EN

K Installation documentation

for Thermo Top Evo water heater

Dacia Duster

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Dacia	Duster	SR	from 2018	e2* 2001/116* 0323*…

Motorisation	Fuel	Emission standard	Transmission type	Out-put[kW]	Displace-ment[cm³]	Engine code
1.2P	Petrol	Euro 6	6-speed SG	92	1197	H5F
1.6P	Petrol	Euro 6	6-speed SG	84	1598	H4M
1.5D	Diesel	Euro 6	6-speed SG	80	1461	K9K

Validity	Equipment variants	Model
		Duster
Verified equipment variants	Manual air-conditioning	x
	Automatic air-conditioning	x
	Halogen main headlights	x
	Halogen front fog lights	x
	LED daytime running lights	x
	Automatic Start-Stop system	x
	Electrical steering unit	x
	2 WD	x
	4 WD	x
Unverified equipment variants	Start button with keycard	x

Total installation time	Note
8 hours	

Contents

1 List of abbreviations

DP Fuel pump

EFIX Exhaust end fastener

HG Heater

MCC MultiControl (control element)

PWM Pulse width modulator

RSH Relay and fuse holder of passenger compartment

SG Manual transmission

SH2 Engine compartment fuse holder for F1/F2

UP Coolant pump

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
Basic delivery scope of Thermo Top Evo in accordance with price list	In accordance with price list
Installation kit for Dacia Duster 2018 petrol and diesel	1326492A
Additional automatic A/C kit for Renault / Dacia / Smart	1323656_
In case of MultiControl CAR installation – installation frame for MultiControl	9030077_
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

2.3 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.

2.4 Installation recommendations

Arrange for the vehicle to be delivered with the tank only about ¼ full.
For the MultiControl CAR option, the recommended installation locations for the Telestart or ThermoCall push button should be confirmed with the end customer.
Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

3 About this document

Purpose of the document

This installation documentation is part of the product and contains information for the correct vehicle specific installation of the:

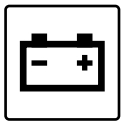
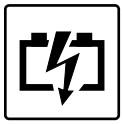
Thermo Top Evo heater

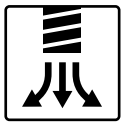
Using this document

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

Work step identification marks

You will find an identification mark on the outside top corner of the respective page in question to provide you with a quick overview of the individual working steps:

Mechanical system	Electrical system	High-voltage	Coolant
			

Combustion air	Fuel	Exhaust gas	Software
			

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	
Webasto Comfort A/C control	
Webasto Standard A/C control	
Fuel standpipe (e.g. FuelFix)	
Exhaust end fastener (EFIX	
Combustion air intake silencer	
Spacer bracket (ASH)	

Use of symbols

DANGER

Type and source of the risk

Consequences: Failure to follow the instructions can result in death

▶ Action to protect yourself from the risk.

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

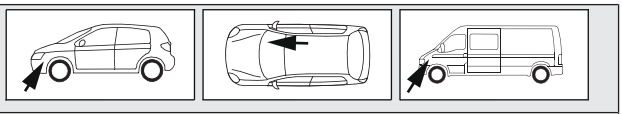
Consequences: Failure to follow the instructions can lead to material damage

▶ Actions to protect yourself against risks.

Reference to the vehicle manufacturer's specific documents.

a note on a special technical feature

Orientation aid



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

Use of highlighting

Highlight	Explanation
✓	Requirements for the necessary action
▶	Necessary action

Highlight	Explanation
⇨	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 wiring harnesses from the installation kit

3.1 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.

3.1.1 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).

3.2 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.

3.2.1 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.

4 Technical Information

Dimension specifications

- All dimensions specified in mm

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

Specified temperature for fabric heat shrink plastic tubing

- Shrink temperature max. 230°C

Necessary special tools

- Hose clamp pliers for self-clamping hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Hose clamping pliers
- Hose cutter
- Automatic wire stripper 0.2 - 6 mm^2
- Crimping pliers for cable lugs 0.5 – 10 mm^2
- Crimping pliers for tab connector 0.14 – 6 mm^2
- Crimping pliers for connector 0.25 – 6 mm^2
- Torque wrench for 2.0 - 10 Nm
- Deep-hole marker
- Metric thread-setter kit
- Webasto Thermo Test Diagnosis with current software

5 Preparing measures

5.1 Vehicle preparation

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

- ▶ Open the fuel tank cap
- ▶ Ventilate the fuel tank
- ▶ Close the fuel tank cap again
- ▶ Depressurise the cooling system
- ▶ Drain off the coolant
- ▶ Disconnect the battery and remove it with the carrier
- ▶ Remove the air filter box with the intake pipe and intake hose
- ▶ Remove the central electrical box cover
- ▶ Remove the left front wheel
- ▶ Remove the left small wheel-well inner panel to the transmission
- ▶ Remove the engine underride protection (if available)
- ▶ Remove the underride protection on the right side of the underbody
- ▶ Drain off the coolant
- ▶ Remove the left instrument panel trim
- ▶ Remove the footwell trim on the left
- ▶ Remove the radio and navigation system
- ▶ Remove the A/C control panel
- ▶ Remove the footwell trim on the driver's side
- ▶ Fold up the rear bench seat

DANGER

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

- ▶ Open the tank fitting service lid on the left
- ▶ Remove the tank fitting according to the manufacturer's instructions

5.2 Heater preparation

Observe the general installation instructions of the heater.

- ▶ 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

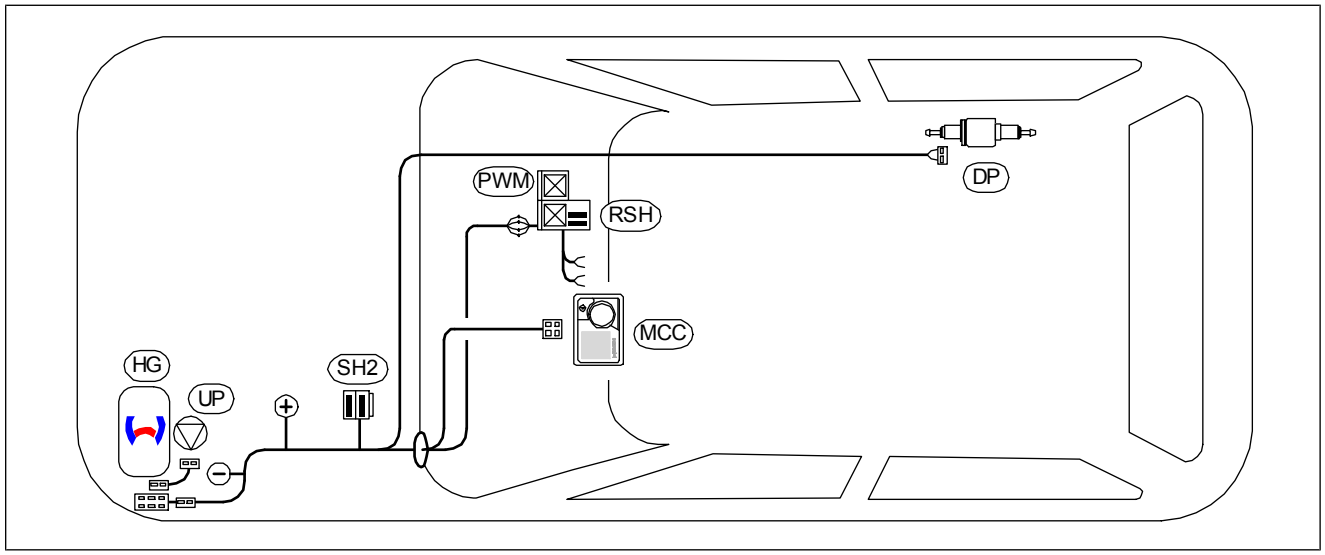


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
HG	Heater
MCC	MultiControl CAR
PWM	Pulse width modulator
RSH	Passenger compartment relay and fuse holder
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump

Heater installation location

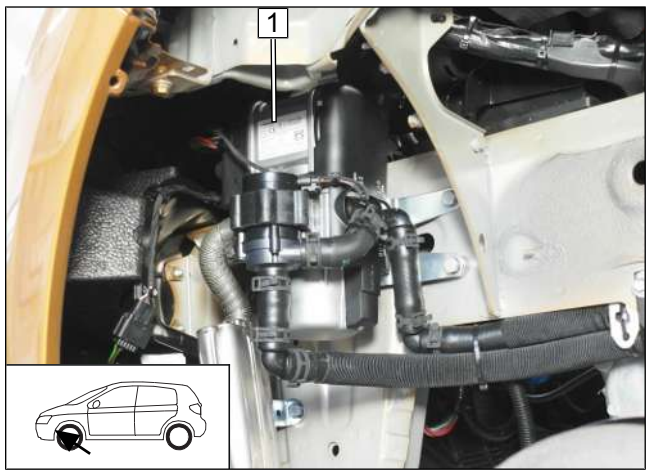


Fig. 2

1 Heater

7 Electrical system of engine compartment

Premounting angle bracket

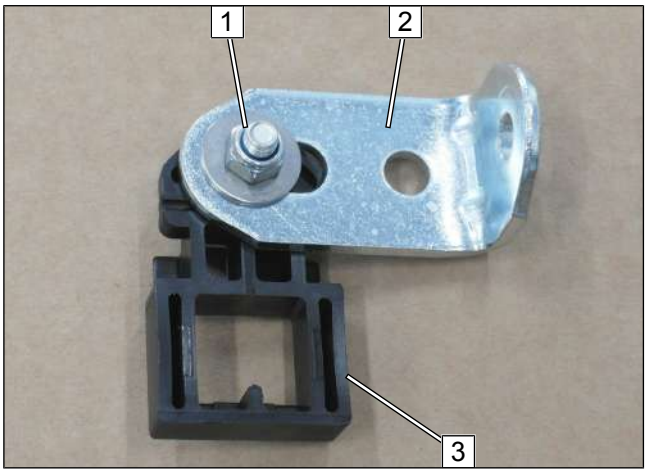


Fig. 3

1 M5x16 bolt, large diameter washer, SH2 socket, large diameter washer, nut
2 Angle bracket
3 SH2 socket

Mounting SH2

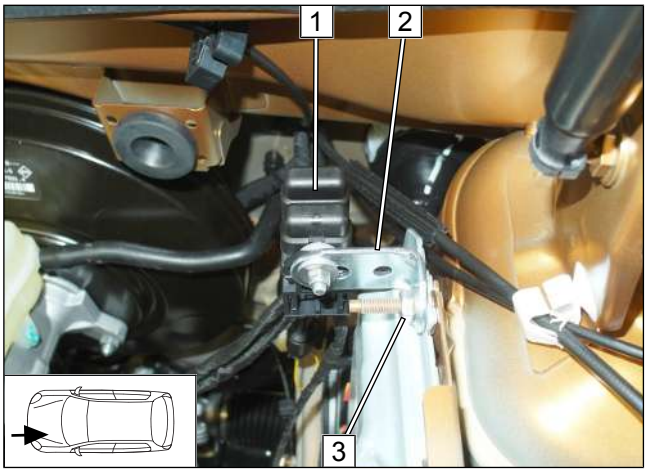


Fig. 4

1 SH2 with fuse F1/F2
2 Premounted angle bracket
3 Original vehicle stud bolt with nut

Routing wiring harnesses

Fig. 5

1 Route heater wiring harness to heater installation location
2 Route passenger compartment and control element wiring harness to the passenger compartment pass through

Mounting earth wire

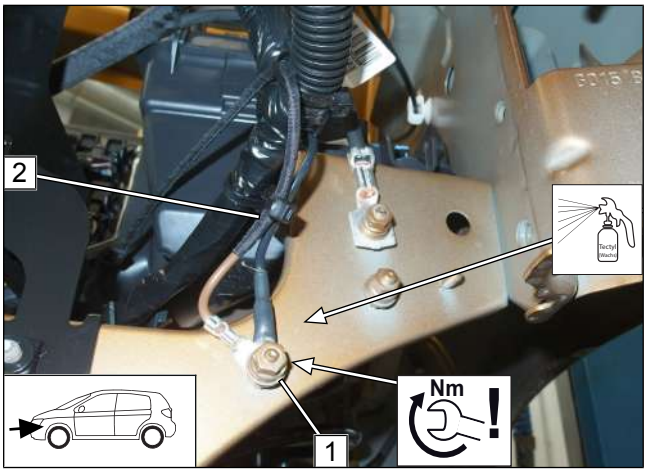


Fig. 6

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Original vehicle earth support point

2 Earth wire

Mounting positive wire

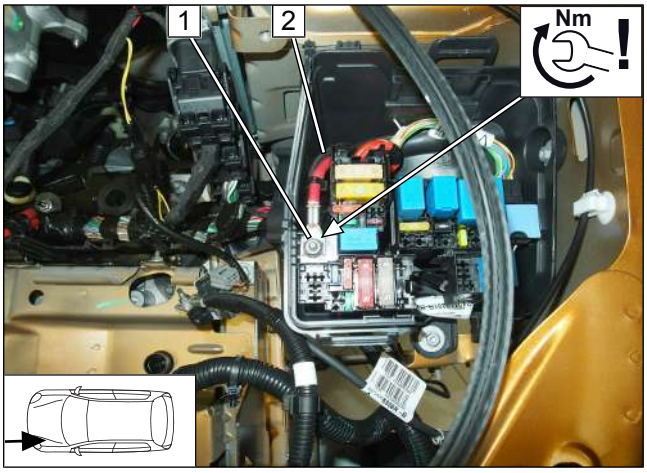


Fig. 7

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Original vehicle positive support point

2 Positive wire

Passenger compartment wiring harness pass through

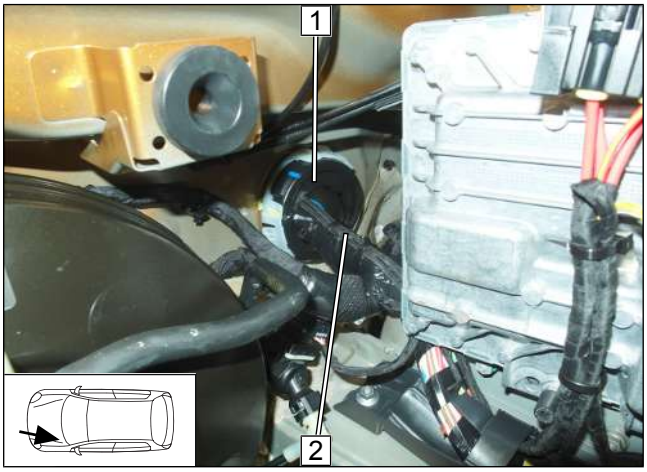


Fig. 8

1 Protective rubber plug

2 Passenger compartment and control element wiring harnesses

8 Mechanical system

8.1 Preparing installation location

Loosening original vehicle wiring harness

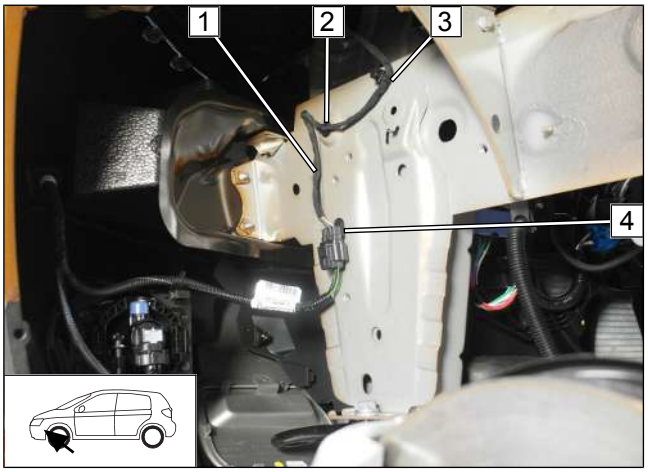


Fig. 9

1 Original vehicle wiring harness
2 Discard eyelet cable tie
3 Discard cable tie on stud bolt
4 Original vehicle connector with clip

Routing original vehicle wiring harness

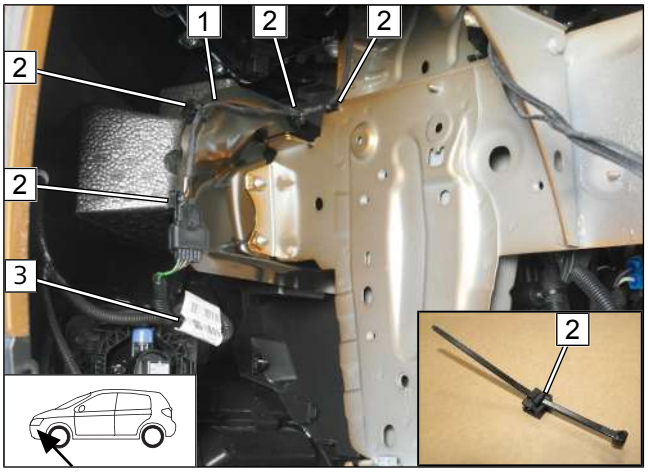


Fig. 10

1 Original vehicle wiring harness
2 Edge clip cable tie
3 Cable tie

Inserting rivet nut

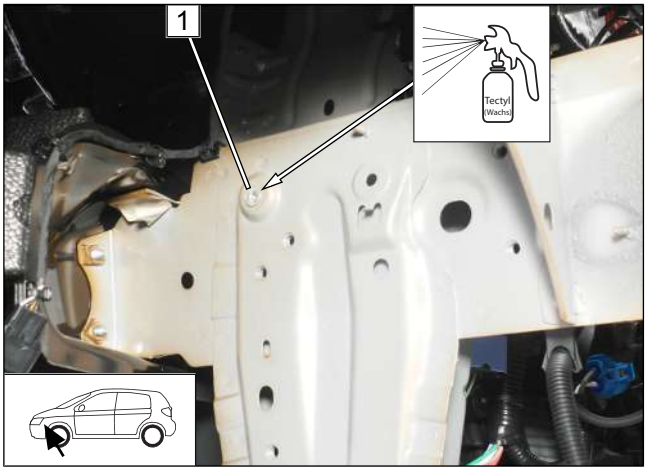


Fig. 11

1 Drill out original vehicle hole to 9mm dia., insert rivet nut

Fastening combustion air intake silencer bracket

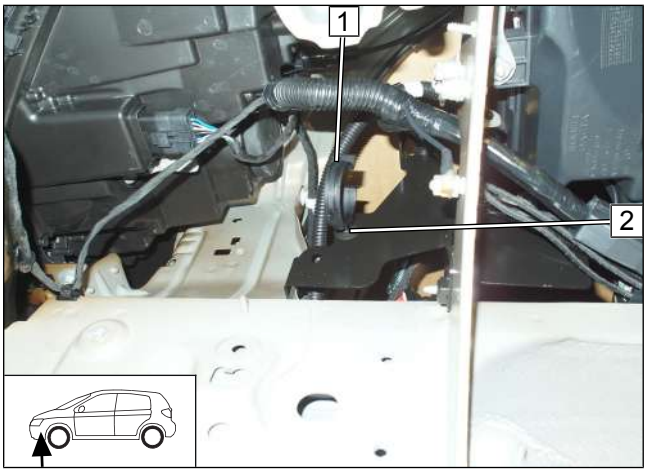


Fig. 12

1 Combustion air intake silencer bracket
2 Original vehicle hole

8.2 Premounting heater

Mounting water connection piece

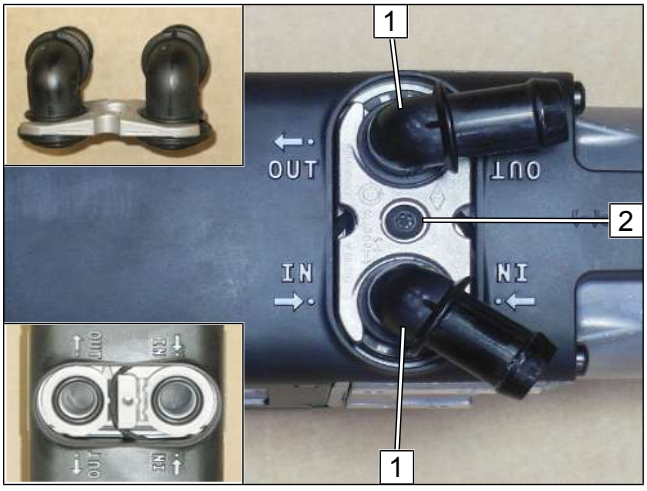


Fig. 13

Observe the general installation instructions of the heater.

1 Water connection piece, seal
2 5x15 self-tapping bolt, water connection piece retaining plate

Mounting moulded hose

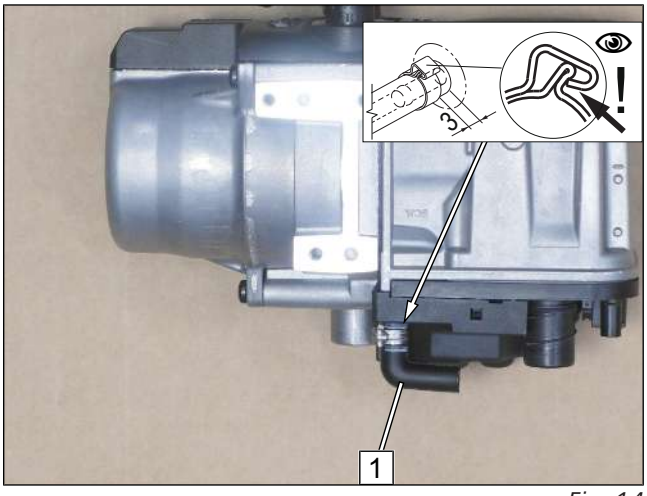


Fig. 14

1 90° moulded hose, 10mm dia. clamp

Premounting combustion air intake silencer

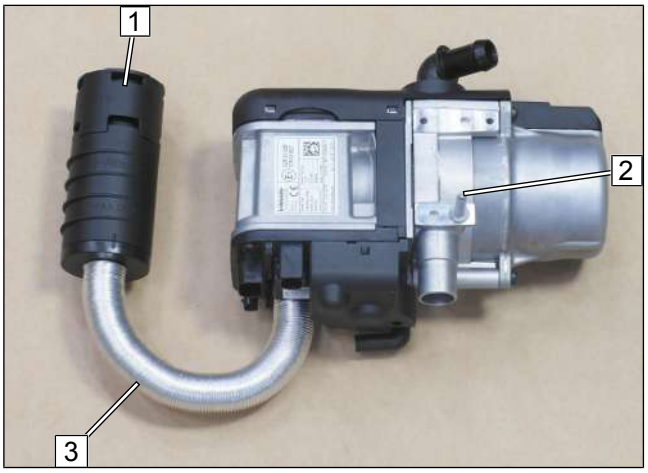


Fig. 15

Observe the installation instructions of the combustion air intake silencer.

1 Combustion air intake silencer
2 Self-tapping M5/6 x25 stud bolt
3 Combustion air pipe

Cutting hoses to length

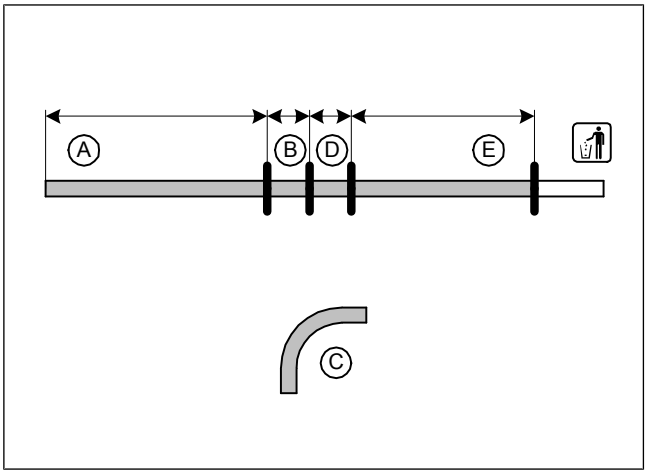


Fig. 16

	Petrol	Diesel
A	910	910
B	60	60
C	18mm dia., 90°	18mm dia., 90°
D	90	90
E	790	830

Preparing hoses

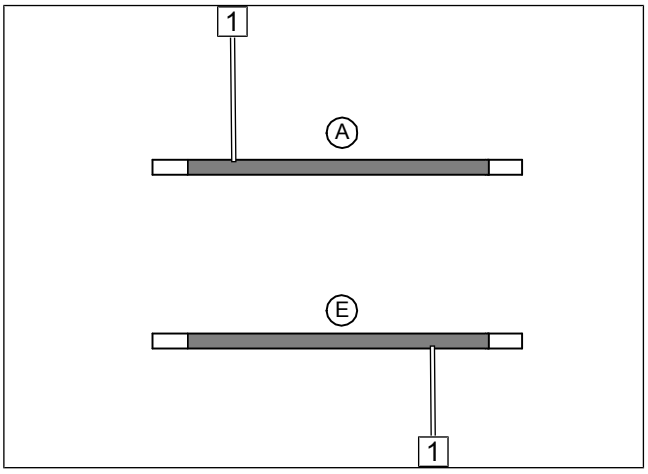


Fig. 17

▶ Slide fabric protective hose 1 onto hoses A and F, cut to length and shrink.

Mounting coolant pump

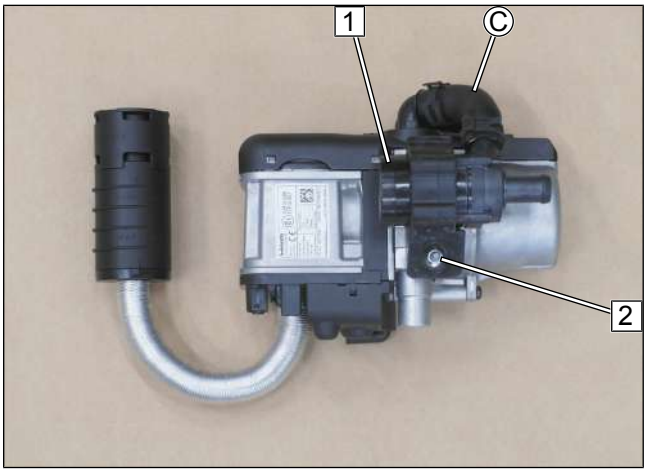


Fig. 18

▶ All spring clips, 25mm dia.

1 Coolant pump
2 Coolant pump mount, flanged nut

Mounting hoses Ⓑ and Ⓓ

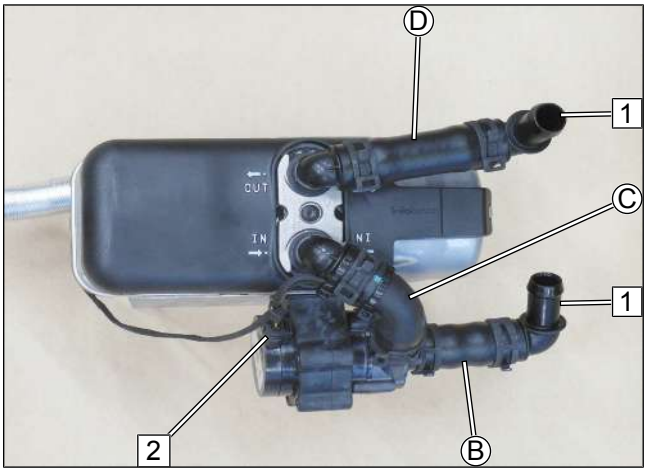


Fig. 19

▶ All spring clips, 25mm dia.

1 90°, 18x18mm connecting pipe
2 Coolant pump wiring harness connector

Mounting bracket

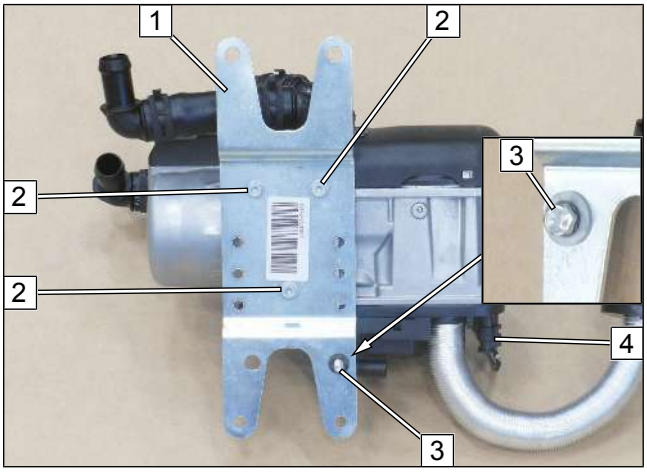


Fig. 20

▶ Drill holes in bracket 1 according to the template.

2 M5x13 self-tapping bolt
3 M6x20 bolt, spring lockwasher, large diameter washer, hole in bracket, lock washer
4 Coolant pump wiring harness connector

Mounting fuel line

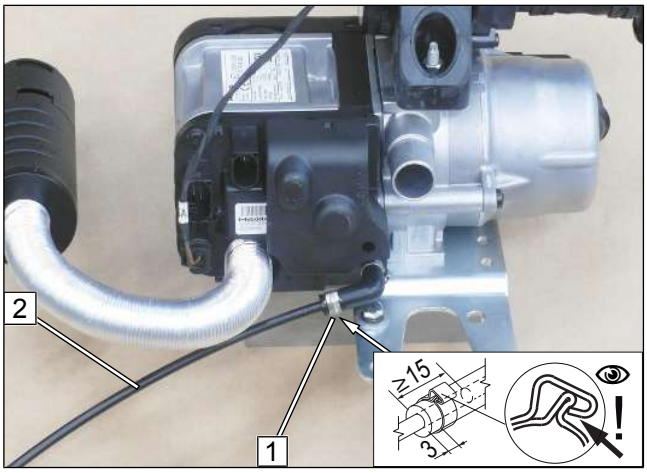


Fig. 21

1 10mm dia. clamp
2 Fuel line

8.3 Mounting heater

Installing wiring harness

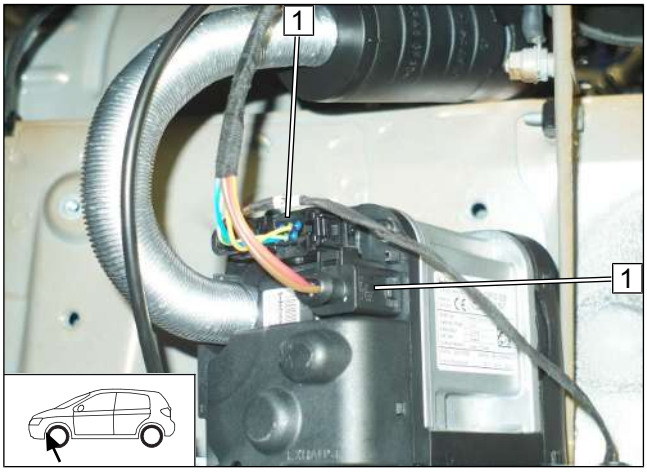


Fig. 22

1 Heater wiring harness connector

Mounting heater

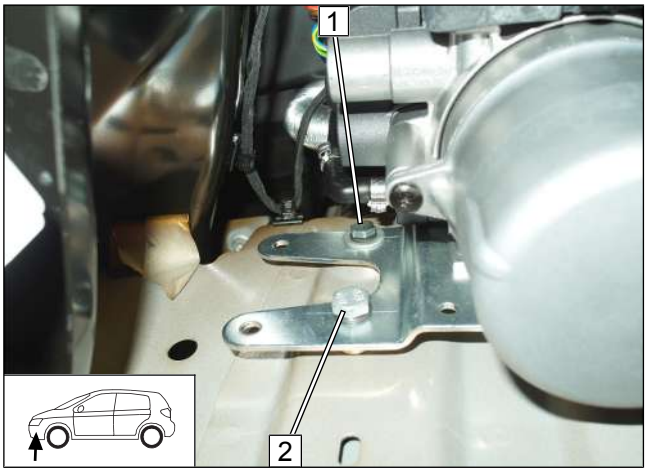


Fig. 23

- ▶ Mount screw connections loosely.
- ▶ Position a 10mm spacer at position 2 between the heater bracket and vehicle.

1 Premounted M6x20 bolt
2 M8x25 bolt, spring lockwasher, heater bracket, 10mm spacer, original vehicle thread

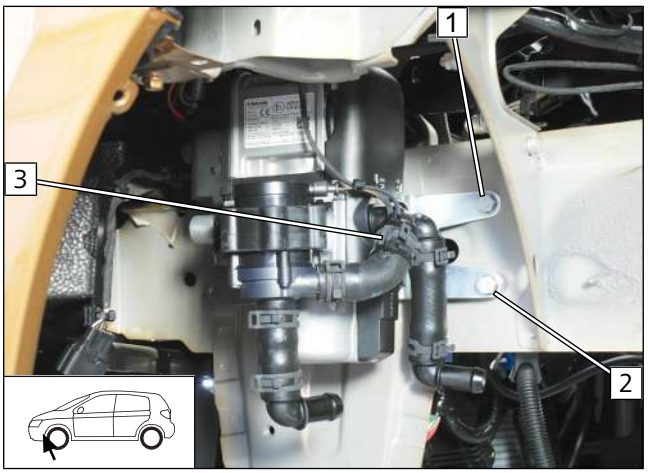


Fig. 24

- ▶ Tighten all screw connections.
- ▶ Position a 10mm spacer at position **2** between the heater bracket and vehicle.
- ▶ Fasten circulating pump wiring harness **2** using cable tie.

1 M8x25 bolt, spring lockwasher, heater bracket, original vehicle thread

2 M8x25 bolt, spring lockwasher, heater bracket, 10mm spacer, original vehicle thread

Mounting combustion air intake silencer

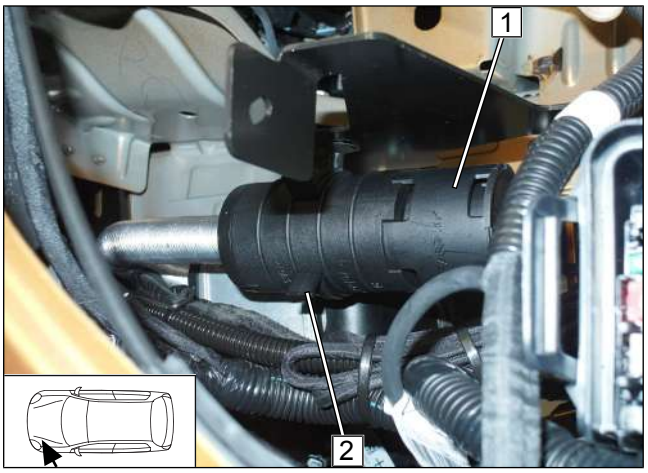


Fig. 25

1 Combustion air intake silencer

2 Combustion air intake silencer bracket

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.

9.1 Connecting and routing fuel line

Dismantling fuel pump connector

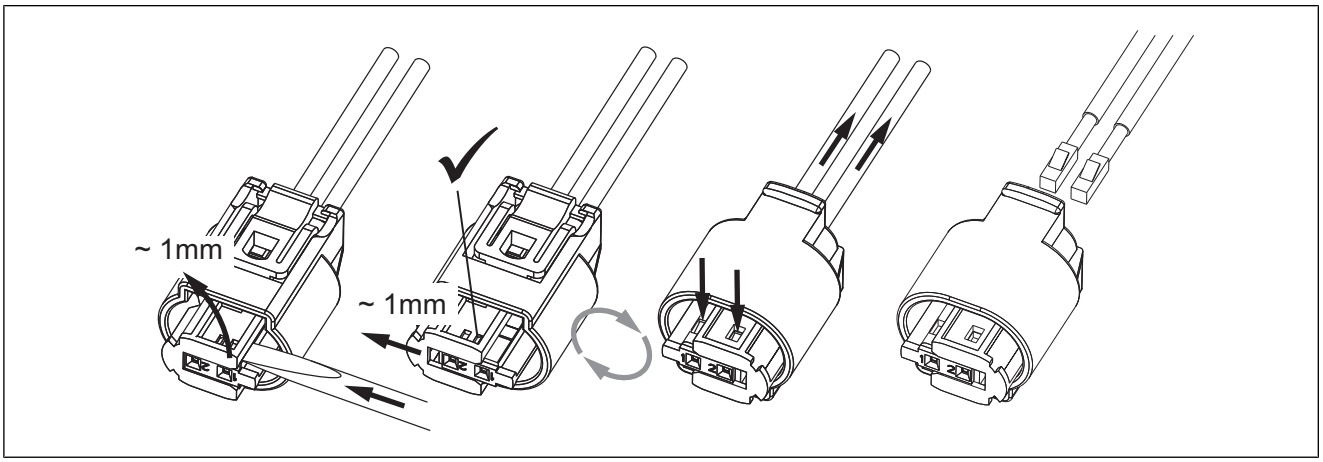


Fig. 26

Mounting corrugated tube

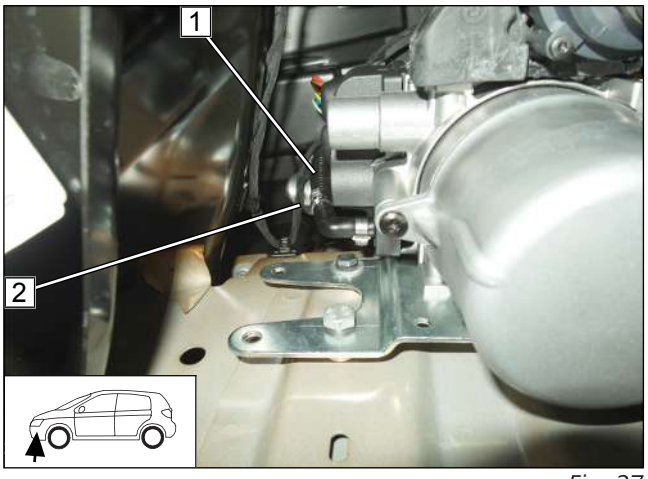


Fig. 27

- ▶ Draw fuel pump wiring harness and fuel line 2 into corrugated tube 1 and route it into the engine compartment.

Routing fuel line

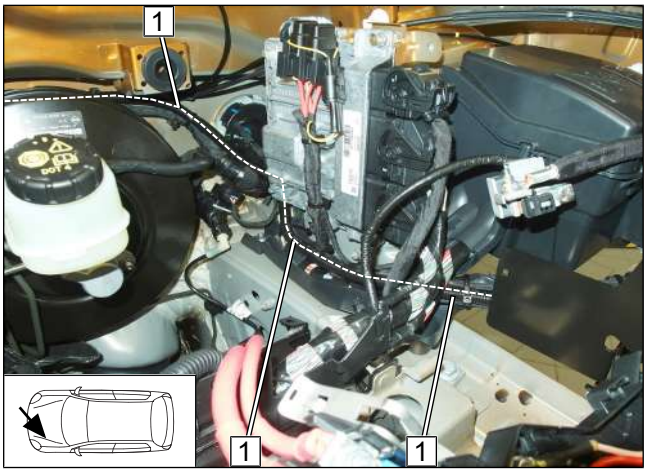


Fig. 28

▶ Route corrugated tube with fuel pump wiring harness and fuel line [1] on original vehicle lines in the engine compartment to the coolant reservoir and fasten with cable ties.

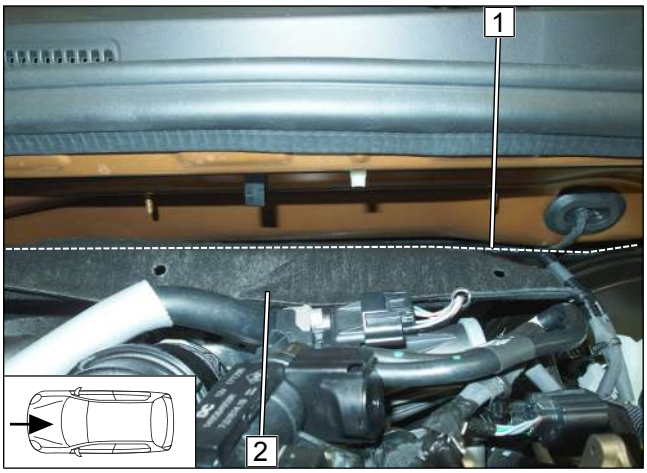


Fig. 29

▶ Route corrugated tube with fuel pump wiring harness and fuel line [1] behind insulation [2] to the right side of the vehicle and secure it with cable ties.

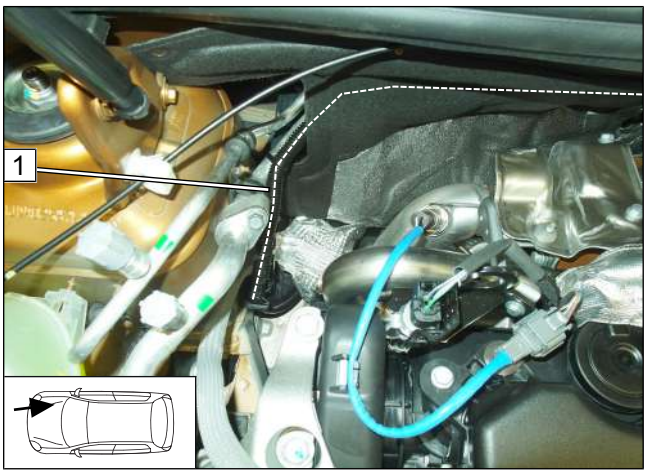


Fig. 30

▶ Route corrugated tube with fuel pump wiring harness and fuel line [1] on original vehicle lines to the underbody and fasten with cable ties.

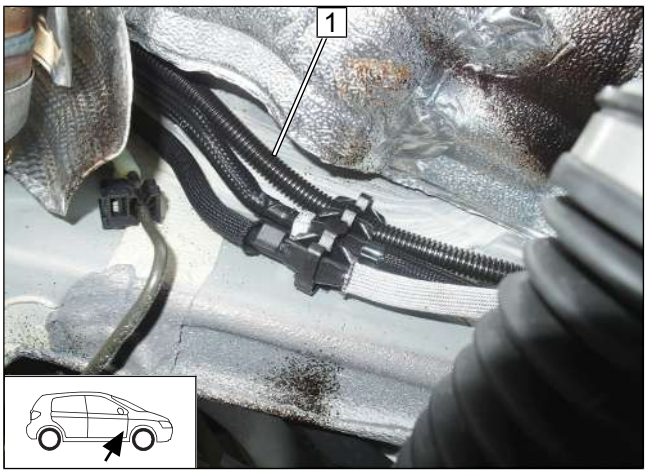


Fig. 31

1 Corrugated tube with fuel pump wiring harness and fuel line

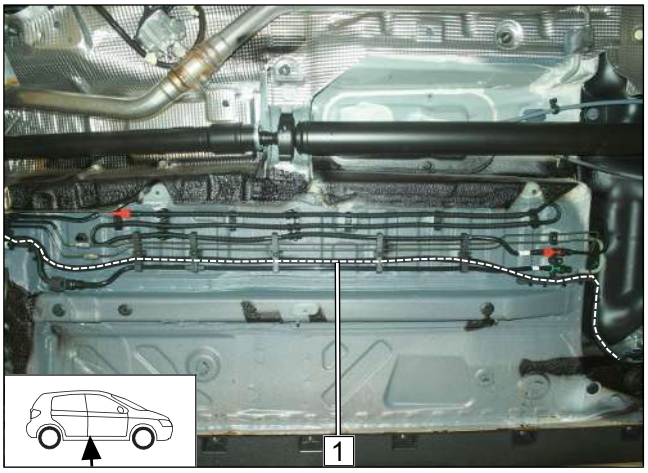


Fig. 32

Route corrugated tube with fuel pump wiring harness and fuel line 1 to the fuel pump installation location and fasten with cable ties.

9.2 Mounting fuel pump

Preparing perforated bracket

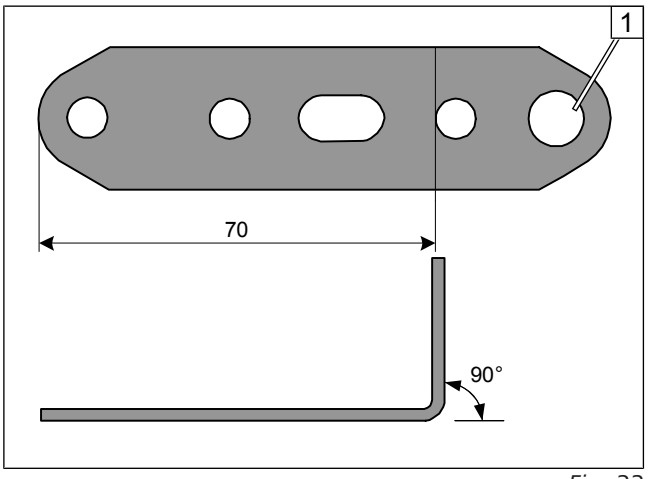


Fig. 33

1 Drill out hole to 8.5mm dia.

Premounting fuel pump

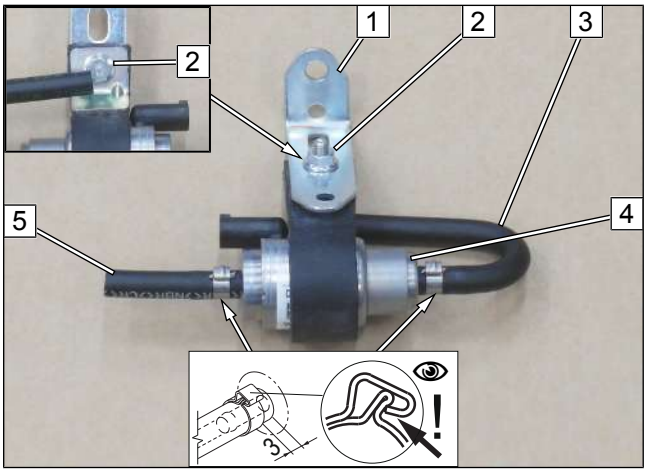


Fig. 34

1 Perforated bracket
2 M6x25 bolt, support angle bracket, metering pump mount, perforated bracket, flanged nut
3 180° moulded hose, 10mm dia. clamp
4 Fuel pump
5 Hose section, 10mm dia. clamp

Mounting fuel pump

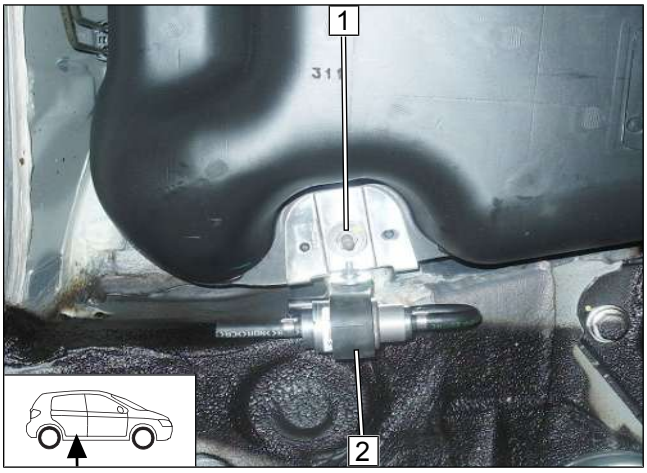


Fig. 35

1 Original vehicle stud bolt with nut
2 Premounted fuel pump

Mounting fuel pump connector

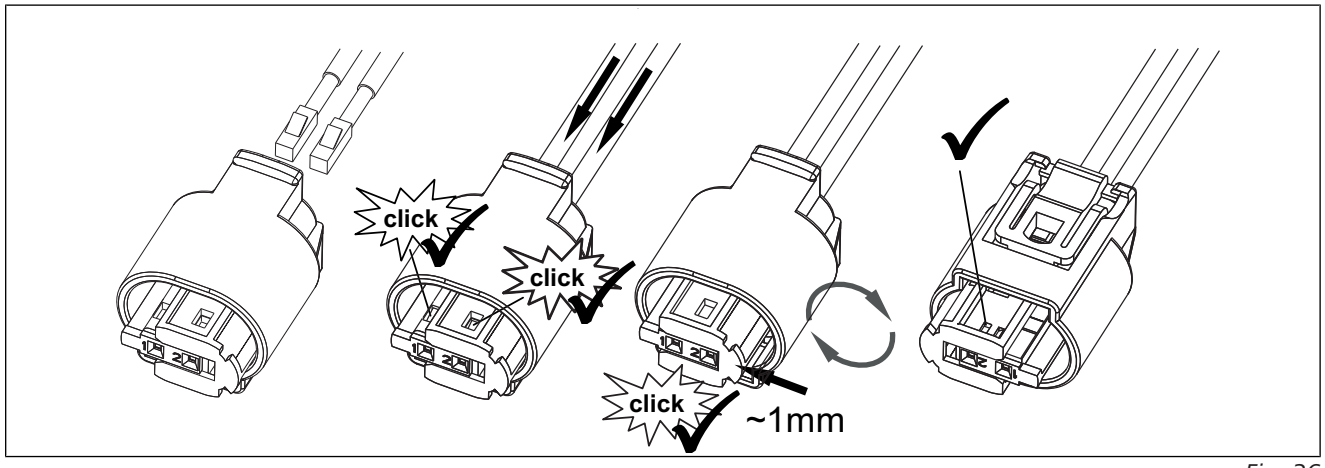


Fig. 36

Connecting fuel line

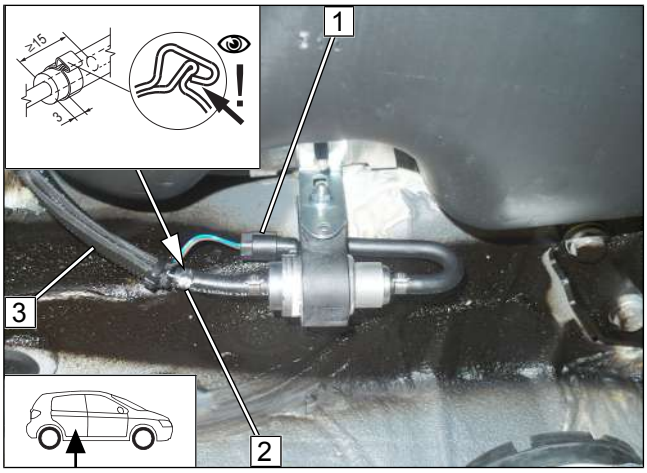


Fig. 37

1 Fuel pump wiring harness, connector X7 mounted

2 10mm dia. clamp

3 Corrugated tube with fuel pump wiring harness and fuel line

Fastening remaining wiring harness

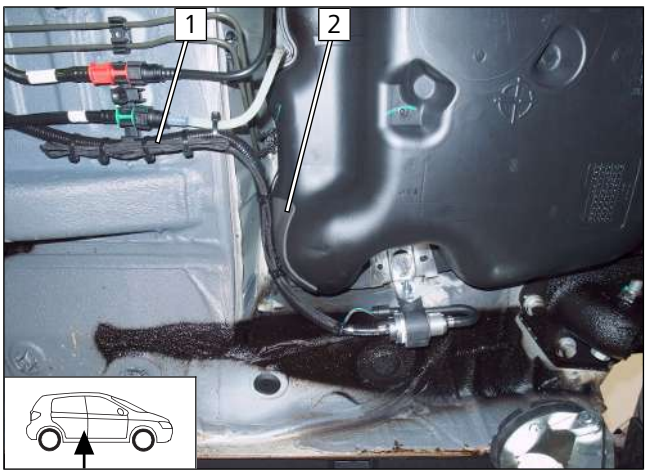


Fig. 38

▶ Route the rest of the fuel pump wiring harness 1 as shown and fasten with cable tie.

2 Glue self-adhesive foam as shown

9.3 Fuel extraction

Assigning tank fitting

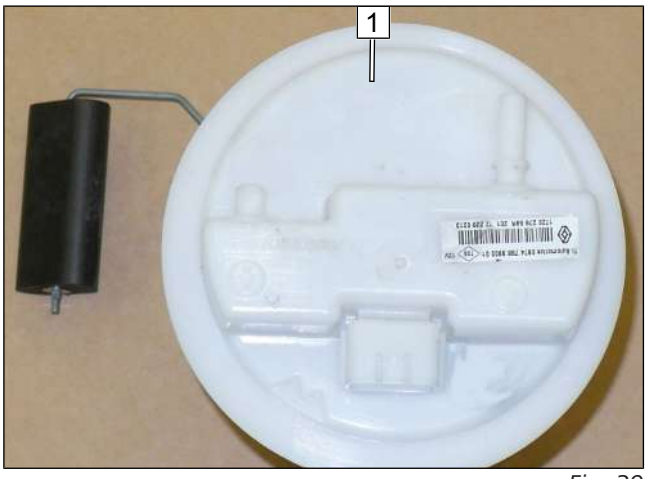


Fig. 39

1 Petrol tank fitting

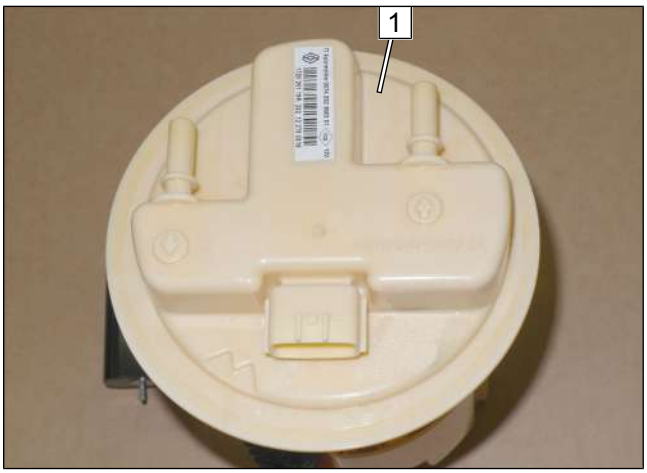


Fig. 40

[1] Diesel tank fitting

Assigning drilling template

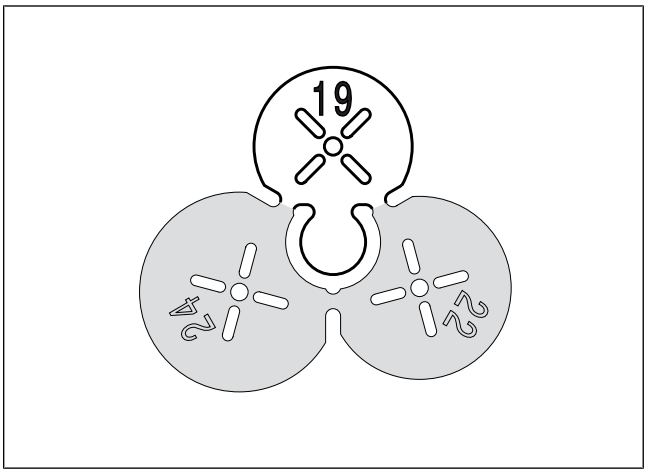


Fig. 41

Copying hole pattern

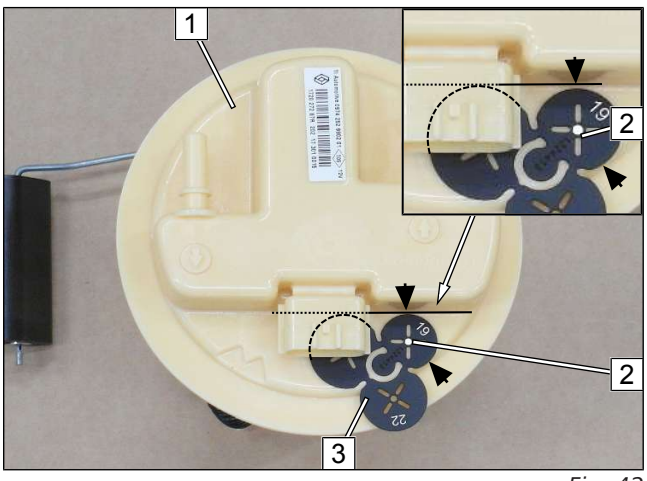


Fig. 42

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

The installation of the tank extracting device is displayed on a diesel fitting.

▶ Remove the tank fitting [1] according to the manufacturer's instructions.

[2] Copying hole pattern

[3] Template

Drilling hole

Fig. 43

1 6mm dia. hole

Installing tank extracting device

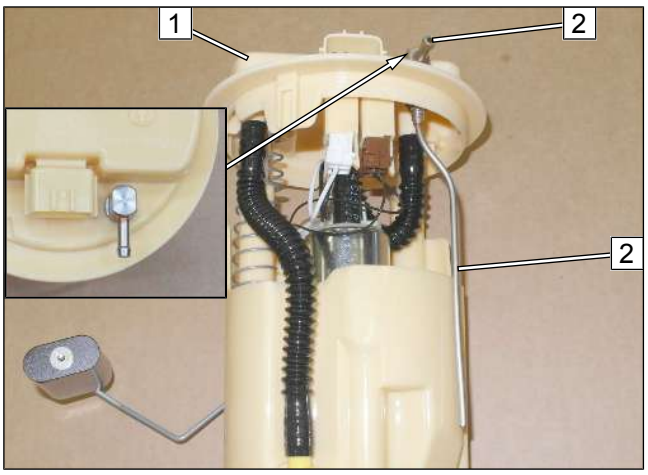


Fig. 44

Observe the installation instructions of the tank extracting device.

▶ Bend tank extracting device 2 according to template and cut to length.

1 Tank fitting

Mounting hose section

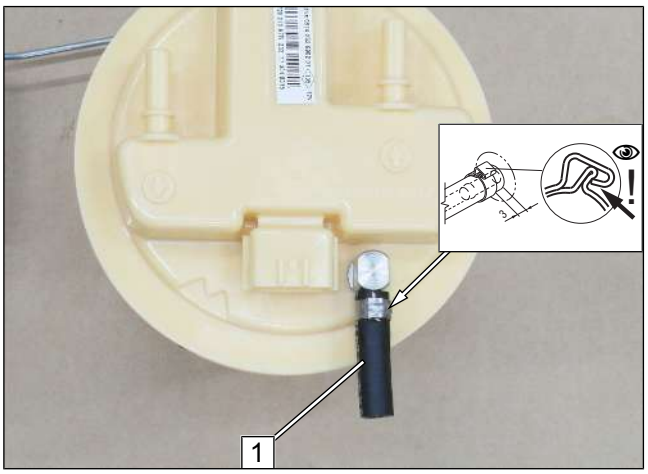


Fig. 45

1 Hose section, 10mm dia. clamp

Connecting tank extracting device

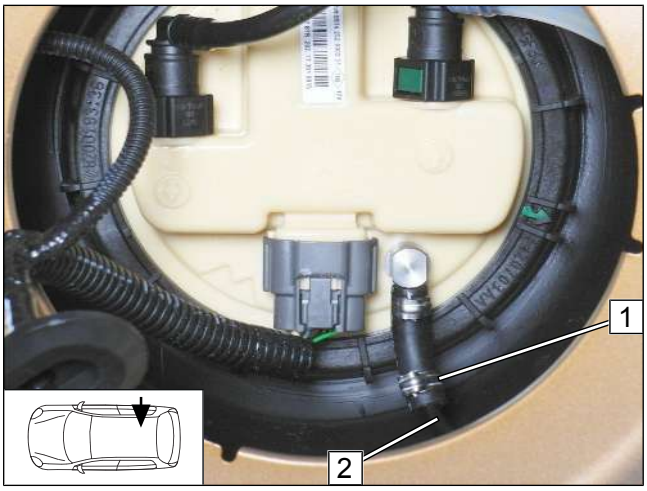


Fig. 46

▶ Mount tank fitting in accordance with manufacturer's instructions.

1 10mm dia. clamp

2 Fuel line of tank extracting device

Securing fuel line

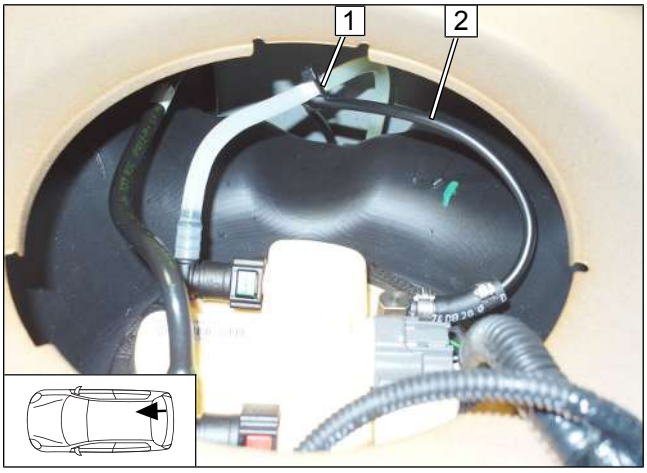


Fig. 47

1 Cable tie

2 Fuel line of tank extracting device

Fuel pump connection

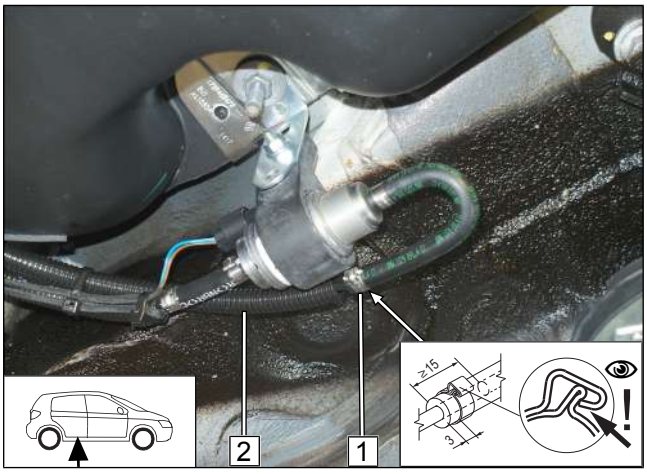


Fig. 48

1 10mm dia. clamp

2 Fuel line of tank extracting device in corrugated tube

10 Exhaust

Cutting exhaust pipe to length

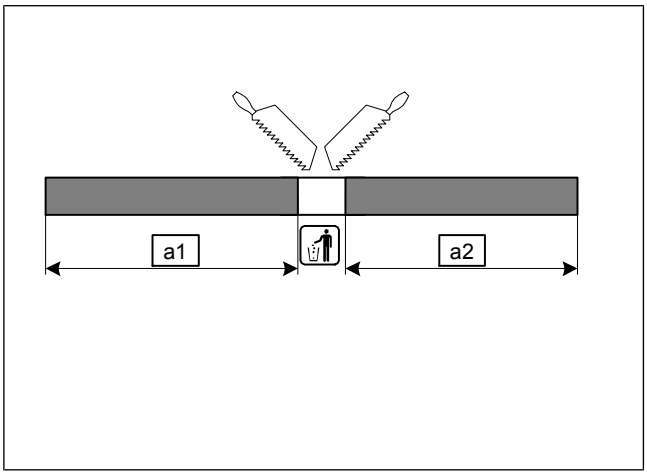


Fig. 49

a1 160
a2 160

Preparing angle bracket

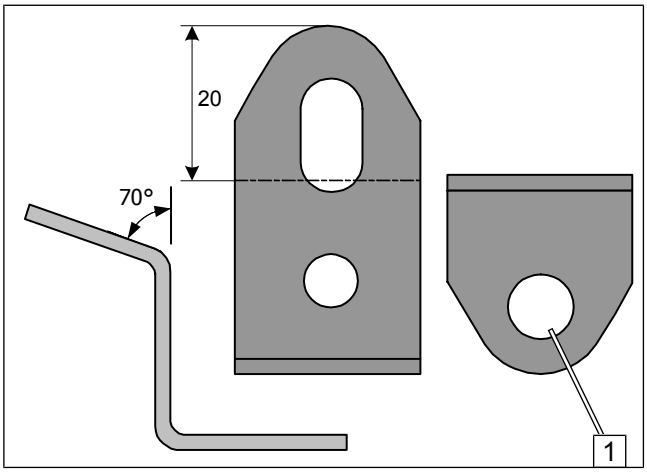


Fig. 50

1 Drill out hole to 8.5mm dia.

Premounting exhaust silencer

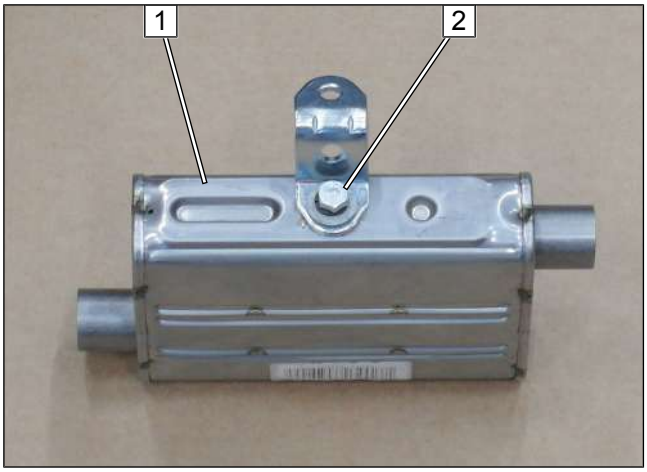


Fig. 51

1 Exhaust silencer
2 M6x16 bolt, spring lockwasher, angle bracket

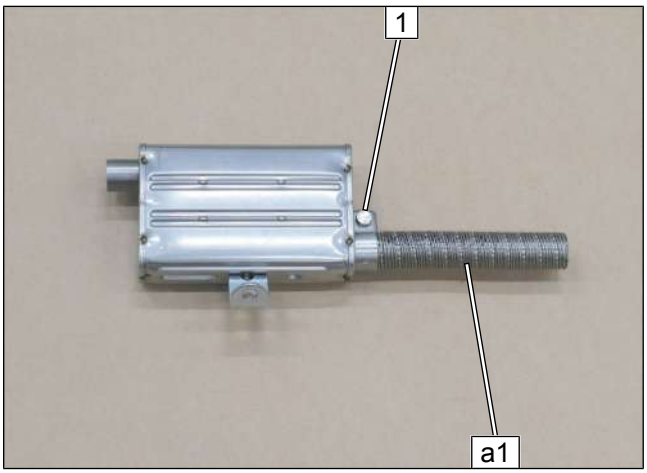


Fig. 52

1 Hose clamp

Mounting exhaust silencer

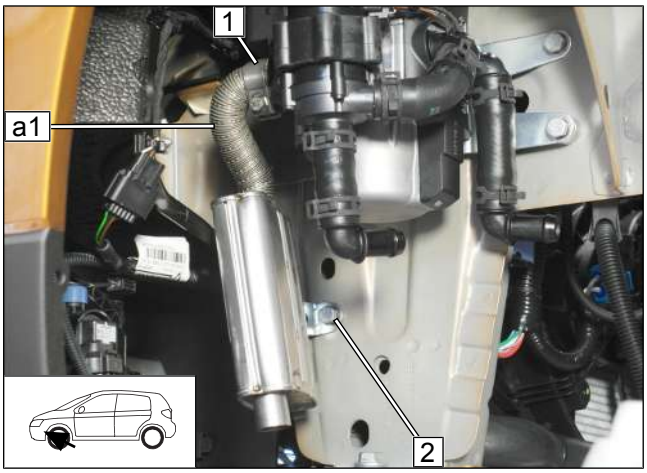


Fig. 53

1 Hose clamp

2 M8x25 bolt, spring lockwasher, angle bracket, original vehicle thread

Preparing EFIX

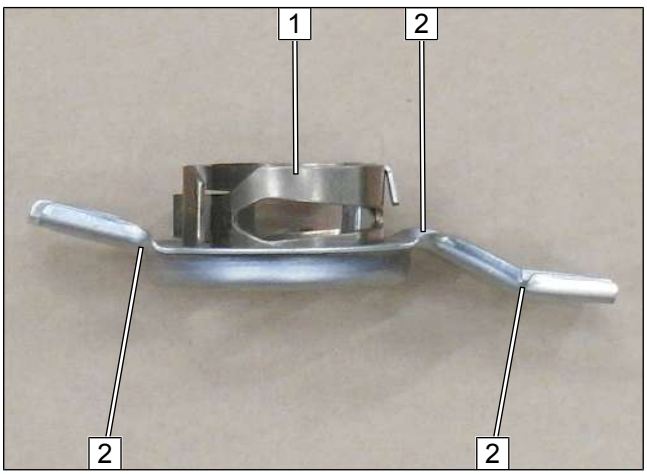


Fig. 54

▶ Bend EFIX 1 at position 2 as shown.

Drilling hole

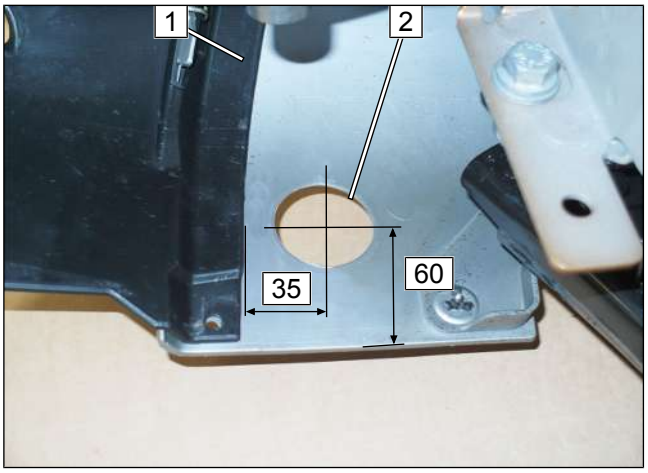


Fig. 55

Observe the EFIX installation instructions.

▶ Work steps E1.1, E1.2

1 Bumper trim
2 Hole

Copying hole pattern

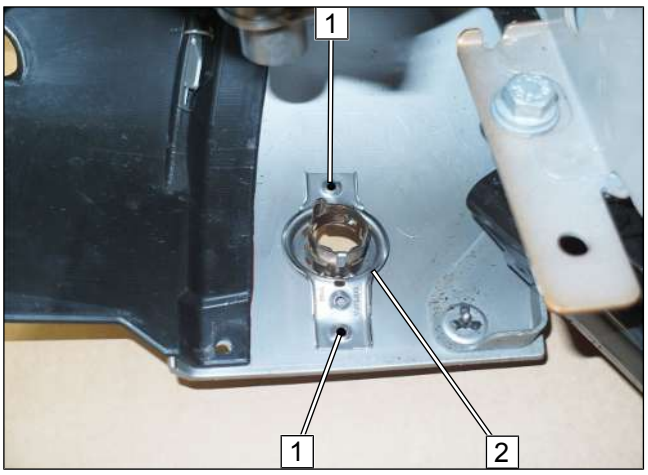


Fig. 56

▶ Work step E3

1 Hole pattern
2 EFIX

Drilling hole

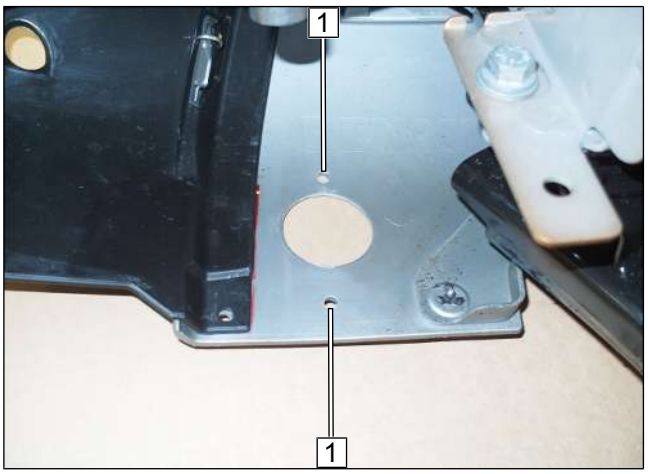


Fig. 57

▶ Work step E4

1 Hole

Mounting EFIX

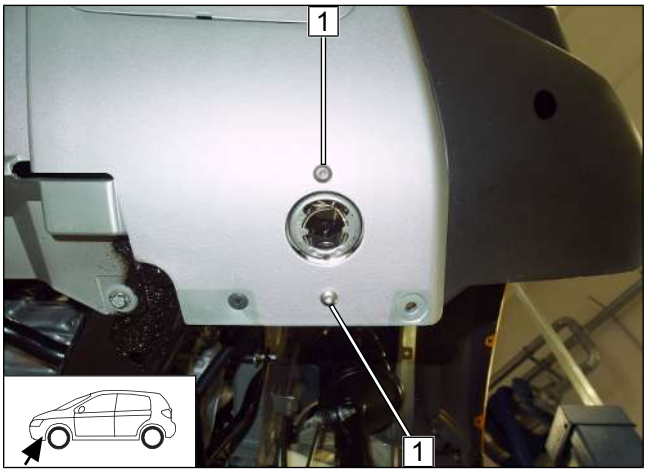


Fig. 58

▶ Work step E5

▶ Mount bumper cover.

1 5x13 self-tapping screw

Mounting exhaust pipe a2

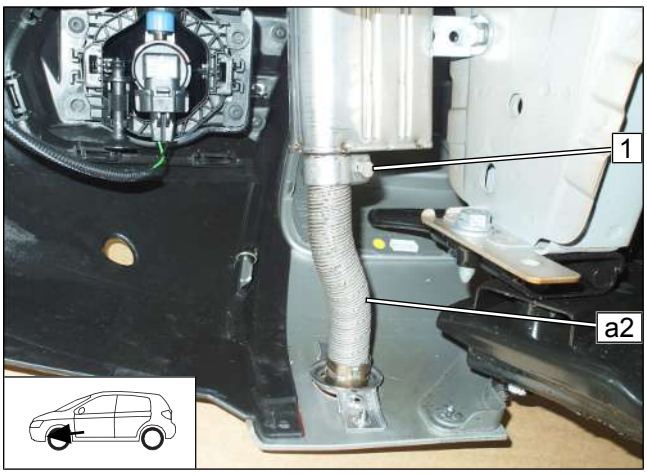


Fig. 59

Observe the general installation instructions of the heater.

▶ Work steps E6-E8

1 Hose clamp

11 Coolant

11.1 Hose routing diagram

'Inline' coolant circuit

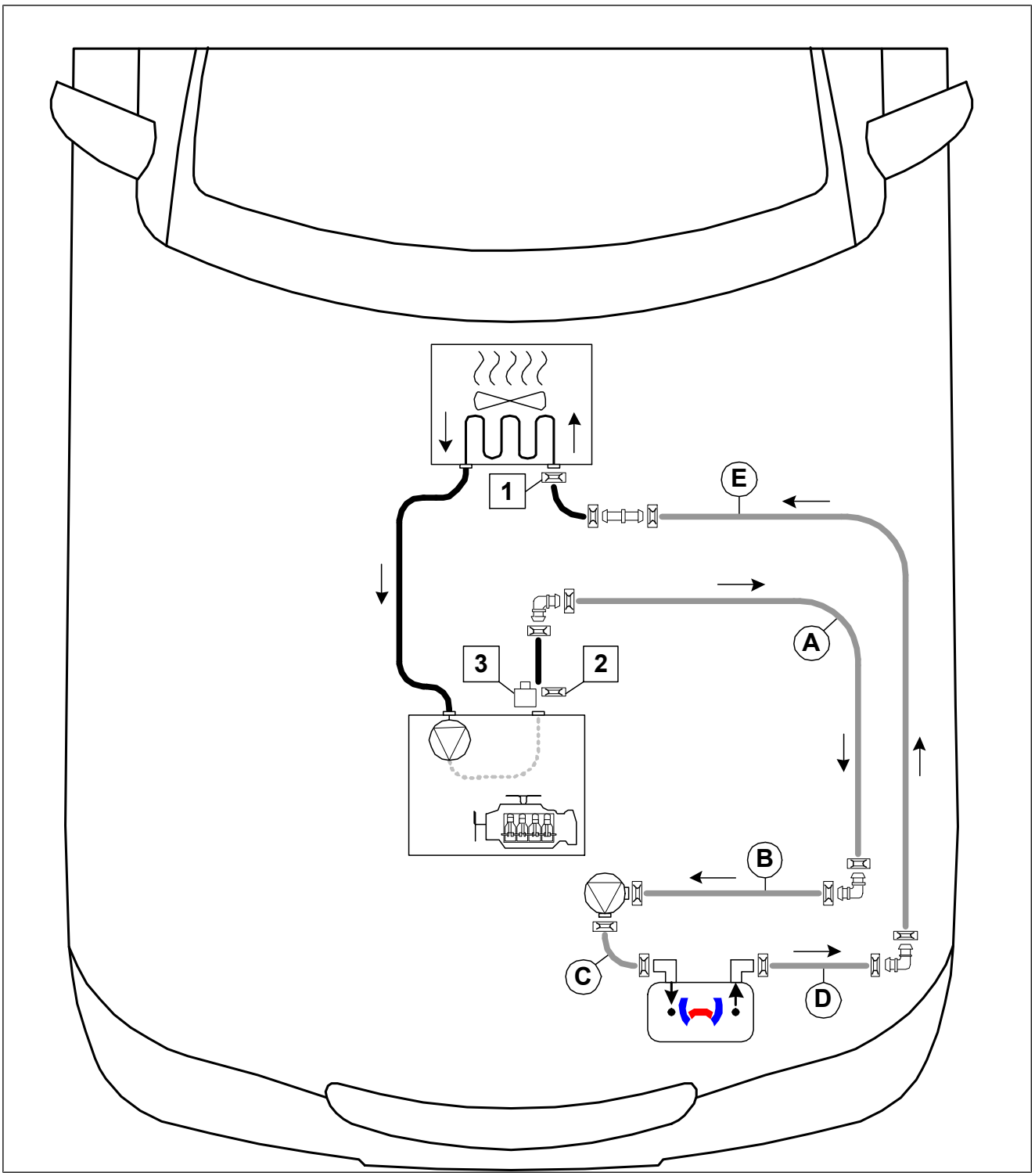


Fig. 60

All spring clips without a specific designation = 25mm dia.;

All connecting pipes without a specific designation and = 18x18mm dia.

1 original vehicle spring clip, 2 original vehicle spring clip for 1.6 petrol and diesel,

3 original vehicle quick-release coupling for 1.2 petrol

11.2 Preliminary work

Preparing perforated bracket 1

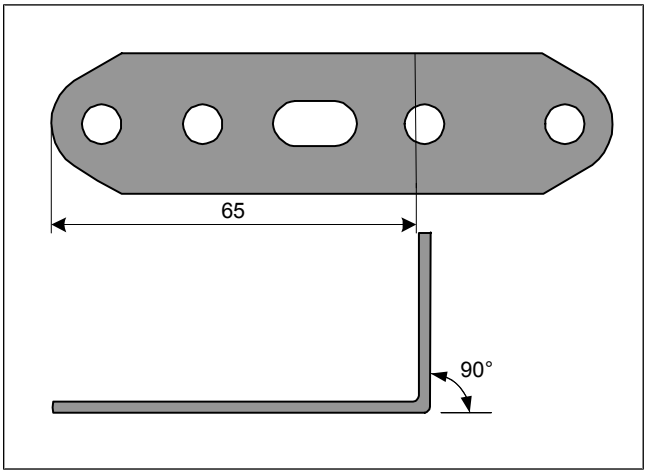


Fig. 61

Preparing perforated bracket 2

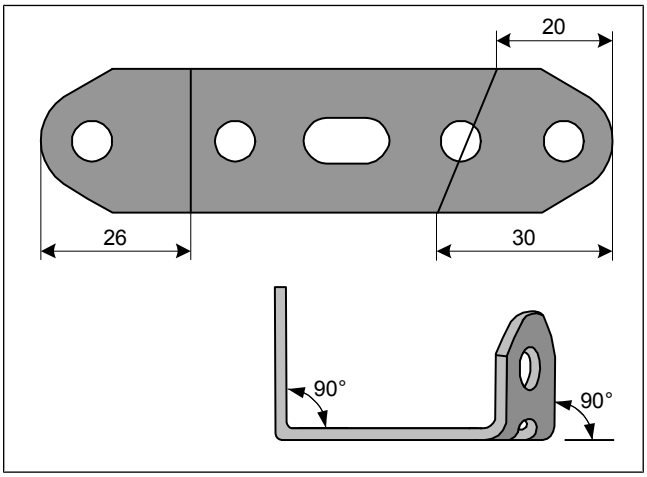


Fig. 62

Premounting perforated bracket 1 and 2

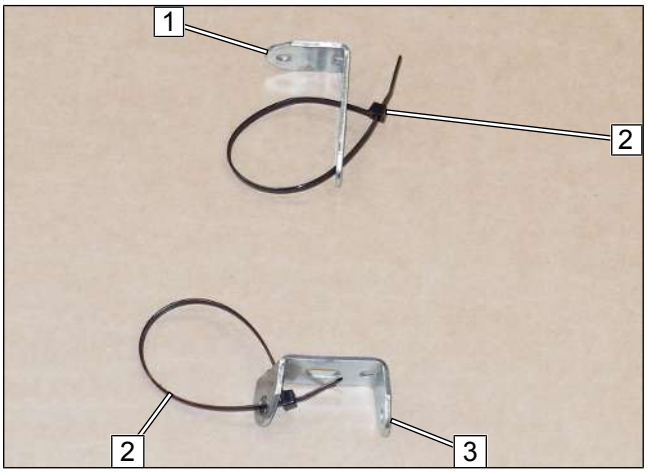


Fig. 63

1 Perforated bracket 1
2 Cable tie
3 Perforated bracket 2

Mounting perforated bracket 1, variant 1

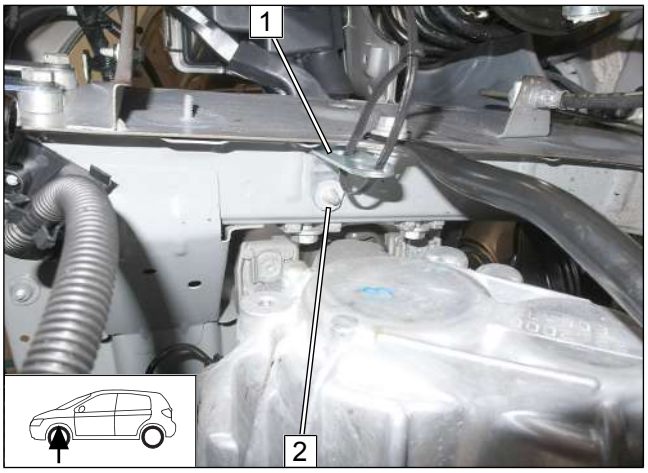


Fig. 64

▶ Only vehicles without hydraulic line.

1 Perforated bracket 1
2 Plate nut on original vehicle stud bolt

Mounting perforated bracket 1, variant 2

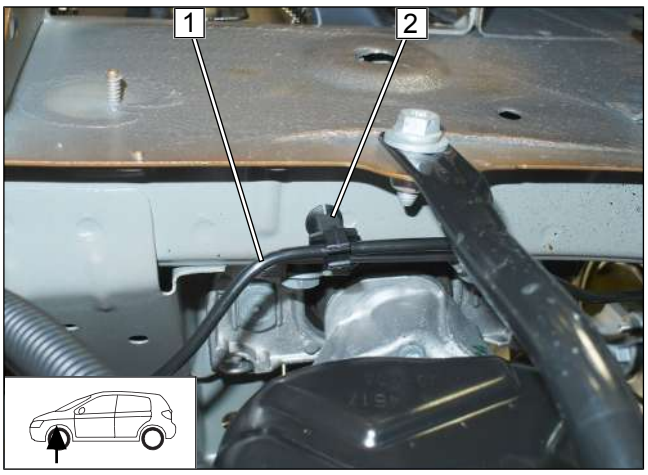


Fig. 65

▶ Only vehicles with hydraulic line.

1 Remove line holder
2 Detach original vehicle hydraulic line

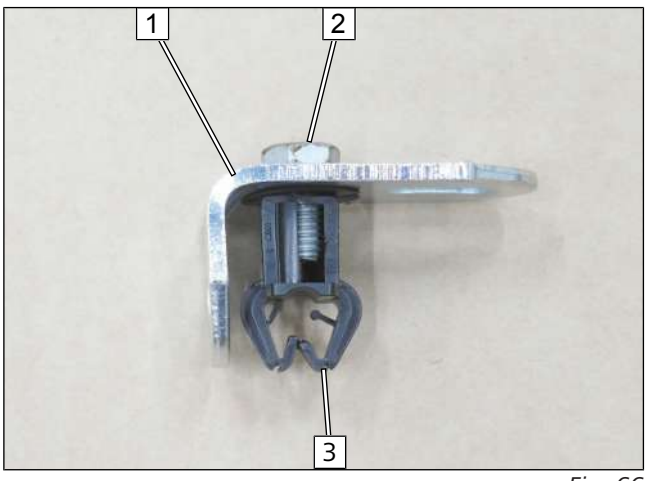


Fig. 66

1 Angle bracket
2 M6x12 bolt
3 Line holder

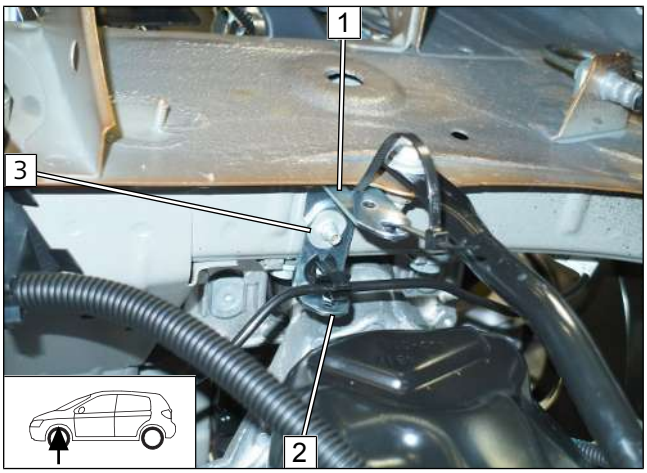


Fig. 67

▶ Attach original vehicle hydraulic line.

1 Perforated bracket 1
2 Premounted angle bracket
3 Plate nut on original vehicle stud bolt

Mounting perforated bracket 1, version 3

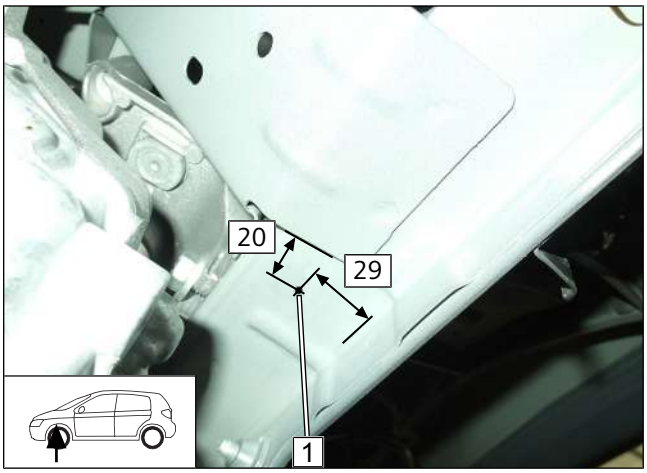


Fig. 68

▶ Only vehicles without stud bolt

1 Copying hole pattern, drilling 9mm dia. hole

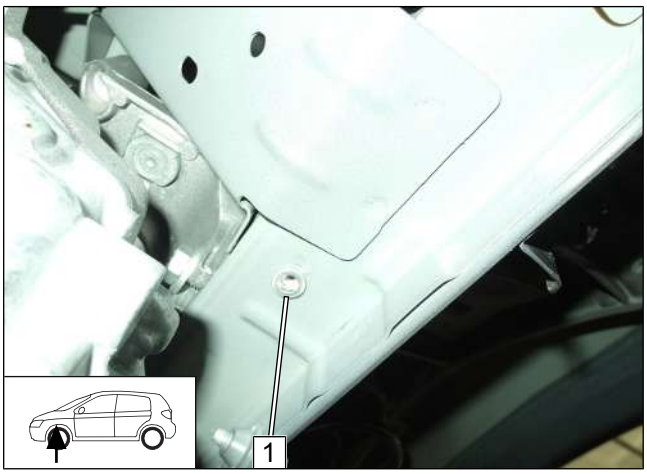


Fig. 69

1 Inserting rivet nut

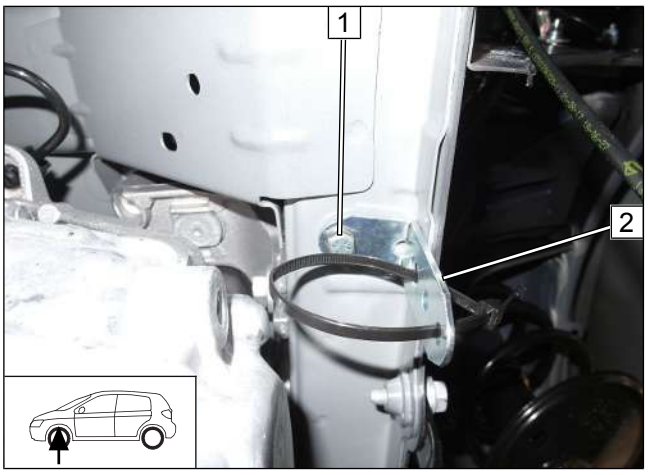


Fig. 70

1 M6x20 bolt, spring lockwasher

2 Perforated bracket 1

Mounting perforated bracket 2

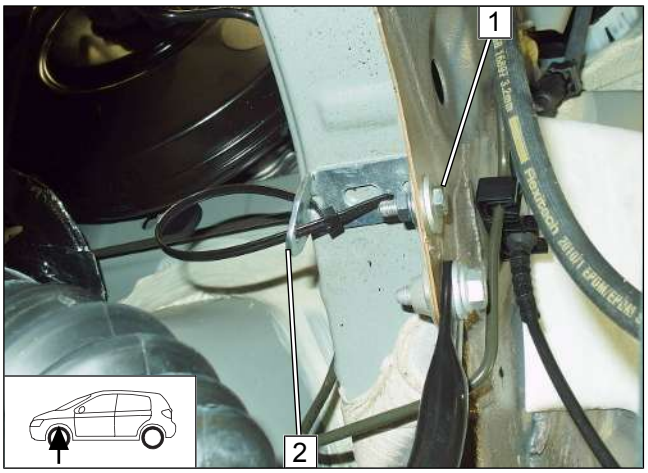


Fig. 71

▶ All vehicles

1 M6x20 bolt, large diameter washer, original vehicle hole, perforated bracket 2, flanged nut

2 Perforated bracket 2

11.3 Coolant circuit installation for 1.2 petrol

Removing original vehicle hose

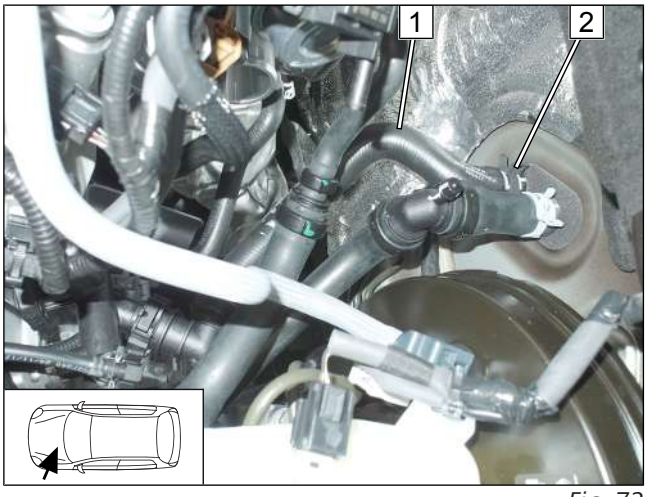


Fig. 72

1 Remove engine outlet / heat exchanger inlet hose

2 Original vehicle spring clip, will be reused

Cutting point

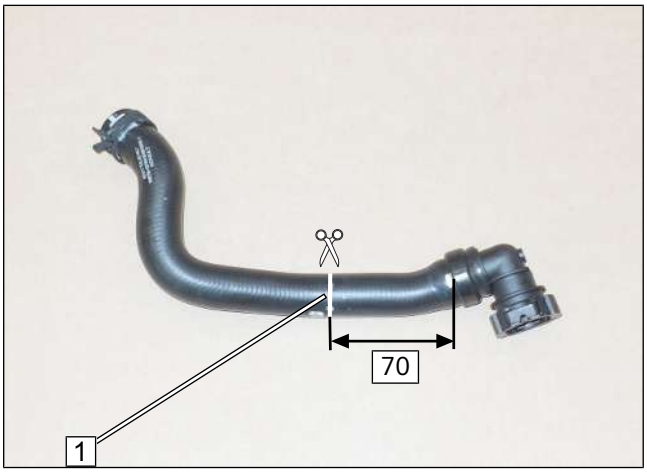


Fig. 73

1 Cutting point

Premounting hoses Ⓐ and Ⓔ

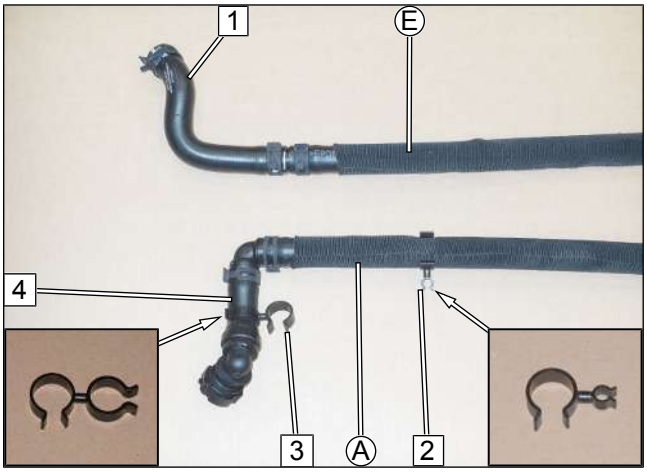


Fig. 74

1 Heat exchanger inlet hose section
2 20x8 hose bracket
3 20x20 hose bracket
4 Engine outlet hose section

Connecting engine outlet

Fig. 75

1 Quick-release coupling on engine outlet connection piece
2 Engine outlet hose section

Connecting heat exchanger inlet

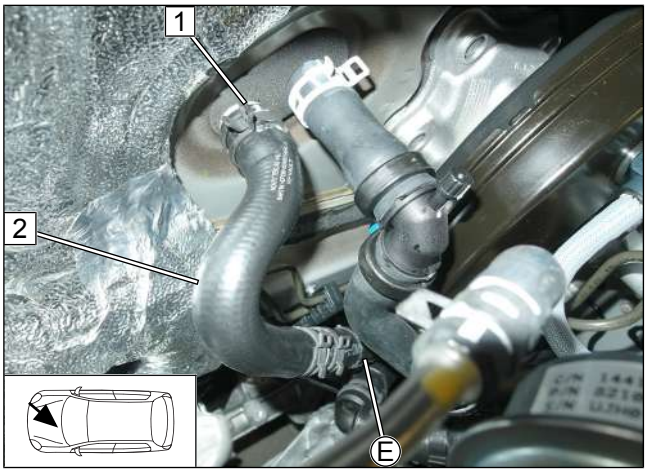


Fig. 76

1 Original vehicle spring clip
2 Heat exchanger inlet hose section

Routing hoses Ⓐ and Ⓔ

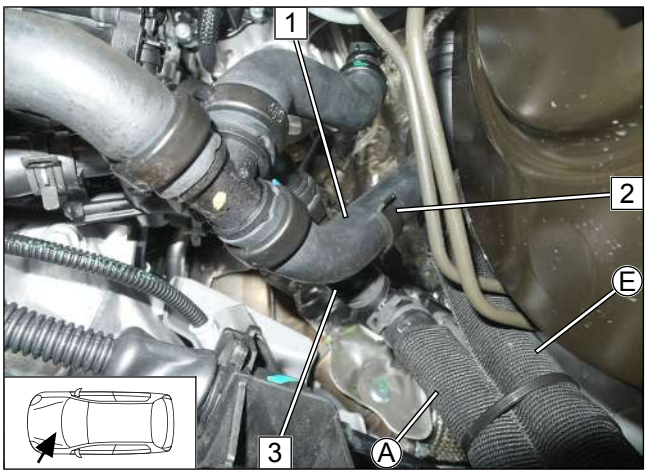


Fig. 77

▶ Mount premounted hose bracket 2, as shown, between original vehicle hose 1 and engine outlet hose section 3.

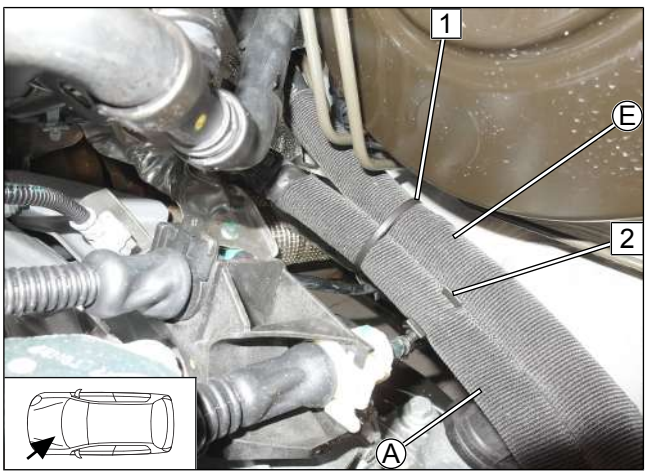


Fig. 78

1 Cable tie
2 Premounted hose bracket between hose Ⓐ and original vehicle gearshift cable

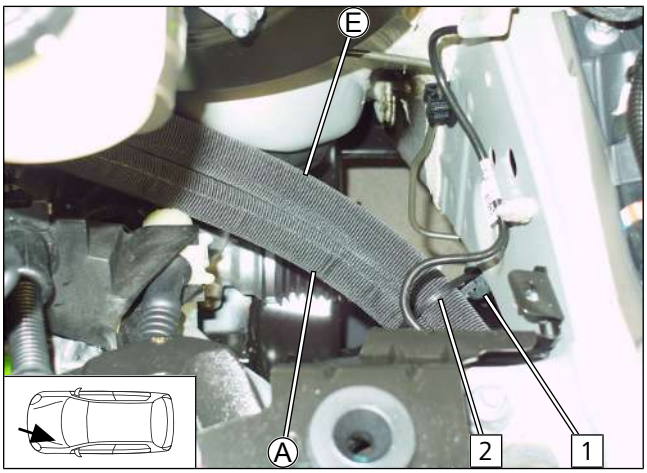


Fig. 79

▶ Route hoses (A) and (E) through cable tie [2].

[1] Premounted perforated bracket 2

Connecting heater

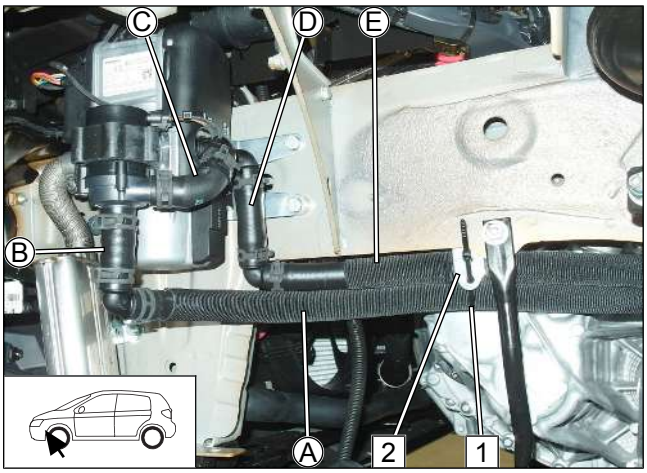


Fig. 80

▶ Route hoses (A) and (E) through cable tie [1].

[2] Premounted perforated bracket 1

Fastening hoses (A) and (E)

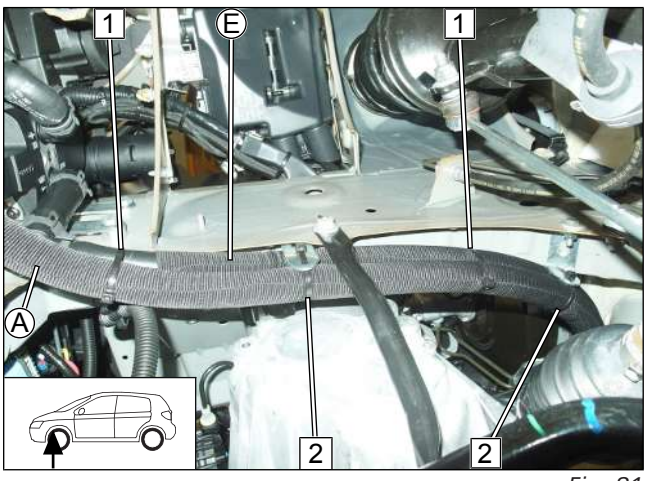


Fig. 81

[1] Cable tie

[2] Tighten cable tie

Checking distance

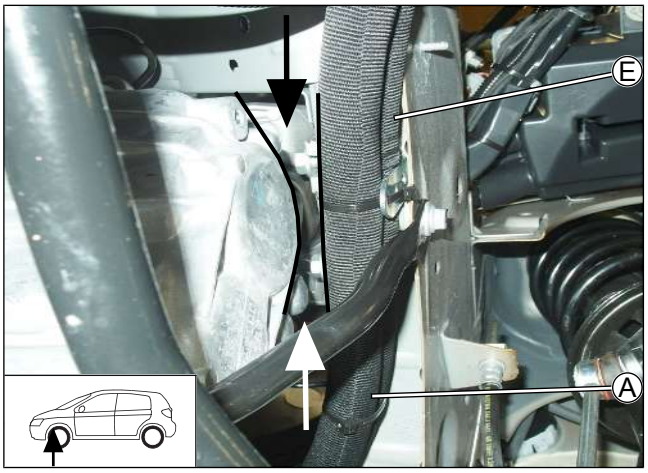


Fig. 82

Ensure sufficient distance from neighbouring components, correct if necessary.

>20

11.4 Coolant circuit installation for 1.6 petrol

Removing original vehicle hose

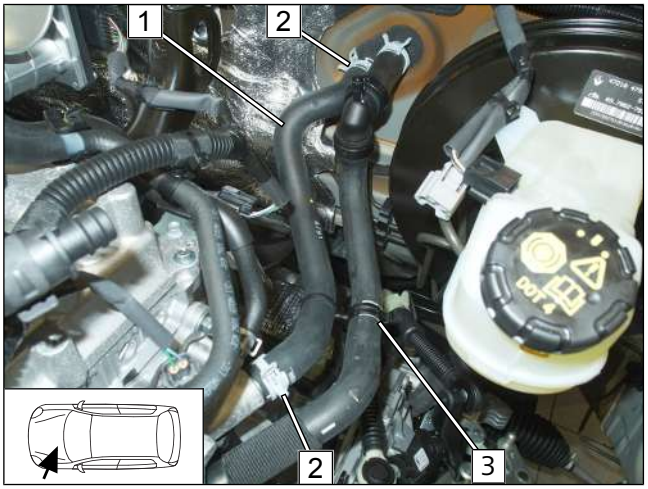


Fig. 83

▶ Detach heat exchanger outlet / engine inlet hose at position 3 from hose bracket.

1 Remove engine outlet / heat exchanger inlet hose

2 Original vehicle spring clip, will be reused

Cutting point

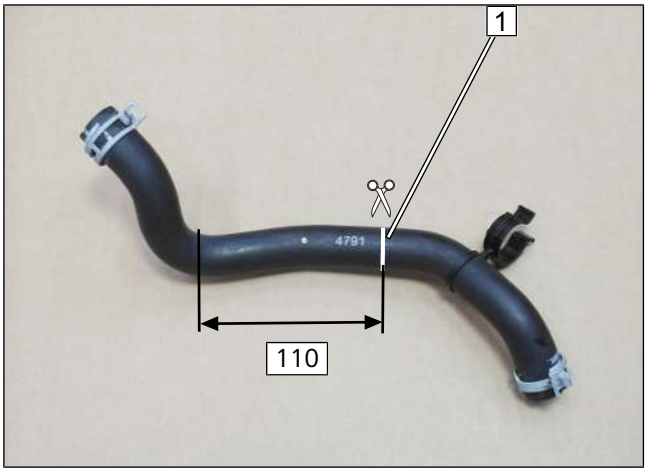


Fig. 84

1 Cutting point

Premounting hoses Ⓐ and Ⓔ

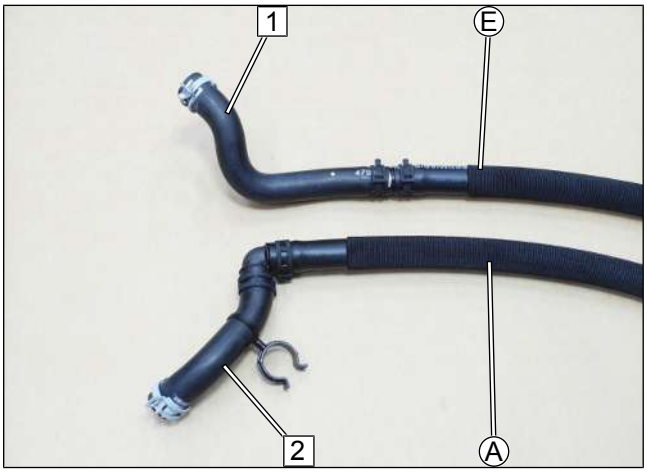


Fig. 85

1 Heat exchanger inlet hose section
2 Engine outlet hose section

Connecting engine outlet

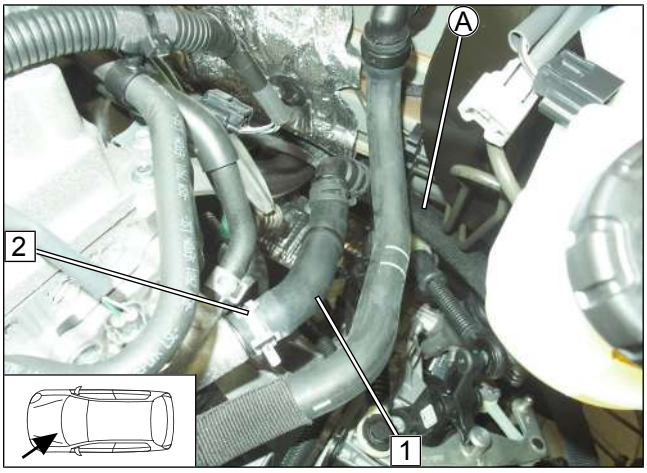


Fig. 86

1 Engine outlet hose section
2 Original vehicle spring clip

Connecting heat exchanger inlet

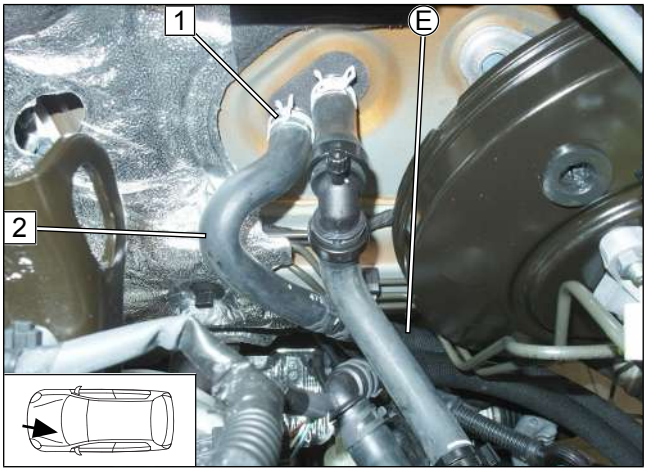


Fig. 87

1 Original vehicle spring clip
2 Heat exchanger inlet hose section

Routing hoses Ⓐ and Ⓔ

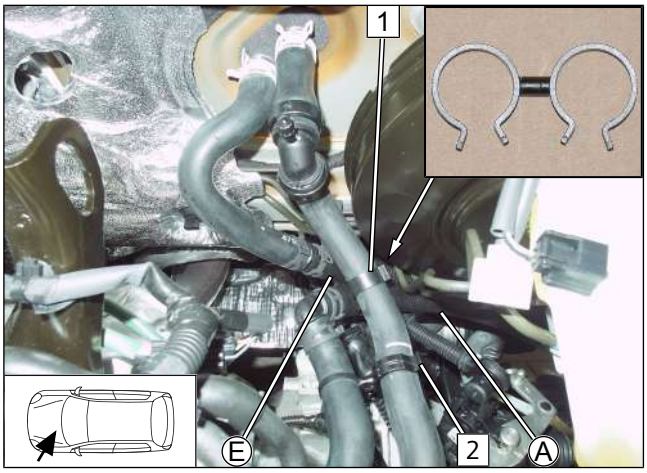


Fig. 88

▶ Mount 20x20 hose bracket 1, as shown, between original vehicle hose and hose Ⓐ. Mount original vehicle hose bracket 2 again.

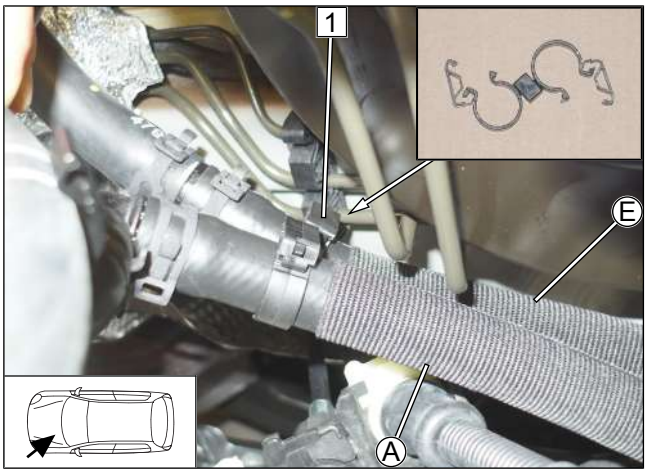


Fig. 89

1 Hose bracket between hose Ⓐ and hose Ⓔ

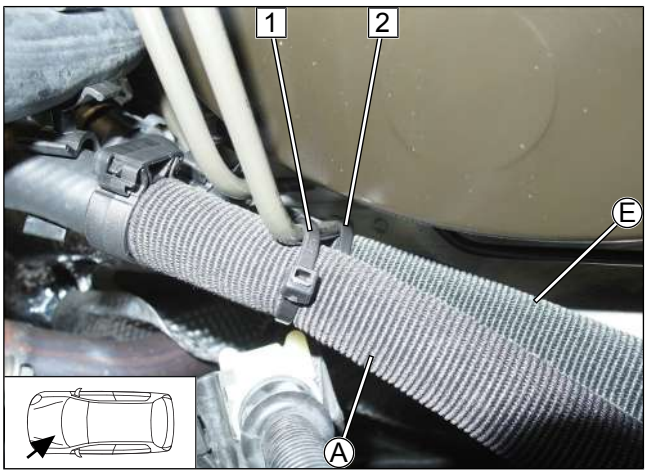


Fig. 90

1 Cable tie around brake line and hose Ⓐ

2 Cable tie around brake line and hose Ⓔ

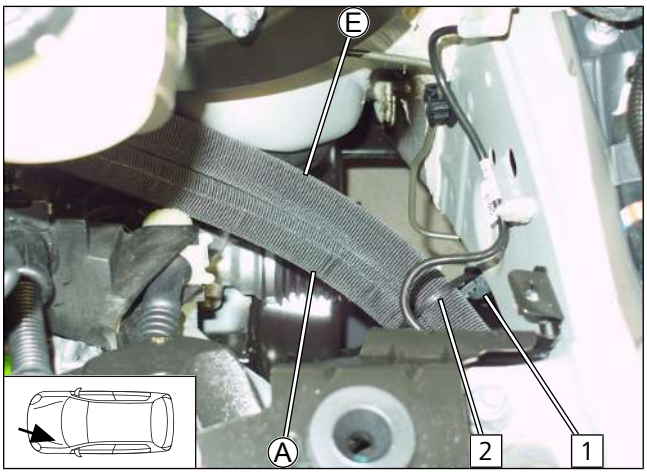


Fig. 91

▶ Route hoses (A) and (E) through cable tie [2].

[1] Premounted perforated bracket 2

Connecting heater

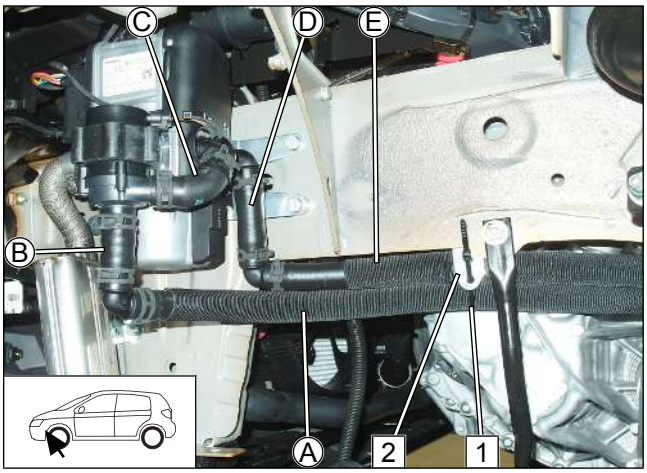


Fig. 92

▶ Route hoses (A) and (E) through cable tie [1].

[2] Premounted perforated bracket 1

Fastening hoses (A) and (E)

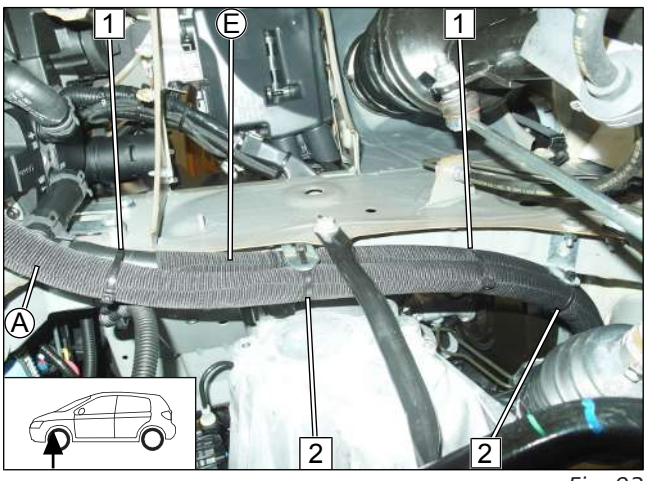


Fig. 93

[1] Cable tie

[2] Tighten cable tie

Checking distance

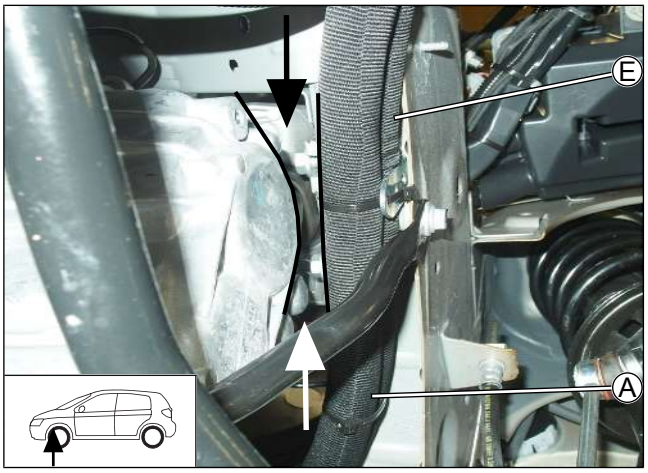


Fig. 94

Ensure sufficient distance from neighbouring components, correct if necessary.

11.5 Coolant circuit installation for diesel vehicles

Remove engine outlet / heat exchanger inlet hose

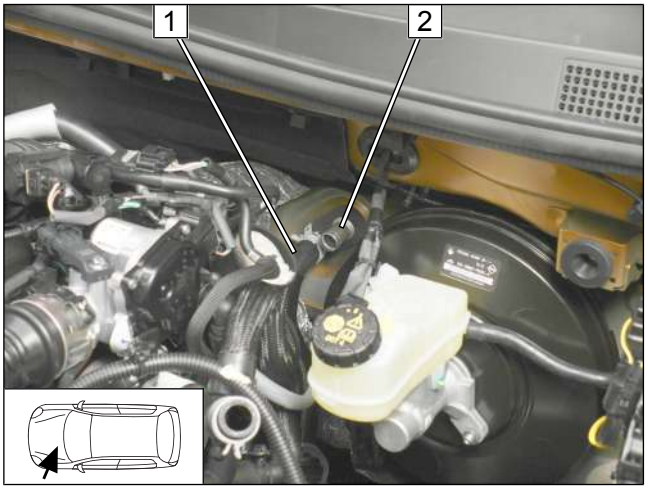


Fig. 95

For a better view, the heat exchanger outlet / engine inlet hose at position 2 is removed.

▶ All original vehicle spring clips will be reused.

1 Engine outlet / heat exchanger inlet hose

Cutting point

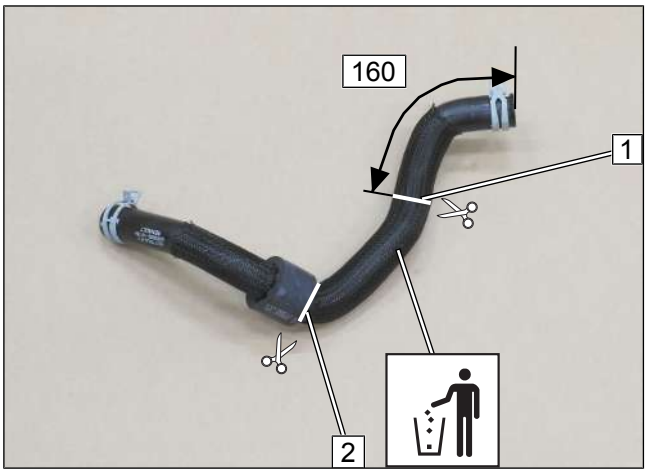


Fig. 96

1 Cutting point 1
2 Cutting point 2

Premounting hoses Ⓐ and Ⓔ

Fig. 97

1 Engine outlet hose section
2 Heat exchanger inlet hose section

Connecting engine outlet

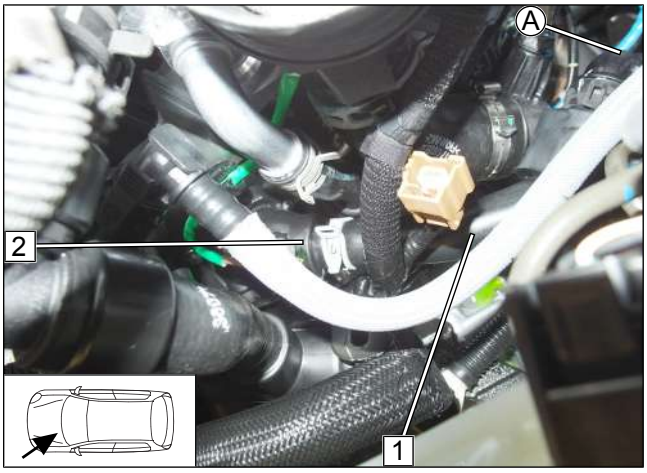


Fig. 98

1 Engine outlet hose section
2 Engine outlet connection piece

Connecting heat exchanger inlet

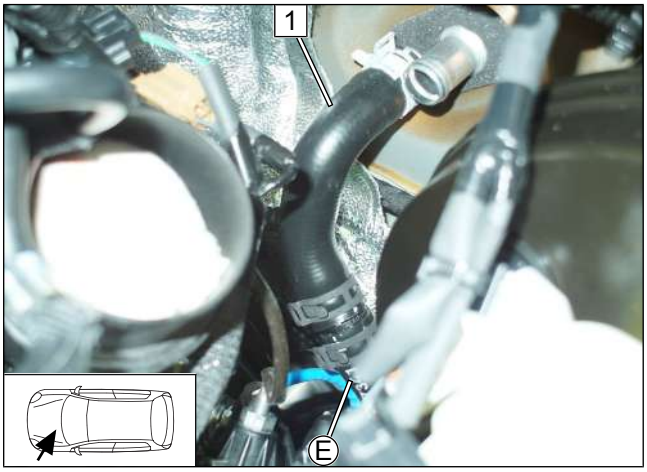


Fig. 99

1 Heat exchanger inlet hose section

Routing hoses Ⓐ and Ⓔ

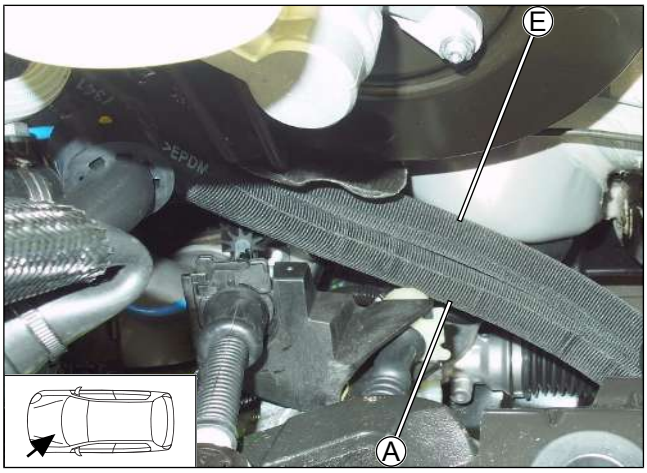


Fig. 100

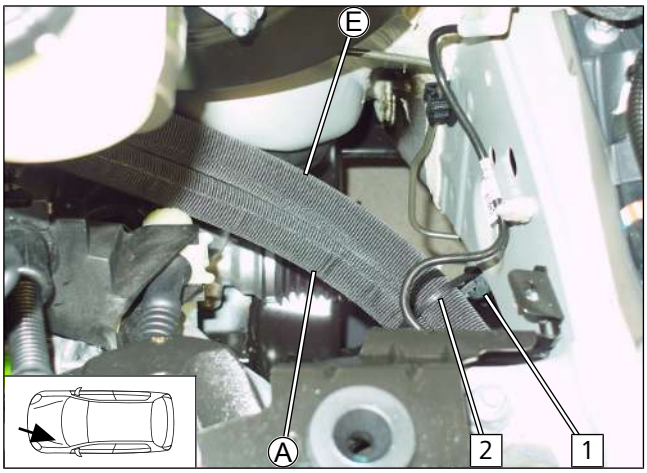


Fig. 101

▶ Route hoses Ⓐ and Ⓔ through cable tie [2].

[1] Premounted perforated bracket 2

Connecting heater

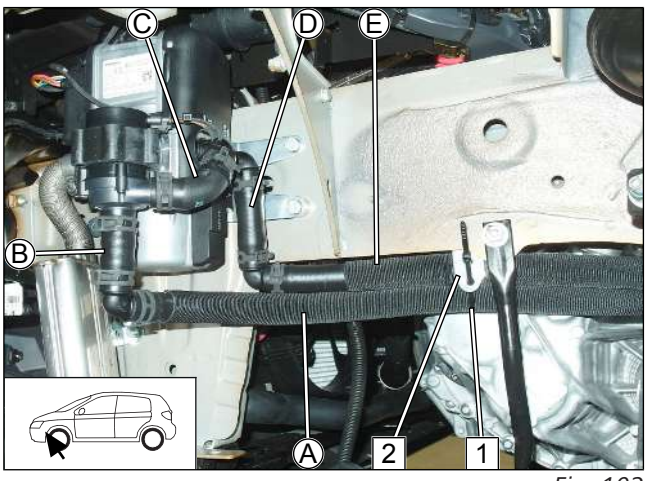


Fig. 102

▶ Route hoses Ⓐ and Ⓔ through cable tie [1].

[2] Premounted perforated bracket 1

Fastening hoses Ⓐ and Ⓔ

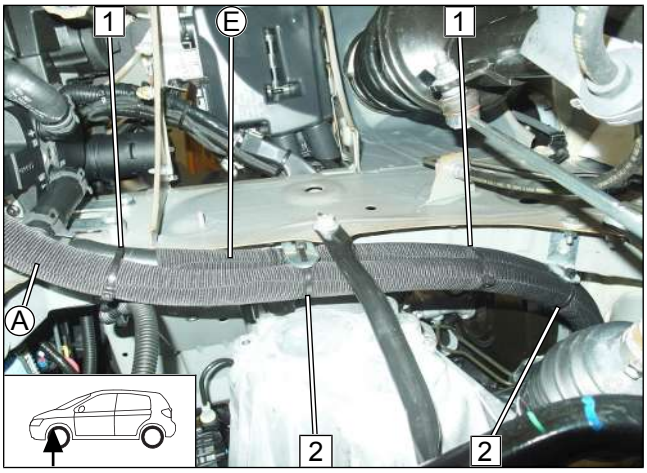


Fig. 103

1 Cable tie
2 Tighten cable tie

Checking distance

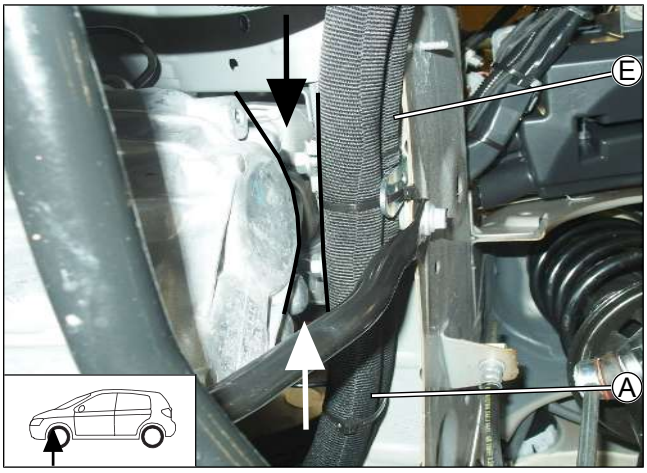


Fig. 104

Ensure sufficient distance from neighbouring components, correct if necessary.

>20

Fastening hoses Ⓐ and Ⓔ

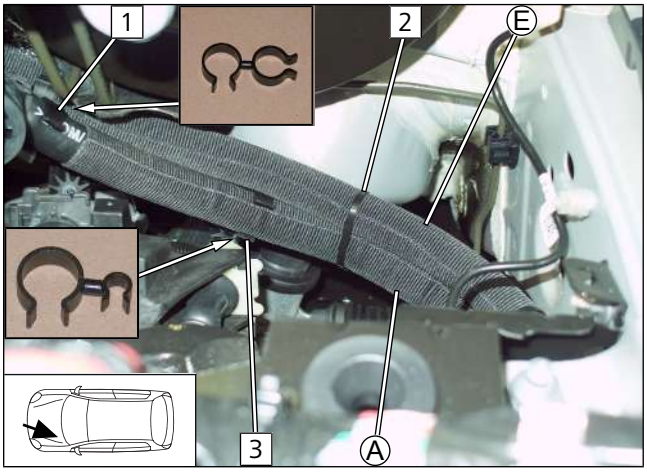


Fig. 105

1 20x20mm hose bracket between hose Ⓐ and Ⓔ
2 Cable tie
3 20x8mm hose bracket between hose Ⓐ and original vehicle gearshift cable

12 Final work in engine compartment

12.1 Preparing wheel-well inner panel

Cutting out wheel-well inner panel

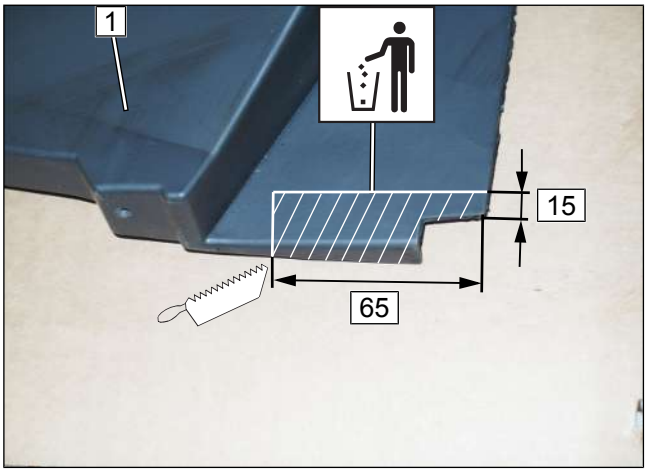


Fig. 106

1 Wheel-well inner panel

Mounting wheel-well inner panel

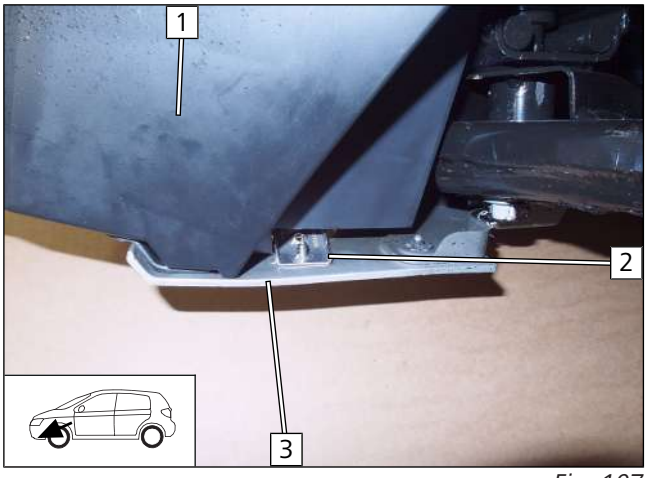


Fig. 107

1 Wheel-well inner panel
2 Bumper cover

13 Electric system of passenger compartment manual air-conditioning

13.1 Preliminary work

Preparing / assigning wires

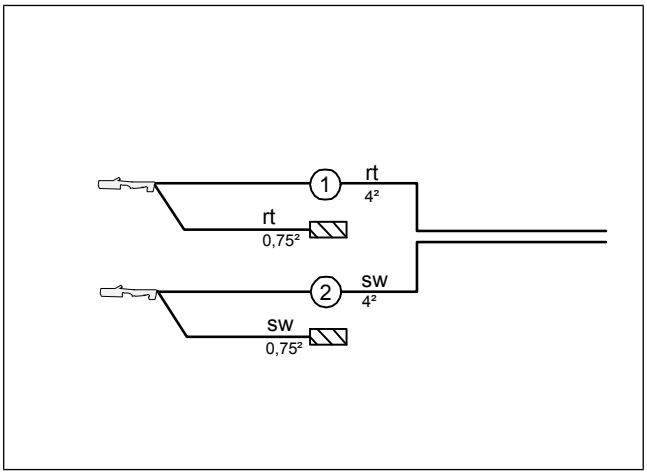


Fig. 108

Wire sections retain their numbering in the entire document.

① Red (rt) wire of fan wiring harness

② Black (sw) wire of fan wiring harness

Connecting lines to RSH

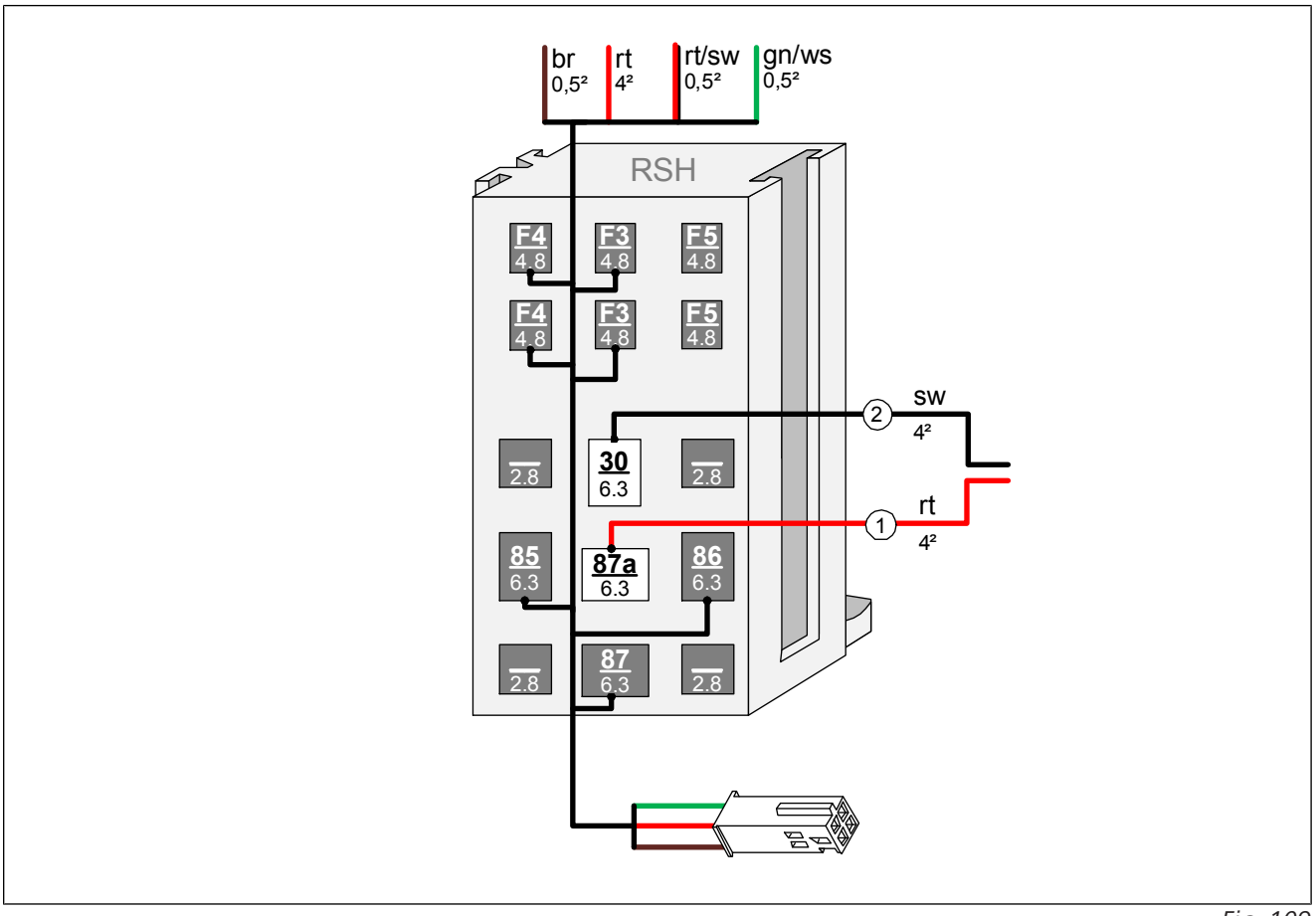


Fig. 109

Mounting RSH

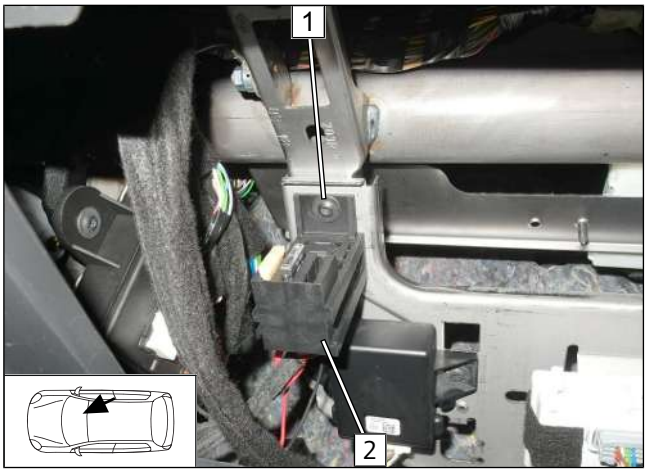


Fig. 110

1 Original vehicle bolt
2 RSH

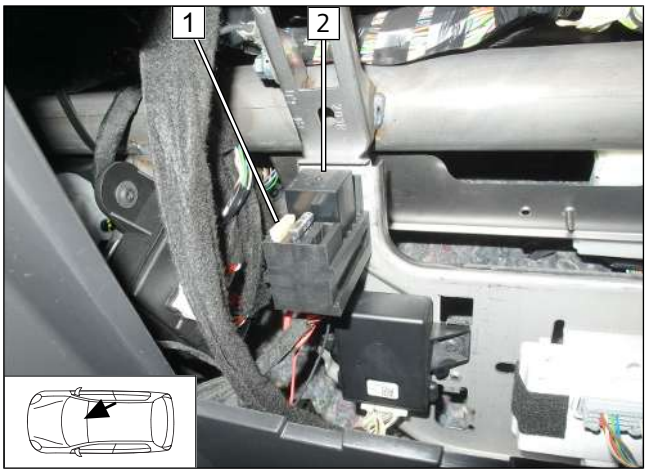


Fig. 111

1 25A fuse F4
2 Relay K1

Connecting same colour wires of wiring harnesses

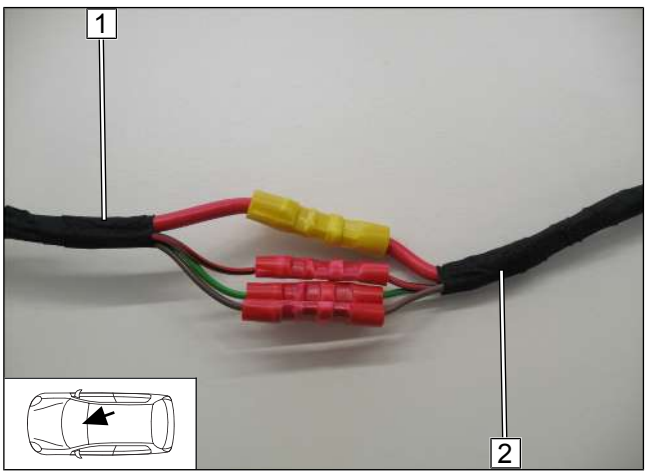


Fig. 112

1 Wiring harness of passenger compartment relay and fuse holder
2 Heater wiring harness

13.2 Wiring diagram

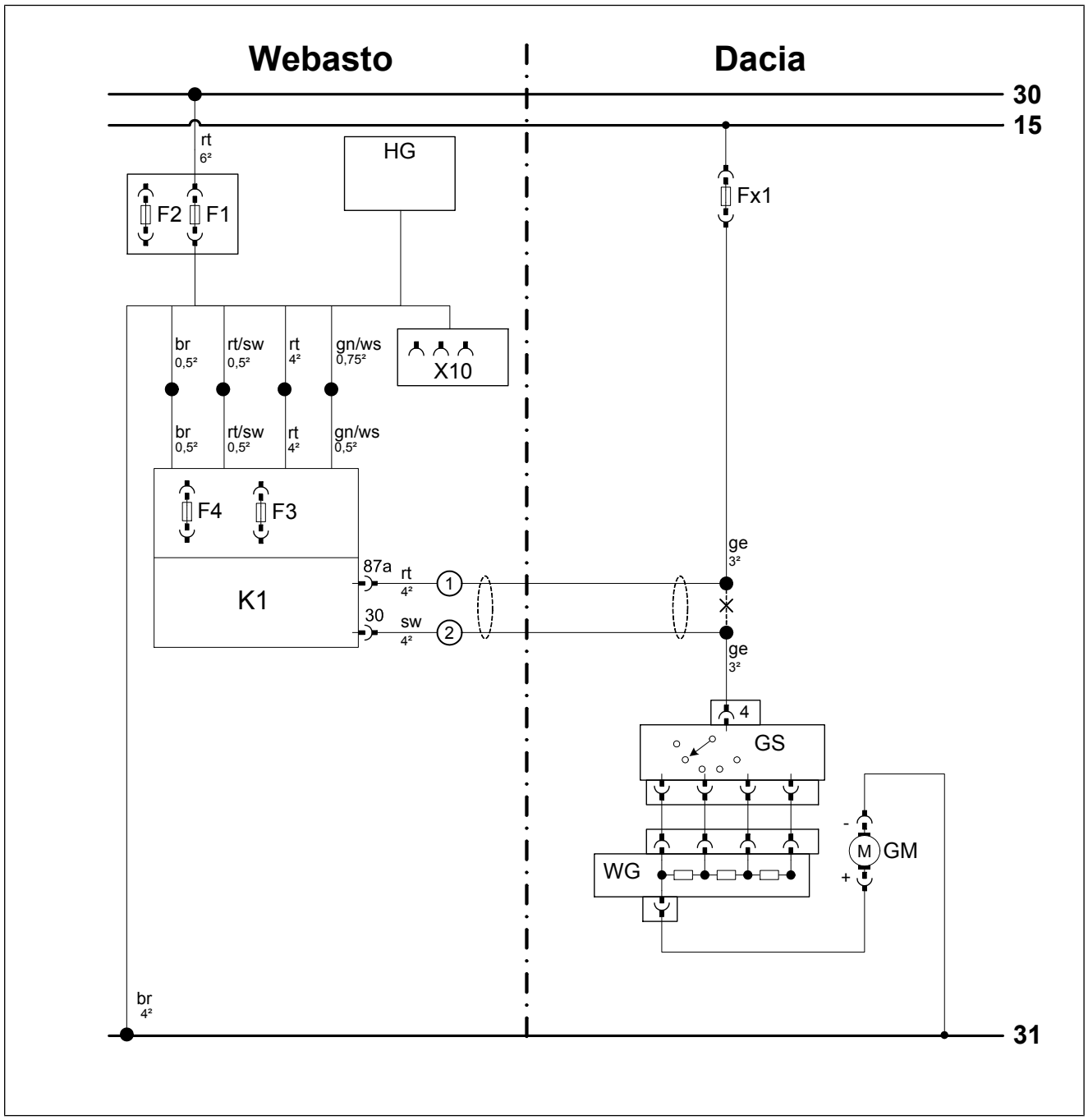


Fig. 113

Legend to wiring diagram

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
Fx1	Fuse 40A	X	Cutting point
GS	Fan switch		
GM	Fan motor		
WG	Resistor group		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Connector of CLR module wiring harness	br	brown
B	Socket of CLR module wiring harness	bg	beige
CCL GW	CAN CAN LIN Gateway	dbl	dark blue
CL GW	CAN LIN Gateway	dgn	dark green
CLR	Cold start module	ge	yellow
D1	Diode	gn	green
D2	Diode group	gr	grey
F0	Additional fuse for power supply	hbl	light blue
F1	Heater main fuse	hgn	light green
F2	Passenger compartment fan controller main fuse	or	orange
F3	Heater control fuse	pk	pink
F4	Fan controller fuse	rt	red
F5	Additional fuse	sw	black
HG	Heater TT-Evo	vi	violet
K1	Relay K1	ws	white
K2	Relay K2		
K3	Relay K3		
LIN GW	LIN Gateway		
PWM GW	Pulse width modulator gateway		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	4-pin socket of heater control		

13.3 Fan controller

View of GS connector

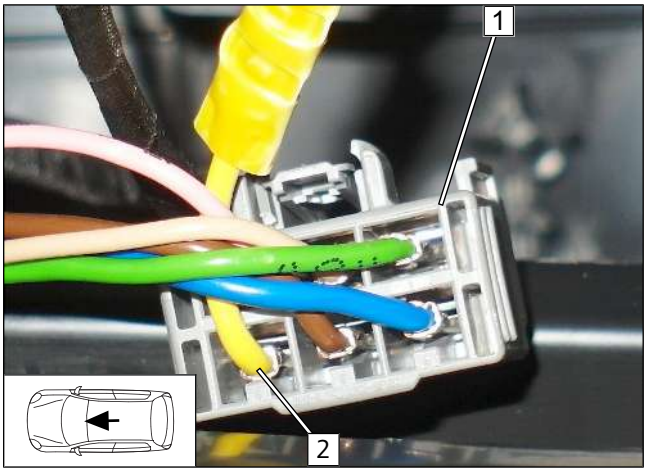


Fig. 114

1 6-pin GS connector
2 Pin 4, GS connector

Connecting GS

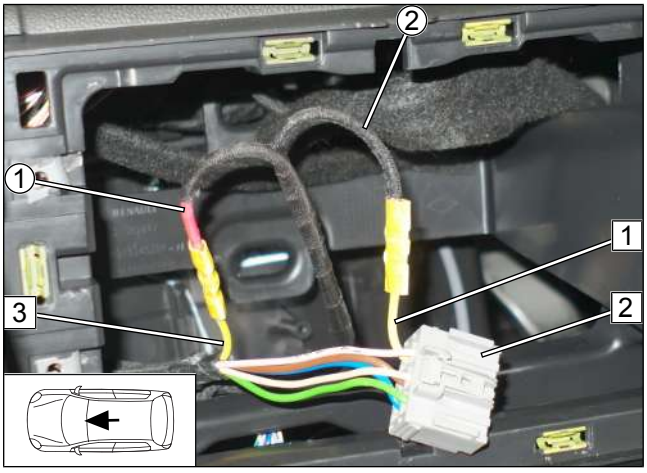


Fig. 115

1 Yellow (ge) wire from pin 4 of GS connector
2 6-pin GS connector
3 Yellow (ge) wire of Fx1 fuse
① Red (rt) wire of K1/87a fan wiring harness
② Black (sw) wire of K1/30 fan wiring harness

14 Electrical system of passenger compartment automatic A/C

14.1 Preliminary work

Preparing / assigning wires

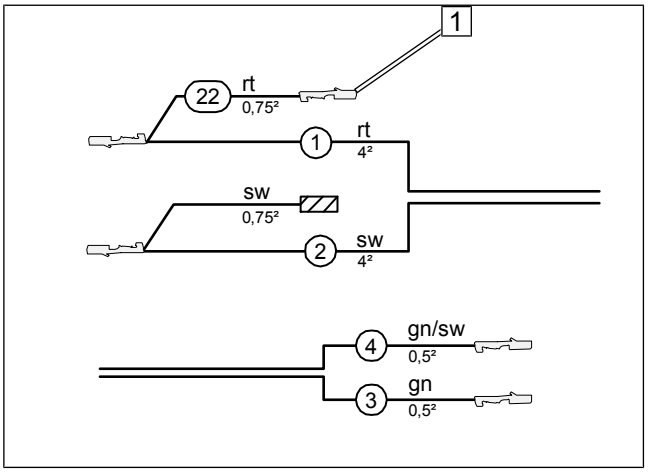


Fig. 116

Wire sections retain their numbering in the entire document.

1 6.3mm blade receptacle
① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
③ Green (gn) wire of PWM control wiring harness
④ Green/black (gn/sw) wire of PWM control wiring harness

View of PWM Gateway

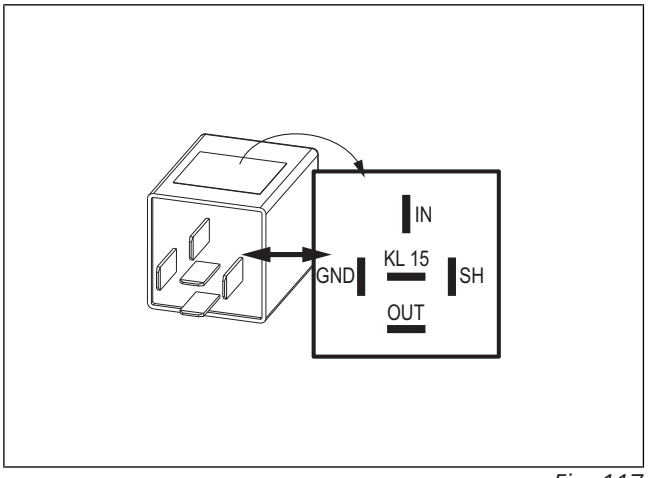


Fig. 117

▶ Check PWM Gateway settings when starting-up the heater, adjust if necessary.

Parameters	Setting
Duty cycle	65%
Frequency	400Hz
Voltage	not relevant
Function	Low side

Assembling RSH and PWM GW sockets, connecting wires

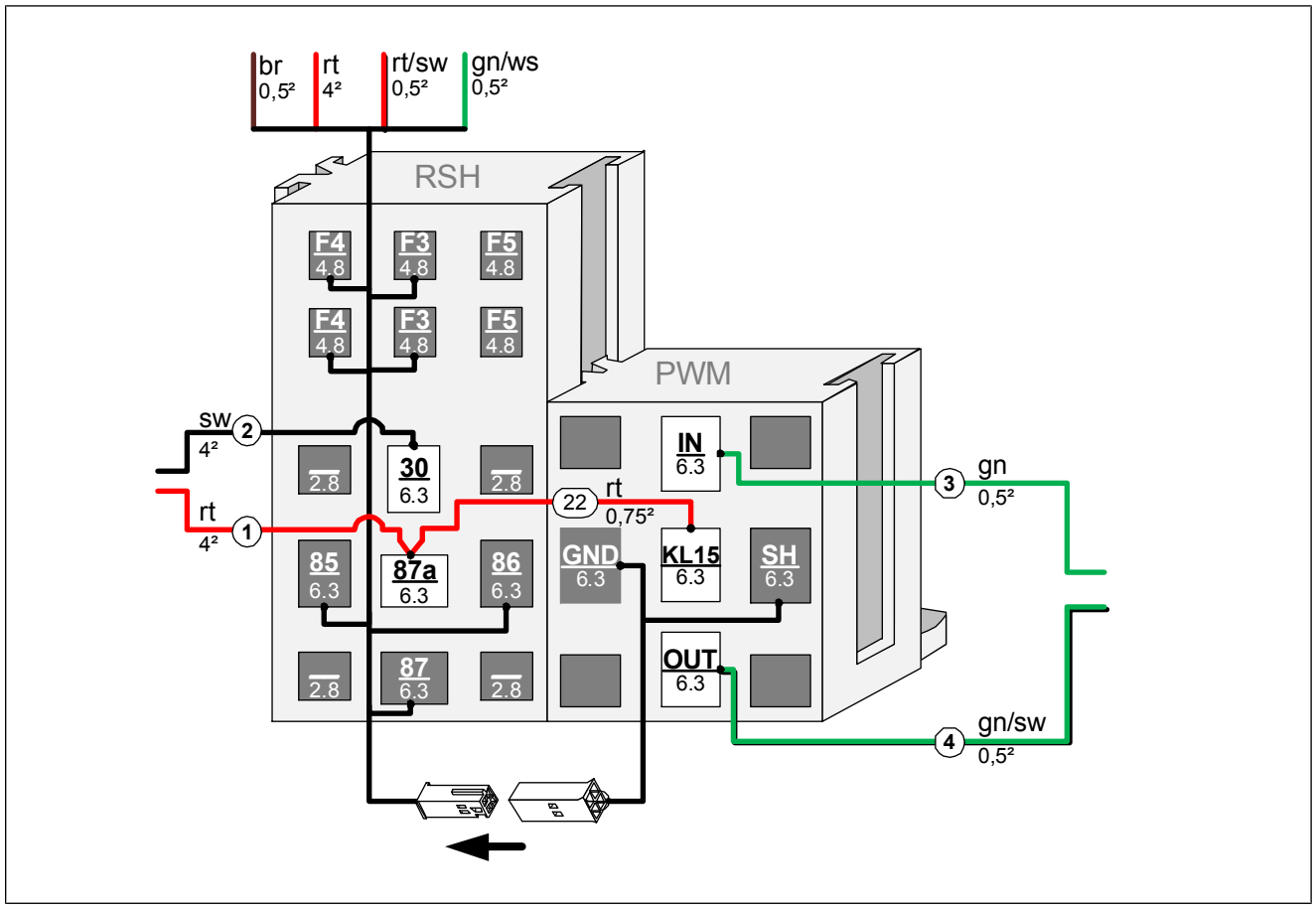


Fig. 118

Mounting RSH

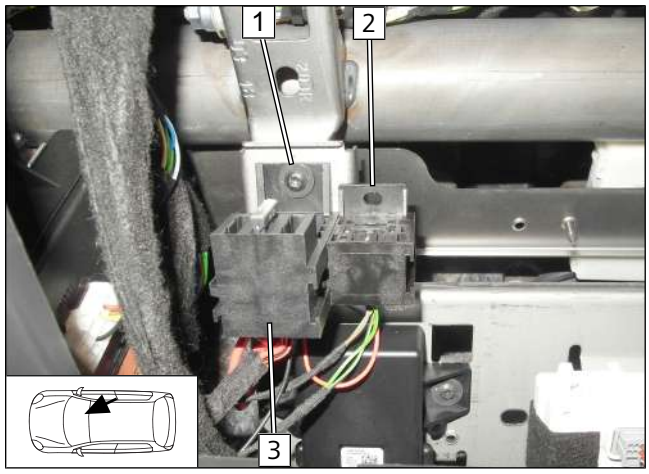


Fig. 119

1 Original vehicle bolt
2 PWM module socket
3 RSH

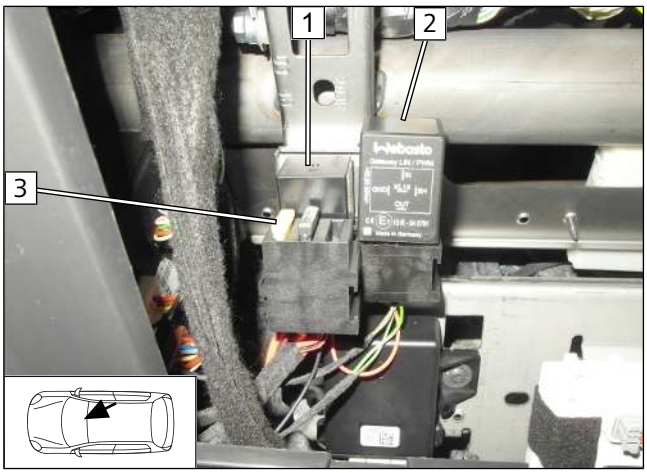


Fig. 120

1 Relay K1
2 PWM module
3 25A fuse F4

Connecting same colour wires of wiring harnesses

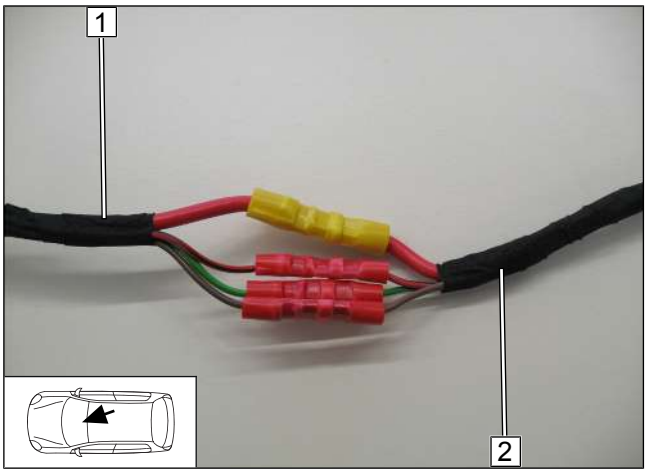


Fig. 121

1 Wiring harness of passenger compartment relay and fuse holder
2 Heater wiring harness

14.2 Wiring diagram

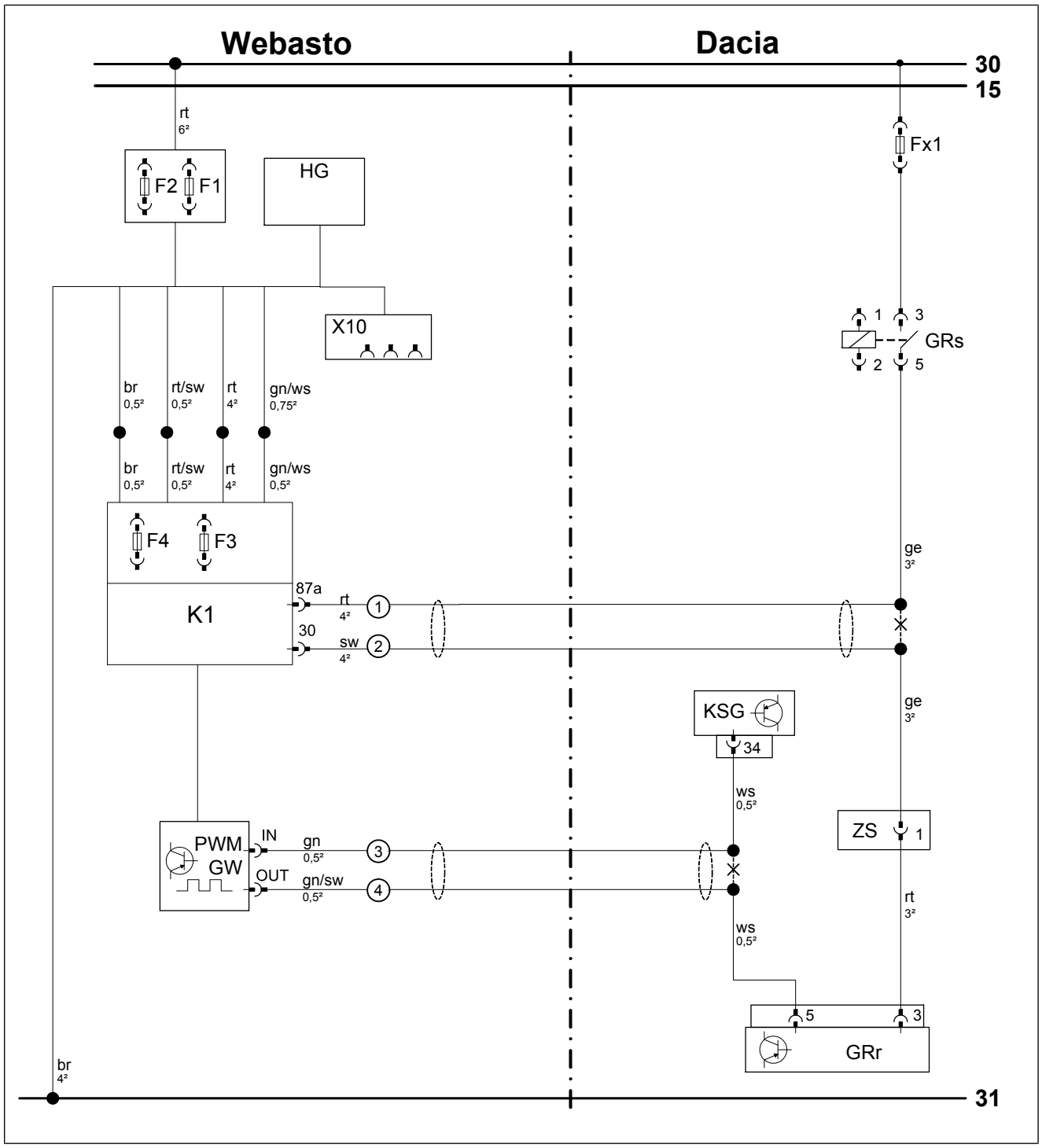


Fig. 122

Legend to wiring diagram

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
Fx1	Fuse 40A	X	Cutting point
GRs	Fan relay		
KSG	Air-conditioning control unit		
ZS	Adapter		
GRr	Fan controller		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Connector of CLR module wiring harness	br	brown
B	Socket of CLR module wiring harness	bg	beige
CCL GW	CAN CAN LIN Gateway	dbl	dark blue
CL GW	CAN LIN Gateway	dgn	dark green
CLR	Cold start module	ge	yellow
D1	Diode	gn	green
D2	Diode group	gr	grey
F0	Additional fuse for power supply	hbl	light blue
F1	Heater main fuse	hgn	light green
F2	Passenger compartment fan controller main fuse	or	orange
F3	Heater control fuse	pk	pink
F4	Fan controller fuse	rt	red
F5	Additional fuse	sw	black
HG	Heater TT-Evo	vi	violet
K1	Relay K1	ws	white
K2	Relay K2		
K3	Relay K3		
LIN GW	LIN Gateway		
PWM GW	Pulse width modulator gateway		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	4-pin socket of heater control		

14.3 Fan controller

View of adapter ZS

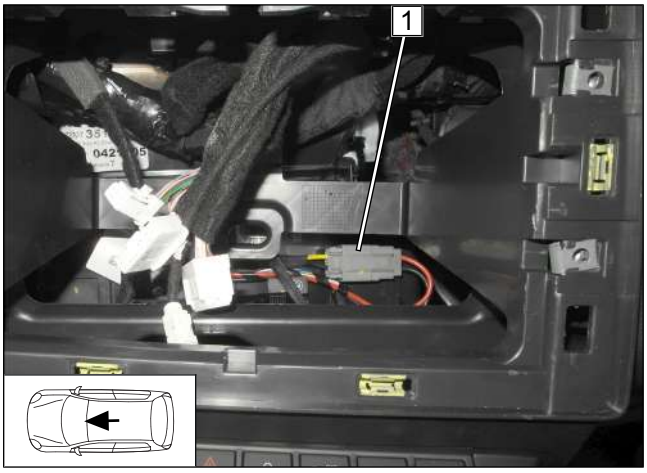


Fig. 123

1 2-pin adapter ZS

Connecting GRr

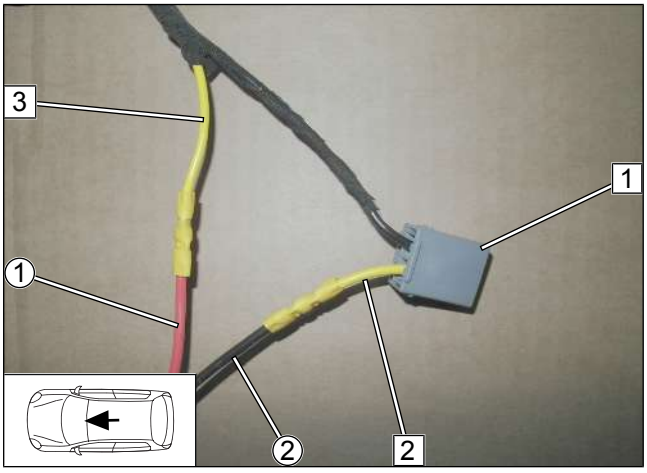


Fig. 124

1 2-pin connector ZS
2 Yellow (ge) wire from pin 2 connector ZS
3 Yellow (ge) wire from GRs pin 5
① Red (rt) wire of K1/87a fan wiring harness
② Black (sw) wire of K1/30 fan wiring harness

Position of KSG connector

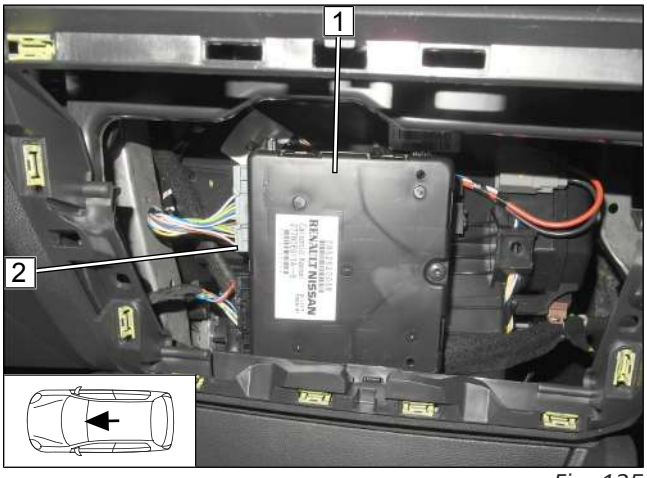


Fig. 125

1 KSG
2 40-pin KSG connector

View of 40-pin KSG connector on wiring side

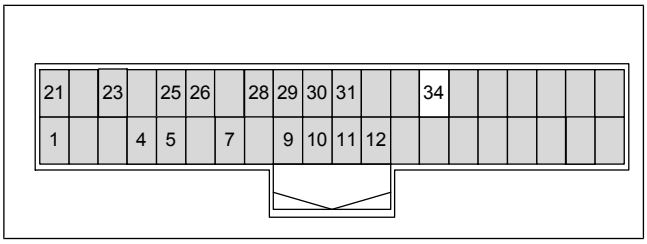


Fig. 126

Connecting GRr

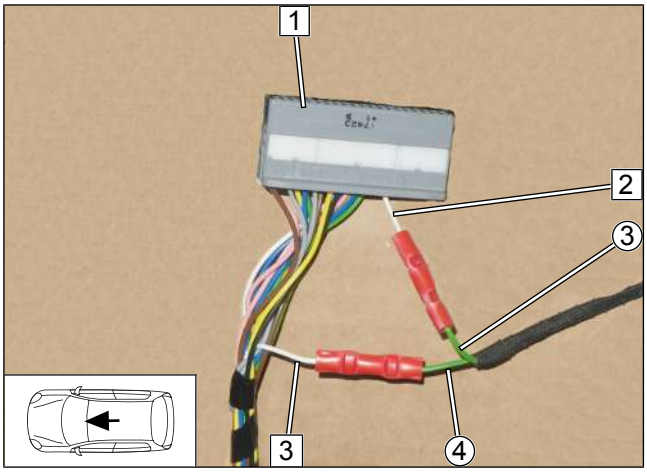


Fig. 127

1 40-pin KSG connector
2 White (ws) wire from pin 34 of KSG connector
3 White (ws) wire of pin 5 of GRr
③ Red (rt) wire from PWM control wiring harness
④ Black (sw) wire of PWM control wiring harness

15 Electrical system of control elements

15.1 MultiControl CAR option

Mounting MultiControl CAR

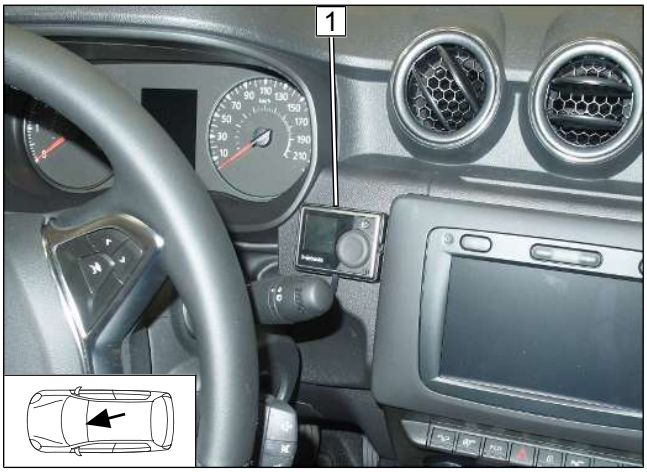


Fig. 128

Observe the MultiControl CAR installation documentation.

1 Installation frame

15.2 Telestart option

Mounting receiver

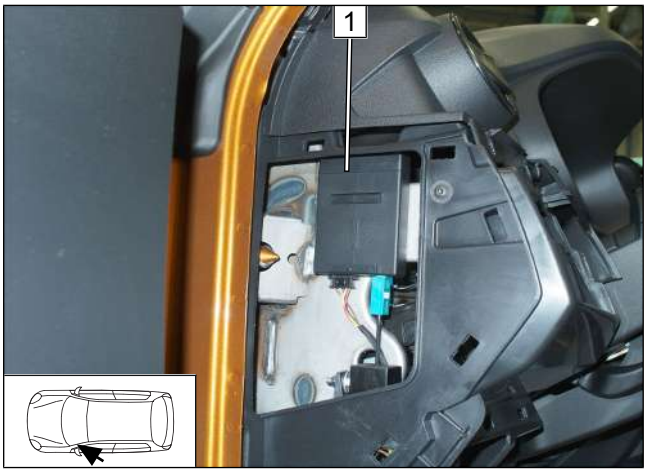


Fig. 129

Observe the Telestart installation documentation.

▶ Fasten Telestart receiver 1 using double-sided adhesive tape.

Mounting temperature sensor T100 HTM

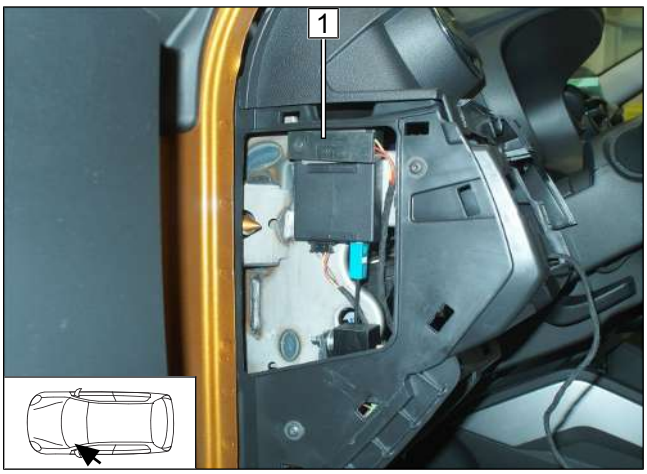


Fig. 130

▶ Fasten temperature sensor 1 using double-sided adhesive tape.

Mounting aerial

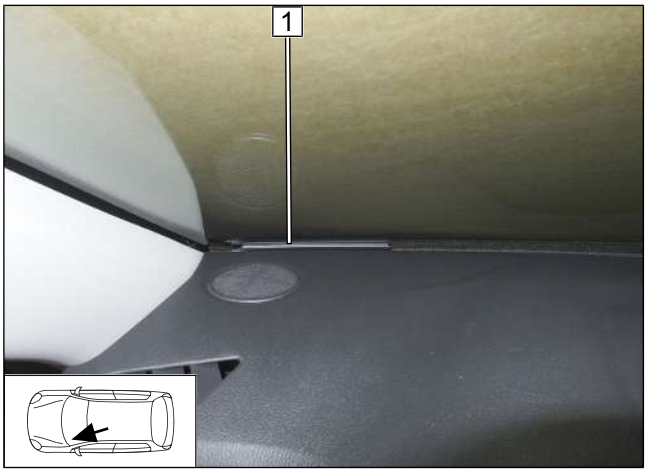


Fig. 131

1 Aerial

15.3 ThermoCall option

Mounting receiver

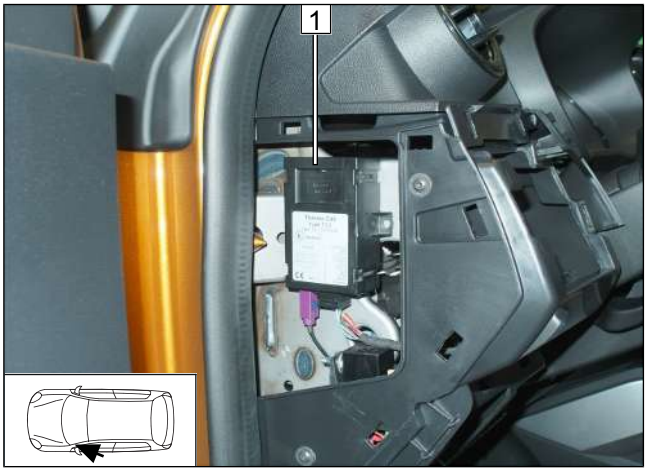


Fig. 132

Observe the ThermoCall installation documentation.

▶ Fasten receiver 1 using double-sided adhesive tape.

Mounting aerial (optional)

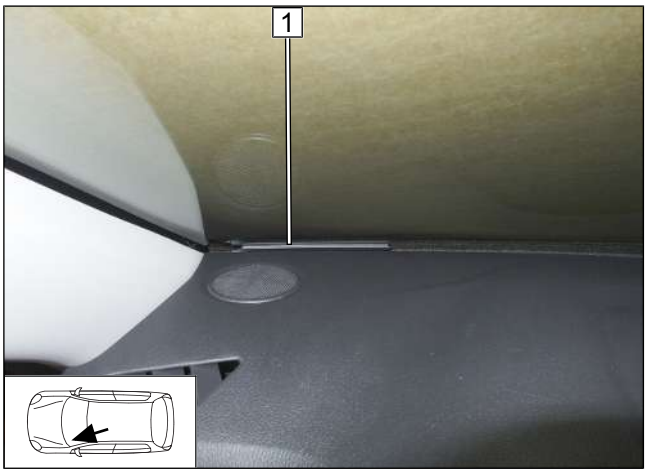


Fig. 133

1 Aerial

16 Final Work

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

- ▶ Mount removed parts in reverse order.

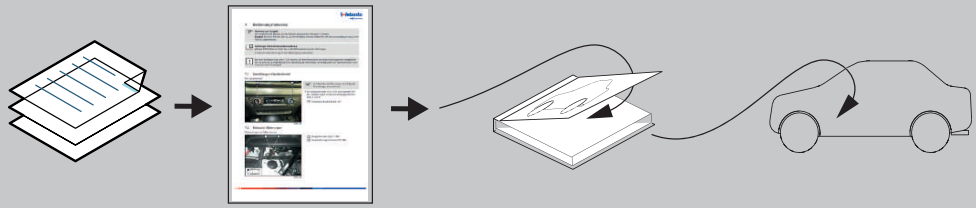
- ▶ Check all hoses, clamps and all electrical connections for firm seating.
- ▶ Insulate and tie back loose lines
- ▶ Spray heater and electrical components with anti-corrosion wax (Tectyl 100K).
- ▶ Connect the battery.

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.

- ▶ Program MultiControl CAR, teach Telestart transmitter
- ▶ Make settings on A/C control panel according to the 'Operating Instructions'.
- ▶ Initial operation and functional test
- ▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck



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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82205 Gilching
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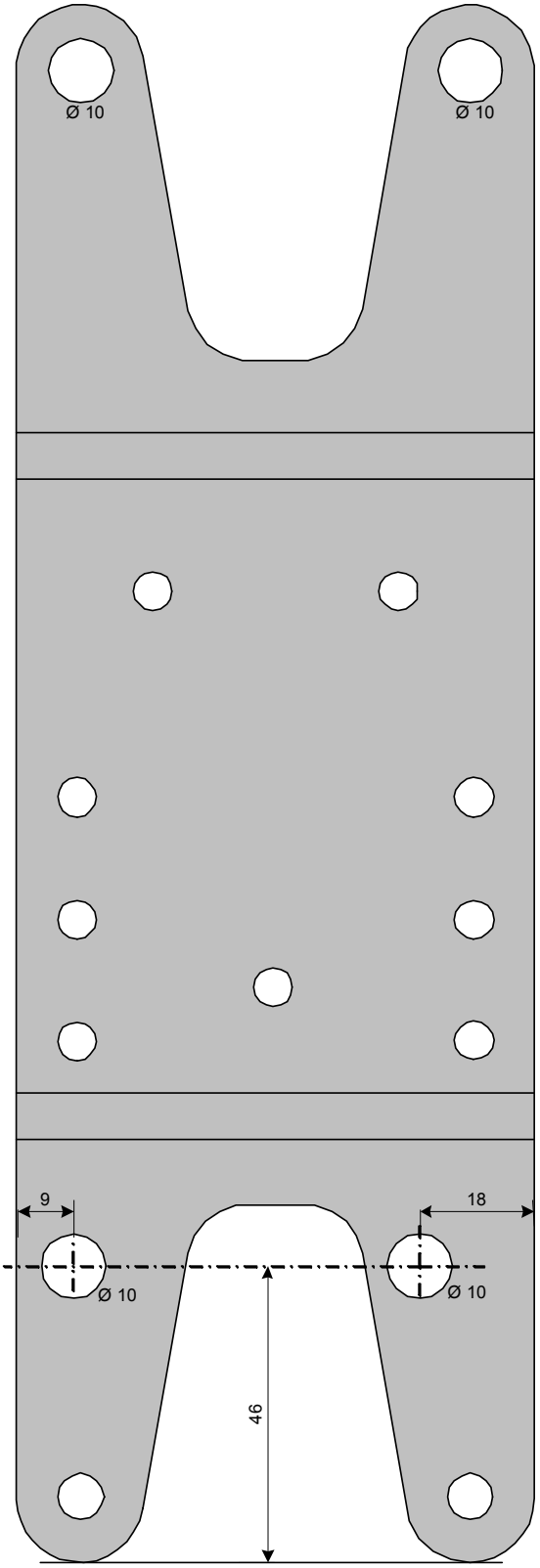
Technical Extranet: https://dealers.webasto.com

Only within Germany
Tel: 0395 5592 444
E-mail: technikcenter@webasto.com

CE

WWW.WEBASTO.COM

17 Heater bracket template



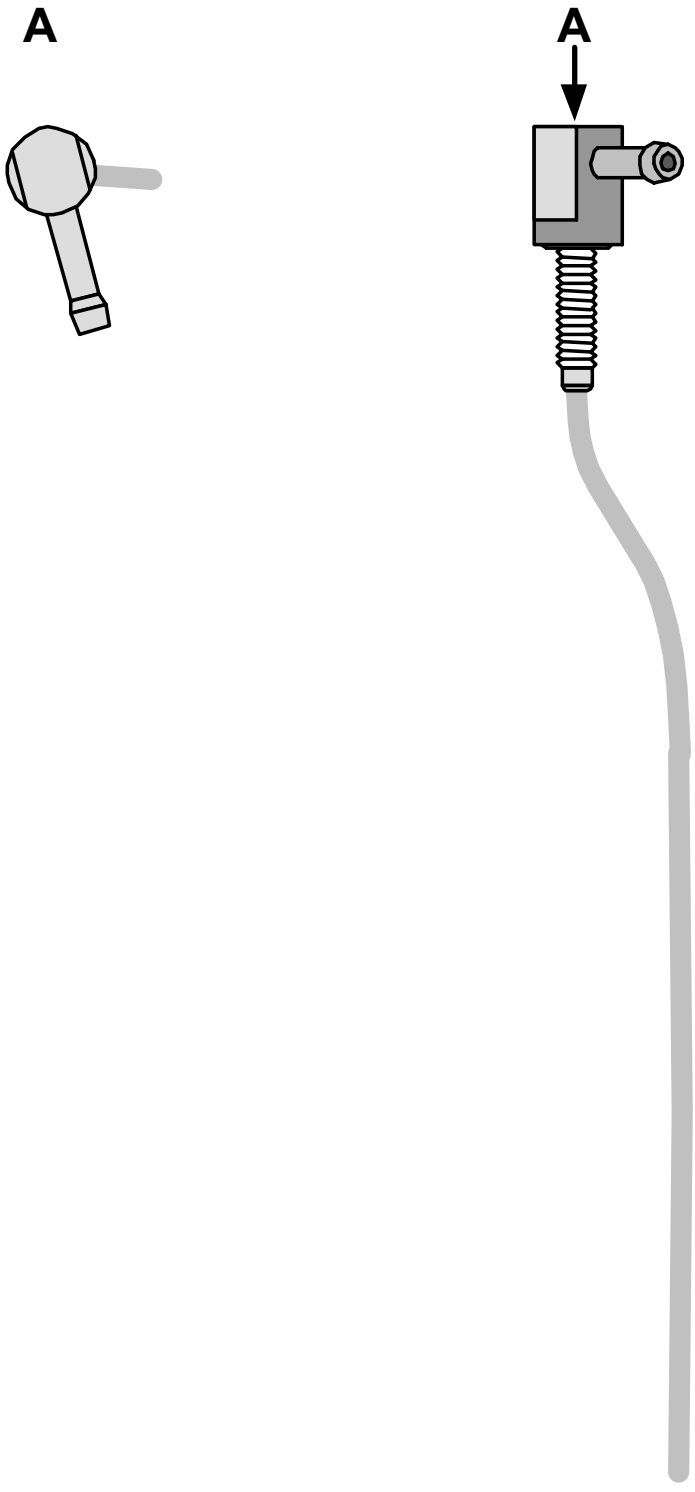
100mm

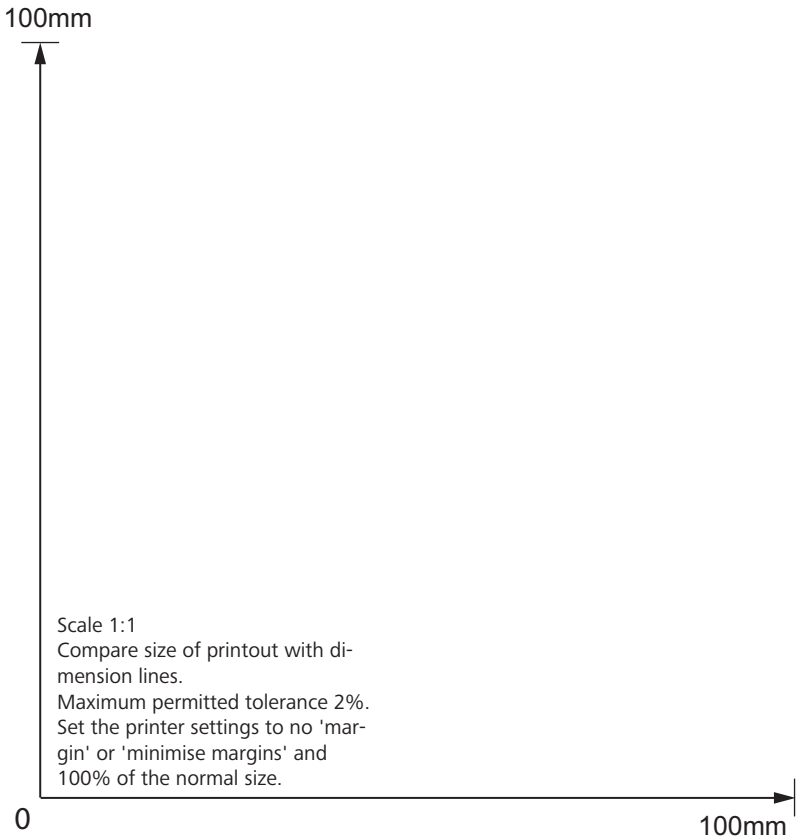
Scale 1:1
Compare size of printout with dimension lines.
Maximum permitted tolerance 2%.
Set the printer settings to no 'margin' or 'minimise margins' and 100% of the normal size.

0

100mm

18 Tank extracting device template





Scale 1:1
Compare size of printout with dimension lines.
Maximum permitted tolerance 2%.
Set the printer settings to no 'margin' or 'minimise margins' and 100% of the normal size.

19 Operating instructions for manual air-conditioning

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.

Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

▶ Deactivate passenger compartment monitoring for the heating operation

19.1 A/C control panel settings

A/C control panel

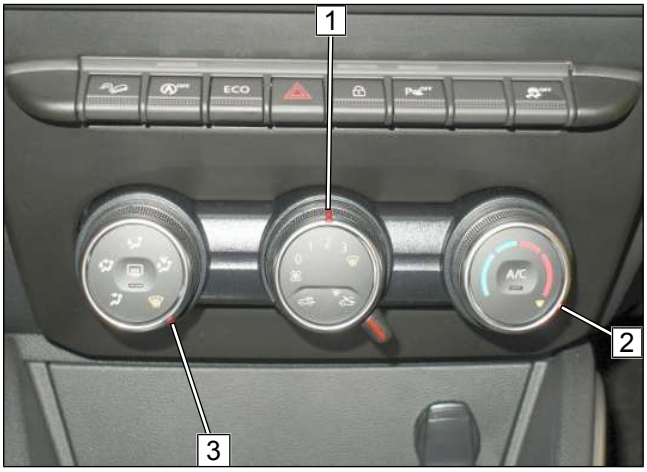


Fig. 135

Before parking the vehicle, make the following settings:

1 Set fan to speed level '2', max. '3'
2 Set temperature to 'HI'
3 Air outlet to windscreen

19.2 Installation location of fuses

Fuses in engine compartment

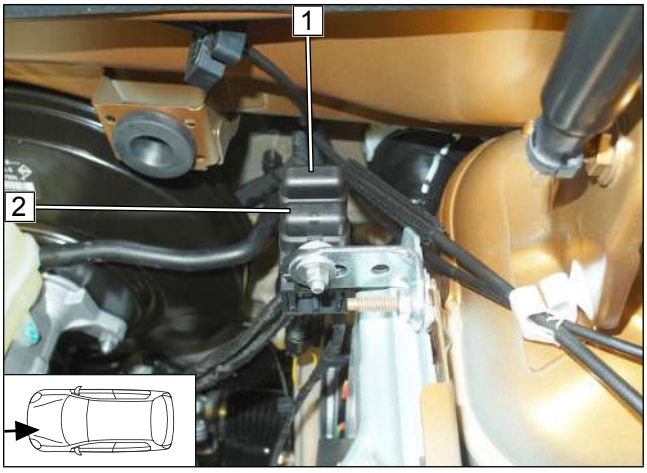


Fig. 136

1 F1 - 20A heater main fuse (yellow)
2 F2 - 30A passenger compartment main fuse (light green)

Fuses in passenger compartment

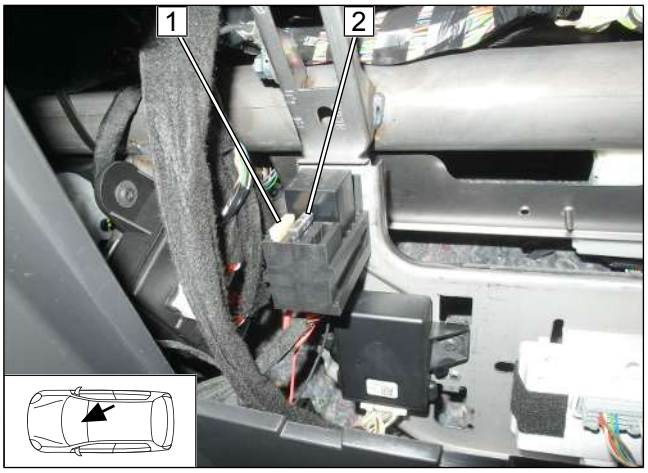


Fig. 137

1 F4 - 25A fan controller fuse (white or transparent)

2 F3 - 1A control element fuse (black)

20 Operating instructions for automatic air-conditioning

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.

Vehicles with passenger compartment monitoring:

Further information can be found in the vehicle operating instructions.

▶ Deactivate passenger compartment monitoring for the heating operation

20.1 A/C control panel settings

A/C control panel

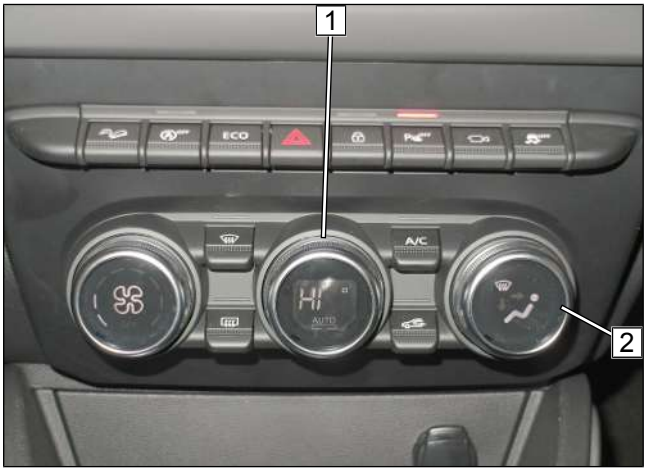


Fig. 138

Before parking the vehicle, make the following settings:

▶ The fan speed must not be preset.

1 Set temperature to 'HI'
2 Air outlet to windscreen

20.2 Installation location of fuses

Fuses in engine compartment

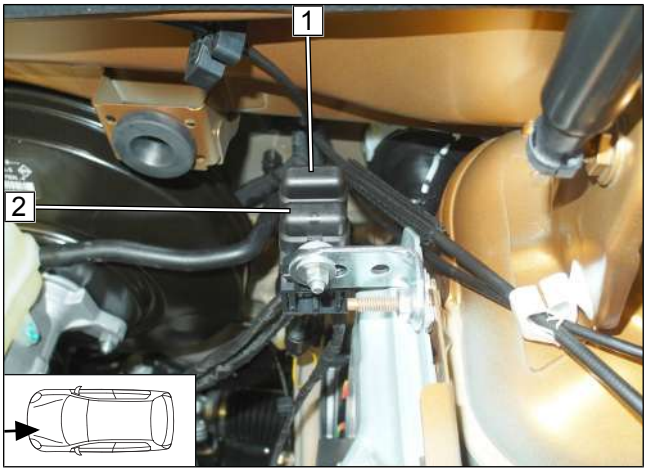


Fig. 139

1 F1 - 20A heater main fuse (yellow)
2 F2 - 30A passenger compartment main fuse (light green)

Fuses in passenger compartment

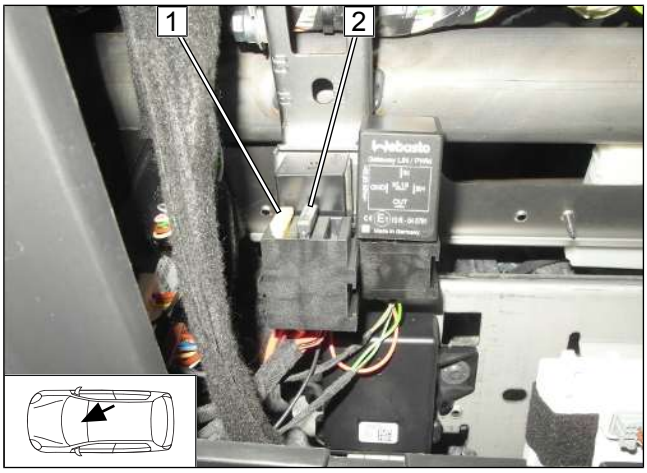


Fig. 140

1 F4 - 25A fan controller fuse (white or transparent)

2 F3 - 1A control element fuse (black)