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Installation documentation

for water heater Thermo Top Evo

'Inline' coolant circuit with engine preheating

VW Passat

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
VW	Passat	3C	from 2020	e1* 2001/116* 0307*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
2.0TDi	Diesel	Euro 6d Temp	7-speed DSG	110	1968	DSRB

Validity	Equipment variants	Model
		Passat
Verified equipment variants	3 zone automatic air-conditioning	x
	LED Matrix headlights	x
	LED front fog lights with turning lights	x
	LED daytime running lights	x
	Dynamic cornering light	x
	Keyless Go (Kessy)	x
	Adaptive chassis control	x
	Automatic Start-Stop system	x
	Start button	x
	FWD	x

Total installation time	Note
7.2 hours	

Contents

1 List of abbreviations

CR	Cronus (passenger compartment control unit)
DP	Fuel pump
DSG	Direct gear transmission
FF	FuelFix (tank extracting device)
Fig.	Figure
FWD	Front wheel drive
HG	Heater
MY	Model year
SH2	Engine compartment fuse holder for F1/F2/F3
UP	Coolant pump
Veh.	Vehicle

2 Installation notes

2.1 Information on Validity

This installation documentation applies to vehicles listed on page 1, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation. Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

2.2 Components used

Designation	Order number
Delivery scope of VW Passat / Skoda Superb diesel Cronus MY 2020 TT-Evo	1327686A
Additional coolant kit for VW Passat 110KW diesel MY 2020	1328264A
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list
The following must also be ordered for the ThermoConnect option: retrofitting Y adapter wiring harness	1319820_

2.3 Notes on installation, in coordination with the end customer

▶ Arrange for the vehicle to be delivered with the tank only about ¼ full.

▶ The installation location of the following elements should be chosen in coordination with the end customer:

- the Cronus push button as well as the push button in case of the Telestart and/or ThermoConnect options
- the MultiControl CAR option

2.4 Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting the vehicle-specific components, the heater specific installation time and all other times required for the system integration and initial start-up of the heater.
The total installation time may vary for vehicle equipment other than provided.

3 About this document

3.1 Purpose of the document

This installation documentation is part of the product and contains all the information required to ensure professional vehicle specific installation of the:

Thermo Top Evo heater

3.2 Warranty and liability

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

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

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

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

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

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

The initial start-up is to be executed with the Webasto Thermo Test Diagnosis.

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

3.2.1 Statutory regulations governing installation

The Thermo Top Evo heater has been type-tested and approved in accordance with ECE-R 10 (EMC) and ECE-R 122 (heater). The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

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

3.3 Safety

Qualifications of installation personnel

The installation personnel must have the following qualifications:

- Successful completion of Webasto training
- Corresponding qualification for working on technical systems

Regulations and legal requirements

The regulations from the heater's general installation and operating instructions must be observed.

3.3.1 Safety information on installation

Danger posed by live parts

▶ Prior to installation, disconnect the vehicle from the voltage supply.

▶ Make sure the electrical system is earthed correctly.

▶ Always comply with legal requirements.

▶ Observe data on type label.

Danger of fire and leaking toxic gases due to improper installation

▶ Vehicle parts in the vicinity of the heater must be protected against excessive heating by the following measures:

  ⇨ Maintain minimum safety distances.

  ⇨ Ensure adequate ventilation.

  ⇨ Use fire-resistant materials or heat shields.

Danger due to sharp edges

- Lacerations
- Short circuit due to electrical wire damage

▶ Fit protectors on sharp edges.

3.4 Using this document

Before installing and operating the heater, read this installation documentation, the installation instructions of the heater, the operating instructions and supplementary sheets provided.

3.4.1 Explanatory Notes on the Document

There is an identification mark near the respective work step to allow you to quickly allocate the other applicable documents to the Webasto components to be installed:

Generally valid Webasto documentation	
Vehicle-specific installation documentation	K
Vehicle-specific installation documentation of the cold start kit	M
Webasto Comfort A/C control	H
Webasto Standard A/C control	G
Tank extracting device (e.g. FuelFix)	F
Exhaust end fastener (EFIX)	E
Combustion air intake silencer	L
Spacer bracket (ASH)	S

3.4.2 Use of symbols

DANGER

Type and source of the risk

Consequences: Failure to follow the instructions can result in death

▶ Actions to protect yourself against risks.

WARNING

Type and source of the risk

Consequences: Failure to follow the instructions can lead to serious or even fatal injuries

▶ Actions to protect yourself against risks.

CAUTION

Type and source of the risk

Consequences: Failure to follow the instructions can lead to minor injuries

▶ Actions to protect yourself against risks.

Type and source of the risk

Consequences: Failure to follow the instructions can lead to material damage

▶ Actions to protect yourself against risks.

Reference to the vehicle manufacturer's specific documents.

Note on a special technical feature

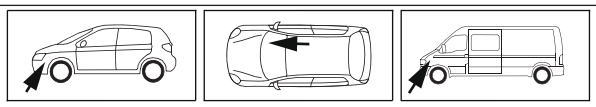
3.4.3 Work step identification marks

The ongoing work step is indicated on the outside top corner of the page:

Mechanical system	Electrical system	High-voltage	Coolant

Combustion air	Fuel	Exhaust	Software

3.4.4 Orientation aid



The arrow indicates the position on the vehicle and the viewing angle

3.4.5 Use of highlighting

Highlight	Explanation
✓	Action
▶	Necessary action
⇨	Result of an action
1 / 12 / a1	Position numbers for the image descriptions
① / ⑫ / Ⓐ	Position numbers for the image descriptions for electrical wires and components as well as coolant hose sections

4 Technical Information

Dimension specifications
– All dimensions specified in mm
– Perforated brackets and mounting angles are shown to scale
– Observe data regarding scale on the templates

Tightening torque specifications
– Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm
– Tightening torque values of 5x15 retaining plate of water connection piece bolts = 7Nm
– 5x12 bolt tightening torque of 2-part heater bracket = 6Nm
– Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology

Temperature specification for heat shrink plastic tubings
– Fabric heat shrink tubing: shrink temperature max. 230°C
– Standard heat shrink plastic tubing: shrink temperature max. 300°C

Necessary special tools
– Hose clamp pliers for auto-tightening hose clamps
– Hose clamp pliers for Clic hose clamps of type W
– Hose clamping pliers
– Hose cutter
– Automatic wire stripper 0.2 - 6 mm²
– Crimping pliers for cable lugs 0.5 – 10 mm²
– Crimping pliers for male connector 0.14 – 6 mm²
– Crimping pliers for connector 0.25 – 6 mm²
– Torque wrench for 2.0 - 10 Nm
– Deep-hole marker
– Metric thread-setter kit
– Webasto Thermo Test Diagnosis with current software

5 Preparations

5.1 Vehicle preparation

Further information can be found in the vehicle manufacturer's technical documentation.

Vehicle area	Components to be removed	Other applicable documents
General	▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system	
Engine compartment and body	▶ Disconnect the battery ▶ Complete battery with battery carrier ▶ Complete air filter ▶ Front wheel on the front passenger's side ▶ Wheel well trim on the front passenger's side ▶ Engine underride protection ▶ Underbody underride protection on the front passenger's side ▶ Engine design cover	
Passenger compartment	▶ Side instrument panel trim on the driver's side ▶ Footwell trim on the driver's side ▶ Air-conditioning control unit ▶ Rear seat ▶ Open the tank fitting service lid on the driver's side	

5.2 Heater preparation

Engine compartment	▶ Remove years that do not apply from the type and duplicate label ▶ Attach the duplicate label (type label) in the appropriate place in the engine compartment	

6 Installation overview

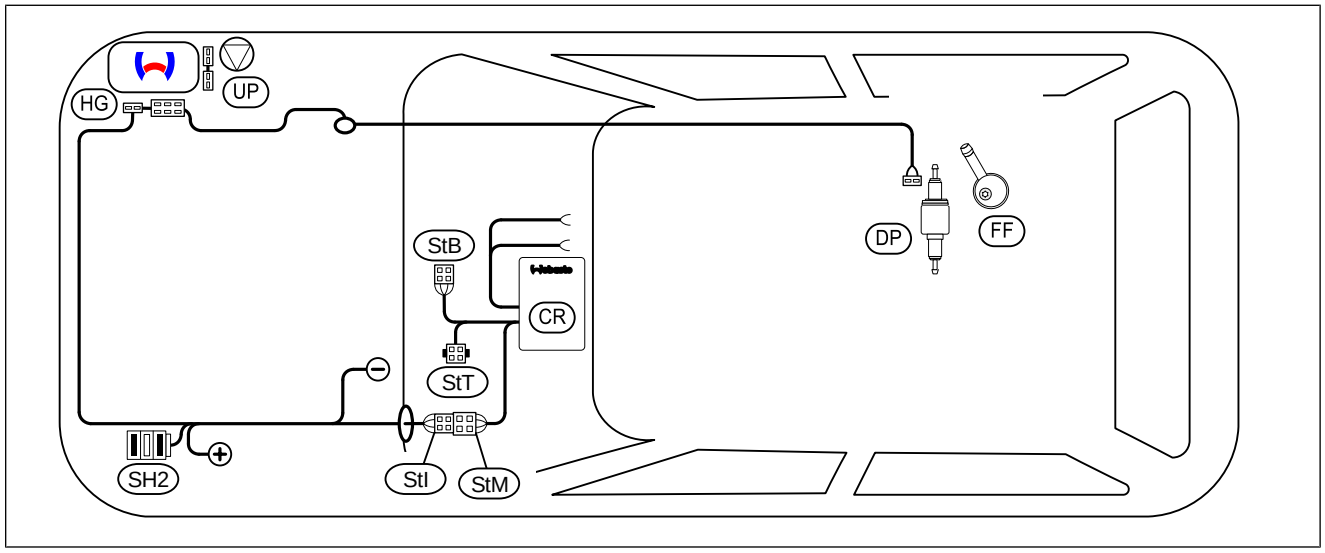


Fig. 1

Legend to installation overview

Abbreviation	Component
CR	Cronus (passenger compartment control unit)
DP	Fuel pump
FF	FuelFix
HG	Heater assembly
SH2	Engine compartment fuse holder for F1/F2/F3
StB	Female plug for control element wiring harness
StI	Female plug for passenger compartment wiring harness
StM	Male plug for engine compartment wiring harness
StT	Male plug for push button wiring harness
UP	Coolant pump

Heater assembly installation location

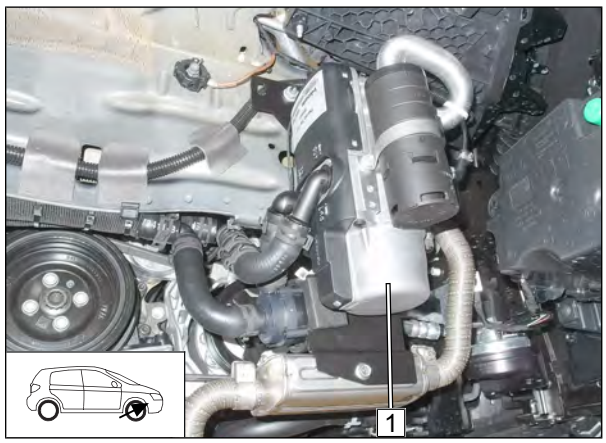


Fig. 2

1 Heater assembly

7 Electrical system of engine compartment

Removing and adapting engine compartment fuse and relay box cover

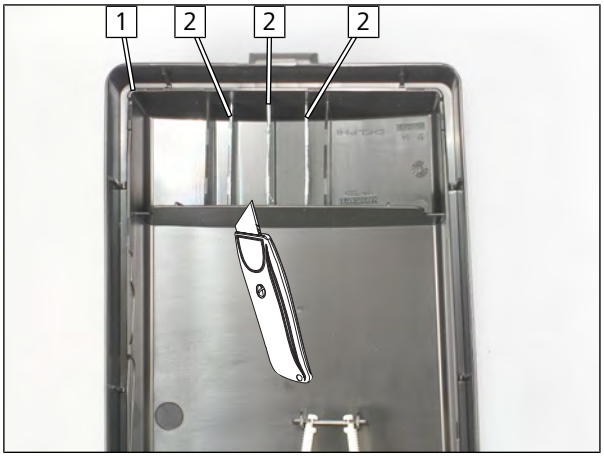


Fig. 3

▶ Remove plastic ribs **2** as shown in Fig.

1 Top cover of engine compartment fuse and relay box

Removing cover

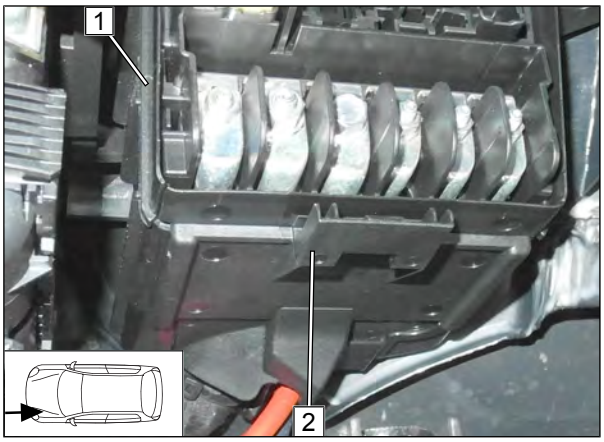


Fig. 4

▶ Remove front cover **2** of engine compartment fuse and relay box **1**.

Copying hole pattern, drilling hole

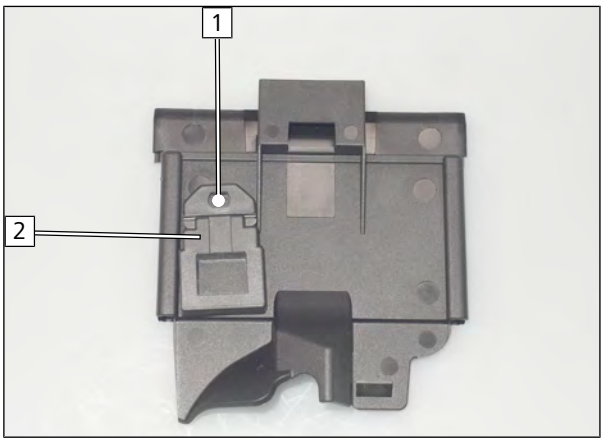


Fig. 5

▶ Position retaining plate of SH2 **2** onto front cover, copy hole pattern **1** and Ø6 hole.

Premounting retaining plate of SH2

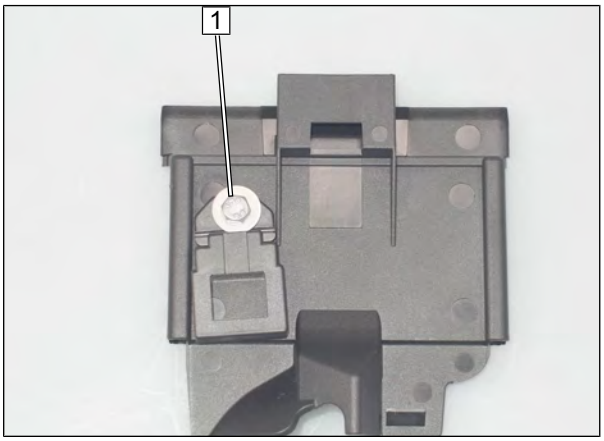


Fig. 6

[1] M5x12 bolt, large diameter washer, retaining plate of SH2, front cover, large diameter washer, flanged nut

Preparing wiring harness

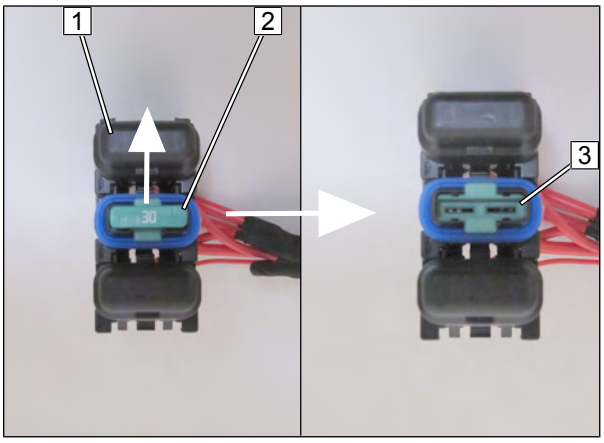


Fig. 7

Remove and discard 30A fuse [2] from SH2 [1].

[3] Fuse removed

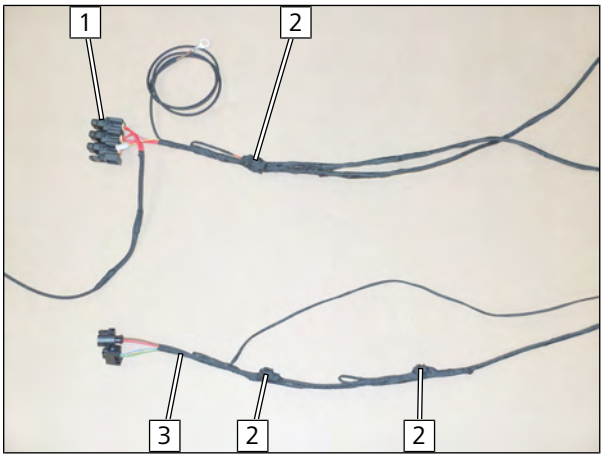


Fig. 8

Tie back connector [2] using insulating tape.

[1] SH2

[3] Heater wiring harness

Positive wire connection

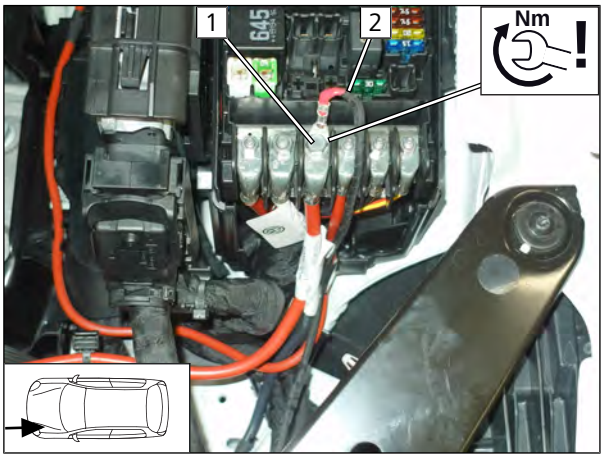


Fig. 9

DANGER

Observe tightening torque

1 Original vehicle positive point
2 Positive wire

Mounting cover and SH2

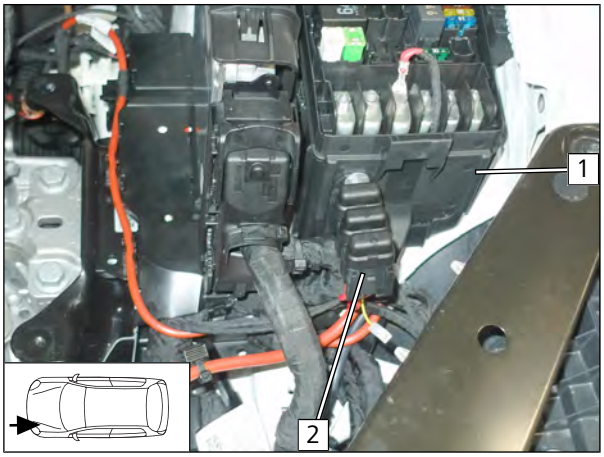


Fig. 10

1 Front cover
2 SH2 with F1, F2 (empty) and F3

Routing wiring harnesses

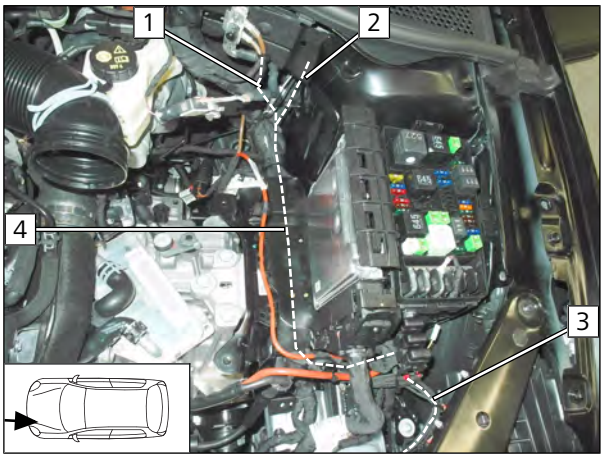


Fig. 11

1 Earth wire
2 Passenger compartment wiring harness
3 Heater wiring harness
4 Earth wire and passenger compartment wiring harness

Earth wire connection

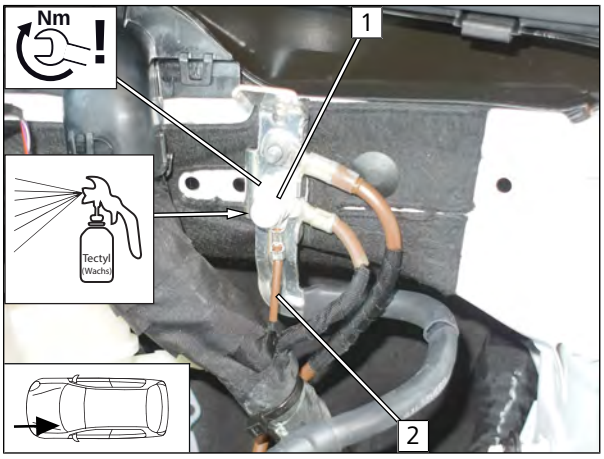


Fig. 12

DANGER

Observe tightening torque

1 Original vehicle earth point
2 Earth wire

Passenger compartment wiring harness pass through

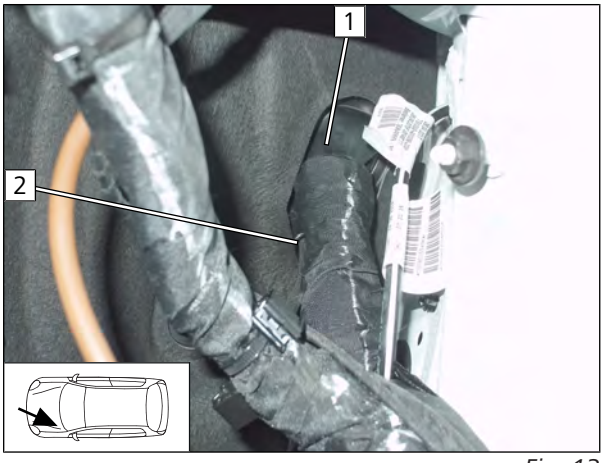


Fig. 13

To prevent water seeping into the passenger compartment, the wiring harness must be routed upwards to the protective rubber plug and this plug must then be sealed with a suitable sealing compound.

1 Protective rubber plug
2 Passenger compartment wiring harness

Heater wiring harness routing

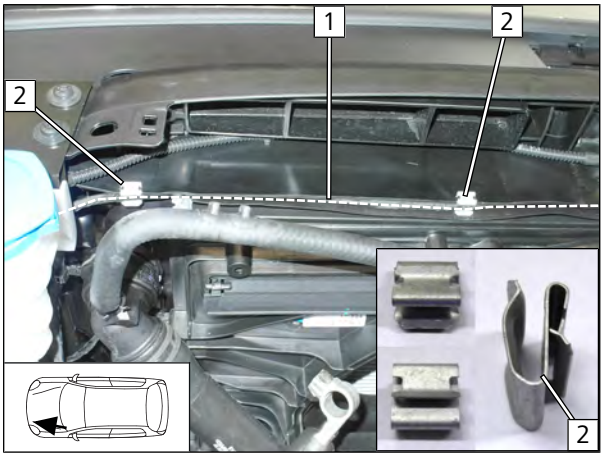


Fig. 14

1 Heater wiring harness
2 Edge clip

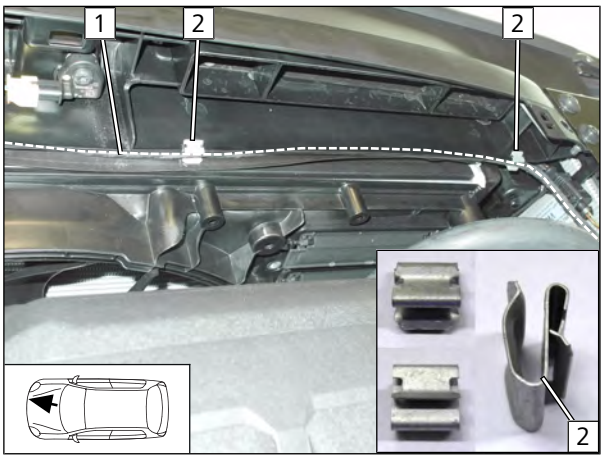


Fig. 15

1 Heater wiring harness
2 Edge clip

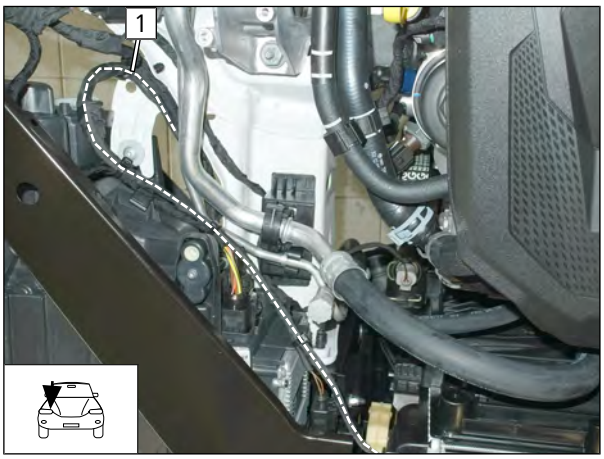


Fig. 16

1 Heater wiring harness

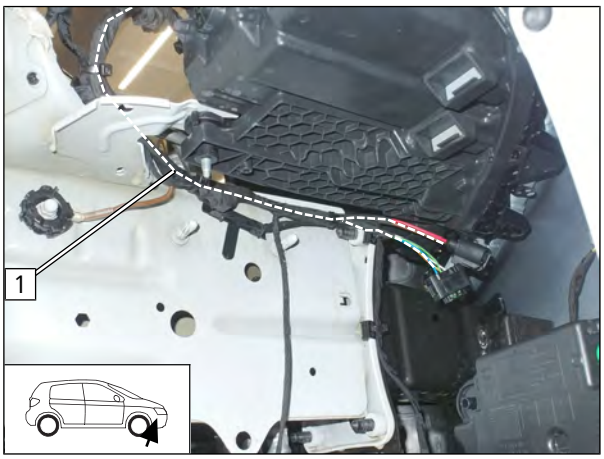


Fig. 17

1 Heater wiring harness

8 Mechanical system

8.1 Installation location preparation

Routing original vehicle wiring harness

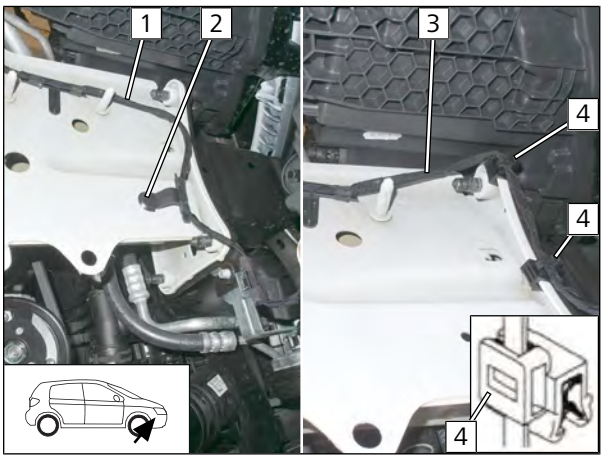


Fig. 18

▶ Disengage original vehicle wiring harness **1** at position **2**.

3 Repositioned original vehicle wiring harness

4 Edge clip cable tie

Adapting horn and horn bracket

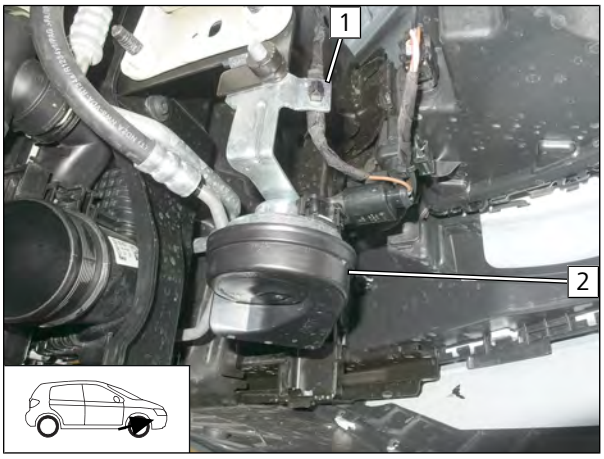


Fig. 19

▶ Bend horn bracket at position **1** as shown and align horn **2**.

Adapting original vehicle tab

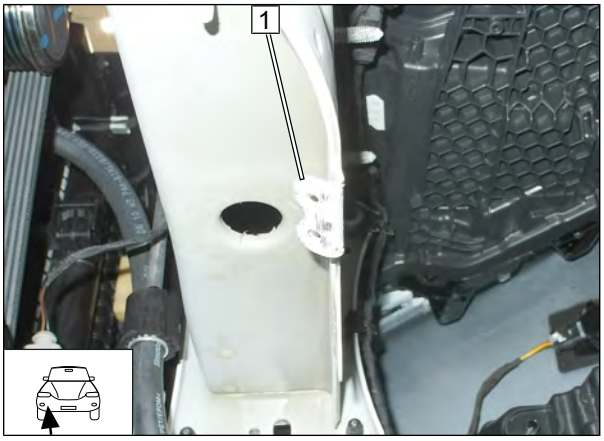


Fig. 20

▶ Bend original vehicle tab **1** as shown.

Positioning spacer

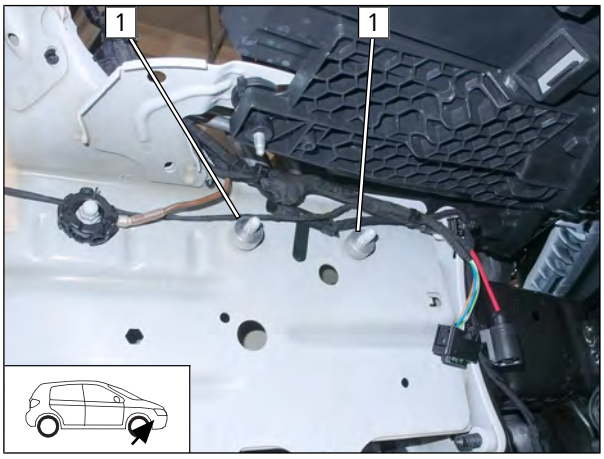


Fig. 21

1 Spacer (10) on original vehicle stud bolt

8.2 Heater assembly installation

Heater assembly

Fig. 22

1 Fuel line
2 Heater inlet connection
3 Heater outlet connection

Assigning heater assembly hoses

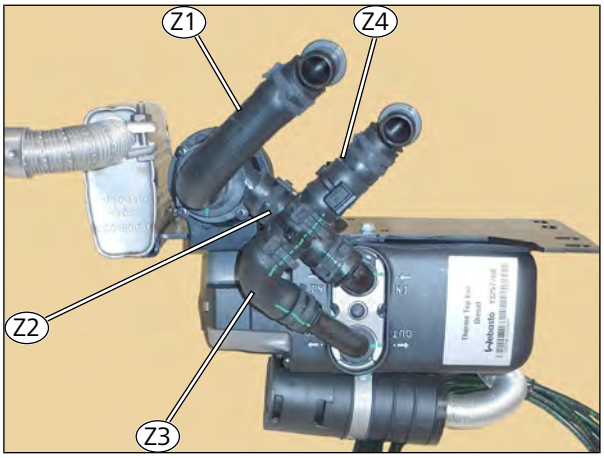


Fig. 23

Z1 Coolant pump inlet hose section
Z2 Coolant pump outlet/heater inlet hose section
Z3 Heater outlet hose section
Z4 Hose section on hose Z3 (heater outlet)

Mounting HG wiring harness

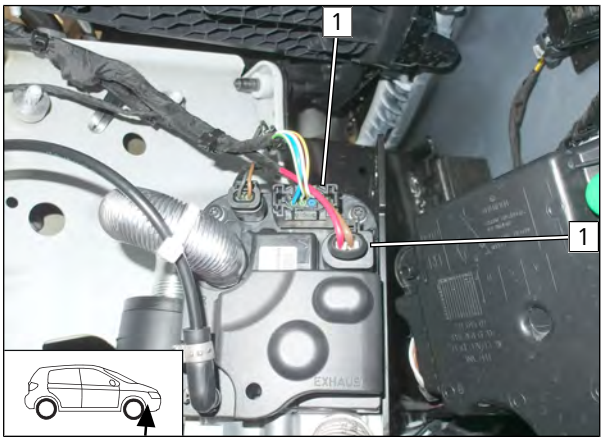


Fig. 24

[1] Heater wiring harness connector

Heater assembly installation

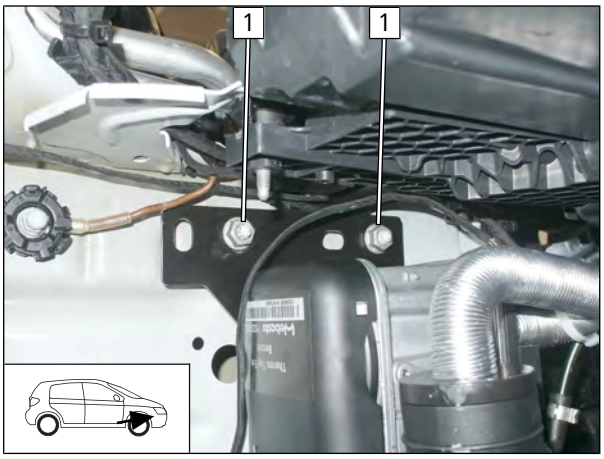


Fig. 25

▶ Mount flanged nut [1] loosely.

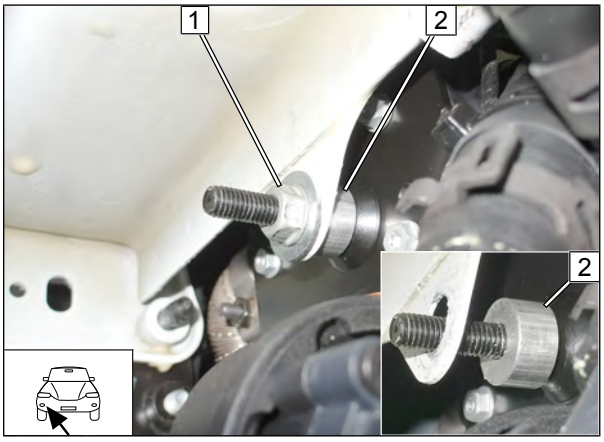


Fig. 26

[1] Mount heater bracket stud bolt, spacer (10), original vehicle tab, large diameter washer, flanged nut loosely

[2] Spacer (10)

Checking distance

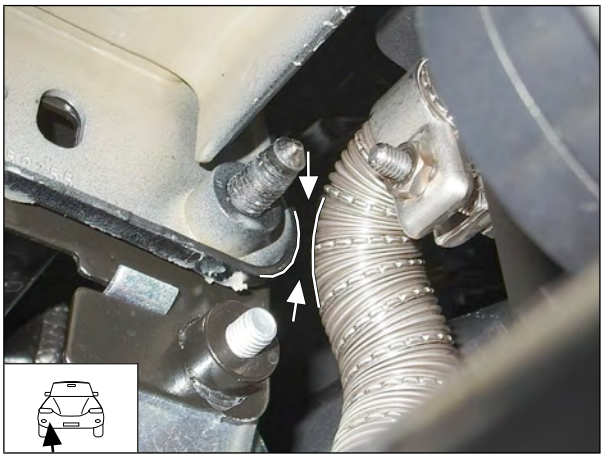


Fig. 27

Danger of damage to components

▶ Ensure sufficient distance from neighbouring components, correct if necessary.

Tighten all the screw connections of the heater assembly.

9 Fuel

DANGER

Risk of fire and explosion due to leaking fuel and escaping fuel vapours.

The incorrect installation of the fuel extractor can cause damage and fire.

- ▶ Avoid electrostatic discharges and open fire
- ▶ When working on the fuel system, ensure sufficient ventilation and bleeding
- ▶ Open the fuel tank cap of the vehicle
- ▶ Ventilate the fuel tank
- ▶ Re-close the tank lock
- ▶ Catch any fuel running off with an appropriate container

Danger of damage to components

- ▶ Install fuel line and fuel pump wiring harness so that they are protected against stone impact
- ▶ Provide rub protection for fuel line and wiring harness in areas where there are sharp edges

Dismantling fuel pump connector X7

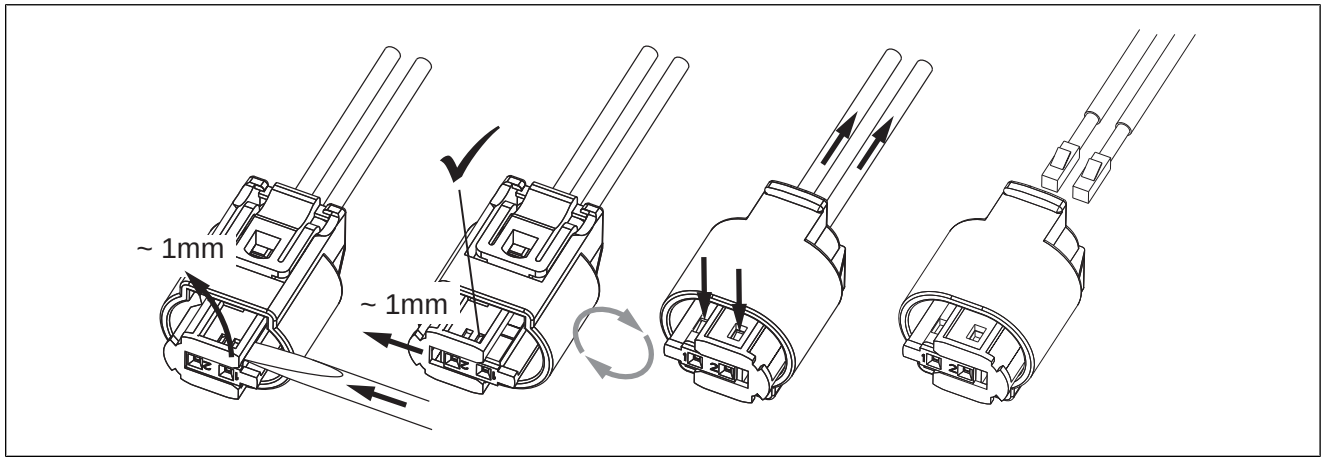


Fig. 28

9.1 Routing fuel line

Cutting to length/assigning corrugated tubes

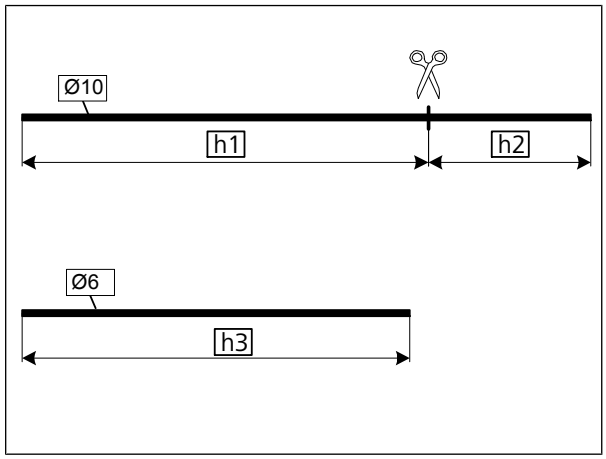


Fig. 29

h1 800
h2 330
h3 700

Routing fuel line in wheel well

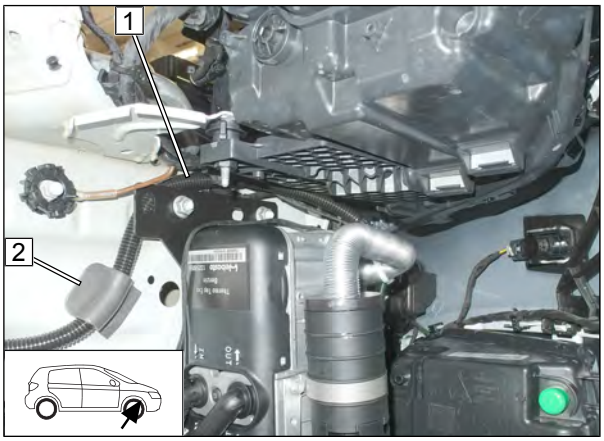


Fig. 30

1 Fuel line and fuel pump wiring harness in corrugated tube h1

2 Self-adhesive foam cut in half

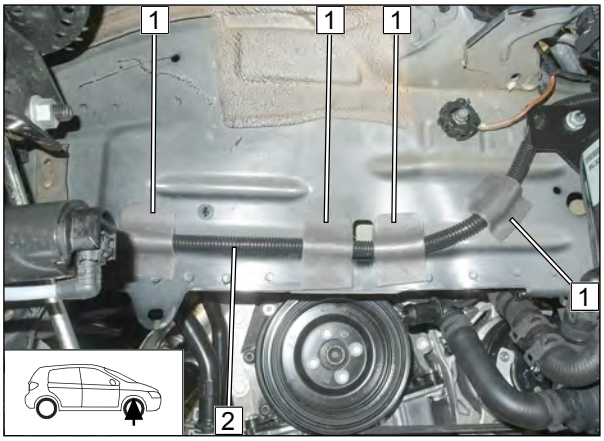


Fig. 31

1 Self-adhesive foam cut in half

2 Fuel line and fuel pump wiring harness in corrugated tube h1

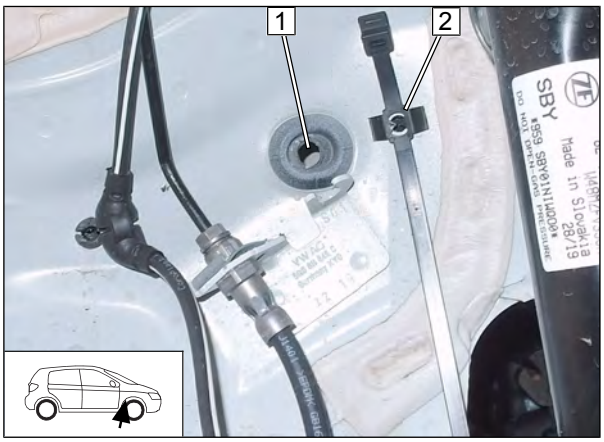


Fig. 32

▶ Pierce original vehicle pass through 1 in the middle as shown.

2 Eyelet cable tie in original vehicle hole

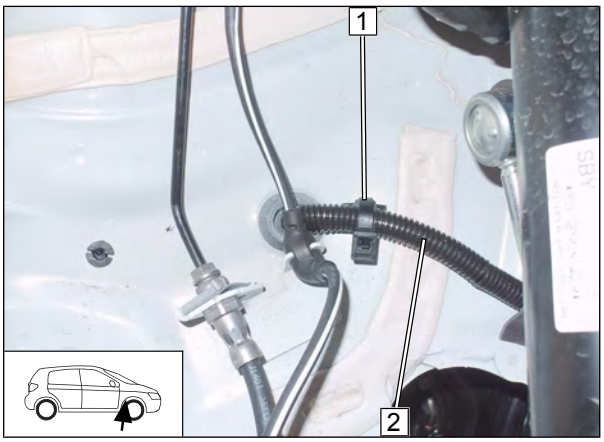


Fig. 33

1 Close eyelet cable tie

2 Fuel line and fuel pump wiring harness in corrugated tube **h1**

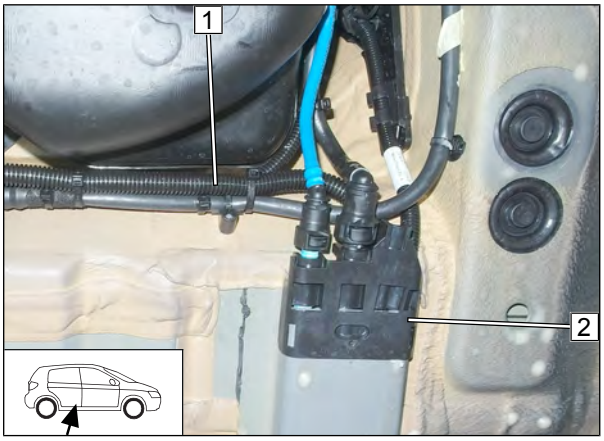


Fig. 34

1 Fuel line and fuel pump wiring harness in corrugated tube **h2**

2 Original vehicle line duct

Preparing fuel pump perforated bracket

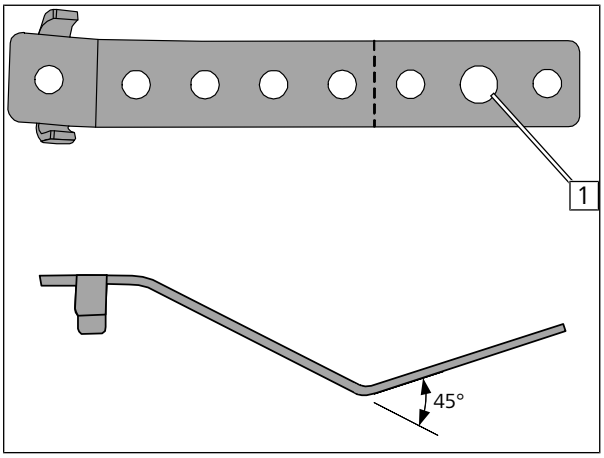


Fig. 35

1 Drill out hole to Ø8.5

Preparing fuel pump mount

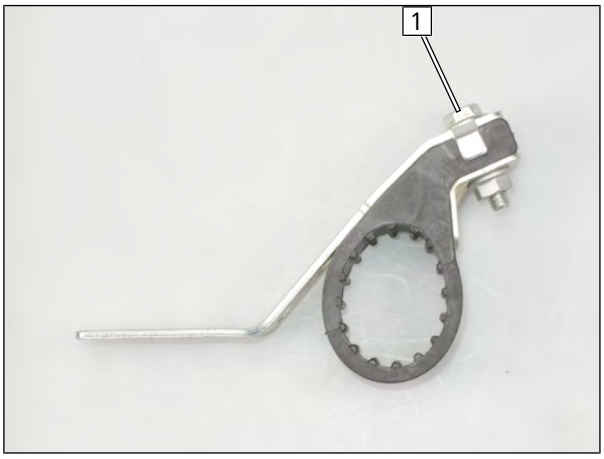


Fig. 36

1 M6x25 bolt, prepared perforated bracket, fuel pump mount, support angle bracket, flanged nut

Premounting fuel pump

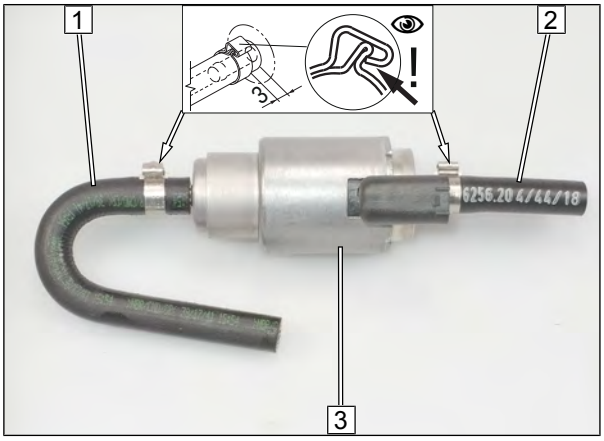


Fig. 37

1 180° moulded hose, Ø10 clamp
2 Hose section, Ø10 clamp
3 Fuel pump

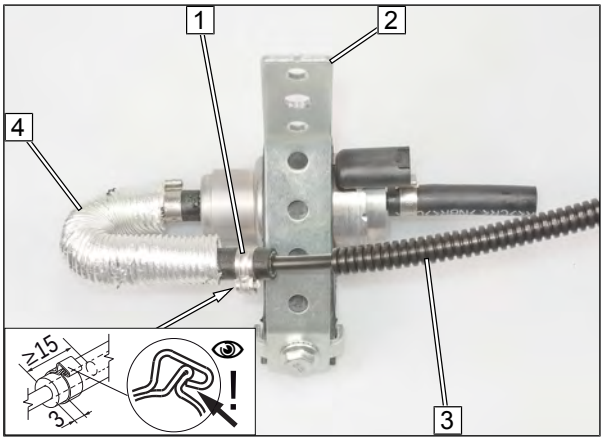


Fig. 38

1 Ø10 clamp
2 Premounted perforated bracket with fuel pump mount
3 Fuel line in corrugated tube **h3**
4 Heat protection, 100 long

Mounting fuel pump

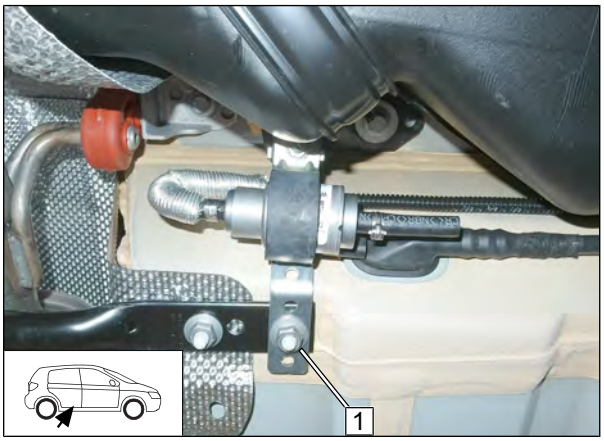


Fig. 39

[1] Original vehicle stud bolt, premounted fuel pump, original vehicle flanged nut

Assembling fuel pump connector X7

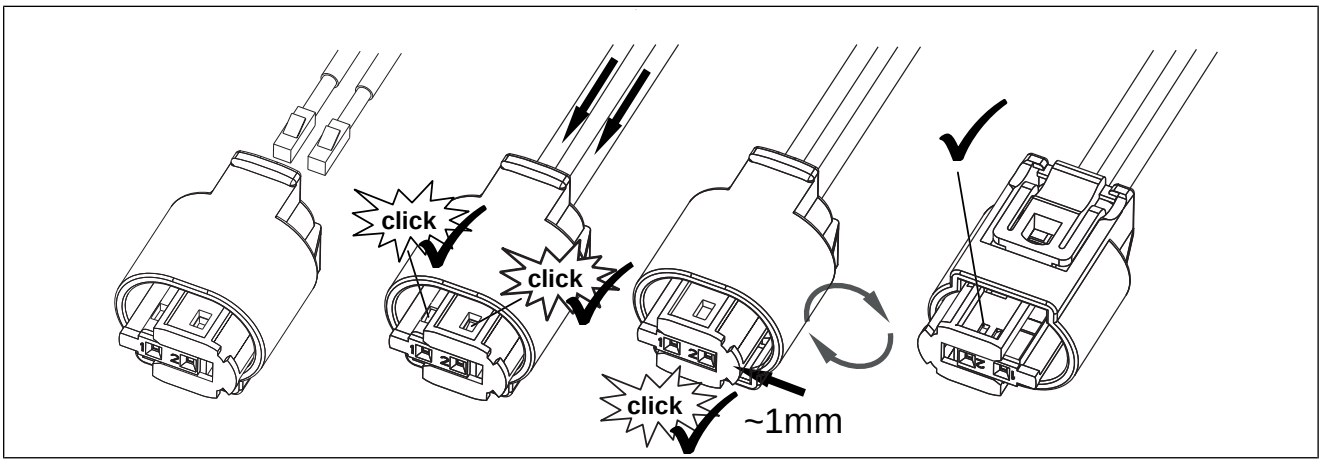


Fig. 40

Connecting fuel pump

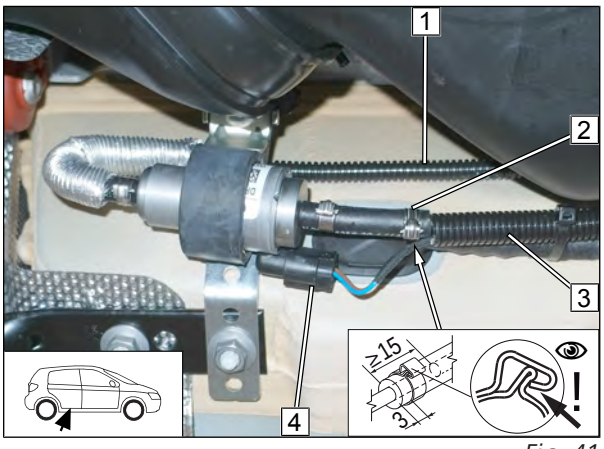


Fig. 41

[1] Fuel line in corrugated tube **h3**

[2] Ø10 clamp

[3] Fuel line and fuel pump wiring harness in corrugated tube **h2**

[4] Fuel pump wiring harness, connector X7 mounted

Routing wiring harness

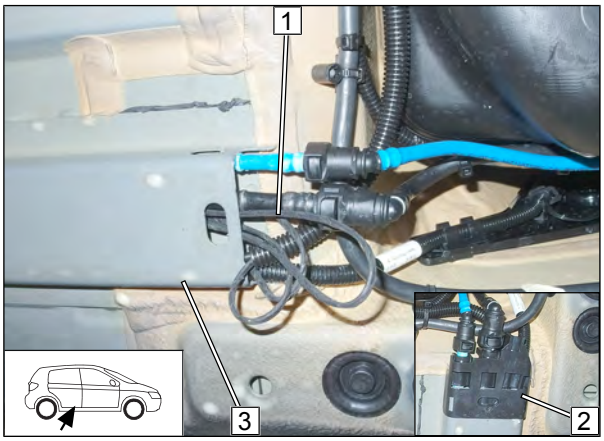


Fig. 42

▶ Insert the rest of fuel pump wiring harness [1] in original vehicle line duct [3] as shown. Close cap [2] again.

Routing corrugated tube [h3] with fuel line

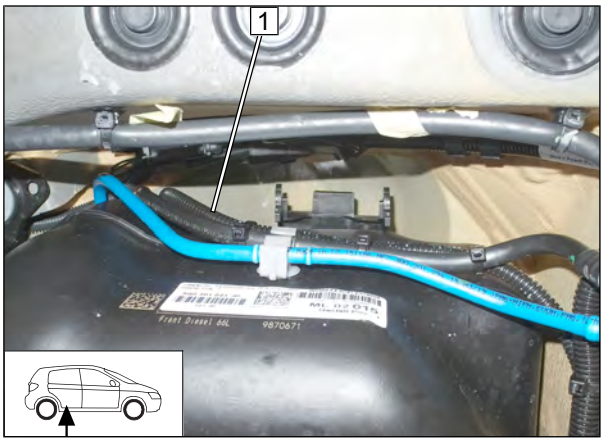


Fig. 43

[1] Route corrugated tube [h3] with fuel line to tank fitting

9.2 Installing FuelFix

Preparing drilling template

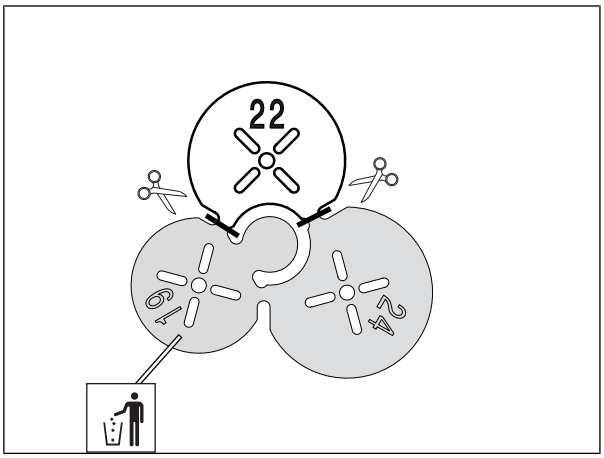


Fig. 44

Copying hole pattern

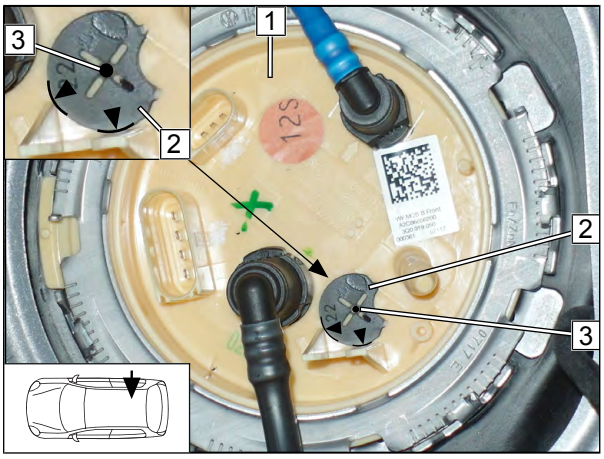


Fig. 45

Observe the installation instructions of the tank extracting device.

▶ Work steps F1, F2

1 Tank fitting
2 Position Ø22 drilling template as shown in fig.
3 Hole pattern

Hole for FuelFix

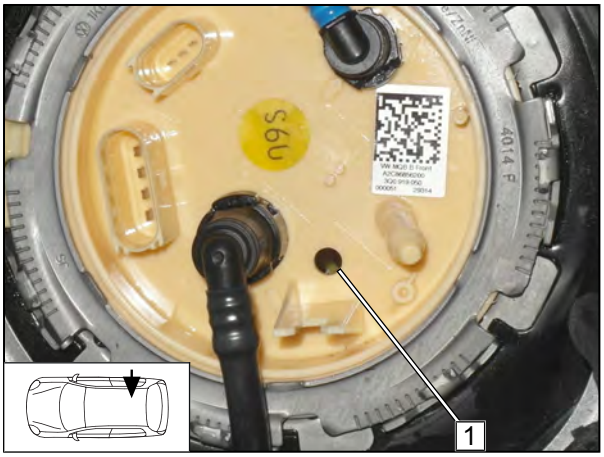


Fig. 46

DANGER

Risk of fire and explosion due to leaking fuel and escaping fuel vapours

▶ Work step F3

1 Hole made with provided drill

Inserting FuelFix

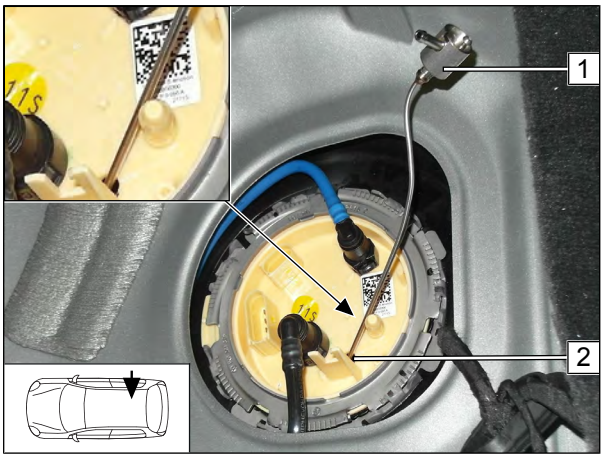


Fig. 47

▶ Work steps F4, F5

▶ Bend FuelFix 1 according to template and cut to length. Insert in hole 2.

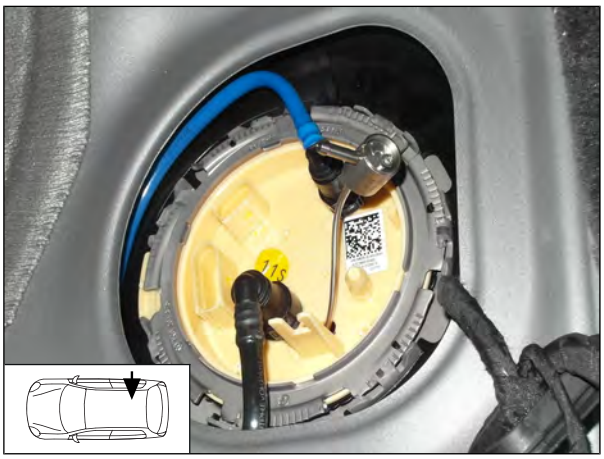


Fig. 48

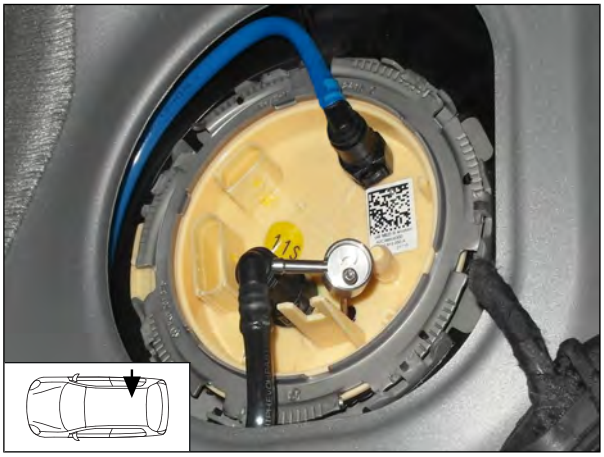


Fig. 49

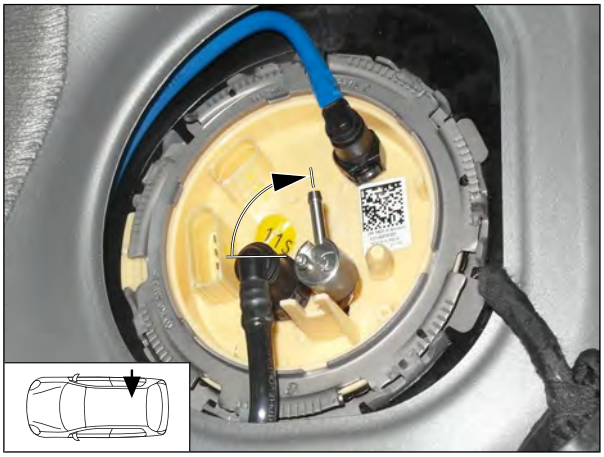


Fig. 50

Aligning FuelFix

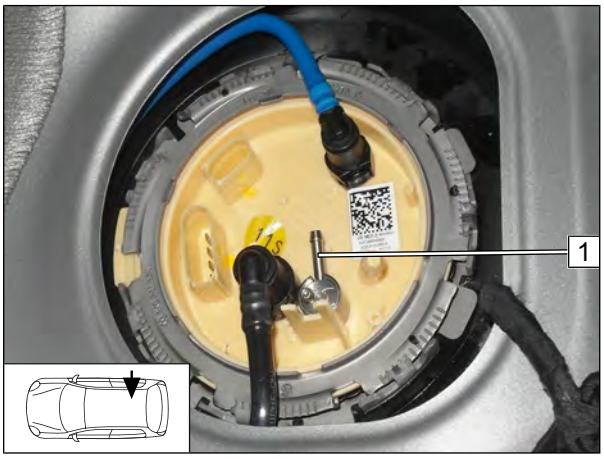


Fig. 51

▶ Work steps F5.3, F5.4

▶ Align FuelFix 1 as shown.

Connecting fuel line

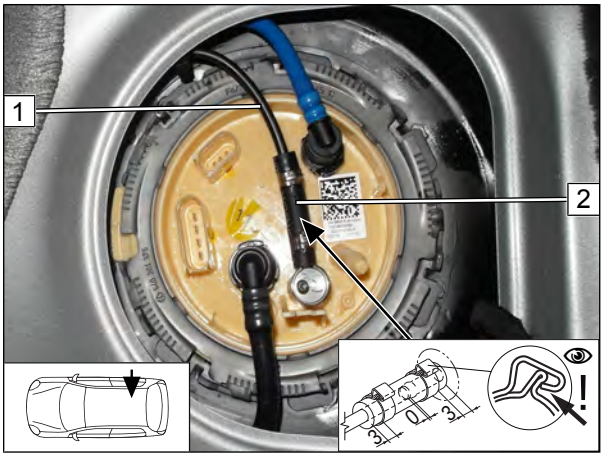


Fig. 52

▶ Work step F6

1 Fuel line

2 Hose section, Ø10 clamp [2x]

Installing FuelFix

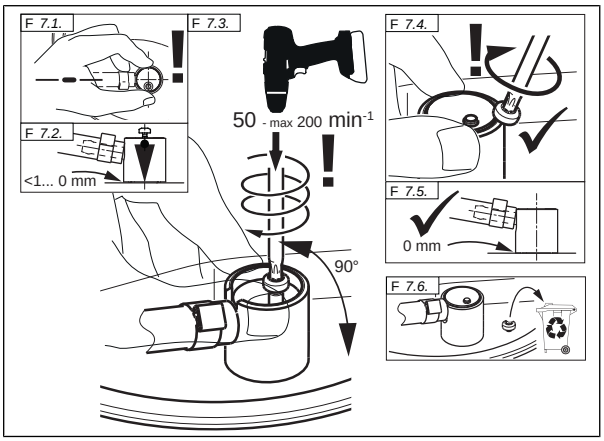


Fig. 53

DANGER

Risk of fire and explosion due to leaking fuel and escaping fuel vapours

Ensuring firm seating of FuelFix

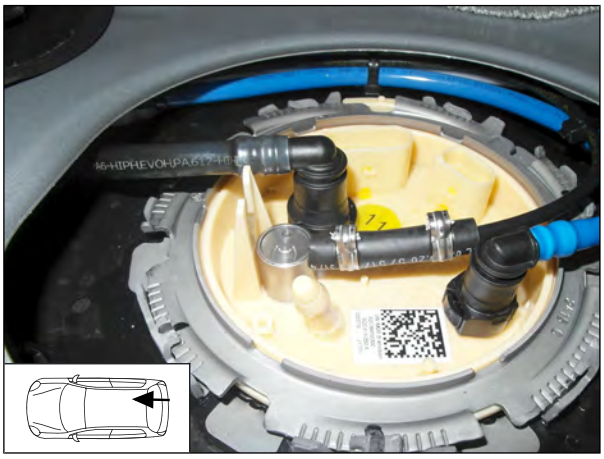


Fig. 54

▶ Work step F8

Securing fuel line

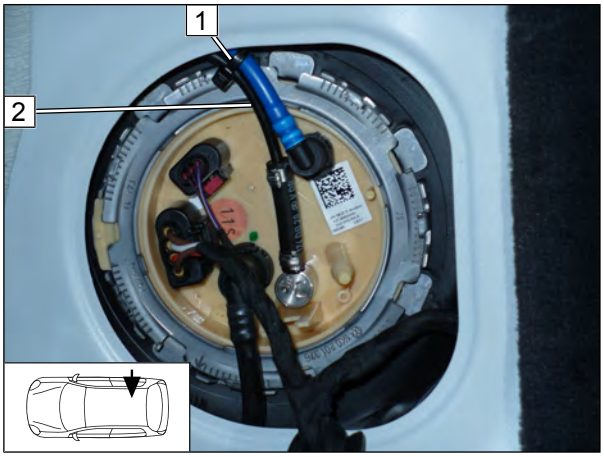


Fig. 55

1 Cable tie for tension relief

2 Fuel line of FuelFix

10 Coolant

10.1 Preliminary work on vehicle

Shortening and mounting hose section

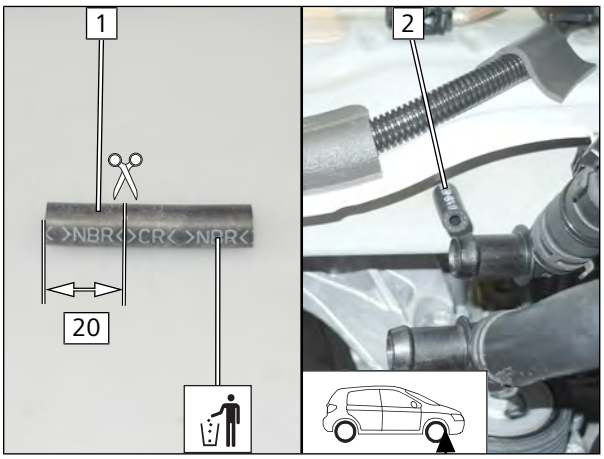


Fig. 56

1 Hose section Ø$_i$ 4.5

2 Hose section, original vehicle stud bolt

Installing perforated bracket

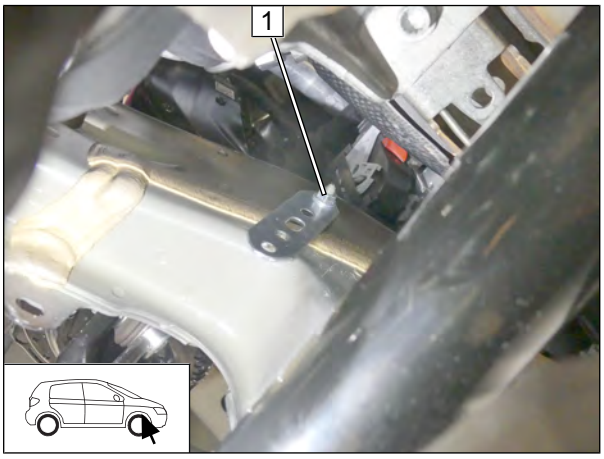


Fig. 57

1 Original vehicle stud bolt, perforated bracket, flanged nut

Copying / drilling hole pattern

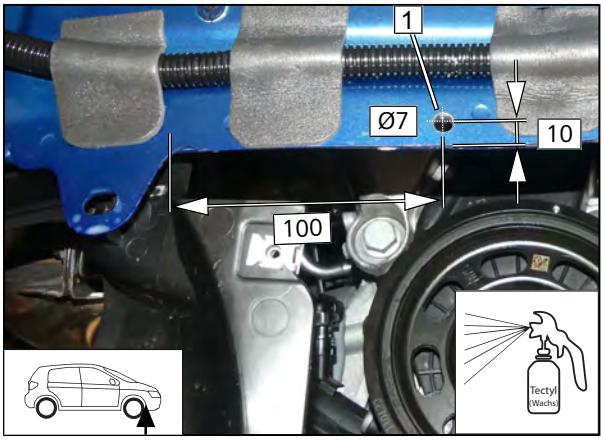


Fig. 58

1 Drill hole

Bending perforated bracket

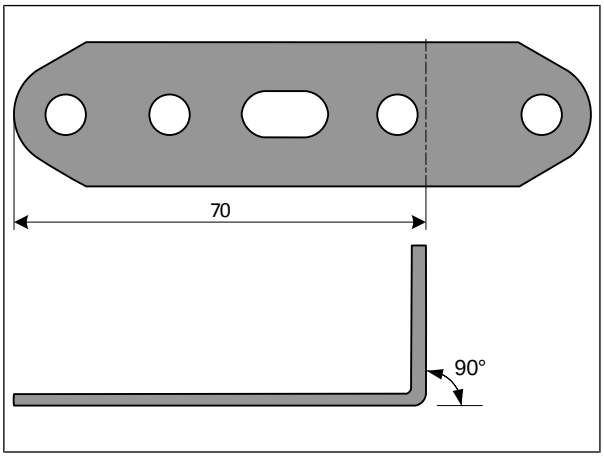


Fig. 59

Installing perforated bracket

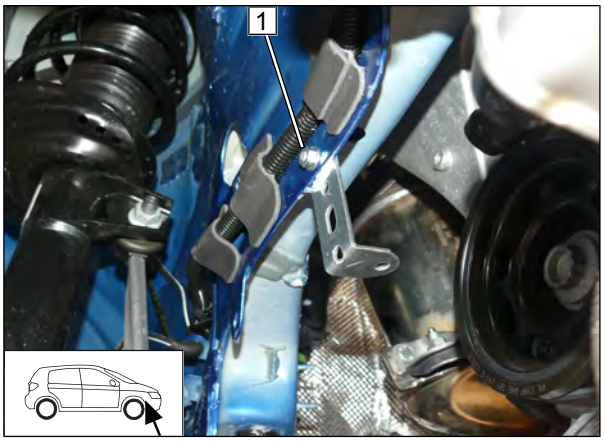


Fig. 60

1 M6x12 bolt, perforated bracket, drilled hole, flanged nut

Removing original vehicle flanged nut

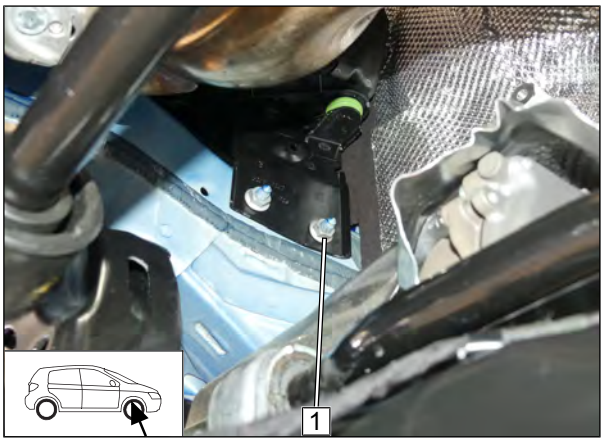


Fig. 61

1 Original vehicle flanged nut (will be reused)

Spacer nut installation

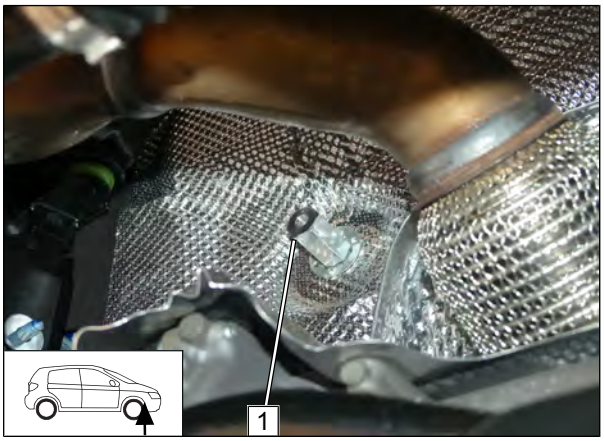


Fig. 62

1 M6x30 spacer nut, original vehicle stud bolt

Cutting point

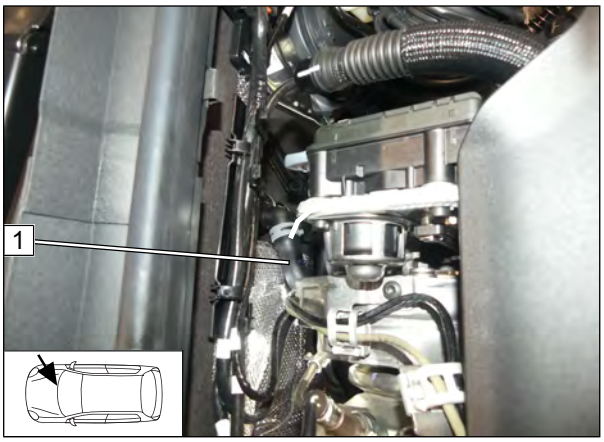


Fig. 63

▶ Remove hose of engine outlet/heat exchanger inlet 1.

10.2 Preparing hose group

Cutting the hose to length

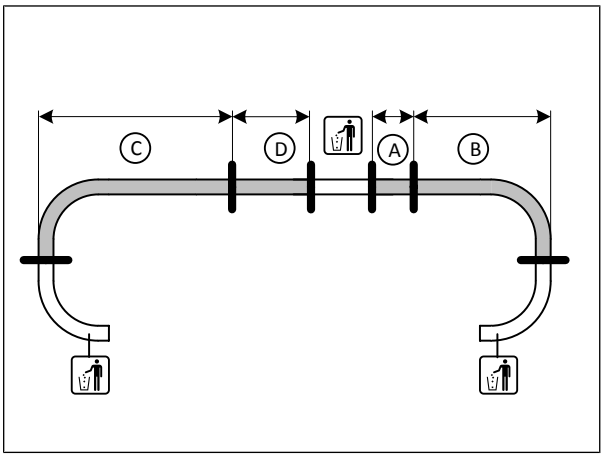


Fig. 64

Ⓐ 320
Ⓑ 540
Ⓒ 600
Ⓓ 310

Cutting heat protection hose to length

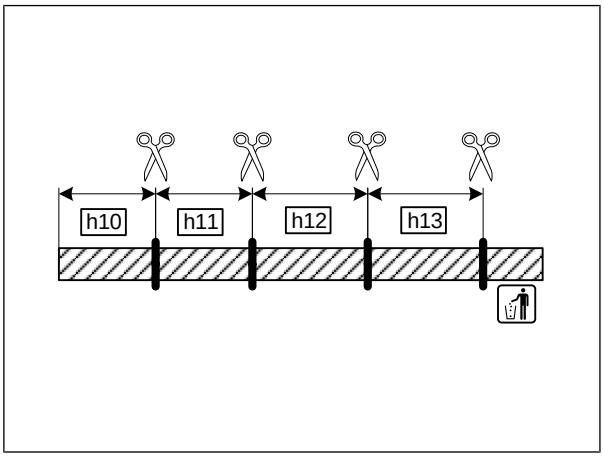


Fig. 65

h10 270
h11 270
h12 300
h13 300

Cutting fabric heat shrink tubing to length

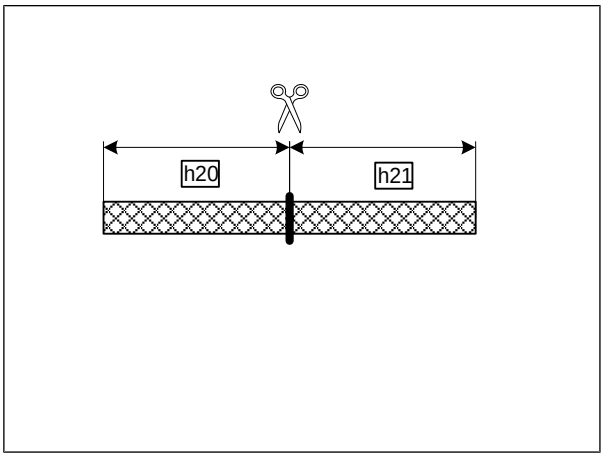


Fig. 66

h20 250
h21 250

Preparing hoses Ⓑ and Ⓒ

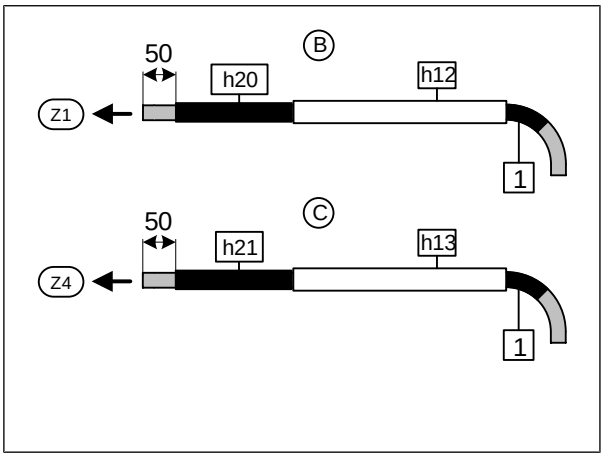


Fig. 67

Fabric heat shrink tubings **h20** and **h21**.
- ▶ 1. Slide on
- ▶ 2. Shrink, use at most 230 °C

Mount heat shrink plastic tubing **1**.
- ▶ 1. Slide on
- ▶ 2. Shrink, use at most 300 °C

Preparing hoses Ⓐ and Ⓓ

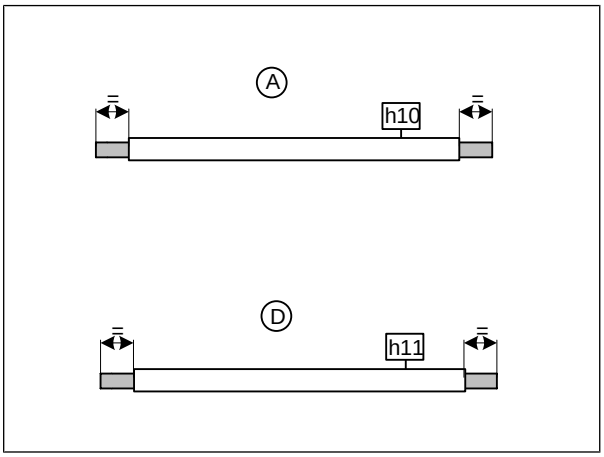


Fig. 68

Cutting point

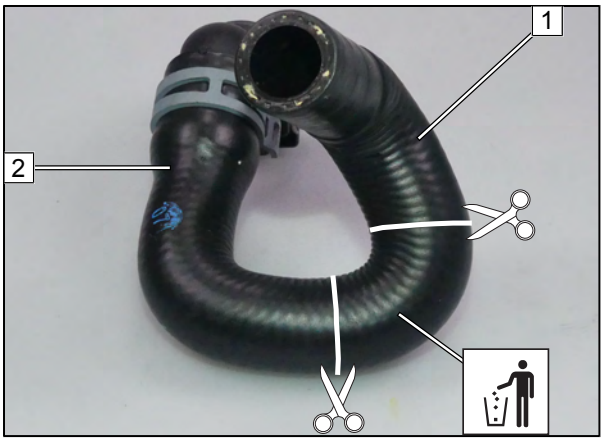


Fig. 69

1 Engine outlet hose section
2 Heat exchanger inlet hose section

Preparing hose section

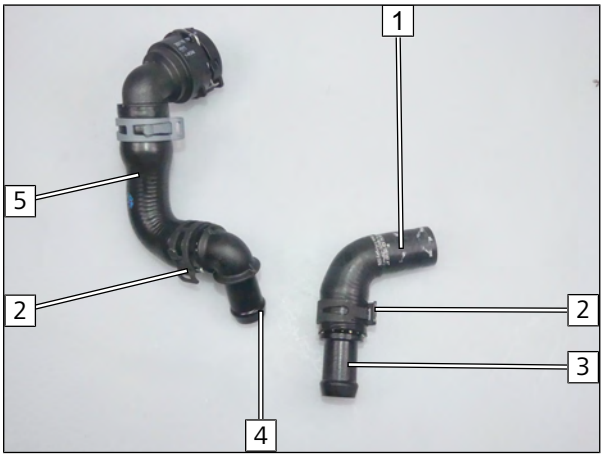


Fig. 70

1 Engine outlet hose section
2 Ø25 spring clip
3 Ø18/20 connecting pipe
4 Ø18x20, 90° connecting pipe
5 Heat exchanger inlet hose section

Preparing hoses Ⓐ and Ⓓ

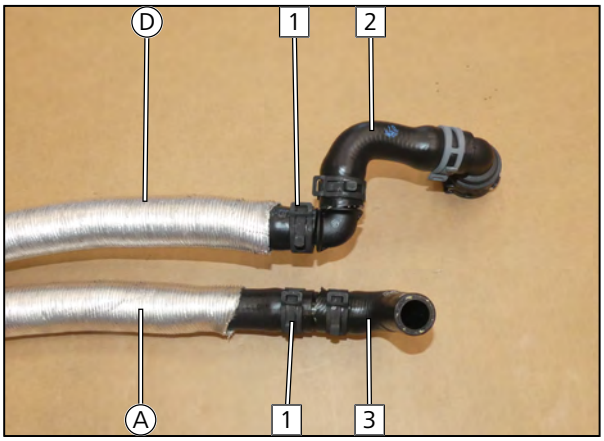


Fig. 71

1 Ø25 spring clip
2 Heat exchanger inlet hose section
3 Engine outlet hose section

Shortening perforated bracket

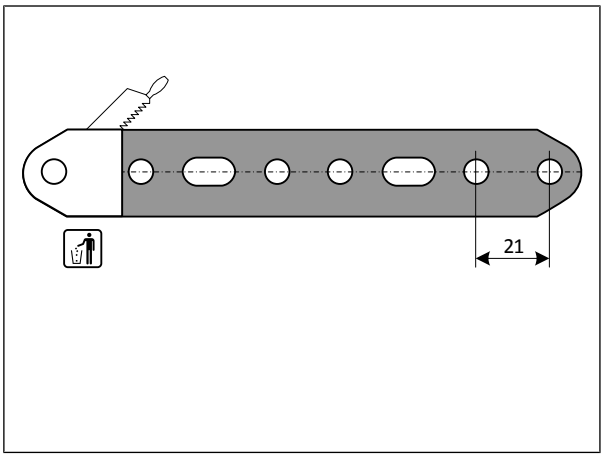


Fig. 72

Preparing hose Ⓒ

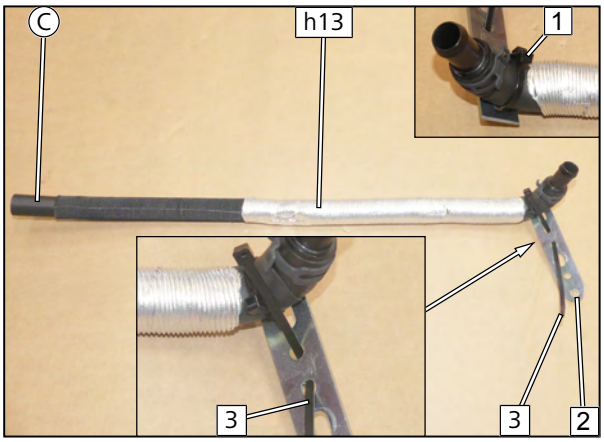


Fig. 73

1 Cable tie
2 Prepared perforated bracket

Hose group with hoses Ⓒ and Ⓑ

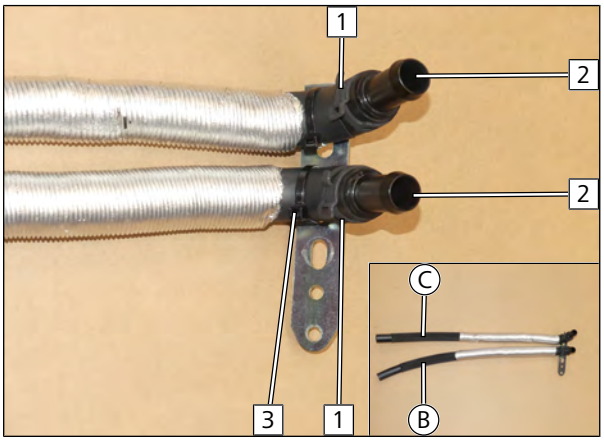


Fig. 74

1 Ø25 spring clip
2 Ø18/18 connecting pipe
3 Close cable tie

Mounting hoses Ⓐ, Ⓑ and Ⓒ, Ⓓ

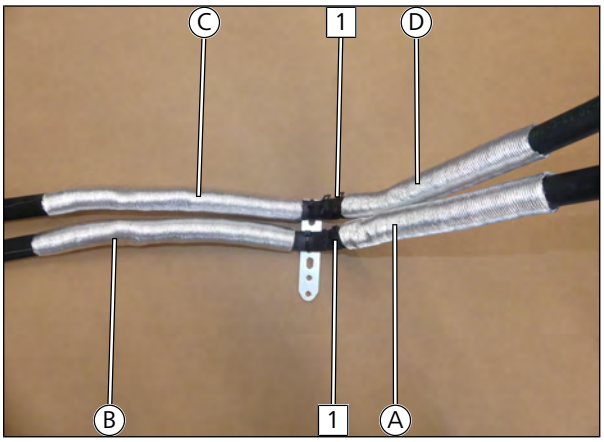


Fig. 75

1 Ø25 spring clip

10.3 Hose routing diagram

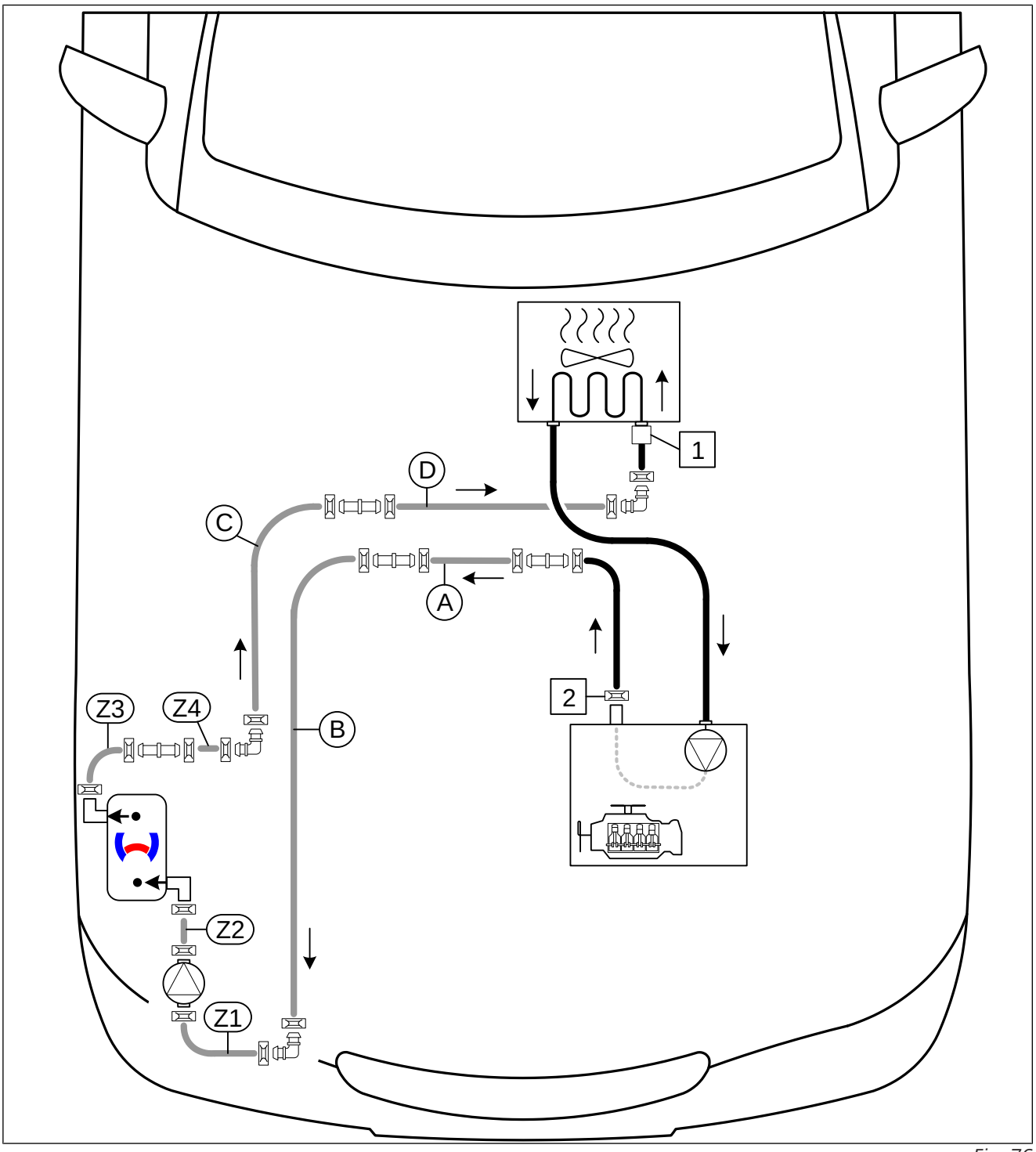


Fig. 76

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation or = Ø18x18

1 Original vehicle quick-release coupling; 2 Original vehicle spring clip

10.4 Coolant circuit installation

Mounting hose group

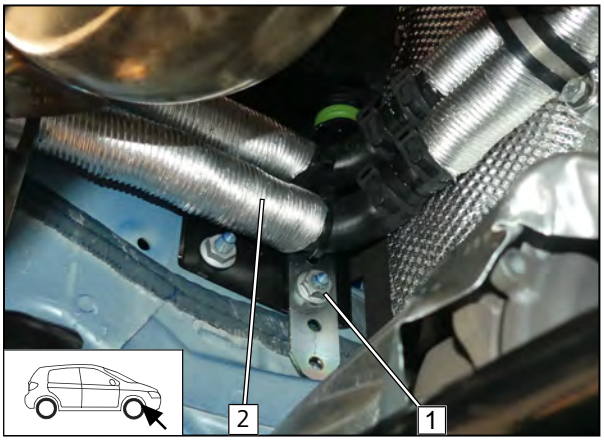


Fig. 77

1 Mount original vehicle stud bolt, large diameter washer, long perforated bracket, original vehicle flanged nut loosely

2 Hose group

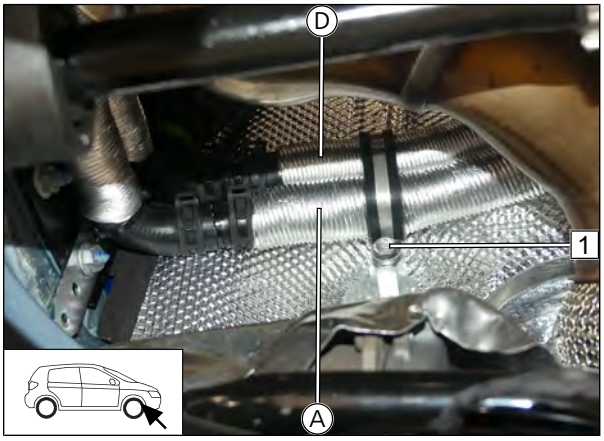


Fig. 78

1 Mount M6x16 bolt, spring lockwasher, Ø48 rubber-coated p-clamp loosely

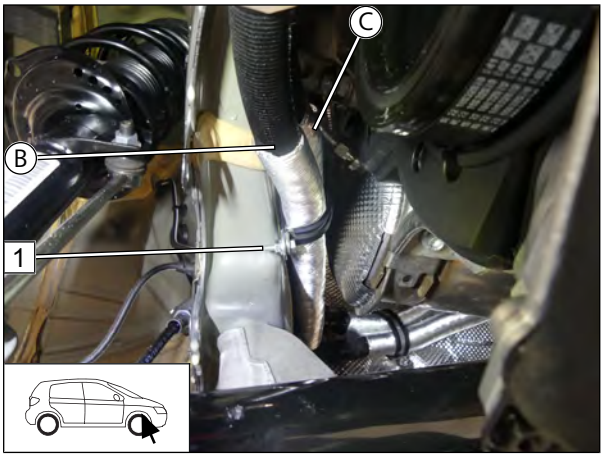


Fig. 79

1 Mount M6x20 bolt, Ø48 rubber-coated p-clamp, perforated bracket, flanged nut loosely

Heat exchanger inlet connection

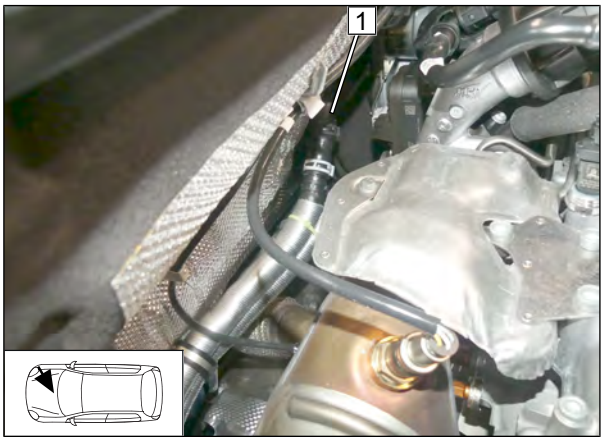


Fig. 80

[1] Heat exchanger inlet hose section with coupling piece

Engine outlet connection

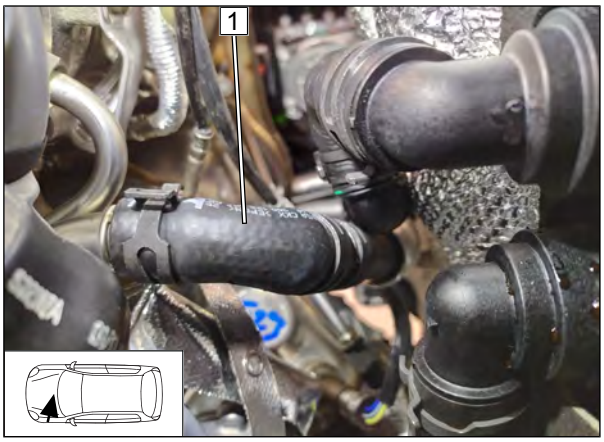


Fig. 81

[1] Engine outlet hose section

Connecting heater

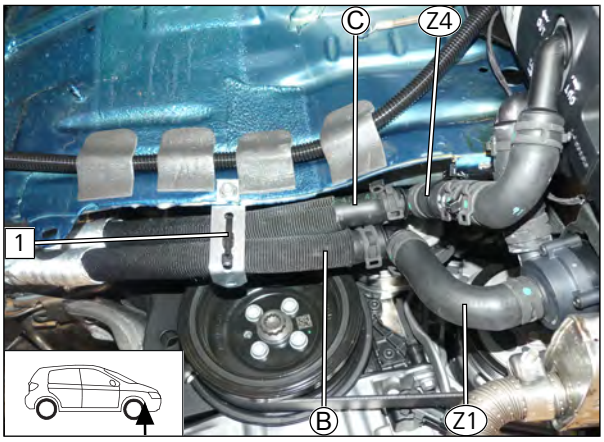


Fig. 82

Ensure sufficient distance from neighbouring components, correct if necessary.

>20

Tighten all loosely mounted screw connections.

[1] Cable tie

Installing cable tie

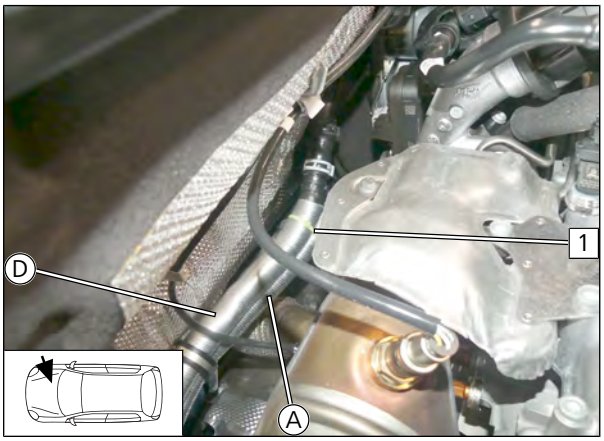


Fig. 83

▶ Fix hoses Ⓐ and Ⓓ with white cable tie.

Distance

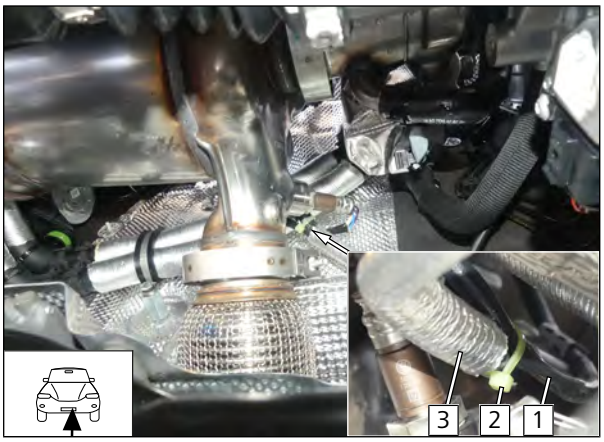


Fig. 84

1 Original vehicle wiring harness
2 White cable tie
3 Original vehicle line

11 Final work in engine compartment

Checking wheel-well inner panel distance

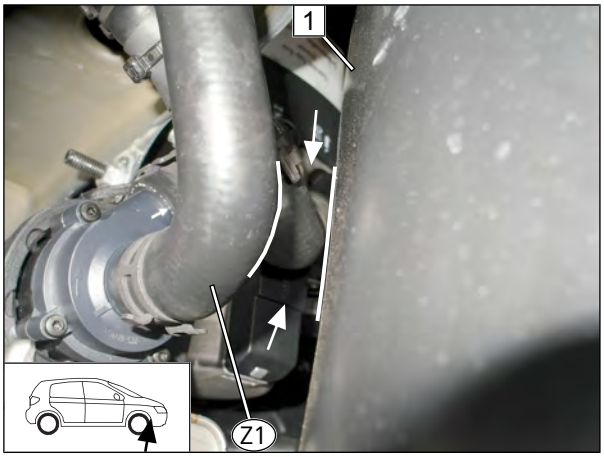
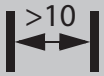


Fig. 85

▶ Mount wheel-well inner panel **1**.

Ensure sufficient distance from neighbouring components, correct if necessary.



Aligning exhaust outlet

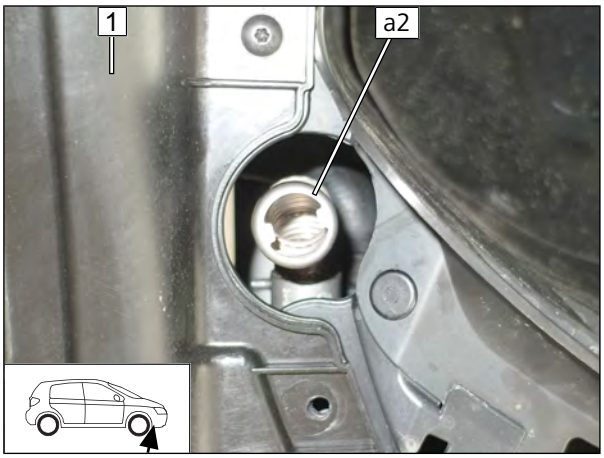


Fig. 86

▶ Mount underride protection **1** and align exhaust pipe **a2** with the centre of the pass through.

12 Electrical system of passenger compartment

12.1 Preliminary Work

Preparing Cronus wiring harnesses 1 and 2, assigning wires

▶ Insulate components, wires and connectors individually as shown and tie back

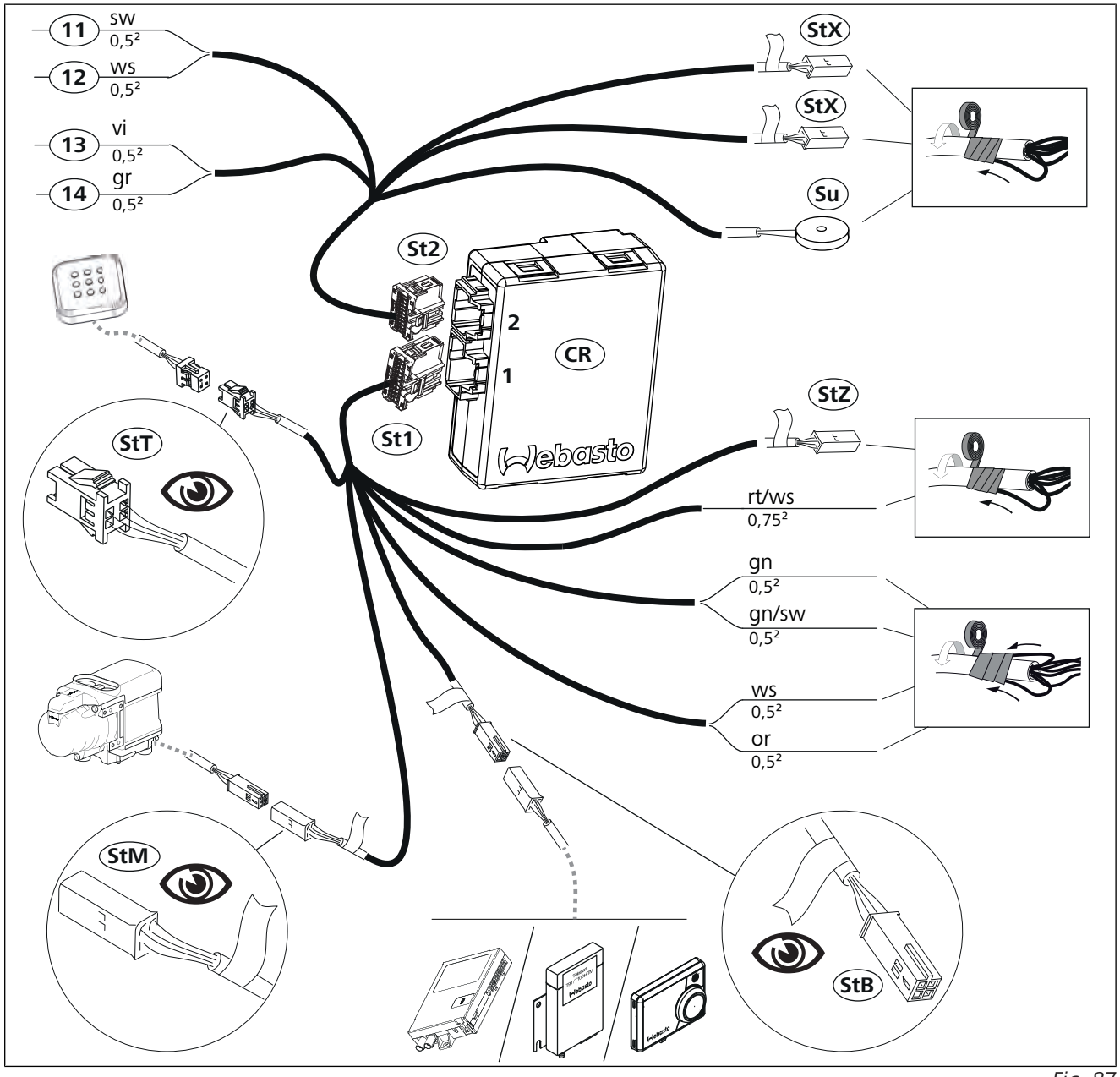


Fig. 87

Legend

Abbreviation	Component	Abbreviation	Component
CR	Cronus	StT	4-pin male plug for push button wiring harness
St1	16-pin, black connector of Cronus wiring harness 1	SU	Buzzer, will not be used
St2	12-pin, grey connector of Cronus wiring harness 2	StX	4-pin male plug, will not be used
StB	4-pin female plug for control element wiring harness	StZ	4-pin male plug for additional relay wiring harness, will not be used
StM	4-pin male plug for engine compartment wiring harness		

Premounting Cronus

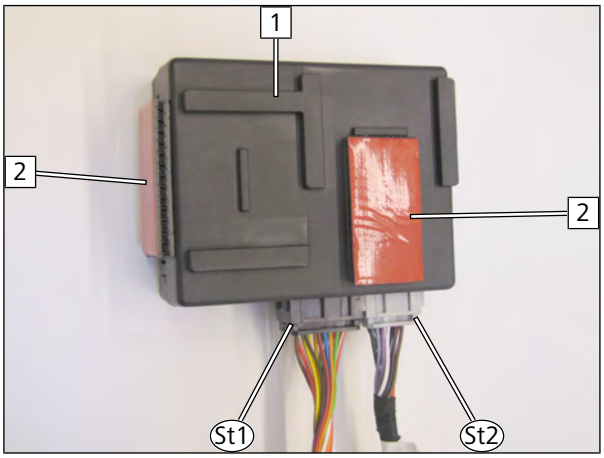


Fig. 88

1 Cronus

2 Double-sided hook-and-loop fastener

Mounting Cronus

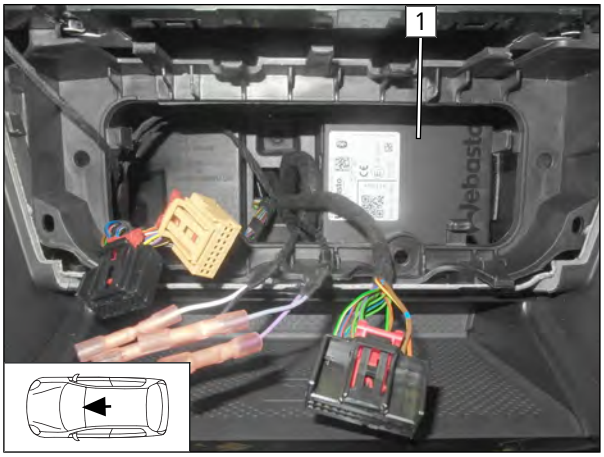


Fig. 89

▶ Mount Cronus **1** as shown in Fig.

12.2 Wiring diagram

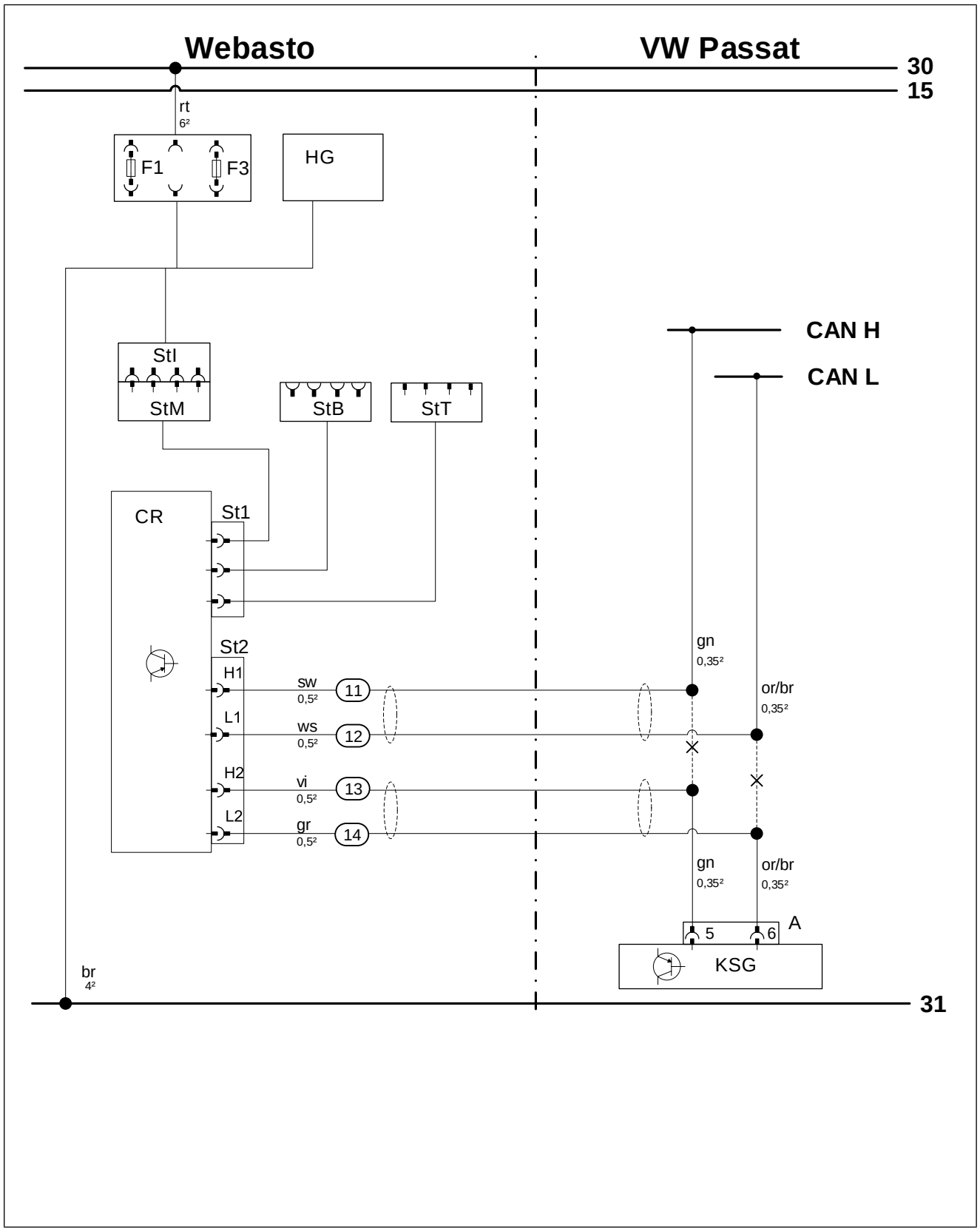


Fig. 90

Legend to wiring diagram

The vehicle connector and component designations are freely chosen by Webasto.
Cable colours may vary.

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Explanation
KSG	Air-conditioning control unit	X	Cutting point
A	20-pin connector of A/C control unit		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
CLR	Cold start module	bg	beige
CR	Cronus (passenger compartment control unit)	bl	blue
D1	Diode	br	brown
D2	Diode group	dbl	dark blue
Dia	Diagnosis connection	dgn	dark green
E	Male plug for Plug&Play wiring harness	ge	yellow
F	Female plug for Plug&Play wiring harness	gn	green
F0	Additional fuse for power supply	gr	grey
F1	Heater main fuse	hbl	light blue
F2	Fan main fuse	hgn	light green
F3	Cronus main fuse	la	salmon
HG	Heater TT-Evo	or	orange
LA	Power adapter	pk	pink
PWM GW	Pulse width modulator gateway	ro	Pink
RTD	Temperature sensor	rt	red
St1	16-pin, black connector of Cronus wiring harness 1	sw	black
St2	14-pin, grey connector of Cronus wiring harness 2	vi	violet
StB	4-pin female plug for control element wiring harness	ws	white
StI	Female plug for passenger compartment wiring harness		
StM	Male plug for engine compartment wiring harness		
StT	Male plug for push button wiring harness		
StZ	Male plug for additional relay		

12.3 Fan controller

Connection to air-conditioning control unit

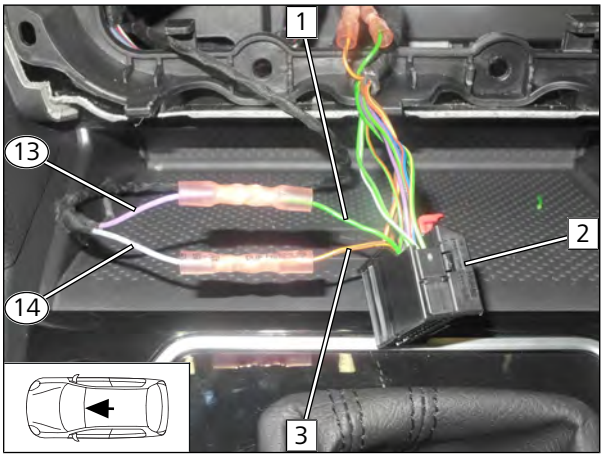


Fig. 91

1 Green (gn) wire of KSG connector A / pin 5
2 20-pin KSG connector A
3 Orange/brown (or/br) wire of KSG connector A / pin 6
13 Violet (vi) wire of Cronus wiring harness 2
14 Grey (gr) wire of Cronus wiring harness 2

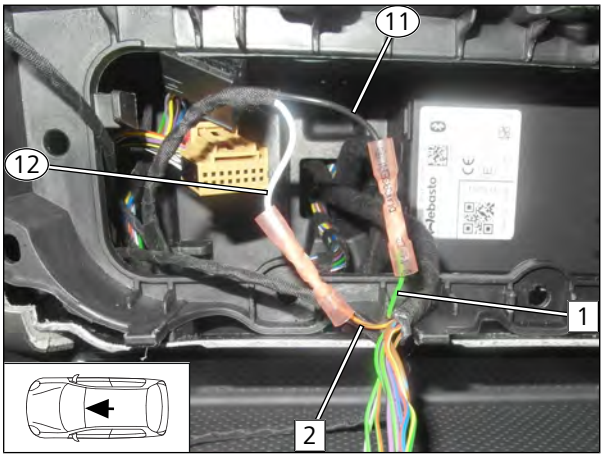


Fig. 92

1 Green (gn) wire of CAN High
2 Orange/brown (or/br) wire of CAN Low
11 Black (sw) wire of Cronus wiring harness 2
12 White (ws) wire of Cronus wiring harness 2

12.4 Connection of Cronus to push button

The installation location of the Cronus push button should be confirmed with the end customer and should comply with the installation conditions.

▶ Mount the push button and connect the marked male plug of Cronus wiring harness 1 with the connection plug of the Cronus push button as shown.

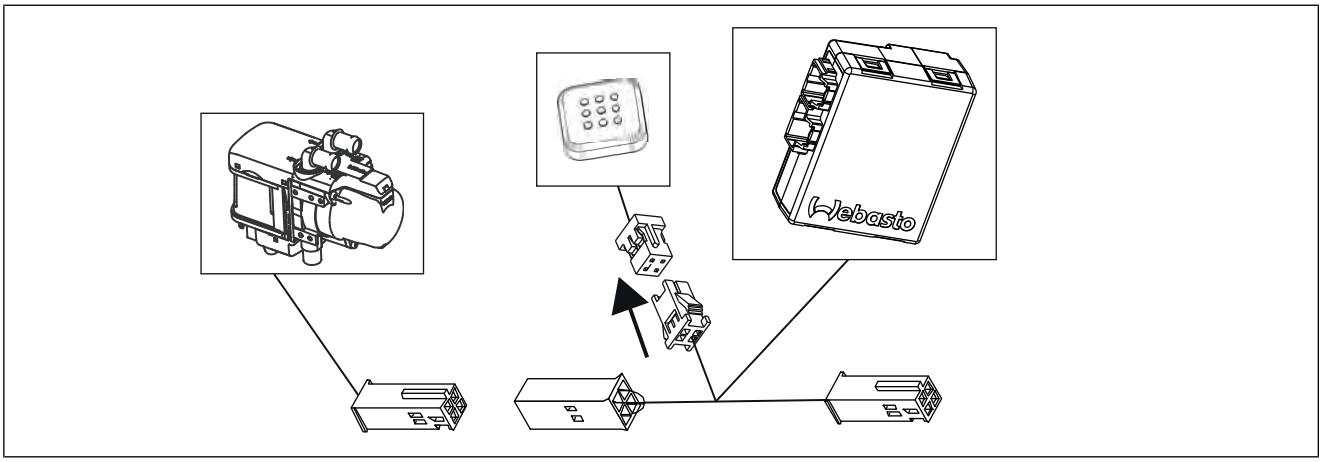


Fig. 93

12.5 Heater connection and installation of Telestart or MultiControll AM control element

Install the control element in accordance with the provided relevant general installation documentation. The installation location of the optional control element MultiControl or the push button of the Telestart option should be confirmed with the end customer and should comply with the installation conditions.

▶ Connect the marked male and female plugs of Cronus wiring harness 1 with the connection plug of the engine compartment wiring harness and the relevant control element as shown.

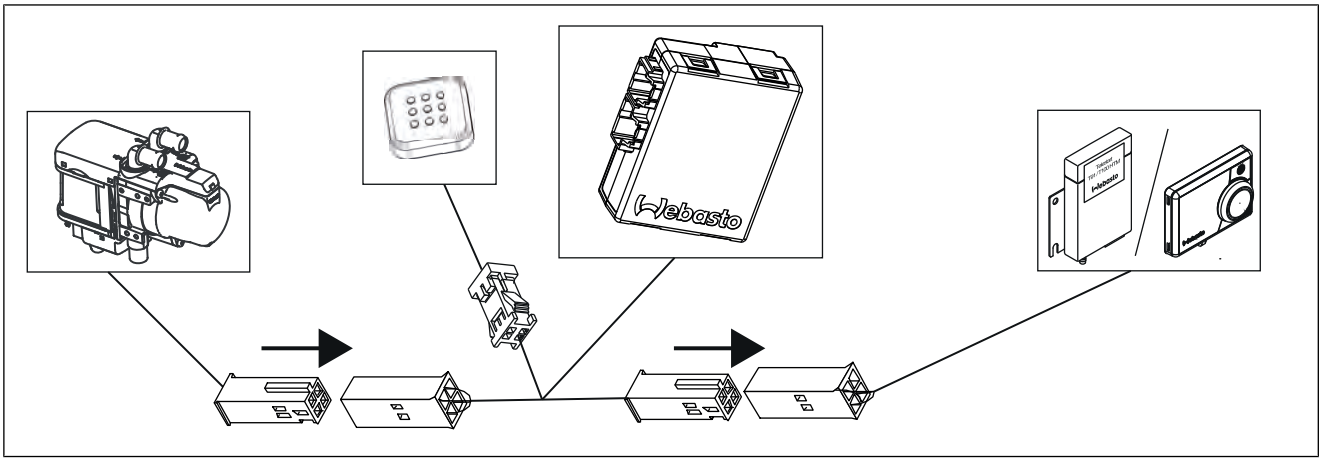


Fig. 94

12.6 Heater connection and installation of ThermoConnect control element

Install the control element in accordance with the provided relevant general installation documentation. The installation location of the push button of the ThermoConnect option should be confirmed with the end customer and should comply with the installation conditions.

Preparing Y wiring harness

The Y wiring harness mentioned in section 'Components used' must also be ordered.

- ▶ Locate connection plug [2] of ThermoConnect wiring harness on the wiring harness branch of Y wiring harness [1].
- ▶ Disconnect black (sw) wire [3] from connection plug [2], tie back and insulate.

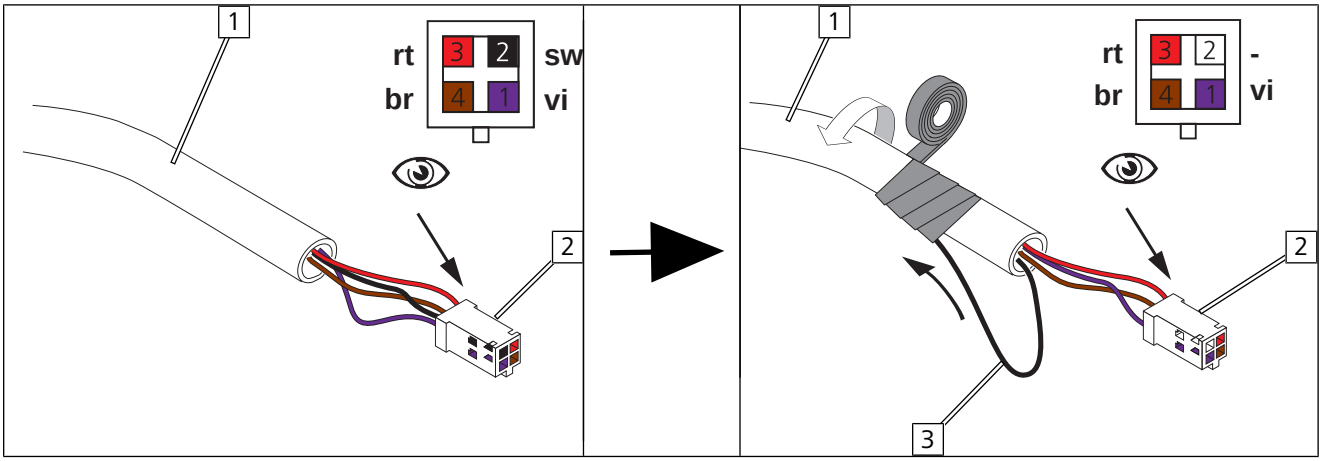


Fig. 95

Connecting wiring harnesses

- ▶ Connect the marked female plug [1] of Cronus wiring harness 1 and connection plug [2] of engine compartment wiring harness with Y wiring harness [3] and connect connection plug [4] of the ThermoConnect wiring harness with prepared connector [5] of Y wiring harness as shown.

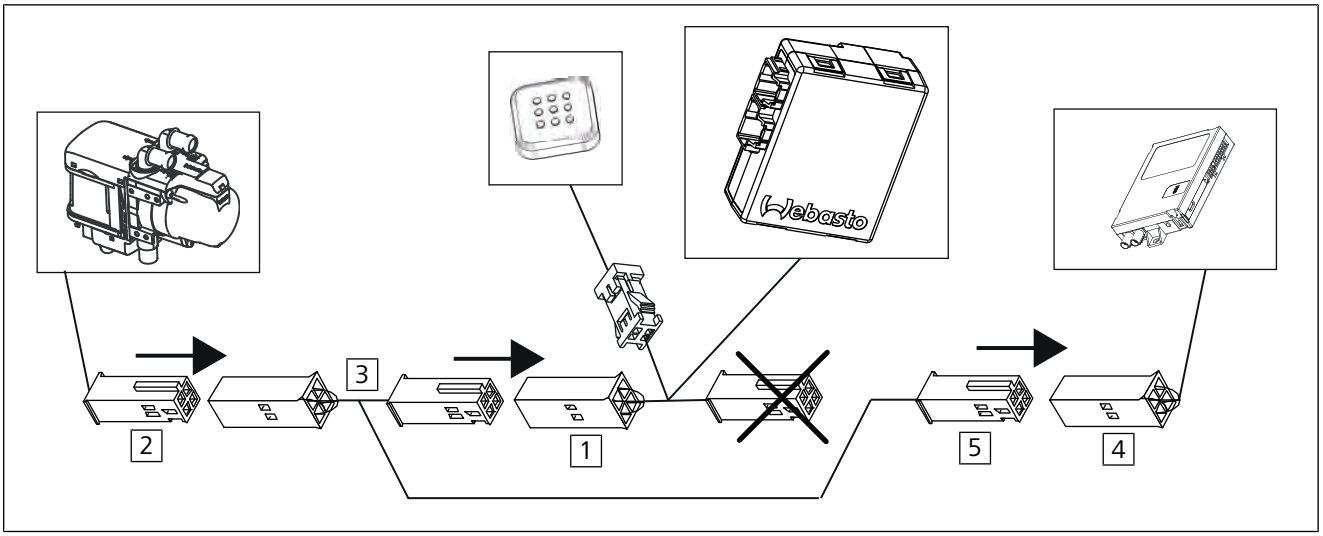


Fig. 96

13 Final Work

Further information can be found in the vehicle manufacturer's technical documentation.

▶ Mount removed parts in reverse order.

▶ Check all hoses, clamps and all electrical connections for firm seating.

▶ Insulate and tie back loose lines

▶ Spray heater and electrical components with anti-corrosion wax (Tectyl 100K).

▶ Connect the battery.

Only use manufacturer-approved coolant.

▶ Fill and bleed the coolant circuit according to the vehicle manufacturer's specifications.

Further information can be found in the general installation and operating instructions of the Webasto components.

▶ Initialisation of Cronus with the Webasto Thermo Test Diagnosis:

⇨ Activate the 'Cronus' application, initiate the start-up then follow and carry out the instructions in the indicated sequence

⇨ Save or print the final report

▶ Program MultiControl CAR, pair Telestart transmitter

▶ Make settings on A/C control panel according to the 'Operating Instructions'

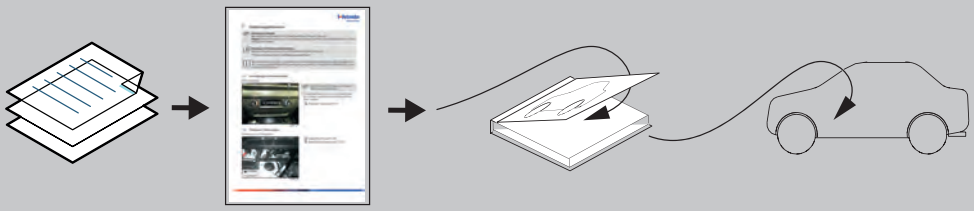
▶ Initial start-up and function check

▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck

Vehicle event log after parking heating mode

✓ Components of the original vehicle air conditioning system are activated during parking heating mode. Other vehicle components remain inactive, which in some circumstances may be interpreted as an error and can be filed as such in the event log. An increased power consumption (quiescent current) may also be registered for some vehicles.

▶ If an incorrect installation can be excluded, these entries are exclusively related to the parking heating mode situation and have no effect on the vehicle functions in driving mode.



These are the original instructions. The German language is binding.
You can request your language if it is missing. The telephone number of each country can be found in the Webasto service centre leaflet or the website of the respective Webasto representative of your country.

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Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
Germany

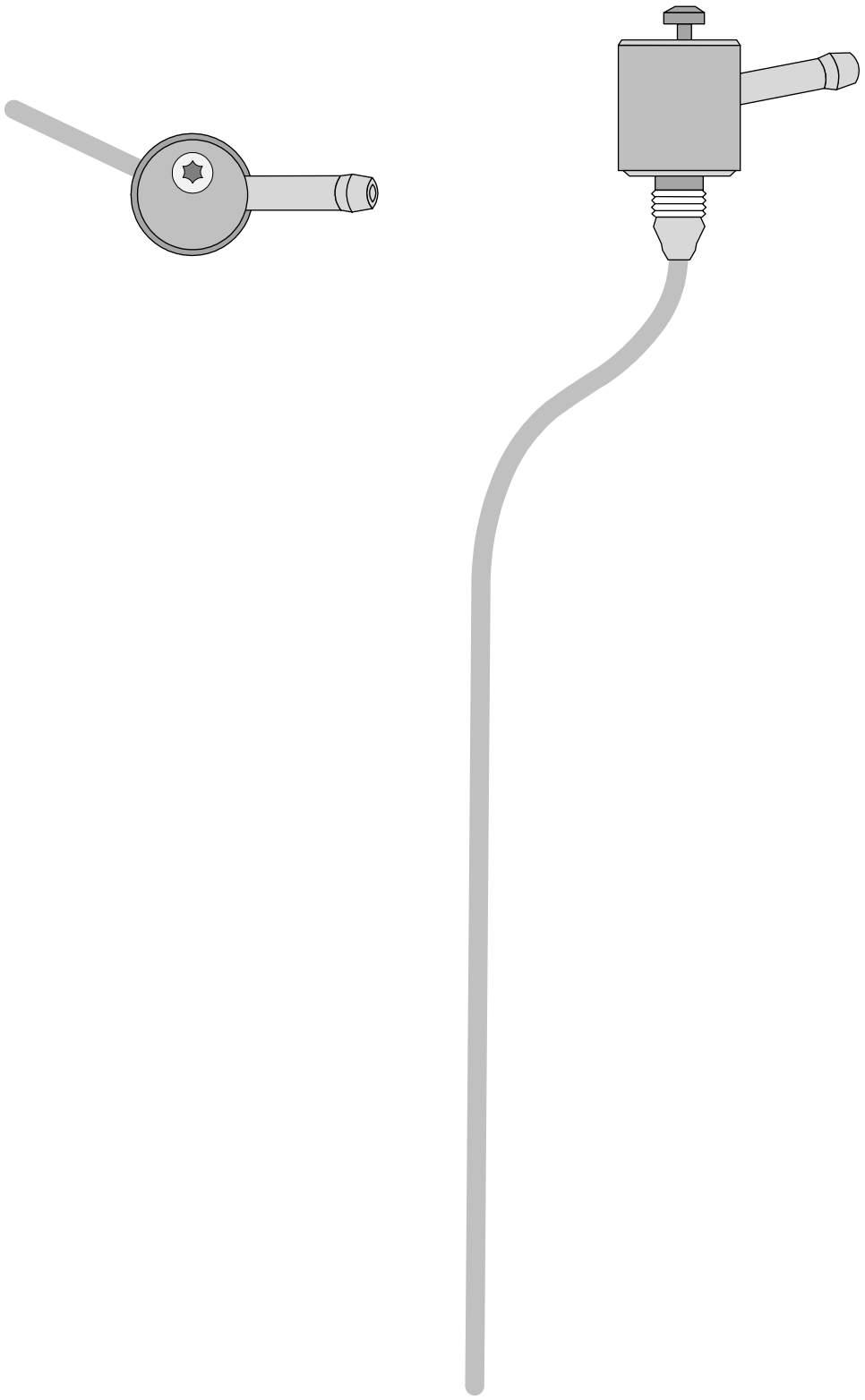
Company address:
Friedrichshafener Str. 9
82205 Gilching
Germany

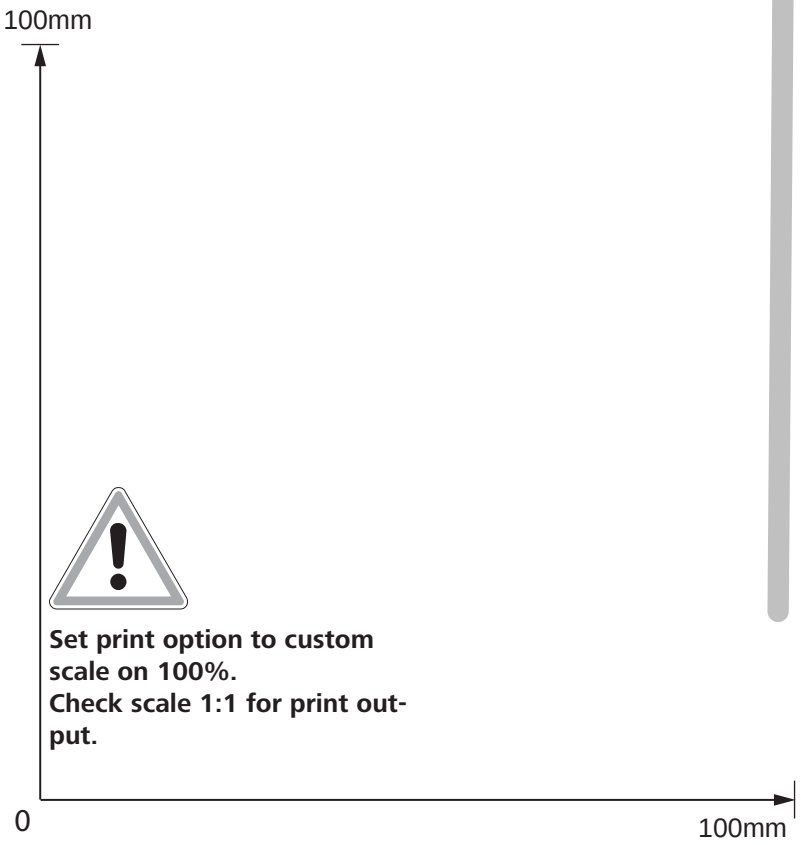
Technical Extranet: https://dealers.webasto.com

CE

WWW.WEBASTO.COM

14 FuelFix template





Set print option to custom scale on 100%.
Check scale 1:1 for print output.

15 Operating instructions

Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

▶ Deactivate passenger compartment monitoring for the heating operation

Information regarding the heating time:

We recommend matching the heating time to the driving time (heating time = driving time)
Example: for a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Notes about the A/C control panel presettings

Your vehicle is equipped with a comfort air-conditioning control. As a result, **no** settings are required on the A/C control panel when switching off the vehicle. All necessary presettings, such as fan speed, temperature and flap positions are set automatically.

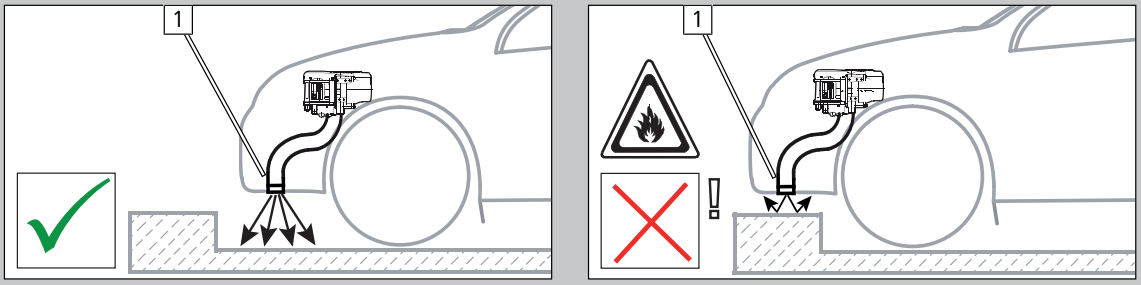
Notes about the active parking heating mode

The vehicle fan is deactivated when the vehicle is opened and is available again once the ignition is switched on.
After the vehicle is closed again, it can take several minutes for it to be active again.

Note for parking heater function

Your vehicle is equipped with a passenger compartment and engine preheating unit.

Notes on parking heater exhaust outlet 1



15.1 Installation location of fuses

Fuses in engine compartment

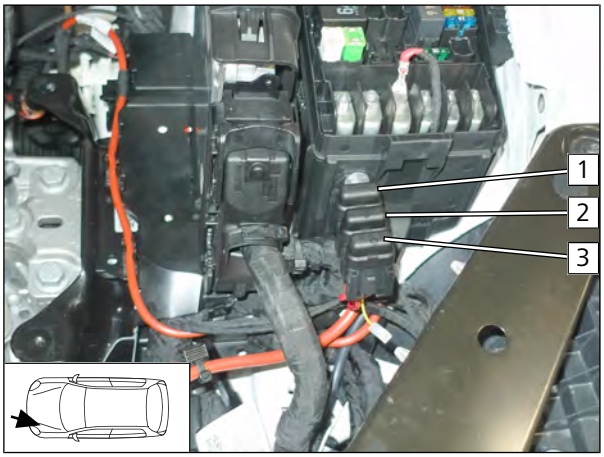


Fig. 97

1 F3 - 5A Cronus main fuse
2 F2 – not in use
3 F1 - 20A heater main fuse