INSTALLATION RECOMMENDATIONS
HYDRONIC S3 – D 5 E IN THE GMC SIERRA 2500, 3500 / CHEVROLET SILVERADO 2500, 3500



THIS INSTALLATION RECOMMENDATION APPLIES TO VEHICLES FROM MODEL YEAR 2017 WITH THE FOLLOWING MOTORISATION:

6.6 l cubic capacity / 8 cylinder V-engine TD / 327 kW - 445 HP

Eberspächer

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This installation recommendation documents the installation of the Hydronic S3 heater in a vehicle from model year 2017 with the following equipment:

- **with 2-zone automatic AirCon**
- **with fog lamps**
- **with daytime running lights**
- **with xenon headlights**
- **with automatic gearbox**
- **with four-wheel drive 4 x 4 on demand**

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 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
6.6 l TD V8	327 / 445	AT

AT = automatic 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.

PARTS REQUIRED FOR INSTALLATION

QUANTITY	DESIGNATION	ORDER NO.
1	Hydronic S3 - D 5 E VDP	25 2921 05 00 00
1	Vehicle-specific installation kit	24 8000 35 00 38

EasyStart control unit as chosen:

1	EasyStart Timer	22 1000 34 15 00

SPECIAL TOOLS REQUIRED

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

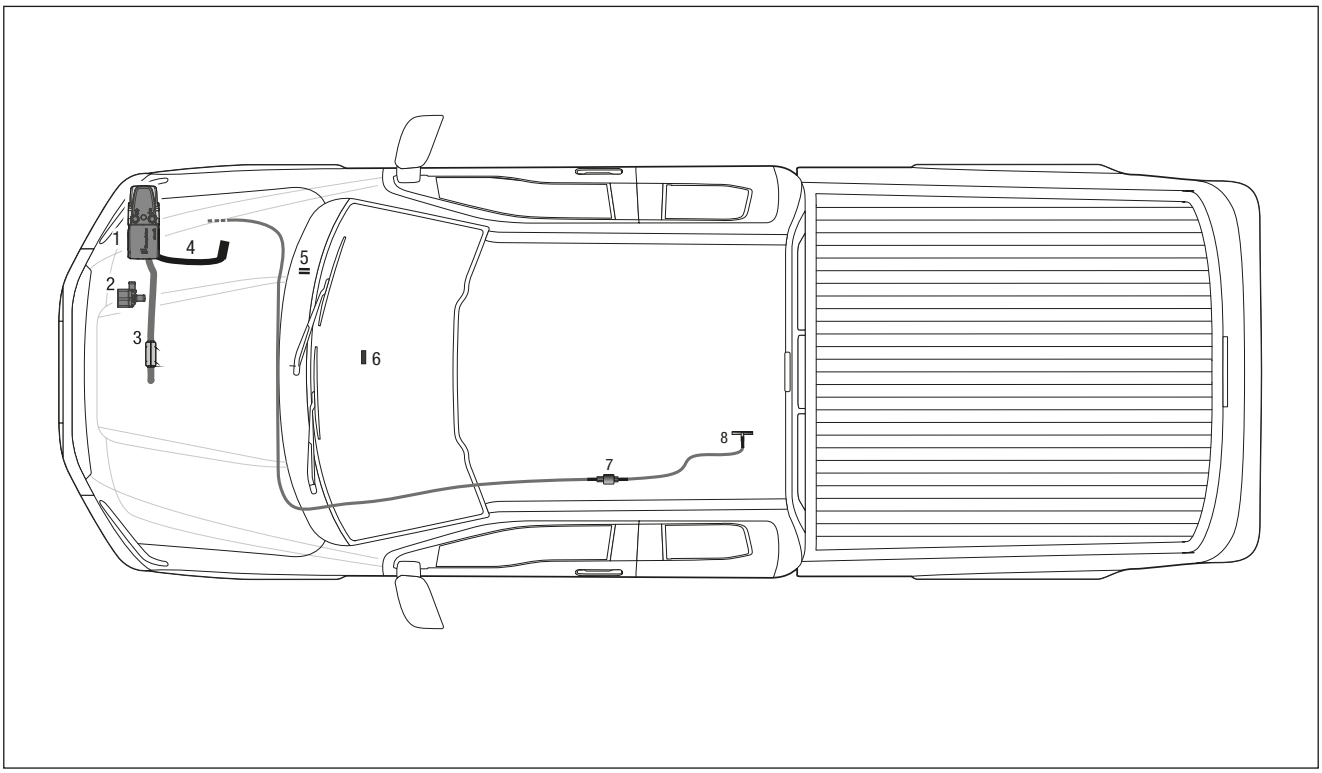
TIGHTENING TORQUES

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
Self-tapping M6 x 16 Torx screw	11 $^{+1}$ Nm
Screw M4	3 $^{+0.5}$ Nm
Screw M5 x 10	5 $^{+0.5}$ Nm
Screw M5 x 18	6.5 $^{+0.5}$ Nm
Pipe clip for exhaust pipe	7 $^{+1}$ Nm
Hose clip for water hose	3 $^{+0.5}$ Nm
Hose clip for combustion air pipe	5 $^{+0.5}$ Nm
Hose clip for fuel pipe	1 $^{+0.2}$ Nm

1 INTRODUCTION

INSTALLATION DRAWING



1 Heater Hydronic S3
2 Water pump
3 Exhaust pipe with exhaust silencer
4 Combustion air tube
5 Fuse holder
6 EasyStart Timer
7 Metering pump
8 Tank extractor (T-piece)

2 PREPARATION OF THE VEHICLE

PREPARATORY WORK ON THE VEHICLE

- Disconnect the battery
- Remove glove compartment
- Remove front right-hand wheel
- Remove right-hand, front wheel arch liner
- Remove lower gearbox cowling
- Remove the air filter box and air intake pipe
- Remove the right rear headlight trim moulding
- Depressurise the cooling system
- Drain coolant into a clean container

INSTRUCTIONS FOR REMOVING THE GLOVE COMPARTMENT
(see photos 1 and 2)

Remove the flap of the lower glove compartment after taking out the two plastic retaining pins and the holding strap.

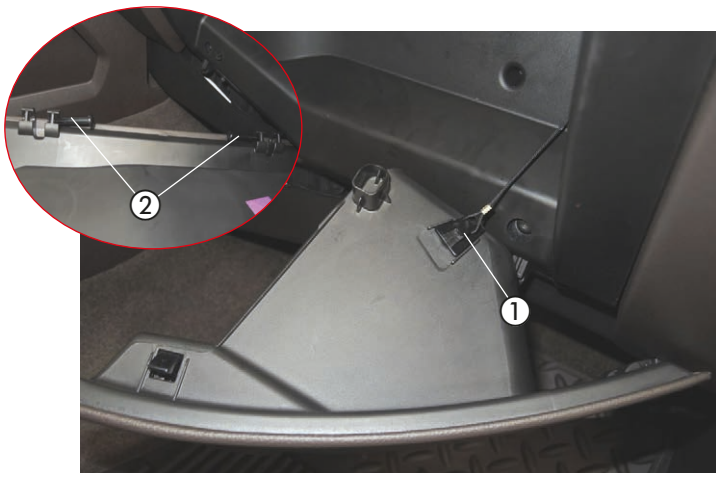


Fig. 1
① Remove holding strap
② Remove 2 x plastic retaining pins

Unscrew the right fastening screws of the upper and lower glove compartment.

Detach the upper and lower glove compartment out to the back.

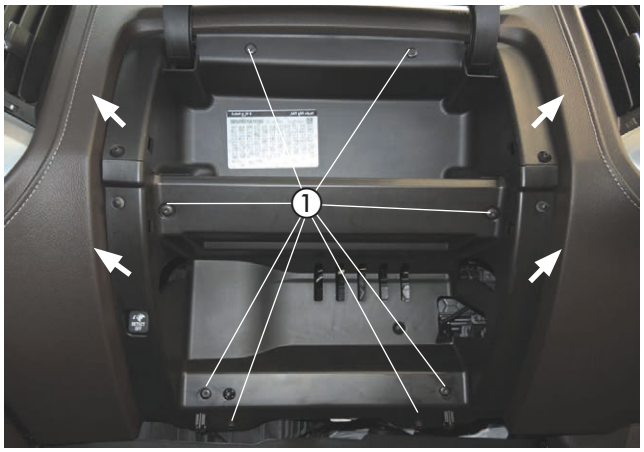


Fig. 2
① 8 x fastening screws

3 PRELIMINARY ASSEMBLY

PREPARE HEATER
(see photos 3 and 4)

Mount the angled water inlet connection to the heater as shown, see "Installation steps".

Remove the duplicate nameplate from the heater.

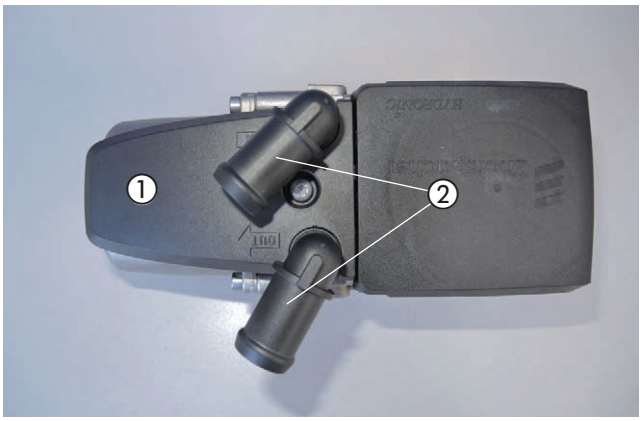


Fig. 3
① Heater
② Mount water connection socket

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
  (tightening torque $6.5^{+0.5}$ Nm).

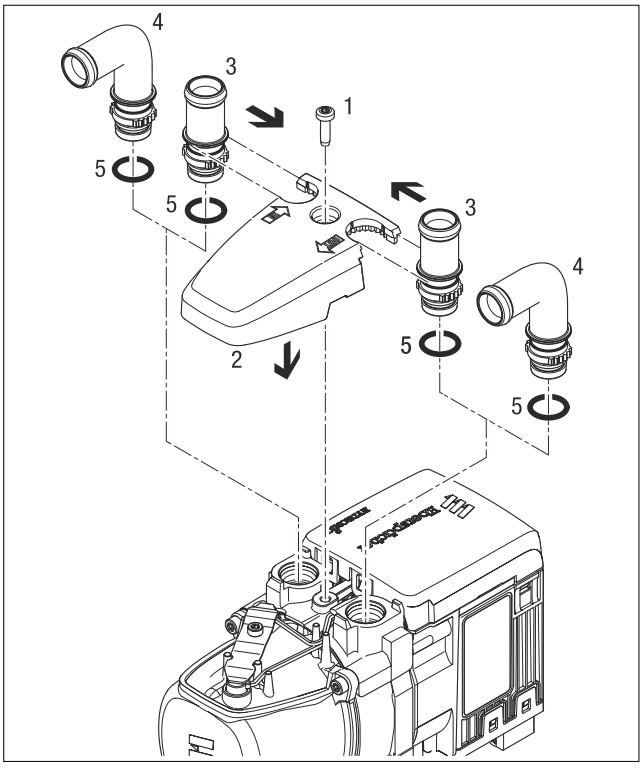


Fig. 4

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 photo 5)

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



Fig. 5
① Fit duplicate nameplate

PREPARE THE UNIT BRACKET
(see photo 6)

Install bracket (22.1000.50.8500) and the two brackets (22.9000.50.7002) on the unit bracket with three M6 x 12 screws and three M6 nuts as shown in the figure

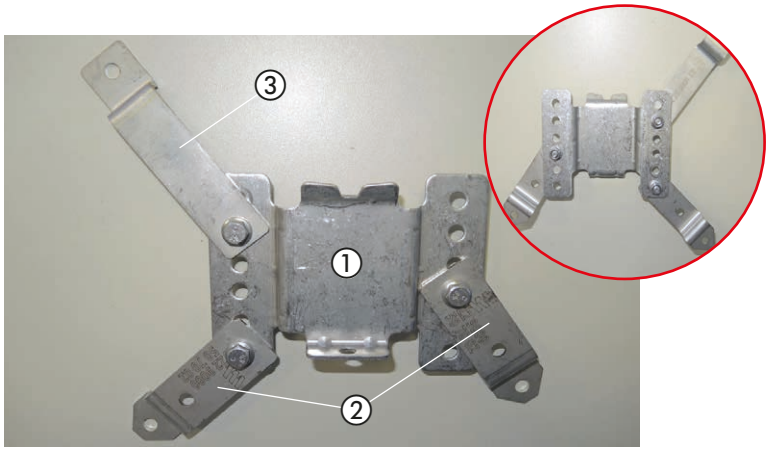


Fig. 6
① Unit bracket
② Install 2x bracket
③ Install bracket

PREMOUNT WATER PUMP
(see photo 7)

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

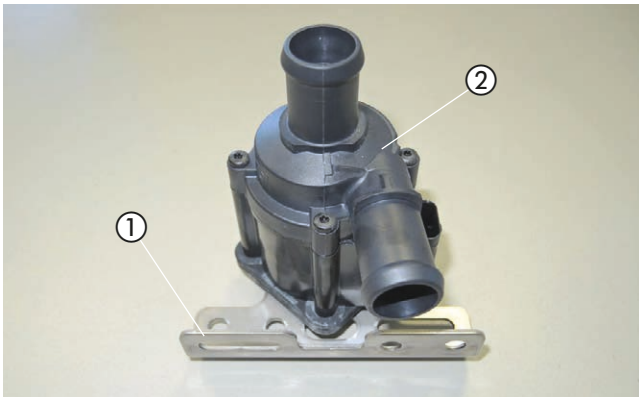


Fig. 7
① Holder, water pump
② Water pump

3 PRELIMINARY ASSEMBLY

PREPARE WATER HOSES
(see photo 8)

Lay out the water hoses ready.

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”.

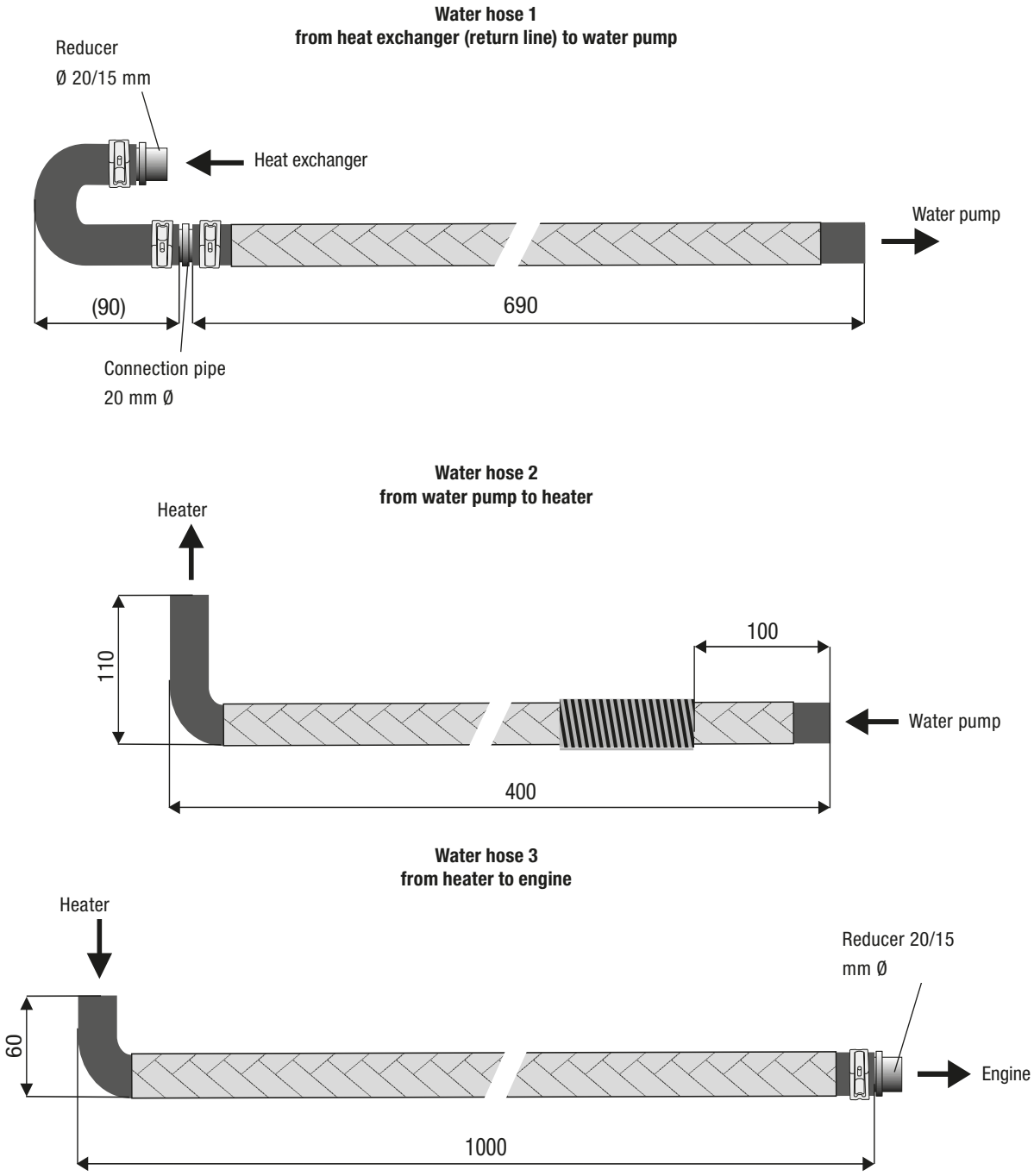


Fig. 8

3 PRELIMINARY ASSEMBLY

PREPARE EXHAUST SYSTEM
(see photo 9)

Shape the exhaust pipe end L=150 mm and the exhaust pipe L=600 mm as shown in the figure.

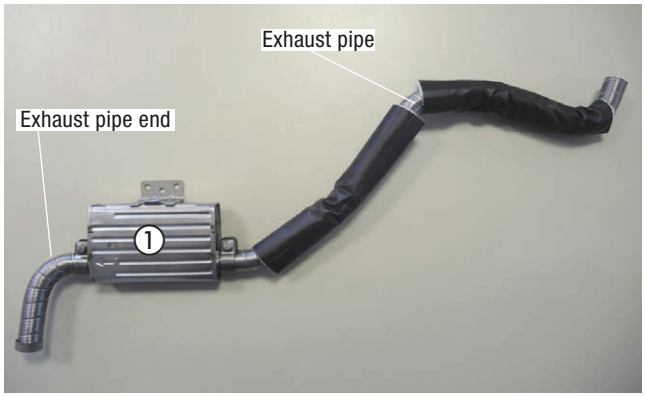


Fig. 9
① Premounted exhaust silencer

PREMOUNT METERING PUMP
(see photo 10)

Insert the metering pump in the rubber bracket as shown in the photo.

Fasten the L-angle bracket (22.1000.50.1400) to the rubber bracket offset by 15° as shown in the figure using an M6 x 25 screw, a B6 body washer and an M6 nut.

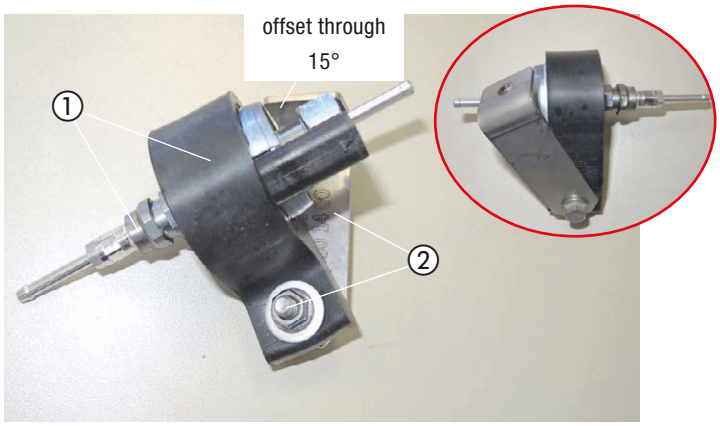


Fig. 10
① Insert metering pump in rubber bracket
② Mount L-angle holder

PREPARE FUEL PIPE (DISCHARGE LINE)
(see photo 11)

Prepare the fuel pipe (discharge line) with 4.5/3.5 mm Ø adapter for subsequent installation.

Mount the 4.5/3.5 mm Ø adapter to the fuel connection of the heater.



Fig. 11
① Fuel pipe (discharge line) with 4.5/3.5 mm Ø adapter

3 PRELIMINARY ASSEMBLY

PREPARE FUEL PIPE (SUCTION LINE)
(see photo 12)

Keep the premounted fuel pipe (suction line) with Ø 3.5 x 3 mm fuel hose ready for later installation.

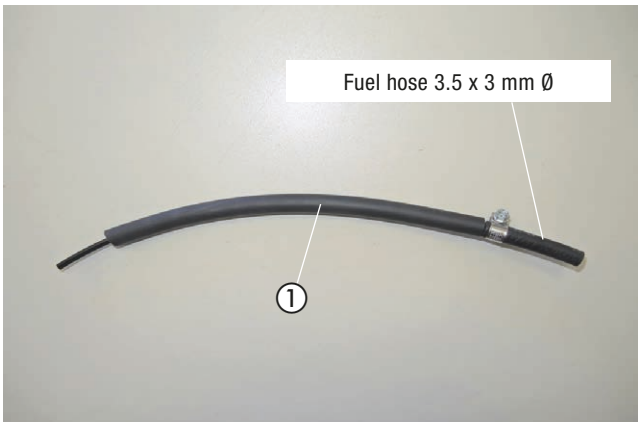


Fig. 12
① Fuel pipe (suction line)

PREPARE FUSE BLOCK
(see photo 13)

Prepare the premounted holder with fuse block and diagnostic connector for subsequent installation.

Enlarge the drill hole in the plastic fuse holder to Ø 8 mm.

Remove the fuse 25A out of the fuse holder.

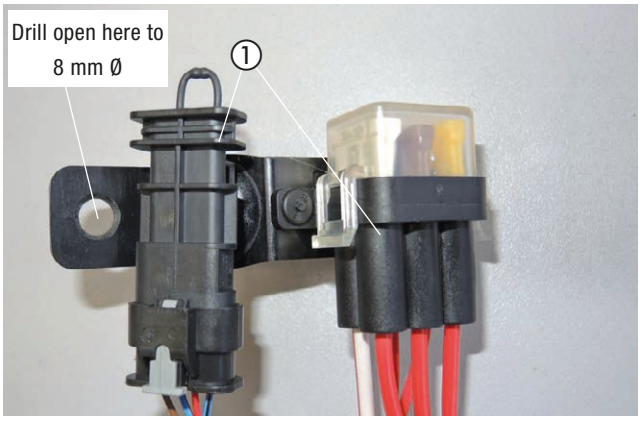


Fig. 13
① Fuse block and plug holder with diagnostic connector already premounted to holder

4 INSTALLATION

PREPARE THE INSTALLATION POSITION
(see photos 14 and 15)

The installation position is on the right side of the vehicle under the air filter box.

Unclip the vehicle lead harness.
Remove the right rear headlight cover and cut off the lower part.

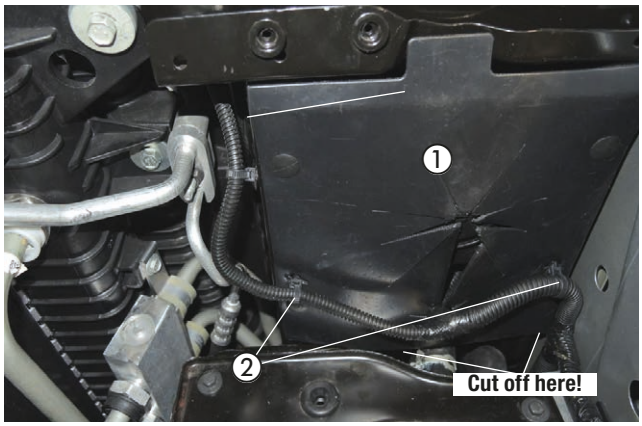


Fig. 14
① Remove headlight cover
② Unclip lead harness

On the left-hand side of the right-hand front crossbeam, remove the two fastening screws for the later installation of the prepared unit bracket.
On the left-hand side of the right-hand front crossbeam, insert a blind rivet nut into the free Ø 10 mm bore as shown in the figure.

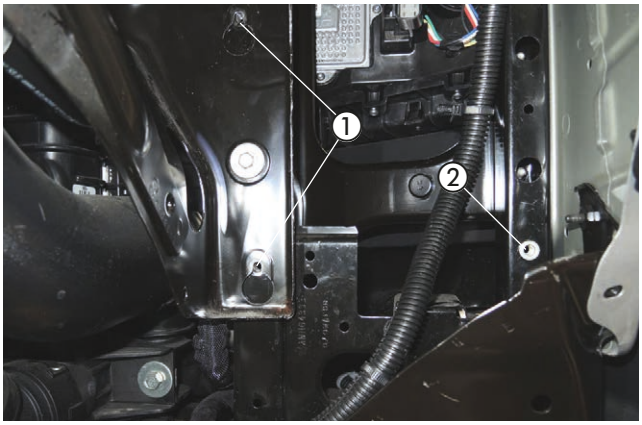


Fig. 15
① Remove 2x M6 fastening screw
② Insert M6 blind rivet nut

MOUNT UNIT BRACKET
(see photo 16)

Hold the prepared unit bracket against the two M6 threaded holes in the vehicle and the installed M6 blind rivet nut mutter M6 and secure with three M6 x 20 screws as shown in the figure.
If necessary, loosen the three M6 x 12 screws again, adjust the unit bracket and tighten the screws again.

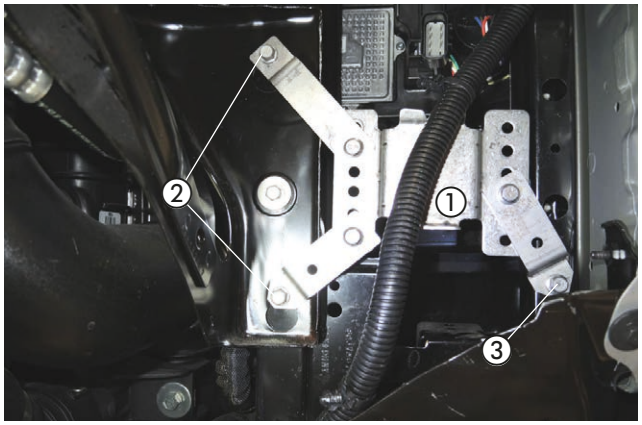


Fig. 16
① Mount unit bracket
② 2 x M6 x 20 screw
③ Screw M6 x 20

4 INSTALLATION

INSTALL HEATER
(see photo 17)

Insert the heater into the unit bracket and fasten with an M6 x 16 tapping Torx screw at the lower mounting point of the heater.

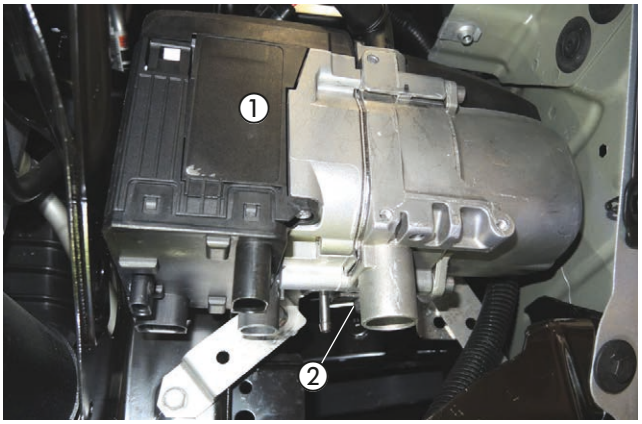


Fig. 17
① Heater
② Self-tapping M6 x 16 Torx screw

LAY COMBUSTION AIR PIPE
(see photos 18 and 19)

Use a 16 - 25 mm Ø hose clip to connect the combustion air pipe to the heater and lay upwards along the charge air pipe into the engine compartment.

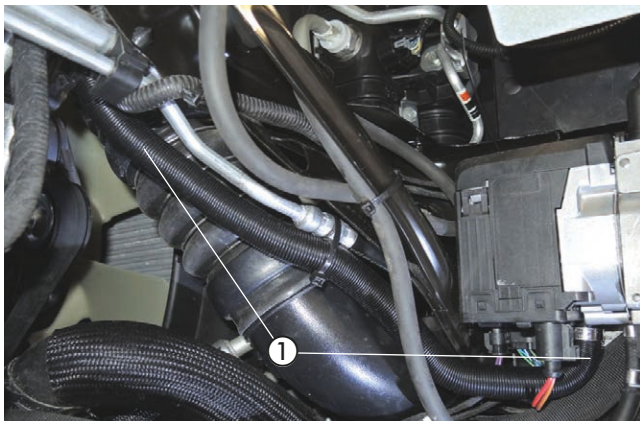


Fig. 18
① Lay combustion air pipe

Lay the combustion air pipe into the protected area along the charge air pipe and secure with cable ties.

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

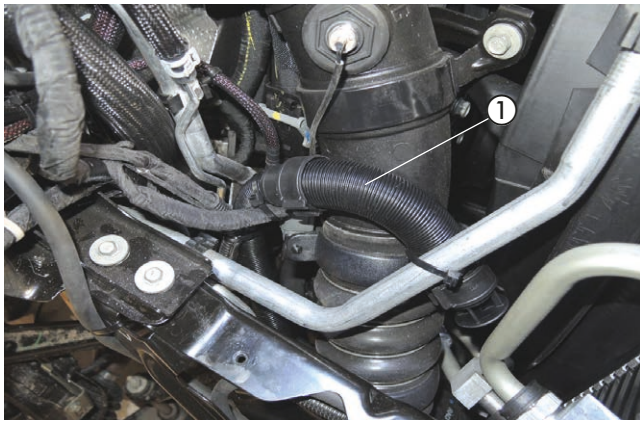


Fig. 19
① Lay combustion air pipe

4 INSTALLATION

INSTALL WATER PUMP
(see photos 20 and 21)

The installation position for the water pump is on the right front crossbeam next to the charge air pipe.

Drill a 7 mm Ø hole according to the dimensions shown in the figure.

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

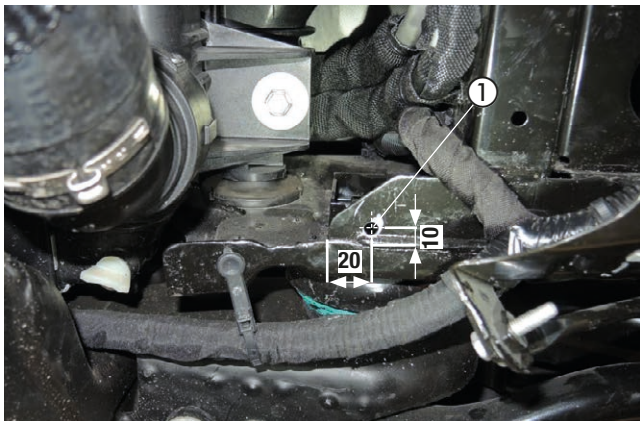


Fig. 20
① Drill hole

Mount the prepared water pump in the drilled 7 mm Ø hole in the right front crossbeam using an M6 x 16 screw and M6 nut as shown in the figure.

The water pump discharge end faces to the right and the intake end to the left.

Plug the connector from the water pump cable loom into the water pump.



Fig. 21
① Install water pump

CUT WATER RETURN HOSE
(see photo 22)

Cut off the water return hose from the heat exchanger to the engine (the lower water hose at the heat exchanger) below the engine according to the dimensions shown in the figure.

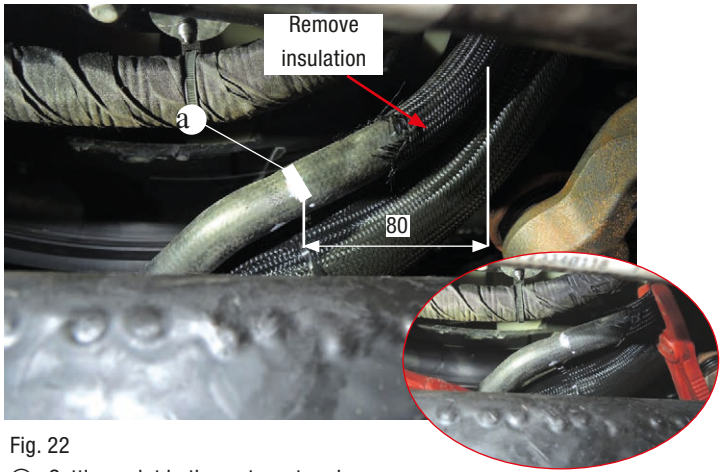


Fig. 22
① Cutting point in the water return hose

4 INSTALLATION

CONNECT AND LAY WATER HOSES
(see photos 23 to 26)

Connect water hose 2 to the water intake end of the heater using a spring band clamp.
Connect water hose 3 to the water discharge end of the heater using a spring band clamp.

Route the two water hoses 2 and 3 in front of the heater and down to the installation location of the water pump.

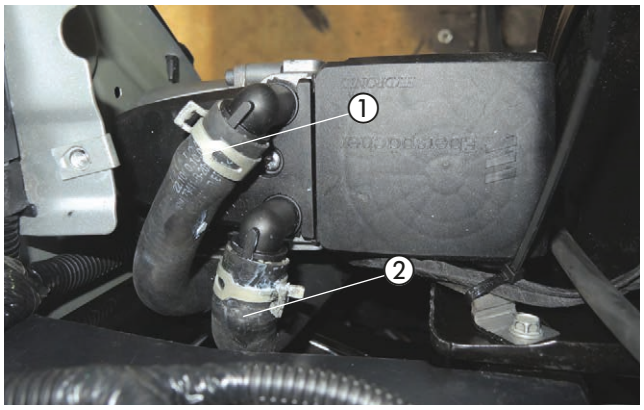


Fig. 23
① Connect water hose 2
② Connect water hose 3

Connect water hose 2 coming from the heater to the discharge end of the water pump using a spring band clamp.
Shape the unicoil as shown in the figure.

Connect water hose 1 to the intake end of the water pump using a spring band clamp.

Fasten water hoses 1 and 3 to one other and to the charge air pipe using a cable tie.

Route the two water hoses 1 and 3 further to the left to the water cut-off point.

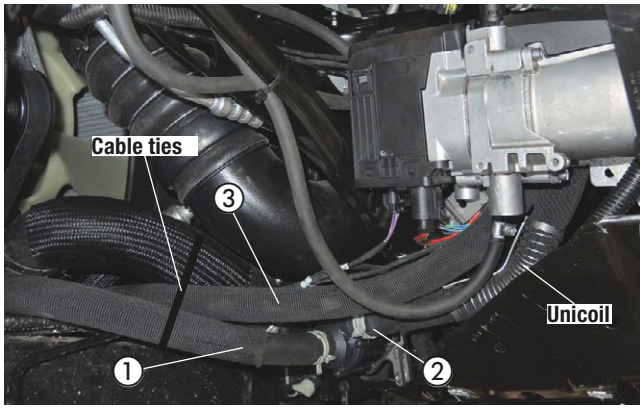


Fig. 24
① Connect water hose 1
② Connect and lay water hose 2
③ Route water hose 3

Connect water hose 1 with the 180° water hose elbow to the water return hose from the heat exchanger using a 16-25 mm Ø hose clip.

Connect water hose 3 with the 20/15 mm Ø reducer on the water return hose to the engine using a 16-25 mm Ø hose clip.

Fasten water hoses 1 and 3 to one other and to the vehicle's cable loom using a cable tie.

Make sure that the steering is not impeded!

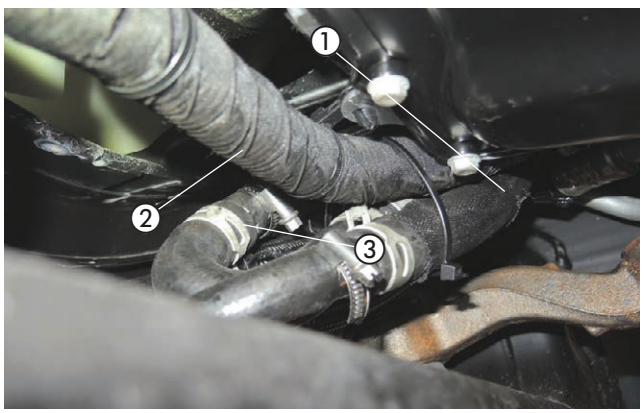
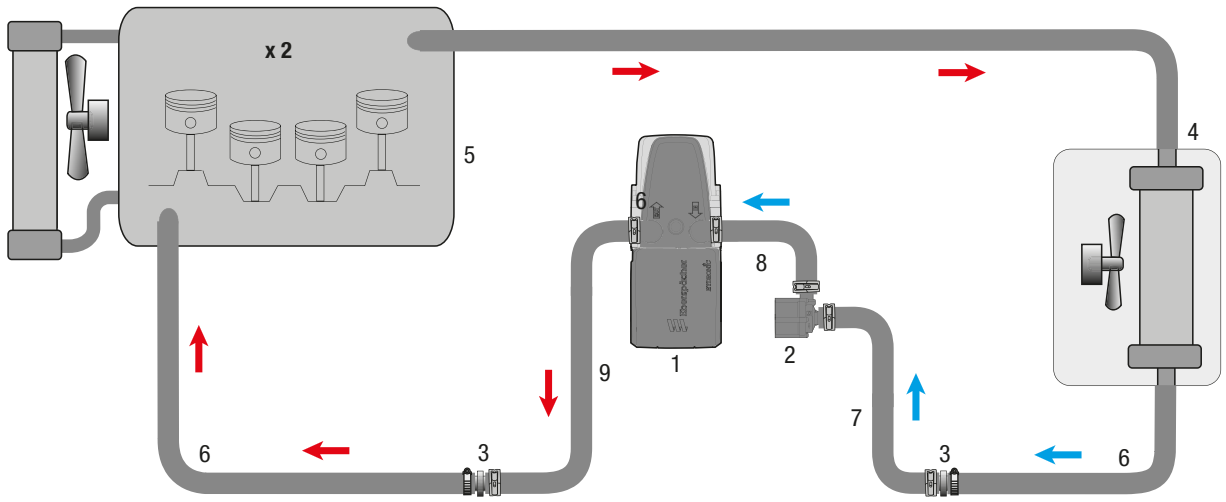


Fig. 25
① Connect water hose 1
② Cable ties
③ Connect water hose 3

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

4 INSTALLATION



1 - Heater Hydronic S3
2 - Water pump
3 - Reducer, 20/15 mm Ø
4 - Vehicle heat exchanger
5 - Engine
6- Vehicle water return hose to engine
7- Water hose 1
8- Water hose 2
9- Water hose 3
- Spring band clip, 26 mm Ø
- Hose clip, 16 - 25 mm Ø

Fig. 26

4 INSTALLATION

MOUNT EXHAUST SYSTEM
(see photos 27 to 29)

Remove the M6 vehicle fastening screw on the lower front crossbeam and replace with an M6 x 25 screw.

Fasten the prepared exhaust silencer to the replaced M6 x 25 screw on the lower front crossbeam using an M6 nut as shown in the figure.

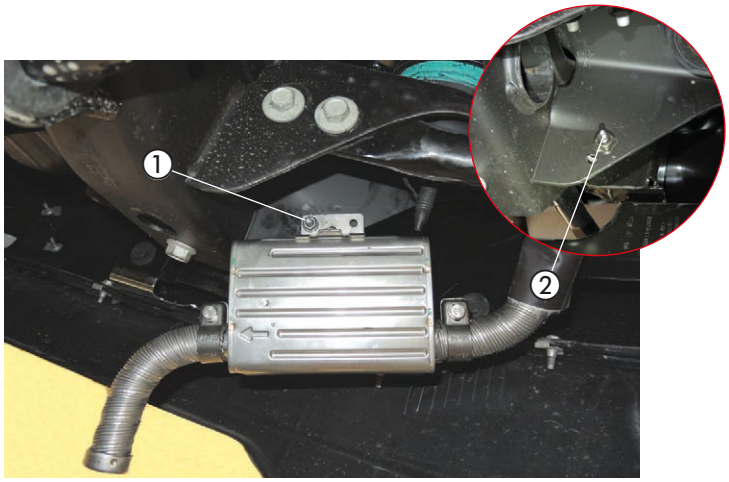


Fig. 27
① Mount the exhaust silencer
② Screw M6 x 25

Attach an L-bracket to the supporting strut of the right-hand front crossbeam using the M6 vehicle fastening screw as shown.

Route the exhaust pipe upwards to the heater.

Push a Ø 28 mm pipe clip onto the exhaust pipe and secure to the installed L-bracket using an M6 x 20 screw and M6 nut as shown.

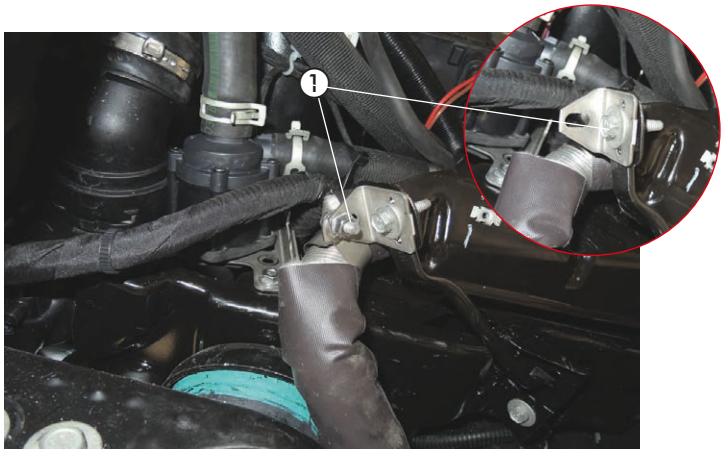


Fig. 28
① Install pipe clip and L-bracket

Route the exhaust pipe upwards and use a clamp to connect it to the exhaust connection of the heater.

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

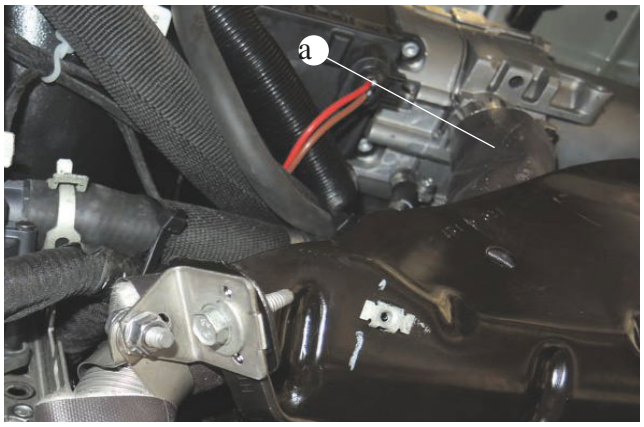


Fig. 29
① Connect the exhaust pipe

4 INSTALLATION

PREPARE T-PIECE FOR FUEL SUPPLY
(see photo 30)

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

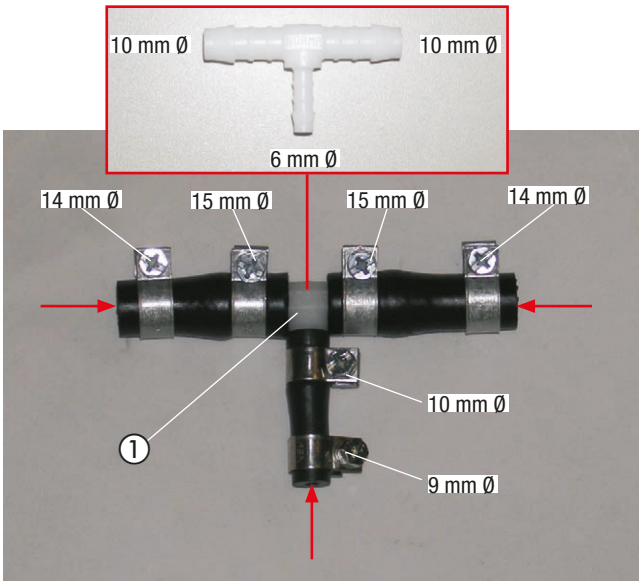


Fig. 30
① Prepare T-piece

CONNECT TANK
(see photos 31 and 32)

Cut the fuel return line at the vehicle underbody on the left before the tank according to the dimensions shown in the figure.

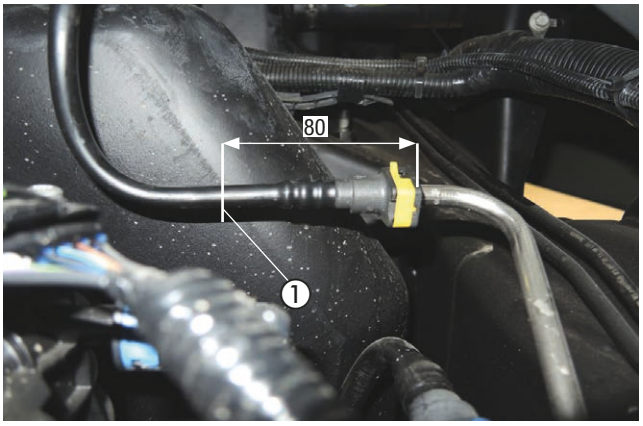


Fig. 31
① Cutting point on the fuel return line

Insert the two support sleeves in the cut through return line for greater stability.
Integrate the pre-mounted T-piece in the return line as shown.

Connect the fuel pipe (intake line) to the Ø 5.5 x 3.5 mm reducer using a 9 mm Ø hose clip as shown.

PLEASE NOTE!
Secure the connection points with 9 mm and 14 mm Ø hose clips.

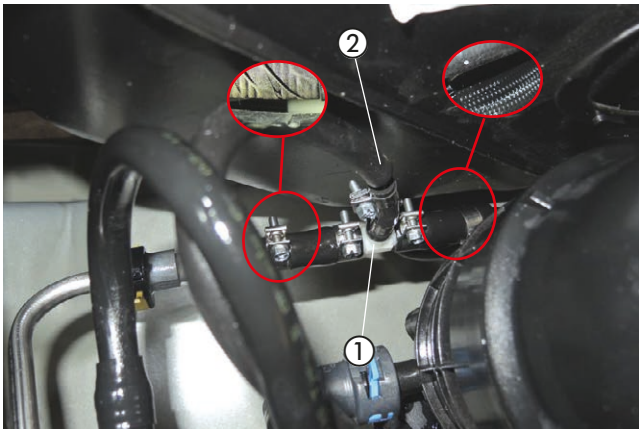


Fig. 32
① Fasten T-piece
② Connect fuel pipe (intake line)

4 INSTALLATION

LAYING THE FUEL PIPE
(see photos 33 to 35)

Fasten the metering pump cable of the main cable loom to the fuel pipe (discharge line) using insulating tape.

Connect the fuel pipe (pressure line) with the 4.5/3.5 mm Ø adapter to the fuel connection of the heater using a 10 mm Ø hose clip.

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.

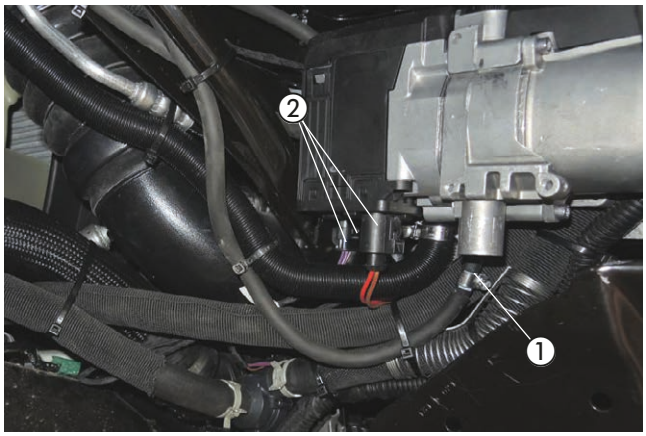


Fig. 33
① Mount fuel pipe (discharge line) with 4.5/3.5 mm Ø adapter
② Plug in electrical connections at heater

Route the fuel pipe (pressure line) together with the metering pump cable along the engine partition to the left side of the vehicle and further downwards to the left-hand underside of the vehicle.



Fig. 34
① Route fuel pipe (pressure line)

Route the fuel pipe (pressure line) together with the metering pump cable along the vehicle's cable loom to the installation location of the metering pump to the left in front of the tank and secure at appropriate points using cable ties.

⚠ CAUTION!
When laying fuel lines, always ensure they are at an adequate distance from hot vehicle and heater parts.
Fix the fuel lines at appropriate points using cable ties.

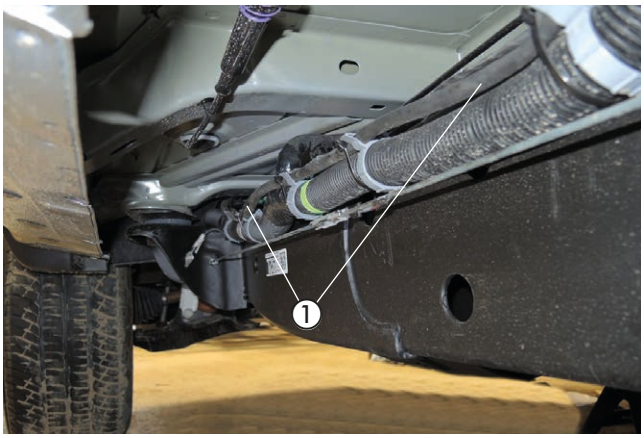


Fig. 35
① Route fuel pipe (pressure line)

4 INSTALLATION

INSTALL AND CONNECT THE METERING PUMP
(see photos 36 and 37)

Fasten the preassembled metering pump in the existing 8 mm Ø hole in the left frame bracket in front of the tank using an M6 x 16 screw, a body washer and an M6 nut.
Ensure it is installed with at least a 15° rising gradient on the pressure side.

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

Connect the connector to the metering pump.

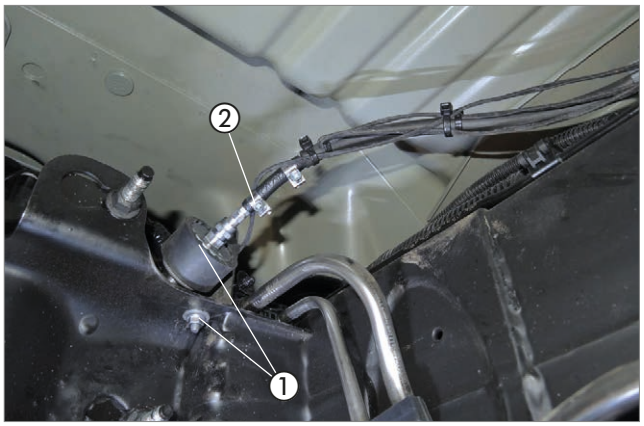


Fig. 36
① Mount the metering pump
② Metering pump discharge end

Lay the fuel pipe (intake line) from the tank extractor (T-piece) to the metering pump and connect with the 3.5 x 3 mm Ø fuel hose to the intake connection of the metering pump.

⚠ CAUTION!
Secure all hose connections with hose clips.

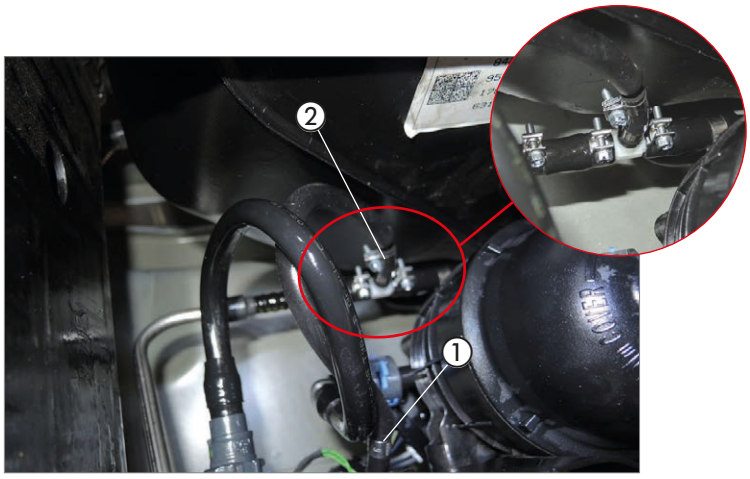


Fig. 37
① Metering pump intake end
② T-piece

4 INSTALLATION

INSTALL FUSE HOLDER
(see photo 38)

Fasten the premounted holder with fuse block using the vehicle's M8 fastening screw to the right-hand cross strut in the engine compartment.

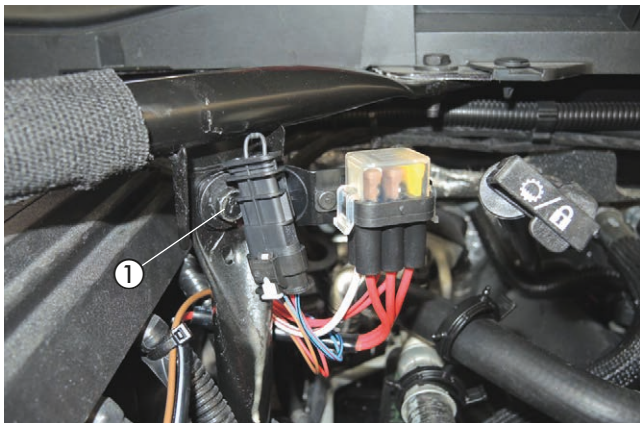


Fig. 38
① Install the premounted bracket with fuse holder

CABLE LAYING
(see photo 39)

Drill a Ø 17 hole on the left-hand side in the lower part of the engine partition and install the grommet as shown in the figure.
Take the vehicle interior cable loom consisting of:
- 4 mm² ws/rt and 1 mm² sw/rt cable
- 3-wire control unit cable loom
- 4-pin fan control box cable loom

through the inserted cable grommet on the left side of the engine partition and into the interior of the vehicle.

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

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.

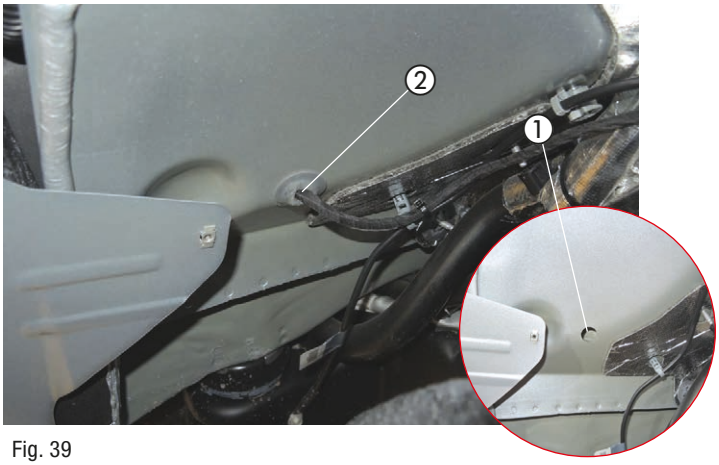


Fig. 39
① Drill hole
② Lay the cable loom through the hole

POWER SUPPLY
(see photo 40)

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

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

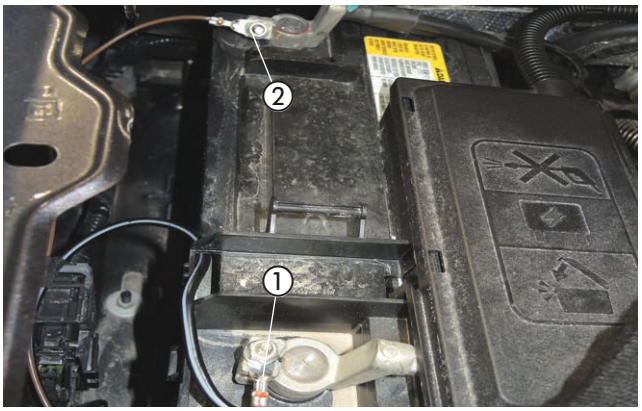


Fig. 40
① Connect positive cable 4 mm² rt
② Connect 2.5 mm² br earth cable

4 INSTALLATION

INSTALL EASYSTART TIMER
(Alternative suggestion - consult with the customer)
(see photo 41)

The EasyStart Timer is installed according to the “EasyStart Timer” installation instructions.

Mount the EasyStart Timer in the upper glove compartment as shown.

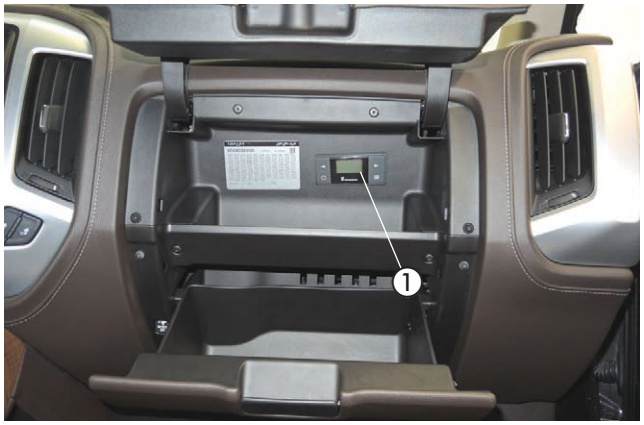


Fig. 41
① Install EasyStart timer

5 FOLLOWING INSTALLATION

ADHERE THE “REFUEL” LABEL
(see photo 42)

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



Fig. 42
① Adhere the “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 coolant liquid up to the marking (arrow).
- Adhere the duplicate nameplate in a clearly visible position near the heater or at a suitable point on the B-pillar.
- Adhere the “Refuel” label in the fuel tank flap or at a suitable point on the B-pillar.
- 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.
- Place the leaflet for the customer in the glove compartment or hand over personally to the customer.

⚠ 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.

7 PARTS OVERVIEW

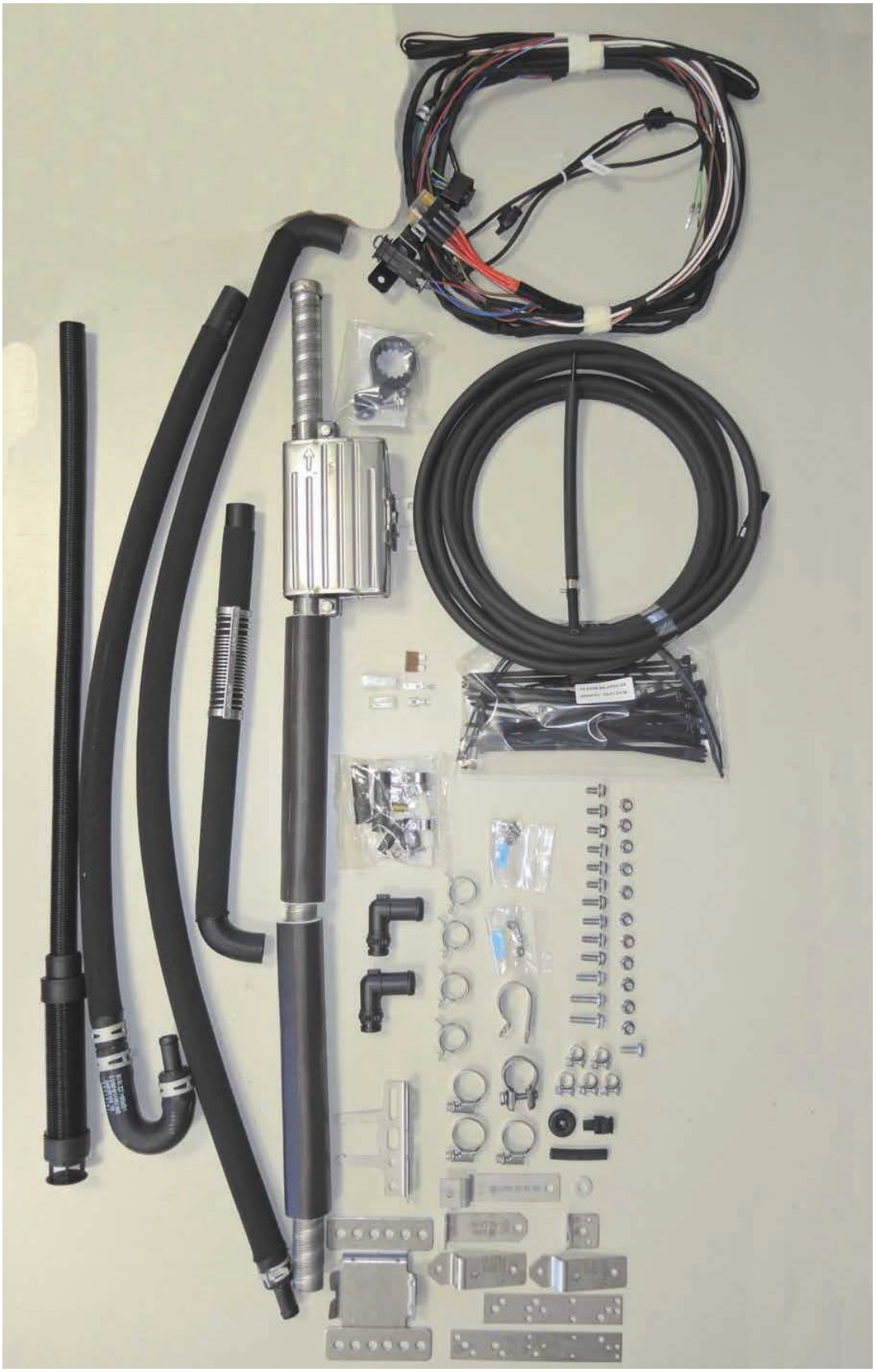


Fig. 43

LEAFLET FOR THE CUSTOMER

INSTRUCTIONS FOR THE CUSTOMER
(see photo 1)

- No adjustments are necessary to the aircon control.



Fig. 44Fig. 1
① AirCon control unit

RECOMMENDATION!

- 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.
- The heating time should be at least 45 min.

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