INSTALLATION RECOMMENDATION
HYDRONIC II-D 5 S IN SsangYong KORANDO (CK)



THIS INSTALLATION RECOMMENDATION APPLIES TO VEHICLES FROM MODEL YEAR 2015 UP TO THE CURRENTLY AVAILABLE VEHICLE MODEL WITH THE FOLLOWING MOTORISATION:

2.2 l cubic capacity / 4 cylinder in-line engine e-XDi / 131 kW - 178 HP (HSN: 8251 / TSN: ACW, ACV)

The brochure "Important Information for Operating Your Pre-Heater" enclosed with the installation kit provides the customer with information on operating the unit.

Please give the customer this brochure when handing over the vehicle, or place it safely in the vehicle.

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This installation recommendation documents the installation of the Hydronic II heater in a vehicle of model year 2015 with the following equipment:

- **with automatic air-conditioning**
- **with fog lamps**
- **with manual gearbox or**
- **with automatic gearbox**
- **with four-wheel drive (4WD)**

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. 6.5 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 machinery.

➔ 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 in 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
2.2 l e-XDi 4WD	131 / 178	6S / AT

AT = 6-speed automatic gearbox
6S = 6-gear manual transmission

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.

SPECIAL TOOLS REQUIRED

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

PARTS REQUIRED FOR INSTALLATION

QUANTITY	DESIGNATION	ORDER NO.
1	Hydronic II D 5 S	25 2620 05 00 00
1	Vehicle-specific installation kit	24 8000 29 00 65

EasyStart control unit as chosen:

1	EasyStart radio remote control Remote+	22 1000 34 17 00

PLEASE NOTE!

The vehicle-specific installation kit contains all parts needed for the installation.

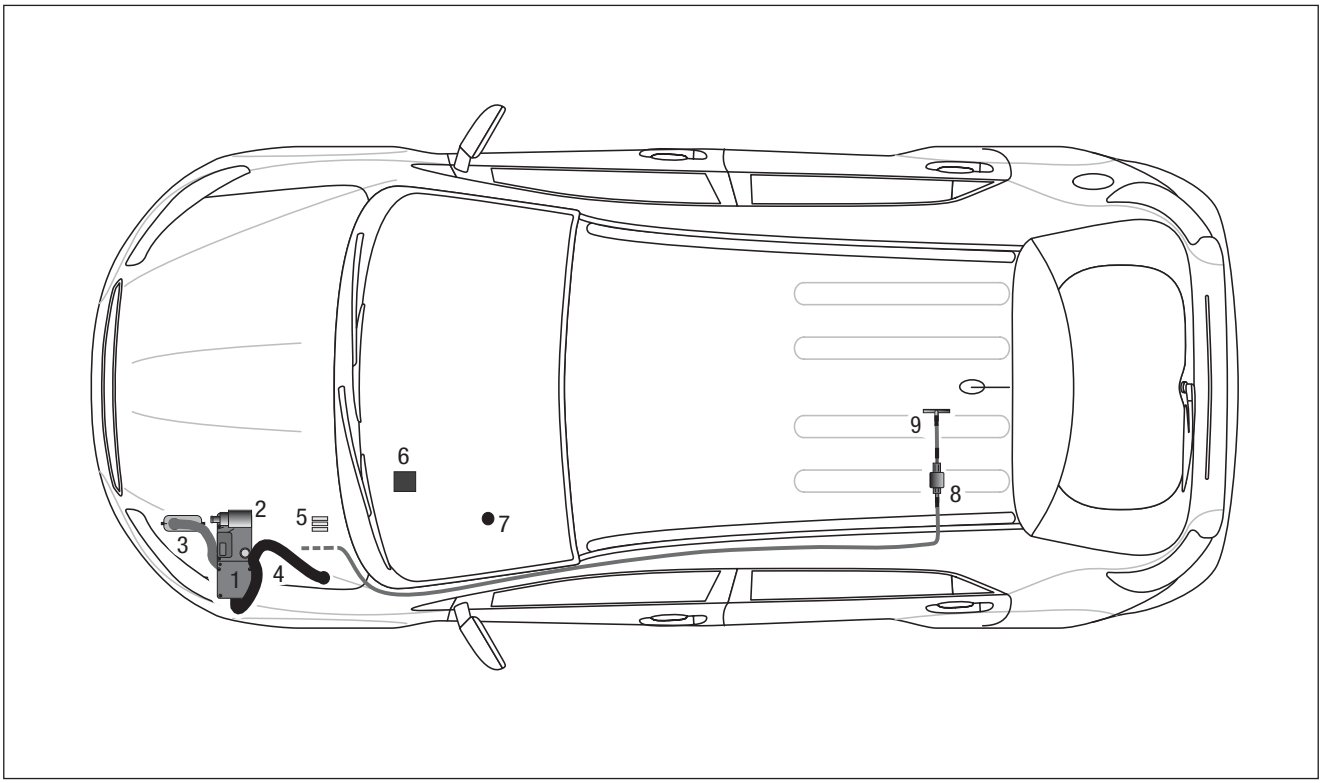
TIGHTENING TORQUES

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
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
2 Water pump
3 Exhaust pipe with exhaust silencer
4 Combustion air tube
5 Fuse holder
6 EasyStart Remote+ receiver
7 EasyStart Remote+ button
8 Metering pump
9 Tank extractor (T-piece)

2 PREPARATION OF THE VEHICLE

PREPARATORY WORK ON THE VEHICLE

- Disconnect and remove battery
- Remove bottom left-hand instrument panel covering
- Remove glove compartment
- Remove cooling water expansion tank
- Remove intake-air pipe and charge-air pipe
- Remove lower radiator cowling
- Dismantle left wheel arch housing
- Depressurise the cooling system
- Drain coolant into a clean container

PREMOUNT HEATER AND AFFIX DUPLICATE NAMEPLATE
(see photos 1 to 2)

Remove the duplicate nameplate from the heater.

Use a 16 - 25 mm Ø hose clip to connect the combustion air pipe to the heater and shape as shown in the photo.

Connect the 4 x 1.25 mm Ø fuel pipe with 3.5 x 3 x 50 mm Ø fuel hose and one 9 mm Ø hose clip to the fuel connection of the heater.



Fig. 1
① Heater
② Connect 4 x 1.25 mm Ø fuel pipe
③ Connect combustion air pipe

Affix the duplicate nameplate to the left of the radiator support as shown.



Fig. 2
① Fit duplicate nameplate

3 PRELIMINARY ASSEMBLY

MAKE HEATER HOLDER READY
(see photo 3)

Keep the heater holder ready for installation later on.

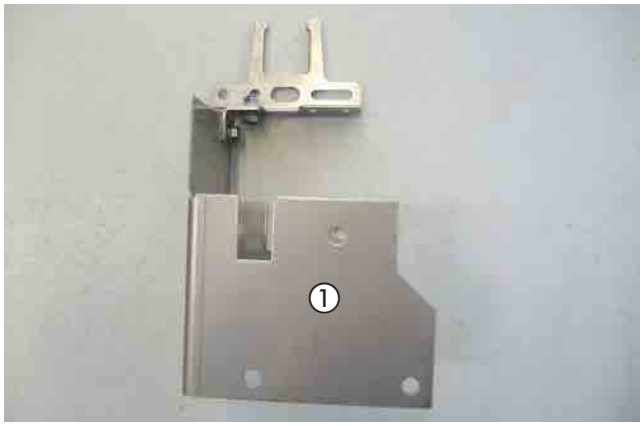


Fig. 3
① Heater holder

PREPARE EXHAUST SYSTEM
(see photo 4)

Shape the exhaust pipe as shown.

Shape the exhaust pipe end as shown.

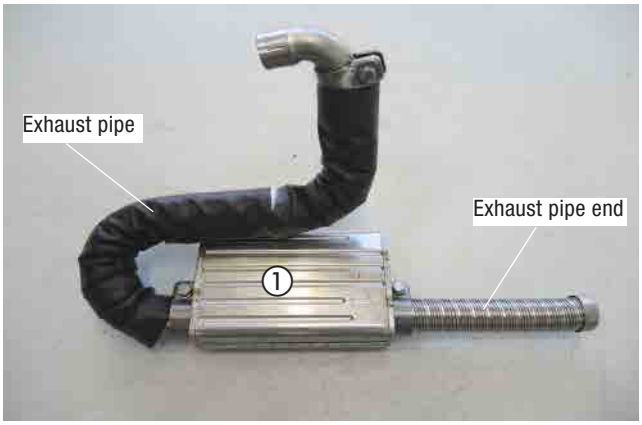


Fig. 4
① Exhaust silencer

PREPARE T-PIECE FOR FUEL SUPPLY
(see photos 5 and 6)

Push and fasten a 10 mm Ø fuel hose together with a 15 mm Ø clip on each of the 10 mm Ø connections of the T-piece.
For subsequent mounting, push a 14 mm Ø clip onto each of the 10 mm Ø fuel hoses.
Push a 5.5 x 3.5 mm Ø reducer on the 6 mm Ø connection and fasten with a 10 mm Ø clip.

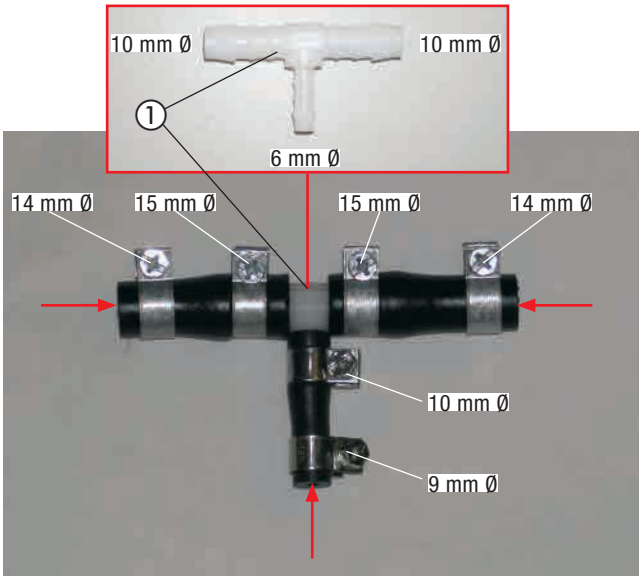


Fig. 5
① Prepare T-piece

3 PRELIMINARY ASSEMBLY

Connect the prepared 4 x 1 mm Ø fuel pipe to the already mounted 5.5 x 3.5 mm Ø reducer using a 9 mm Ø hose clip.

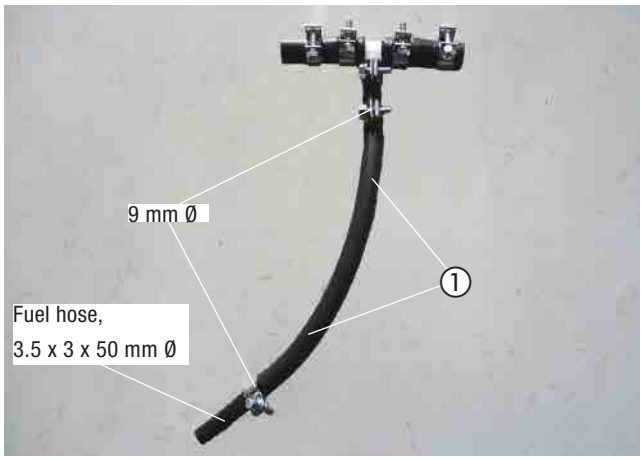


Fig. 6
① Prepare T-piece

PREPARE METERING PUMP
(see photo 7)

Insert the metering pump in the rubber holder as shown in the photo. Use an M6 x 25 screw, a B6 body washer and an M6 nut to fasten the holder (22 1000 51 6700) with the 6.5 mm Ø hole firmly to the rubber holder of the metering pump as shown.

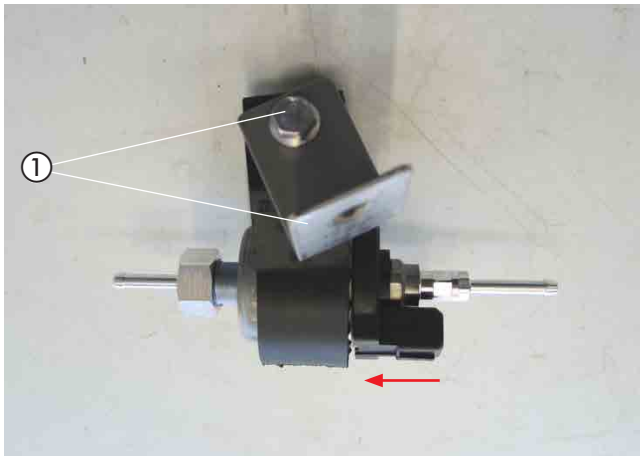


Fig. 7
① Mount holder to rubber holder

3 PRELIMINARY ASSEMBLY

MAKE WATER HOSES READY.
(see photo 8)

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”.

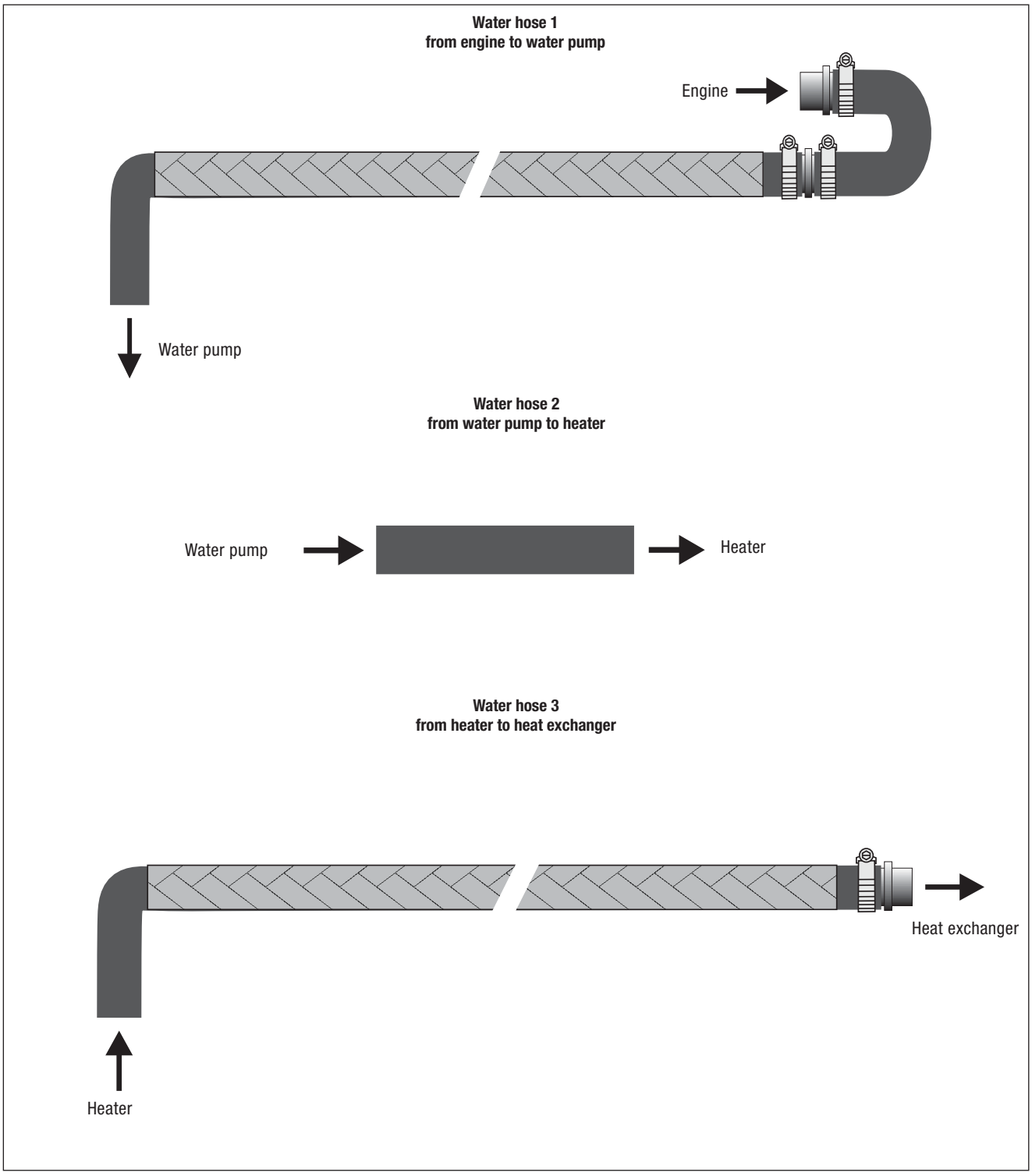


Fig. 8

3 PRELIMINARY ASSEMBLY

PREMOUNT THE STATIONARY PART OF THE EASYSTART REMOTE+ RADIO REMOTE CONTROL
(see photo 9)

Fasten the stationary part of the EasyStart Remote+ radio remote control to the holder (22 9000 50 65 04) using two M4 x 16 screws, as shown.



Fig. 9
① Mount the stationary part of the EasyStart Remote+ radio remote control

PREMOUNT TEMPERATURE SENSOR FOR AUXILIARY HEATING MODE
(see photo 10)

Prepare the 5° temperature sensor as shown.

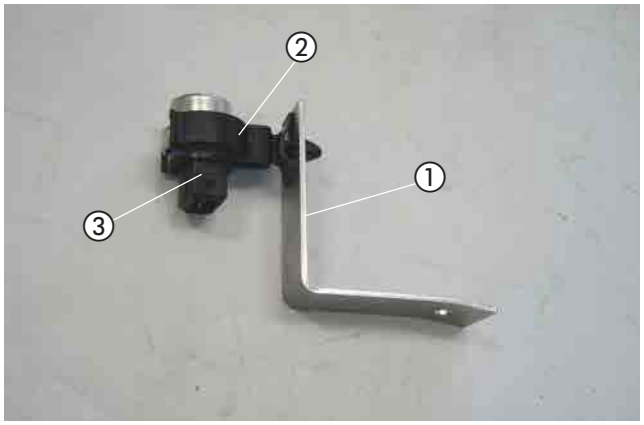


Fig. 10
① Temperature sensor holder
② Temperature sensor plastic holder
③ Temperature sensor 5°

MOUNT EXHAUST GROMMET AND ALUMINIUM FOIL
(see photos 11 and 12)

Drill a 38 mm Ø hole on the left underside of the bumper as shown.

Fit the exhaust grommet in the drilled hole.

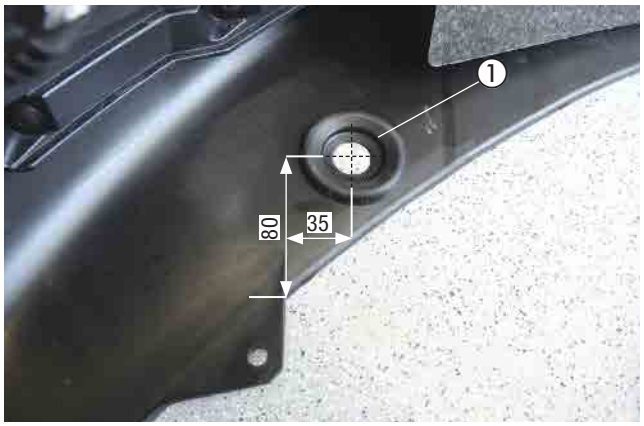


Fig. 11
① MOUNT EXHAUST GROMMET

3 PRELIMINARY ASSEMBLY

Adhere the aluminium foil to the inside of the bumper at the left fog lamp as shown.

Make a cut-out in the facing of the left fog lamp as shown.

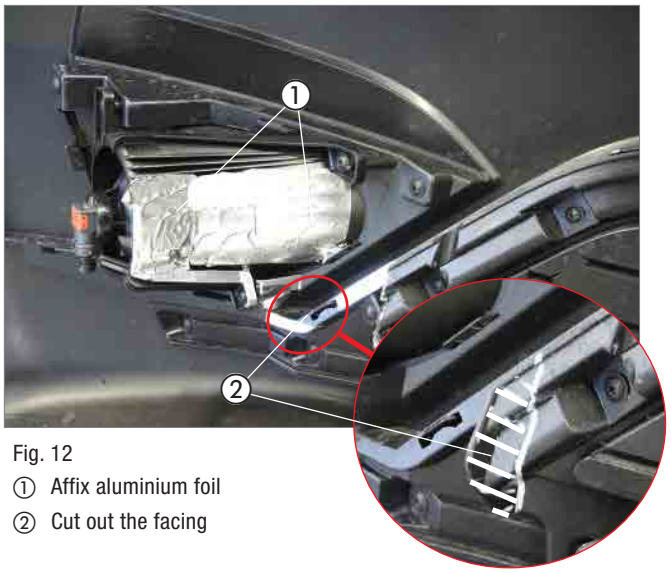


Fig. 12
① Affix aluminium foil
② Cut out the facing

4 INSTALLATION

PREPARE THE INSTALLATION POSITION
(see photo 13)

The installation position for the heater holder is in the left corner of the engine compartment, on the outside at the left chassis beam.
Drill three 9 mm Ø holes here, using the dimensions shown.
Insert a M6 blind rivet nut in each of the drilled holes.

⚠ CAUTION!
Deburr all finished holes and treat with anti-corrosion agent.

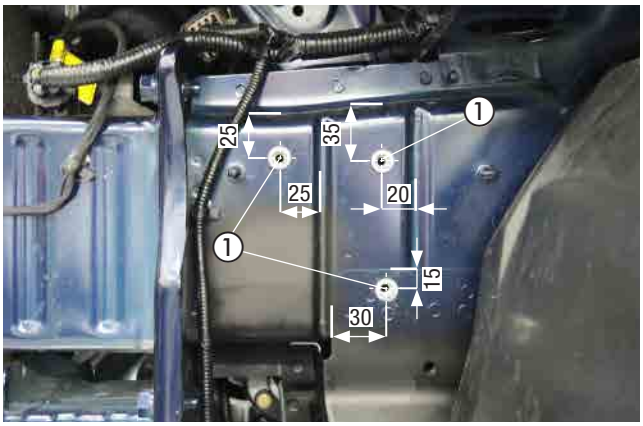


Fig. 13
① 3 x drilled holes

MOUNT HEATER HOLDER
(see photo 14)

Fasten the heater holder in the three fitted M6 blind rivet nuts using three M6 x 16 screws as shown.

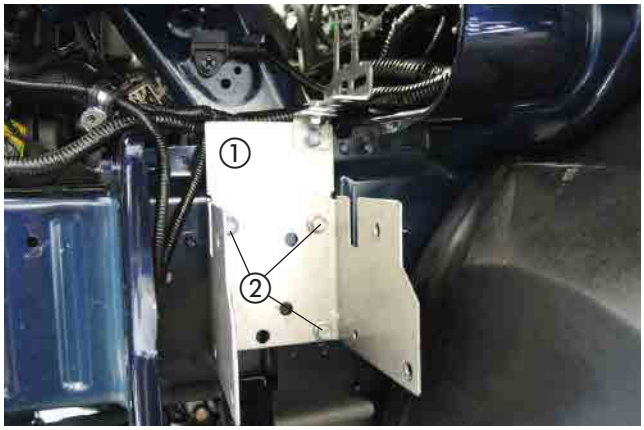


Fig. 14
① Heater holder
② 3 x M6 x 16 screws

MOUNT HEATER, LAY COMBUSTION AIR PIPE AND CONNECT EXHAUST SYSTEM
(see photos 15 and 16)

Insert the premounted heater in the unit bracket and fasten with five M6 x 12 screws with microencapsulation and one M6 x 12 screw with microencapsulation, rubberised clip and the vehicle's cable loom to the corresponding threaded holes of the heater.

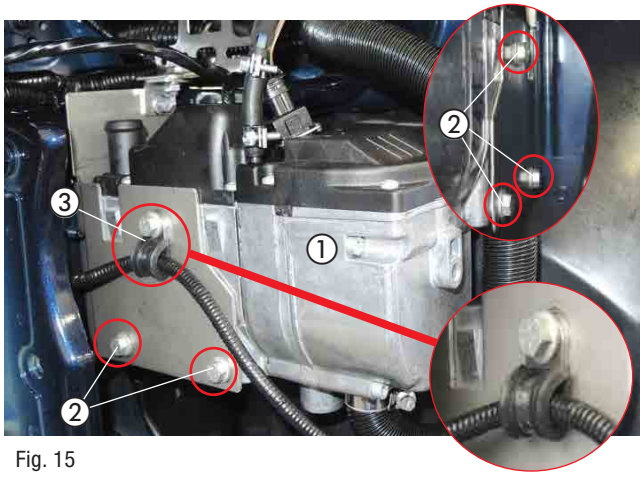


Fig. 15
① Heater
② 5 x M6 x 12 screws with micro-encapsulation
③ 1 x M6 x 12 screw with micro-encapsulation and rubberised clip

4 INSTALLATION

Lay the combustion air pipe upwards into the protected area behind the left-hand 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. 16
① Lay combustion air pipe

INSTALL EXHAUST SILENCER AND CONNECT
(see photo 17)

Mount the premounted exhaust silencer with an M6 x 25 screw and a sleeve to the existing 7 mm Ø hole in the front left crossbeam as shown.
Screw the exhaust pipe with the exhaust pipe bend to the exhaust outlet connection of the heater using a clip as shown.
The arrow on the exhaust silencer marks the direction of flow of the exhaust and points downwards.

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

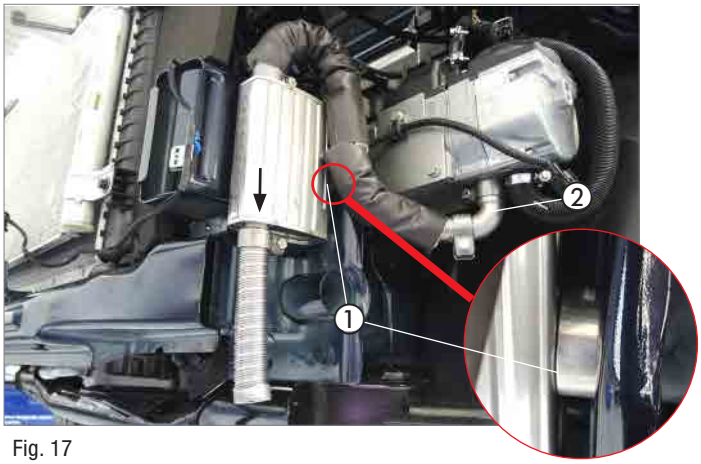


Fig. 17
① Mount exhaust silencer with M6 x 25 screw and sleeve
② Connect the exhaust pipe

Install water pump
(see photo 18)

Insert the water pump in premounted water pump holder as shown.

The water pump intake connection points to the front and the discharge connection points downwards.



Fig. 18
① Install water pump

4 INSTALLATION

MOUNT WATER HOSE 2
(see photo 19)

Connect water hose 2, water pump to heater, to the water outlet connection of the water pump and to the water inlet connection of the heater.



Fig. 19
① Mount water hose 2

CUT WATER FLOW HOSE
(see photo 20)

Cut the water flow hose (upper hose at heat exchanger) using the dimensions shown.

The cut off piece of water flow hose can be discarded.

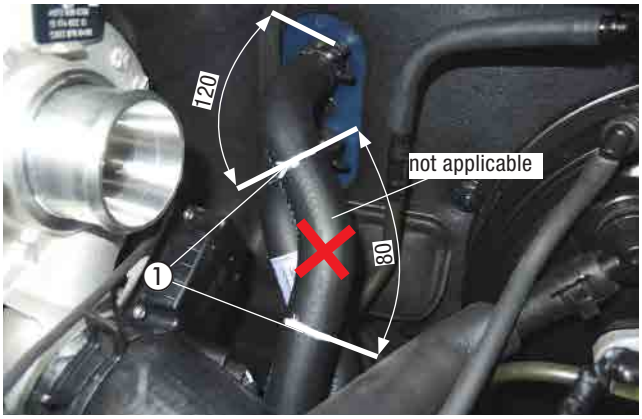


Fig. 20
① Water flow hose cutting points

CONNECT AND LAY WATER HOSES
(see photos 21 to 24)

Connect water hose 1, engine to water pump, at the intake connection of the water pump.

Connect water hose 3, heater to heat exchanger, at the water outlet connection of the heater.



Fig. 21
① Connect water hose 1
② Connect water hose 3

4 INSTALLATION

Lay water hose 1 to the right in the engine compartment, along the vehicle's water hose and on next to the battery holder to the cutting point as shown, and secure with cable ties at suitable places.

Lay water hose 3 to the rear in the engine compartment, along under the battery holder to the cutting point as shown, and secure with cable ties at suitable places.

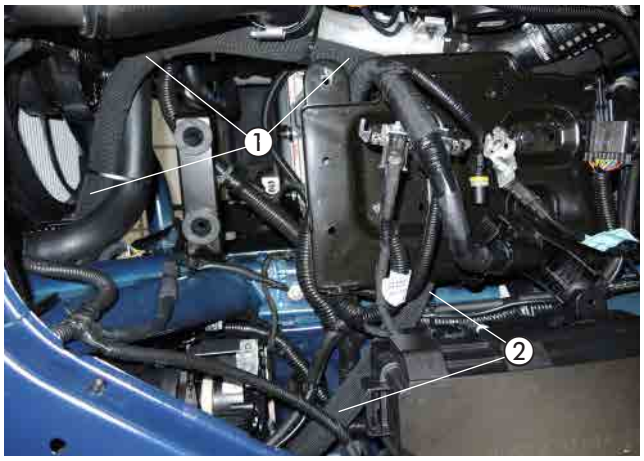


Fig. 22
① Route water hose 1
② Route water hose 3

Connect water hose 1 with the 180° water hose elbow at the water flow hose to the engine.

Connect water hose 3 at the water flow hose to the heat exchanger.

Fix water hoses 1 and 3 to each other using two rotatable line holders.

⚠ CAUTION!
Secure all hose connections with 20 - 32 mm Ø hose clips.
Protect the water hoses against chafing and use cable ties to connect them together secure them in suitable positions.
Pre-fill the water hoses during installation.
After the water hoses have been installed, vent the cooling water system according to the manufacturer's instructions!

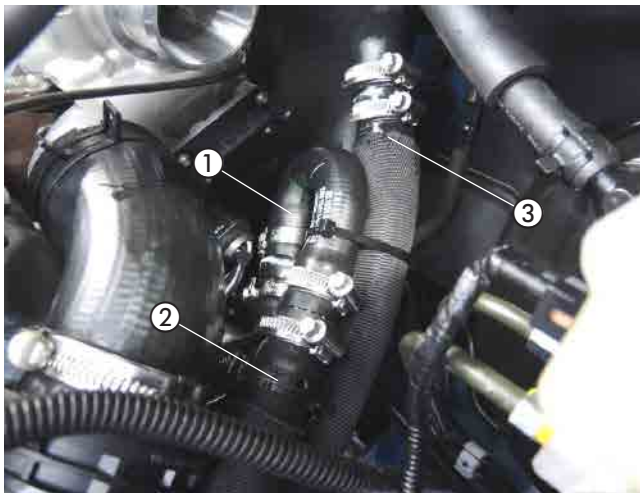
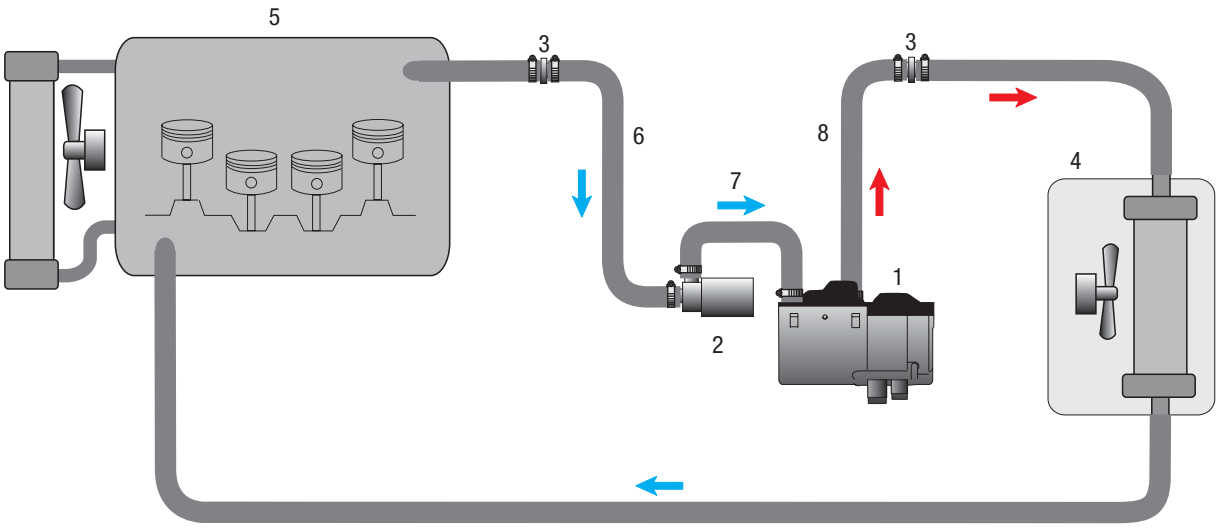


Fig. 23
① Connect water hose 1
② 2 x rotatable line holders
③ Connect water hose 3

4 INSTALLATION



1 - Heater Hydronic II
2 - Water pump
3 - Connection piece, 20 mm Ø
4 - Vehicle heat exchanger
5 - Engine
6- Water hose 1
7- Water hose 2
8- Water hose 3
- Hose clip, 20 – 32 mm Ø

Fig. 24

4 INSTALLATION

CONNECT TANK
(see photos 25 and 26)

Cut through the fuel feed line on the left before the tank, using the dimensions shown.

The cut off piece of fuel feed line can be discarded.

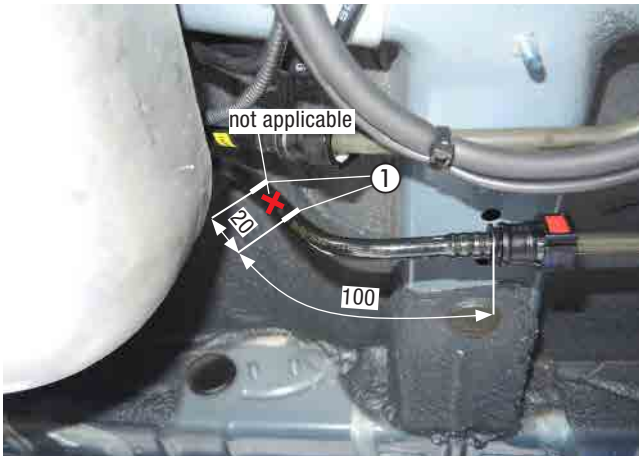


Fig. 25
① Cutting point fuel feed line

Insert the two support sleeves in the cut through feed line for greater stability.
Integrate the prepared T-piece into the fuel return line as shown.
Secure the connection points with two 14 mm Ø hose clips.

⚠ CAUTION!
Secure all hose connections with hose clips.
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.
Protect the fuel lines against chafing and use rotatable line holders to secure in suitable positions.

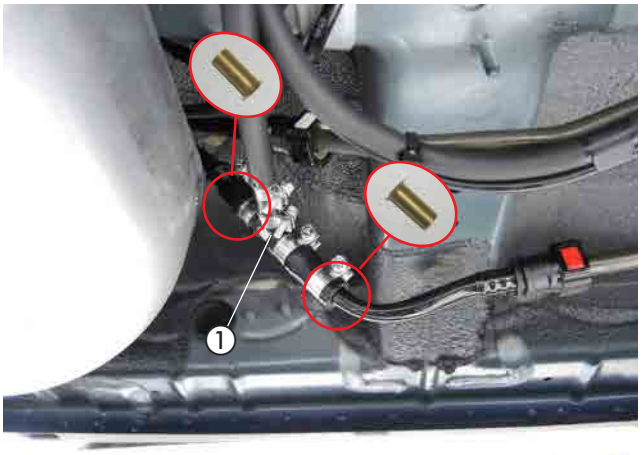


Fig. 26
① Fasten T-piece

4 INSTALLATION

INSTALL AND CONNECT THE METERING PUMP
(see photos 27 and 28)

Lay the 4 x 1.25 mm Ø fuel pipe from the heater together with the metering pump cable along the vehicle's fuel lines on the left-hand underside of the vehicle up to the metering pump.
Fix the 4 x 1.25 mm Ø fuel pipe with cable ties.

Screw the prepared metering pump with holder on the right in front of the tank with an M8 nut to the existing M8 stud bolt on the vehicle underbody as shown.
Ensure it is installed with at least a 15° rising gradient on the pressure side.
The discharge connection of the metering pump points to the right and the intake connection therefore points to the left.
Connect the fuel pipe Ø 4 x 1.25 with fuel hose Ø 3.5 x 3 mm, length 50 mm, to the discharge connection of the metering pump.
Take the 4 x 1 mm Ø fuel pipe from the mounted T-piece to the metering pump and connect to the intake connection of the metering pump using the 3.5 x 105° Ø fuel hose bend.

Connect the connector to the metering pump.

⚠ CAUTION!
Secure all hose connections with hose clips.
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.

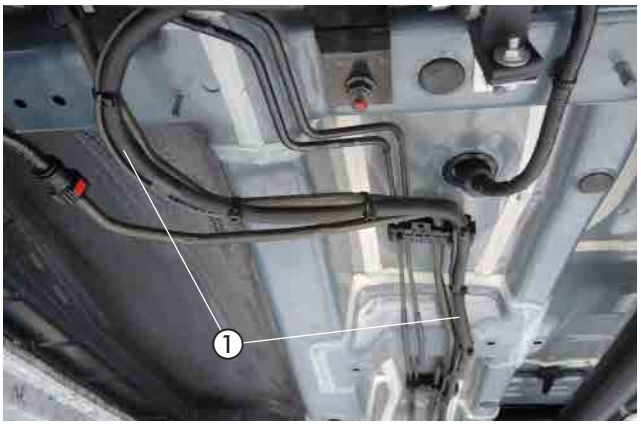


Fig. 27
① Lay fuel pipe and metering pump cable

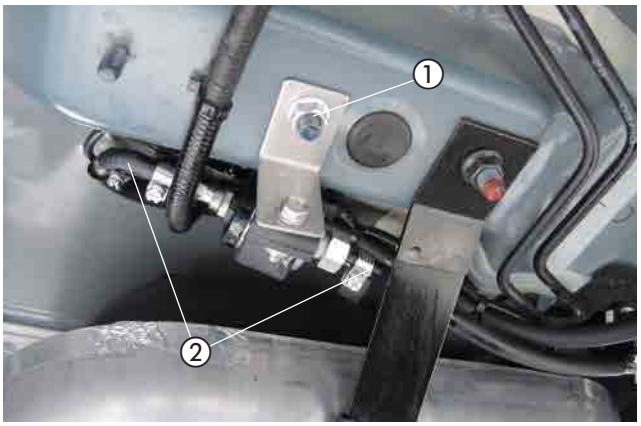


Fig. 28
① Mount the metering pump
② Connect metering pump

4 INSTALLATION

MAIN CABLE HARNESS
(see photo 29)

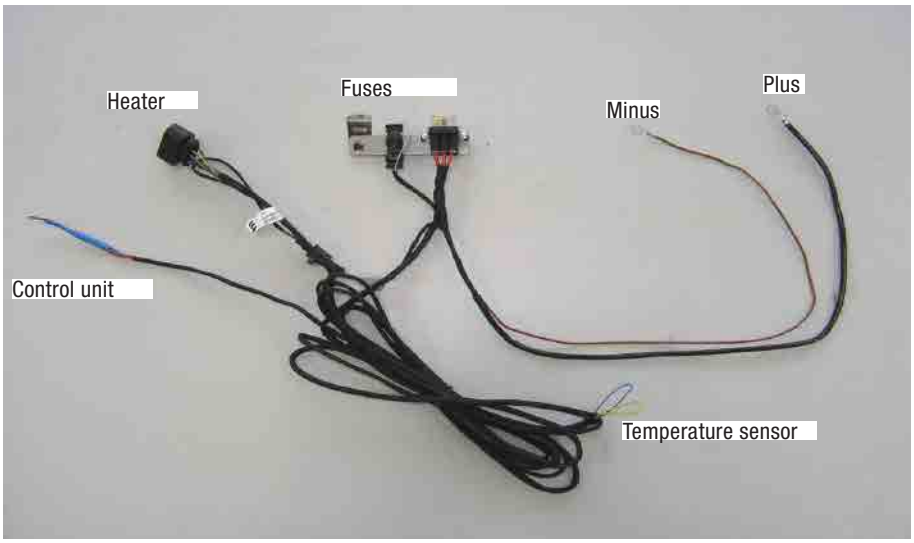


Fig. 29

MOUNT TEMPERATURE SENSOR
(see photo 30)

Mount the prepared temperature sensor with holder using an M6 x 12 screw and an M6 nut, in the existing 7 mm Ø hole on the radiator support, on the left next to the horn as shown.

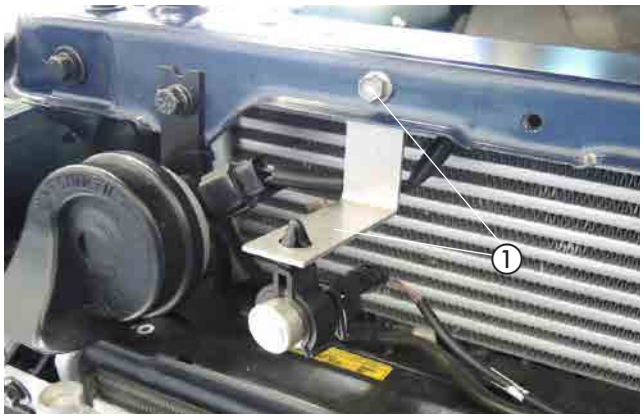


Fig. 30
① Mount temperature sensor

FASTEN TEMPERATURE SENSOR CABLE LOOM
(see photo 31)

Cut through the loops in the cable harness, 0.5 mm² bl cable and 0.5 mm² ge cable.
Combine the two 0.5 mm² bl and 0.5 mm² ge cable ends coming from heater connector B1 in one of the two rt butt-type connectors of the temperature sensor cable loom and connect accordingly.
Connect the second 0.5 mm² bl cable end to the second butt-type connector rt from the temperature sensor cable loom.
Tie back and insulate the second 0.5 mm² ge cable end.
At the end of the cable loom, disconnect the pin from the 0.5 mm² ge cable, and tie back and insulate the cable.



Fig. 31
① Fasten temperature sensor cable loom

4 INSTALLATION

MOUNT FUSE BLOCK HOLDER
(see photo 32)

Mount the prepared holder for the fuse block to the left MacPherson strut tower at the vehicle's M6 stud bolt using the vehicle's M6 nut as shown.

Connect the 10 pin connector of the main cable harness with the 10 pin flat connector housing of the heater's cable loom.

Connect the 2-pin connector housing from the cable loom to the temperature sensor.

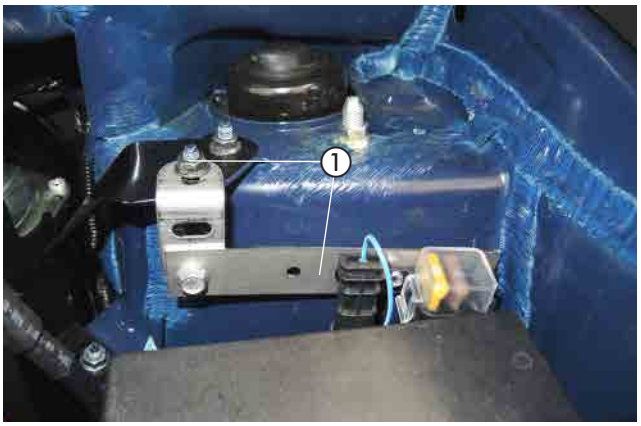


Fig. 32
① Mount holder with fuse block

CABLE LAYING
(see photo 33)

Take the control unit cable loom to the left into the left wheel arch and through the vehicle's cable grommet on the A-pillar into the vehicle interior.

⚠ 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. 33
① Vehicle's cable grommet

FAN CONTROL
(see photos 34 to 36)

Route the control unit cable loom to the central fuse box in the driver's footwell.
Disconnect the 0.5 mm² rt cable at fuses F32 (10A) and F28 (10A) of the central fuse box.
Integrate the 1 mm² rt and 1 mm² sw/rt cables from the diode cable loom using two rt butt-type connectors, as shown in the circuit diagram.

Insulate the 0.5 mm² ge cable of the control unit cable loom and tie it back.

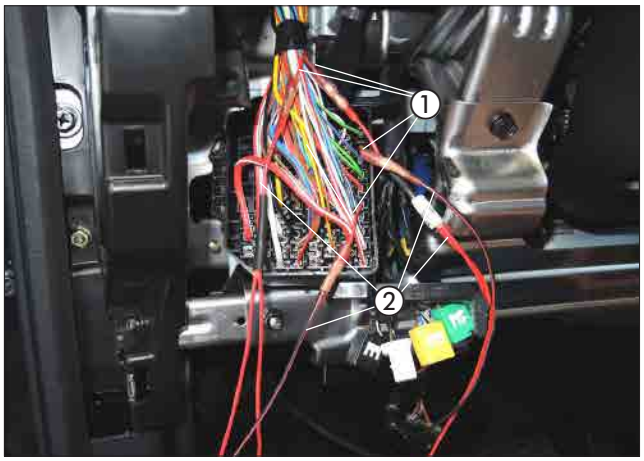


Fig. 34
① Disconnect 2 x 0.5 mm² rt cables
② Integrate 2 cables 1 mm² rt and 1 mm² sw/rt from diode cable loom

4 INSTALLATION

Disconnect the 0.5 mm² ge/rt cable (pin 2) at the 8 pin white connector of the headlamp levelling.
Lengthen the 0.5 mm² bl cable from the control unit cable loom with an rt butt-type connector and the 0.5 mm² bl cable from the installation kit and integrate as shown in the circuit diagram, using an rt butt-type connector.

At the central fuse box, connect the 1 mm² sw/rt cable from the diode cable loom with the 0.5 mm² sw/rt cable from the control unit cable loom with an rt butt-type connector as shown in the circuit diagram.

PLEASE NOTE!
The cable colours may vary!

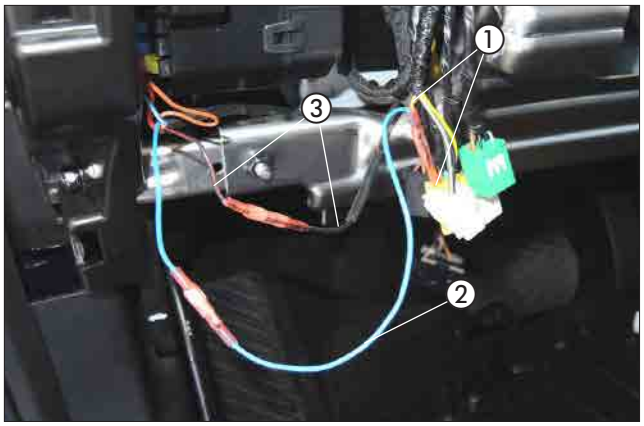


Fig. 35
① Disconnect 0.5 mm² ge/rt cable (pin 2)
② Lengthen and integrate 0.5 mm² bl cable from control unit cable loom
③ Connect 1 mm² sw/rt cable from diode cable loom with 0.5 mm² sw/rt cable from the control unit cable loom

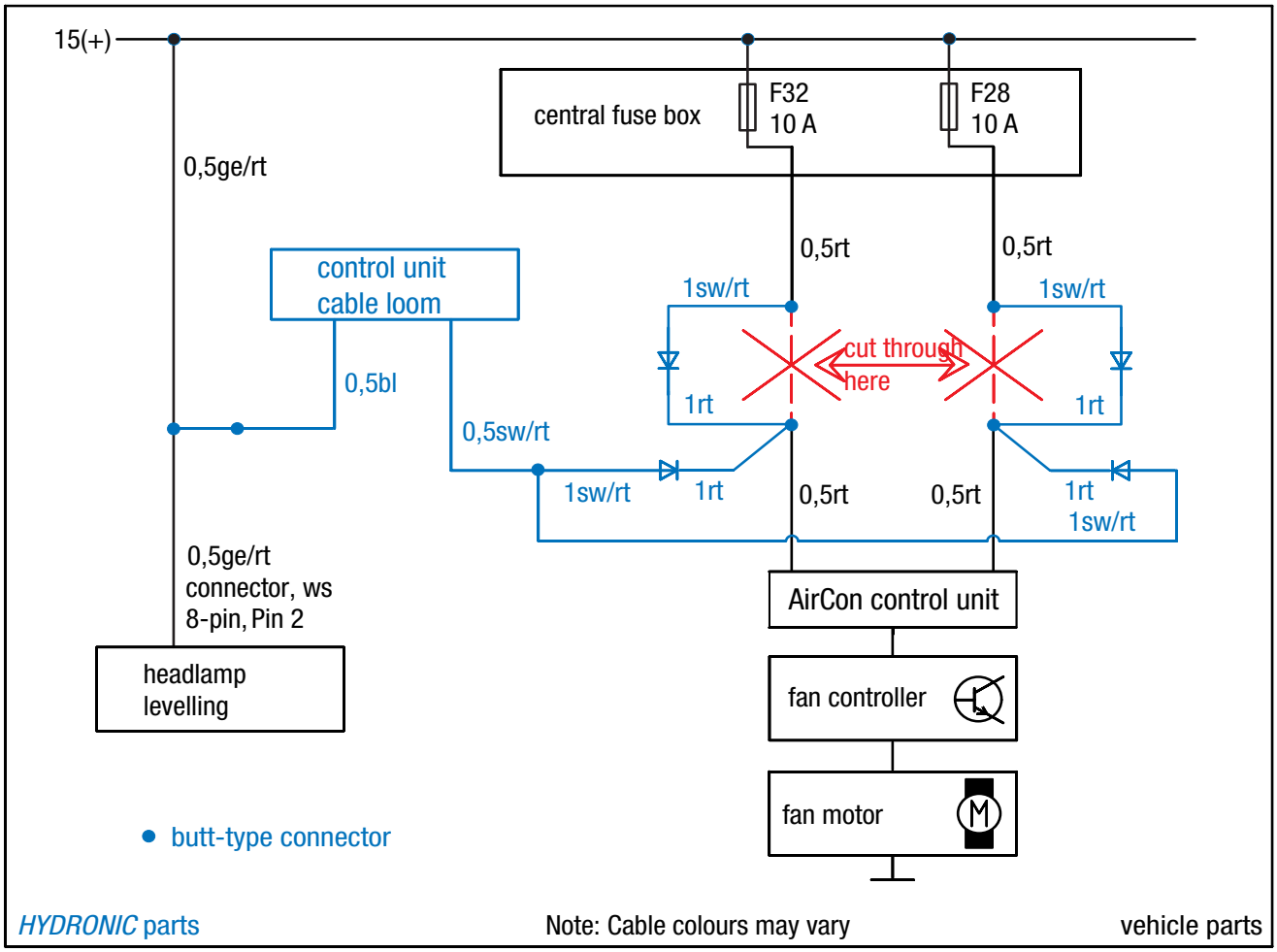


Fig. 36

4 INSTALLATION

POWER SUPPLY
(see photos 37 and 38)

Route the 4 mm² rt positive cable to the positive terminal of the battery and connect with the A6 cable lug as shown.



Fig. 37
① Connect positive cable 4 mm² rt

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

⚠ 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. 38
① Connect earth cable 2.5 mm² br

4 INSTALLATION

INSTALL EASYSTART REMOTE+ RADIO REMOTE CONTROL
(see photos 39 to 41)

The EasyStart Remote+ radio remote control 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+ radio remote control in a dummy panel of the switch unit on the left of the instrument panel. (Alternatively on the right next to the switch unit in the instrument panel cover)
To do this, drill a 10 mm Ø hole for the button of the EasyStart Remote+ radio remote control and insert the button in the hole.



Fig. 39
① Mount the EasyStart Remote+ button

Attach the temperature sensor of the EasyStart Remote+ to the lower panelling on the A-pillar on the driver's side as shown.



Fig. 40
① Mount temperature sensor

Mount the stationary part of the EasyStart Remote+radio remote control with the holder to the existing 7 mm Ø hole in the left-hand instrument panel holder using an M6 x 16 screw, a spacer sleeve and a M6 nut.

Connect the antenna cable of the EasyStart Remote+ radio remote control 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 installation site of the stationary part and connect here.

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



Fig. 41
① Stationary part of the EasyStart Remote+
② Fixing point of the EasyStart Remote+ stationary part

5 AFTER INSTALLATION

ADHERE THE “REFUELLING” STICKER
(see photo 42)

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



Fig. 42
① Adhere the “fuel tank” sticker

MOUNT BUMPER
(see photo 43)

Mount the front bumper and pass the exhaust pipe end through the grommet.



Fig. 43
① Pass the exhaust pipe end through the grommet

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).
- Adhere the “Refuel” label in the fuel 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 Unit.

6 PARTS OVERVIEW



Fig. 44

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22 9000 90 01 24 11.2015 EN 11.2015
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