EN

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Installation documentation

for Thermo Top Evo water heater

'Inline' coolant circuit with engine preheating

Hyundai Tucson / Kia Sportage

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Hyundai	Tucson	TLE	from 2019	e11* 2007/46* 2724*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.6 T-GDI	Petrol	Euro 6d temp	SG	130	1591	G4FJ
1.6 T-GDI	Petrol	Euro 6d temp	AG	130	1591	G4FJ
1.6 GDI	Petrol	Euro 6d temp	SG	97	1591	G4FD

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Kia	Sportage	QLE	from 2019	e11* 2007/46* 3144*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.6 T-GDI	Petrol	Euro 6d temp	SG	130	1591	G4FJ
1.6 T-GDI	Petrol	Euro 6d temp	AG	130	1591	G4FJ
1.6 GDI	Petrol	Euro 6d temp	SG	97	1591	G4FD

Validity	Equipment variants	Model	
		Tucson	Sportage
Verified equipment variants	Automatic air-conditioning	x	x
	Halogen main headlights	x	x
	Halogen front fog lights	x	x
	LED daytime running lights	x	x
	LED main headlights	x	x
	Automatic Start-Stop system	x	x
	Keyless Go	x	x
	Start button	x	x
	2 WD / 4 WD	x	x
Unverified equipment variants	Manual air-conditioning	x	x
	Full LED with headlight washer system	x	x
	GT Line		x

Total installation time	Note
9.6 hours	

Contents

1 List of abbreviations

AG	Automatic transmission
DP	Fuel pump
EFIX	Exhaust end fastener
FF	FuelFix (tank extracting device)
Fig.	Figure
HG	Heater
MCC	MultiControl (control element)
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.

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo	In accordance with price list
Set (including installation kit and cold start kit) for Hyundai Tucson/Kia Sportage petrol MY 2019 TT-Evo	1327061A
In case of MultiControl CAR installation – installation frame for MultiControl	9030077_
In case of control element as well as Telestart 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

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

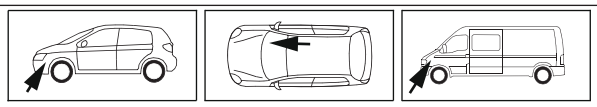
3.4.3 Work step identification marks

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
▶	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 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 mm^2
- Crimping pliers for cable lugs 0.5 – 10 mm^2
- Crimping pliers for male 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.

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	▶ Front wheel on the driver's side ▶ Front wheel well trim on the driver's side ▶ Lower engine trim ▶ Underbody trim on the driver's side ▶ Drain the engine coolant ▶ Plenum ▶ Battery ▶ Engine control unit (T-GDI only) ▶ Entire air filter housing ▶ Intake hose (T-GDI only) ▶ Battery carrier	
Passenger compartment	▶ Upper front footwell trim on the front passenger's side ▶ Front entrance strip trim on the front passenger's side ▶ Lower A-pillar trim on the front passenger's side ▶ Centre console trim in the footwell on the front passenger's side ▶ Side instrument panel trim on the driver's and front passenger's side (Kia Sportage only) ▶ Lower instrument panel trim on the driver's side (Kia Sportage only) ▶ Glove box (Kia Sportage only) ▶ Instrument panel trim piece (Kia Sportage only) ▶ A/C control panel (see dismantling instructions) ▶ Rear bench seat (pay attention to the seat heating connectors) ▶ Open the tank fitting service lid	

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

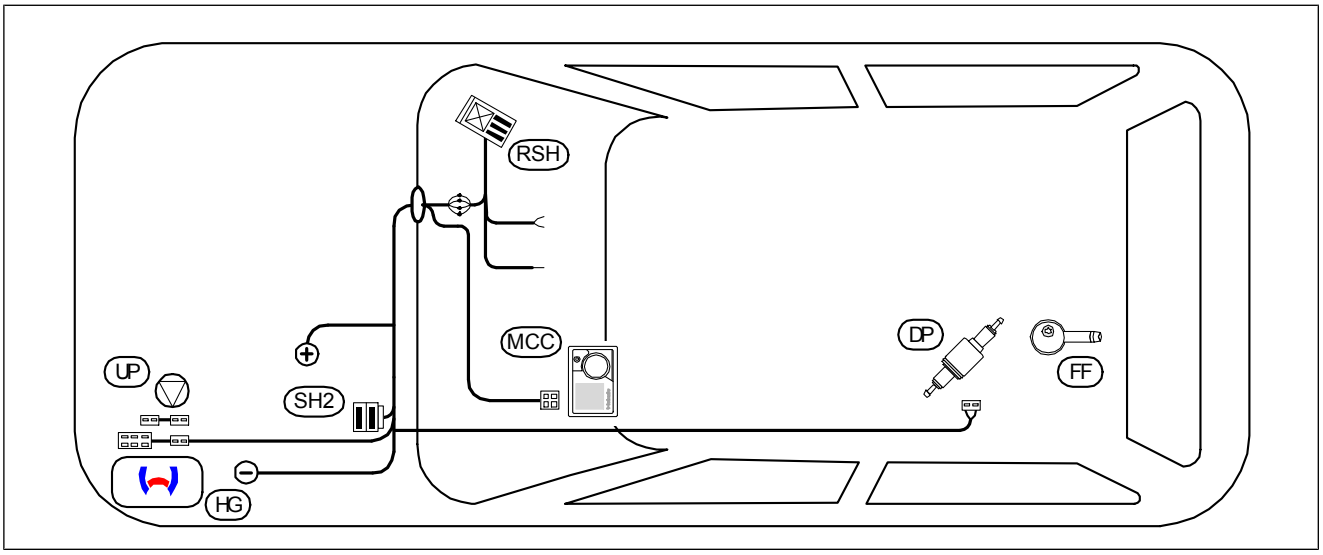


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
FF	FuelFix
HG	Heater
MCC	MultiControl CAR
RSH	Relay and fuse holder of passenger compartment
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump

Heater installation location

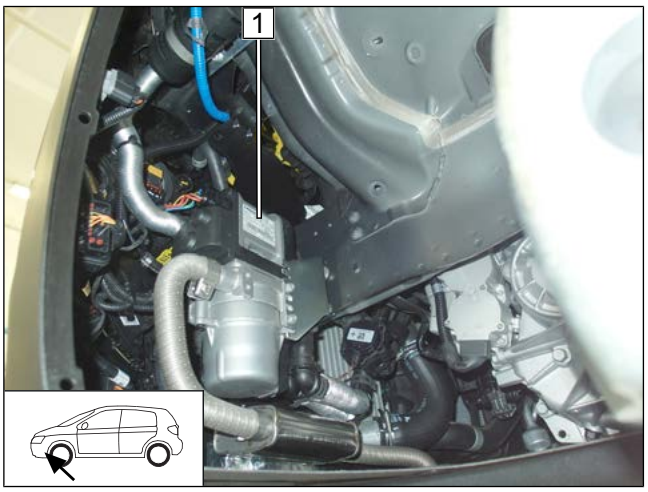


Fig. 2

1 Heater

7 Electrical system of engine compartment

Preparing fuse holder of engine compartment

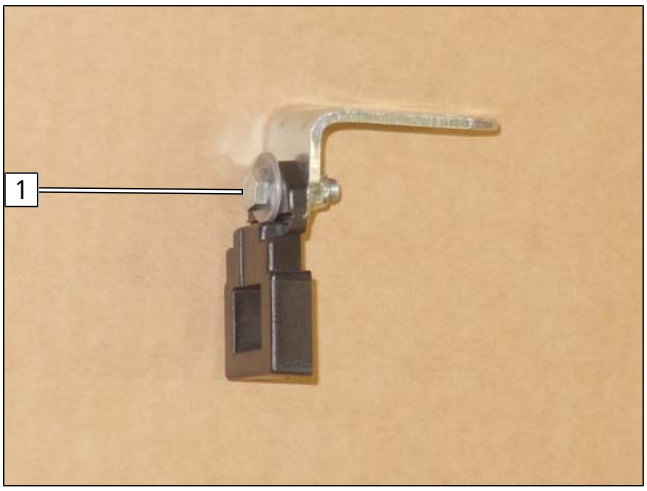


Fig. 3

1 M5x16 bolt, large diameter washer, retaining plate of SH2, angle bracket, large diameter washer, nut

Mounting retaining plate of SH2

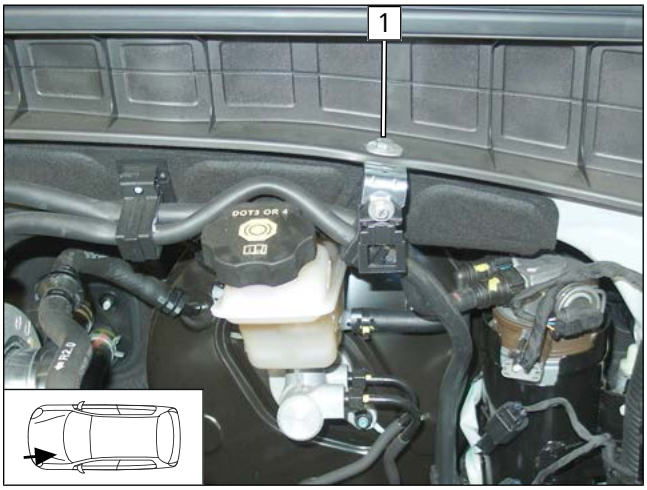


Fig. 4

▶ Remove clip at pos. **1**.

1 M6x20 bolt, large diameter washer, original vehicle hole, premounted angle bracket, large diameter washer, flanged nut

Installing SH2

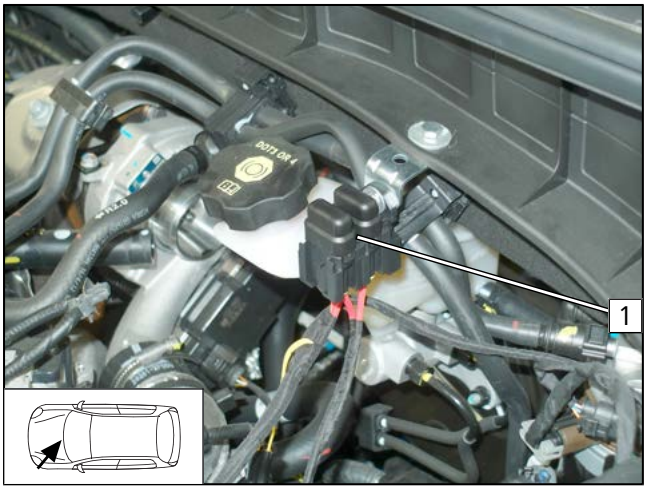


Fig. 5

1 Fuses F1 / F2

Earth wire connection

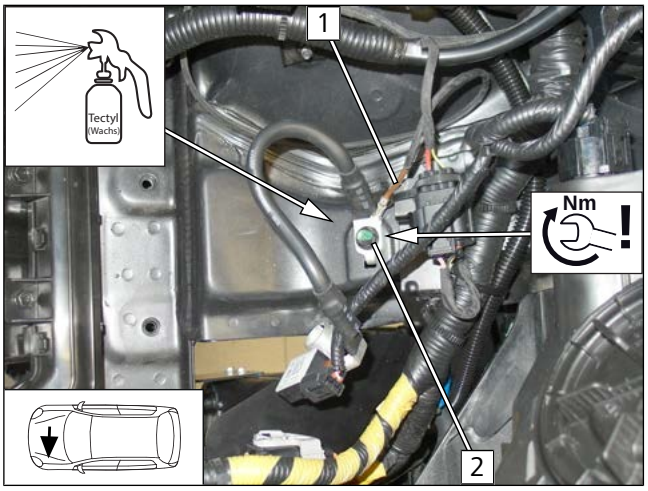


Fig. 6

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Earth wire

2 Original vehicle earth point

Positive wire connection

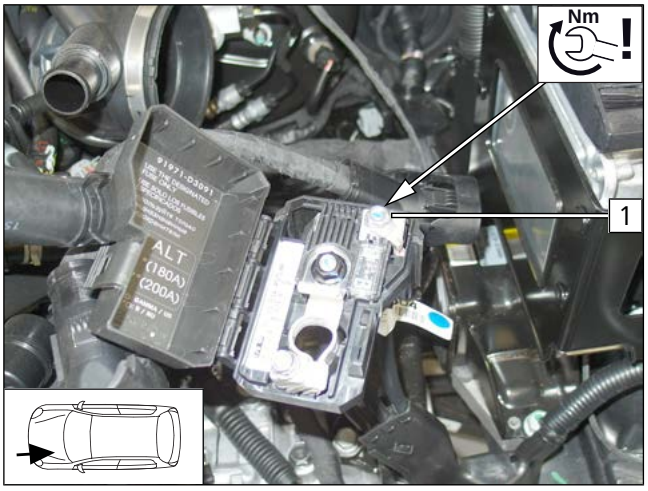


Fig. 7

DANGER

Fire hazard due to insufficient tightening torque

▶ Observe tightening torque

1 Positive wire on positive distributor

Passenger compartment wiring harness pass through

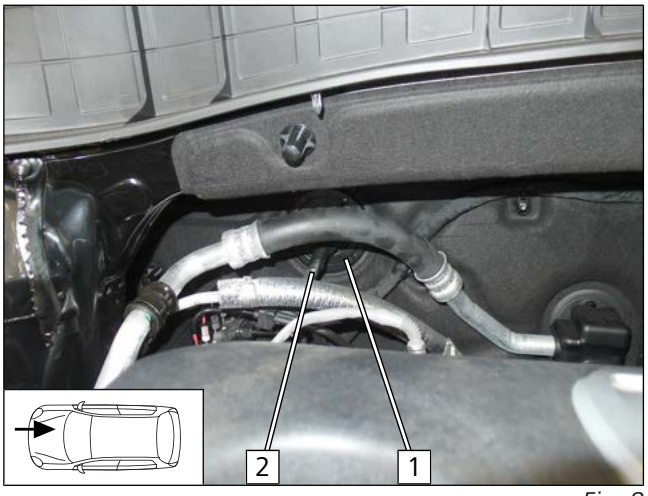


Fig. 8

1 Protective rubber plug

2 Passenger compartment and control element wiring harnesses

8 Mechanical system

8.1 Preparing installation location

Detaching original vehicle earth points

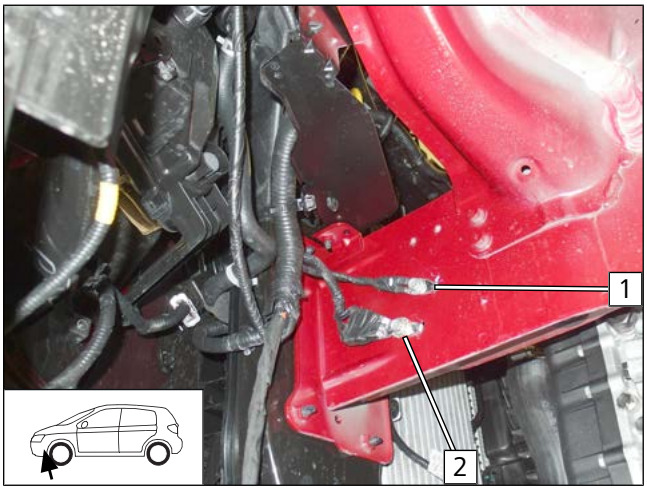


Fig. 9

[1] Original vehicle earth point [a]
[2] Original vehicle earth point [b]

Inserting rivet nut

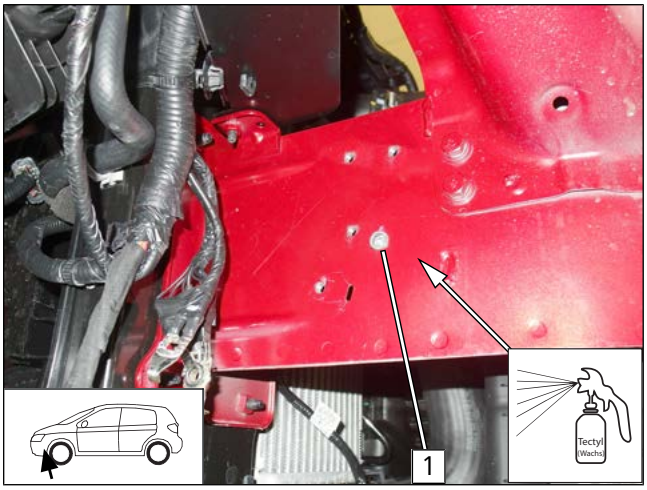


Fig. 10

[1] Drill out oblong hole to Ø9, insert rivet nut

Copying hole pattern

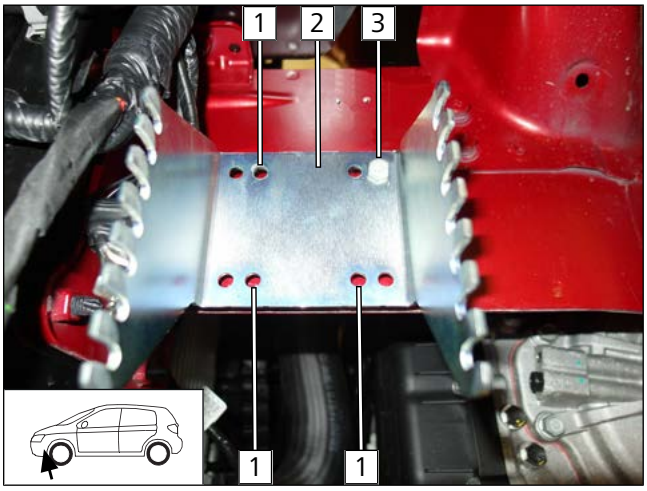


Fig. 11

▶ Mount bracket [2] loosely and align as shown in Fig..

[1] Copy hole pattern
[2] M6x30 bolt

▶ Remove bracket.

Drilling holes and inserting rivet nut

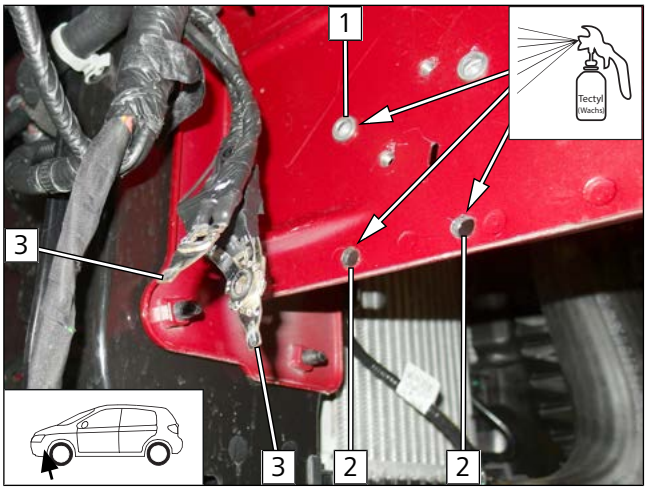


Fig. 12

▶ Straighten earth point **3**.

1 Ø9 hole, rivet nut

2 Ø7 hole

Mounting earth point

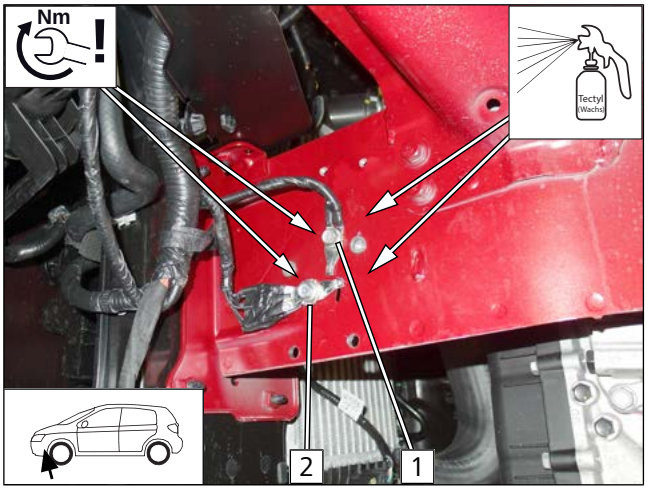


Fig. 13

1 Original vehicle bolt, earth point **a**

2 Original vehicle bolt, earth point **b**

Mounting bracket

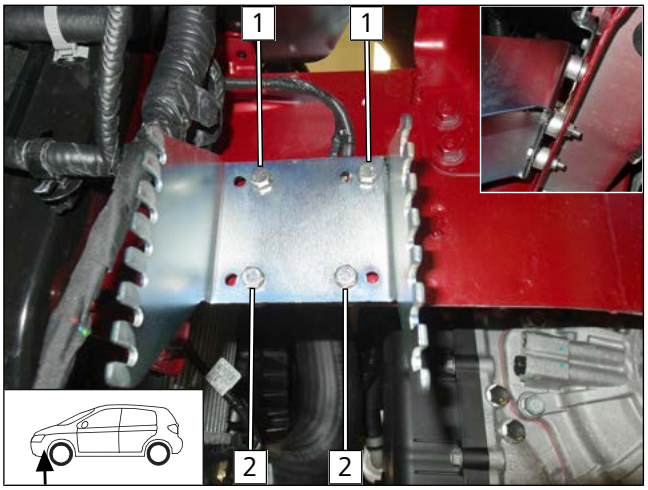


Fig. 14

1 M6x30 bolt, spring lock washer, bracket, distance washer (8), rivet nut

2 M6x30 bolt, bracket, distance washer (8), drilled hole, M6 nut

Inserting rivet nut for air intake silencer

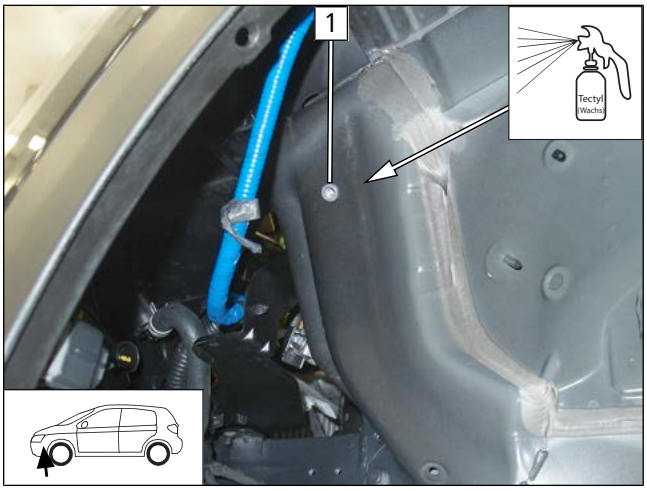


Fig. 15

1 Rivet nut in original vehicle hole

Removing original vehicle earth strap with retaining clip from hole

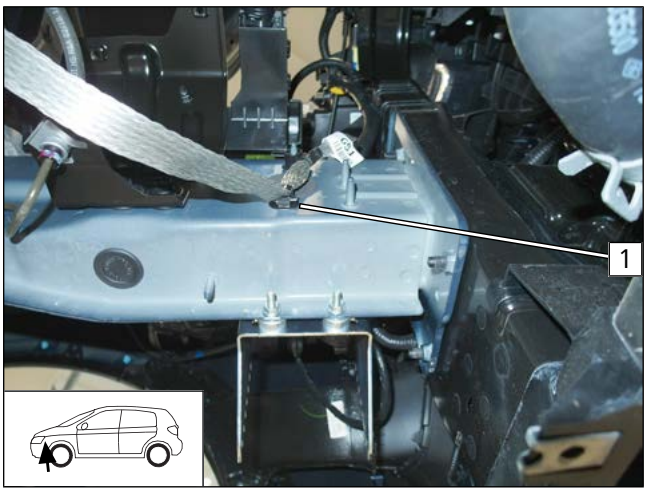


Fig. 16

1 Original vehicle earth strap, retaining clip

Inserting rivet nut for coolant pump

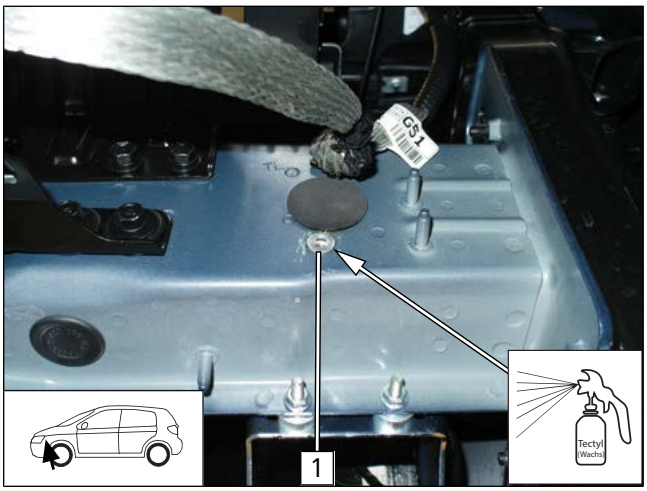


Fig. 17

▶ Drill out original vehicle hole to Ø9.

1 Rivet nut in original vehicle hole

Hole for exhaust silencer

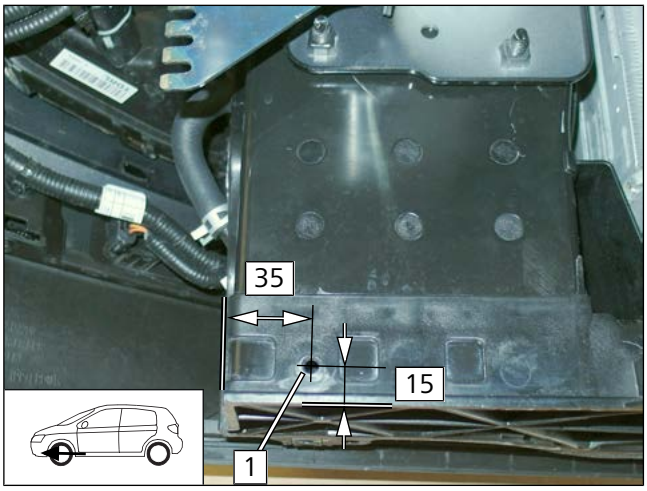


Fig. 18

1 Ø7 hole

Fixing original vehicle wiring harnesses, if available

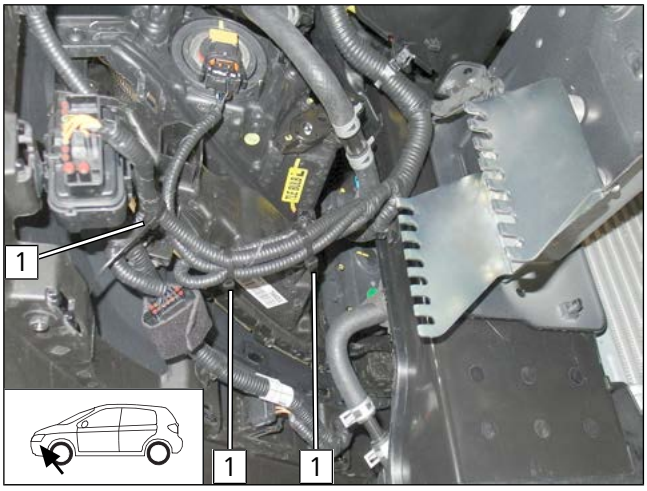


Fig. 19

1 Cable tie

8.2 Premounting heater

Premounting bolts loosely

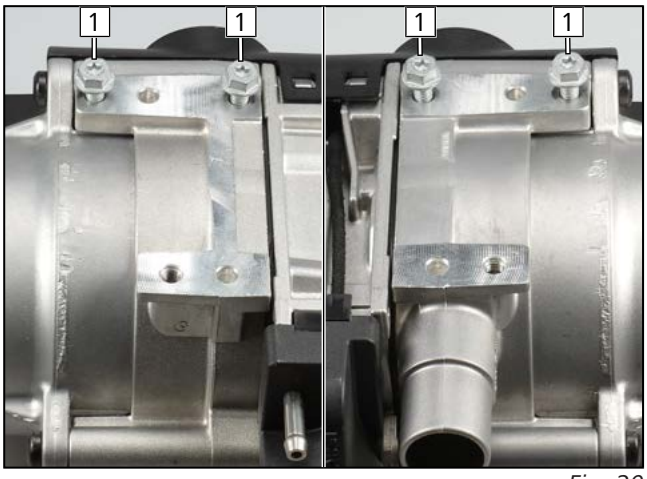


Fig. 20

▶ Screw 5x13 self-tapping bolts 1 into existing holes by a maximum of 3 thread turns.

Mounting water connection piece

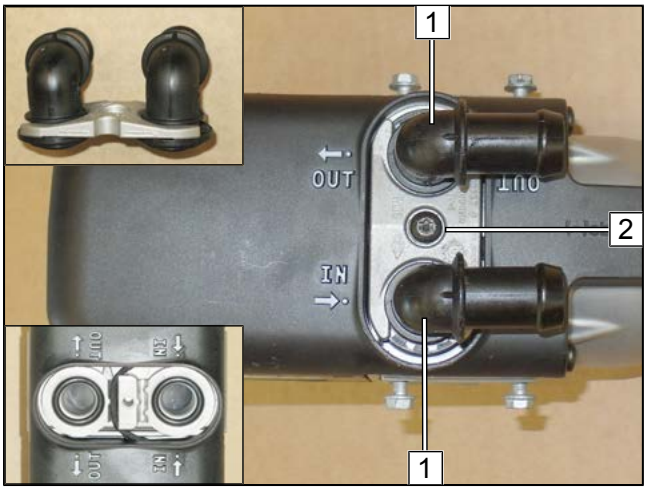


Fig. 21

Observe the general installation instructions of the heater.

1 90° water connection piece, seal

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

Cutting combustion air pipe to length

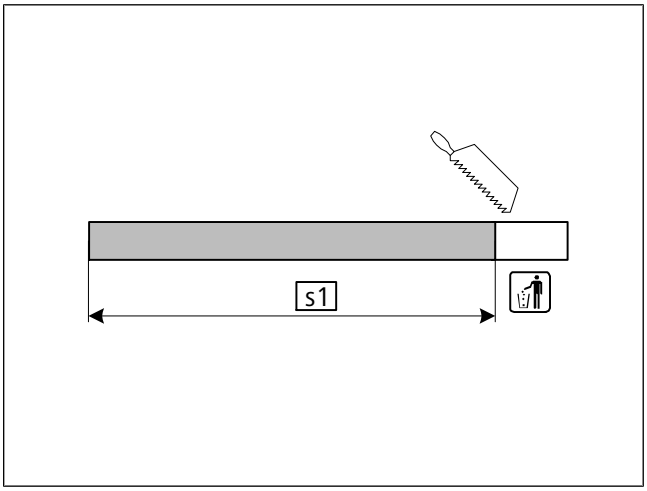


Fig. 22

s1 330

Mounting combustion air intake pipe and fuel line

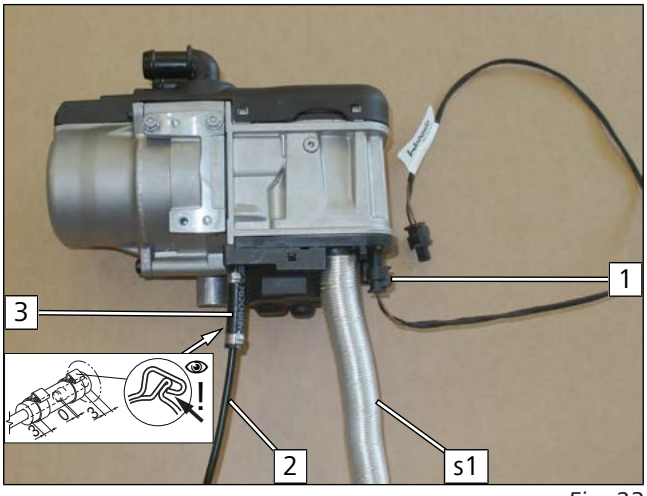


Fig. 23

Observe the general installation instructions of the heater.

1 Coolant pump wiring harness connector

2 Fuel line

3 Hose section, Ø10 clamp [2x]

Cutting hoses to length

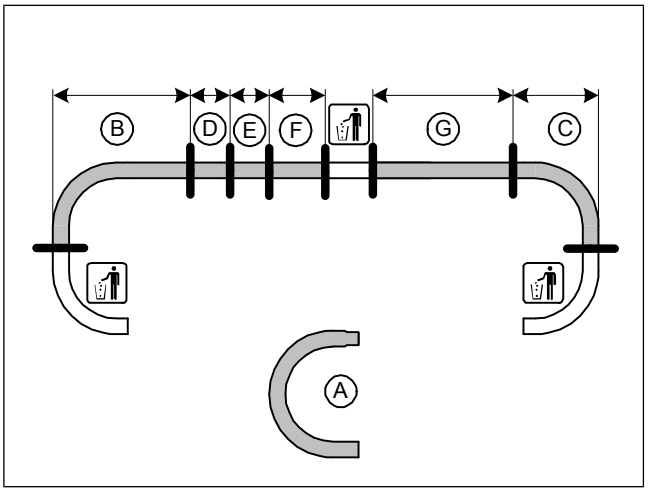


Fig. 24

	1.6 GDI	1.6 T-GDI SG	1.6 T-GDI AG
Ⓐ	Bent by 180° Ø15x20	Bent by 180° Ø15x20	Bent by 180° Ø15x20
Ⓑ	640	640	600
Ⓒ	185	185	185
Ⓓ	60	60	60
Ⓔ	60	60	60
Ⓕ	170	170	170
Ⓖ	720	740	700

Premouting hoses

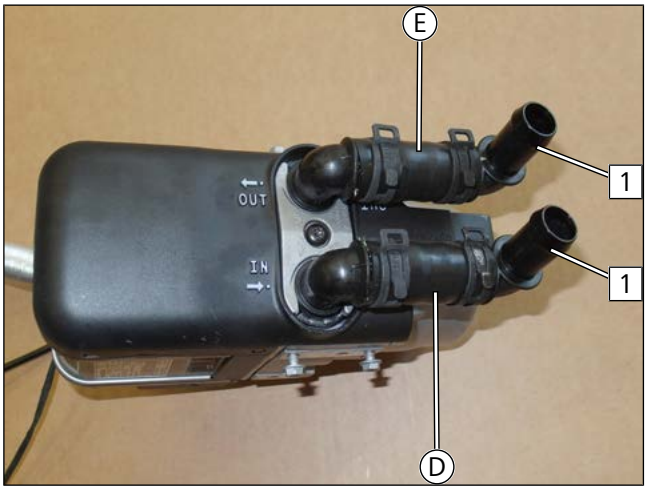


Fig. 25

All spring clips Ø25

1 Ø18x18 90° connecting pipe

8.3 Heater mounting

Mounting heater

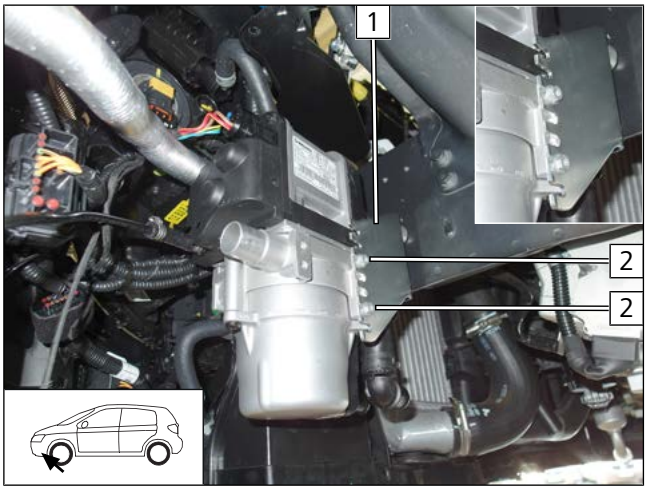


Fig. 26

1 Bracket
2 5x13 self-tapping bolt

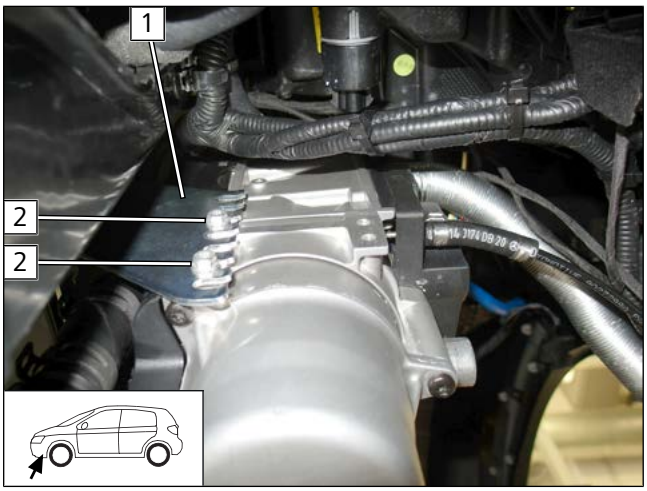


Fig. 27

1 Bracket
2 5x13 self-tapping bolt

Mounting HG wiring harness connector

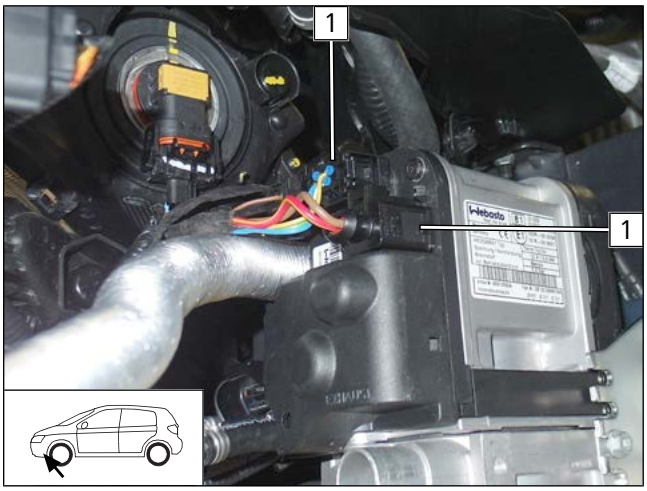


Fig. 28

1 Heater wiring harness connector

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

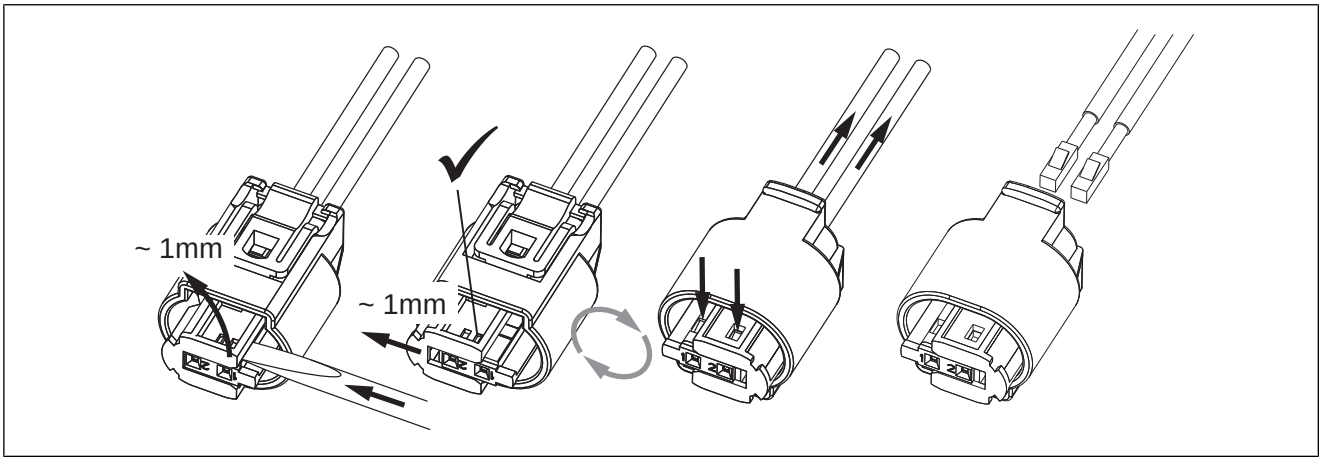


Fig. 29

9.1 Routing fuel line

Connecting heater

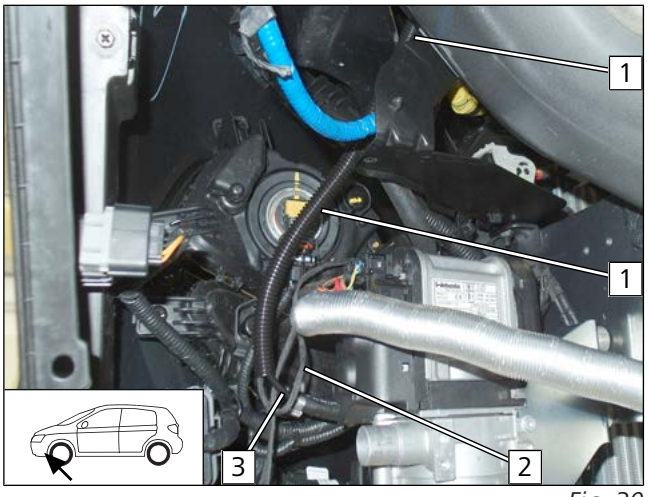


Fig. 30

- ▶ Draw fuel line 3 and fuel pump wiring harness 2 into Ø10 corrugated tube 1 and route into the engine compartment.

Installing lines

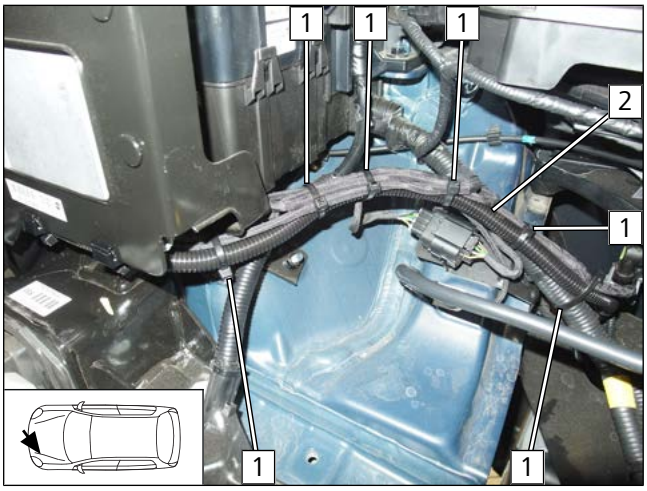


Fig. 31

1 Cable tie
2 Fuel line and fuel pump wiring harness in Ø10 corrugated tube

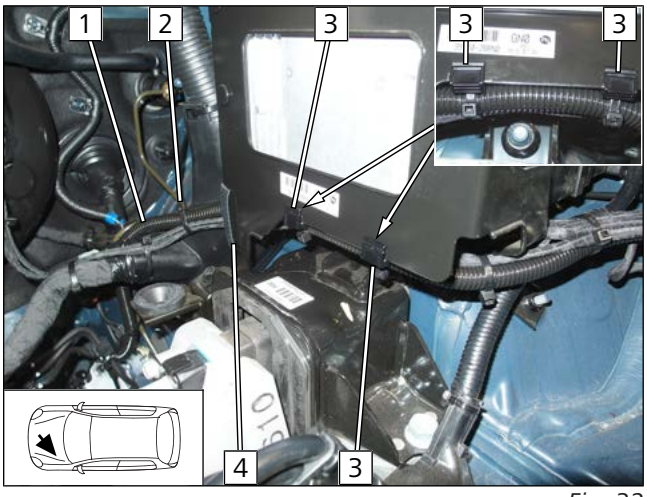


Fig. 32

1 Fuel line and fuel pump wiring harness in Ø10 corrugated tube
2 Cable tie
3 Edge clip cable tie
4 50 long edge protection

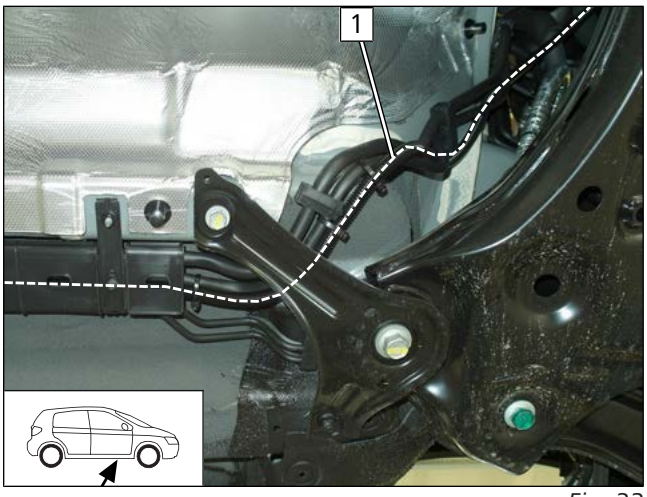


Fig. 33

▶ Route fuel line and fuel pump wiring harness in Ø10 corrugated tube 1 along original vehicle fuel lines to the underbody and secure with cable ties.

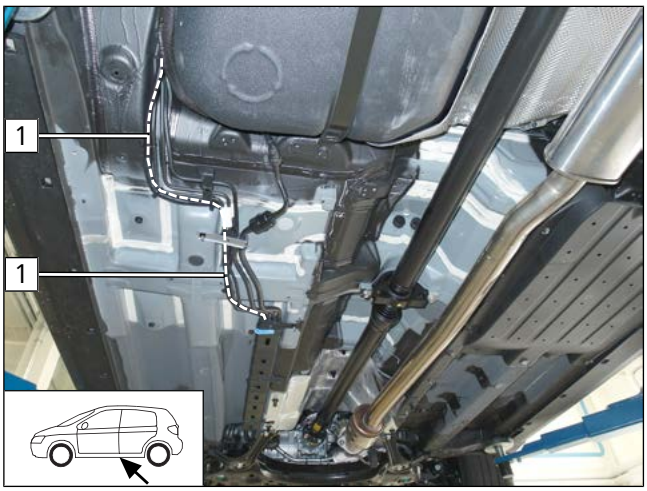


Fig. 34

▶ Route fuel line and fuel pump wiring harness in Ø10 corrugated tube 1 along original vehicle fuel lines to fuel pump installation location and secure using cable ties.

Premounting fuel pump

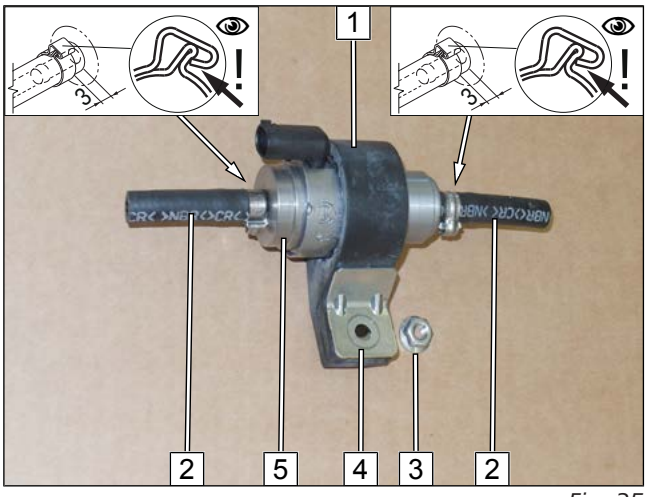


Fig. 35

1 Fuel pump mount
2 Hose section, Ø10 clamp
3 Flanged nut
4 Support angle bracket
5 Fuel pump

Preparing fuel pump perforated bracket

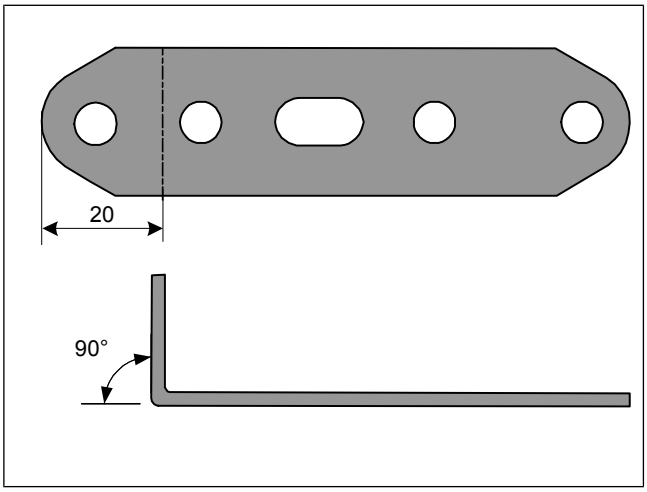


Fig. 36

Premounting fuel pump perforated bracket

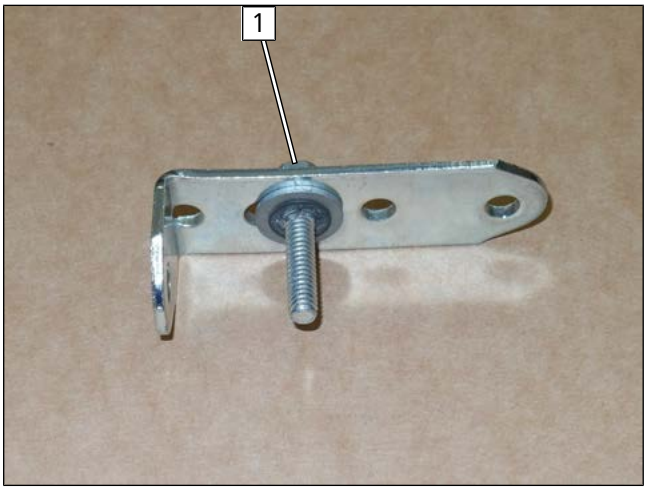


Fig. 37

1 M6x25 bolt, perforated bracket, large diameter washer, lock washer

Preparing fuel pump installation location

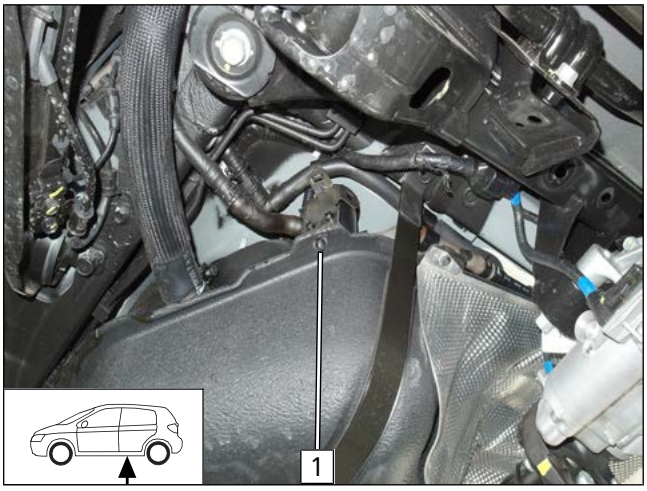


Fig. 38

▶ Remove original vehicle bolt 1, nut will be reused.

Mounting fuel pump perforated bracket

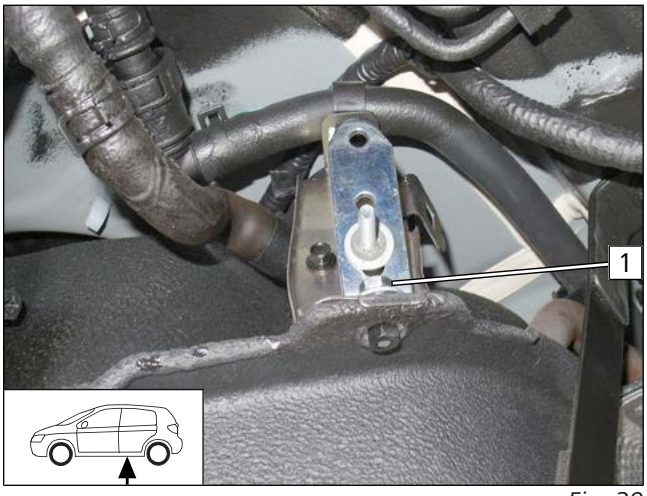


Fig. 39

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

Mounting fuel pump

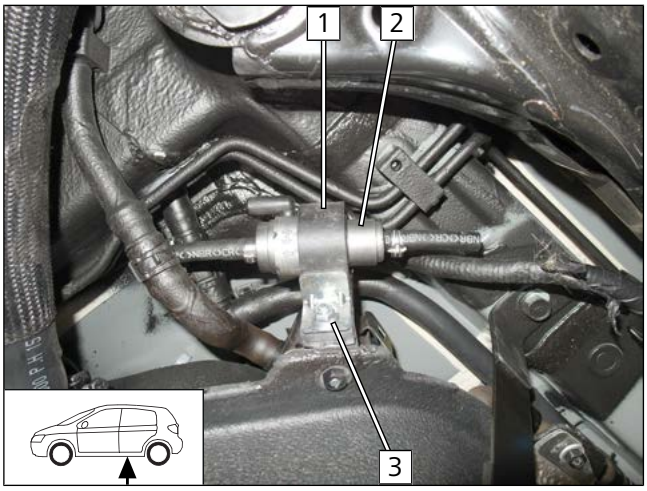


Fig. 40

1 Fuel pump mount
2 Fuel pump
3 Flanged nut

Assembling fuel pump connector X7

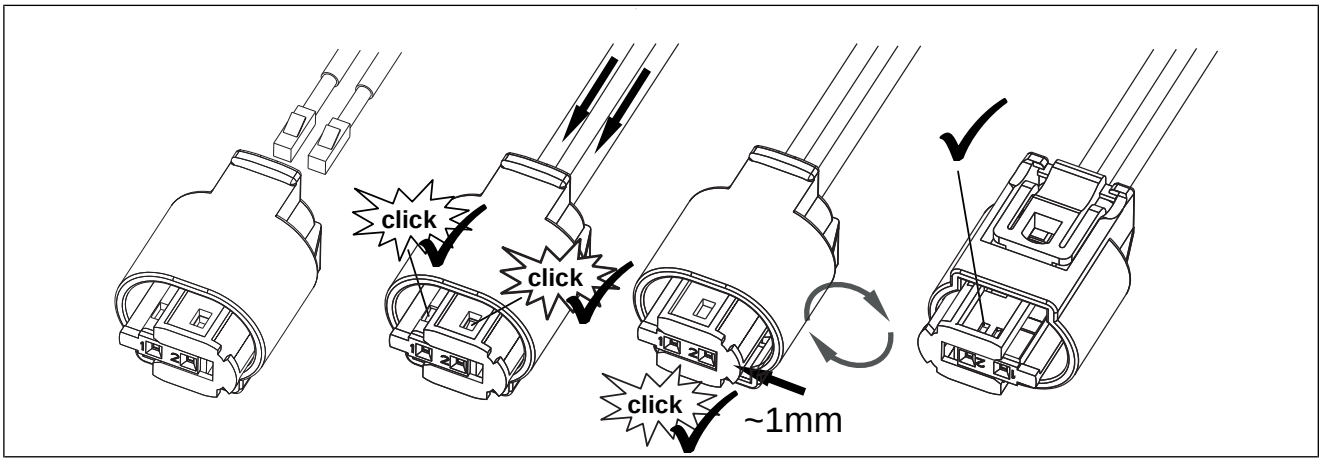


Fig. 41

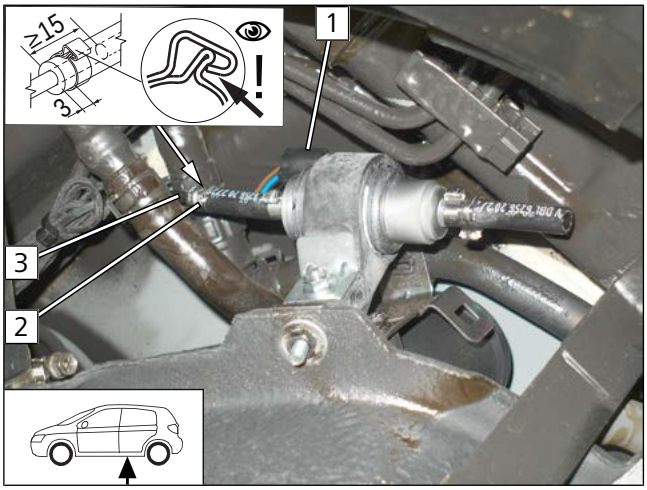


Fig. 42

1 Fuel pump wiring harness, connector X7 mounted
2 Ø10 clamp
3 Heater fuel line in Ø10 corrugated tube

9.2 Installing FuelFix

Work steps F1, F2

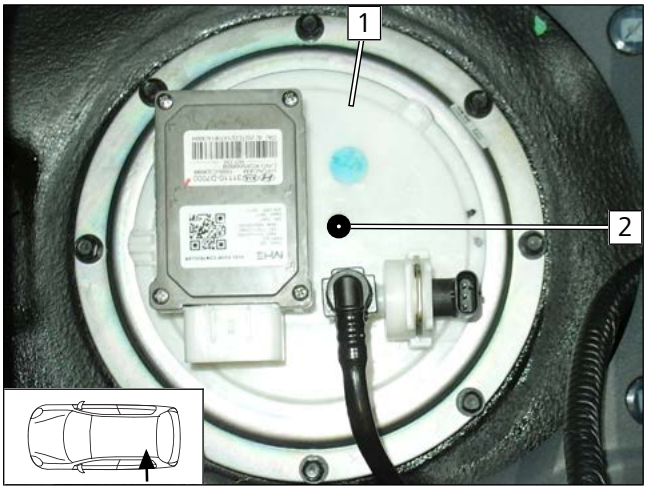


Fig. 43

Observe the installation instructions of the tank extracting device.

▶ Mark hole pattern.

1 Tank fitting

2 Use embossed area on tank fitting to drill a hole (coloured for easier identification)

Work step F3

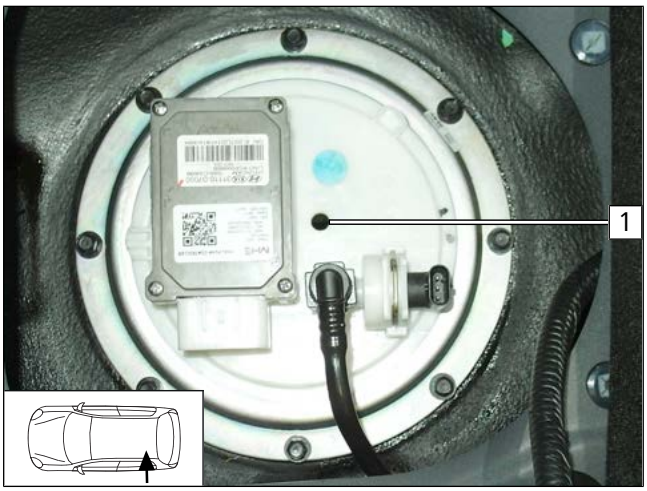


Fig. 44

DANGER

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

▶ Drill hole for FuelFix.

1 Hole made with provided drill

Work steps F4, F5

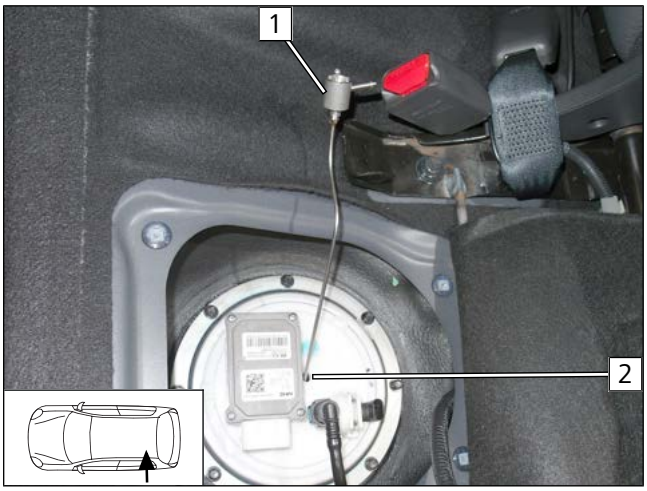


Fig. 45

▶ Bend FuelFix 1 as shown in template and cut to length.

▶ Insert FuelFix in hole 2.

Work step F5

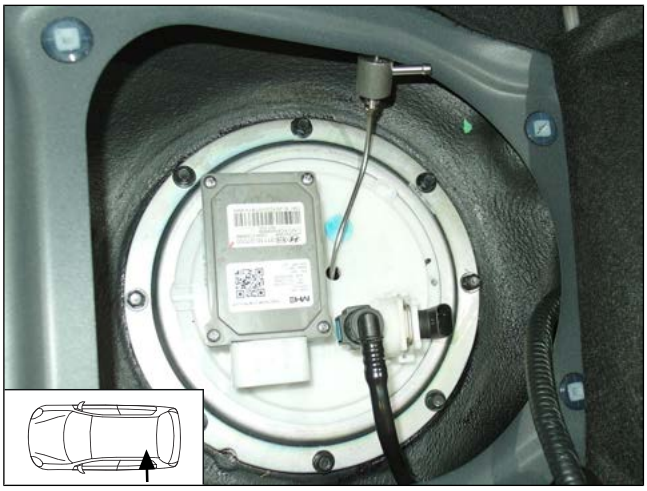


Fig. 46

Fig. 47

Fig. 48

Fig. 49

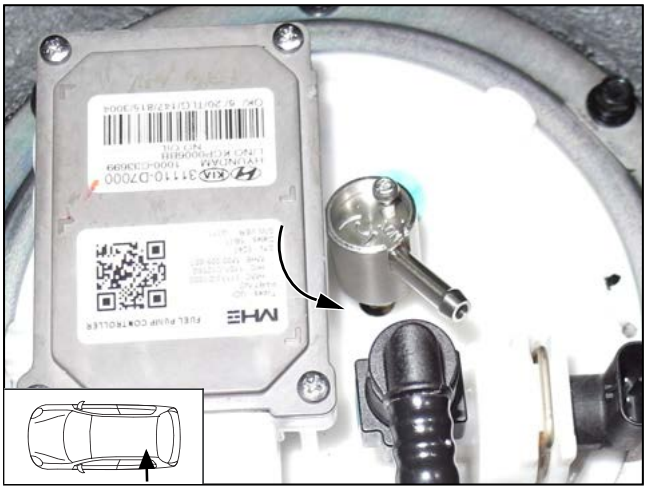


Fig. 50

Work steps F5.3, F5.4

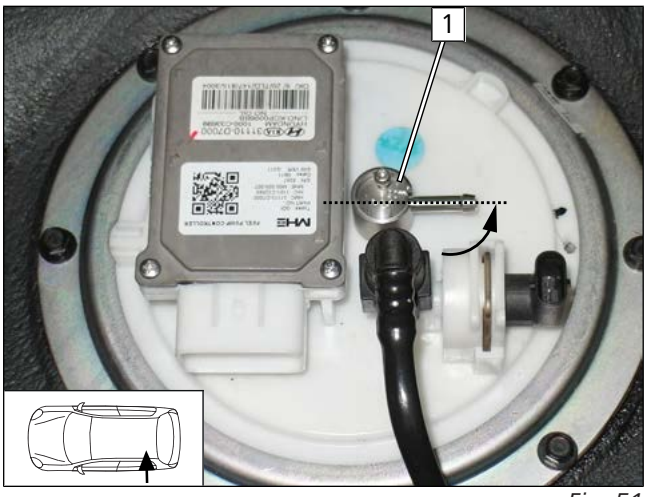


Fig. 51

▶ Align FuelFix [1] as shown in figure.

Work step F6

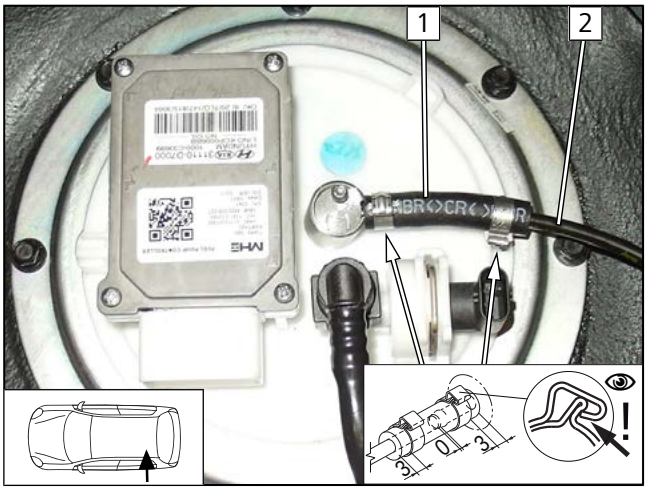


Fig. 52

1 Hose section, Ø10 clamp [2x]
2 Fuel line

Work step F7

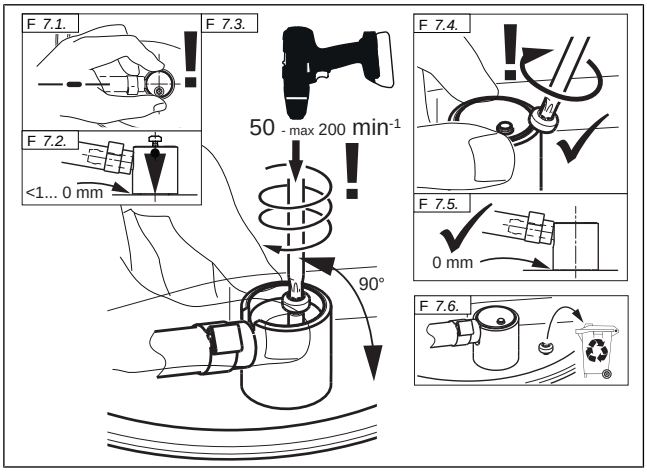


Fig. 53

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

Work step F8

Fig. 54

▶ Check firm seating of FuelFix.

Securing fuel line and connecting fuel pump

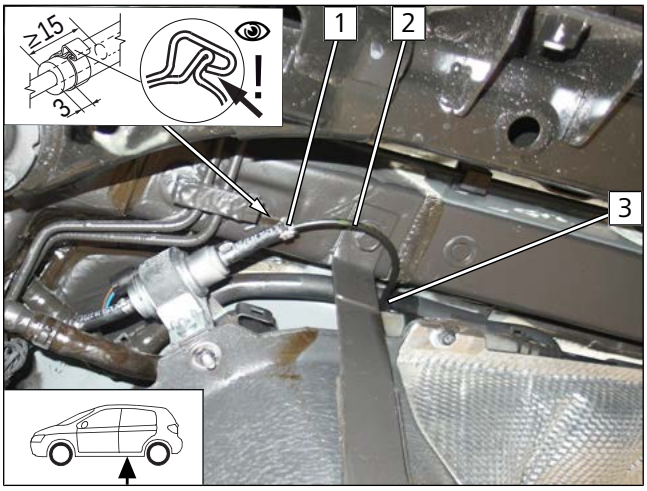


Fig. 55

1 Ø10 clamp
2 Fuel line FuelFix
3 Cable tie for tension relief

10 Combustion air

Premounting combustion air intake silencer

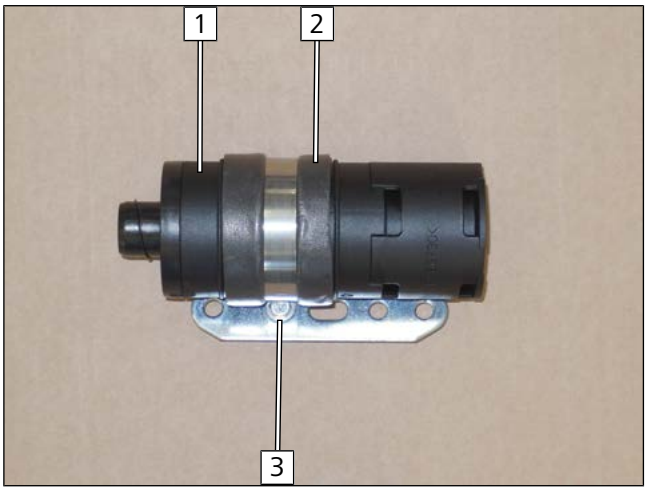


Fig. 56

1 Combustion air intake silencer
2 Self-adhesive foam
3 M5x16 bolt, Ø51 clamp, perforated bracket, large diameter washer, flanged nut

Mounting combustion air intake silencer

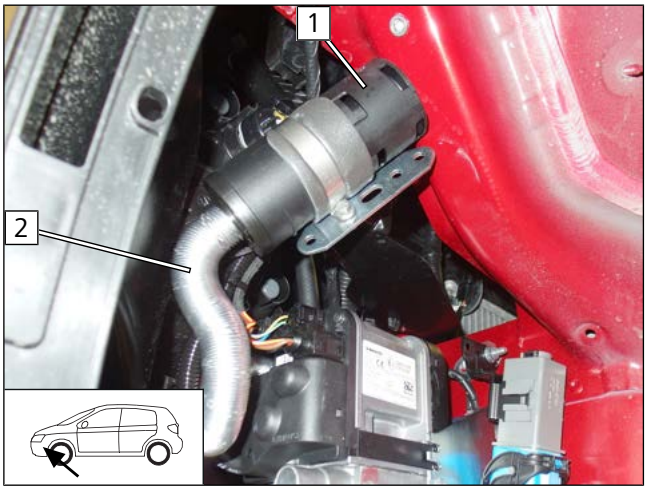


Fig. 57

Observe the installation instructions of the combustion air intake silencer.

1 Combustion air intake silencer
2 Combustion air pipe

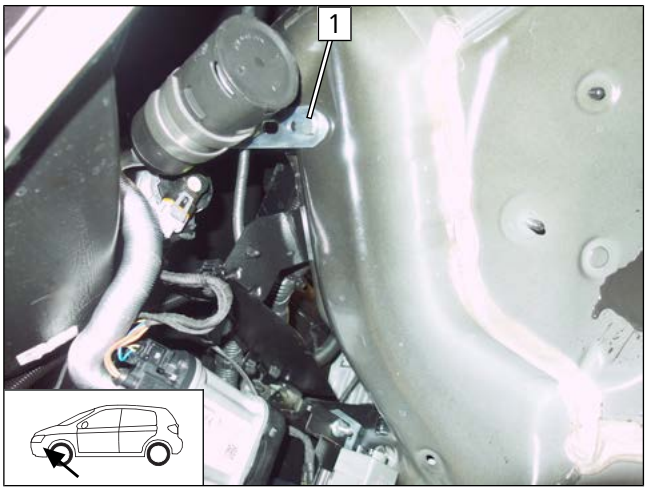


Fig. 58

1 M6x20 bolt, spring lockwasher, perforated bracket, rivet nut

11 Coolant for 97kW

11.1 Hose routing diagram

'Inline' coolant circuit

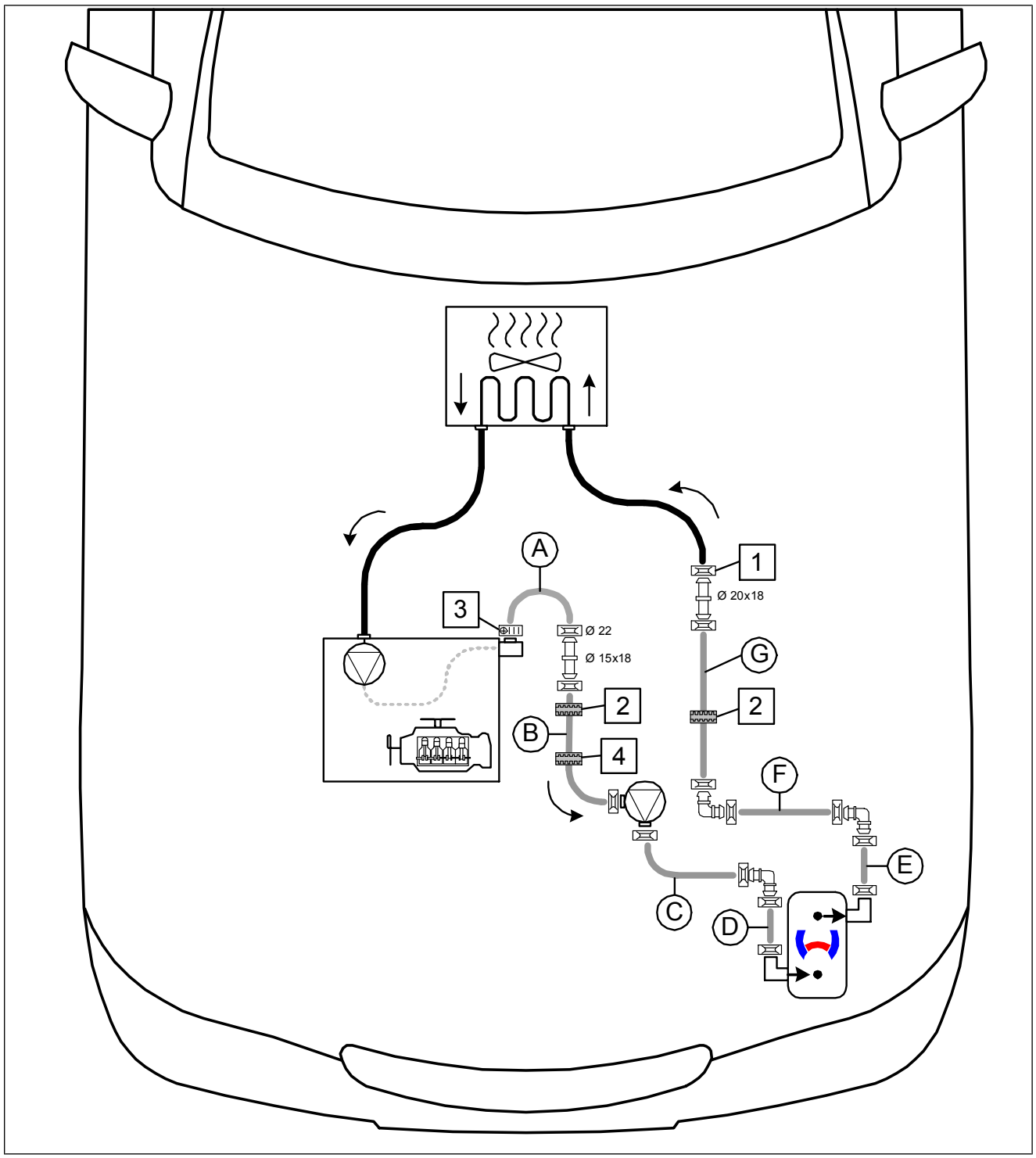


Fig. 59

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation = Ø18x18

[1] original vehicle spring clip; [2] Ø22 black rubber isolator;

[3] Ø16-27 hose clamp; [4] Ø25 black rubber isolator

11.2 Preliminary Work

Removing original vehicle hose and cable holder

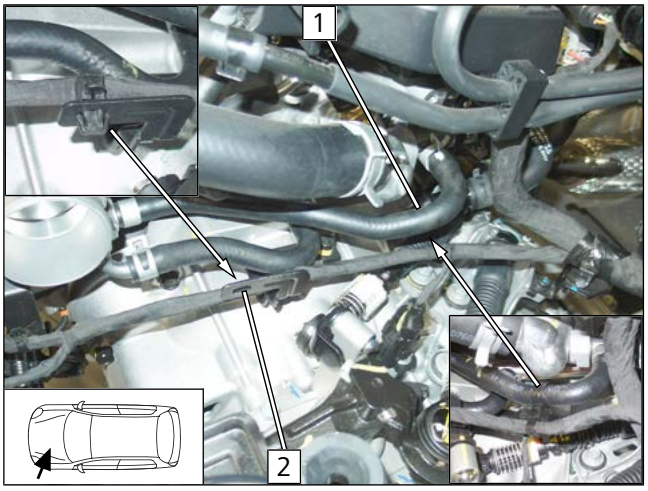


Fig. 60

▶ Discard hose bracket at position 1 and cable holder at position 2.

Fastening original vehicle wiring harness

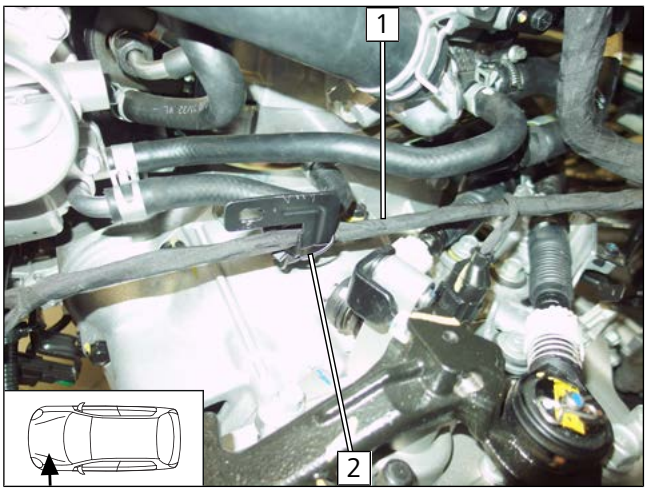


Fig. 61

1 Original vehicle wiring harness
2 Cable tie

Preparing perforated bracket A

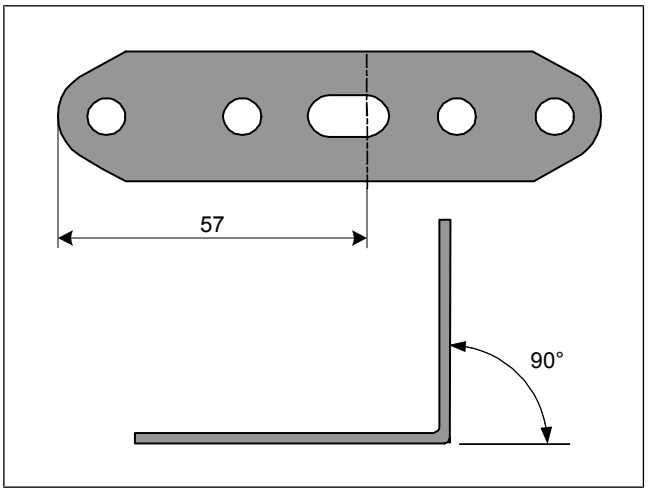


Fig. 62

Preparing perforated bracket B

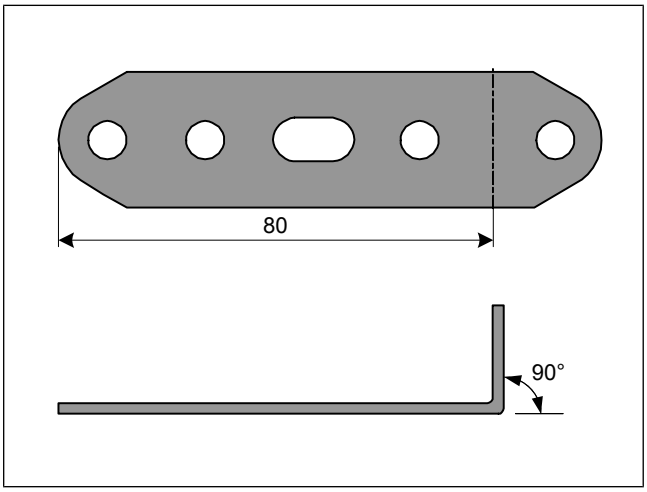


Fig. 63

Preparing coolant pump mount

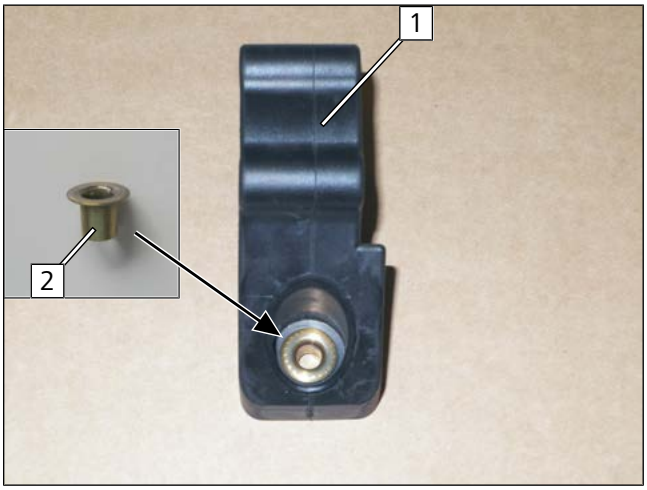


Fig. 64

1 Coolant pump mount
2 Sleeve

Premounting coolant pump

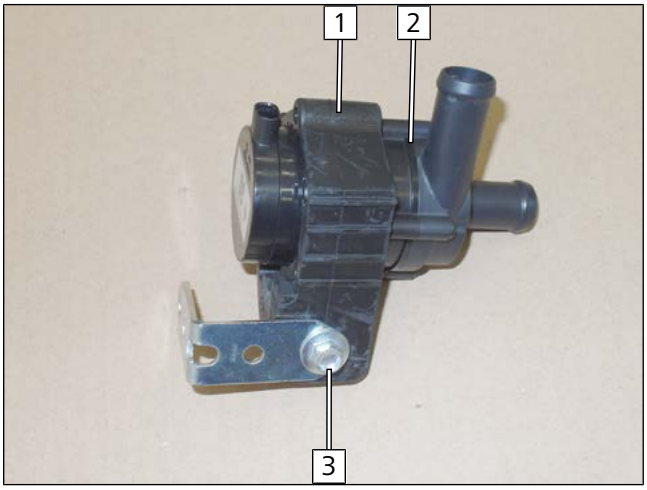


Fig. 65

1 Coolant pump mount
2 Coolant pump
3 M6x25 bolt, coolant pump mount, perforated bracket A, large diameter washer, flanged nut

Mounting coolant pump

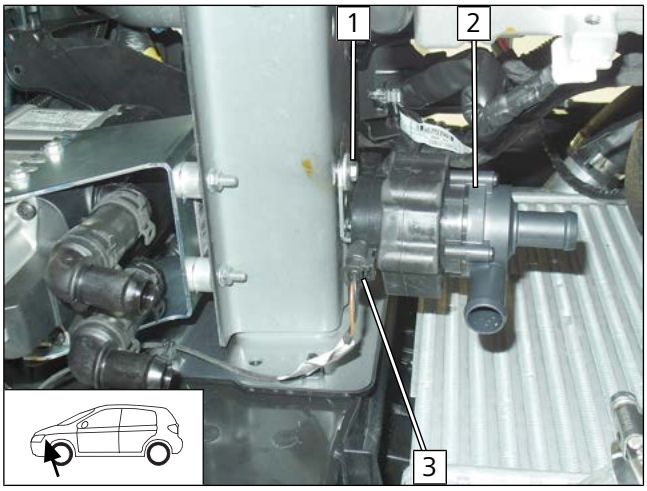


Fig. 66

1 M6x20 bolt, spring lockwasher, perforated bracket, rivet nut

2 Coolant pump

3 Coolant pump wiring harness connector

Mounting perforated bracket B

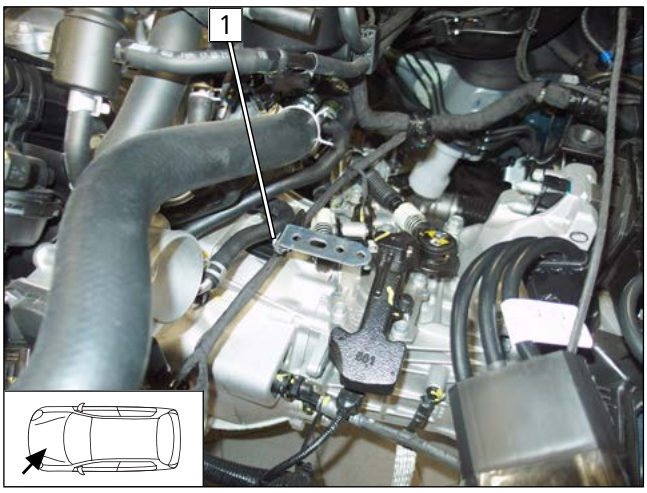


Fig. 67

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

Mounting fabric heat shrink tubing

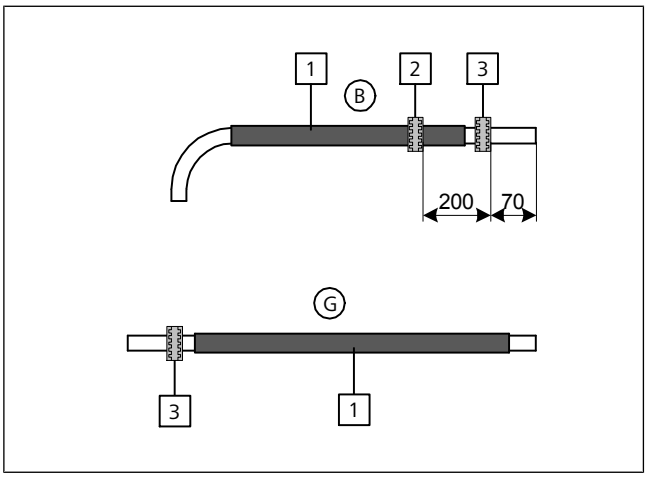


Fig. 68

▶ Push fabric heat shrink tubings 1 onto hose (B) and hose (G), cut to length and shrink.

2 Position black (sw), Ø25 rubber isolator

3 Position black (sw), Ø22 rubber isolator

Mounting heat protection hose

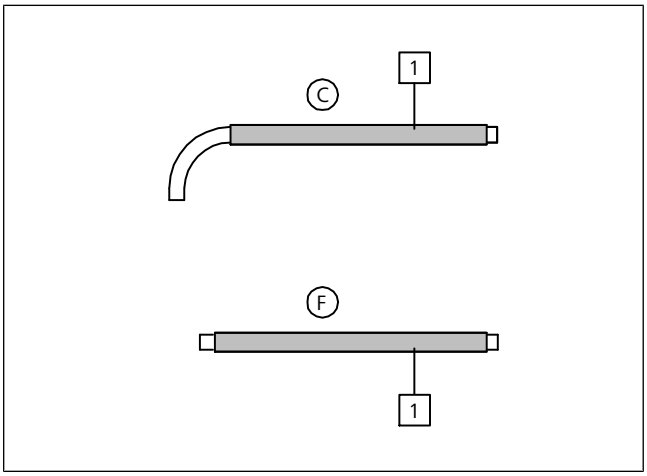


Fig. 69

▶ Cut heat protection hose to length and push onto hose Ⓒ and hose Ⓕ.

1 Heat protection hose

Premounting hose Ⓐ

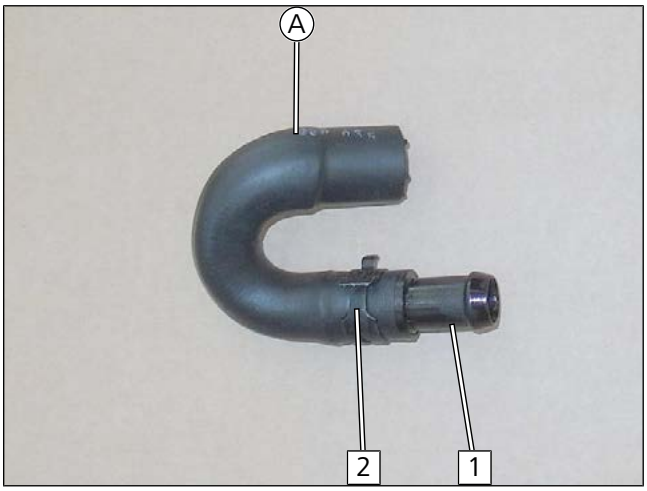


Fig. 70

1 Ø15x18 connecting pipe

2 Ø22 spring clip

11.3 Coolant circuit installation

Cutting point

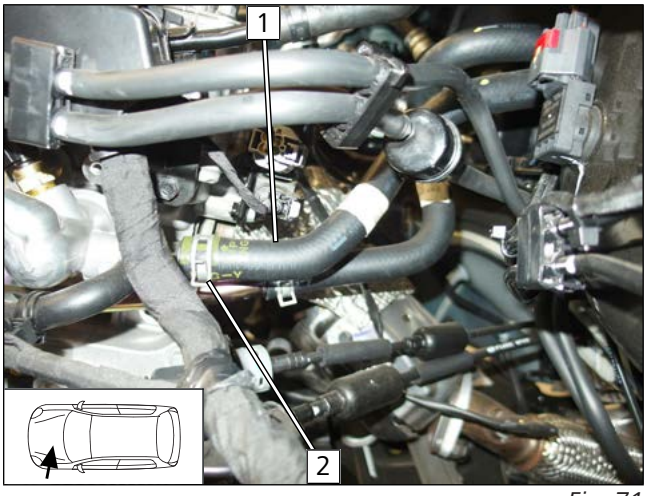


Fig. 71

▶ Remove engine outlet / heat exchanger inlet hose 1 from engine outlet connection piece. Original vehicle spring clip 2 will be reused.

Engine outlet connection

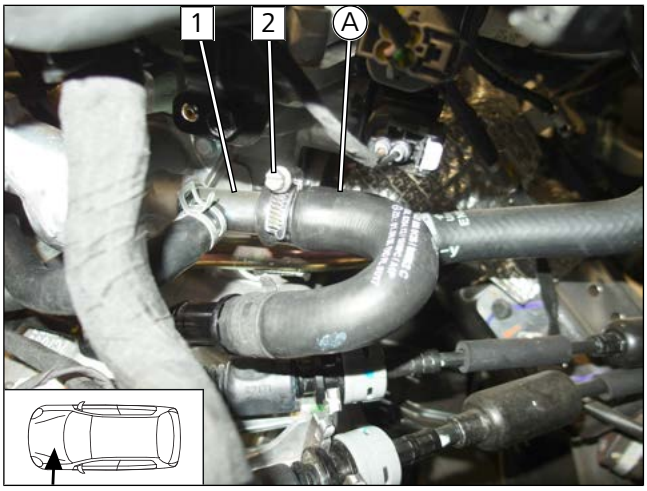


Fig. 72

1 Engine outlet connection piece
2 Ø16-27 hose clamp

Preparing heat exchanger inlet hose section

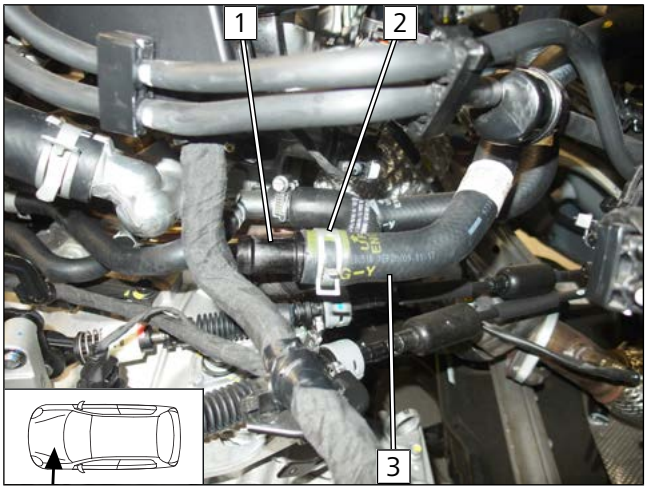


Fig. 73

1 Ø18x20 connecting pipe
2 Original vehicle spring clip
3 Heat exchanger inlet hose section

Heater outlet connection

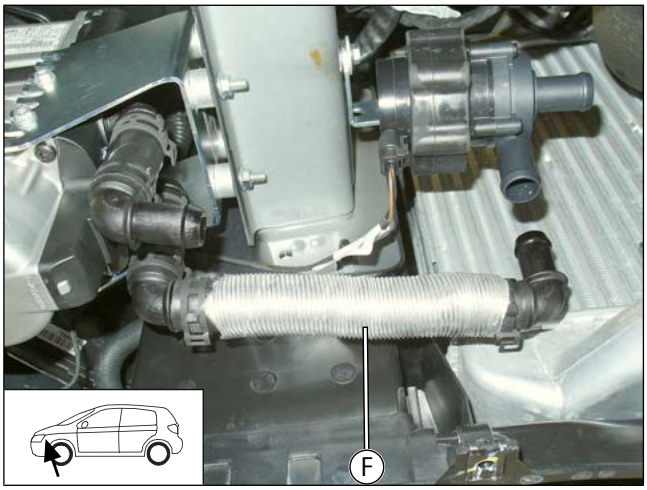


Fig. 74

Heater inlet and coolant pump outlet connection

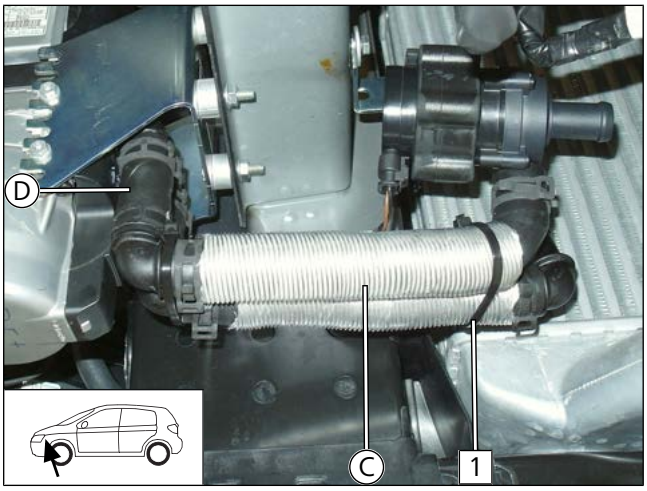


Fig. 75

1 Cable tie

Connection of hose Ⓑ and hose Ⓖ

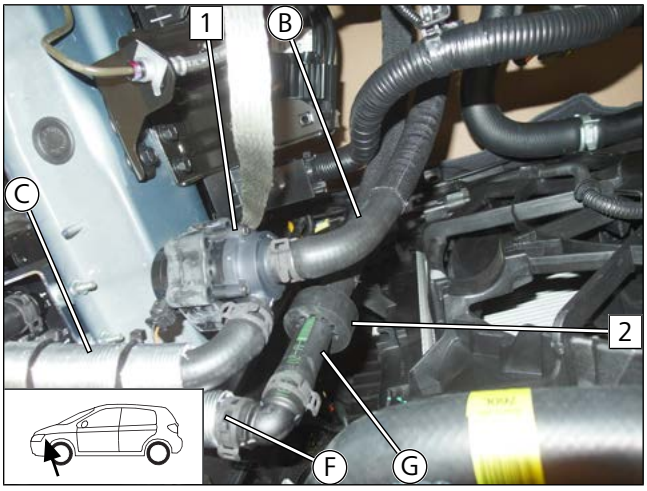


Fig. 76

▶ Route hoses Ⓑ and Ⓖ in the engine compartment.

1 Coolant pump

2 Position black (sw) rubber isolator

Connection of hose Ⓑ to hose Ⓐ

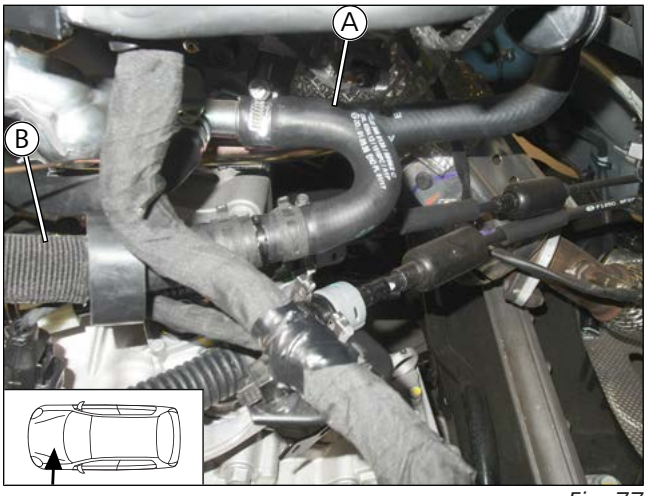


Fig. 77

Fastening hose Ⓑ

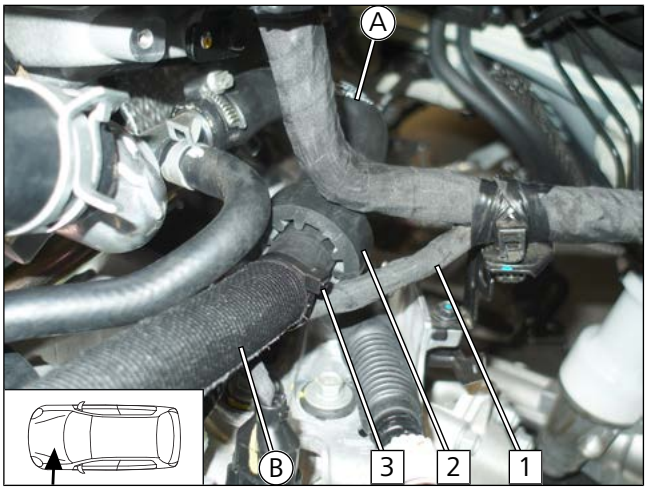


Fig. 78

1 Original vehicle wiring harness
2 Position black (sw) rubber isolator
3 Cable tie around hose Ⓑ and original vehicle wiring harness

Heat exchanger inlet connection

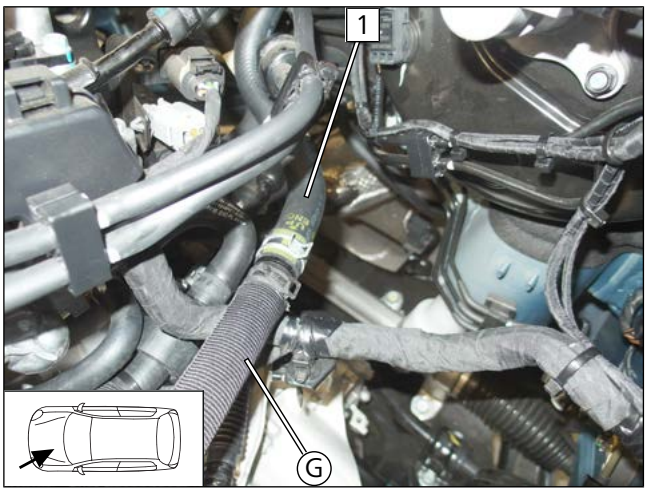


Fig. 79

1 Heat exchanger inlet hose section

Fastening hose Ⓖ

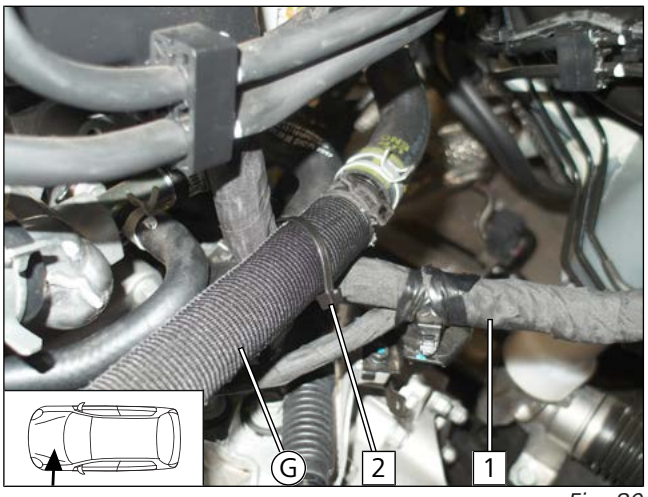


Fig. 80

1 Original vehicle wiring harness
2 Cable tie around hoses Ⓑ and Ⓖ and original vehicle wiring harness

Aligning and fastening hoses

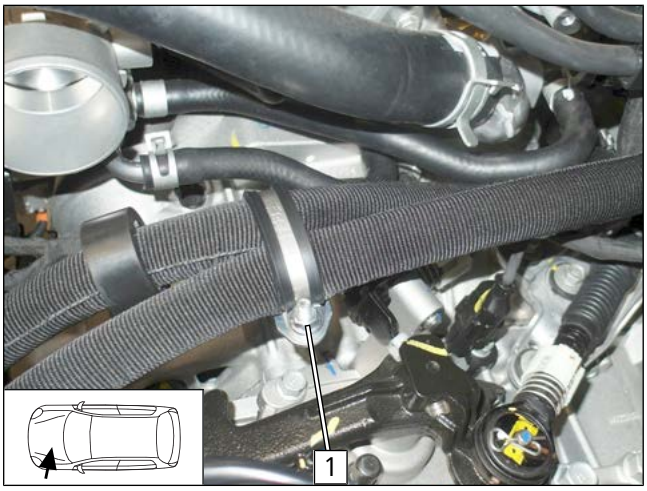


Fig. 81

Danger of damage to components

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

1 M6x20 bolt, premounted perforated bracket B, Ø38 rubber-coated p-clamp, flanged nut

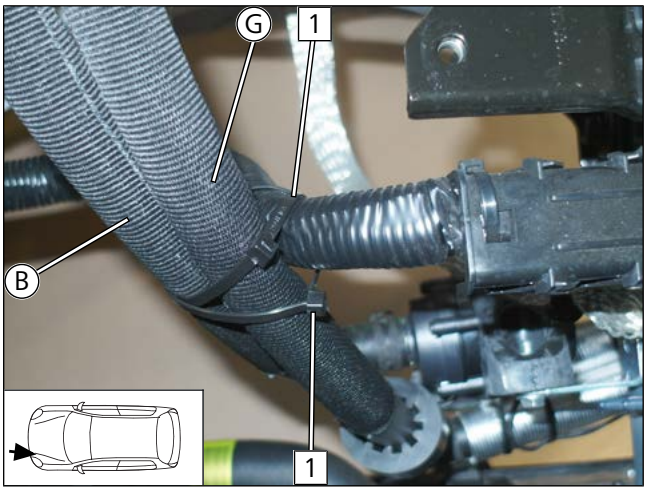


Fig. 82

1 Cable tie around hoses (B) and (G) and original vehicle wiring harness

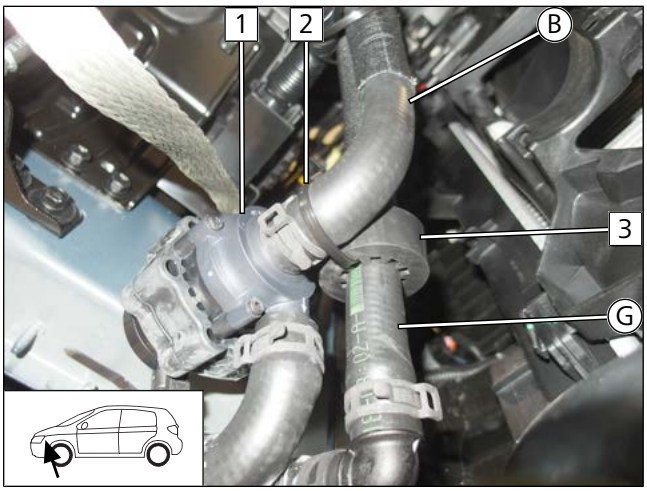


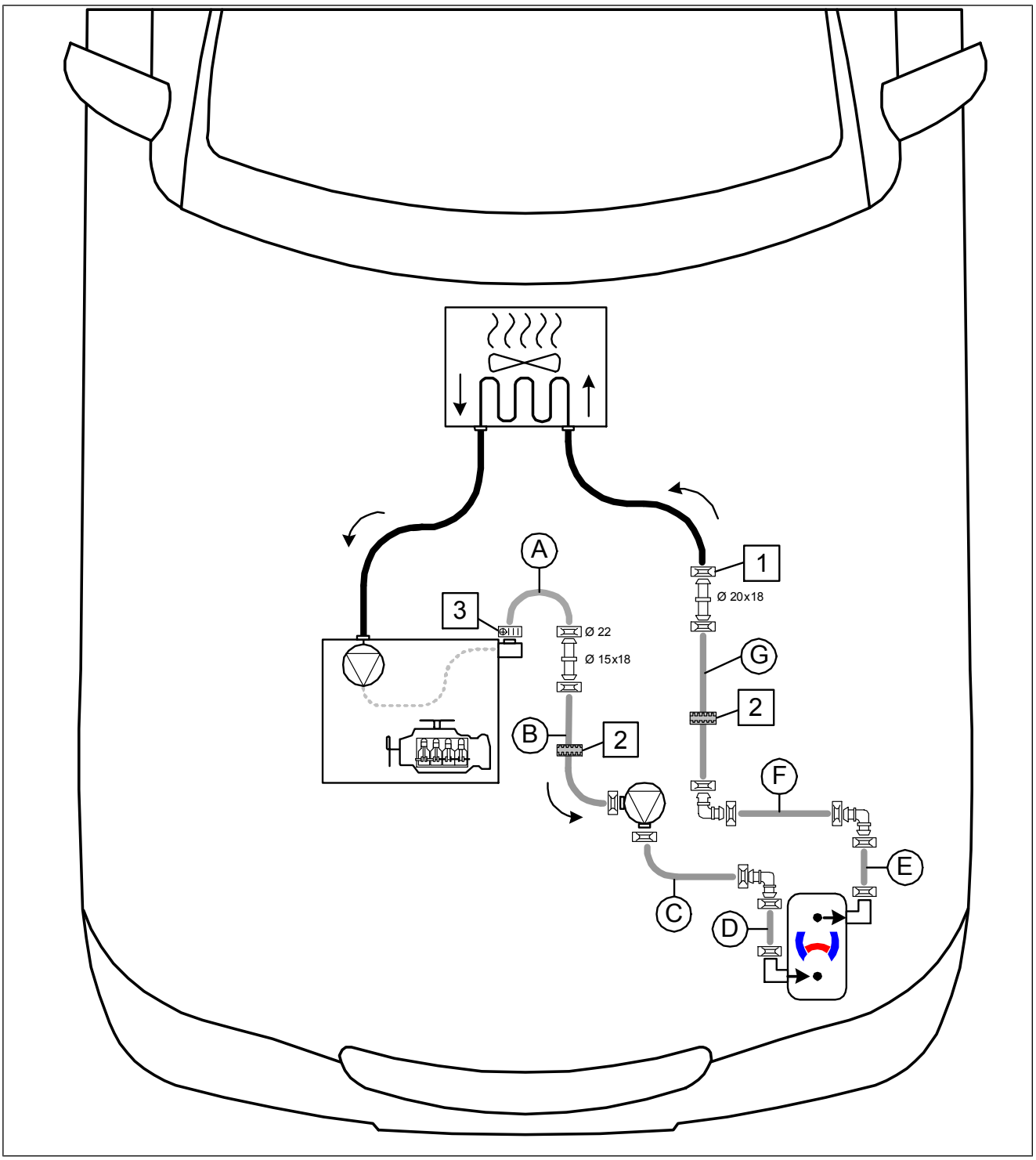
Fig. 83

1 Coolant pump
2 Align cable tie of black (sw) rubber isolator
3 Align black (sw) rubber isolator

12 Coolant for 130kW

12.1 Hose routing diagram

'Inline' coolant circuit



All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation = Ø18x18

[1] Original vehicle spring clip; [2] Black rubber isolator; [3] Ø16-27 hose clamp

12.2 Coolant circuit installation for veh. with SG

Mounting fabric heat shrink tubing

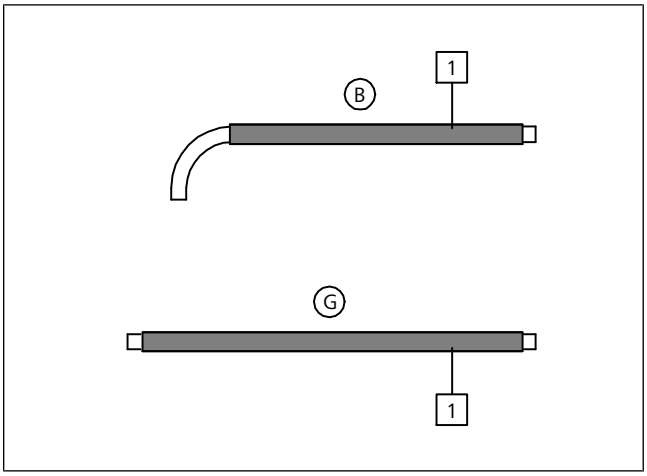


Fig. 84

▶ Push fabric heat shrink tubings 1 onto hose Ⓑ and hose Ⓖ, cut to length and shrink.

Mounting heat protection hose

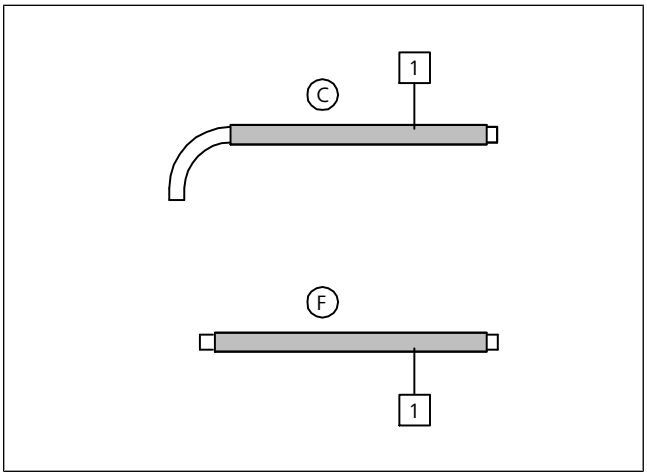


Fig. 85

Cut heat protection hose to length and push onto hose Ⓒ and hose Ⓕ.

1 Heat protection hose

Cutting point

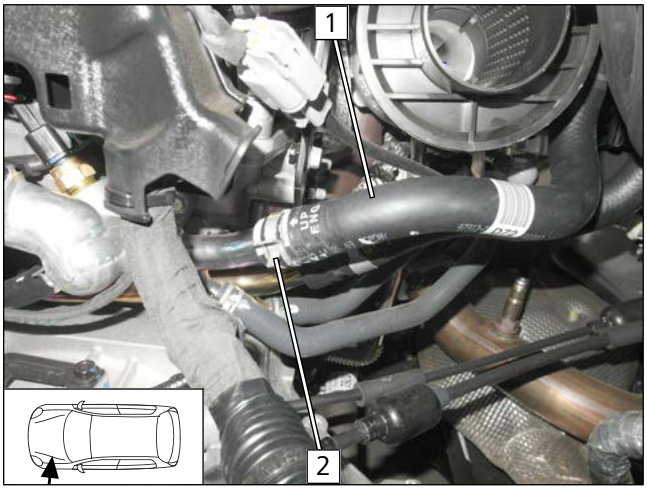


Fig. 86

▶ Remove engine outlet / heat exchanger inlet hose 1 from engine outlet connection piece. Original vehicle spring clip 2 will be reused.

Engine outlet connection

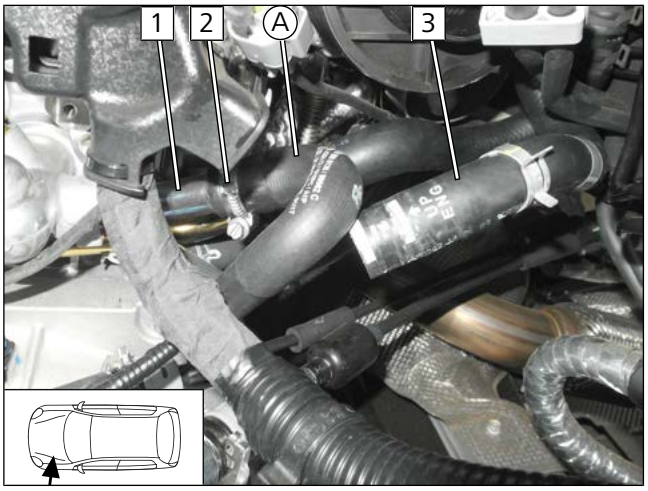


Fig. 87

1 Engine outlet connection piece
2 Ø16-27 hose clamp
3 Heat exchanger inlet hose section

Preparing coolant pump perforated bracket

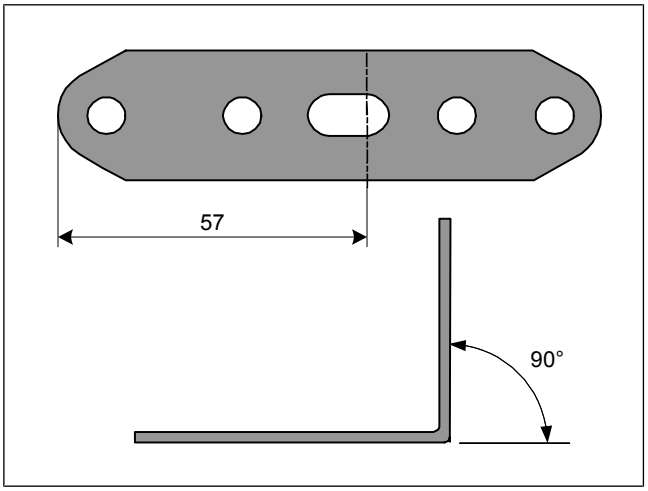


Fig. 88

Preparing coolant pump mount

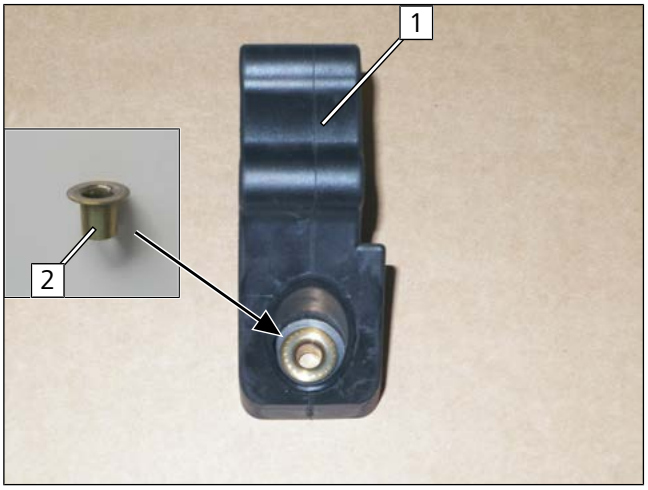


Fig. 89

1 Coolant pump mount
2 Sleeve

Premounting coolant pump

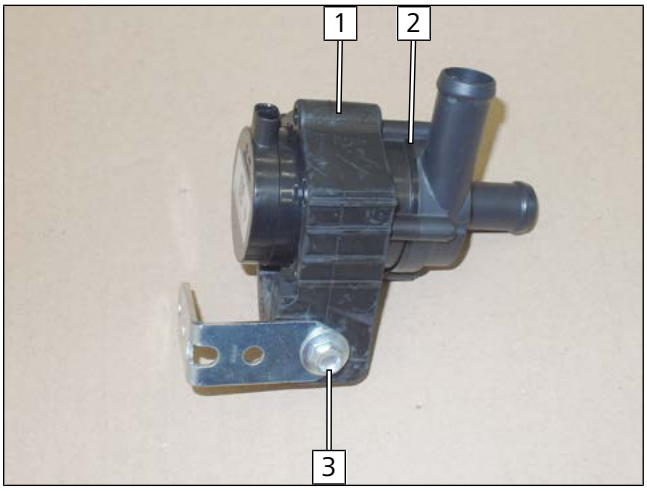


Fig. 90

1. Coolant pump mount
2. Coolant pump
3. M6x25 bolt, coolant pump mount, perforated bracket A, large diameter washer, flanged nut

Mounting coolant pump

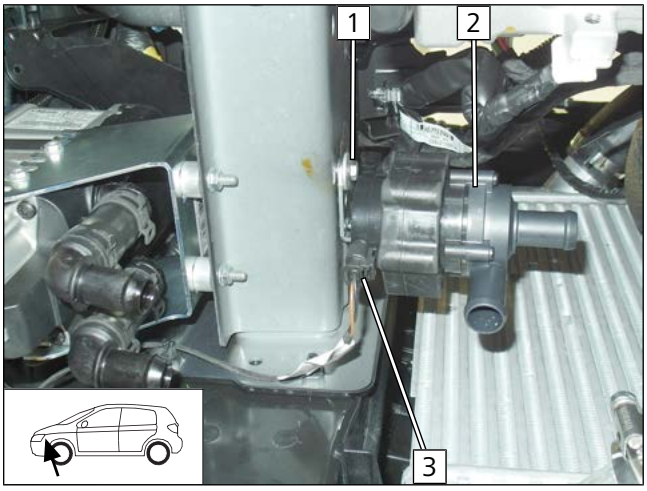


Fig. 91

1. M6x20 bolt, spring lockwasher
2. Coolant pump
3. Coolant pump wiring harness connector

Heater outlet connection

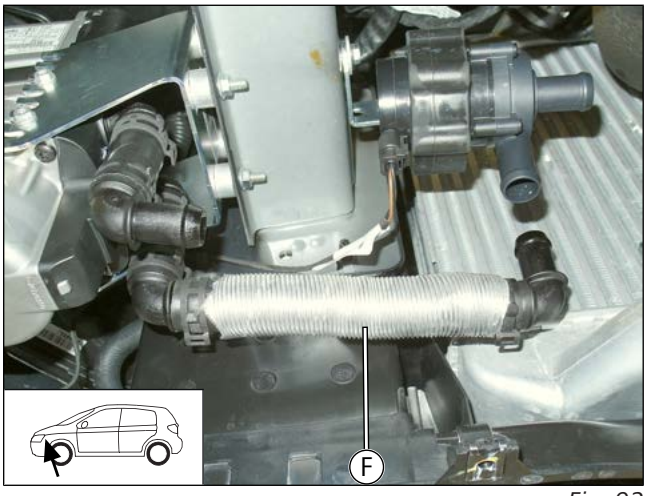


Fig. 92

Heater inlet and coolant pump outlet connection

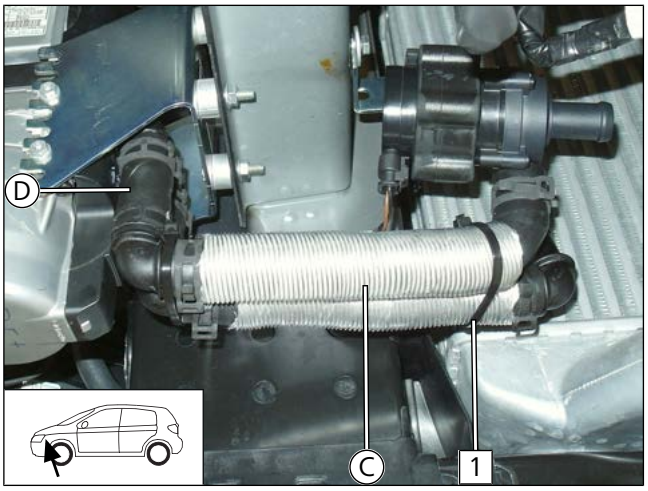


Fig. 93

1 Cable tie

Coolant pump inlet connection

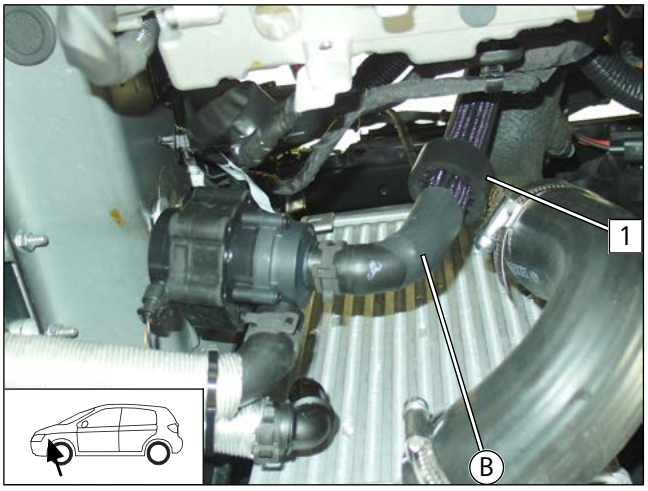


Fig. 94

1 Slide on black (sw) rubber isolator

Routing hose (B)

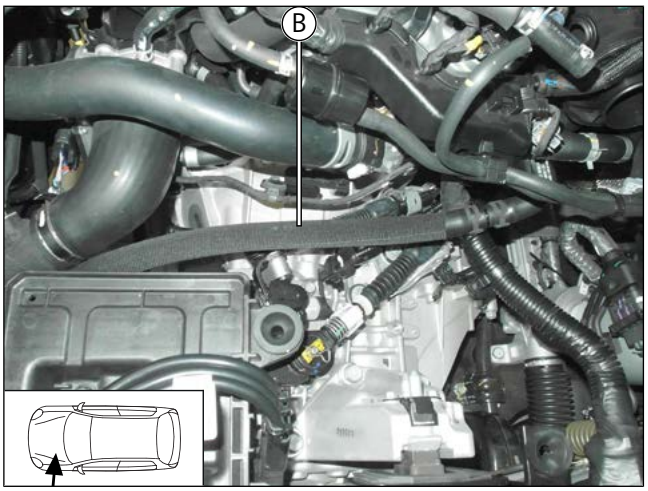


Fig. 95

Connection of hose Ⓑ to hose Ⓐ

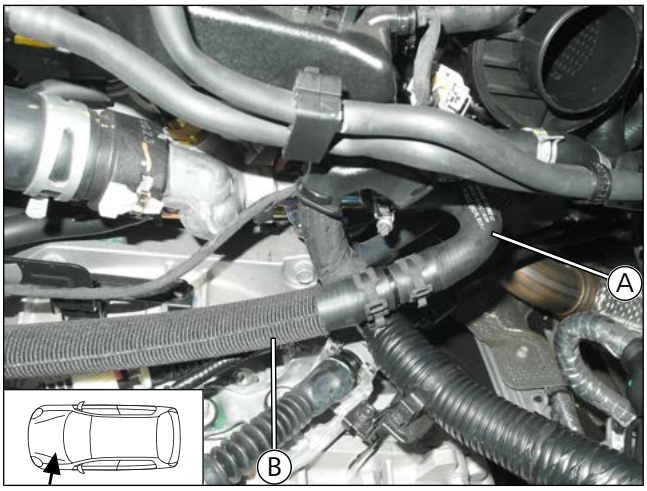


Fig. 96

Connection of hose Ⓖ to hose Ⓕ

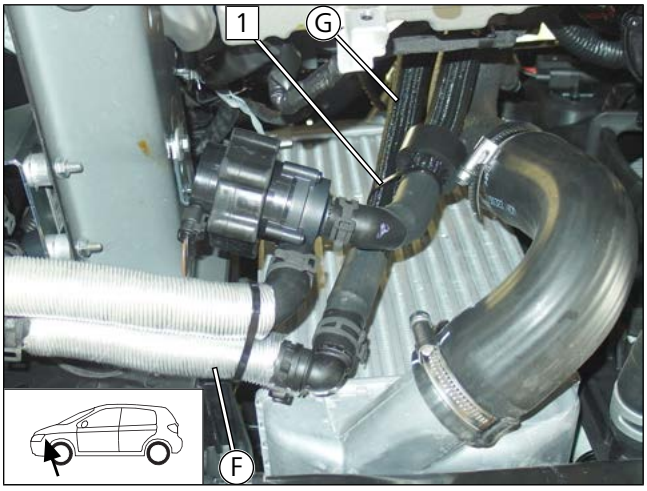


Fig. 97

1 Cable tie

Routing hose Ⓖ

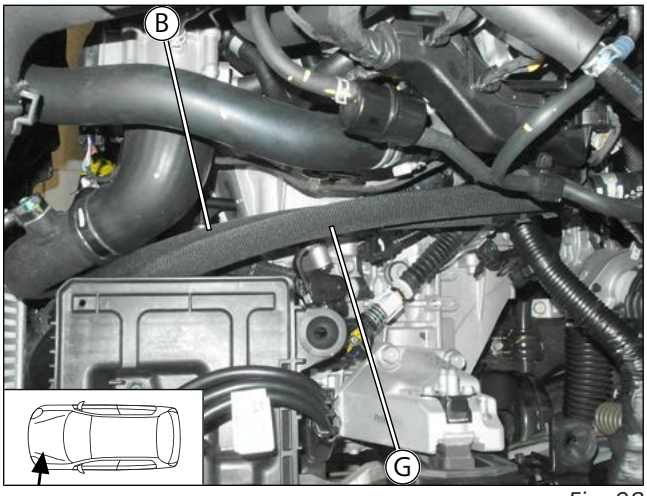


Fig. 98

Heat exchanger inlet connection

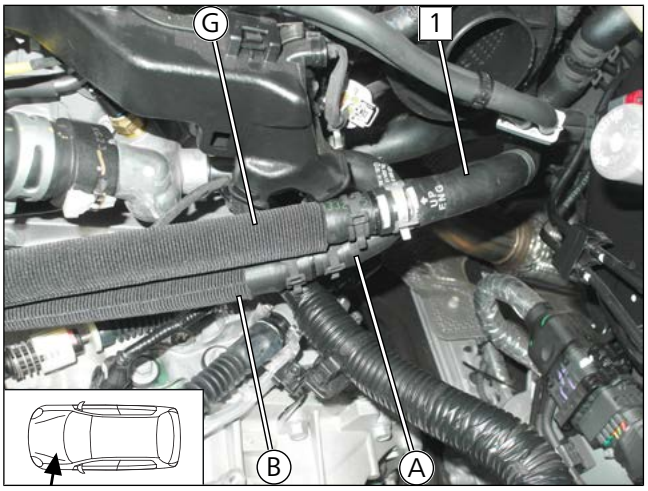


Fig. 99

1 Heat exchanger inlet hose section

Aligning and fastening hoses

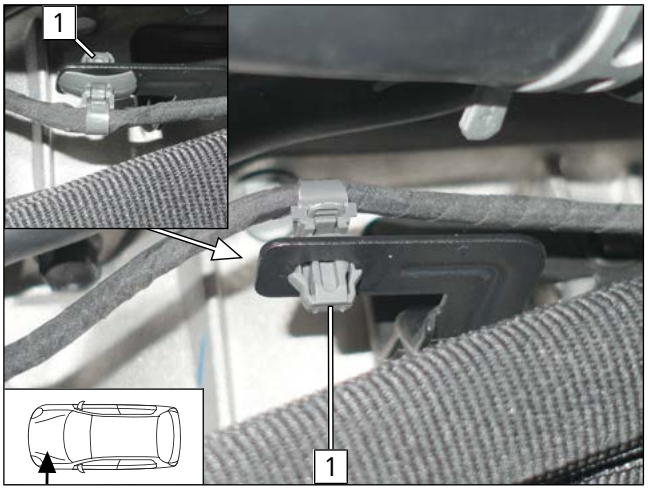


Fig. 100

▶ Detach original vehicle eyelet cable tie 1 and insert again in the bracket, turned the other way round as shown.

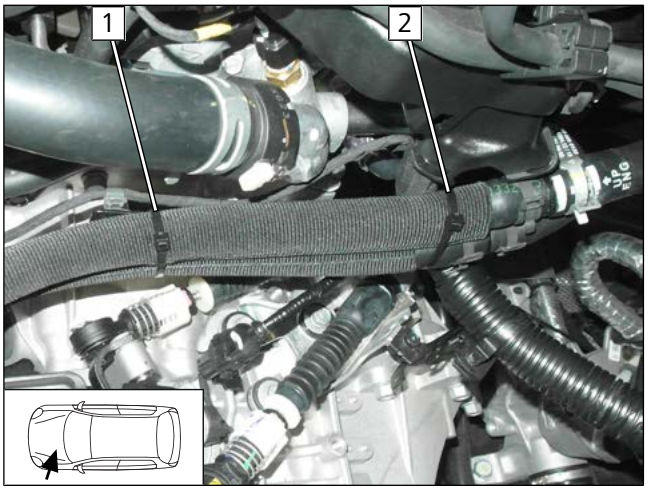


Fig. 101

1 Cable tie around hoses Ⓑ and Ⓖ and wiring harness bracket

2 Cable tie around hoses Ⓑ and Ⓖ and original vehicle wiring harness

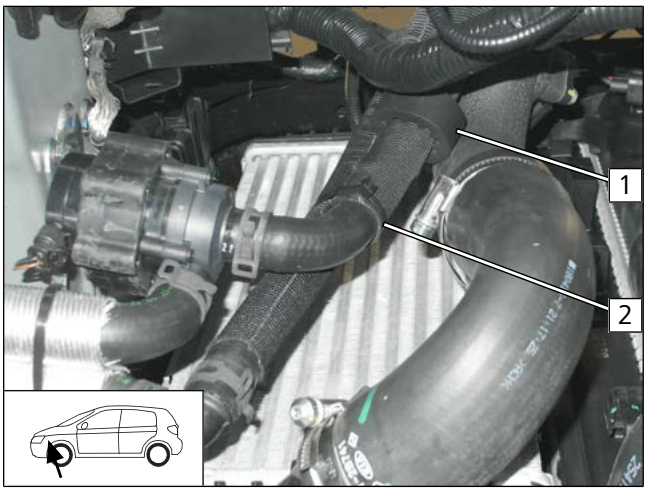


Fig. 102

1 Align black (sw) rubber isolator
2 Cable tie

12.3 Coolant circuit installation for veh. with AG

Mounting fabric heat shrink tubing

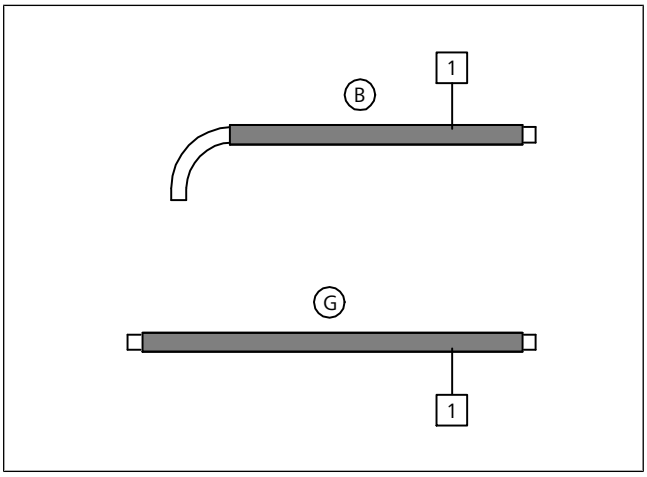


Fig. 103

▶ Push fabric heat shrink tubings 1 onto hose Ⓑ and hose Ⓖ, cut to length and shrink.

Mounting heat protection hose

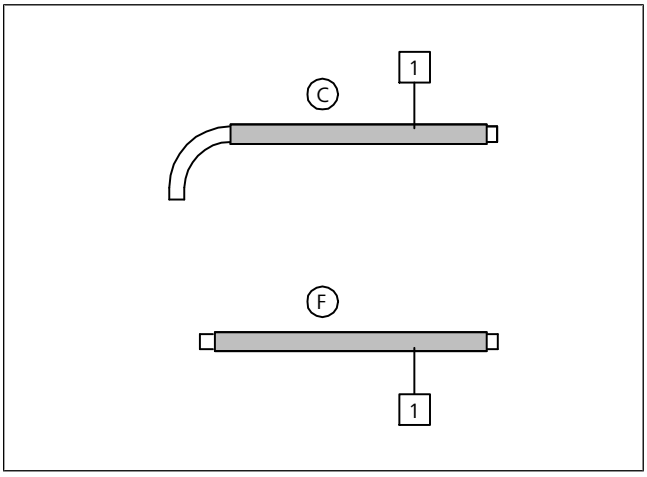


Fig. 104

Cut heat protection hose to length and push onto hose Ⓒ and hose Ⓕ.

1 Heat protection hose

Cutting point

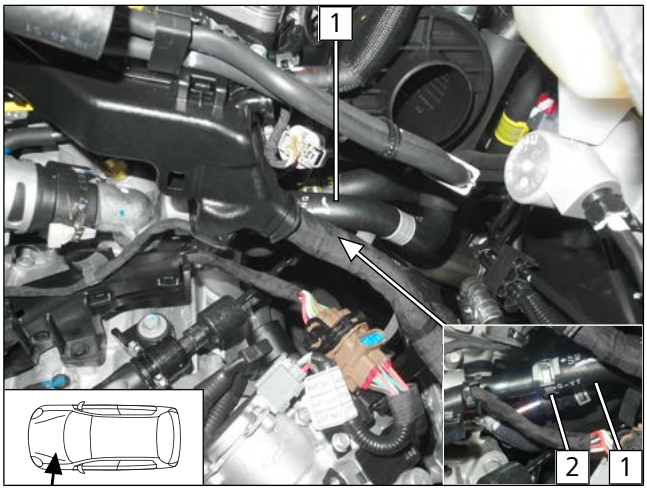


Fig. 105

▶ Remove engine outlet / heat exchanger inlet hose **1** from engine outlet connection piece. Original vehicle spring clip **2** will be reused.

Engine outlet connection

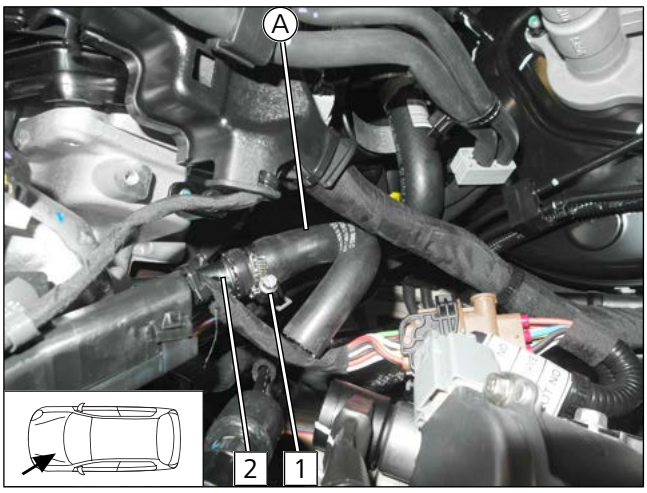


Fig. 106

1 Ø16-27 hose clamp

2 Engine outlet connection piece

Preparing coolant pump perforated bracket

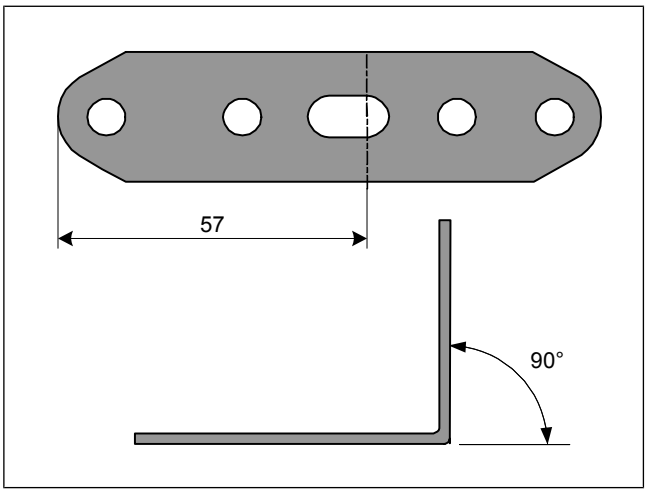


Fig. 107

Preparing coolant pump mount

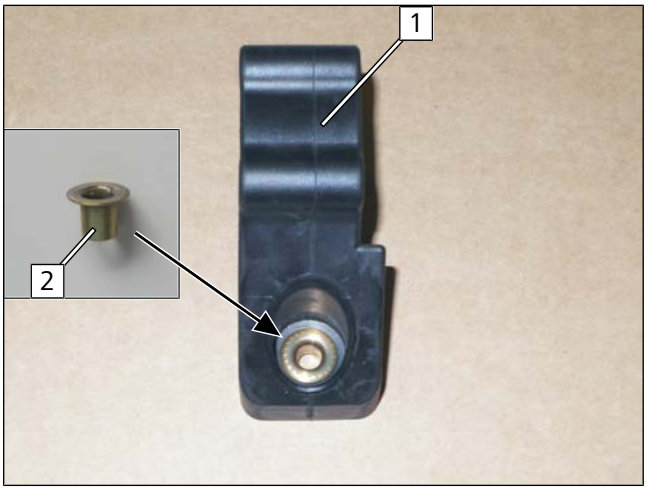


Fig. 108

1 Coolant pump mount
2 Sleeve

Premounting coolant pump

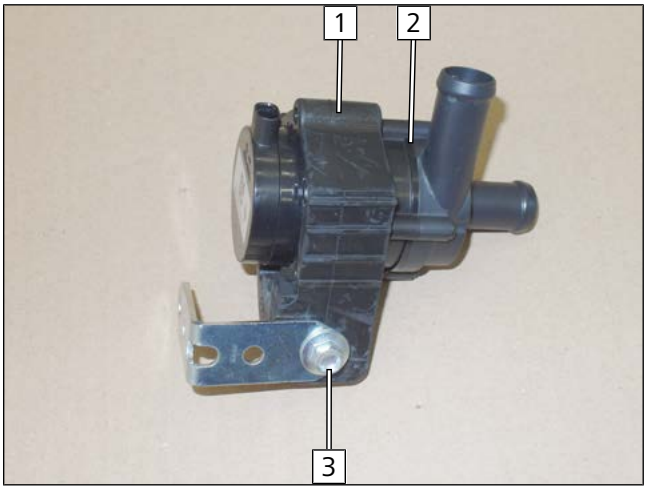


Fig. 109

1 Coolant pump mount
2 Coolant pump
3 M6x25 bolt, coolant pump mount, perforated bracket A, large diameter washer, flanged nut

Mounting coolant pump

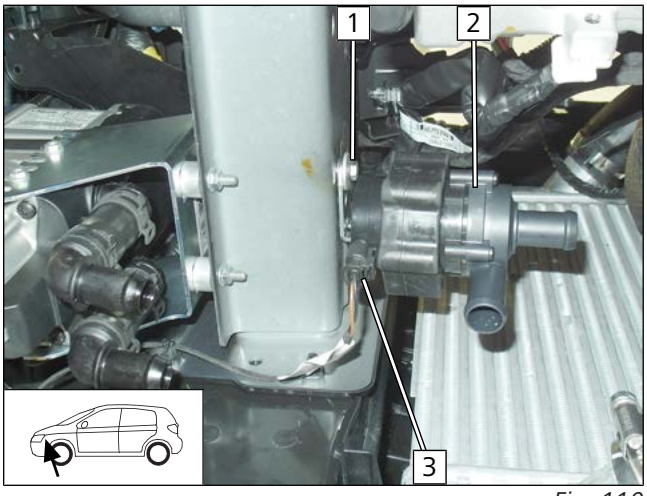


Fig. 110

1 M6x20 bolt, spring lockwasher
2 Coolant pump
3 Coolant pump wiring harness connector

Heater outlet connection

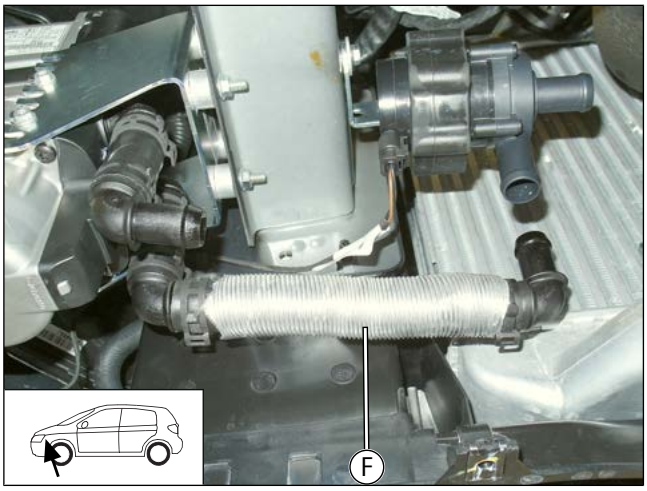


Fig. 111

Heater inlet and coolant pump outlet connection

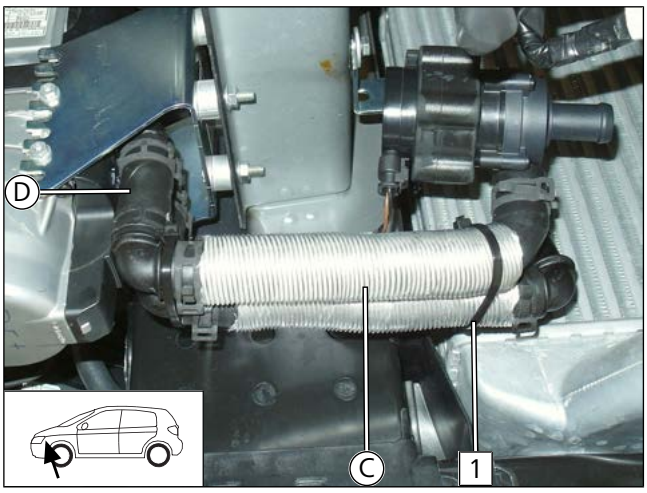


Fig. 112

1 Cable tie

Coolant pump inlet connection

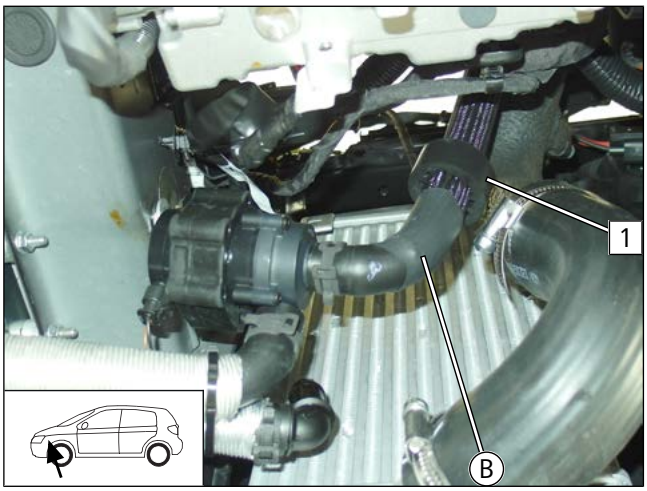


Fig. 113

1 Slide on black (sw) rubber isolator

Routing hose Ⓑ

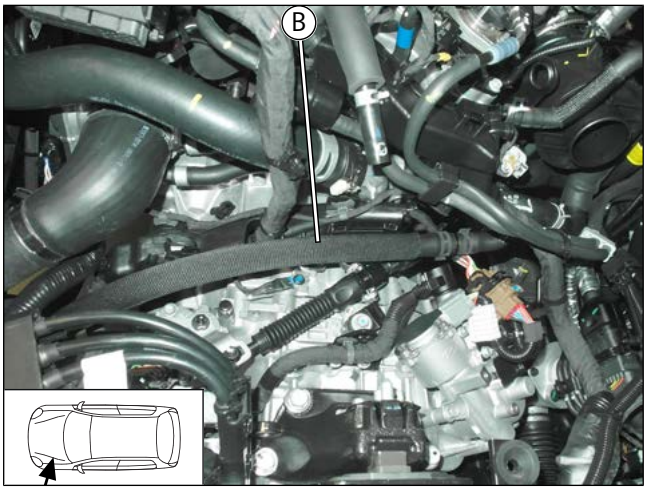


Fig. 114

Connection of hose Ⓑ to hose Ⓐ

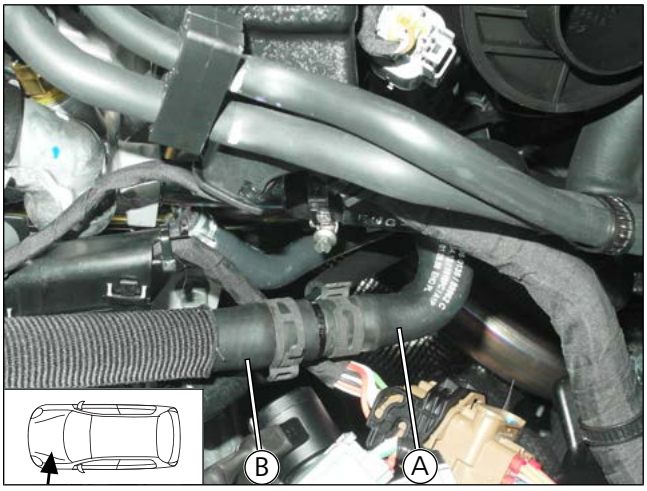


Fig. 115

Connection of hose Ⓖ to hose Ⓕ

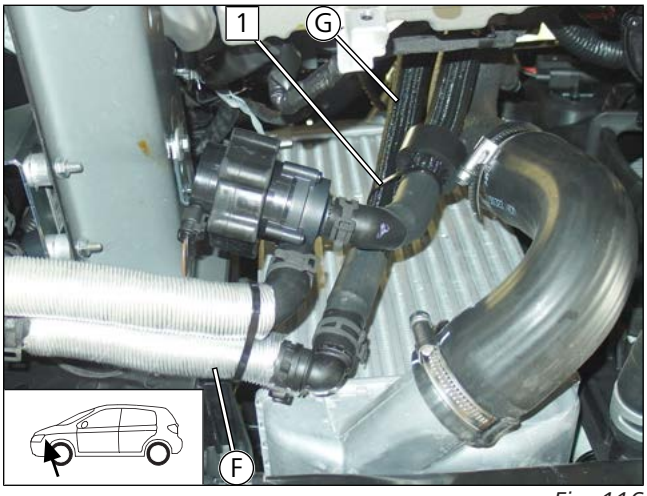


Fig. 116

[1] Cable tie

Routing hose Ⓖ

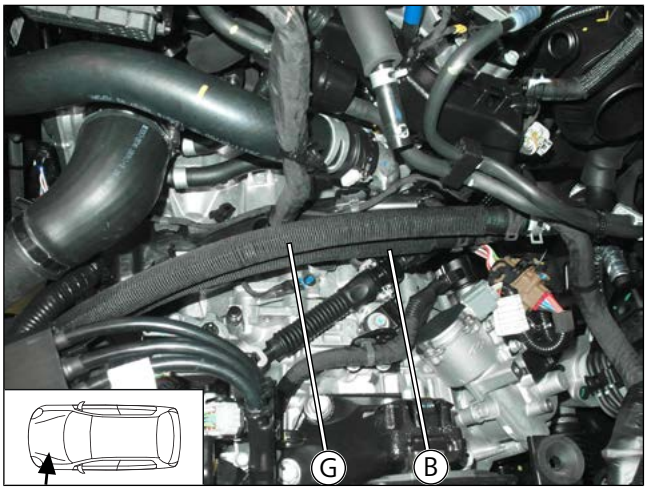


Fig. 117

Heat exchanger inlet connection

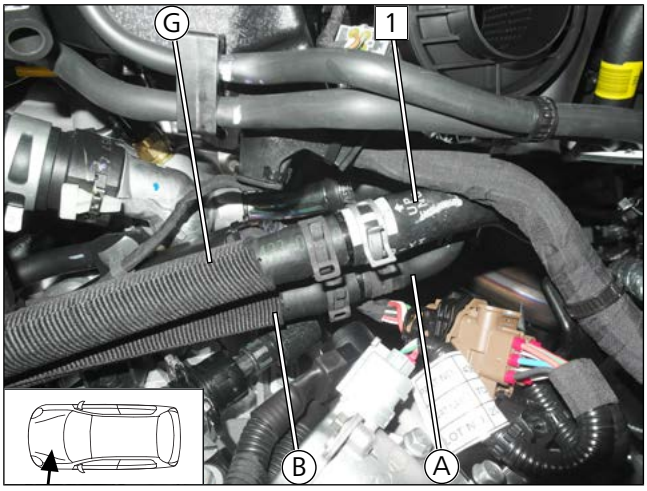


Fig. 118

1 Heat exchanger inlet hose section

Aligning and fastening hoses

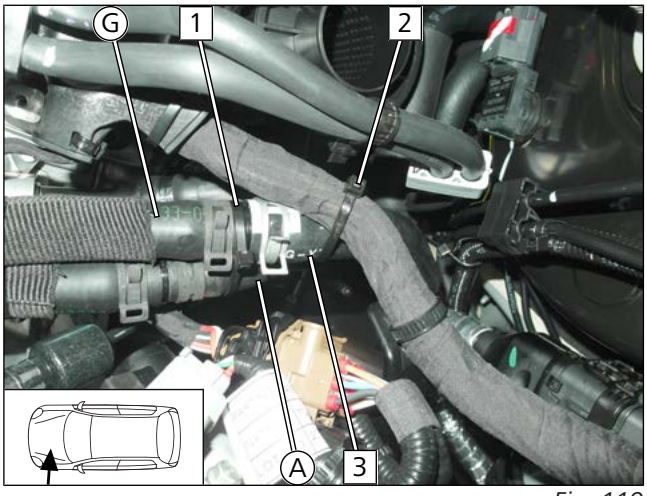


Fig. 119

1 Cable tie around hoses Ⓐ and Ⓖ

2 Cable tie around heat exchanger inlet hose section and original vehicle wiring harness

3 Heat exchanger inlet hose section

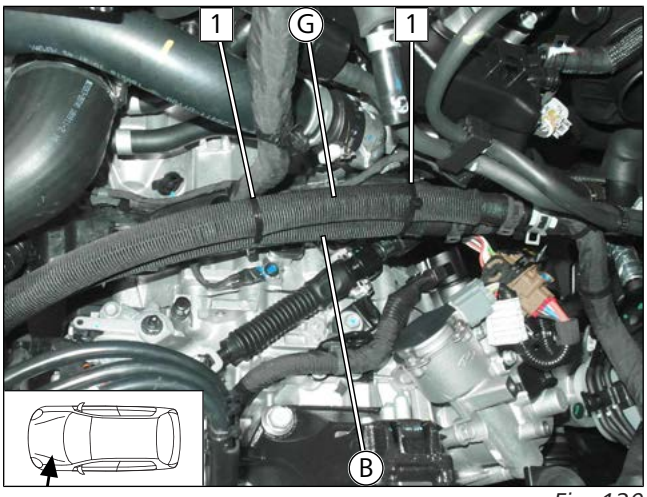


Fig. 120

1 Cable ties around hoses (B) and (G)

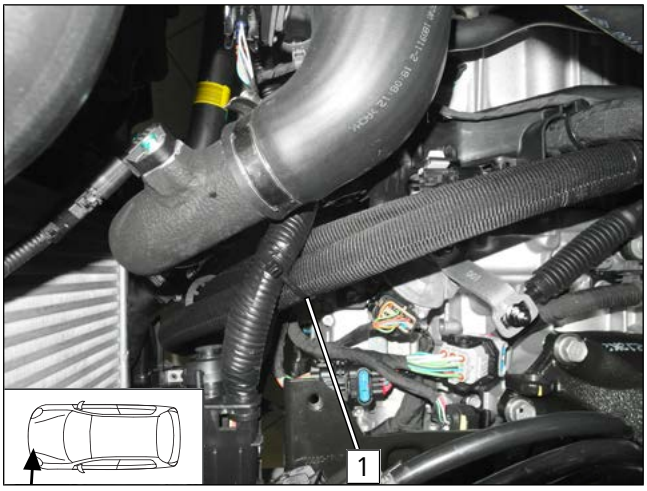


Fig. 121

1 Cable tie around hoses (B) and (G) and original vehicle wiring harness

Fig. 122

1 Align black (sw) rubber isolator
2 Cable tie

13 Exhaust

13.1 Mounting exhaust pipe

Cutting exhaust pipe to length

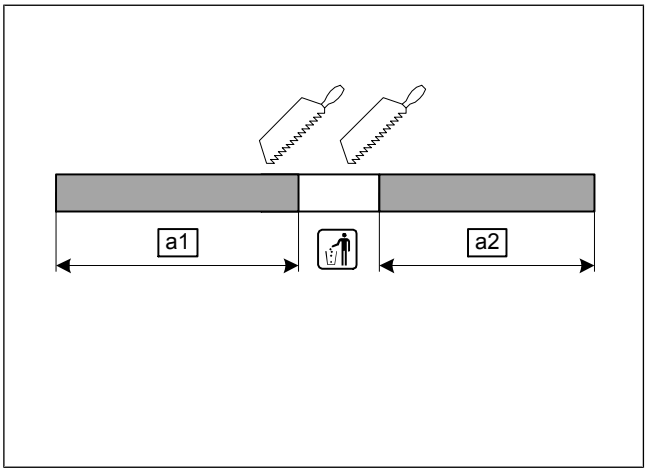


Fig. 123

a1 270
a2 250

Preparing perforated bracket

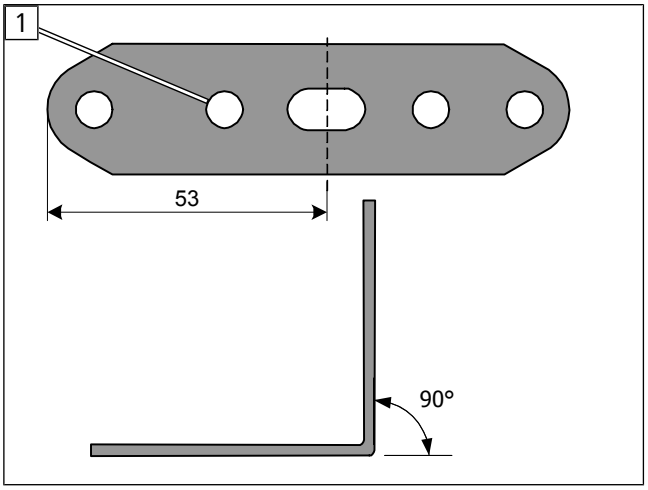


Fig. 124

1 Exhaust silencer fixing point

Premounting exhaust silencer

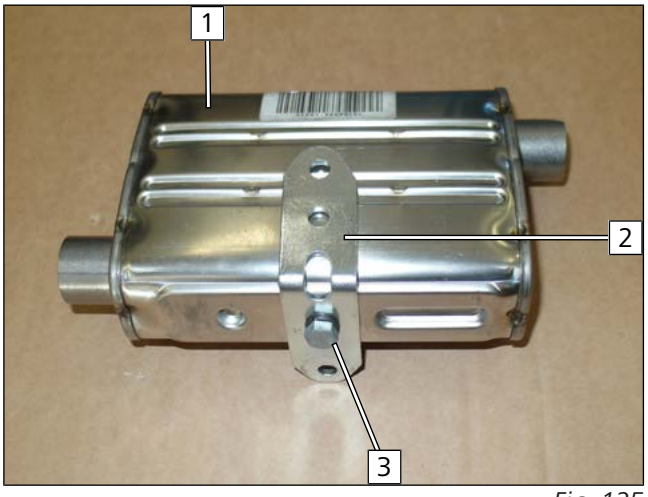


Fig. 125

1 Exhaust silencer
2 Perforated bracket
3 M6x16 bolt, spring lockwasher

Affixing heat protection film

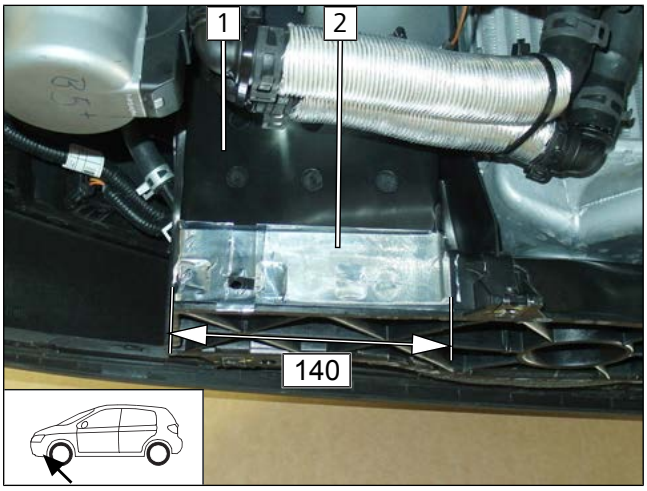


Fig. 126

1 Radiator cross member
2 Heat protection film

Mounting exhaust silencer

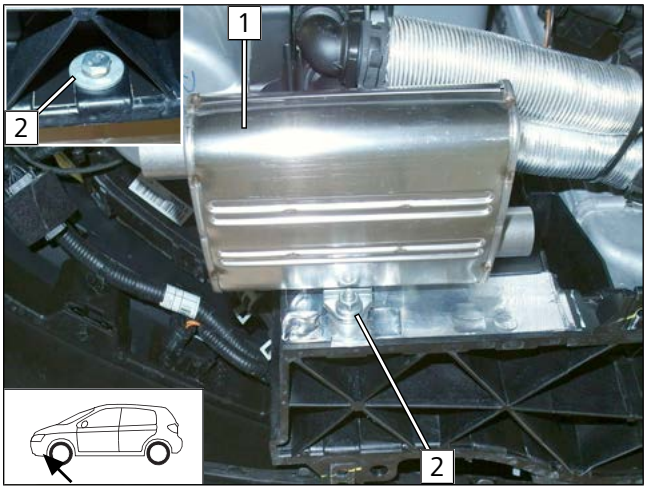


Fig. 127

1 Exhaust silencer
2 M6x30 bolt, large diameter washer, hole, distance washer (10), perforated bracket, flanged nut

Mounting exhaust pipe **a1**

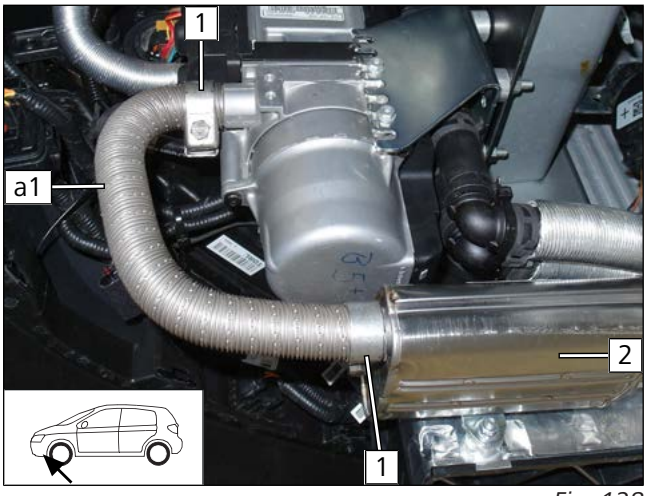


Fig. 128

1 Hose clamp
2 Exhaust silencer

Mounting exhaust pipe **a2**

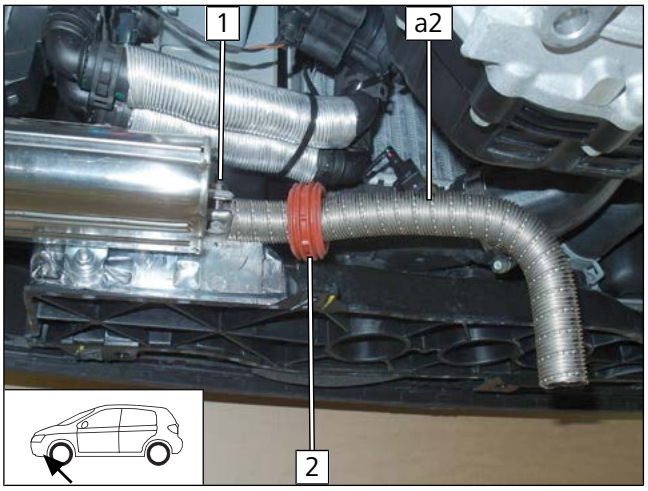


Fig. 129

1 Hose clamp
2 Slide on spacer bracket

Aligning exhaust pipe

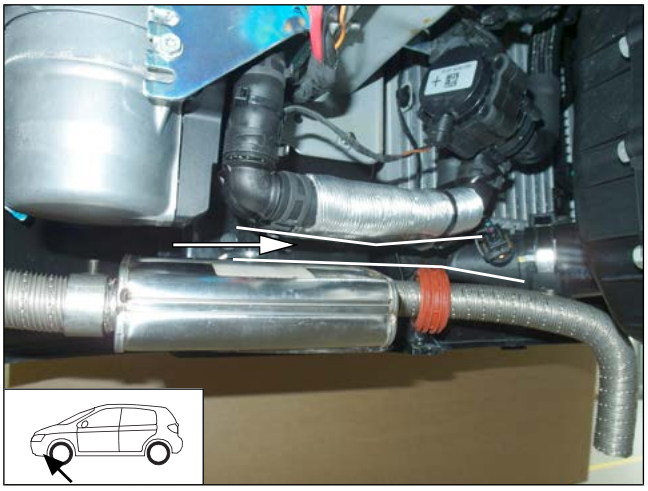


Fig. 130

Ensure sufficient distance from neighbouring components, correct if necessary.

13.2 Mounting exhaust end fastener

Work step E1

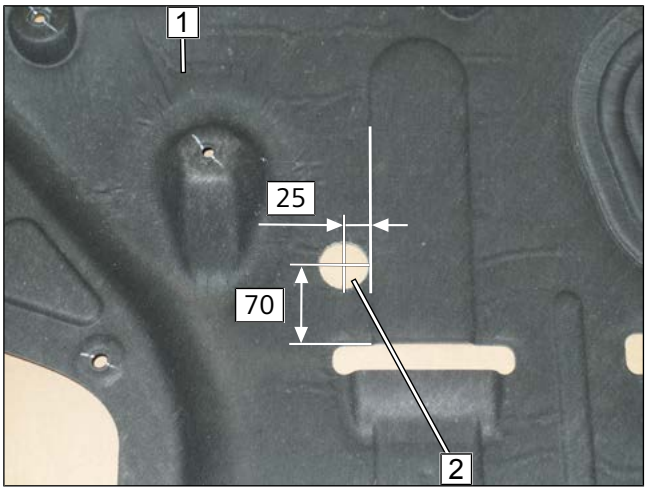


Fig. 131

Observe the EFIX installation instructions.

▶ Drill hole in underride protection.

1 Underride protection
2 Copy hole pattern, hole

Work step E3

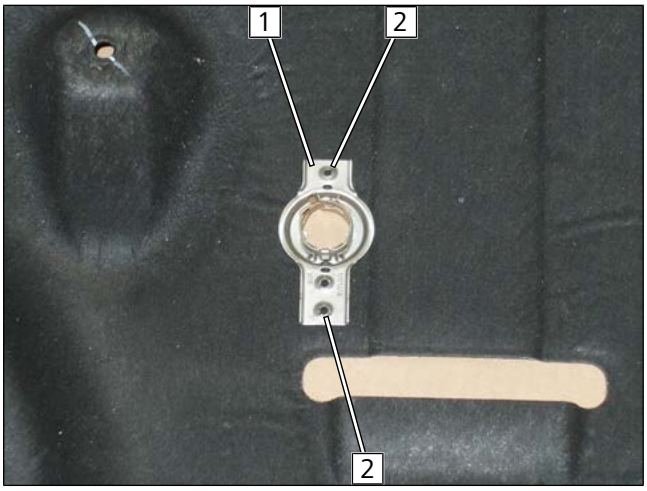


Fig. 132

▶ Copy hole pattern.

1 EFIX
2 Hole pattern

Work step E4

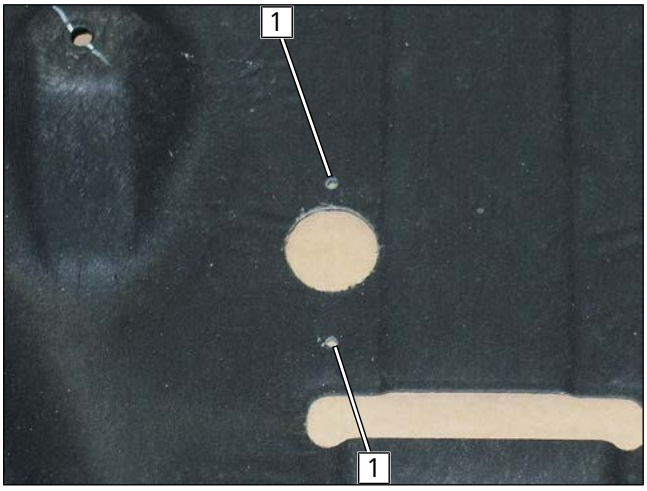


Fig. 133

▶ Drill holes in underride protection.

1 Hole

Work step E5

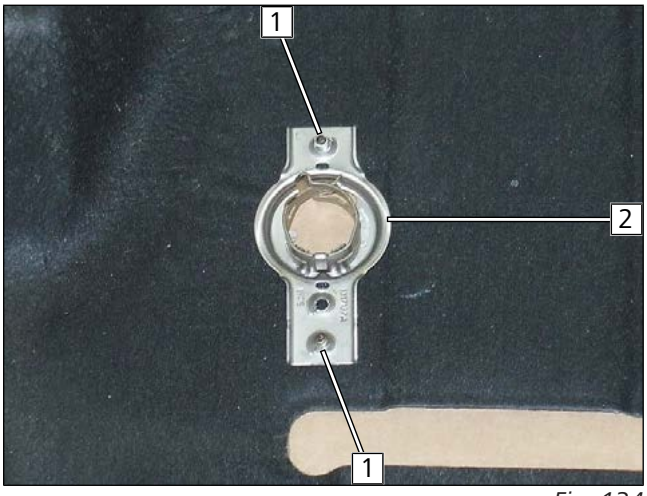


Fig. 134

▶ Mount exhaust end fastener.

1 5x13 self-tapping screw
2 EFIX

Work steps E6-E8

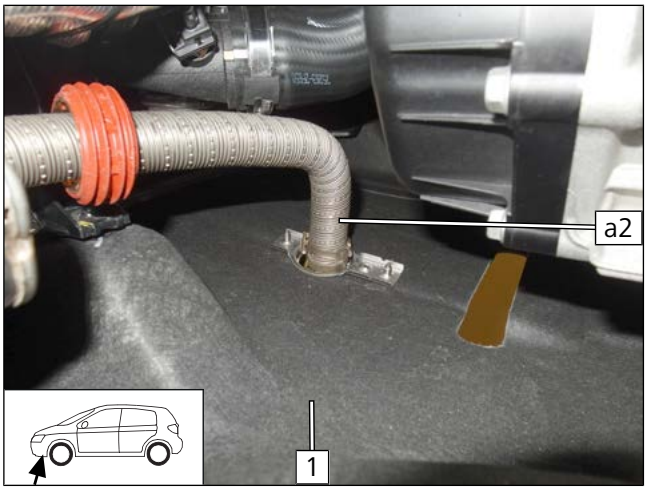


Fig. 135

▶ Mount exhaust pipe **a2**.

1 Underride protection

14 Final work in engine compartment

Aligning black (sw) rubber isolator

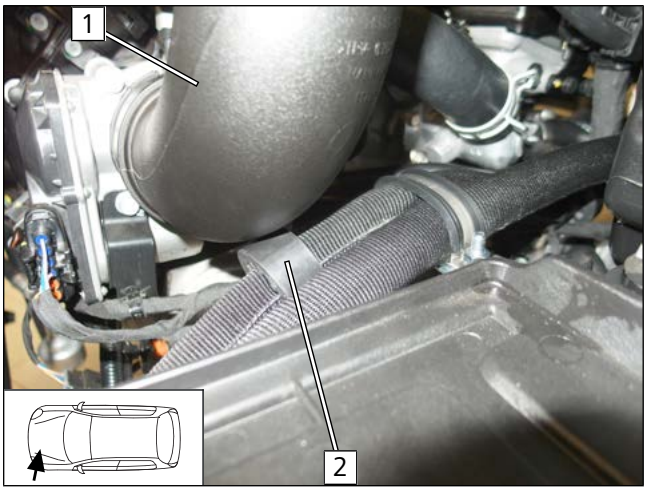


Fig. 136

97kW only

Danger of damage to components

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

▶ Mount charge-air tube [1] and align black (sw) rubber isolator [2].

Fastening hoses

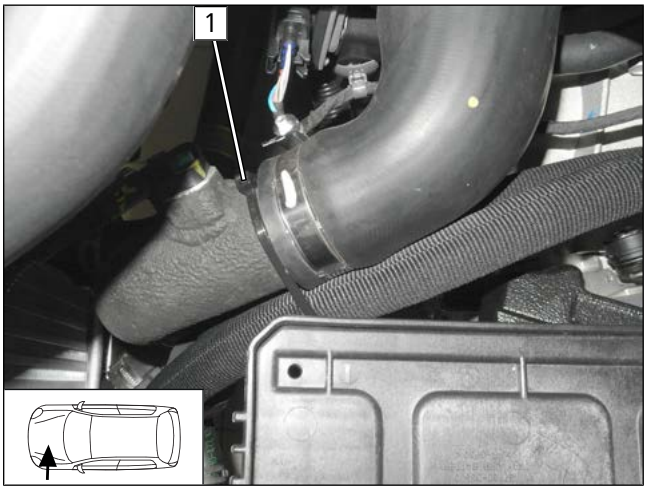


Fig. 137

130kW SG only

Danger of damage to components

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

▶ Fasten hoses (B) and (G) to charge-air tube using cable tie [1].

15 Electrical system of passenger compartment

15.1 Mounting cold start system

Integrate the cold start system as per the separate installation documentation **'Cold start for Hyundai Kona / Hyundai Tucson / Kia Sportage petrol'**.

15.2 Electrical system preparation

Preparing / assigning wires

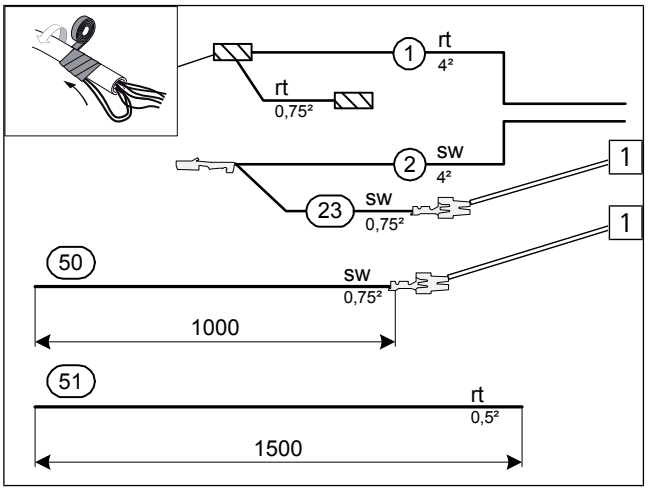


Fig. 138

Wire sections retain their numbering in the entire document.

▶ Insert red (rt) wire (51) in provided protective sleeving.

[1] Flat spring contact
(1) Red (rt) wire of fan wiring harness
(2) Black (sw) wire of fan wiring harness

Connecting wires to RSH

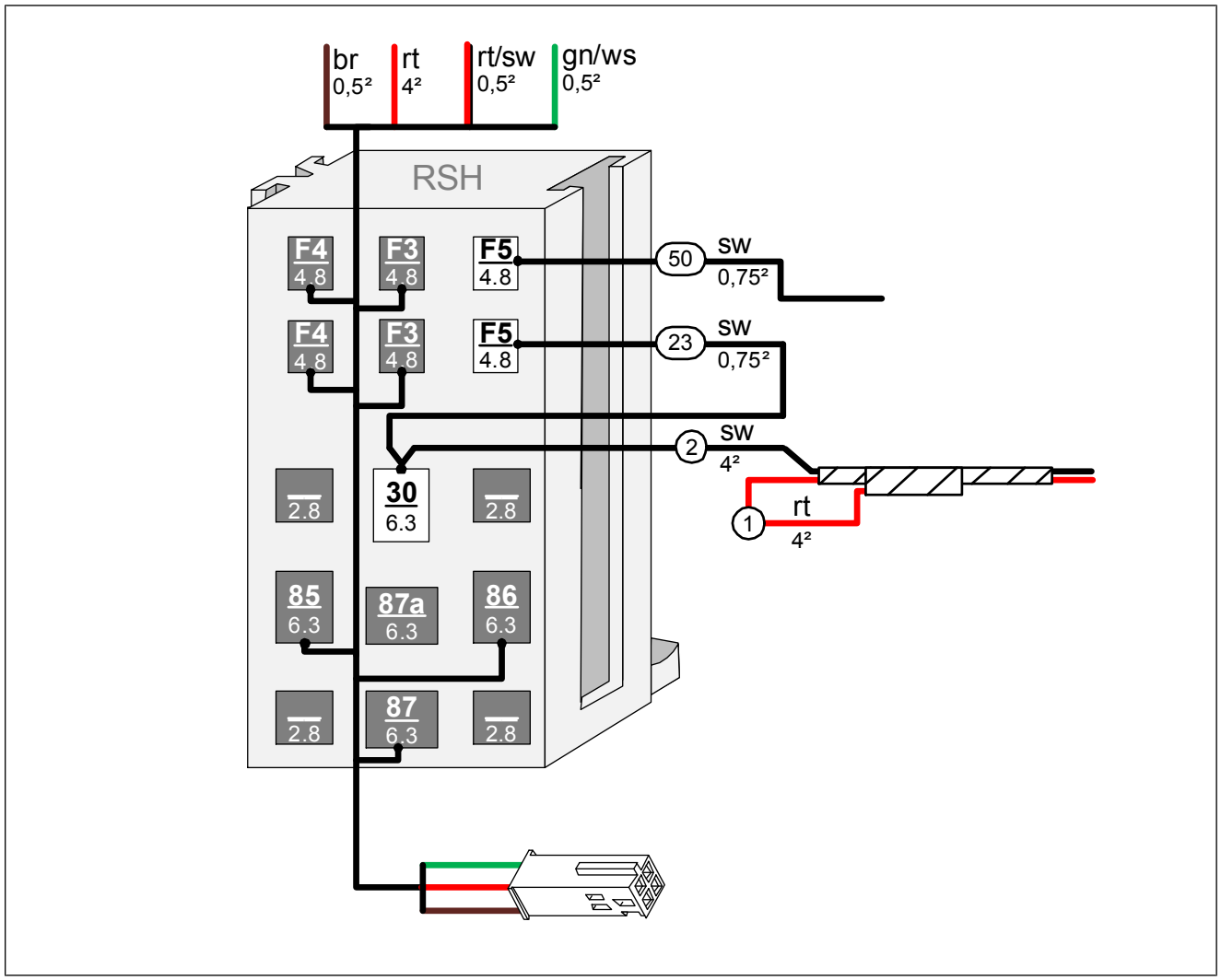


Fig. 139

Premounting RSH

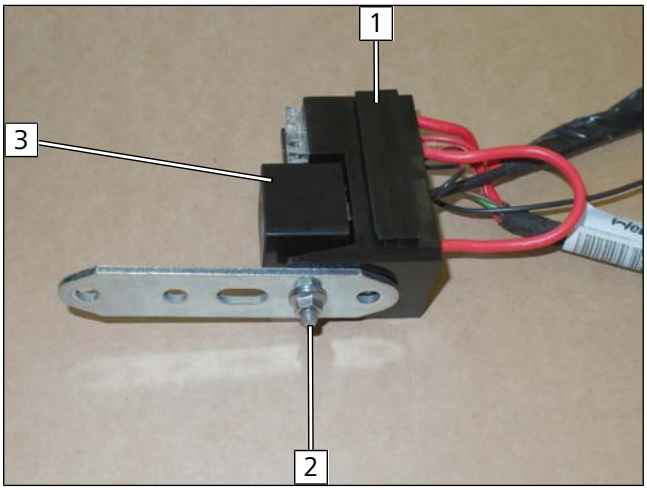


Fig. 140

1 RSH

2 Mount M5x16 bolt, large diameter washer, RSH, perforated bracket, large diameter washer, nut loosely

3 Relay K1

15.3 A/C control panel dismantling instructions for Hyundai Tucson

Detaching switch unit

Fig. 141

1 Switch unit
O Attachment points

Disconnecting switch unit

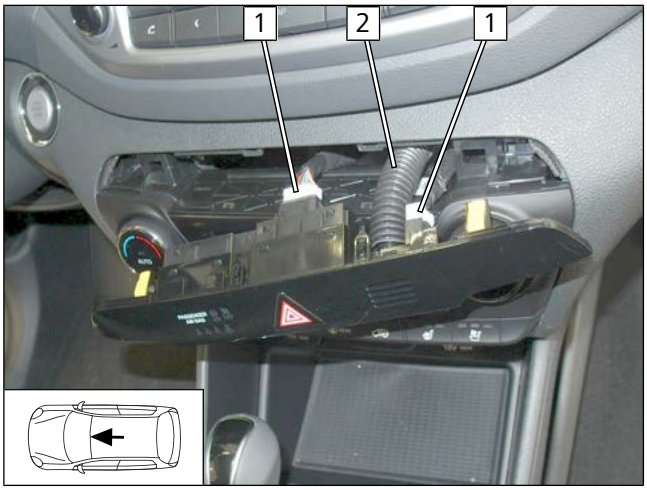


Fig. 142

1 Pull off original vehicle connector
2 Pull off original vehicle hose

Removing bolts and detaching A/C control panel

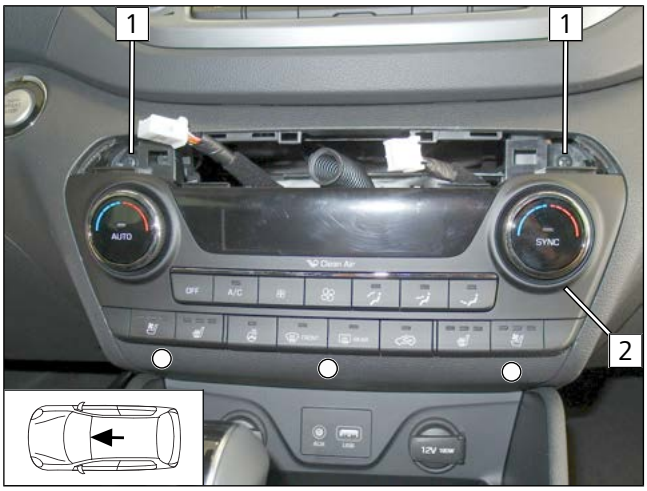


Fig. 143

1 Original vehicle bolt
2 A/C control panel
O Attachment points

15.4 A/C control panel dismantling instructions for Kia Sportage

Detaching centre console trim

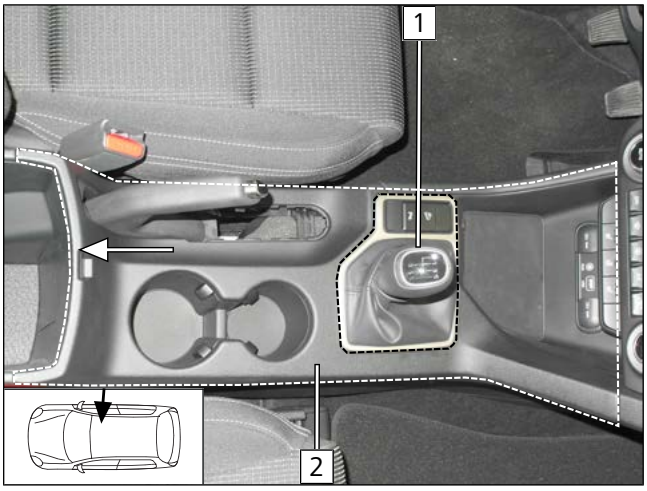


Fig. 144

1 Gear knob with trim
2 Centre console trim

Dismantling instrument panel trim

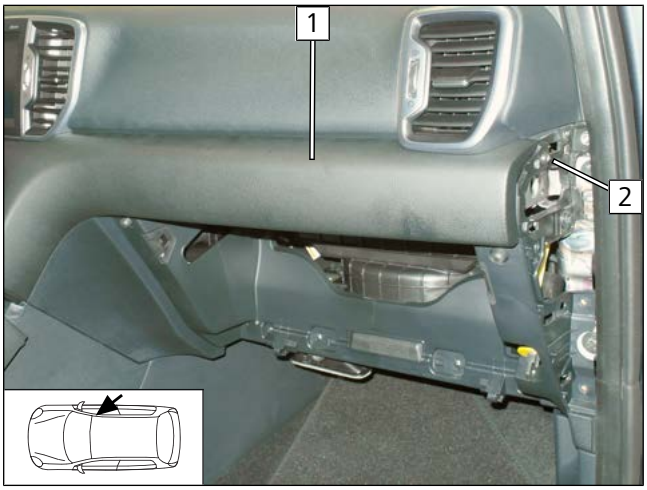


Fig. 145

▶ Remove cross-head screw 2 and pull off instrument panel trim 1.

Dismantling glove box, detaching glove box bracket

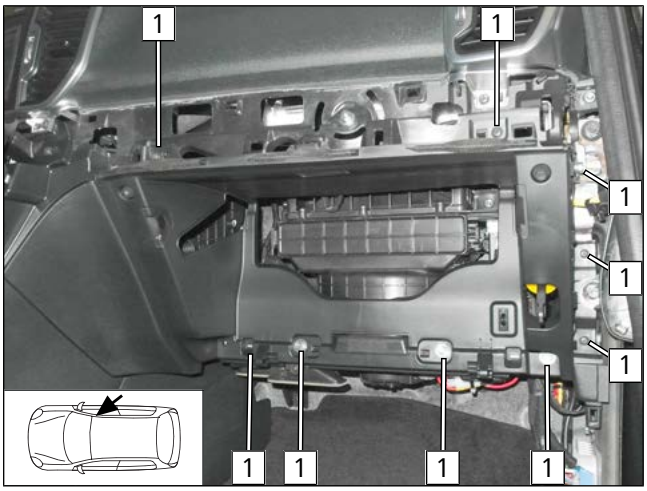


Fig. 146

1 Original vehicle bolt

Removing the A/C control panel

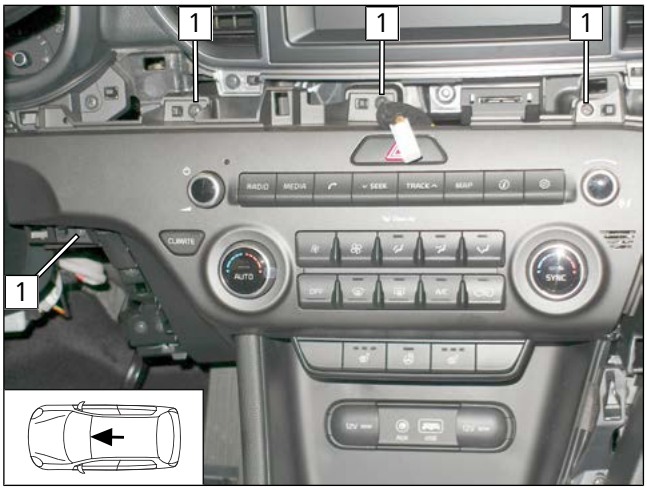


Fig. 147

1 Original vehicle bolt

15.5 Wiring diagram

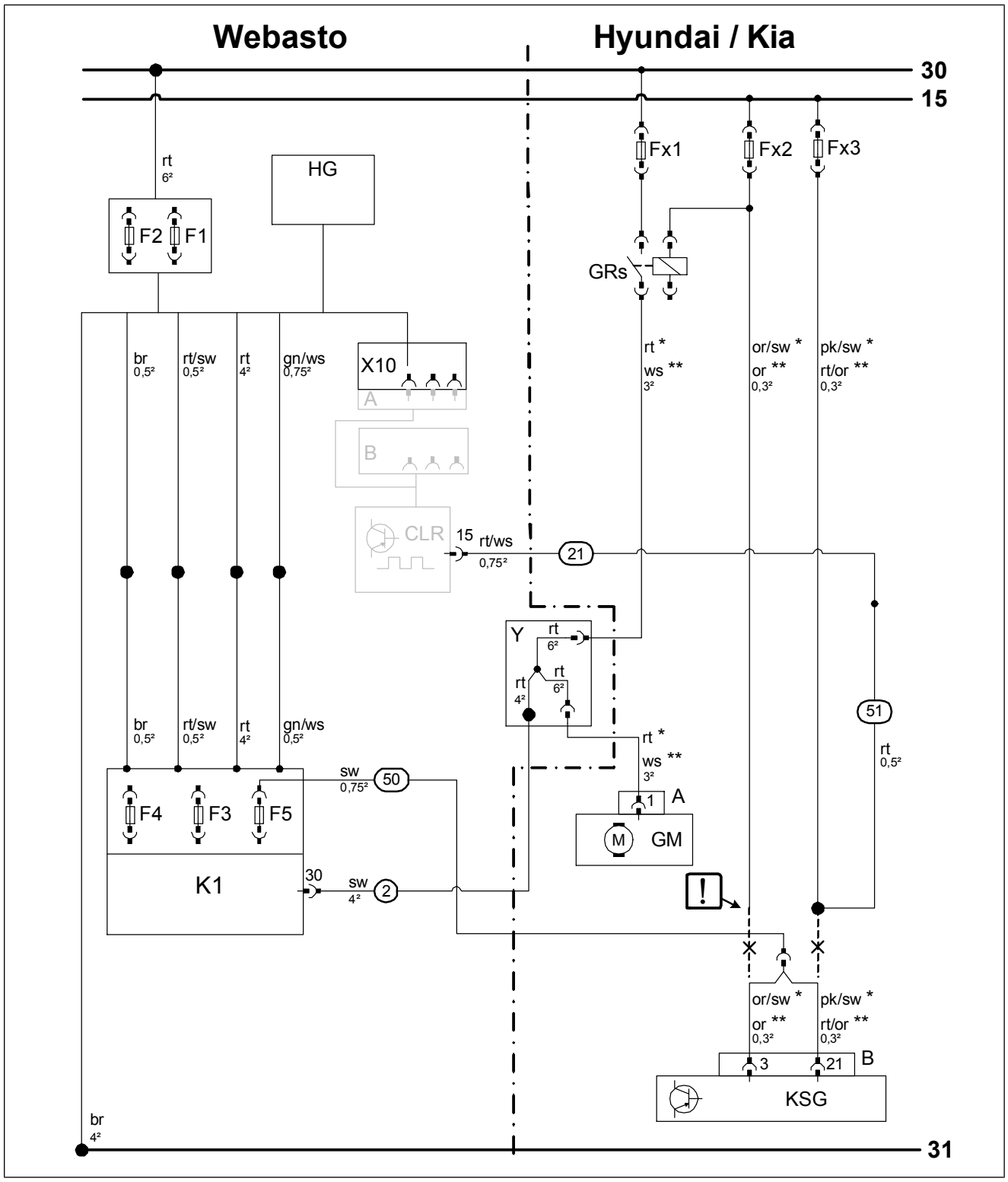


Fig. 148

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	Designation
Fx1	Fuse	X	Cutting point
Fx2	Fuse		insulate and tie back
Fx3	Fuse		
GRs	Fan relay	*	Hyundai Tucson
GM	Fan motor	**	Kia Sportage
A	2-pin GM connector		
KSG	Air-conditioning control unit		
B	40-pin KSG connector		

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
A	Male plug for CLR module wiring harness	bg	beige
B	Female plug for CLR module wiring harness	bl	blue
C	Male plug for adapter wiring harness	br	brown
D	Female plug for adapter wiring harness	dbl	dark blue
E	Male plug for Plug&Play wiring harness	dgn	dark green
F	Female plug for Plug&Play wiring harness	ge	yellow
CCL GW	CAN CAN LIN Gateway	gn	green
CL GW	CAN LIN Gateway	gr	grey
CLR	Cold start module	hbl	light blue
D1	Diode	hgn	light green
D2	Diode group	la	salmon
F0	Additional fuse for power supply	or	orange
F1	Heater main fuse	pk	pink
F2	Passenger compartment fan controller main fuse	rt	red
F3	Control element fuse	sw	black
F4	Fan controller fuse	vi	violet
F5	Additional fuse	ws	white
HG	Heater TT-Evo		
K1	Relay K1		
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	Female plug for control element		
Y	Power adapter		

15.6 Fan controller

Mounting RSH

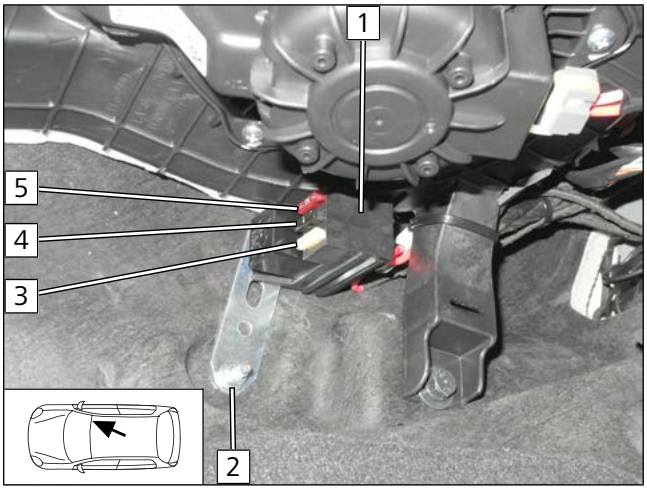


Fig. 149

The system wiring diagram is the basis to make the following electrical connections and for the corresponding cable colours.

1. RSH
2. Original vehicle stud bolt, perforated bracket, M6 flanged nut
3. 25A fuse F4
4. 1A fuse F3
5. 7.5A fuse F5

Connecting same colour wires of wiring harnesses

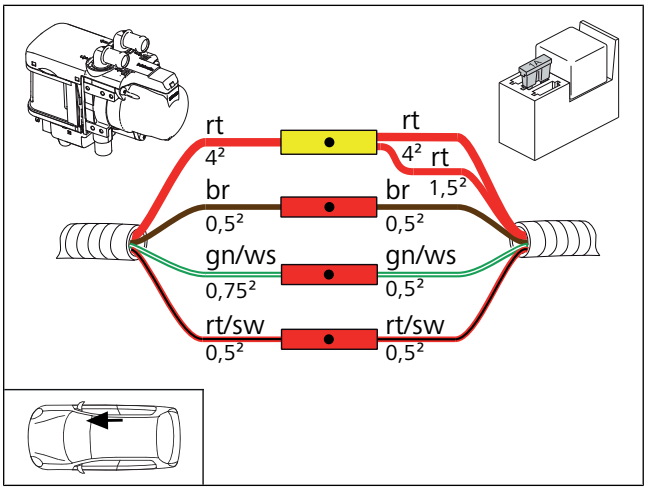


Fig. 150

Fan motor connection

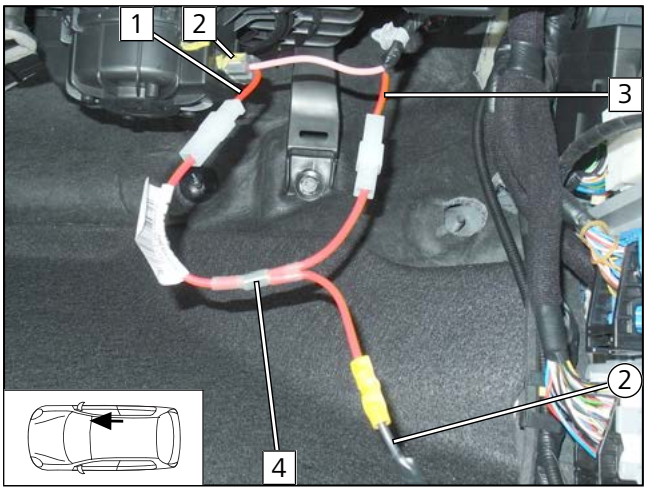


Fig. 151

1. Wire of connector A, pin 1
2. 2-pin connector A of GM
3. Wire of original vehicle fan relay
4. Y power adapter

② Black (sw) wire of K1/30 fan wiring harness

Disconnecting connector

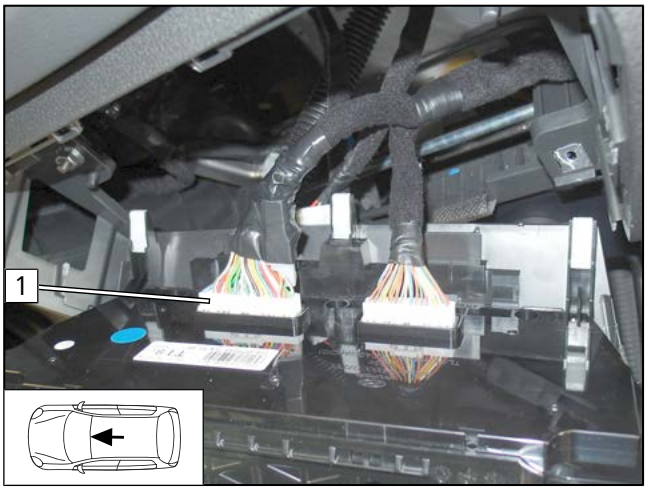


Fig. 152

1 40-pin connector B

View of connector B

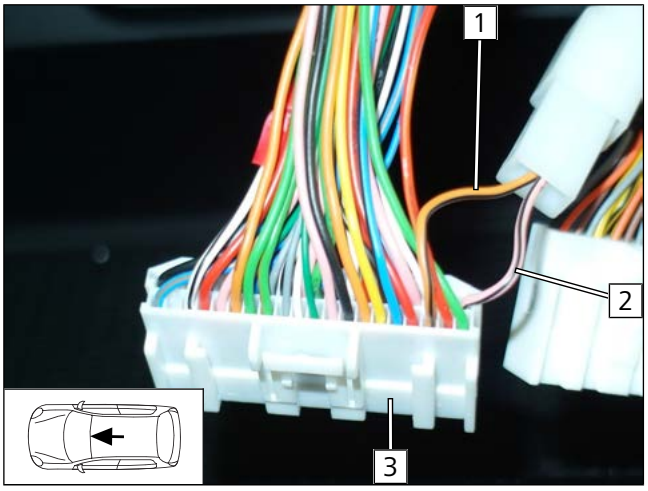


Fig. 153

1 Wire, pin 3
2 Wire, pin 21
3 40-pin KSG connector B

Connecting KSG

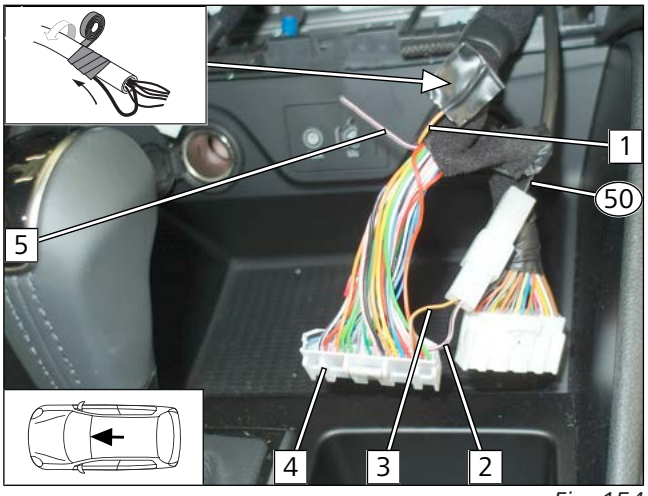


Fig. 154

1 Wire of fuse Fx2
2 Wire of 40-pin connector B, pin 21
3 Wire of 40-pin connector B, pin 3
4 40-pin KSG connector B
5 Wire of fuse Fx3
50 Black (sw) wire of fuse F5

Connecting wires (21) and (51)

▶ Route wire (51) after the connection to the centre console.

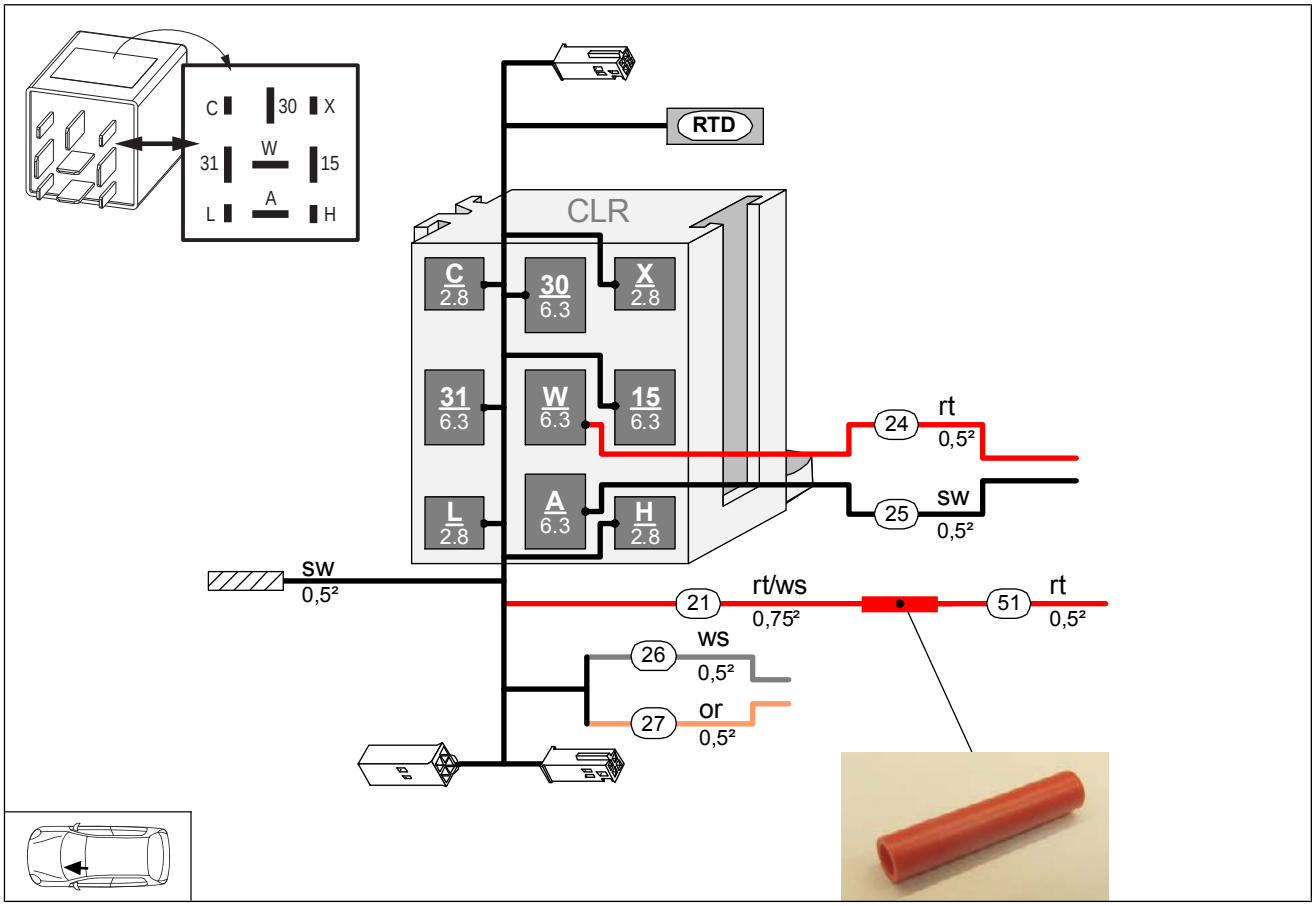


Fig. 155

Connection of wire (51)

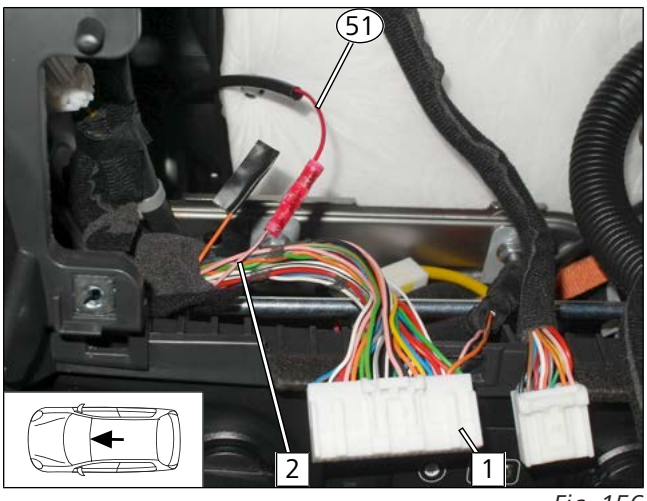


Fig. 156

1 40-pin KSG connector B

2 Wire of fuse Fx3

(51) Red (rt) wire from red/white (rt/ws) wire of CLR module, pin 15

16 Electrical system of control elements

16.1 MultiControl CAR option

Mounting MultiControl CAR

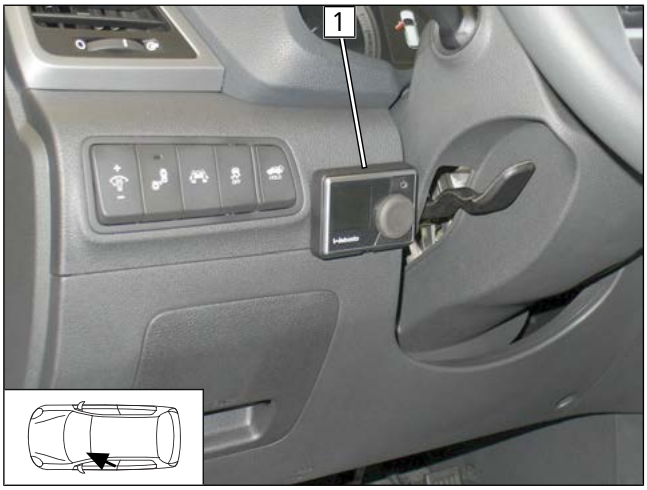


Fig. 157

Observe the MultiControl CAR installation documentation.

1 Installation frame

16.2 Telestart option

Preparing receiver

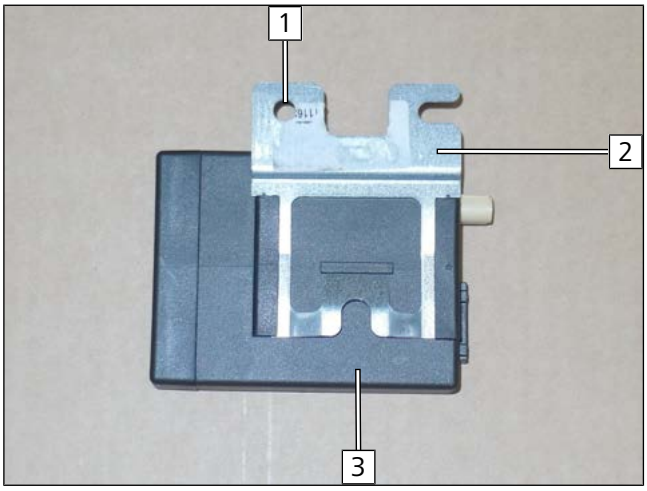


Fig. 158

Observe the Telestart installation documentation.

1 Drill out hole to Ø8.5
2 Bracket
3 Receiver

Mounting receiver

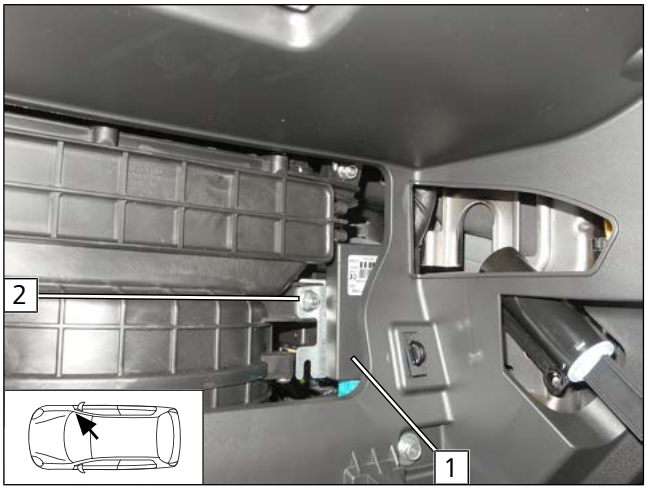


Fig. 159

1 Receiver
2 Original vehicle nut, receiver bracket

Mounting temperature sensor, only in case of T100 HTM

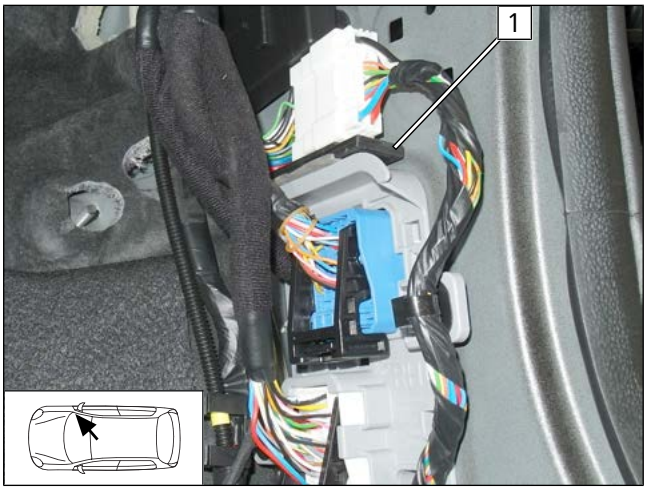


Fig. 160

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

Mounting aerial

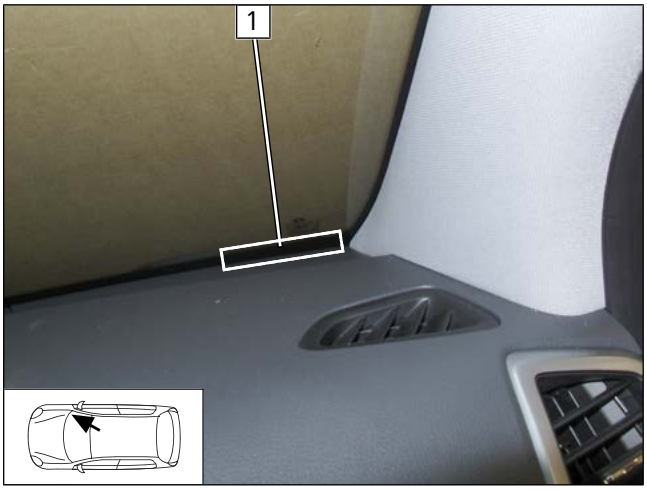


Fig. 161

1 Aerial

16.3 ThermoCall option

Mounting receiver

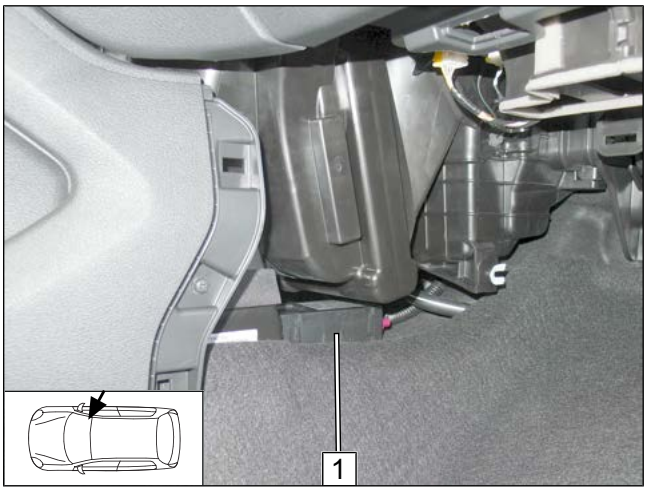


Fig. 162

▶ Fasten receiver 1 using double-sided adhesive tape.

Mounting aerial (optional)

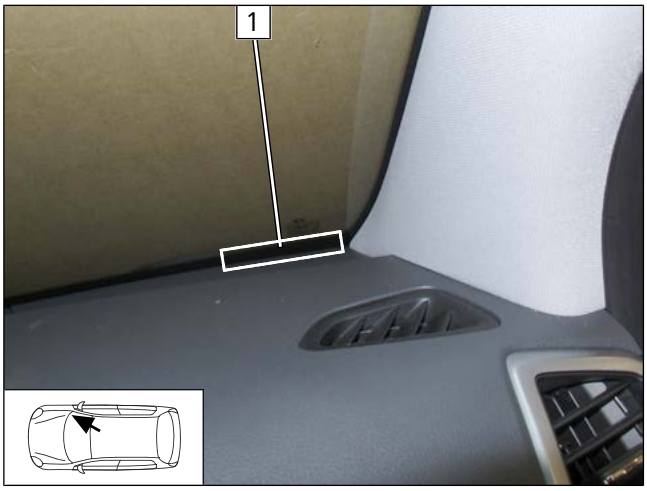


Fig. 163

1 Aerial

17 Final Work

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

- ▶ Mount removed parts in reverse order.

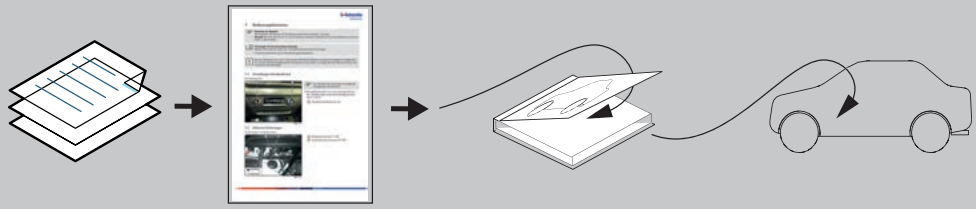
- ▶ Check all hoses, clamps and all electrical connections for firm seating.
- ▶ Insulate and tie back loose lines
- ▶ Spray heater and electrical components with anti-corrosion wax (Tectyl 100K).
- ▶ Connect the battery.

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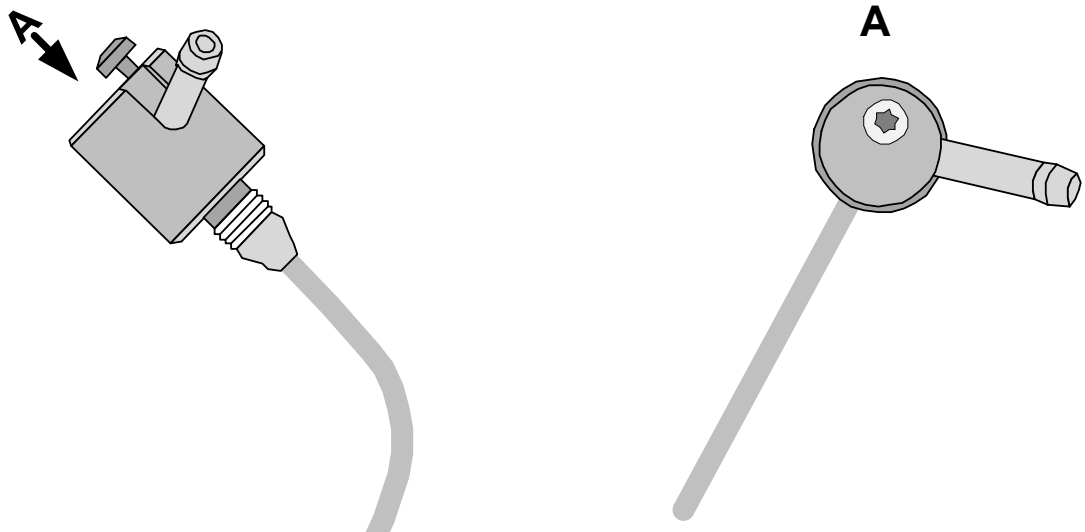
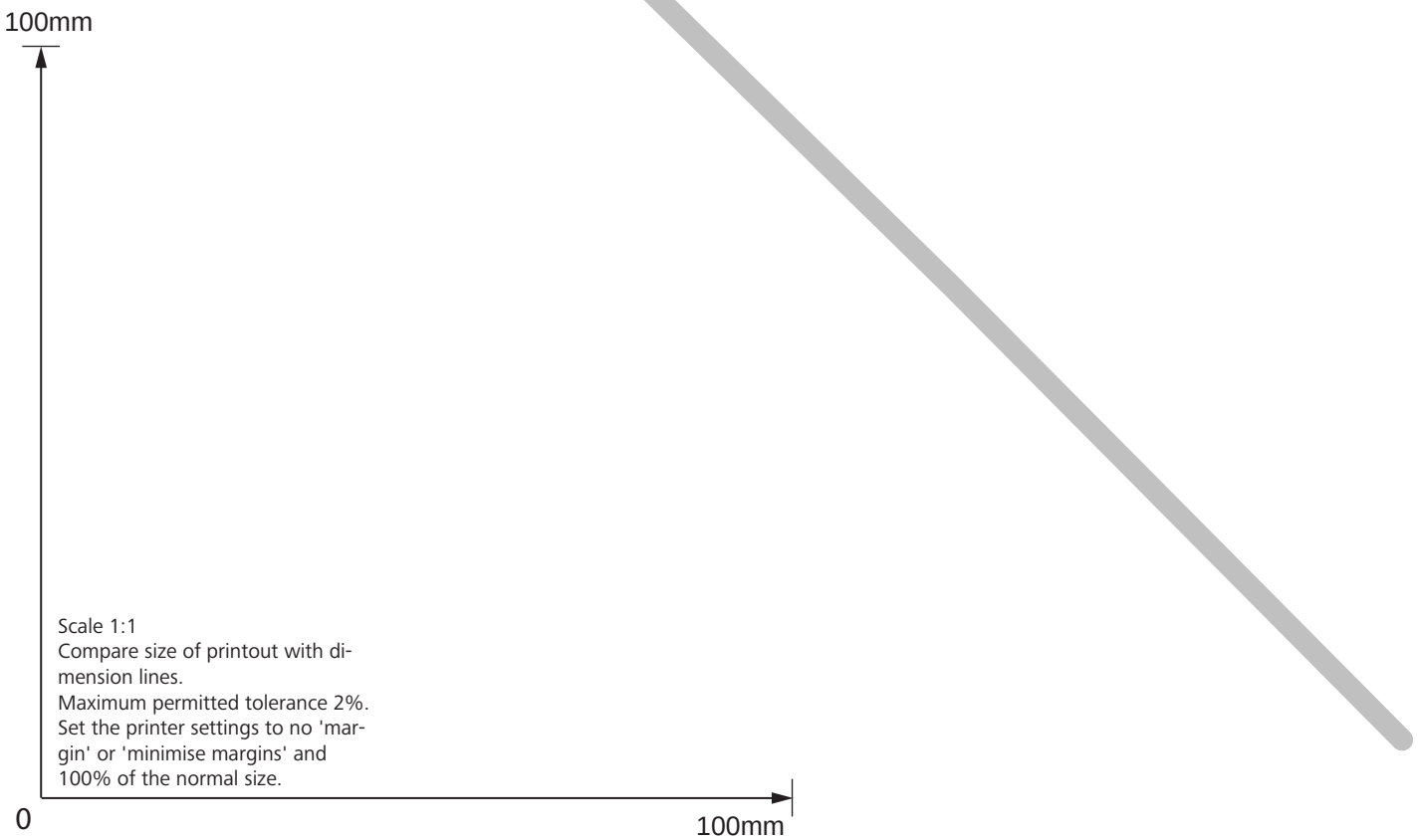
Technical Extranet: https://dealers.webasto.com

CE

WWW.WEBASTO.COM

18 FuelFix 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 automatic air-conditioning of Hyundai Tucson

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

Note for parking heater function

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

19.1 A/C control panel settings

Automatic A/C control panel

Fig. 164

Before parking the vehicle, make the following settings:

1 Temperature on both sides to 'HI'
2 Air outlet to windscreen
3 Set fan to level '2' to '3'

19.2 Installation location of fuses

Fuses in engine compartment

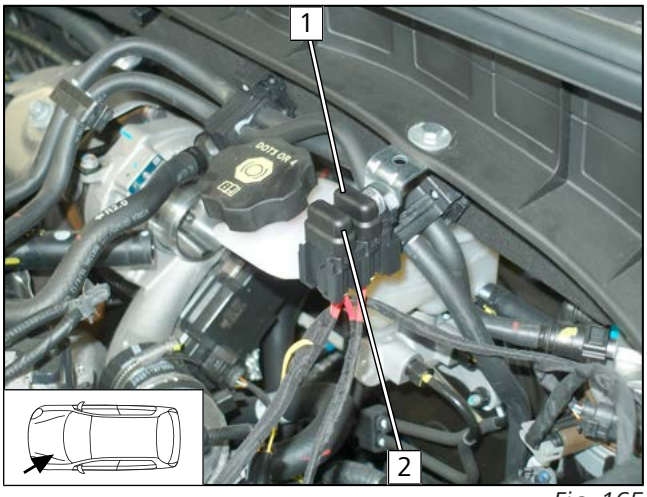


Fig. 165

1 F2 - 30A main fuse of passenger compartment
2 F1 - 20A heater fuse

Fuses in passenger compartment

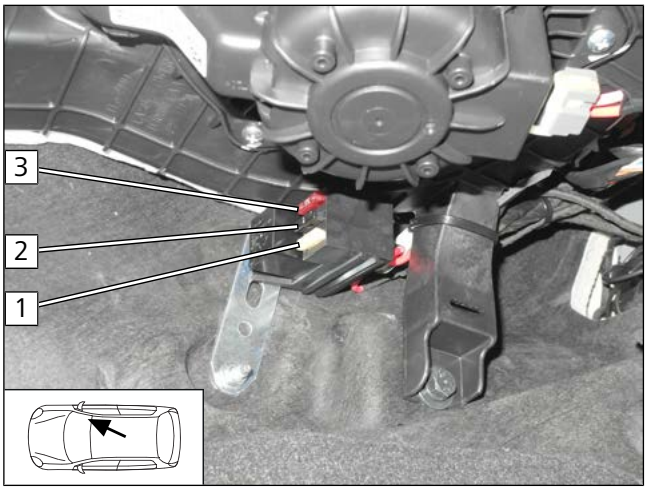


Fig. 166

1. F4 - 25A fan fuse
2. F3 - 1A control element fuse
3. F5 - 7.5A A/C control panel fuse

20 Operating instructions for automatic air-conditioning of Kia Sportage

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

Note for parking heater function

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

20.1 A/C control panel settings

Automatic A/C control panel

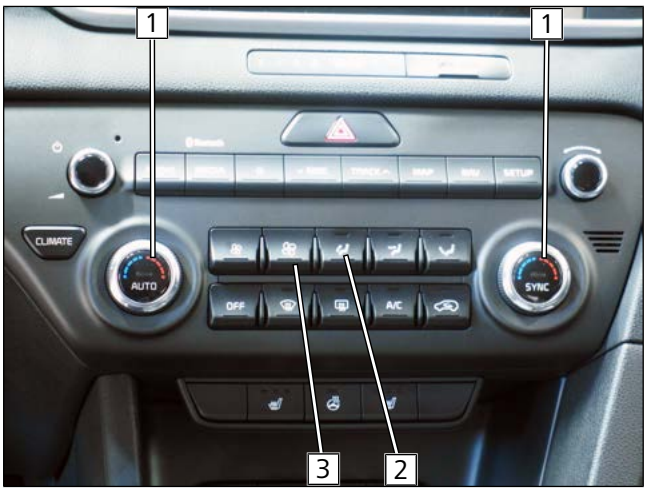


Fig. 167

Before parking the vehicle, make the following settings:

1. Temperature on both sides to 'HI'
2. Air outlet to windscreen
3. Set fan to level '2' to '3'

20.2 Installation location of fuses

Fuses in engine compartment

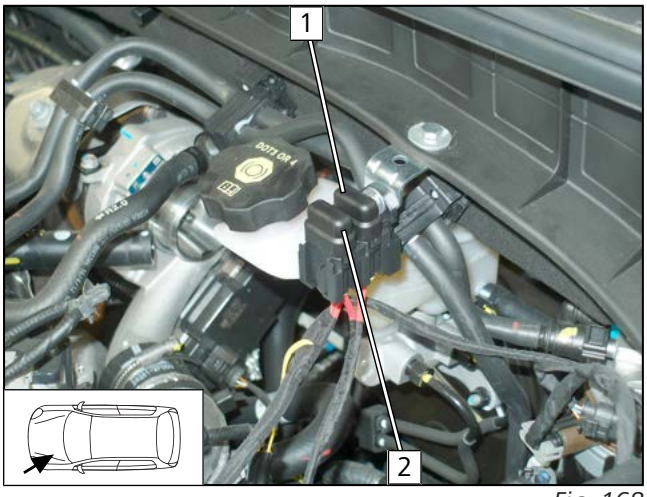


Fig. 168

1. F2 - 30A main fuse of passenger compartment
2. F1 - 20A heater fuse

Fuses in passenger compartment

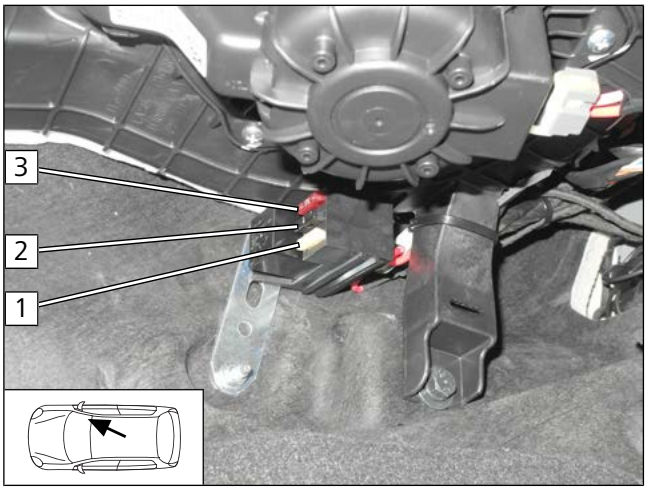


Fig. 169

1 F4 - 25A fan fuse
2 F3 - 1A control element fuse
3 F5 - 7.5A A/C control panel fuse