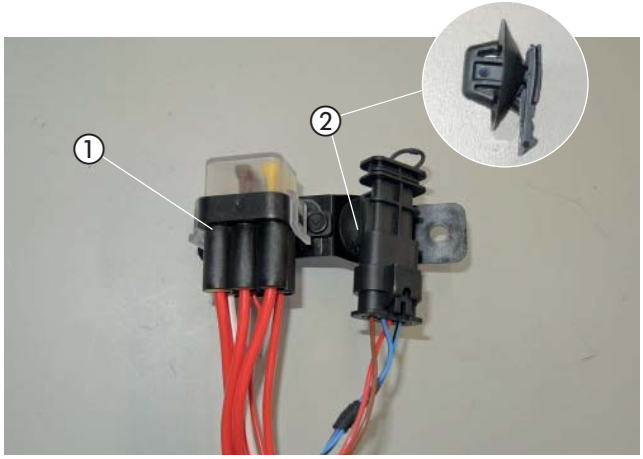


Fig. 6
① Fuse block mounted on the holder
② Connector holder with diagnostic connector

PREMOUNT THE STATIONARY PART OF THE CONTROL UNIT
(see Figs. 7 and 8)

FOR INSTALLATION OF RADIO REMOTE CONTROL EASYSTART REMOTE/ REMOTE+

Mount the stationary part of the radio remote control to the holder using two M4 x 10 screws as shown.

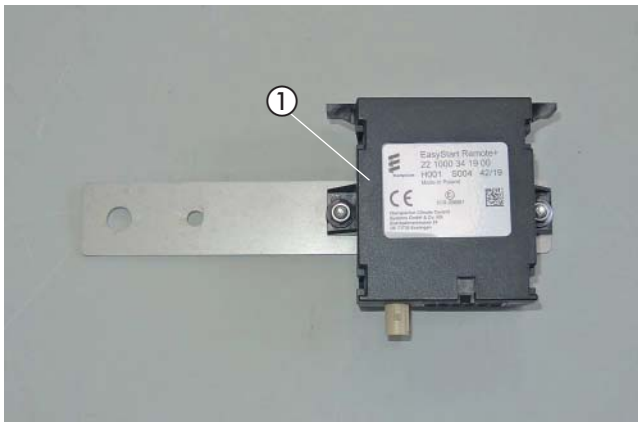


Fig. 7
① Stationary part EasyStart Remote/Remote+

FOR INSTALLATION OF EASYSTART WEB RADIO REMOTE CONTROL

Mount the stationary part of the EasyStart Web to the holder using two M4 x 10 screws as shown.



Fig. 8
① Stationary part EasyStart Web

4 INSTALLATION

MOUNT HEATER AND CONSUMPTION AIR PIPE
(see Figs. 9 and 10)

The installation position for the heater is in the right front corner of the engine compartment below the headlight.

Mount the prepared unit bracket at 3 fixing points.
- existing M6 stud bolt with M6 nut
- behind radiator holder with existing M8 screw
- existing 10 mm Ø hole with M8 x 30 screw and spacer sleeve

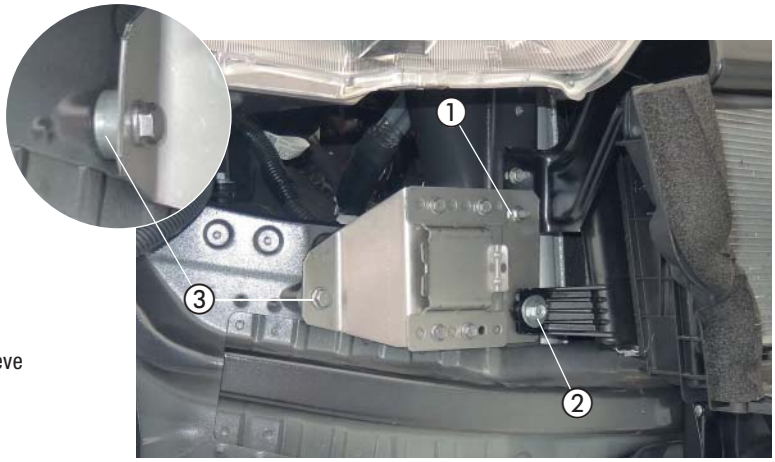


Fig. 9
① Existing M6 stud bolts
② M8 screw, radiator holder
③ 10 mm Ø drilled hole with M8 x 25 screw and spacer sleeve

Insert the heater in the unit bracket and fasten to the heater with a self-threading M6 x 16 Torx screw.

Connect the combustion air pipe to the heater using a 16 - 25 mm Ø hose clip and lay it behind the bumper beam.

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.

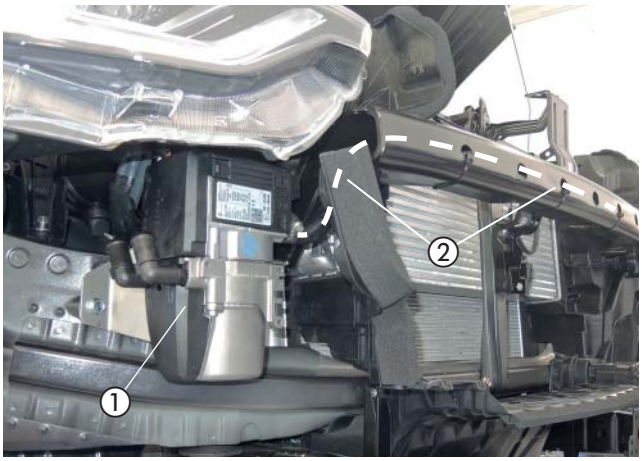


Fig. 10
① Mounted heater
② Laying combustion air pipe

INSTALL THE EXHAUST
(see Figs. 11 and 12)

Insert an M8 blind rivet nut in the existing hole on the outside of the chassis beam as shown.

PLEASE NOTE!
Alternatively, the front cross member can be dismantled to install the exhaust silencer.



Fig. 11
① M6 blind rivet nut inserted

3 INSTALLATION

Mount the exhaust silencer bracket to the inserted blind rivet nut with an M6 x 20 screw.
(Alternatively, mount the exhaust silencer with screw and M8 nut.)

Connect the exhaust pipe to the outlet connection of the heater.

Use a 28 mm Ø clip to support the exhaust pipe end at the free hole in the lower crossbeam.



Fig. 12
① Exhaust silencer installed
② Exhaust pipe end mounted with 28 mm Ø clip

INSTALL WATER PUMP
(see Fig. 13)

Mount the water pump under the holder of the air filter housing in the right front corner (in front of the air filter housing).

The discharge end points to the front, the intake end points to the left.

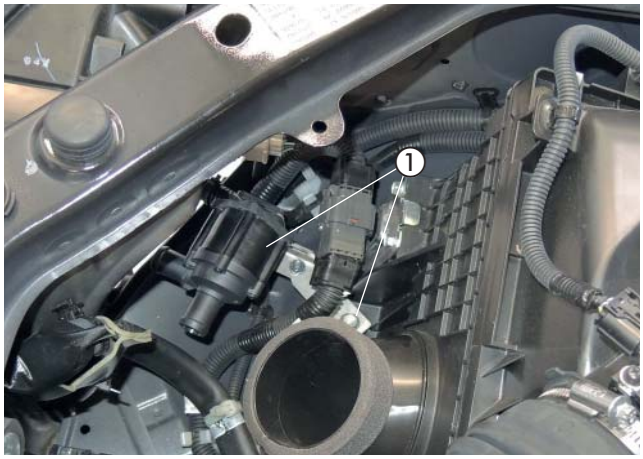


Fig. 13
① Water pump mounted

CUT WATER FLOW HOSE
(see Fig. 14)

Cut the water flow hose from the engine to the heat exchanger (the right-hand connection socket at the heat exchanger) with the dimensions shown.

Turn the hose piece at the connection socket of the heat exchanger through 180°.

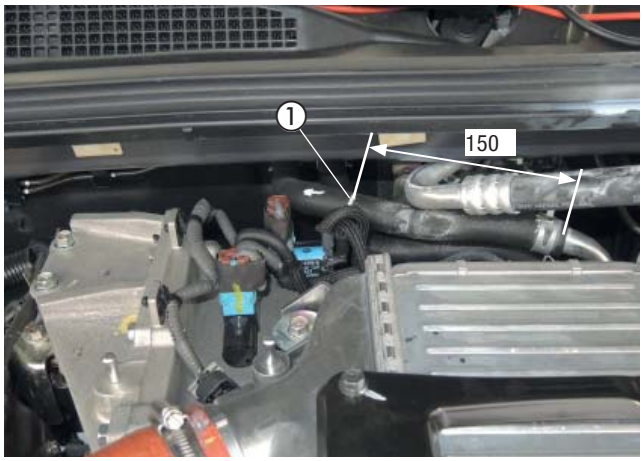


Fig. 14
① Cutting point in the water flow hose

3 INSTALLATION

PREPARE WATER HOSES
(see Fig. 15)

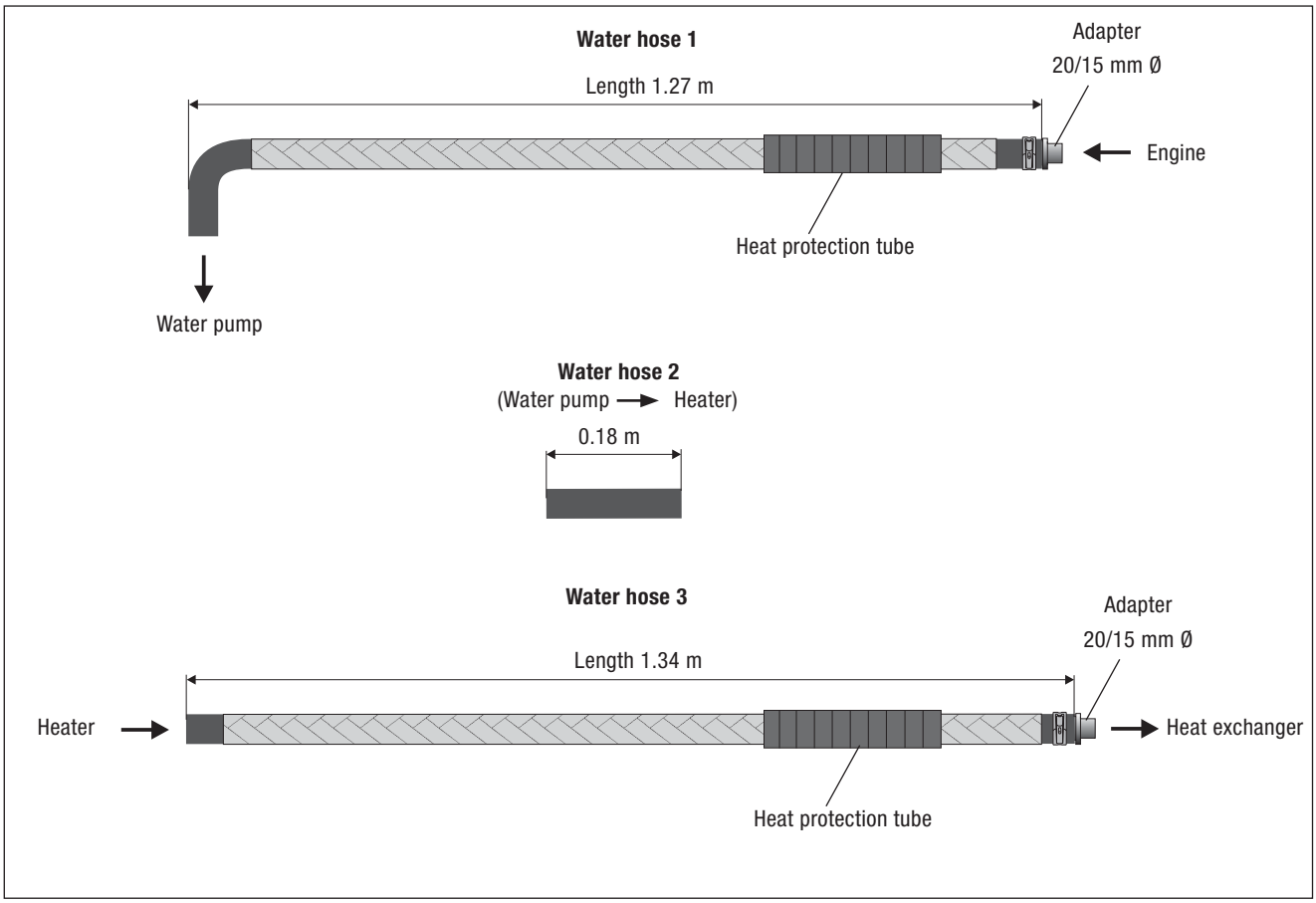


Fig. 15

LAY AND CONNECT WATER HOSES
(see Figs. 16 to 21)

Connect water hose 2 to the discharge end of the water pump and to the water inlet connection of the heater.

Connect water hose 3 to the water outlet connection of the heater.

Lay water hose 3 into the engine compartment.

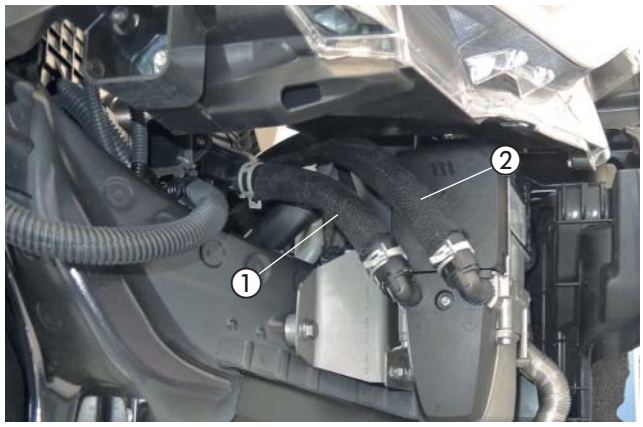


Fig. 16
① Water hose 2
② Water hose 3

3 INSTALLATION

Connect water hose 1 to the intake end of the water pump.

Route water hoses 1 and 3 through the engine compartment to the cutting point.

⚠ CAUTION!
Secure all hose connections with clamps.



Fig. 17
① Water hose 1 connected to water pump

Use the 20/15 mm Ø reducer to connect water hose 1 to the water hose piece to the engine.

Connect water hose 3 with the 20/15 Ø reducer at the water flow connection to the vehicle heat exchanger.

Use rotatable hose holders to fix water hoses.

⚠ CAUTION!
Secure the hose connections to the vehicle's water hoses with screw clamps (20 - 32 mm Ø).

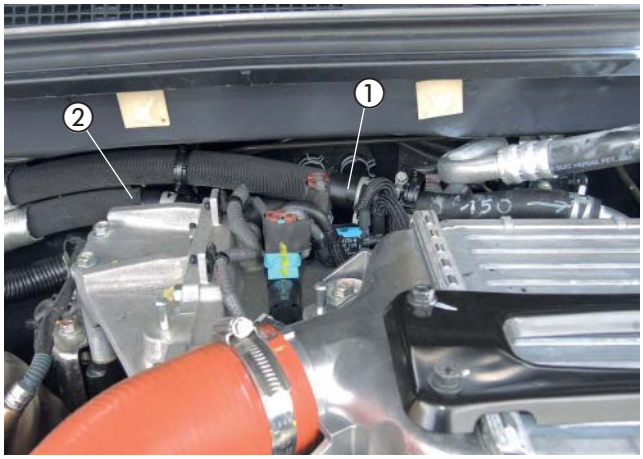


Fig. 18
① Water hose 1 (to engine) connected
② Water hose 3 (to heat exchanger) connected

At the rear fixing point of the air filter housing, also mount the 90° holder (3201) and fix water hose 1 with a rubberised clip.

Use cable ties to fix water hoses 1 and 3.

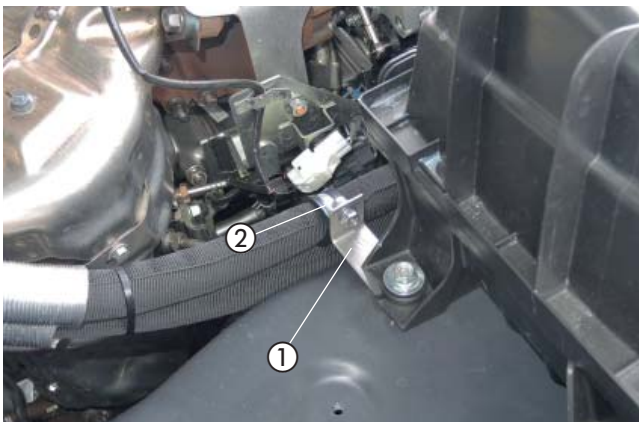


Fig. 19
① 90° holder (3201)
② Rubberised clip

3 INSTALLATION

Lay water hoses 1 and 3 in the engine compartment as shown.

Position the heat protection tube at the exhaust catalytic converter.

⚠ CAUTION!

Secure all hose connections with hose clips.
Protect the water hoses against chafing and use cable ties to secure in suitable positions.

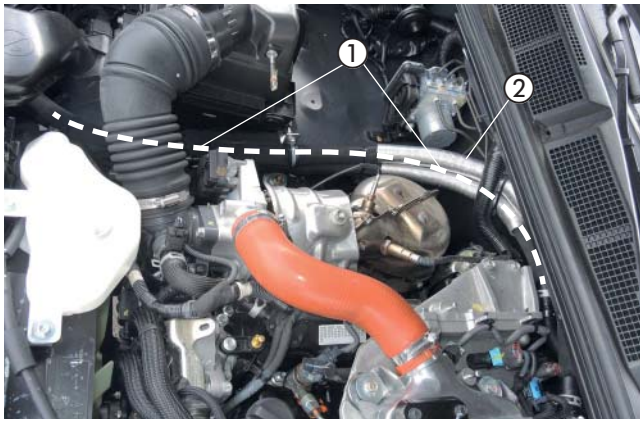
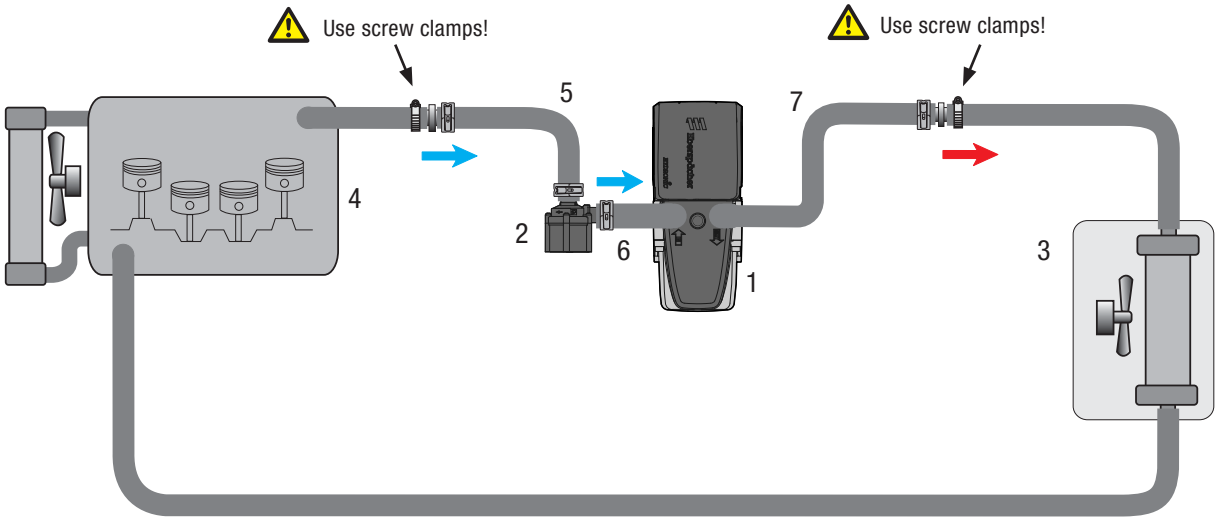


Fig. 20
① Laying water hoses in engine compartment
② Heat protection tube



1 - Heater Hydronic S3
2 - Water pump
3 - Vehicle heat exchanger
4 - Engine
5 - Water hose 1
6 - Water hose 2
7 - Water hose 3
Spring band clamp
Screw clamp

Fig. 21

3 INSTALLATION

INSTALL FUEL TANK EXTRACTOR
(see Figs. 22 to 24)

Remove the fuel tank. Loosen the electric connection and the fuel line from the tank fitting.

Remove the tank fitting from the tank opening by undoing the locking ring.

Drill an 8 mm Ø hole in the top part of the tank fitting with the dimensions shown.

⚠ CAUTION!

When drilling, ensure that no dirt gets into the tank or supply lines.

Introduce the prepared tank extractor through the hole and align as shown.

Screw the tank extractor firmly with the M8 nut.

⚠ CAUTION!
The tank fitting should not be removed for longer than 10 minutes because of expansion of the fuel tank!

Insert the tank fitting in the tank and fasten with the locking ring; ensure the seal fits properly.

Connect the fuel pipe (intake line, length approx. 0.8 m) to the fuel tank extractor using the fuel hose 3.5 x 3 mm Ø.

Connect the plug-in connection and the fuel lines at the tank fitting.

Lay the fuel pipe (intake line) to the installation position of the metering pump in front of the tank.

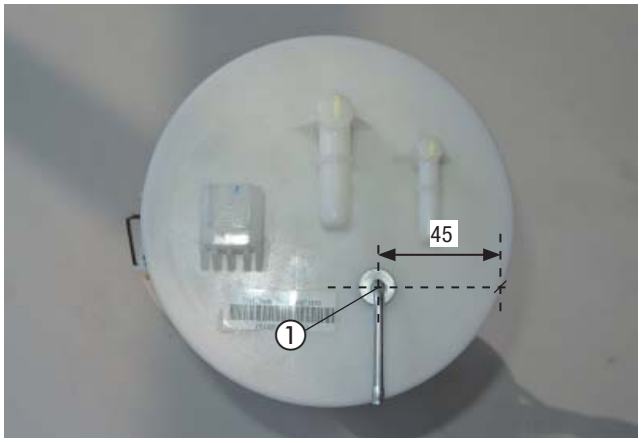


Fig. 22
① Fuel tank extractor installed in the tank fitting

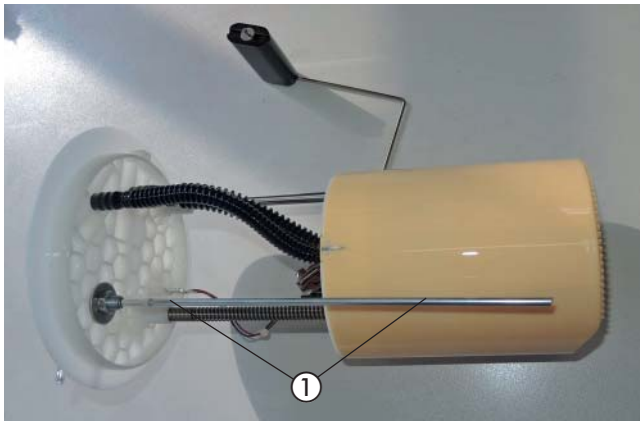


Fig. 23
① Fuel tank extractor mounted

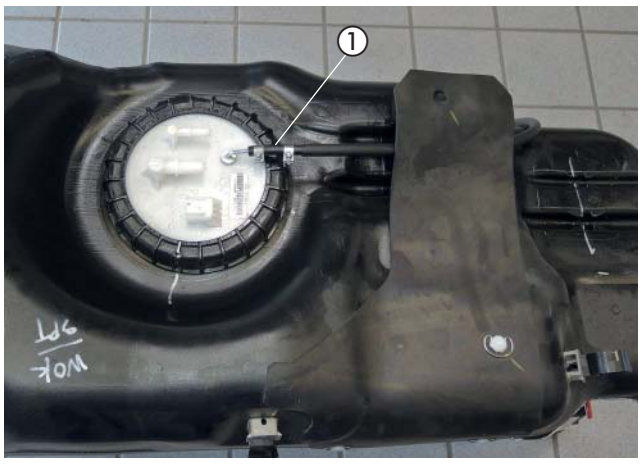


Fig. 24
① Fuel tank extractor connected

3 INSTALLATION

LAY FUEL LINE
(see Figs. 25 and 26)

Connect the prepared fuel pipe (delivery line) to the heater using the 105° fuel pipe elbow.

Take the fuel pipe together with the metering pump cable at the radiator support along the vehicle's cable loom to the left side of the vehicle.



Fig. 25
① Laying fuel line in engine compartment

Lay the fuel pipe (delivery line) and metering pump cable to the vehicle underbody.

Then continuing along the vehicle underbody to the metering pump (in front of the fuel tank) and fasten with cable ties.

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

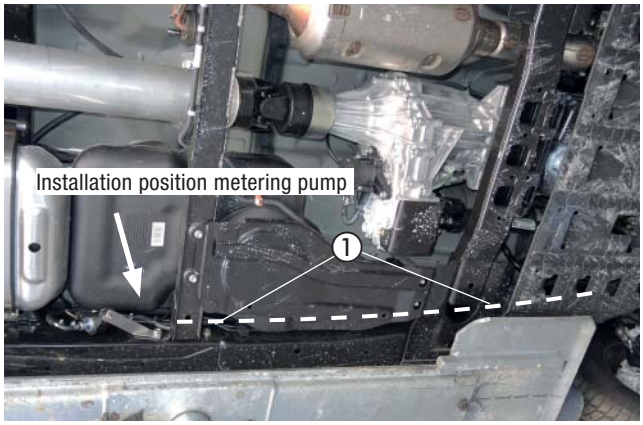


Fig. 26
① Laying underfloor fuel line

CONNECT METERING PUMP
(see Fig. 27)

Mount the prepared metering pump with the holder to the crossbeam from the frame on the left side in front of the tank, using the existing M10 screw.

Ensure it is installed with at least a 15° rising gradient on the pressure side. The discharge end of the metering pump points towards the front.

Lay the fuel pipe (intake line) from the tank connection to the metering pump and connect to the intake end of the metering pump with a 105° fuel pipe elbow.

Connect the fuel pipe (delivery line) from the heater to the discharge end of the metering pump using the 3.5 x 3 mm Ø fuel hose.

Slot the plug-in contacts of the metering pump cable into the mating connector regardless of polarity. Connect the connector to the metering pump.

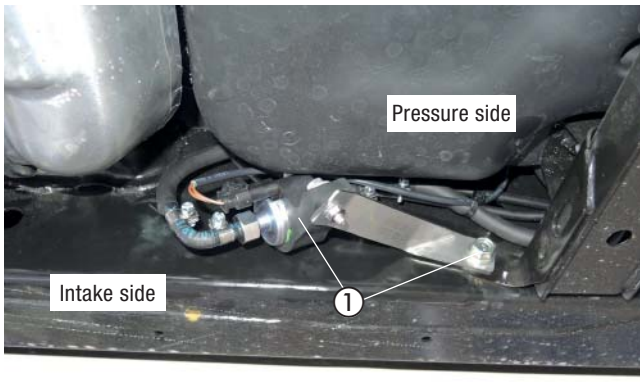
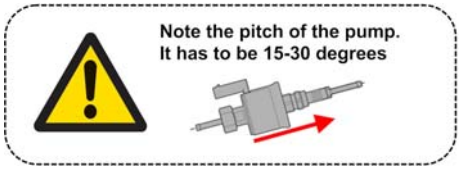


Fig. 27
① Metering pump installed and connected



3 INSTALLATION

LAY CABLE AND MOUNT FUSE HOLDER
(see Figs. 28 to 30)

Connect the main cable loom plugs to the heater.

Connect metering pump cable and water pump cable loom.

Take the fuse holder cable loom along the radiator support to the left side of the vehicle and take the vehicle interior cable loom to the right to the engine partition.

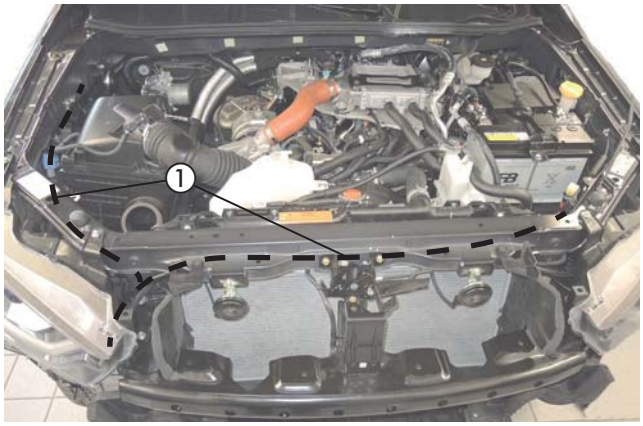


Fig. 28
① Laying cable loom in engine compartment

Mount the prepared fuse holder behind the left headlight to the existing M6 stud bolt.



Fig. 29
① Mounted fuse holder

Route the vehicle interior cable loom consisting of:
- 4 mm² ws/rt cable and 0,5 mm² sw/rt cable
- control unit cable loom

through the vehicle cable grommet on the right 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. 30
① Cable loom laid in the interior

3 INSTALLATION

FAN CONTROL WITH AUTOMATIC AIRCON
(see Figs. 31 to 37)

Drill open the hole in the holder for the relay cable set to 8.5 mm Ø.

Use 2 M4 x 10 screws to mount the relay block to the holder.

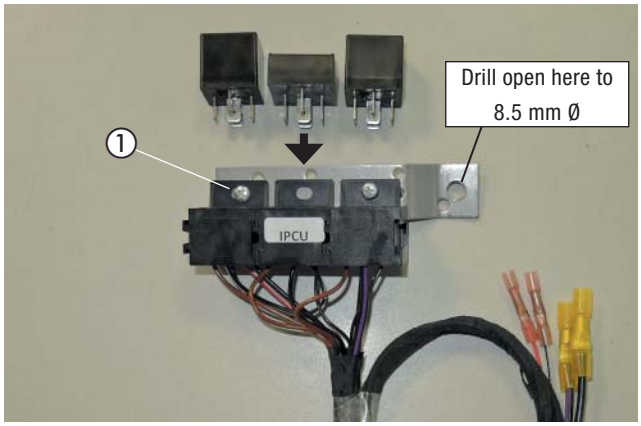


Fig. 31
① Relay block mounted to the holder

Insert the 4.0 mm² ws/rt cable from the main cable harness in the remaining free slot 87 of the fan relay.

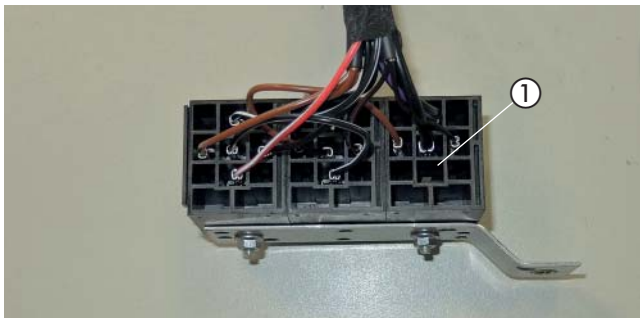


Fig. 32
① Fan relay slot 87

Mount the relay block with the holder on the right-hand side to the A-pillar, using the existing M8 screw.

Insert the relays and IPCU.

Fit a receptacle to the 0.5 mm² sw/rt cable from the main cable harness and connect to the plug-in contact of the relay block (alternatively with the red butt-type connector).

Connect the earth cable from the relay block to the earthing point.



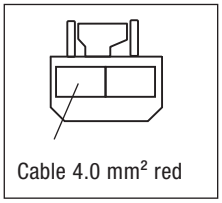
Fig. 33
① Relay block installed

3 INSTALLATION

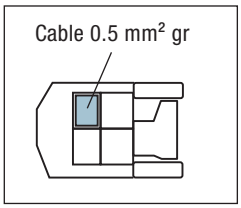
At the 2-pin white connector from the fan motor, disconnect the 4.0 mm² red cable and connect the 4 mm² sw and 4 mm² sw/vi cables using two butt-type connectors (yellow) as shown in the circuit diagram.

At the 4-pin white connector from the fan module, disconnect the 0.5 mm² grey cable (pin 4) and connect the 1 mm² sw/ws and 1 mm² rt/ws cables using two butt-type connectors (red) as shown in the circuit diagram.

2-pin connector, fan motor
View from the cable side



4-pin connector, fan module
View from the cable side



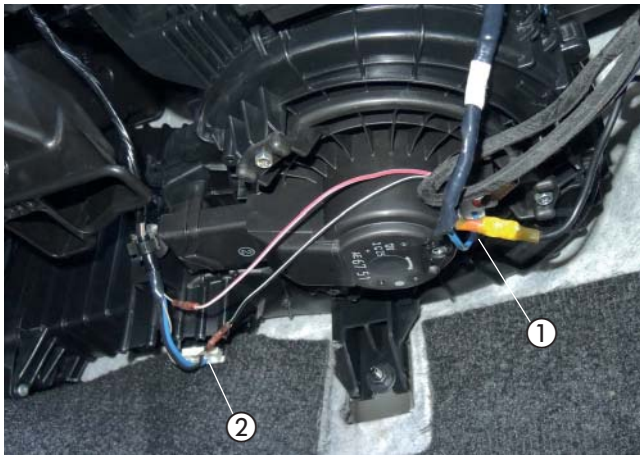


Fig. 34
① 2-pin connector to the fan motor
② 4-pin connector to the fan module

Fit a receptacle to the long 0.5 mm² sw/rt cable from the diode loom and connect to the plug-in contact of the relay block (alternatively with the red butt-type connector).

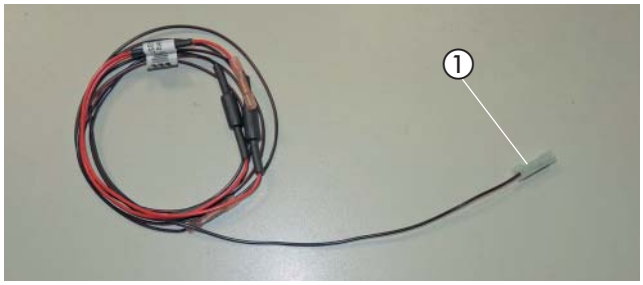
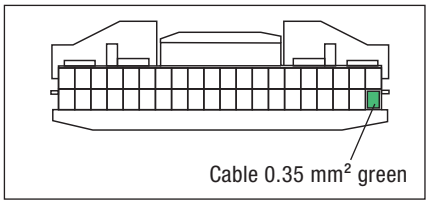


Fig. 35
① Receptacle prepared with housing, diode loom

Take the diode loom to the 40-pin connector behind the aircon control.

Disconnect the gn cable at the 40-pin connector from the aircon control and connect the diode loom as shown in the circuit diagram.

40-pin connector, aircon control
View from the cable side



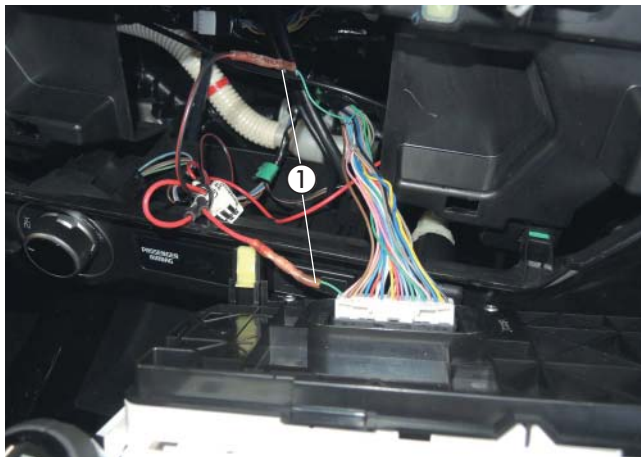


Fig. 36
① Diode loom inserted in 40-pin connector (green cable)

CAUTION!
The cable colours may vary!

3 INSTALLATION

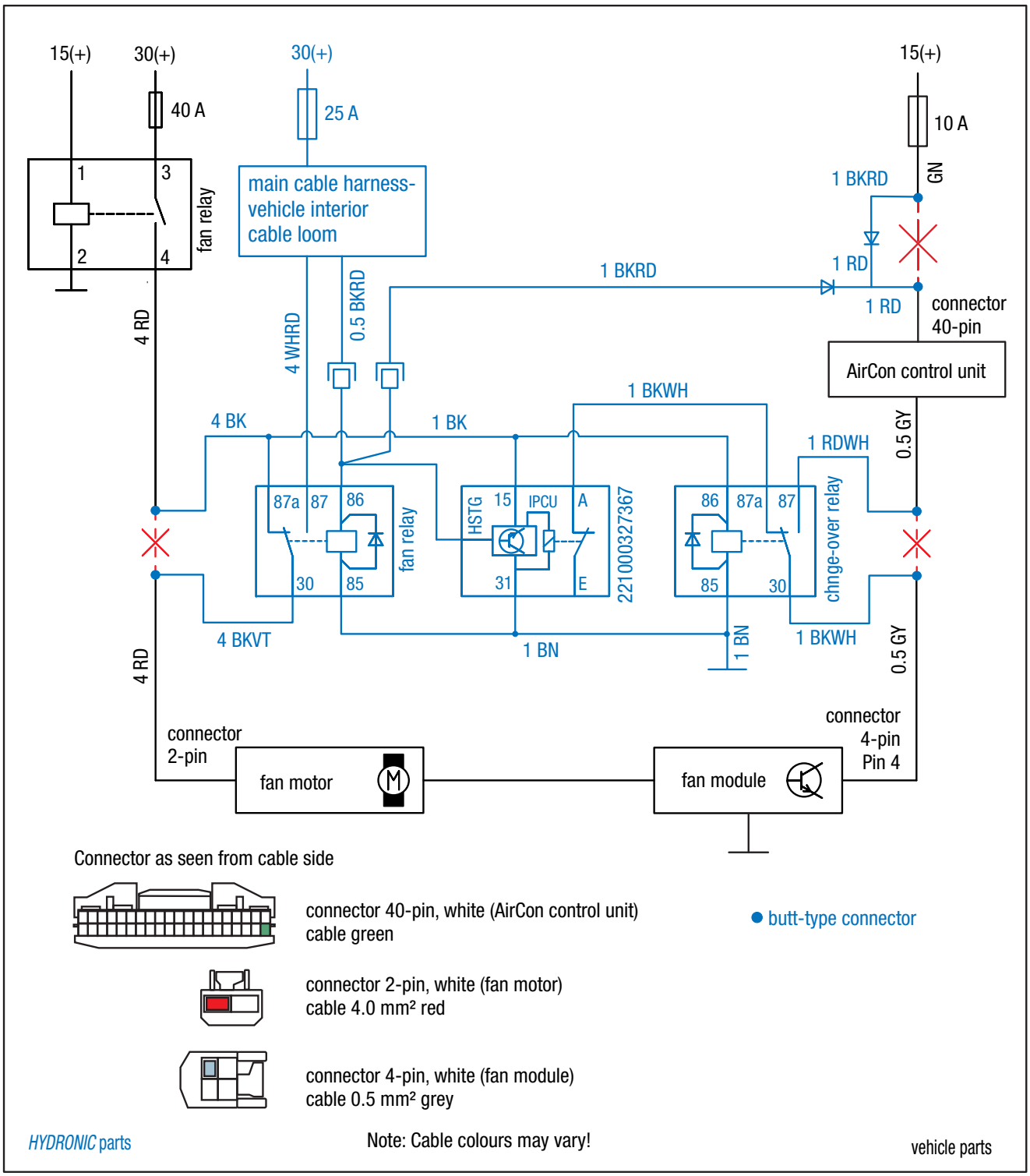


Fig. 37

3 INSTALLATION

INSTALL EASYSTART REMOTE / REMOTE+ / WEB CONTROL UNIT
(Alternative suggestion - consult with the customer)
(see Figs. 38 to 40)

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

Mount the button of the control unit on the right next to the steering wheel.

To do so, drill a 10 mm Ø hole and insert the button in the drilled hole.



Fig. 38
① Mounted control unit button

Mount the stationary part for the remote control to the existing hole above the glove compartment.

Take the cables from the control unit cable loom and from the button to the installation site of the stationary part and connect to the stationary part.

FOR INSTALLATION OF AN EASYSTART REMOTE/REMOTE+ RADIO REMOTE CONTROL

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

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

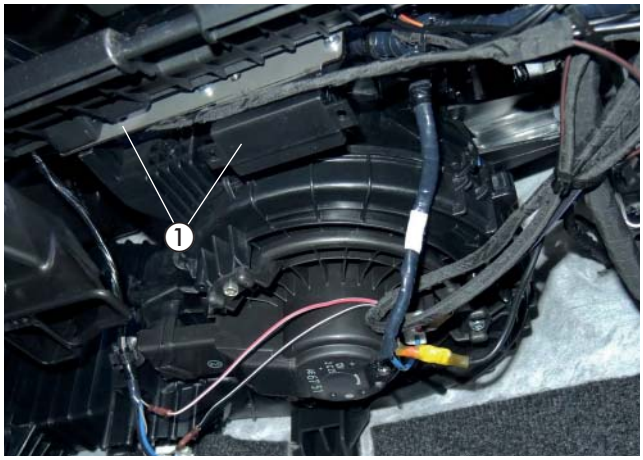


Fig. 39
① Stationary part mounted to the right of the fan motor

Attach the temperature sensor of the control unit to the trim moulding on the A-pillar in the footwell on the passenger side.

Take the cables from the temperature sensor to the installation site of the stationary part and connect to the stationary part.

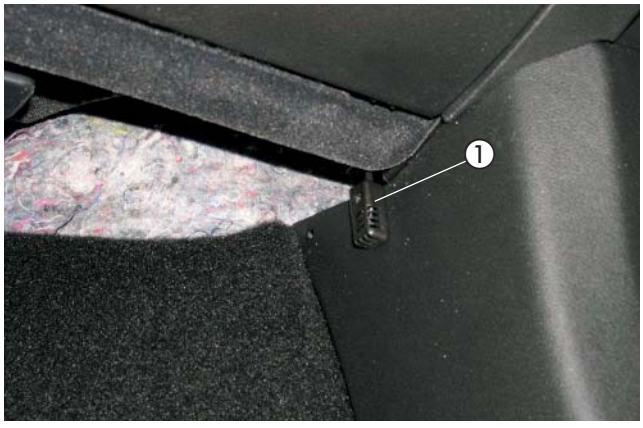


Fig. 40
① Temperature sensor

4 FOLLOWING INSTALLATION

MOUNT BUMPER
(see Figs. 41 and 42)

Mount the front bumper in position again.

Position the exhaust pipe end as shown.



Fig. 41
① Exhaust pipe end

Ensure there is an adequate distance between the exhaust pipe end and plastic parts (min. 10 mm).

⚠ CAUTION!
If the distance is less than 10 mm, cut away the plastic parts on the vehicle to avoid any contact.



Fig. 42
① Heed distance, cut away plastic parts if necessary

FIT DUPLICATE NAMEPLATE
(see Fig. 43)

Affix the duplicate nameplate of the pre-heater to the B-pillar as shown.



Fig. 43
① Duplicate nameplate

4 FOLLOWING INSTALLATION

ADHERE THE “REFUELLING” STICKER
(see Fig. 44)

Adhere the “Refuel” label inside the fuel tank flap as shown.



Fig. 44
① Sticker “refuelling”

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 coolant liquid.
- 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.
- Put the customer leaflet 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 Unit.

5 PARTS OVERVIEW



Fig. 45

LEAFLET FOR THE CUSTOMER

BEFORE SWITCHING ON
IN VEHICLES WITH AUTOMATIC AIR-CON
(see Fig. 1)

- Adjusting the settings in the aircon control before switching the heater on or preprogramming it with the ignition on.
- Adjust the temperature sensor ① to “Hot” (maximum setting).
- Set the control for the air flow ② to the windscreen (maximum air flow to the windscreen).
- The fan speed does not need to be pre-set.



Fig. 1
① Temperature controller
② Controller for the air flow

PLEASE NOTE!

- Switch the pre-heater on at least once a month for about 10 minutes, also in the summer months!
  This will ensure that it works properly during the season!
- We recommend adjusting the heating time to the driving time: Driving time > heating time.

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