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Installation documentation

for water heater Thermo Top Evo

'Island' coolant circuit without 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*…
Hyundai	Tucson	TLE	from 2019	e5* 2007/46* 1076*…

Motorisation	Fuel	Emission standard	Transmission type	Output [kW]	Displace-ment [cm³]	Engine code
1.6 CRDi	Diesel	Euro 6d Temp	AG	100	1598	D4FE
2.0 CRDi	Diesel	Euro 6d Temp	AG	136	1995	D4HA

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 CRDi	Diesel	Euro 6d Temp	AG	100	1598	D4FE
2.0 CRDi	Diesel	Euro 6d Temp	AG	136	1995	D4HA

Validity	Equipment variants	Model	
		Tucson	Sportage
Verified equipment variants	2 zone 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
Unverified equipment variants	Manual air conditioning	x	x
	Full LED headlights with headlight washer system	x	x

Total installation time	Note
8.1 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
SH2	Engine compartment fuse holder for F1/F2
UP	Coolant pump
Veh.	Vehicle

2 Installation notes

2.1 Information on Validity

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

2.2 Components used

Designation	Order number
Basic delivery scope of Thermo Top Evo (see 'Notes on installation')	In accordance with price list
Installation kit for Hyundai Tucson/Kia Sportage diesel and petrol island MY 2019 TT-Evo	1327062B
In case of MultiControl CAR installation - MultiControl installation frame	9030077_
In case of Telestart, control element, as well as indicator lamp in consultation with end customer	In accordance with price list

2.3 Notes on installation, in coordination with the end customer

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

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

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

We recommend:

- installing a Thermo Top Evo 4. The heater is integrated into the coolant circuit as an 'island' and heats up the vehicle passenger compartment. There is no engine pre-heating.

2.4 Information on Total Installation Time

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

3 About this document

3.1 Purpose of the document

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

Thermo Top Evo heater

3.2 Warranty and liability

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

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

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

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

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

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

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

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

3.2.1 Statutory regulations governing installation

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

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

3.3 Safety

Qualifications of installation personnel

The installation personnel must have the following qualifications:

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

Regulations and legal requirements

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

3.3.1 Safety information on installation

Danger posed by live parts

- ▶ Prior to installation, disconnect the vehicle from the voltage supply.
- ▶ Make sure the electrical system is earthed correctly.
- ▶ Always comply with legal requirements.
- ▶ Observe data on type label.

Danger of fire and leaking toxic gases due to improper installation

- ▶ Vehicle parts in the vicinity of the heater must be protected against excessive heating by the following measures:
  - ⇨ Maintain minimum safety distances.
  - ⇨ Ensure adequate ventilation.
  - ⇨ Use fire-resistant materials or heat shields.

Danger due to sharp edges

- Lacerations
- Short circuit due to electrical wire damage

- ▶ Fit protectors on sharp edges.

3.4 Using this document

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

3.4.1 Explanatory Notes on the Document

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

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

3.4.2 Use of symbols

DANGER

Type and source of the risk

Consequences: Failure to follow the instructions can result in death

▶ Actions to protect yourself against risks.

WARNING

Type and source of the risk

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

▶ Actions to protect yourself against risks.

CAUTION

Type and source of the risk

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

▶ Actions to protect yourself against risks.

Type and source of the risk

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

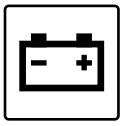
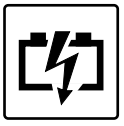
▶ Actions to protect yourself against risks.

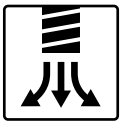
Reference to the vehicle manufacturer's specific documents.

Note on a special technical feature

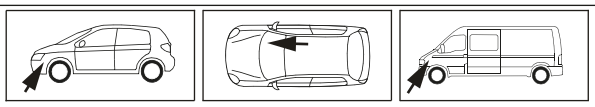
3.4.3 Work step identification marks

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

Mechanical system	Electrical system	High-voltage	Coolant
			

Combustion air	Fuel	Exhaust	Software
			

3.4.4 Orientation aid



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

3.4.5 Use of highlighting

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

4 Technical Information

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

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

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

Necessary special tools
– Hose clamp pliers for auto-tightening hose clamps
– Hose clamp pliers for Clic hose clamps of type W
– Hose clamping pliers
– Hose cutter
– Automatic wire stripper 0.2 - 6 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 Preparations

5.1 Vehicle preparation

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

Vehicle area	Components to be removed	Other applicable documents
General	▶ Open the fuel tank cap ▶ Ventilate the fuel tank ▶ Close the fuel tank cap again ▶ Depressurise the cooling system	
Engine compartment and body	▶ 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 ▶ Entire air filter housing ▶ 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

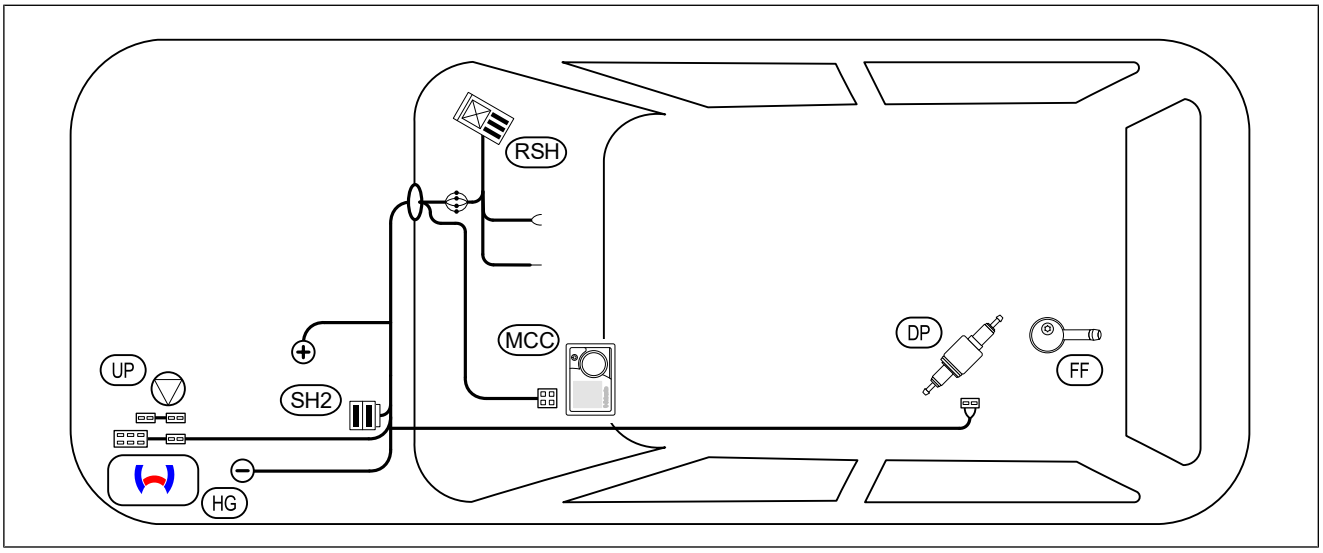


Fig. 1

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

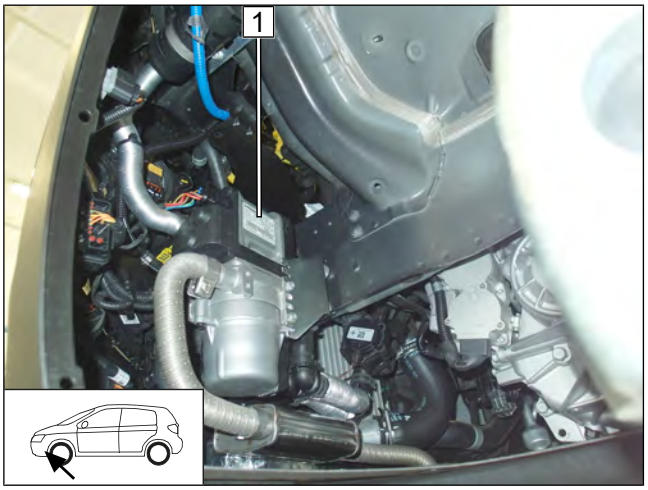


Fig. 2

1 Heater

7 Electrical system of engine compartment

Preparing fuse holder of engine compartment

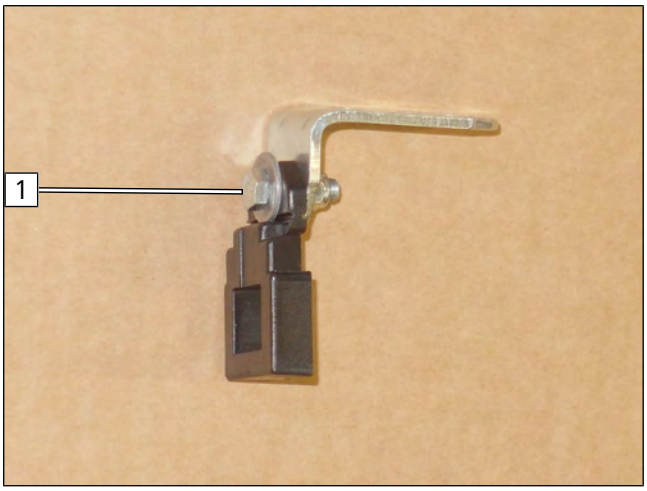


Fig. 3

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

Mounting retaining plate of SH2

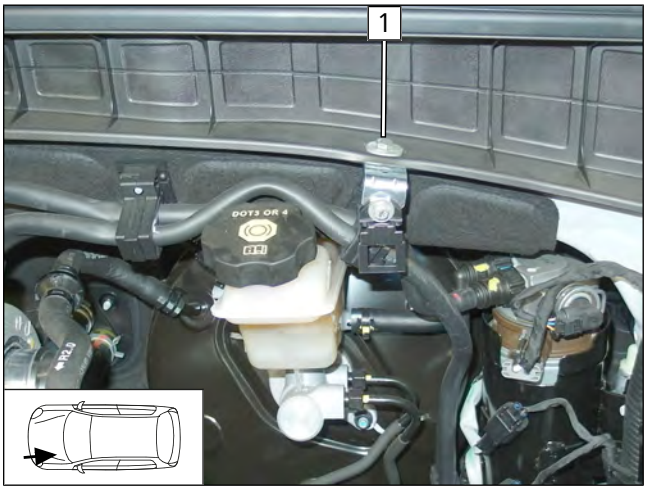


Fig. 4

▶ Remove clip at pos. **1**.

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

Installing SH2

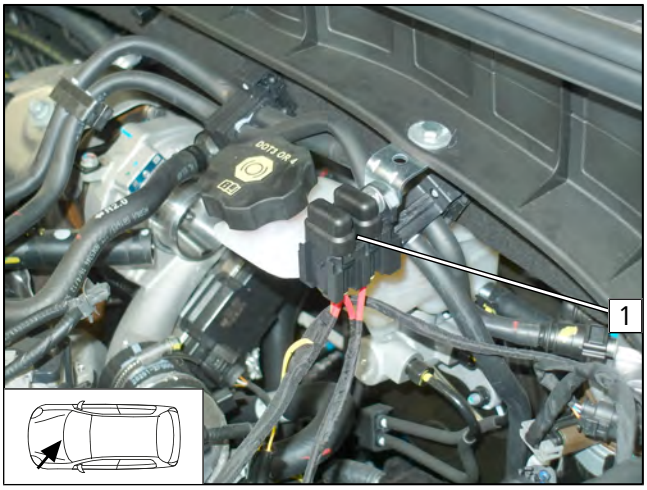


Fig. 5

1 Fuses F1 / F2

Earth wire connection

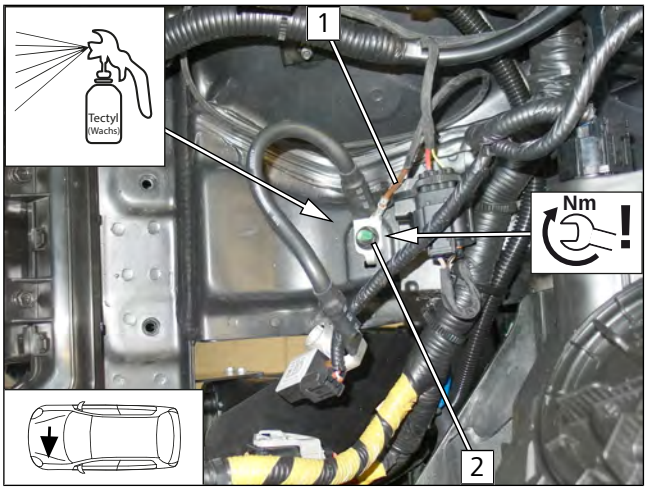


Fig. 6

DANGER

Observe tightening torque

1 Earth wire

2 Original vehicle earth point

Positive wire connection

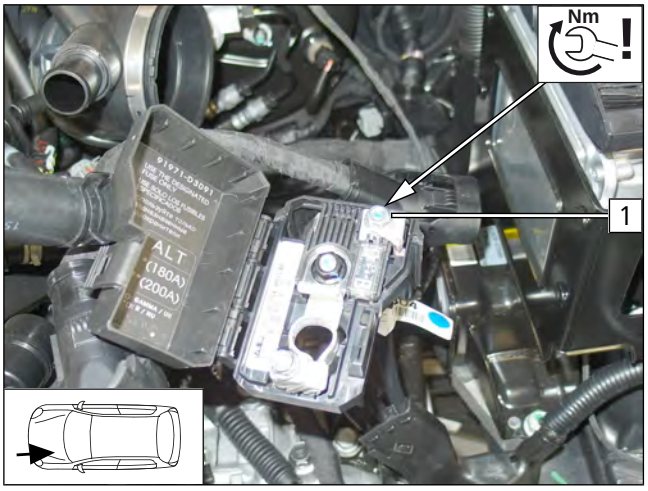


Fig. 7

DANGER

Observe tightening torque

The Fig. shows the installation situation. The battery is connected during the final work phase.

1 Positive wire on positive distributor

Passenger compartment wiring harness pass through

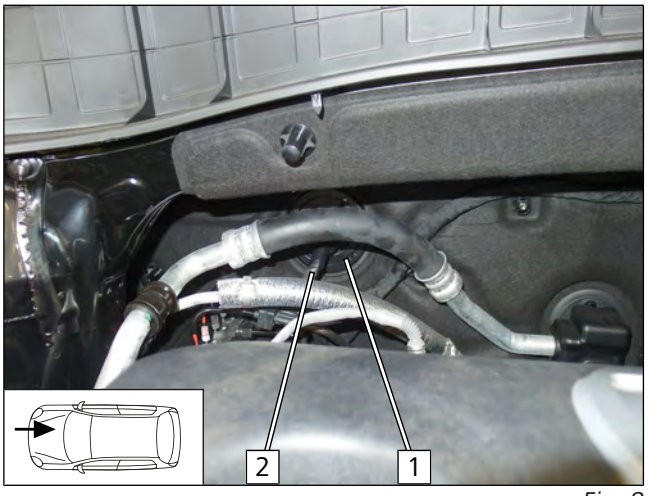


Fig. 8

1 Protective rubber plug

2 Passenger compartment and control element wiring harnesses

8 Mechanical system

8.1 Preparing installation location

Removing original vehicle relay

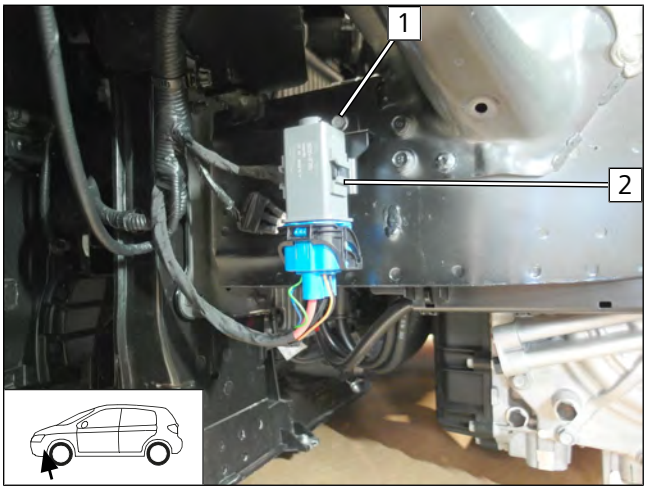


Fig. 9

1 Original vehicle bolt, will be reused
2 Original vehicle relay (grey or black)

Detaching original vehicle earth points, mounting angle bracket

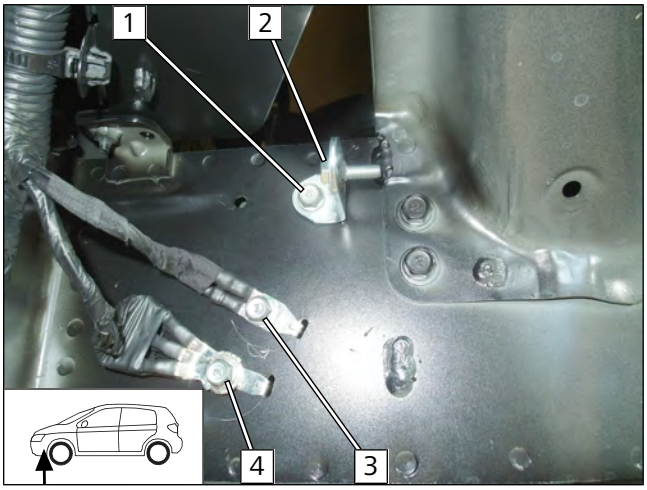


Fig. 10

1 Original vehicle bolt, angle bracket, original vehicle thread
2 M6x20 bolt, large diameter washer, angle bracket, lock washer
3 Original vehicle earth point **a**
4 Original vehicle earth point **b**

Inserting rivet nut

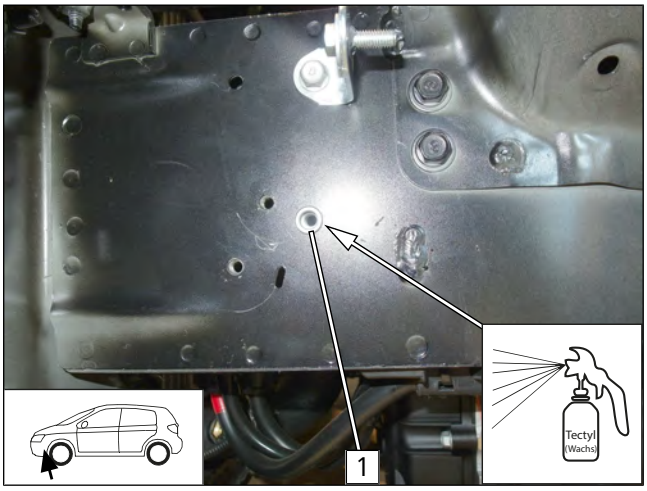


Fig. 11

1 Drill out oblong hole to Ø9, insert rivet nut

Copying hole pattern

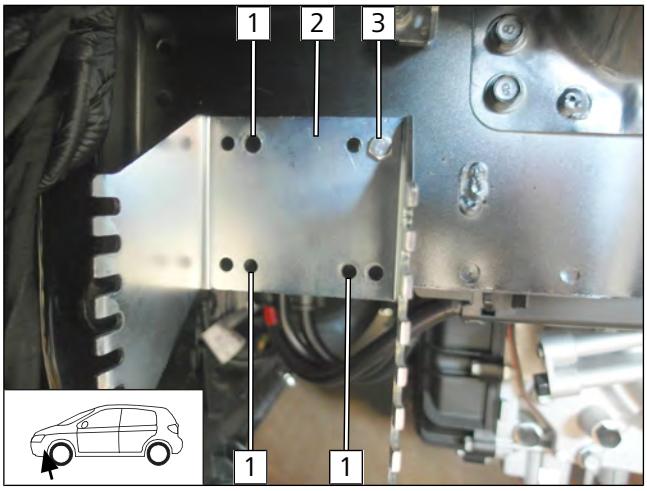


Fig. 12

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

[1] Copy hole pattern
[3] M6x30 bolt

▶ Remove bracket.

Drilling holes and inserting rivet nut

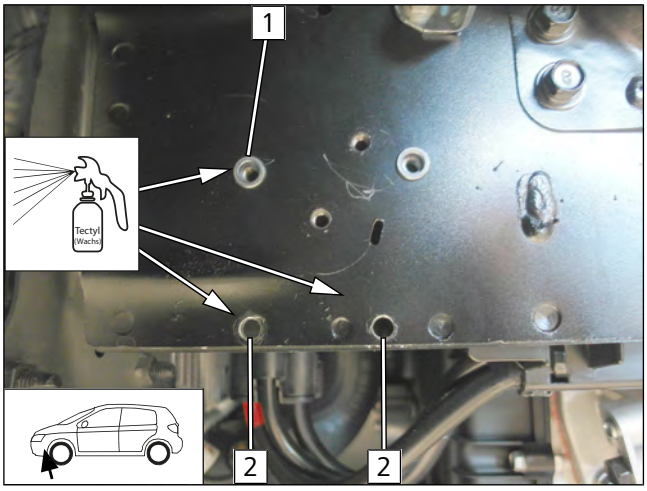


Fig. 13

[1] Ø9 hole, rivet nut
[2] Ø7 hole

Mounting earth point

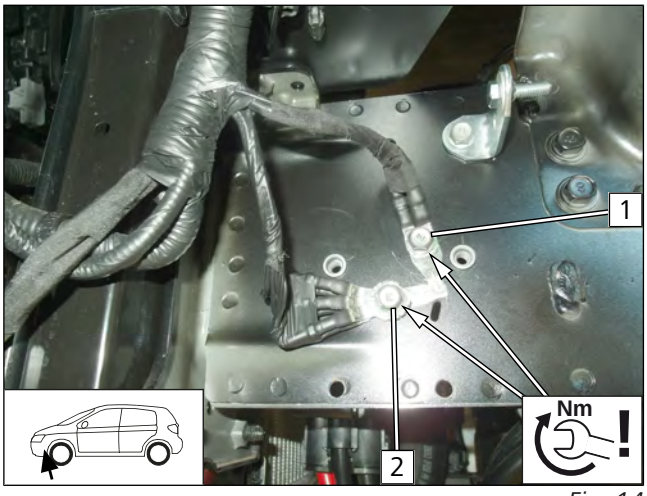


Fig. 14

▶ Straighten earth points **a** and **b**.

[1] Original vehicle bolt, earth point **a**
[2] Original vehicle bolt, earth point **b**

Mounting bracket

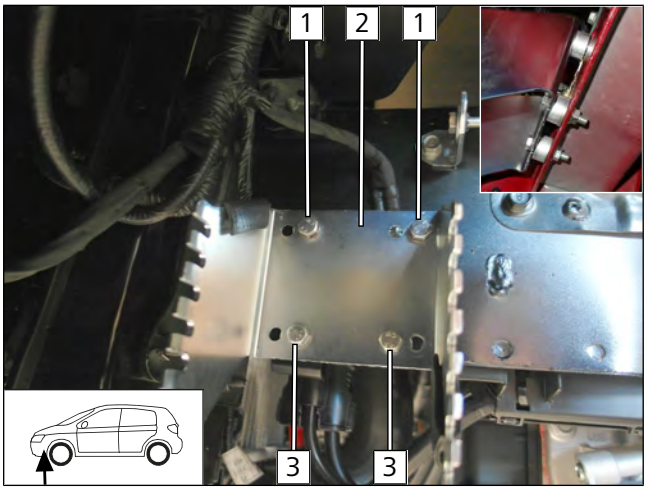


Fig. 15

1 M6x30 bolt, spring lockwasher, 8mm distance washer
2 Bracket
3 M6x30 bolt, distance washer (8), M6 nut

Mounting original vehicle relay

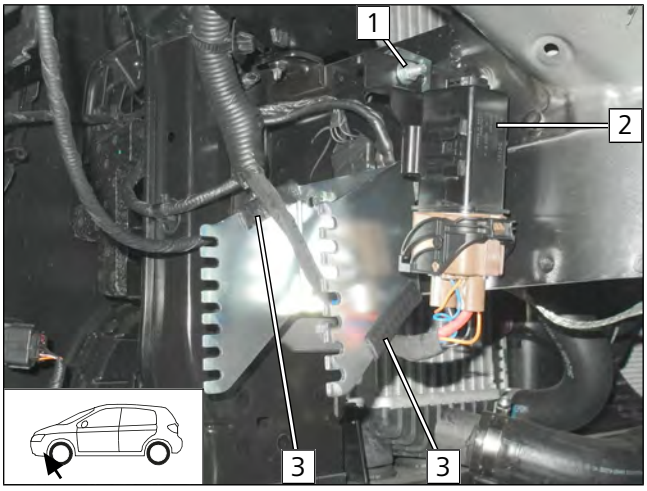


Fig. 16

▶ Route wiring harness of original vehicle relay 2 as shown.

1 Premounted bolt, relay bracket, flanged nut
3 50 long edge protection

Inserting rivet nut for air intake silencer

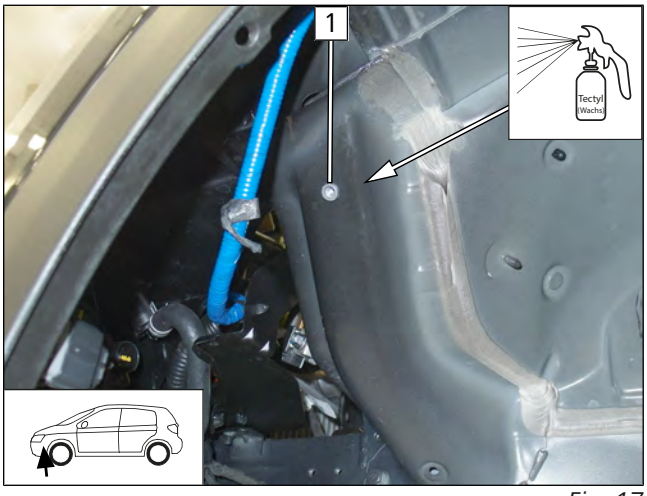


Fig. 17

1 Rivet nut in original vehicle hole

Hole for exhaust silencer

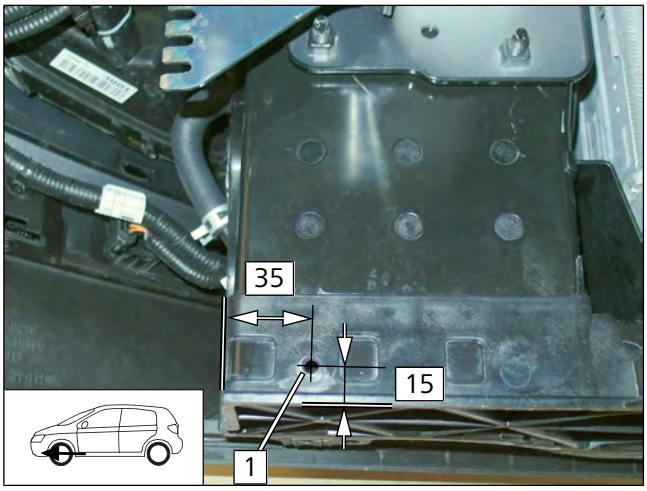


Fig. 18

1 Ø7 hole

Fixing original vehicle wiring harnesses, if available

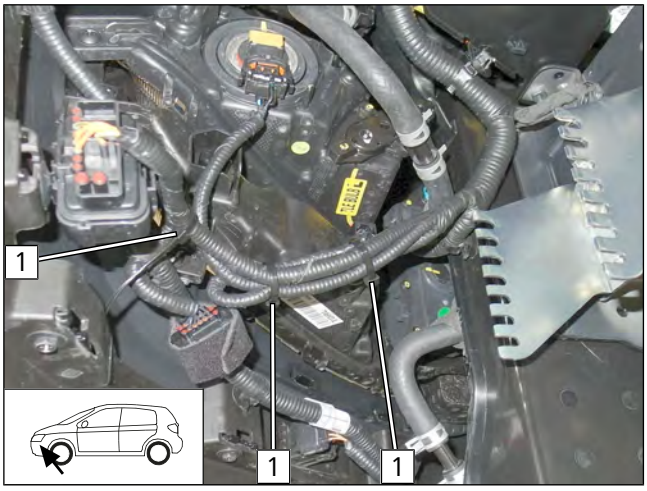


Fig. 19

1 Cable tie

8.2 Premounting heater

Premounting bolts loosely

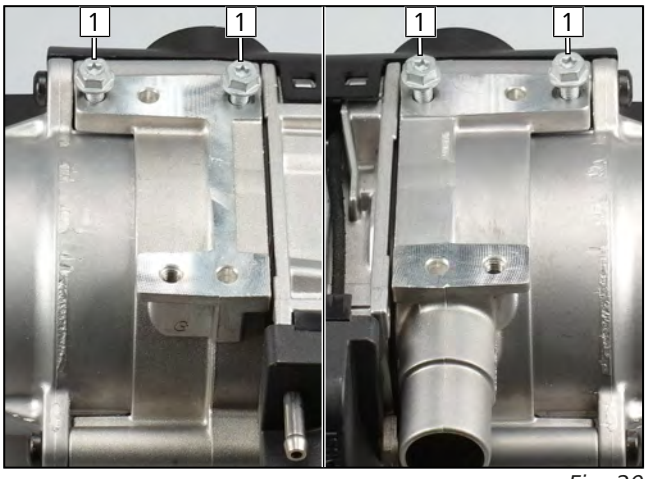


Fig. 20

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

Mounting water connection piece

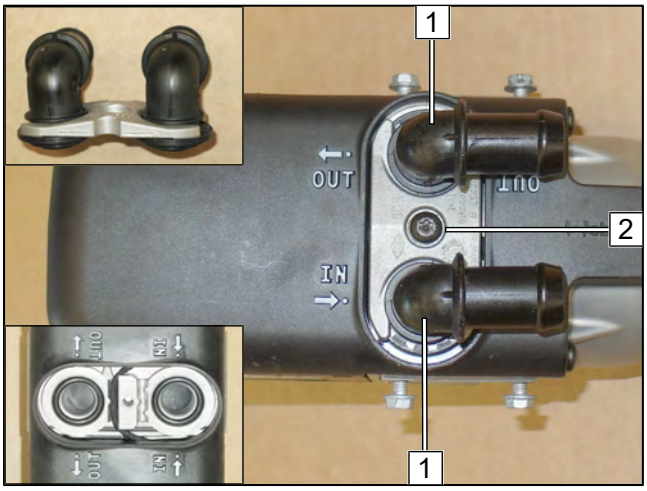


Fig. 21

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

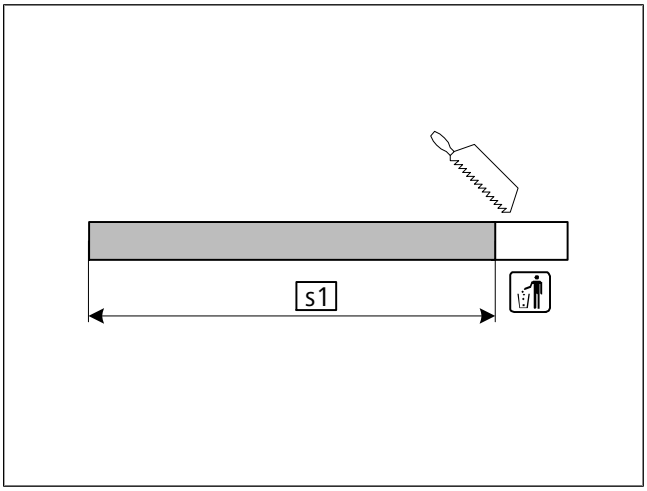


Fig. 22

s1 330

Mounting combustion air intake pipe and fuel line

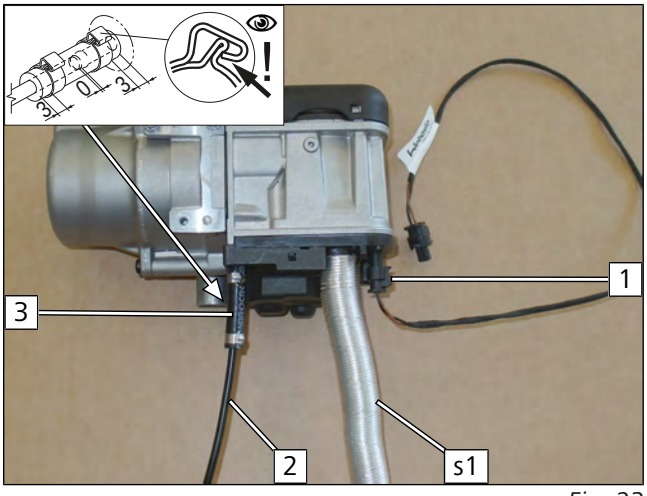


Fig. 23

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

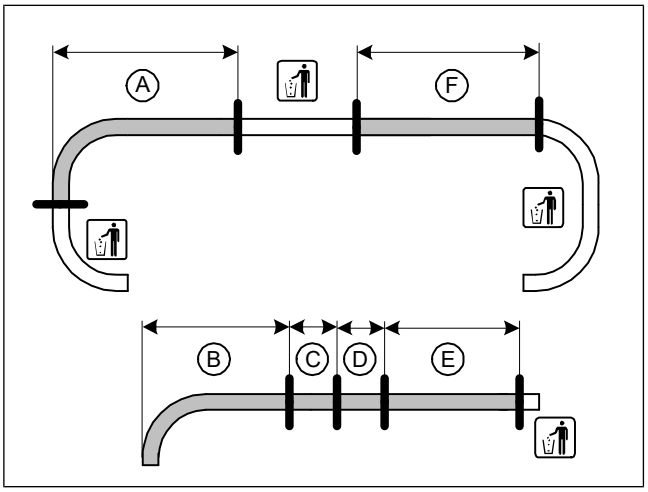


Fig. 24

1.6 CRDi

A	950
B	110
C	60
D	60
E	170
F	990

Cutting hoses to length

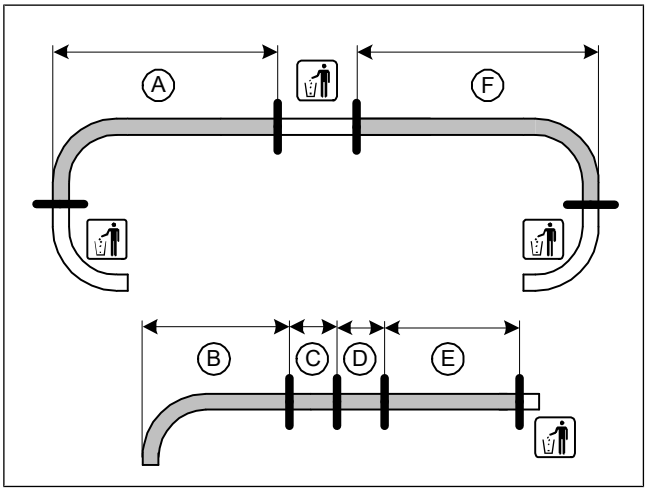


Fig. 25

2.0 CRDi

A	930
B	110
C	60
D	60
E	170
F	1050

Premouting hoses

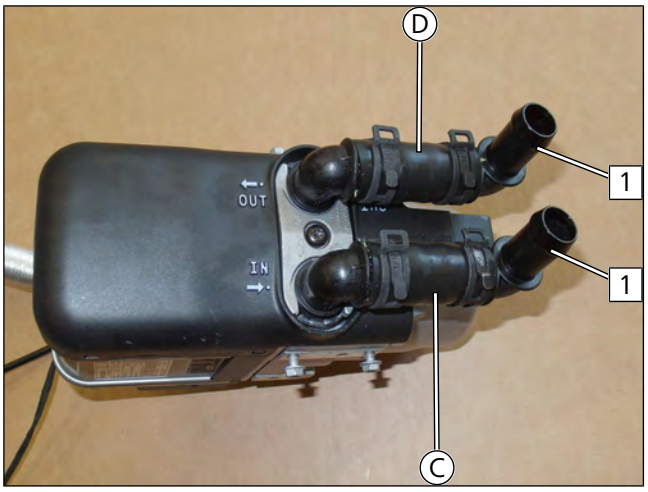


Fig. 26

All spring clips Ø25

1 Ø18x18 90° connecting pipe

8.3 Heater mounting

Mounting heater

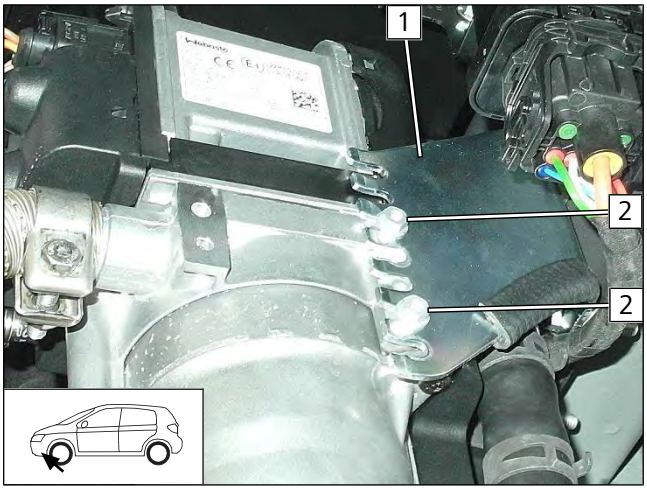


Fig. 27

1 Bracket
2 5x13 self-tapping bolt

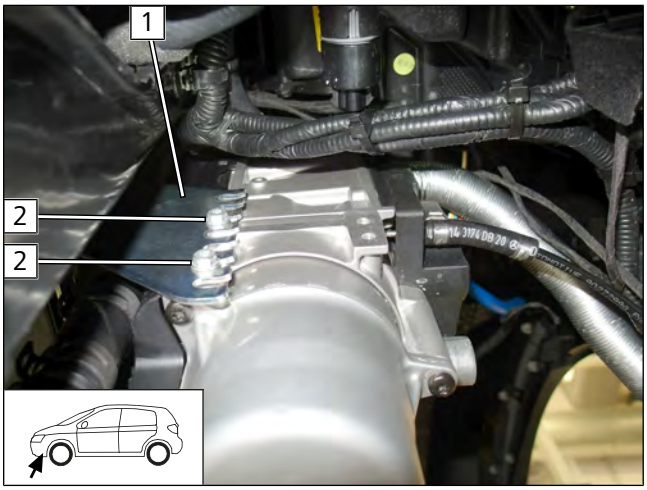


Fig. 28

1 Bracket
2 5x13 self-tapping bolt

Mounting HG wiring harness connector

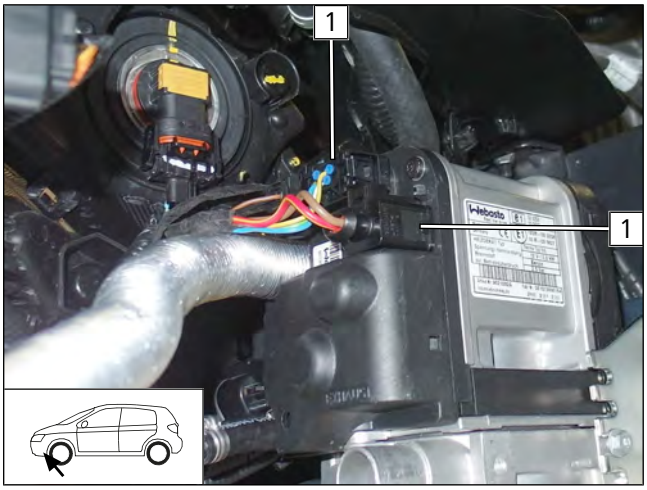


Fig. 29

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

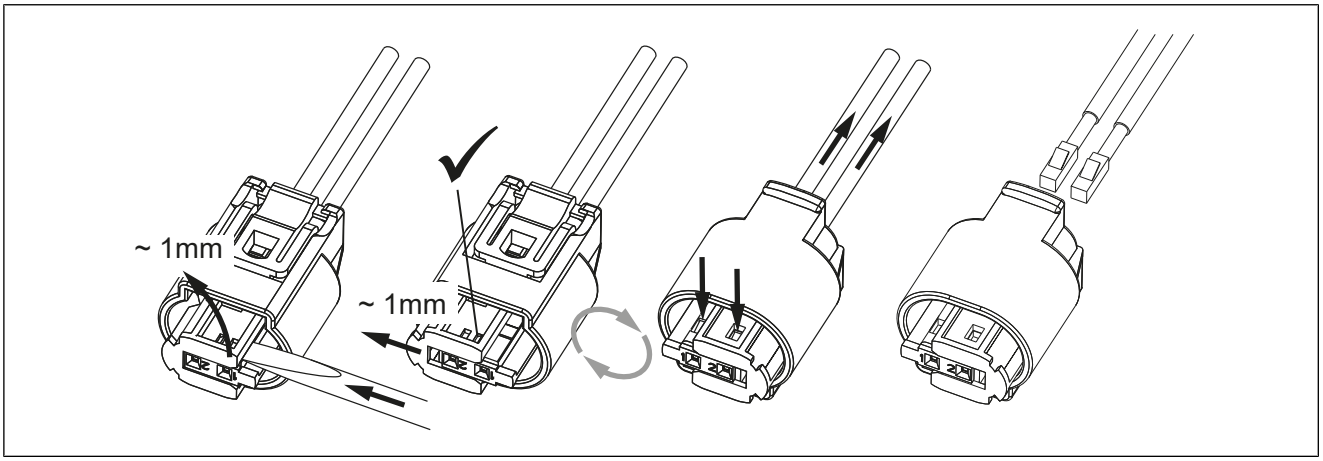


Fig. 30

9.1 Routing fuel line

Connecting heater

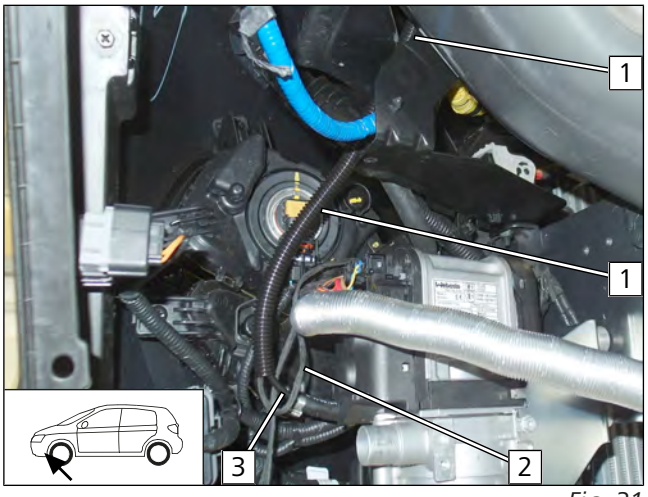


Fig. 31

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

Installing lines

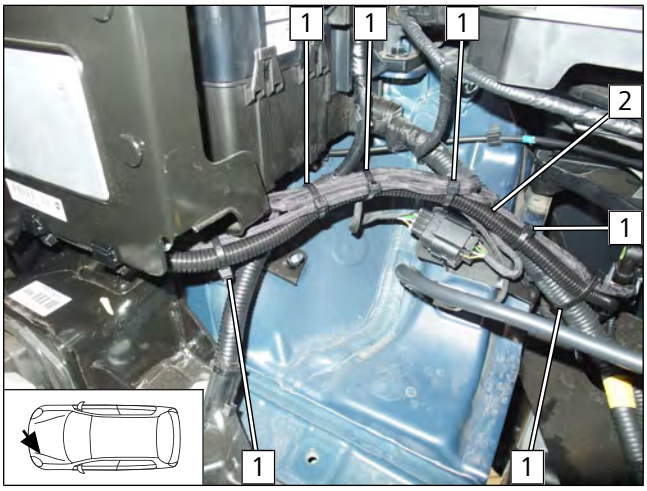


Fig. 32

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

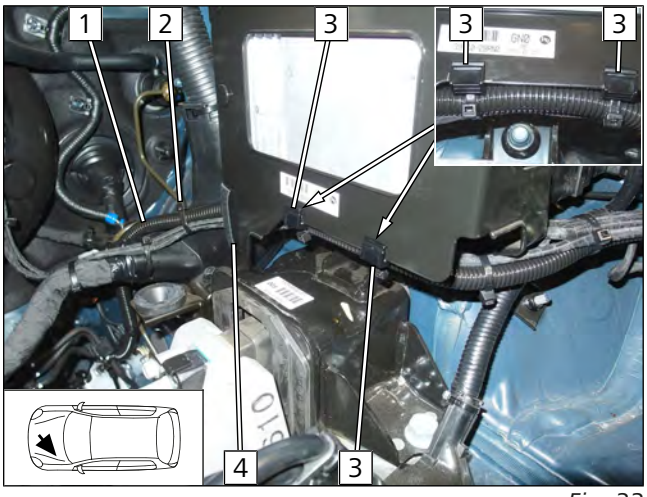


Fig. 33

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

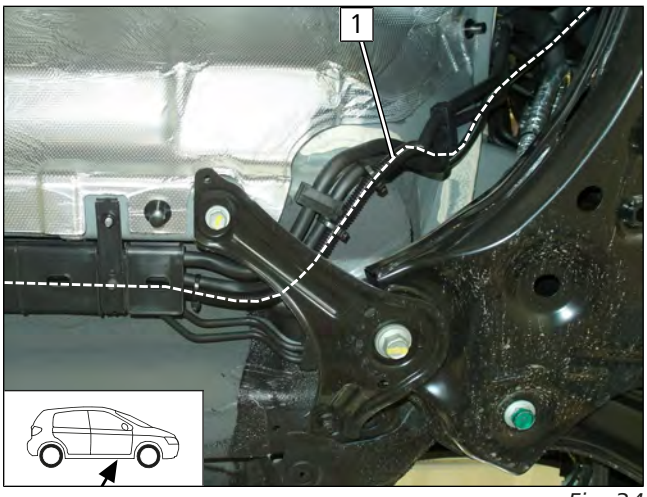


Fig. 34

▶ 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.

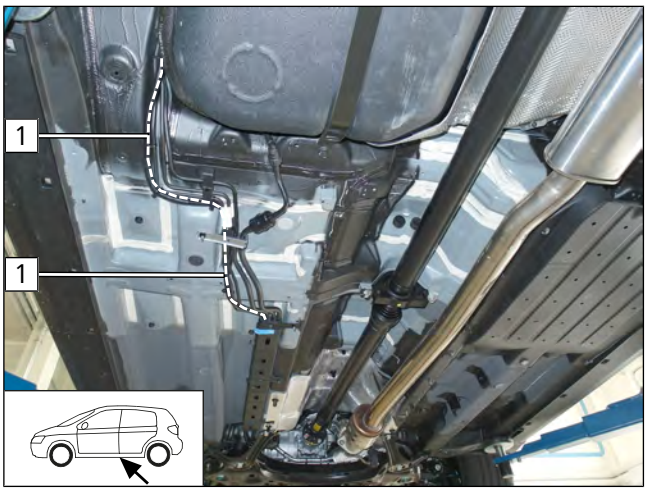


Fig. 35

▶ 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

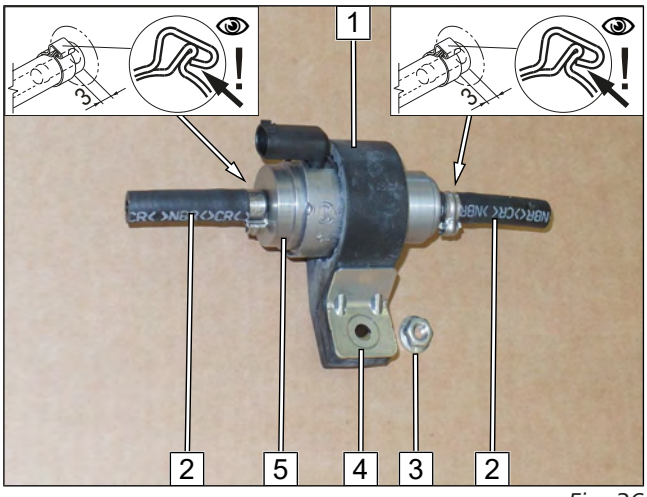


Fig. 36

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

Preparing fuel pump perforated bracket

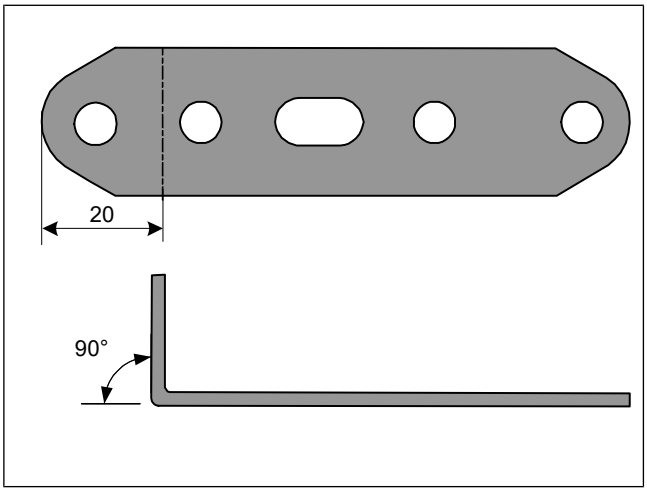


Fig. 37

Premounting fuel pump perforated bracket

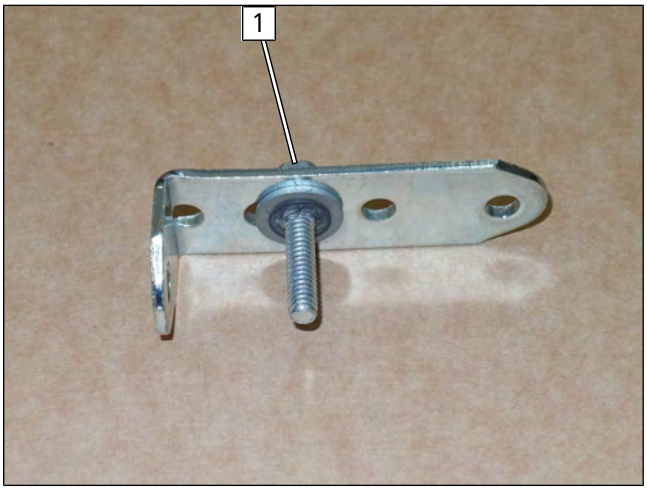


Fig. 38

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

Mounting fuel pump perforated bracket

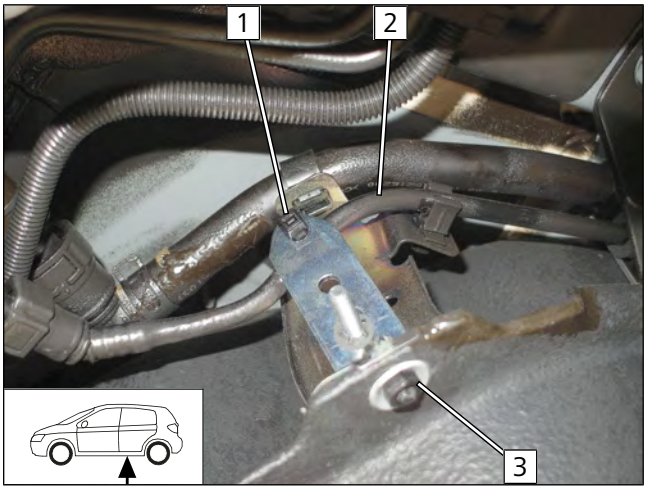


Fig. 39

- ▶ Fasten original vehicle line 2 using cable tie 1.
- ▶ Remove original vehicle bolt at position 3.

3 M6x20 bolt, perforated bracket, original vehicle bracket, original vehicle hole, original vehicle nut

Mounting fuel pump

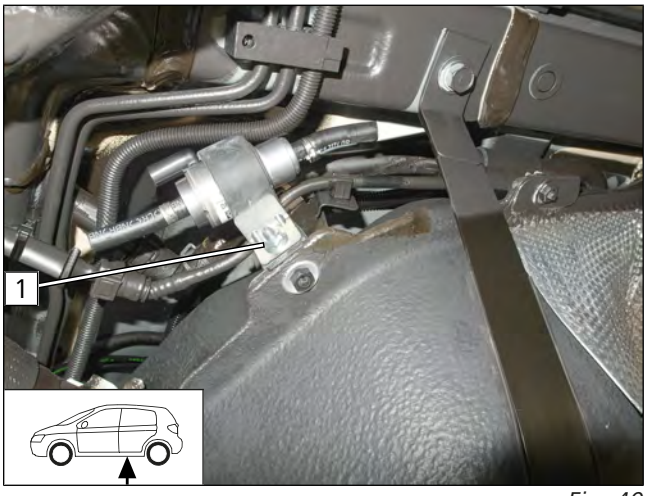


Fig. 40

1 Premounted bolt, premounted fuel pump, support angle bracket, flanged nut

Assembling fuel pump connector X7

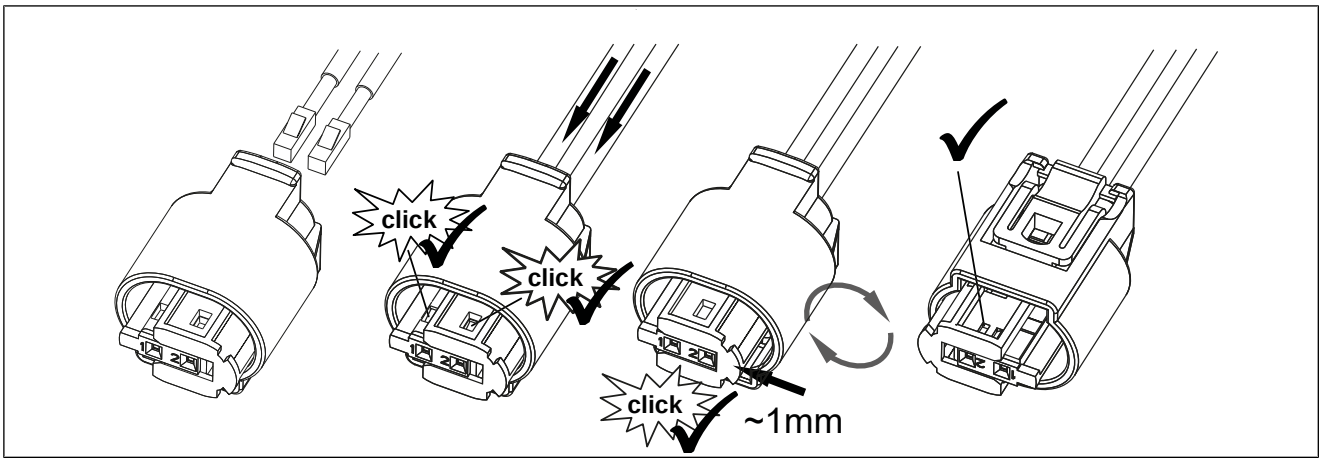


Fig. 41

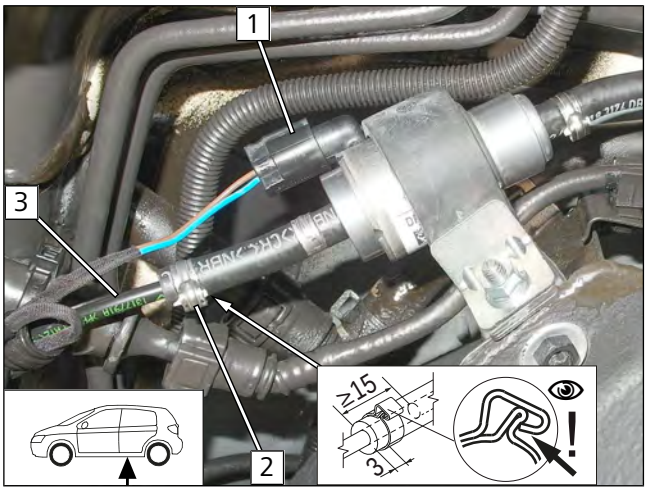


Fig. 42

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

9.2 Installing FuelFix

View of drilling template

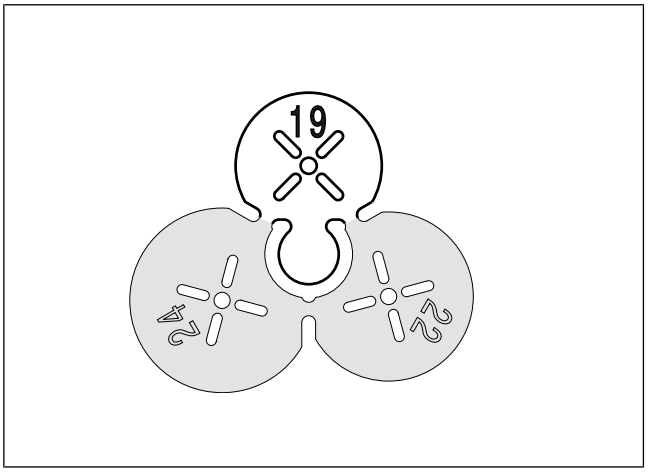


Fig. 43

Work steps F1, F2

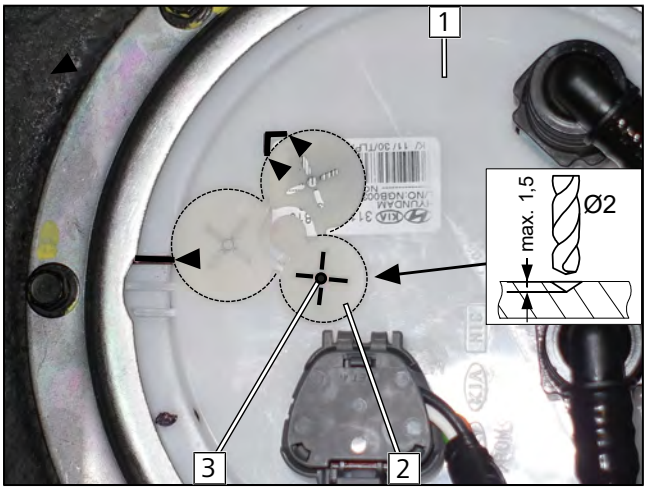


Fig. 44

Observe the installation instructions of the tank extracting device.

▶ Drill centring hole.

- **1** Tank fitting
- **2** Position Ø19 drilling template using the contours as shown
- **3** Ø2 centring hole

Work step F3

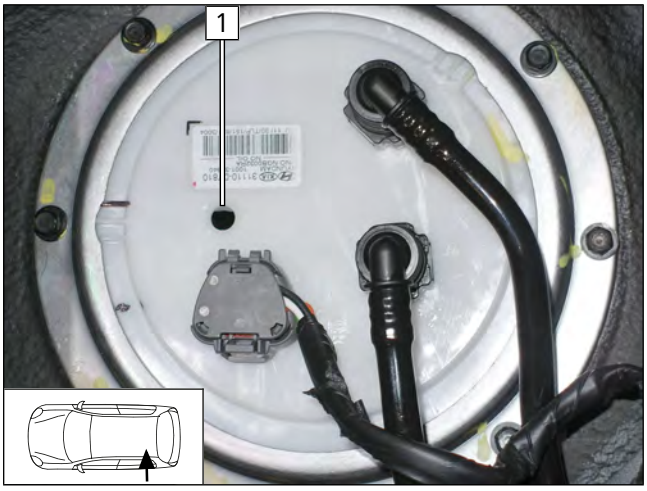


Fig. 45

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

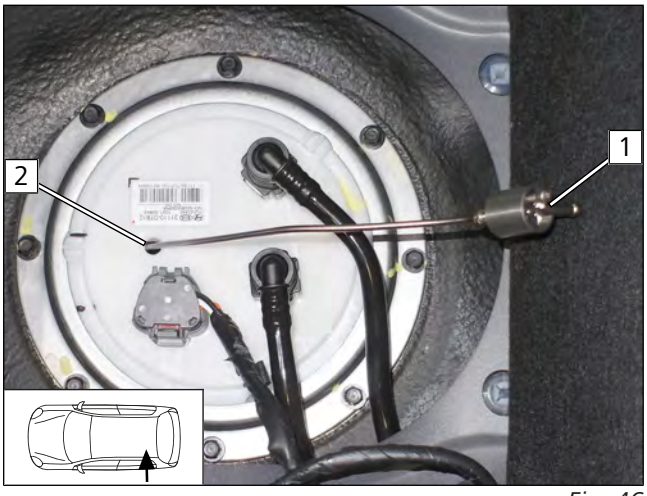


Fig. 46

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

▶ Insert FuelFix in hole **2**.

Work step F5

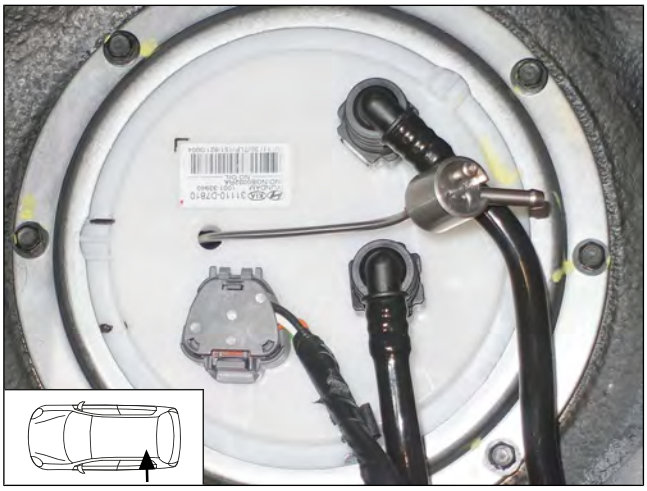


Fig. 47

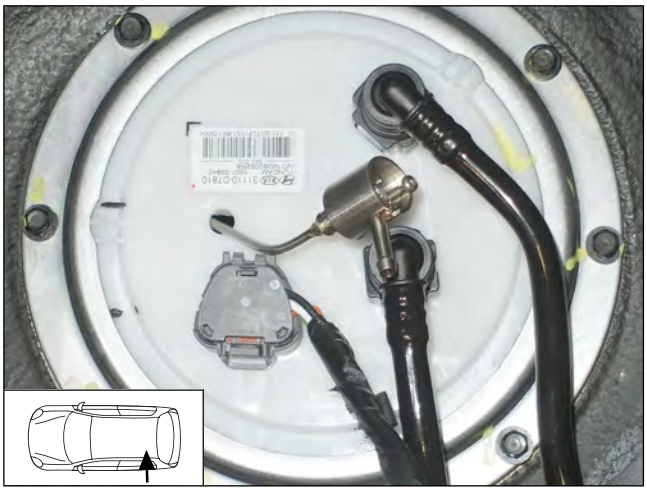


Fig. 48

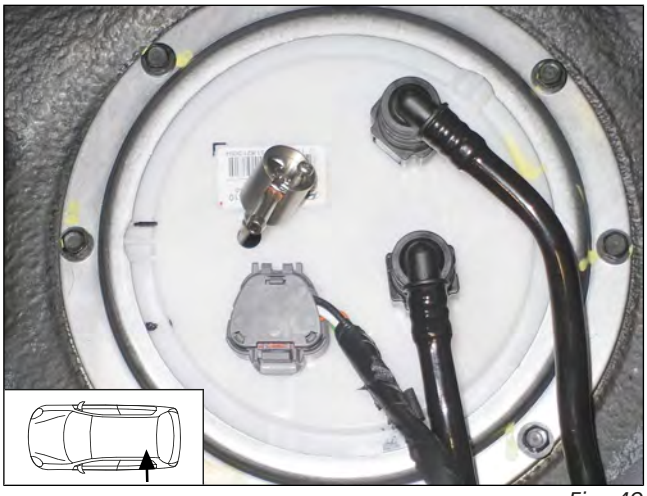


Fig. 49

Work steps F5.3, F5.4

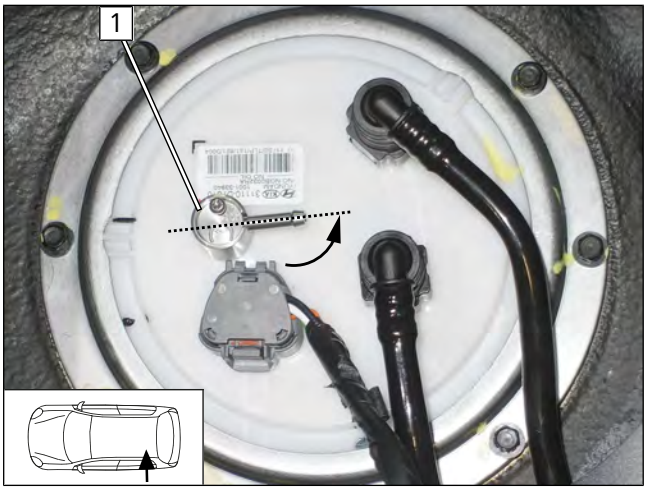


Fig. 50

▶ Align FuelFix [1] as shown in figure.

Work step F6

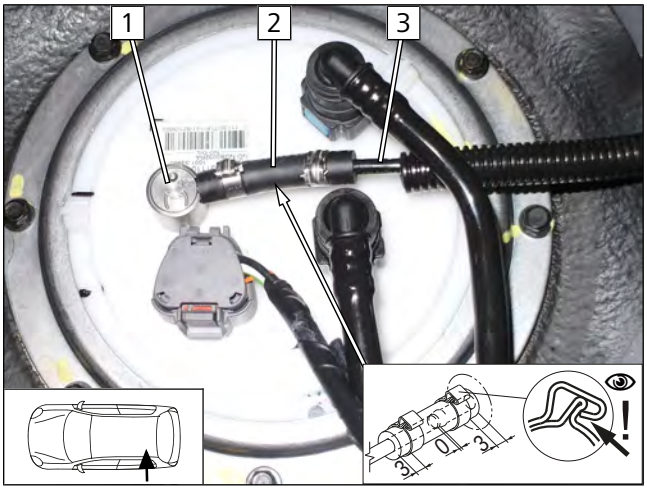


Fig. 51

▶ Connect fuel line.

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

Work step F7

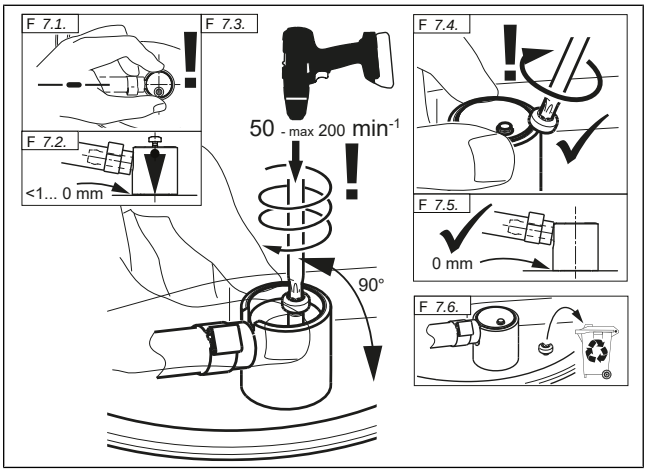


Fig. 52

DANGER

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

▶ Mount FuelFix.

Work step F8

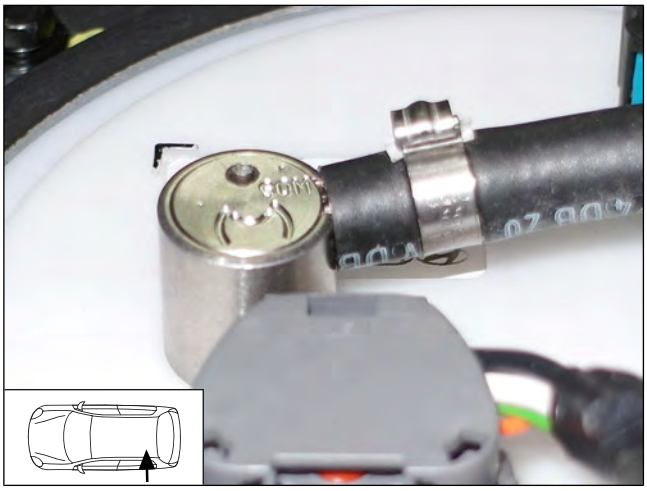


Fig. 53

▶ Check firm seating of FuelFix.

Securing fuel line

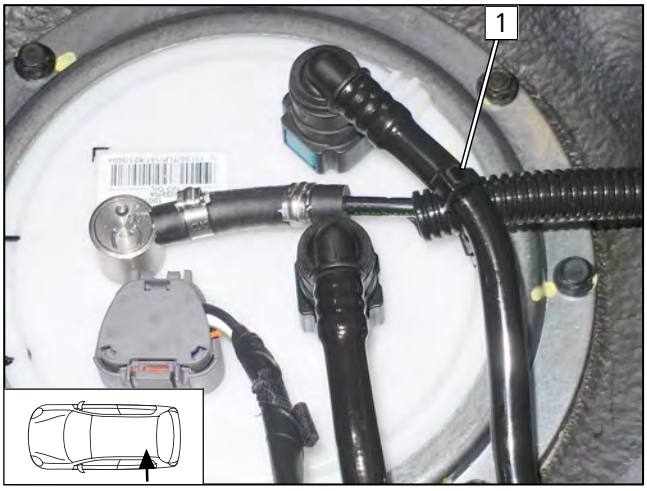


Fig. 54

[1] Cable tie for tension relief

Connecting fuel pump

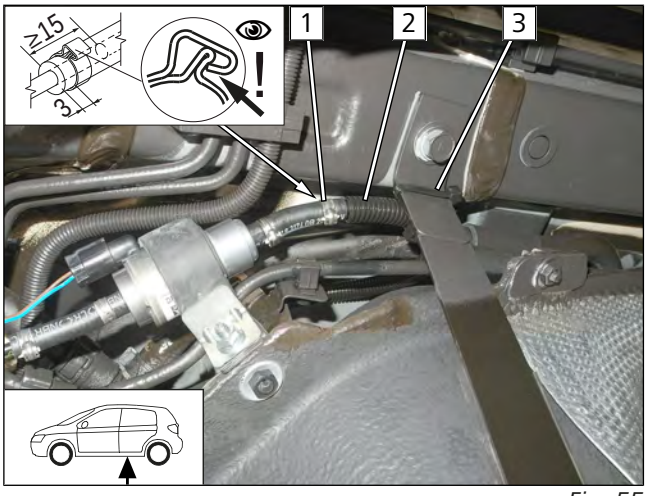


Fig. 55

[1] Ø10 clamp
[2] Fuel line FuelFix in Ø10 corrugated tube
[3] Cable tie for tension relief

10 Combustion air

Premounting combustion air intake silencer

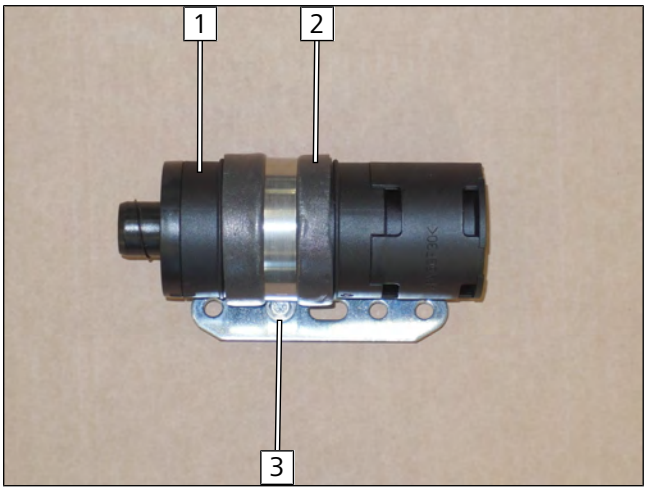


Fig. 56

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

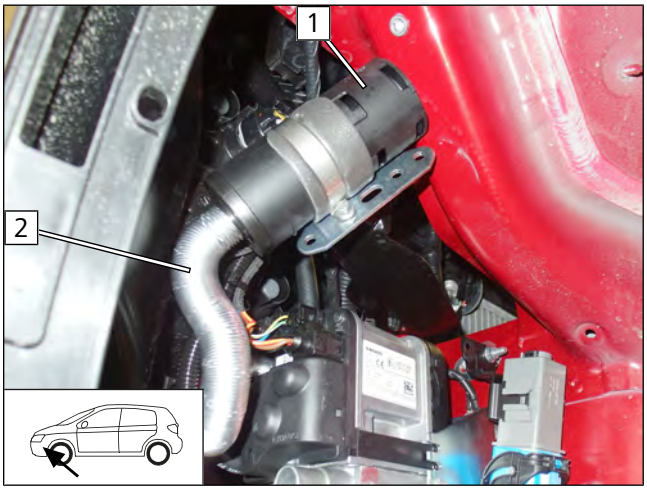


Fig. 57

Observe the installation instructions of the combustion air intake silencer.

1 Combustion air intake silencer
2 Combustion air pipe

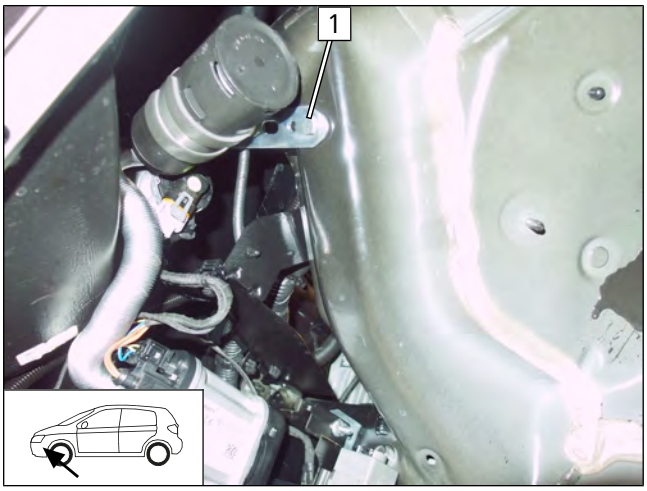


Fig. 58

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

11 Coolant for 1.6 CRDi

11.1 Hose routing diagram

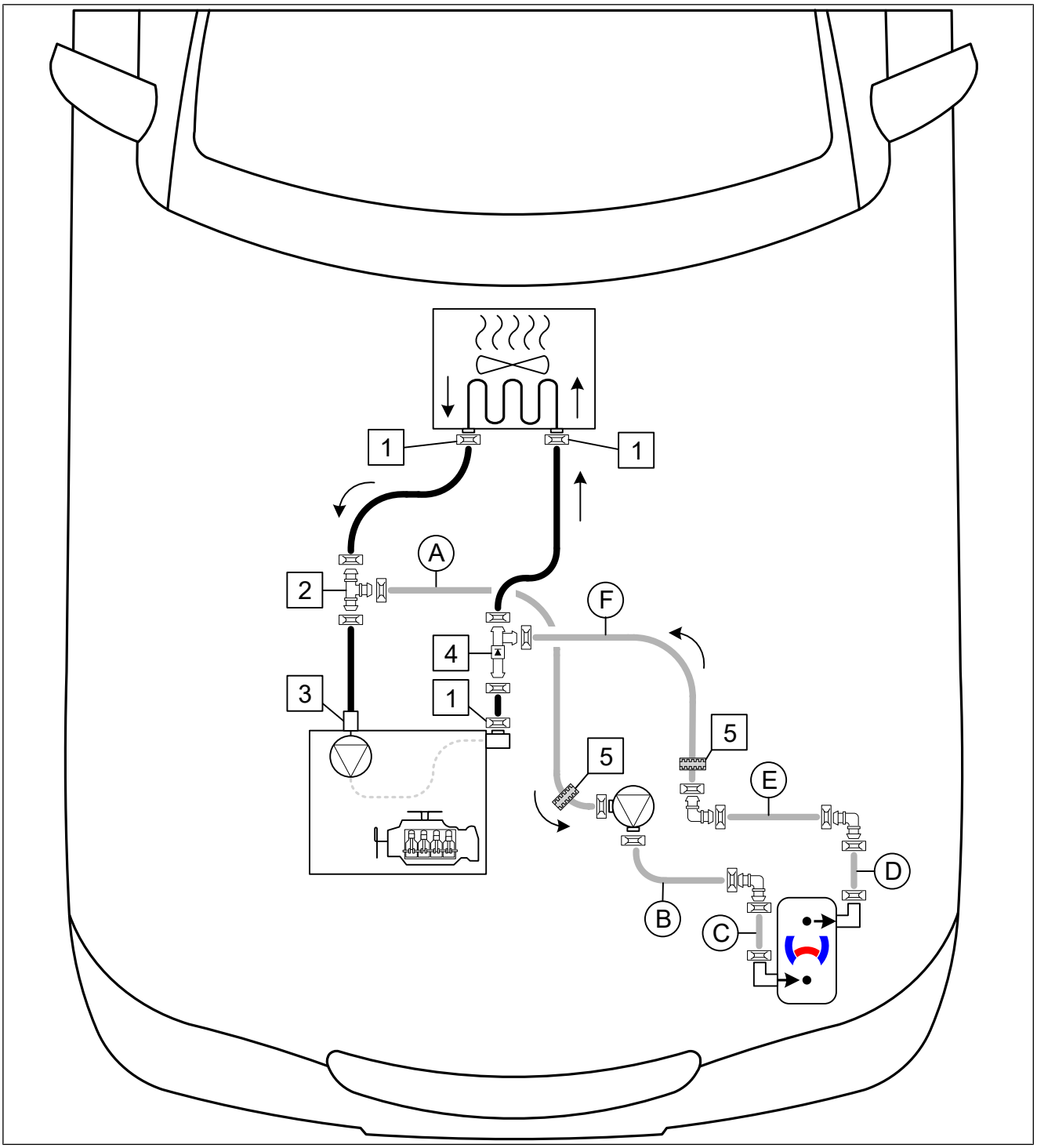


Fig. 59

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation = Ø18x18

[1] Original vehicle spring clip; [2] T-piece; [3] Original vehicle quick-release coupling; [4] Non-return valve; [5] Ø25 black (sw) rubber isolator

11.2 Preliminary Work

Mounting black (sw) rubber isolator

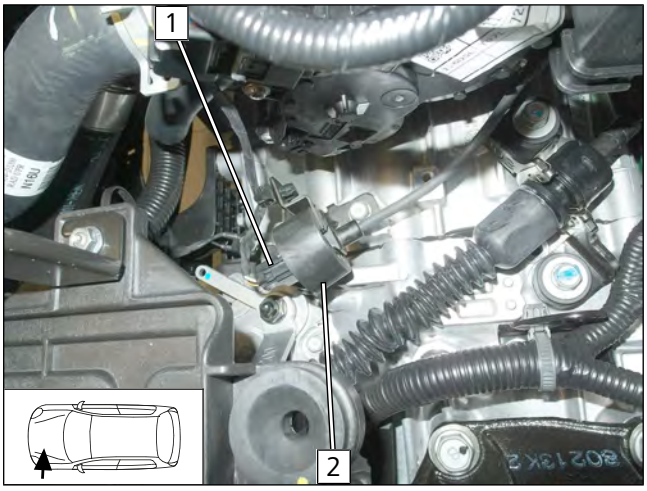


Fig. 60

▶ Disconnect original vehicle connector at position **1**, mount Ø22 black (sw) rubber isolator **2** as shown and reconnect connector.

Preparing perforated bracket

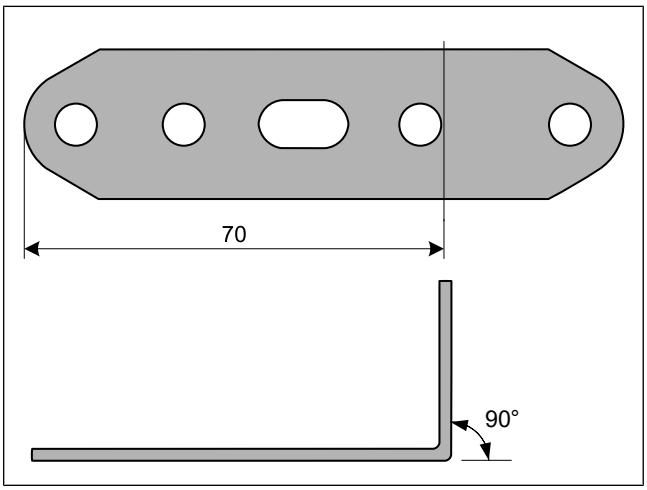


Fig. 61

Preparing coolant pump mount

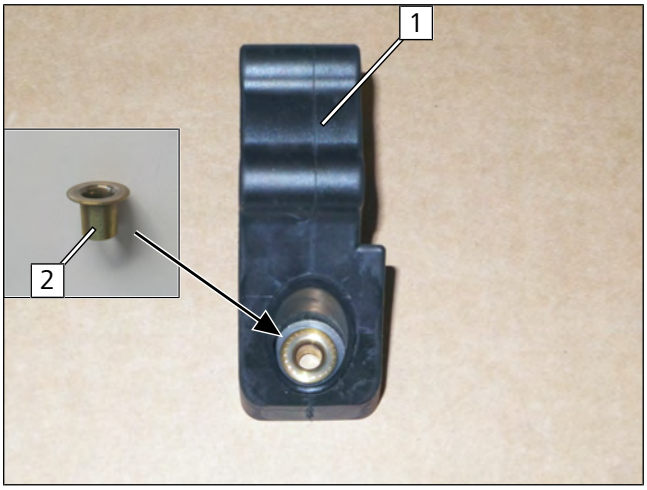


Fig. 62

1 Coolant pump mount
2 Sleeve

Premounting coolant pump

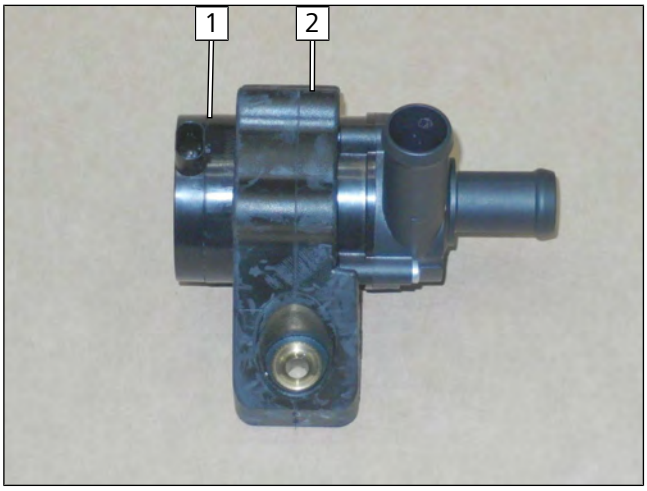


Fig. 63

1 Coolant pump
2 Coolant pump mount

Inserting rivet nut

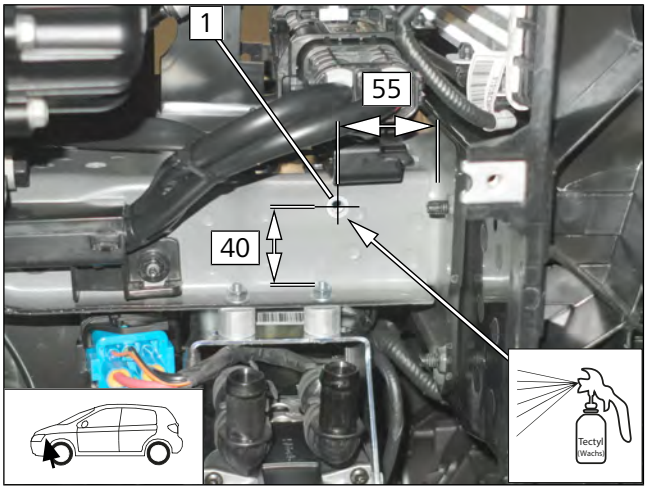


Fig. 64

1 Ø9 hole, rivet nut

Mounting coolant pump

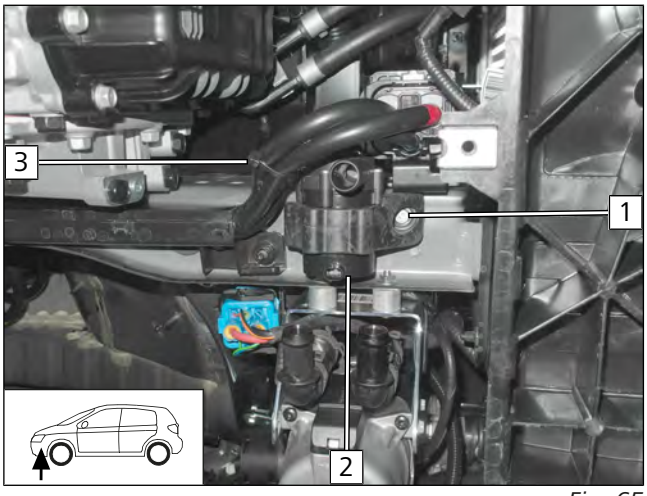


Fig. 65

1 M6x25 bolt
2 Coolant pump
3 Cable tie

Mounting coolant pump wiring harness

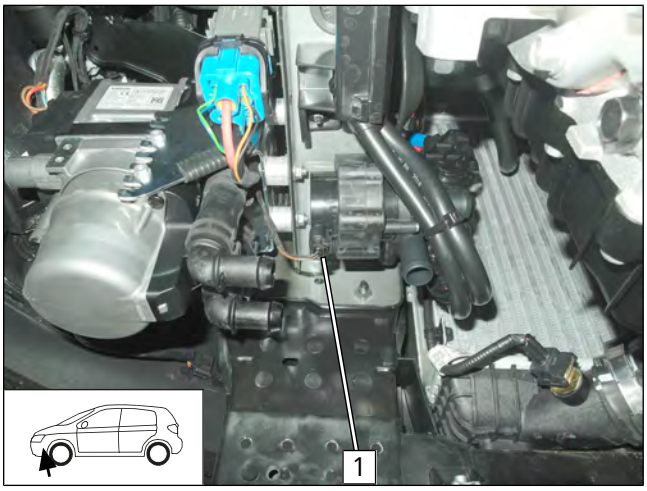


Fig. 66

1 Coolant pump wiring harness

Mounting fabric heat shrink tubing

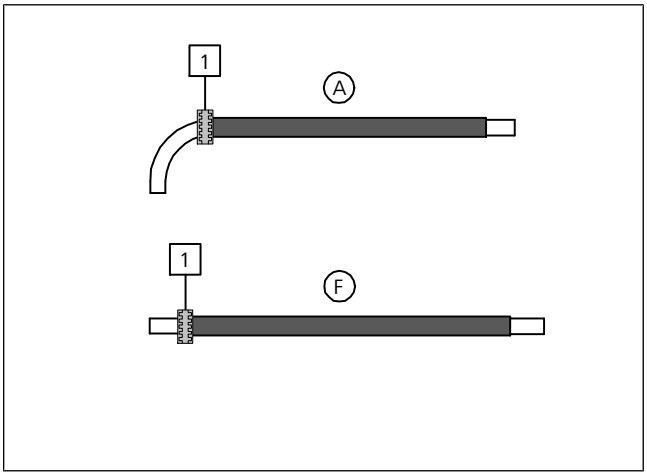


Fig. 67

▶ 1. Slide on and cut to length
▶ 2. Shrink, use at most 230 °C

1 Black (sw) rubber isolator

Mounting heat protection hose

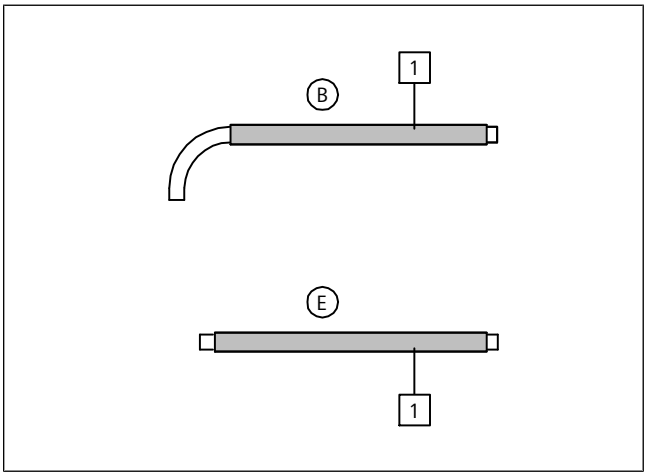


Fig. 68

▶ Cut heat protection hose to length and push onto hoses (B) and (E).

1 Heat protection hose

11.3 Coolant circuit installation

Heater outlet connection

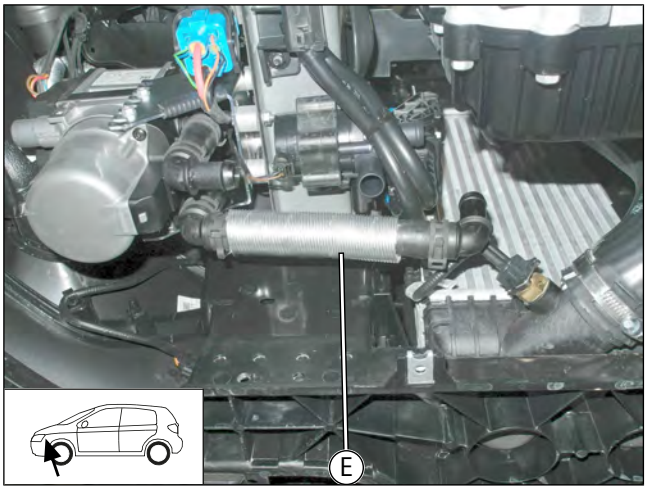


Fig. 69

Heater inlet and coolant pump outlet connection

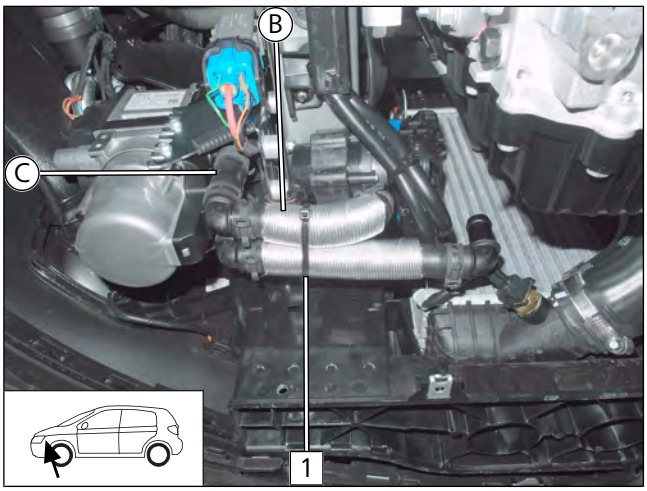


Fig. 70

1 Cable tie

Fastening hoses Ⓑ and Ⓔ

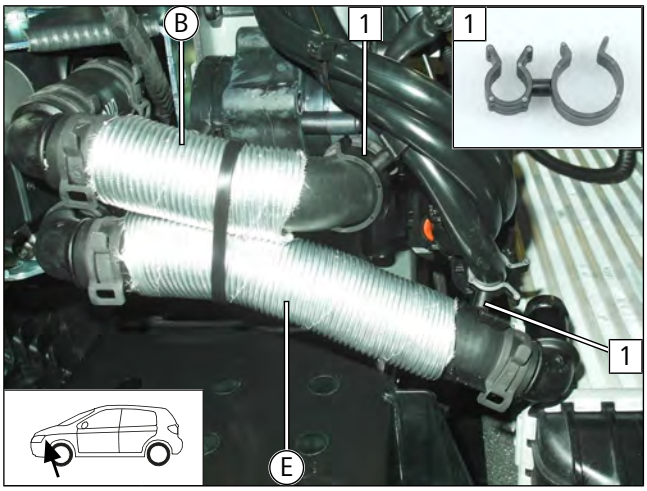


Fig. 71

1 Ø13x22 hose bracket

Adapting original vehicle cable duct

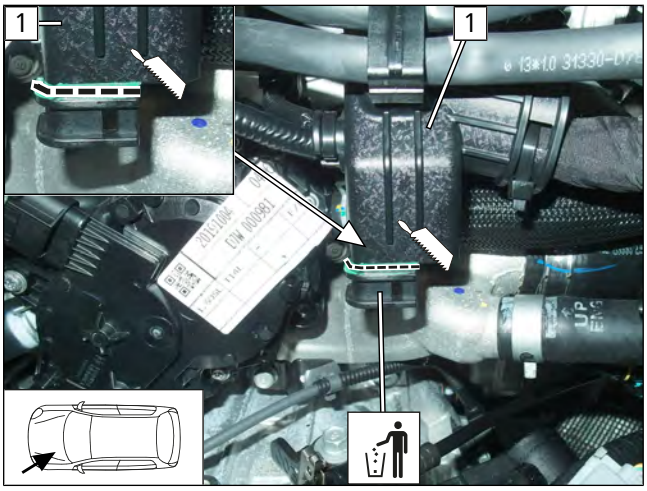


Fig. 72

▶ Shorten original vehicle cable duct **1** as shown.

Fitting edge protection

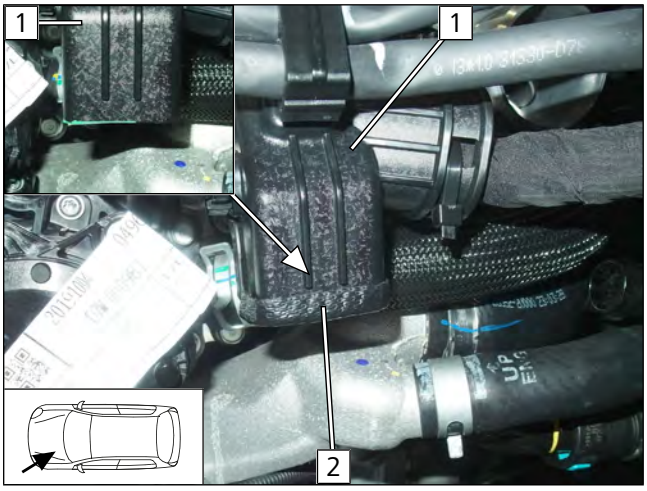


Fig. 73

1 Cable duct

2 70mm, narrow edge protection

Installing perforated bracket

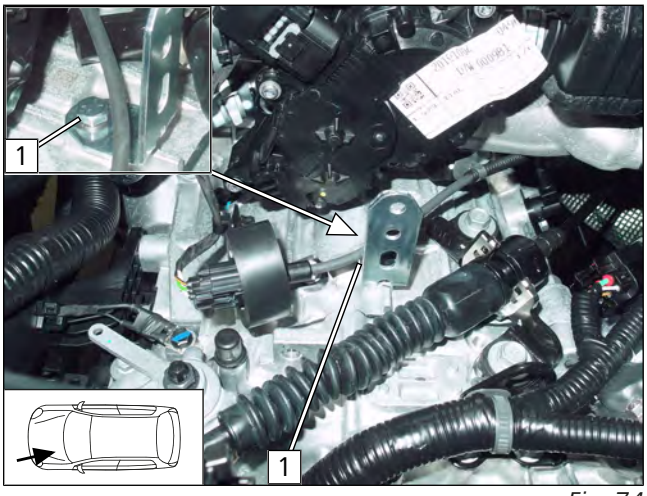


Fig. 74

1 M6x20 bolt, spring lock washer, perforated bracket, original vehicle threaded hole on transmission

Dismantling hoses

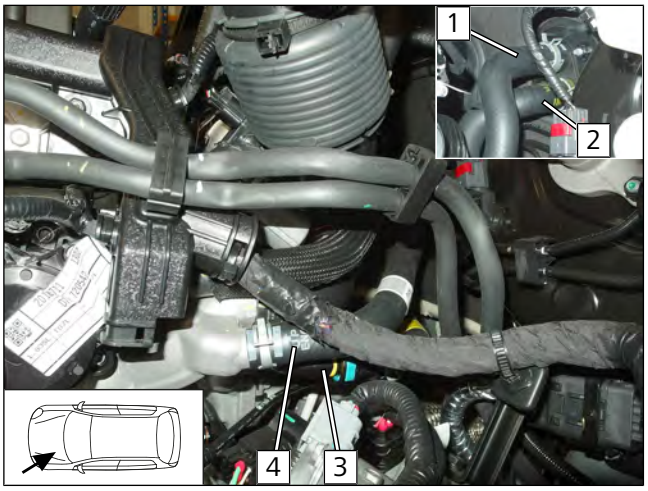


Fig. 75

- ▶ Remove engine inlet / heat exchanger outlet hose **4** / **1** from the connection piece.
- ▶ Remove engine outlet / heat exchanger inlet hose **3** / **2** from the connection piece.
- ▶ Original vehicle spring clips will be reused.
- ▶ Original vehicle quick-release coupling will be reused.

Cutting point 1

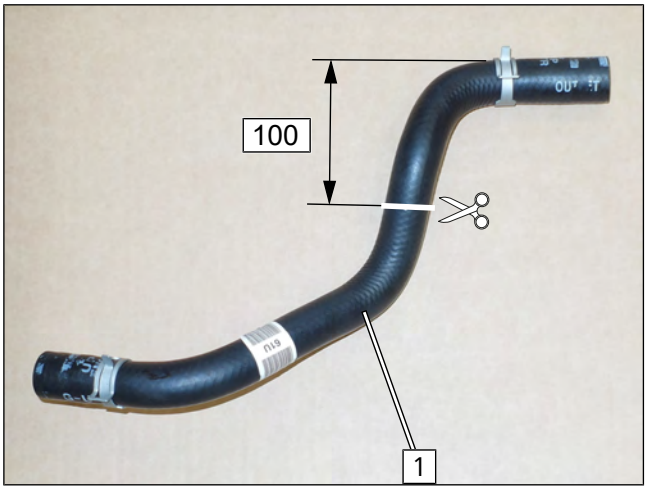


Fig. 76

1 Engine inlet / heat exchanger outlet hose

Mounting T-piece

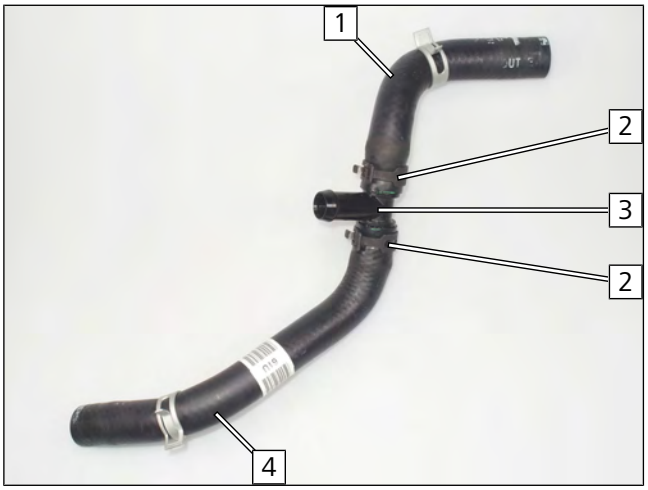


Fig. 77

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

Premounting hose Ⓐ

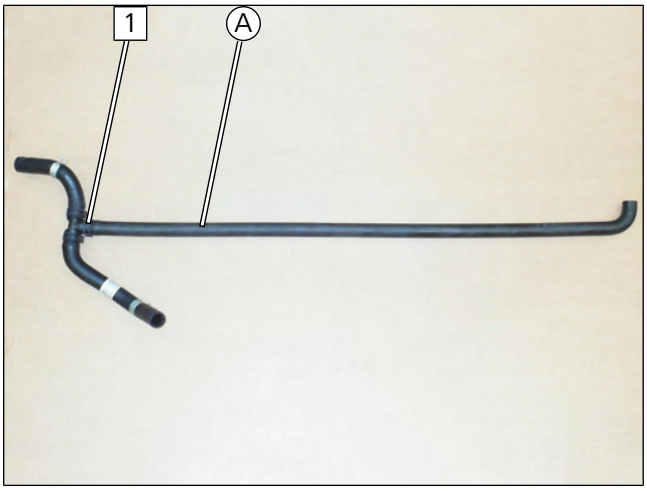


Fig. 78

1 Ø25 spring clip

Cutting point 2

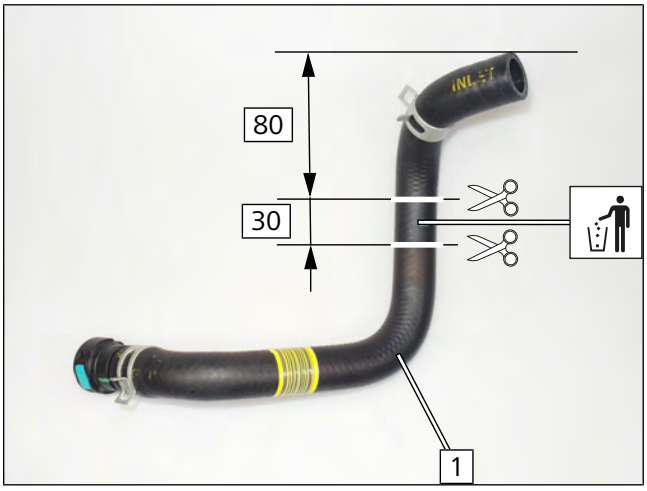


Fig. 79

1 Engine outlet / heat exchanger inlet hose

Mounting non-return valve

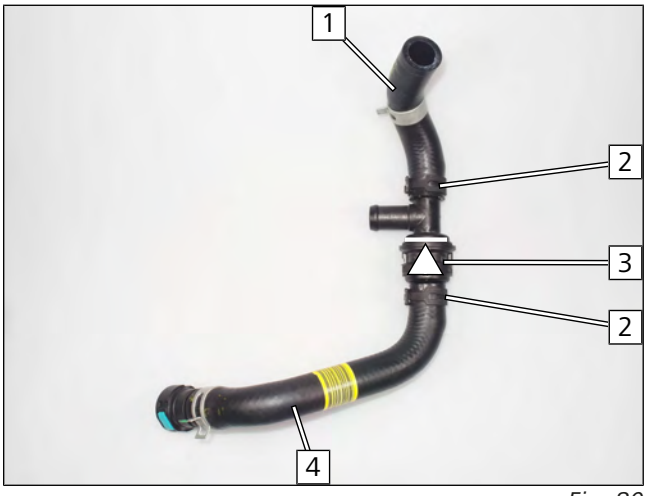


Fig. 80

1 Heat exchanger inlet hose section
2 Ø25 spring clip
3 Non-return valve
4 Engine outlet hose section

Premounting hose (F)

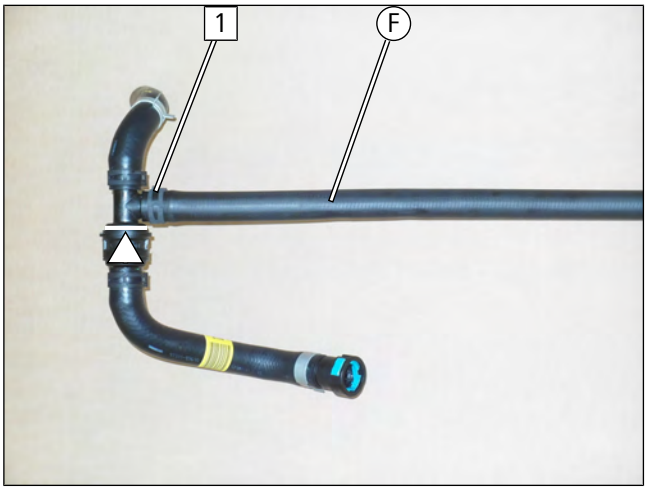


Fig. 81

1 Ø25 spring clip

Engine outlet/heat exchanger inlet connection

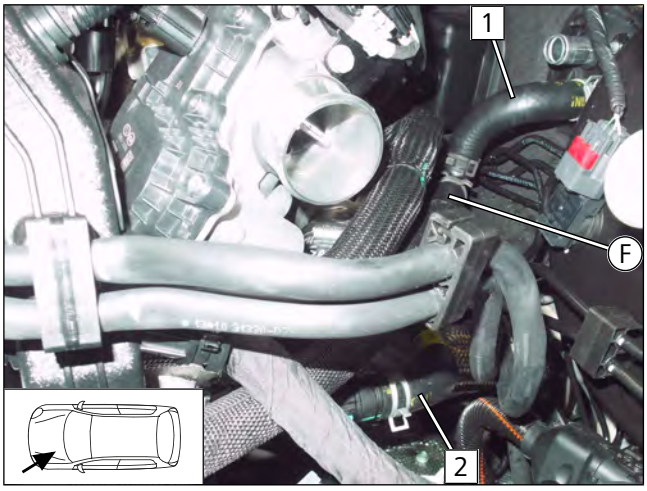


Fig. 82

1 Heat exchanger inlet hose section

2 Engine outlet hose section

Routing hose (F)

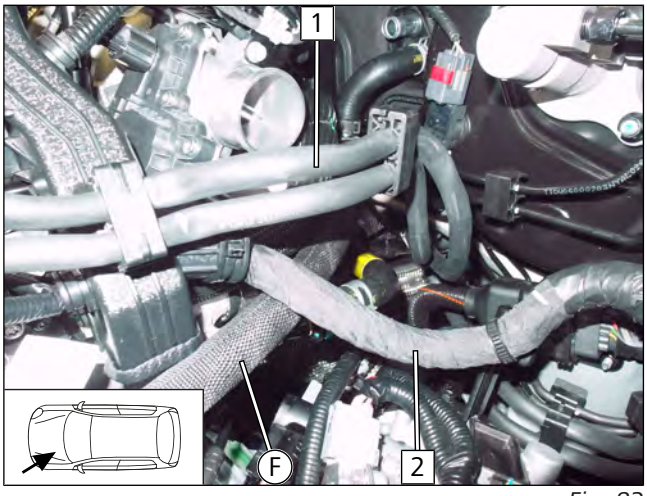


Fig. 83

▶ Route hose (F) below original vehicle lines 1 and original vehicle wiring harness 2 as shown.

Connection of engine inlet/heat exchanger outlet

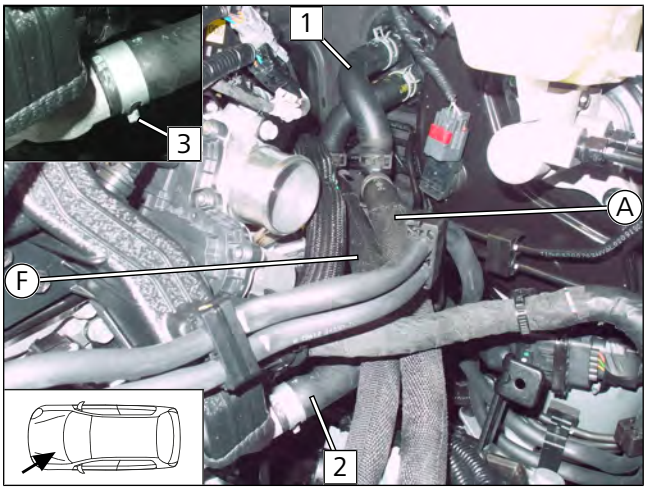


Fig. 84

1 Heat exchanger outlet hose section
2 Engine inlet hose section
3 Turn fastener of original vehicle spring clip on engine inlet connection piece downwards

Routing hose Ⓐ

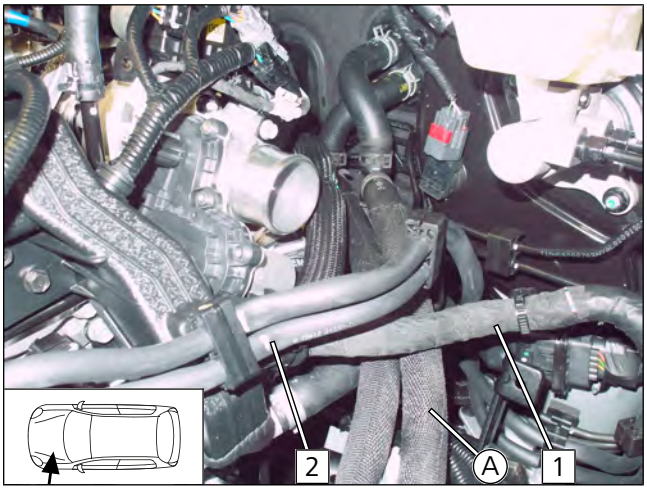


Fig. 85

▶ Route hose Ⓐ below original vehicle lines 2 and original vehicle wiring harness 1 as shown.

Connecting hoses Ⓐ and Ⓕ

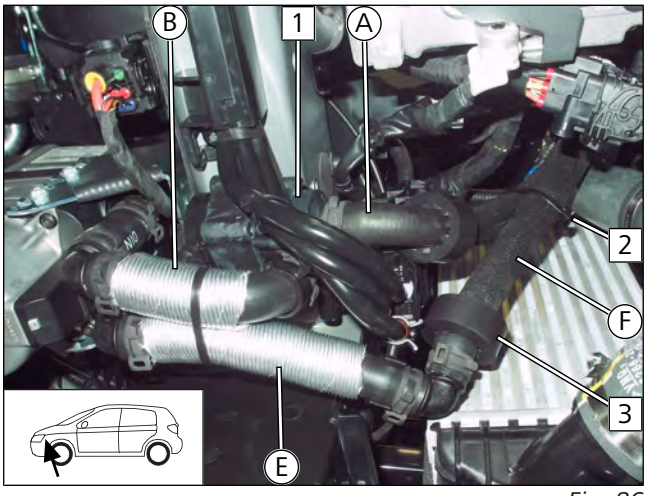


Fig. 86

1 Coolant pump
2 Cable tie
3 Aligning black (sw) rubber isolator

Fastening hoses Ⓐ and Ⓕ

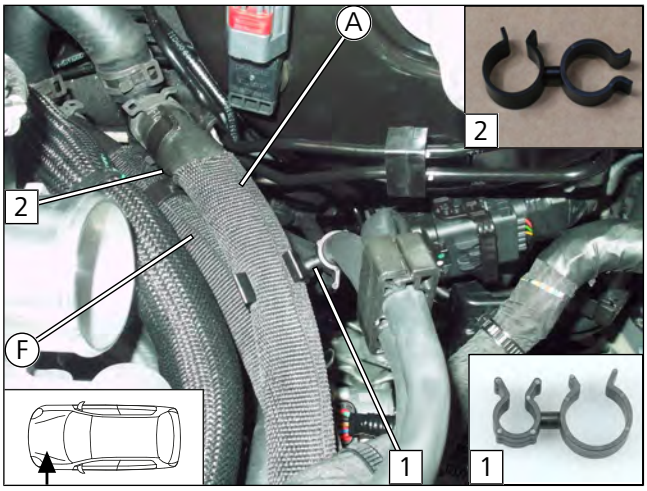


Fig. 87

1 Ø13x22 spacer bracket between hose Ⓐ and original vehicle fuel line

2 Ø25x28 spacer bracket between hose Ⓐ and hose Ⓕ

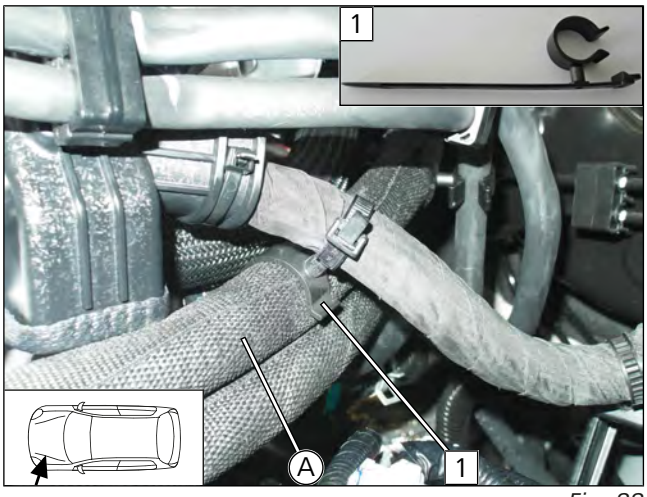


Fig. 88

1 Cable tie with hose bracket around hose Ⓐ and original vehicle wiring harness

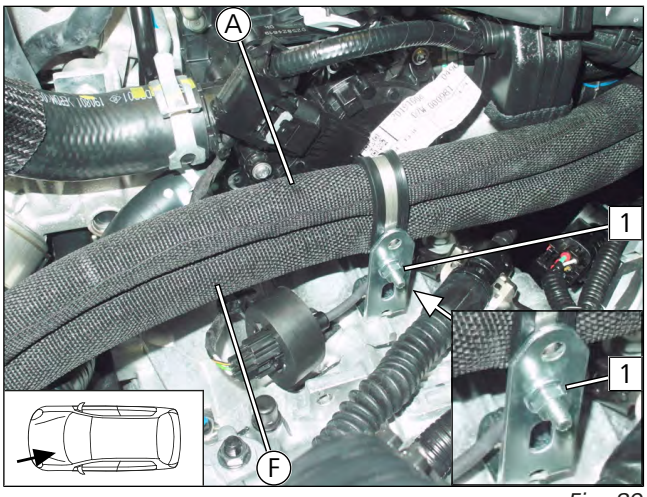


Fig. 89

1 M6x20 bolt, Ø38 rubber-coated p-clamp, pre-mounted perforated bracket, flanged nut

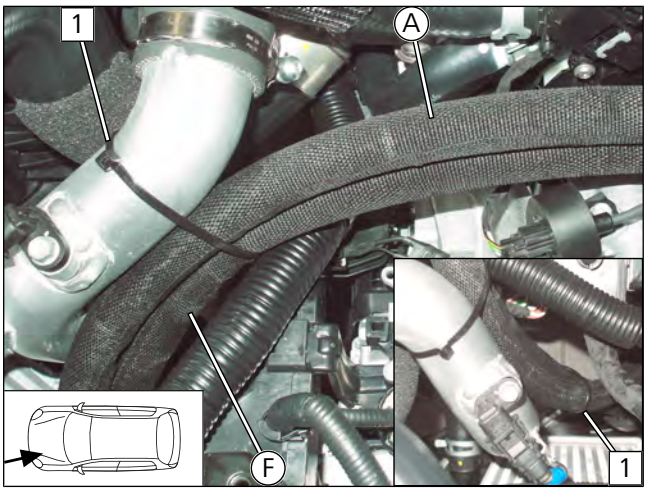


Fig. 90

Danger of damage to components

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

1 Cable tie

12 Coolant for 2.0 CRDi

12.1 Hose routing diagram

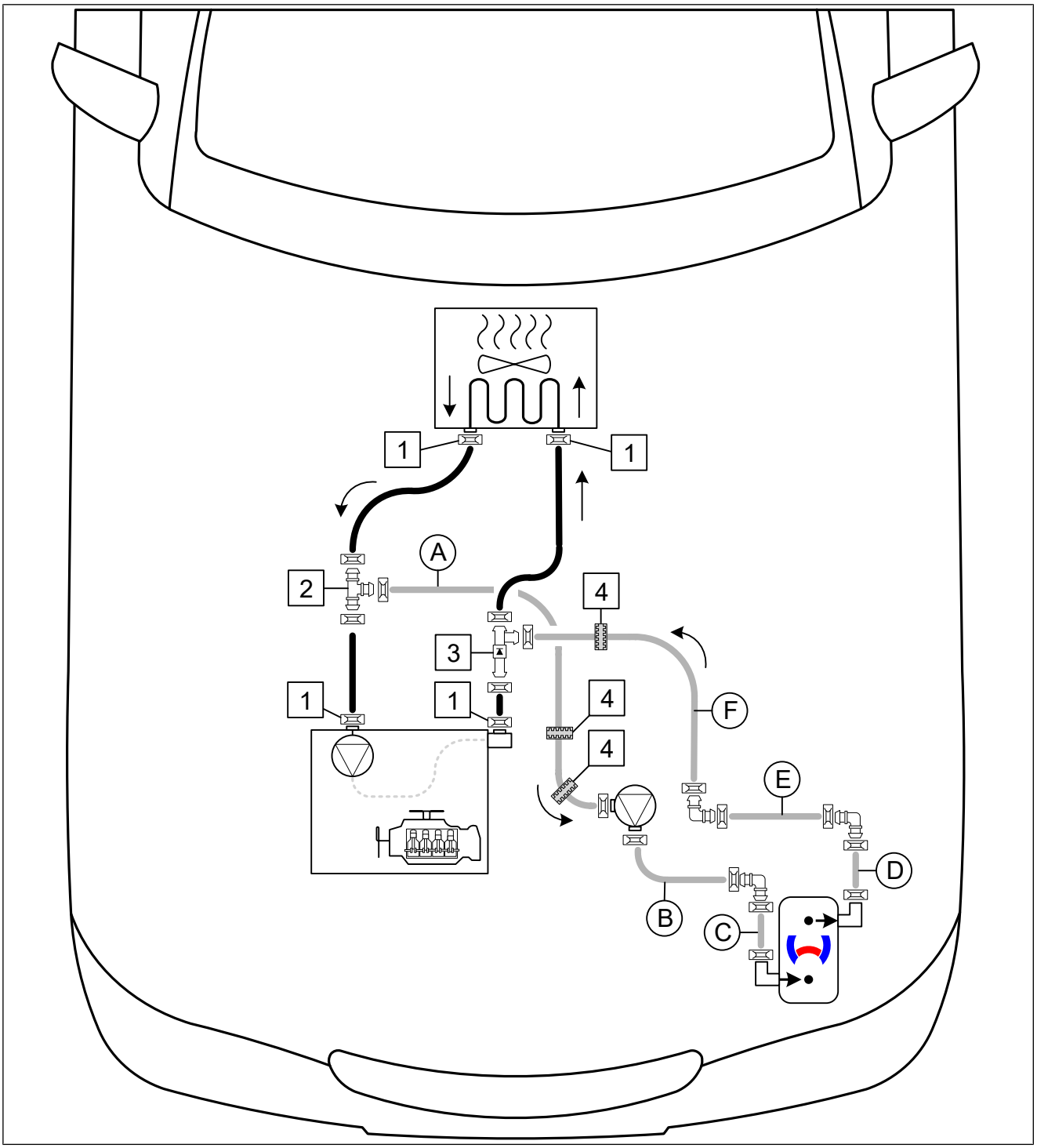


Fig. 91

All spring clips without a specific designation = Ø25

All connecting pipes without a specific designation = Ø18x18

[1] Original vehicle spring clip; [2] T-piece; [3] non-return valve; [4] black rubber isolator

12.2 Preliminary Work

Preparing coolant pump mount

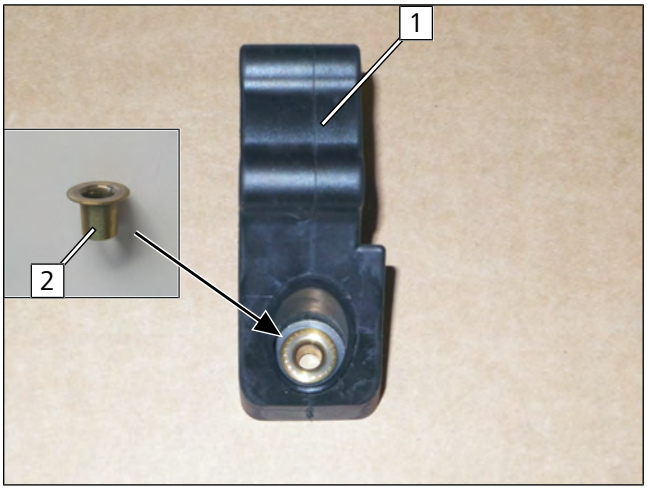


Fig. 92

1 Coolant pump mount
2 Sleeve

Premounting coolant pump

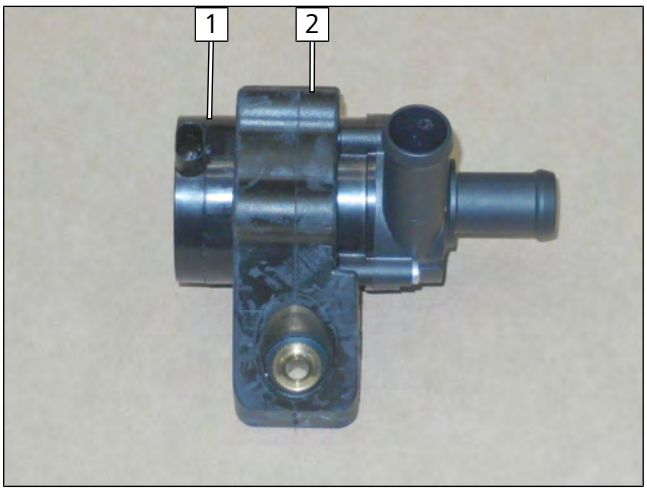


Fig. 93

1 Coolant pump
2 Coolant pump mount

Inserting rivet nut

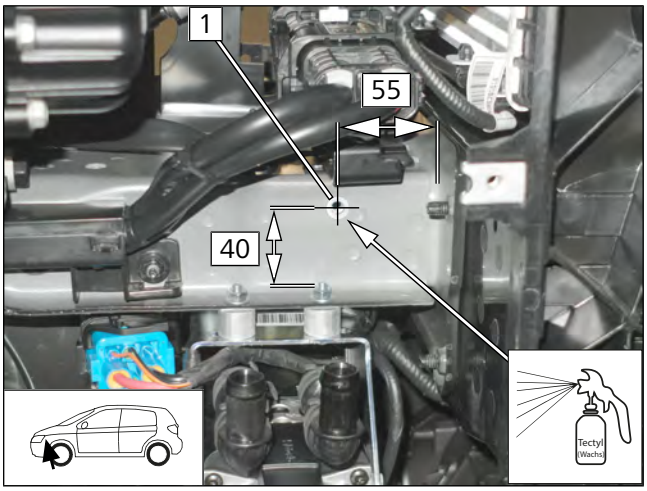


Fig. 94

1 Ø9 hole, rivet nut

Mounting coolant pump

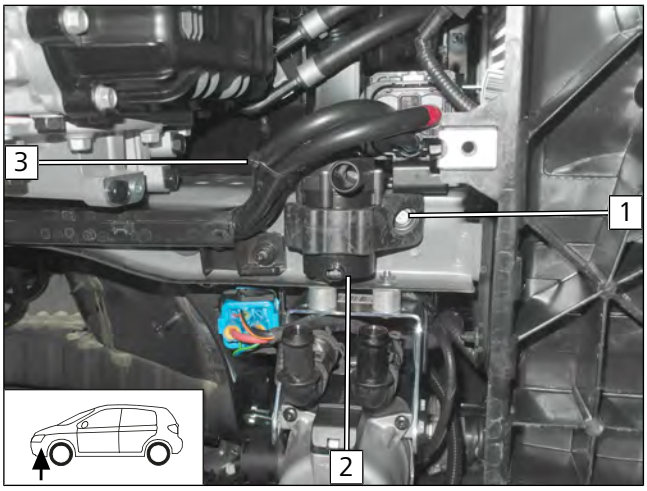


Fig. 95

1 M6x25 bolt
2 Coolant pump
3 Cable tie

Mounting coolant pump wiring harness

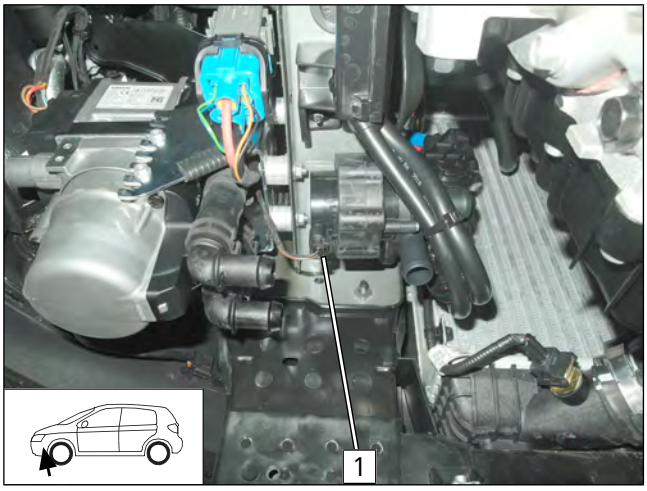


Fig. 96

1 Coolant pump wiring harness

Mounting fabric heat shrink tubings and rubber isolators

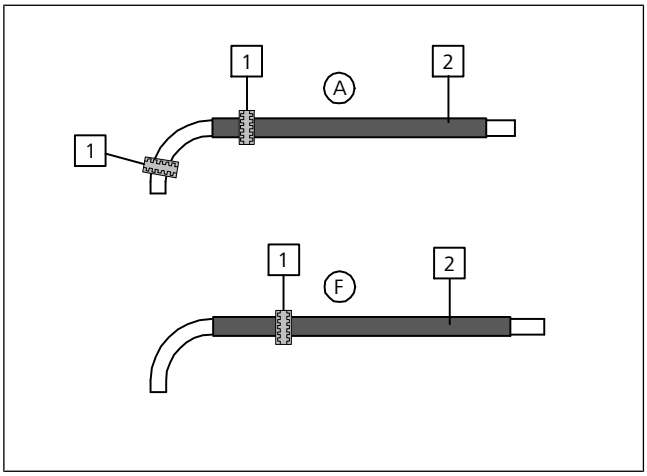


Fig. 97

▶ Push fabric heat shrink tubings 2 onto hoses Ⓐ and Ⓕ, cut to length and shrink.

1 Black (sw) rubber isolator

Mounting heat protection hose

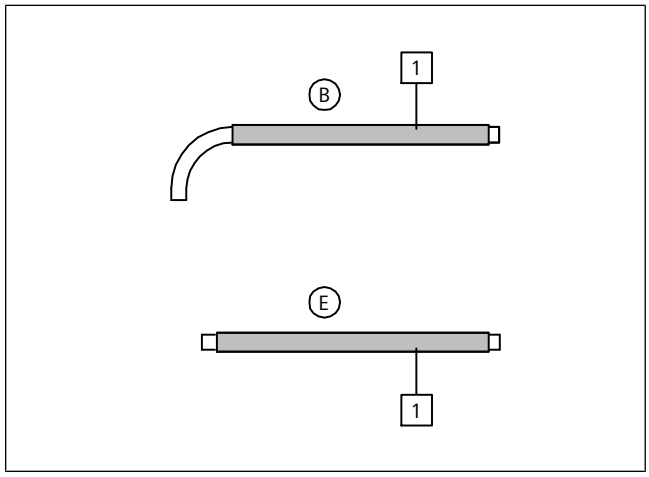


Fig. 98

▶ Cut heat protection hose [1] to length and push onto hoses (B) and (E).

12.3 Coolant circuit installation

Heater outlet connection

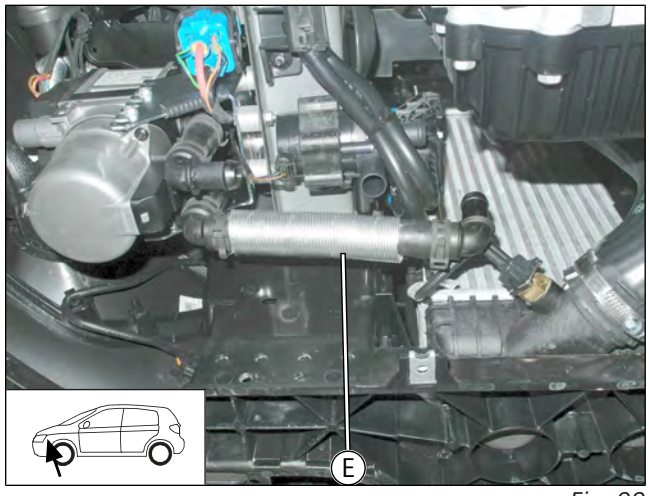


Fig. 99

Heater inlet and coolant pump outlet connection

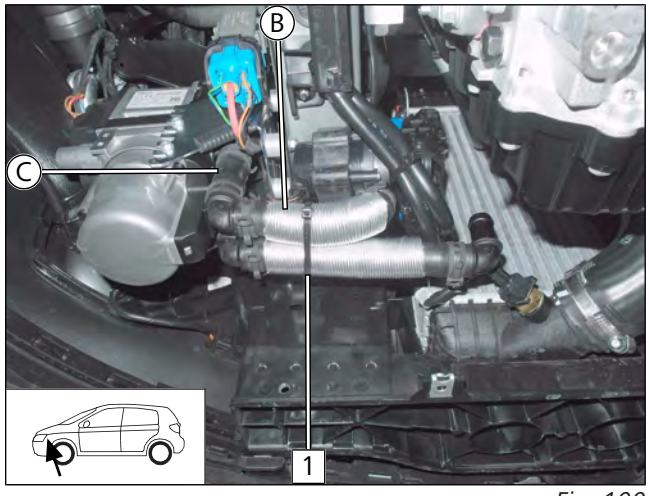


Fig. 100

[1] Cable tie

Fastening hoses Ⓑ and Ⓔ

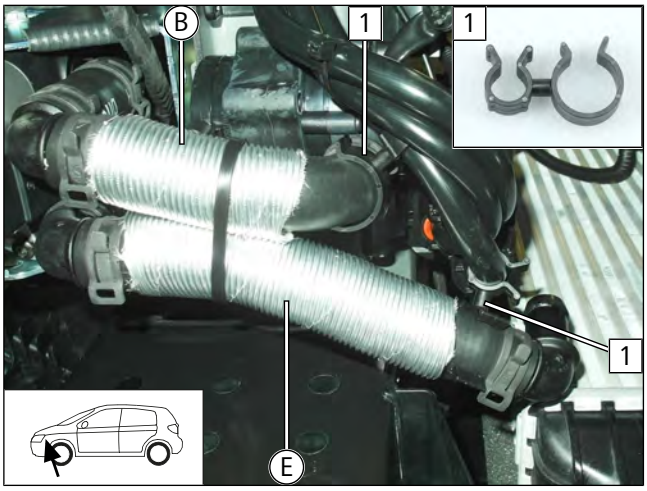


Fig. 101

[1] Ø13x22 hose bracket

Connecting hoses Ⓐ and Ⓕ

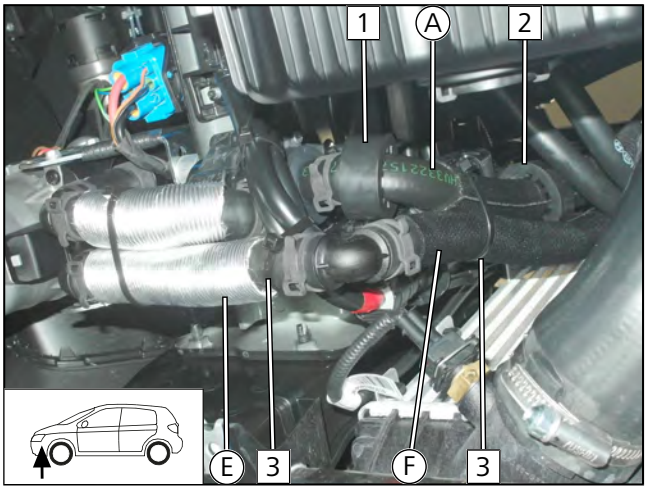


Fig. 102

- ▶ Align black (sw) rubber isolator [1] with original vehicle connector.
- ▶ Align black (sw) rubber isolator [2] with original vehicle connector and original vehicle hose.

[3] Cable tie

Dismantling hoses

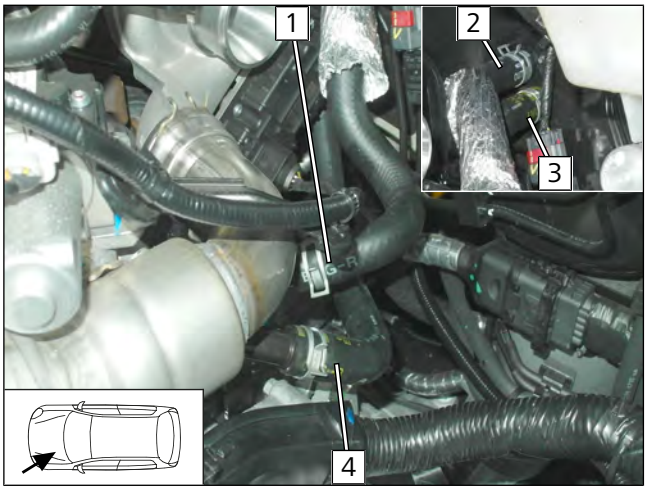


Fig. 103

- ▶ Remove engine outlet / heat exchanger inlet hose [4] / [3] from the connection piece.
- ▶ Remove engine inlet / heat exchanger outlet hose [1] / [2] from the connection piece.
- ▶ Original vehicle spring clips will be reused.

Cutting point 1

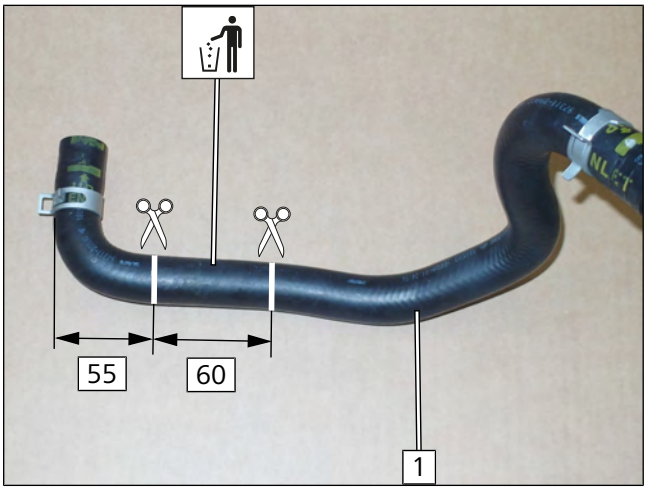


Fig. 104

1 Engine outlet / heat exchanger inlet hose

Mounting non-return valve

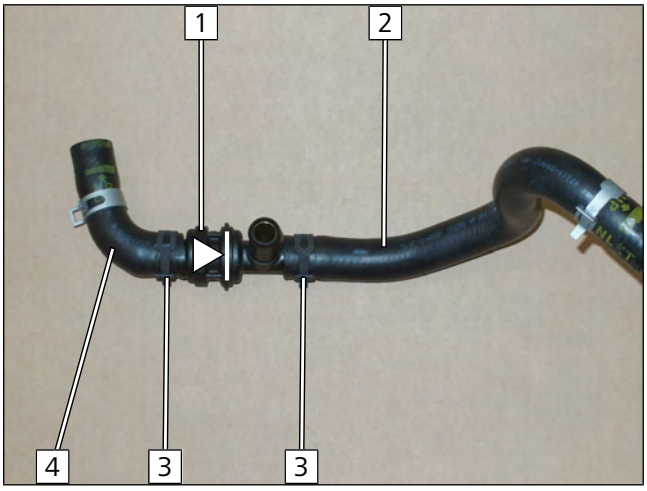


Fig. 105

1 Non-return valve
2 Heat exchanger inlet hose section
3 Ø25 spring clip
4 Engine outlet hose section

Cutting point 2

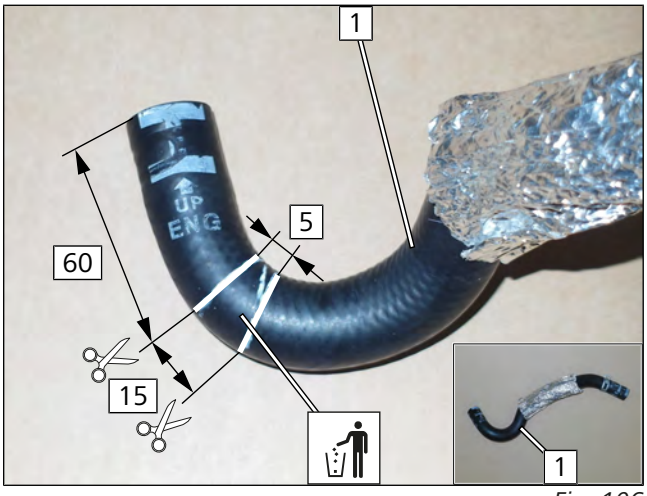


Fig. 106

1 Engine inlet / heat exchanger outlet hose

Mounting T-piece

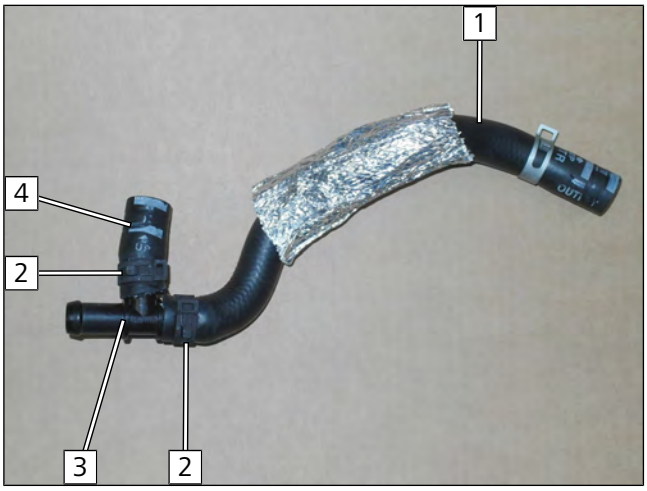


Fig. 107

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

Engine outlet/heat exchanger inlet connection

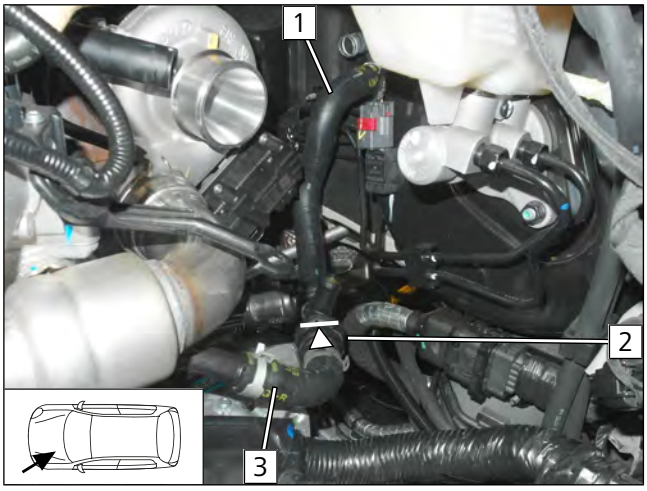


Fig. 108

1 Heat exchanger inlet hose section
2 Non-return valve
3 Engine outlet hose section

Routing hose (F)

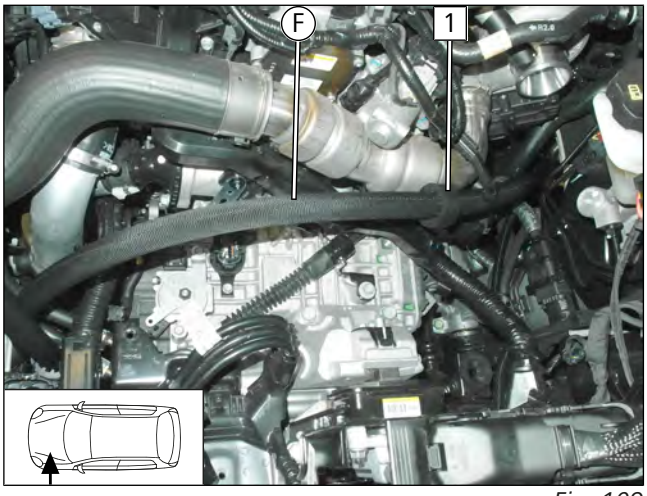


Fig. 109

1 Black (sw) rubber isolator

Connection of hose Ⓕ to non-return valve

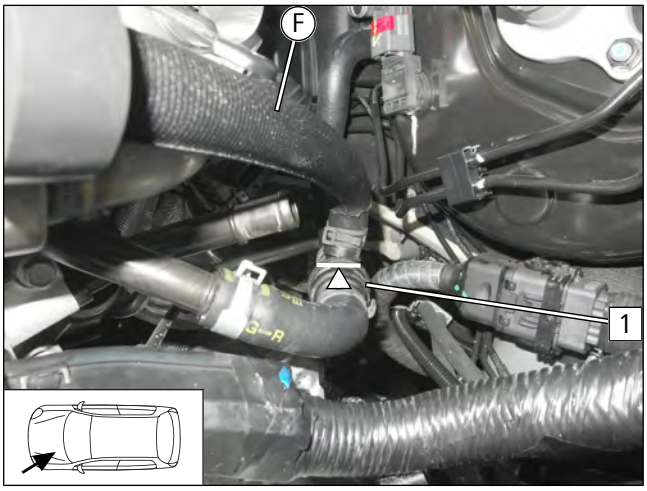


Fig. 110

1 Non-return valve

Connection of engine inlet/heat exchanger outlet

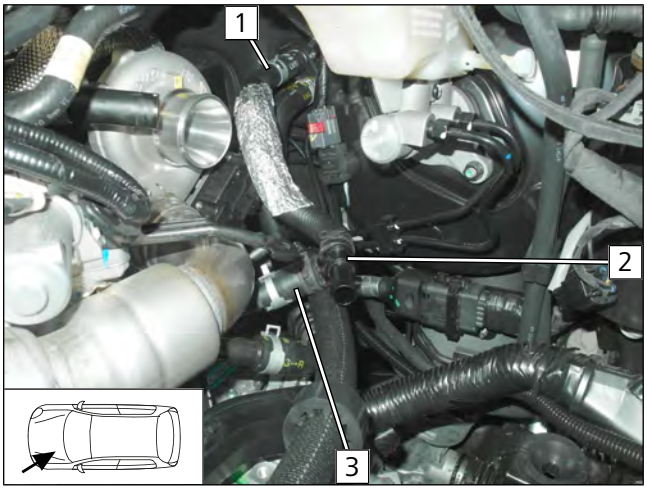


Fig. 111

1 Heat exchanger outlet hose section
2 T piece
3 Engine inlet hose section

Routing hose Ⓐ

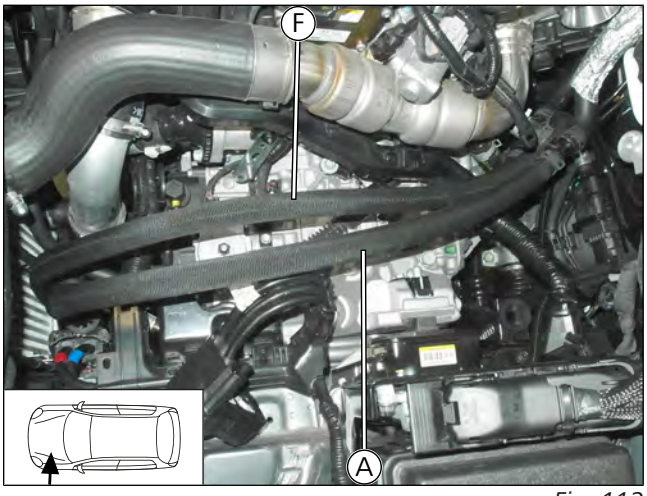


Fig. 112

Connecting hose Ⓐ to T-piece

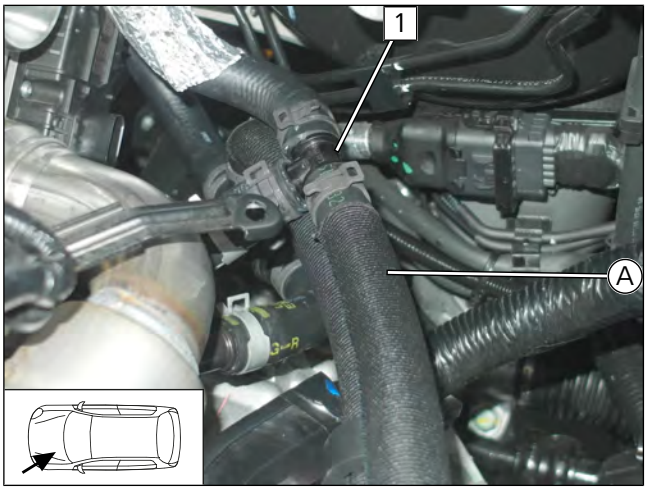


Fig. 113

1 T piece

Preparing perforated bracket

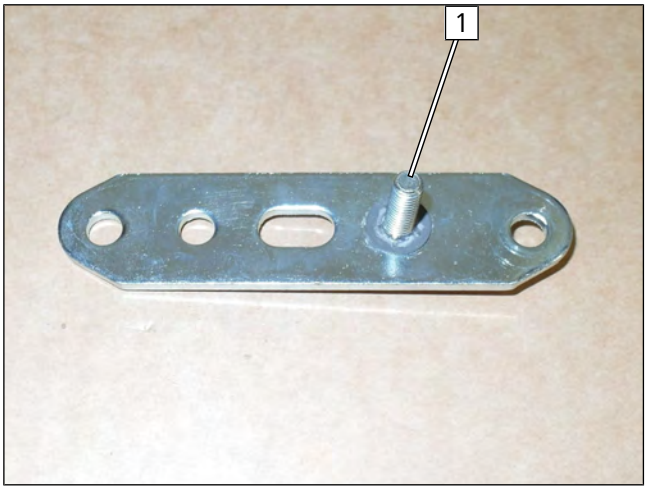


Fig. 114

1 M6x20 bolt, perforated bracket, lock washer

Fastening hoses Ⓐ and Ⓕ

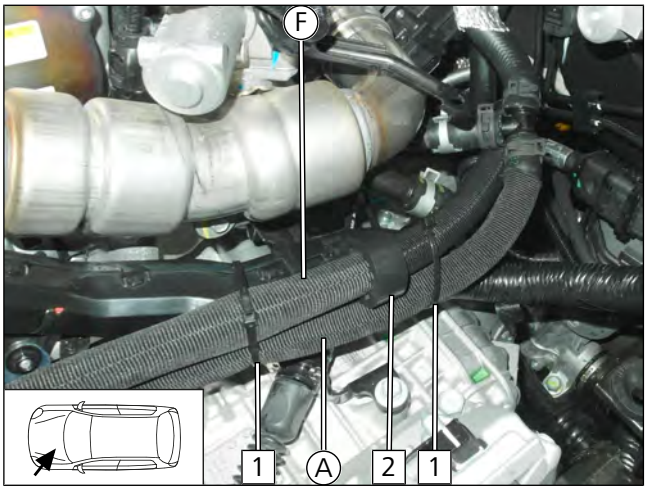


Fig. 115

Danger of damage to components

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

1 Cable tie around hoses Ⓐ and Ⓕ as well as around original vehicle cable duct

2 Position black (sw) rubber isolator

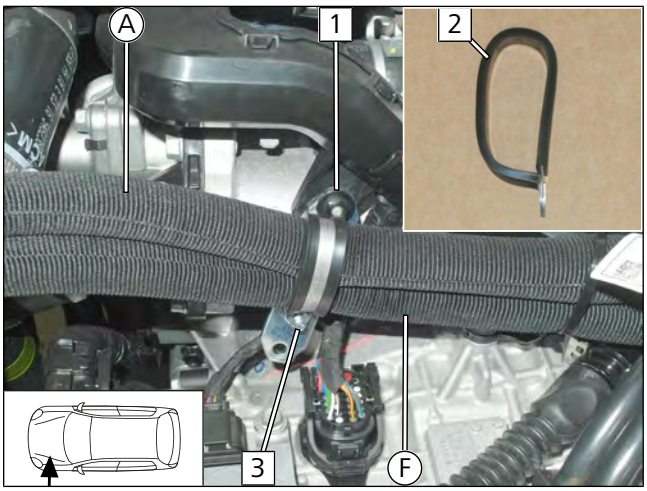


Fig. 116

▶ Shape Ø38 rubber-coated p-clamp 2 as shown.

1 Original vehicle nut

3 Prepared perforated bracket, Ø38 rubber-coated p-clamp, flanged nut

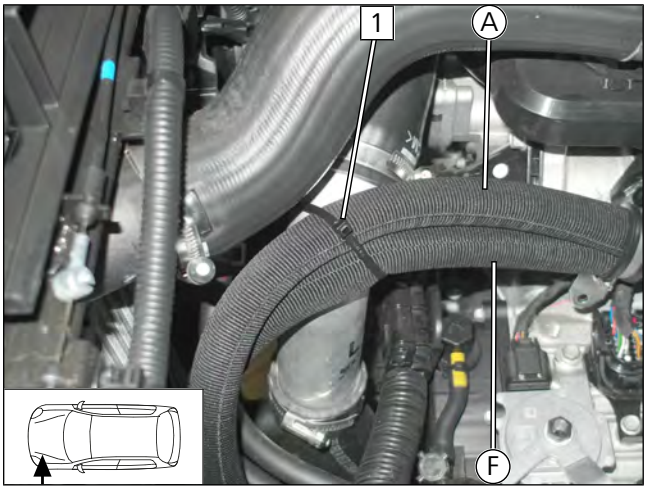


Fig. 117

1 Cable tie around hoses (A) and (F) as well as around original vehicle pipe

Aligning rubber isolator

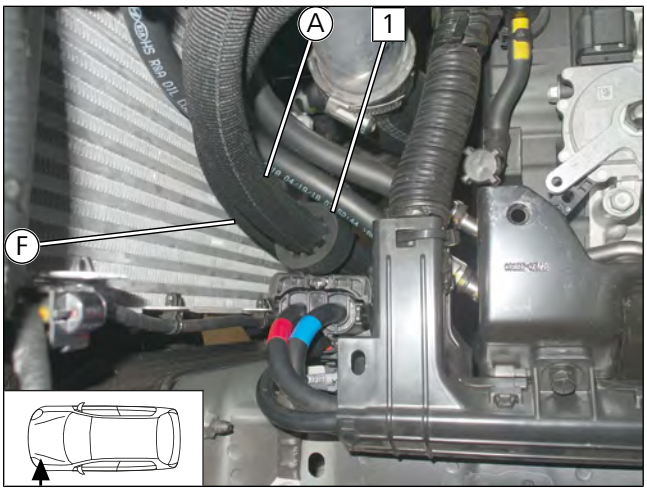


Fig. 118

Danger of damage to components

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

1 Black (sw) rubber isolator

13 Exhaust

13.1 Mounting exhaust pipe

Cutting exhaust pipe to length

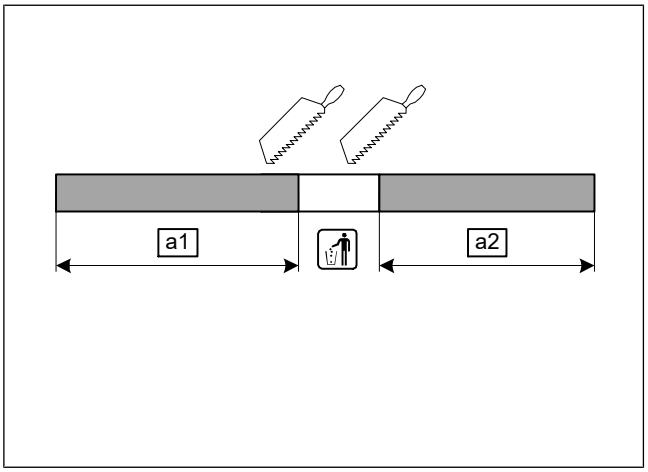


Fig. 119

a1 280
a2 250

Preparing perforated bracket

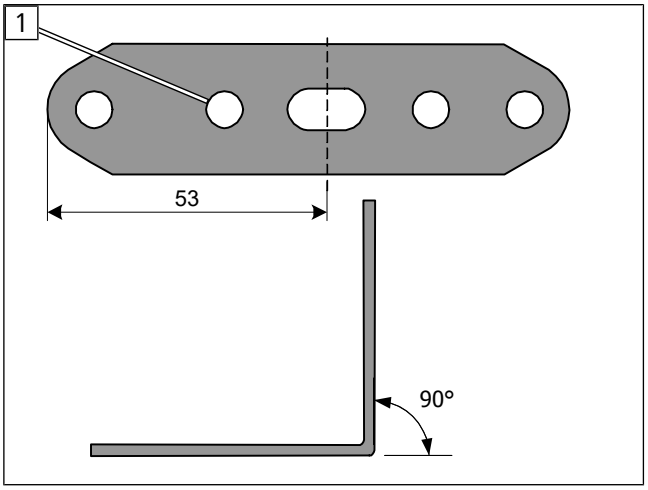


Fig. 120

1 Exhaust silencer fixing point

Premounting exhaust silencer

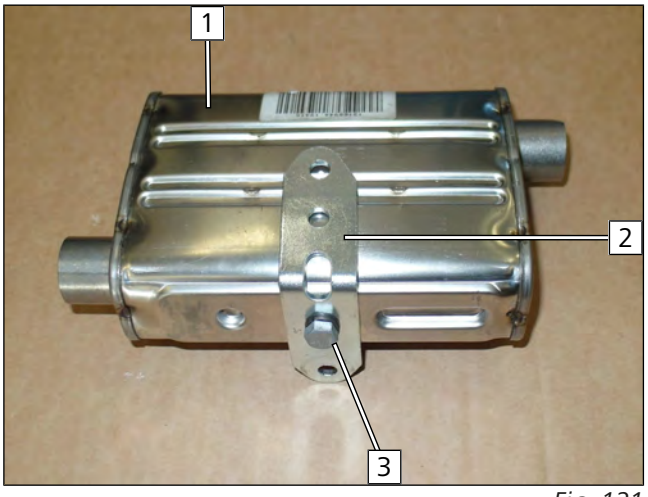


Fig. 121

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

Affixing heat protection film

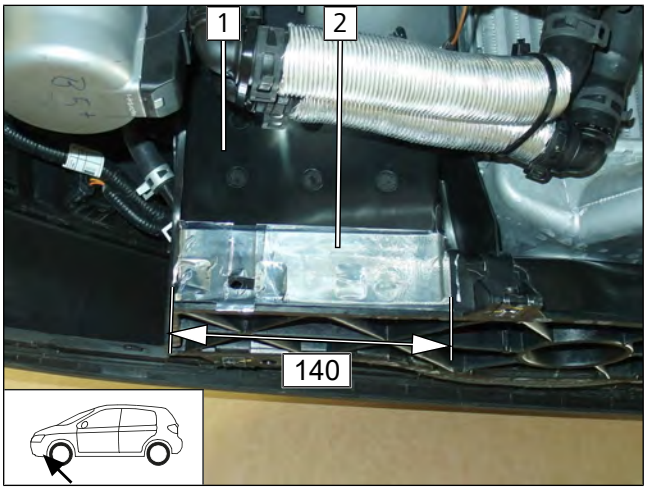


Fig. 122

1 Radiator cross member
2 Heat protection film

Mounting exhaust silencer

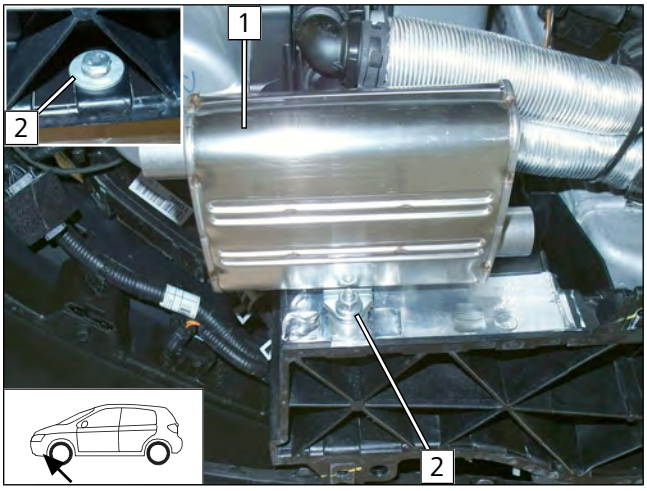


Fig. 123

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

Mounting exhaust pipe a1

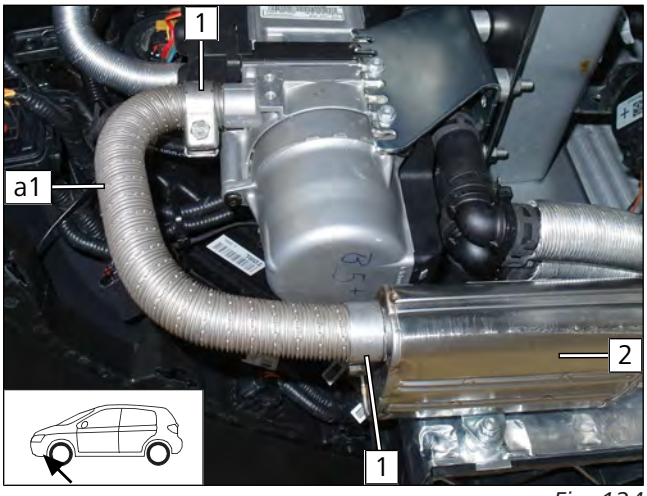


Fig. 124

1 Hose clamp
2 Exhaust silencer

Mounting exhaust pipe **a2**

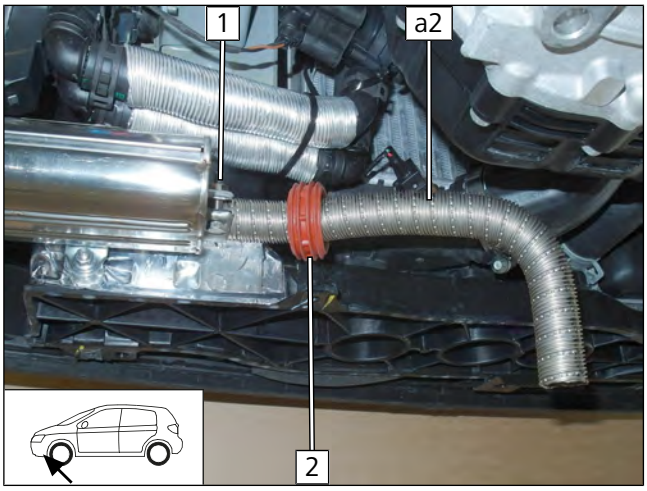


Fig. 125

1 Hose clamp
2 Slide on spacer bracket

Aligning exhaust pipe

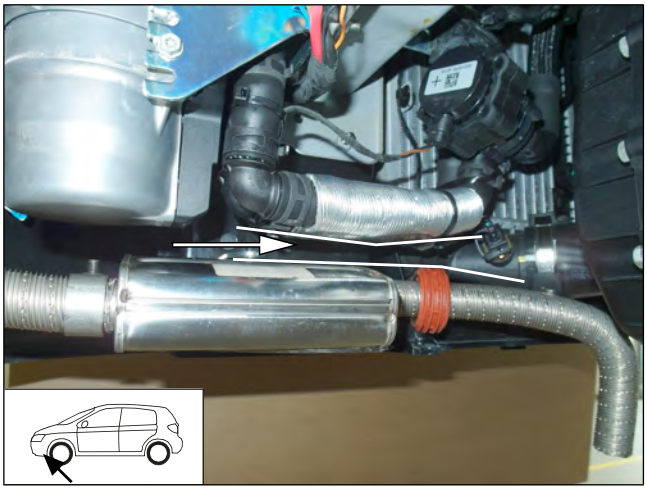


Fig. 126

Ensure sufficient distance from neighbouring components, correct if necessary.

13.2 Mounting exhaust end fastener

Work step E1

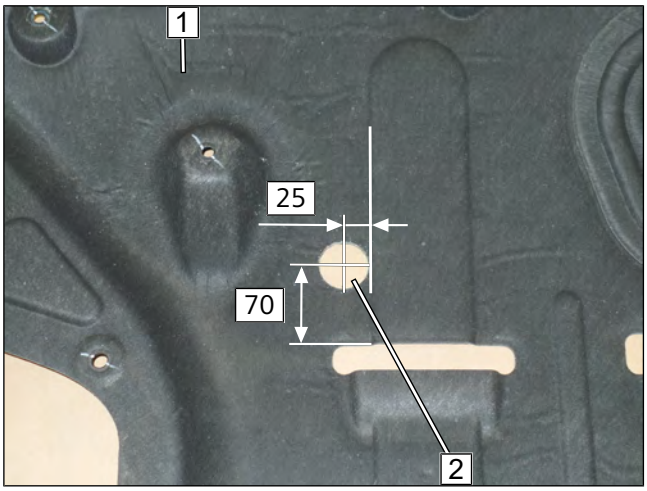


Fig. 127

Observe the EFIX installation instructions.

▶ Drill hole in underride protection.

1 Underride protection
2 Copy hole pattern, hole

Work step E3

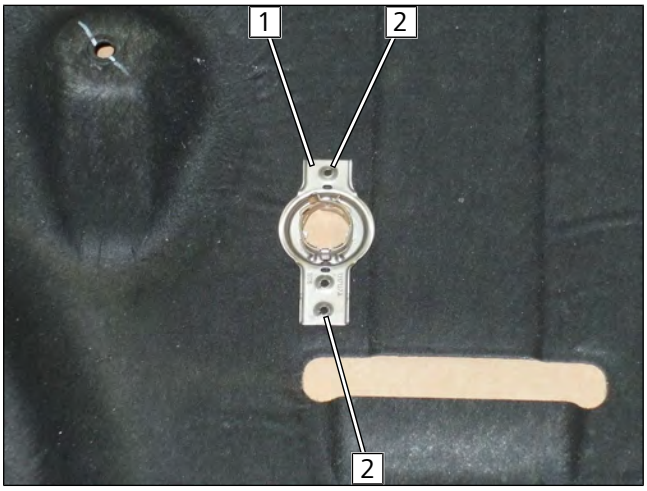


Fig. 128

▶ Copy hole pattern.

1 EFIX
2 Hole pattern

Work step E4

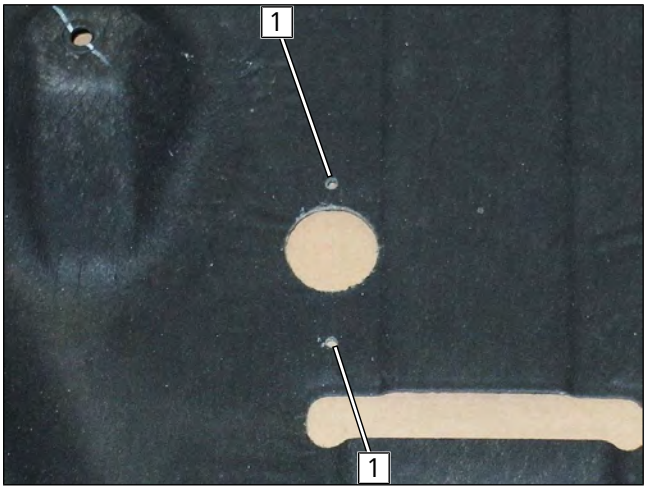


Fig. 129

▶ Drill holes in underride protection.

1 Hole

Work step E5

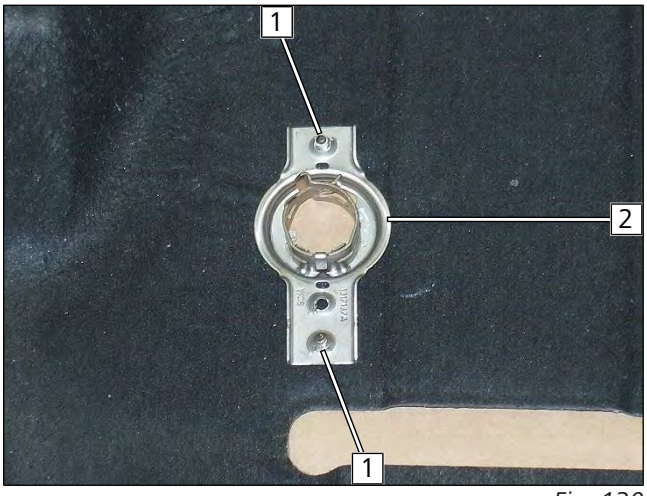


Fig. 130

▶ Mount exhaust end fastener.

1 5x13 self-tapping screw
2 EFIX

Work steps E6-E8

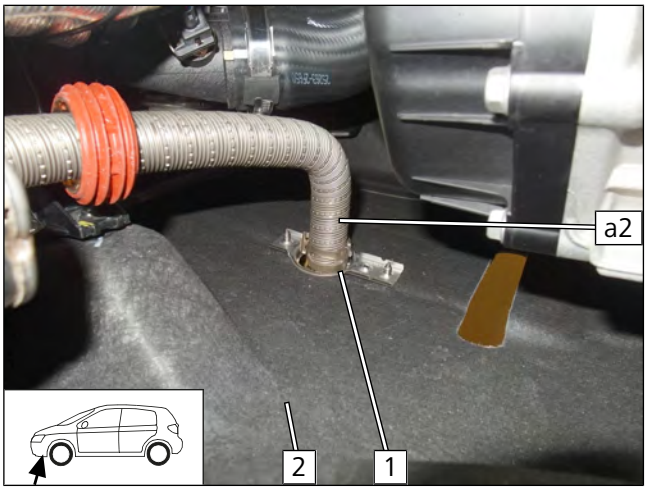


Fig. 131

▶ Mount exhaust pipe **a2**.

1 EFIX

2 Underride protection

14 Electrical system of passenger compartment

14.1 Electrical system preparation

Preparing / assigning wires

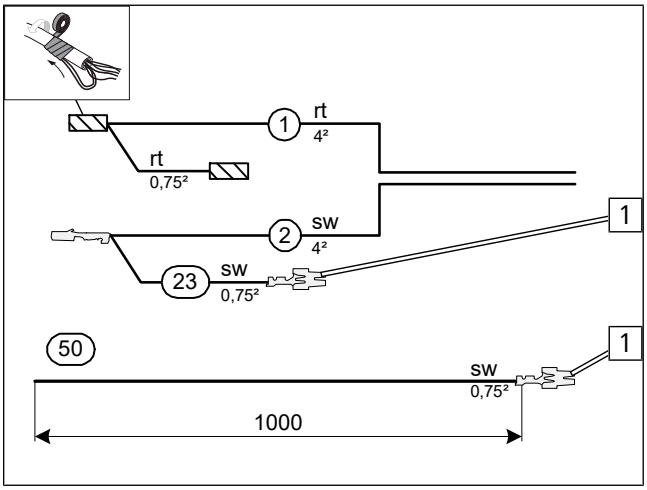


Fig. 132

Wire sections retain their numbering in the entire document.

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

Connecting wires to RSH

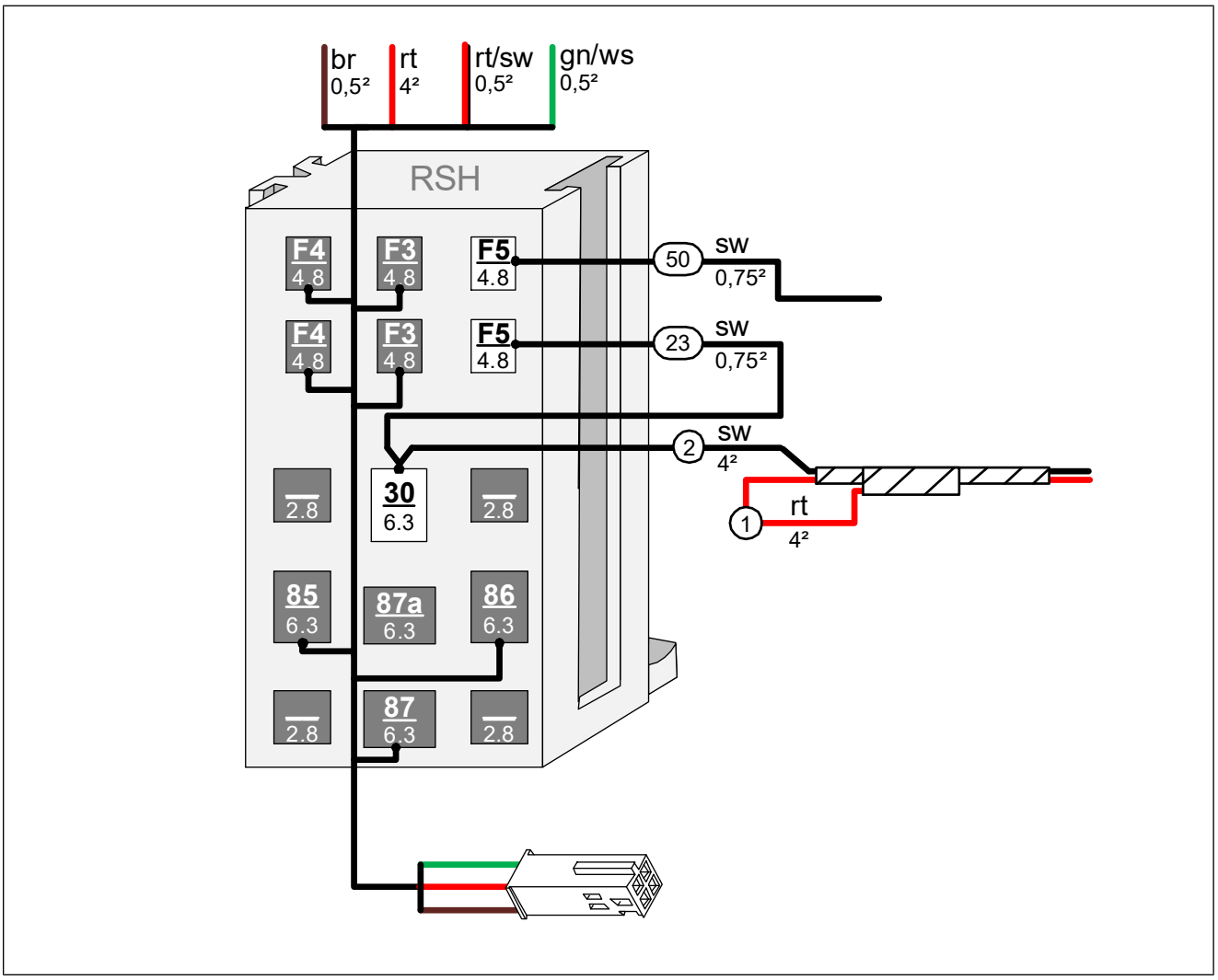


Fig. 133

Premounting RSH

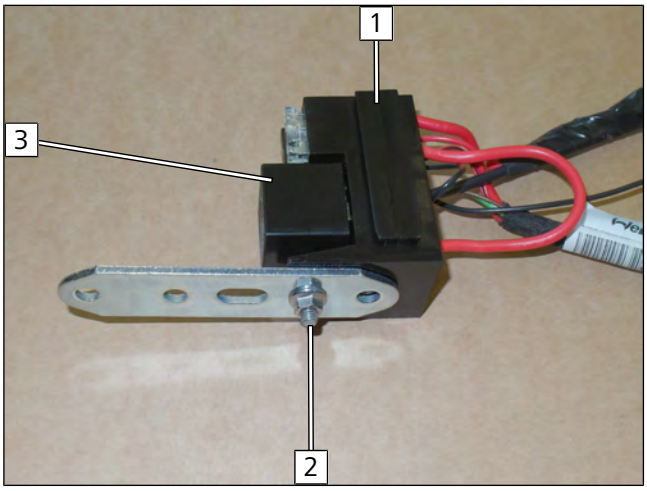


Fig. 134

1 RSH
2 Mount M5x16 bolt, large diameter washer, RSH, perforated bracket, large diameter washer, nut loosely
3 Relay K1

14.2 A/C control panel dismantling instructions for Hyundai Tucson

Detaching switch unit

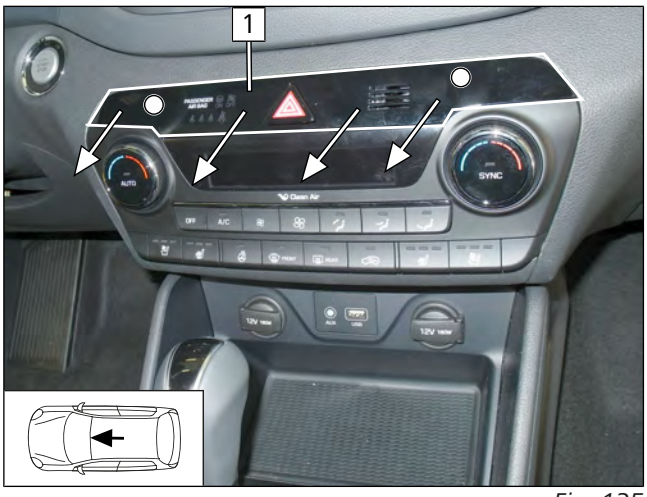


Fig. 135

1 Switch unit
O Attachment points

Disconnecting switch unit

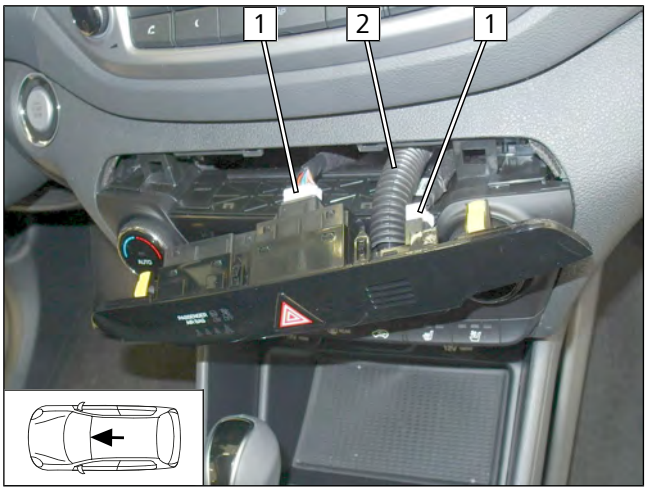


Fig. 136

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

Removing bolts and detaching A/C control panel

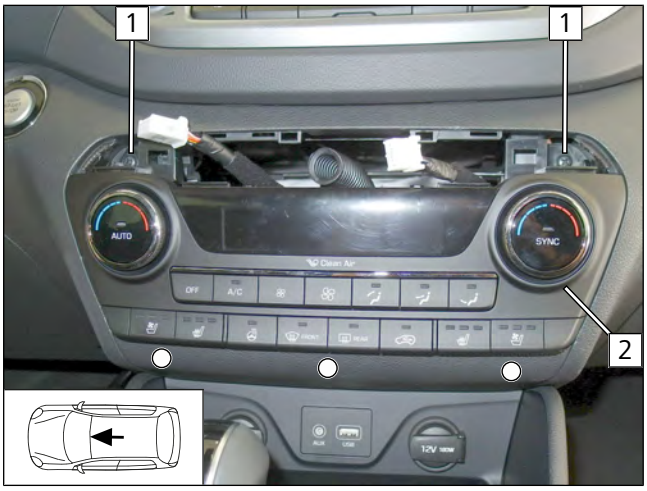


Fig. 137

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

14.3 A/C control panel dismantling instructions for Kia Sportage

Detaching centre console trim

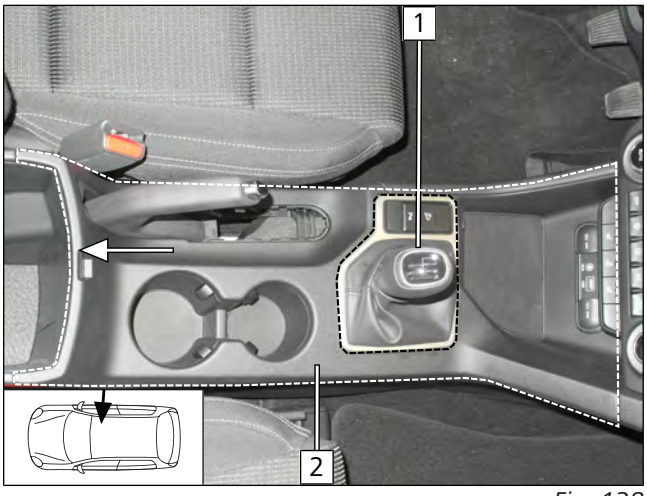


Fig. 138

1 Gear knob with trim
2 Centre console trim

Dismantling instrument panel trim

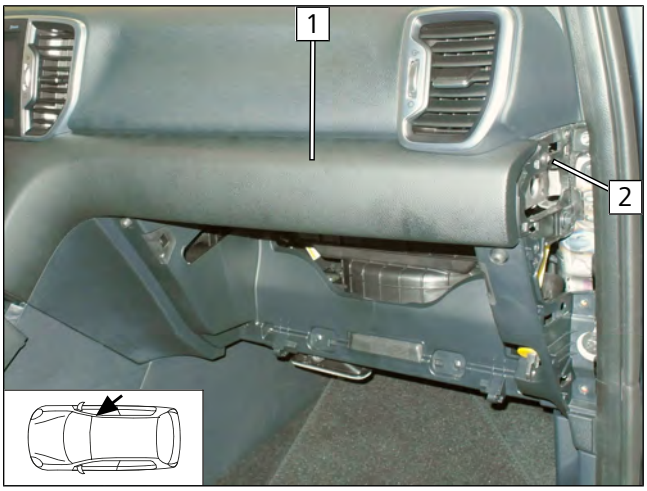


Fig. 139

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

Dismantling glove box, detaching glove box bracket

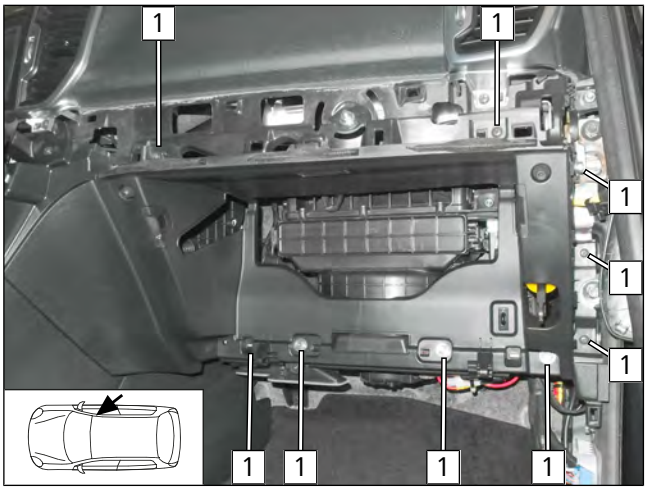


Fig. 140

1 Original vehicle bolt

Removing the A/C control panel

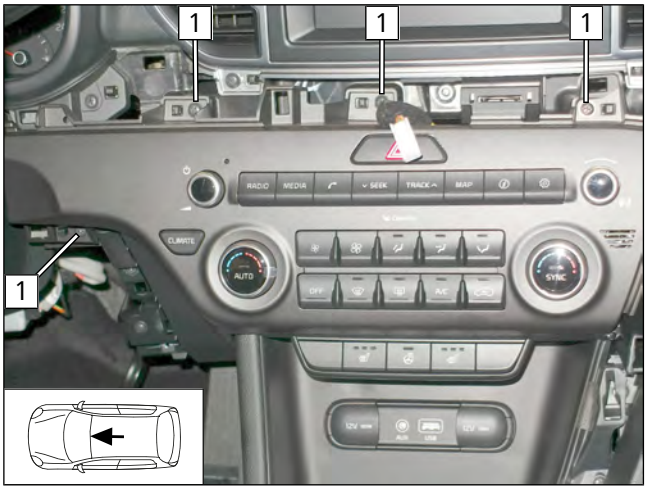


Fig. 141

1 Original vehicle bolt

14.4 Wiring diagram

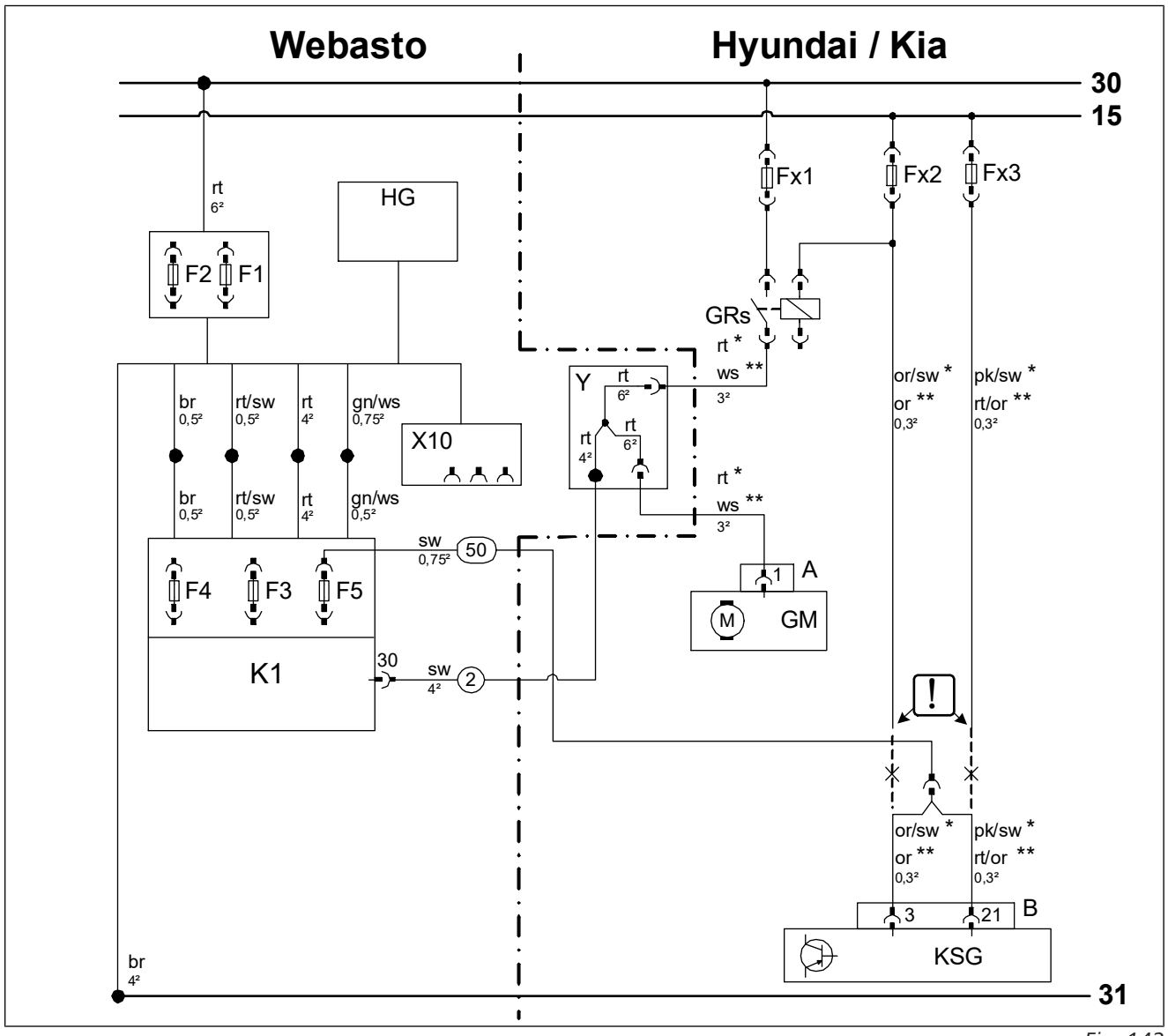


Fig. 142

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	Micro Gateway CAN CAN LIN	gn	green
CL GW	Micro SPS CAN / WBus (Gateway CAN LIN)	gr	grey
CLR	CAN LIN Rxx (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		
LA	Power adapter		
LIN GW	LIN Gateway		
MV	Solenoid valve		
PWM GW	LIN Gateway / PWM (pulse width modulator)		
RSH	Relay and fuse holder of passenger compartment		
RTD	Temperature sensor		
X10	Female plug for control element		

14.5 Fan controller

Mounting RSH

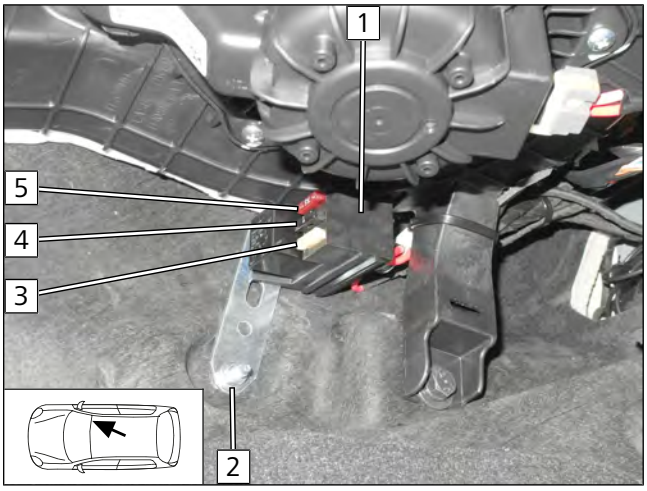


Fig. 143

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

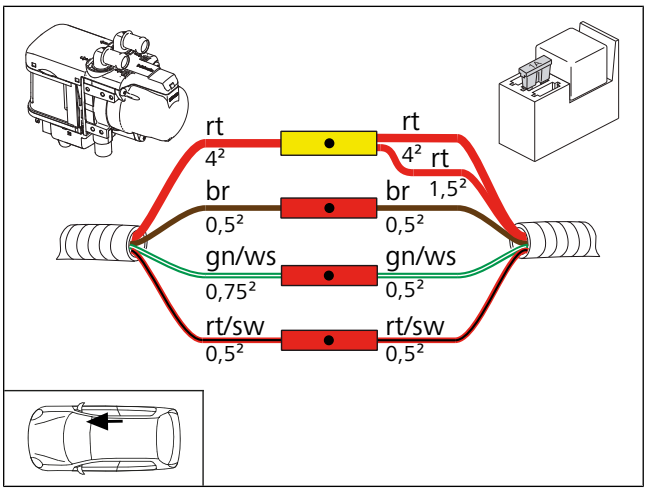


Fig. 144

Fan motor connection

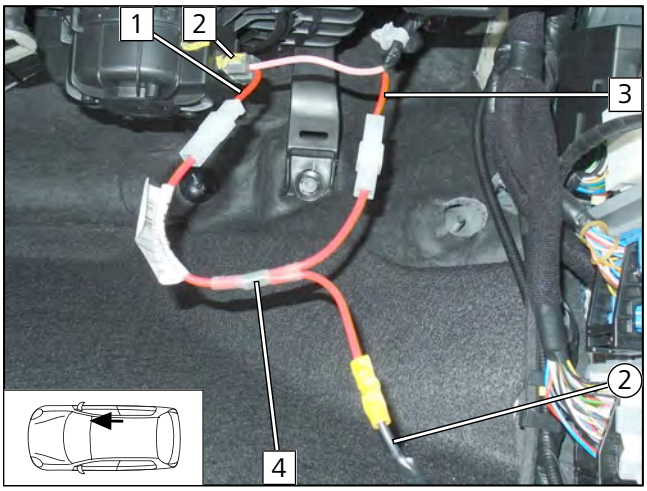


Fig. 145

1 Wire of connector A, pin 1
2 2-pin connector A of GM
3 Wire of original vehicle fan relay
4 Power adapter LA
② Black (sw) wire of K1/30 fan wiring harness

Disconnecting connector

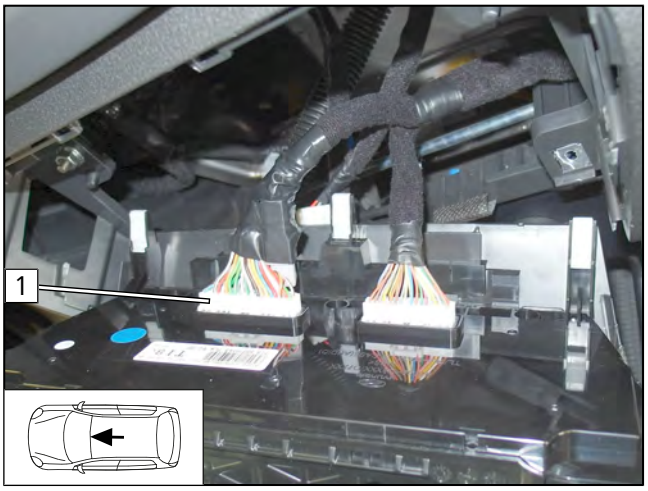


Fig. 146

1 40-pin connector B

View of connector B

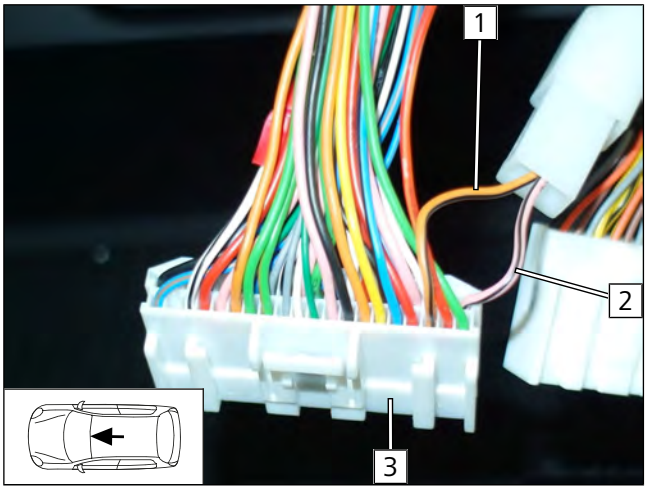


Fig. 147

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

Connecting KSG

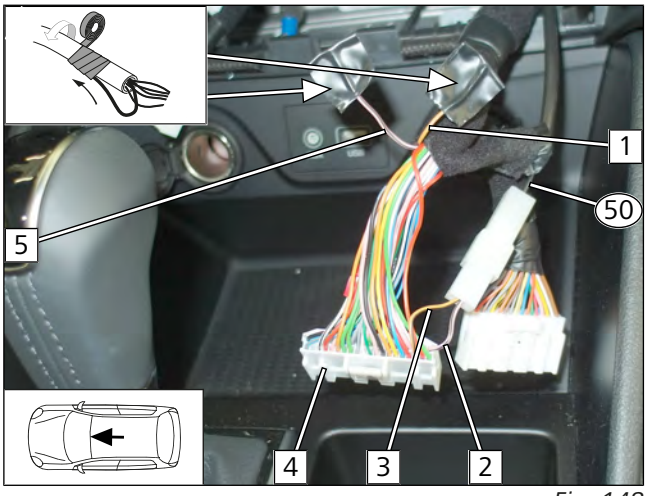


Fig. 148

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

15 Electrical system of control elements

15.1 MultiControl CAR option

Mounting MultiControl CAR

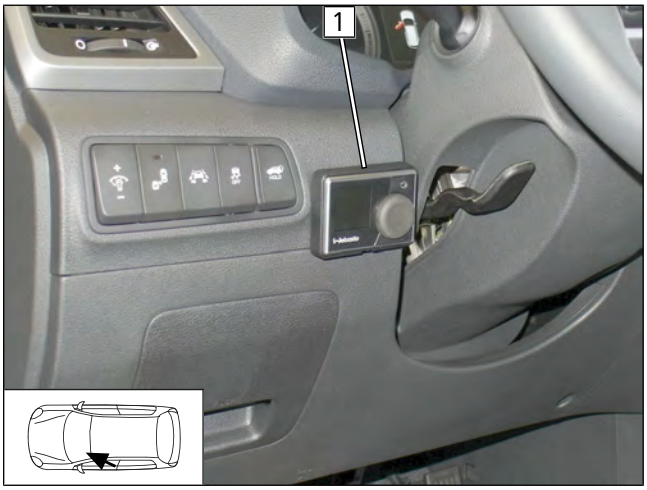


Fig. 149

Observe the MultiControl CAR installation documentation.

1 Installation frame

15.2 Telestart option

Preparing receiver

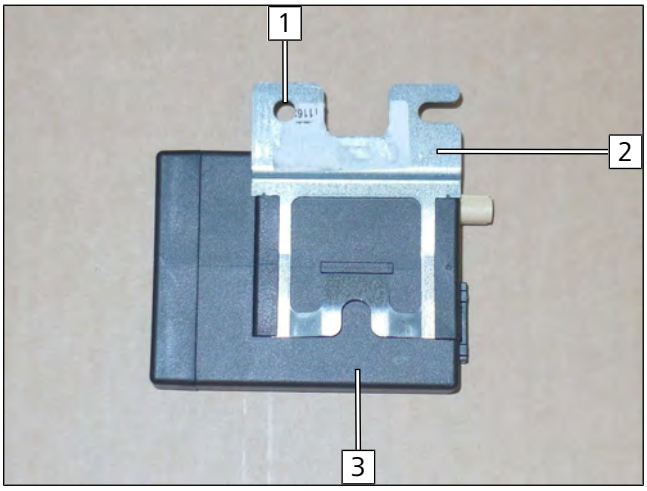


Fig. 150

Observe the Telestart installation documentation.

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

Mounting receiver

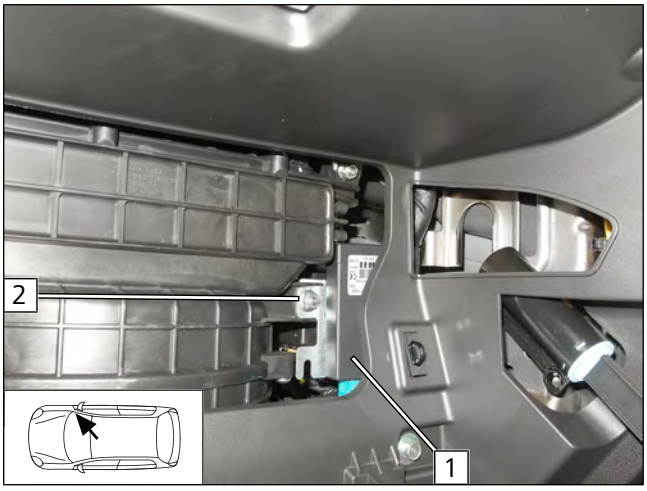


Fig. 151

1 Receiver
2 Original vehicle nut, receiver bracket

Mounting temperature sensor, only in case of T100 HTM

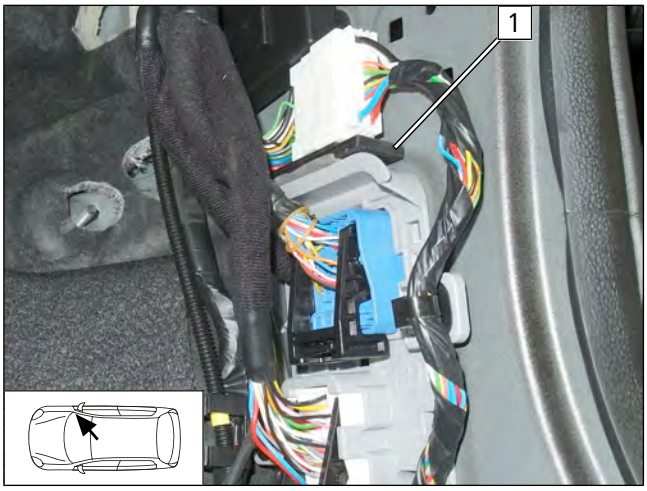


Fig. 152

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

Mounting aerial

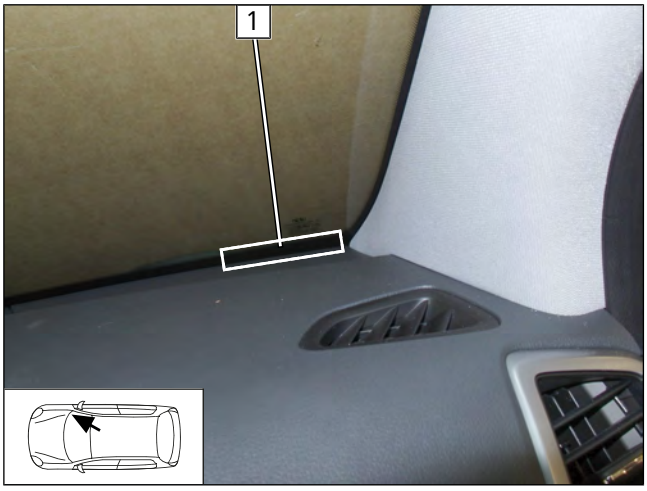


Fig. 153

1 Aerial

15.3 ThermoCall option

Mounting receiver

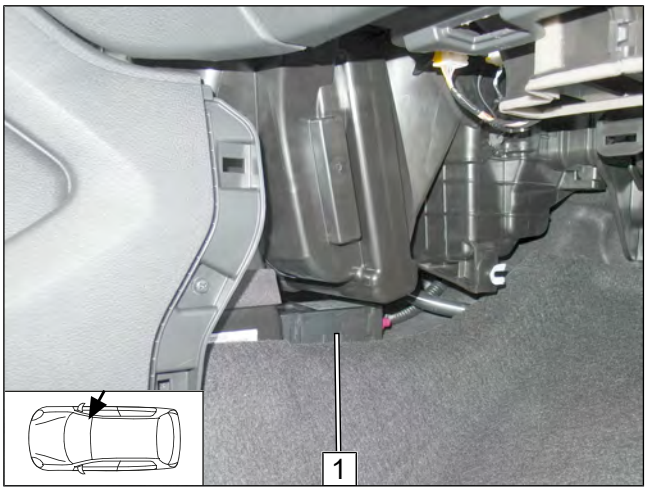


Fig. 154

▶ Fasten receiver 1 using double-sided adhesive tape.

Mounting aerial (optional)

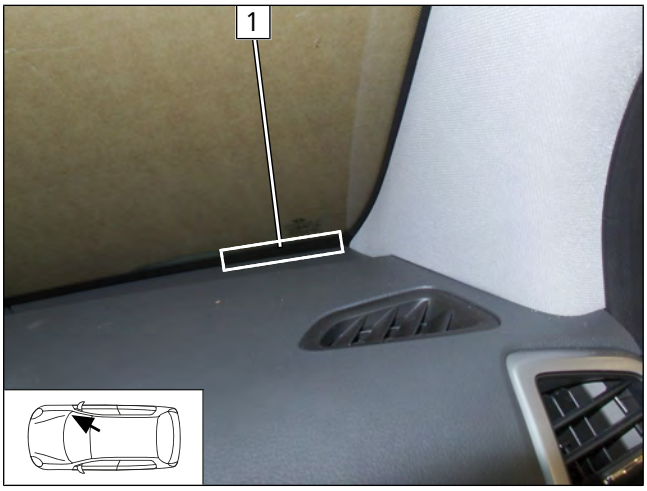


Fig. 155

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'.

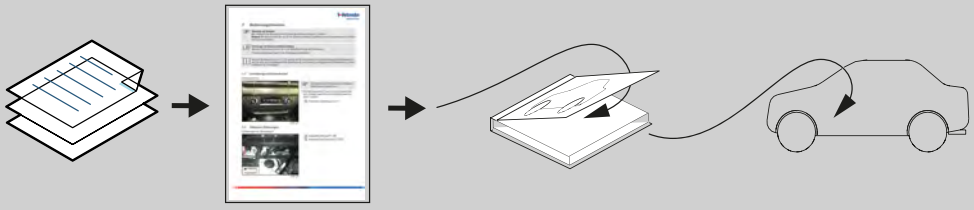
▶ Initial operation and functional test

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

Vehicle event log after parking heating mode

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

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



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

Webasto Thermo & Comfort SE
Postfach 1410
82199 Gilching
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Friedrichshafener Str. 9
82205 Gilching
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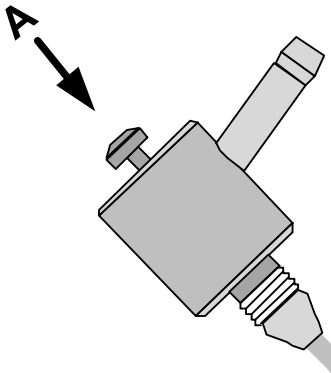
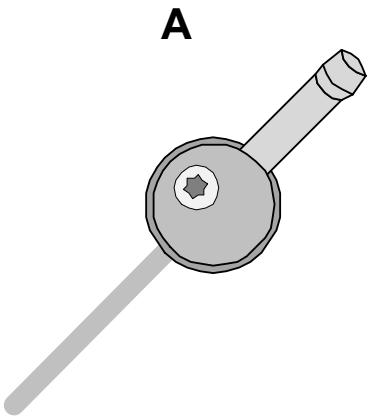
Technical Extranet: https://dealers.webasto.com

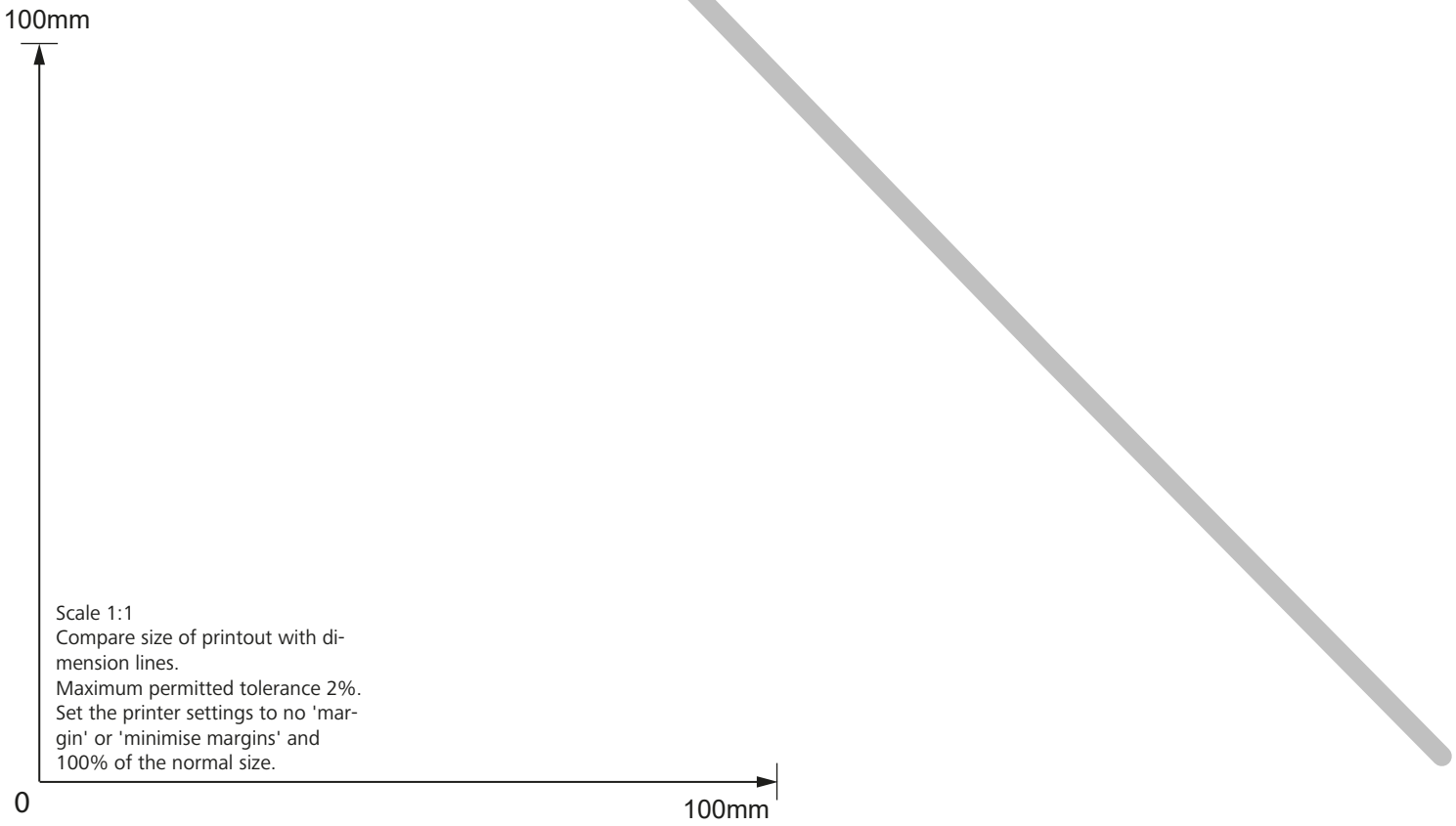
CE

WWW.WEBASTO.COM

17 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.

18 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

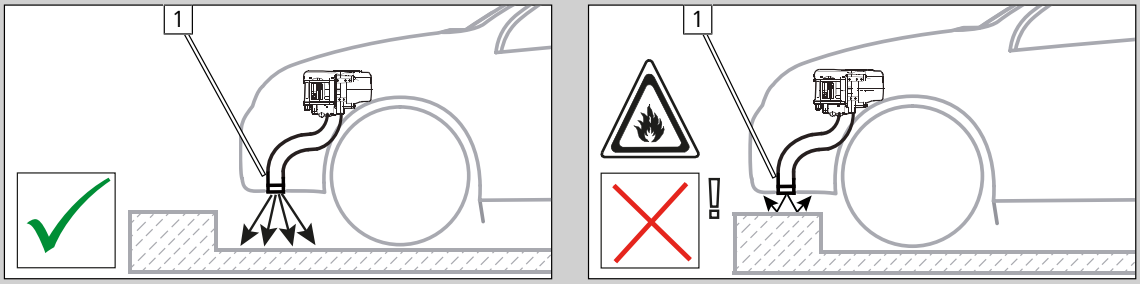
Your vehicle is equipped with a passenger compartment preheating unit. There is **no** engine pre-heating.

Note for current consumption in case of parking heating mode

Depending on the vehicle model, there may be an increased quiescent current consumption message in the vehicle information system during or directly after operation in parking heating mode.

▶ This is not an error that can affect the vehicle on a technical level.

Notes on parking heater exhaust outlet 1



18.1 A/C control panel settings

Automatic A/C control panel

Fig. 156

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'

18.2 Installation location of fuses

Fuses in engine compartment

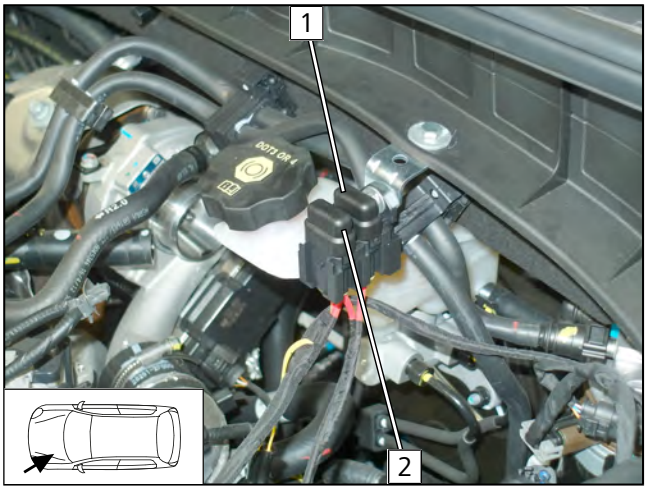


Fig. 157

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

Fuses in passenger compartment

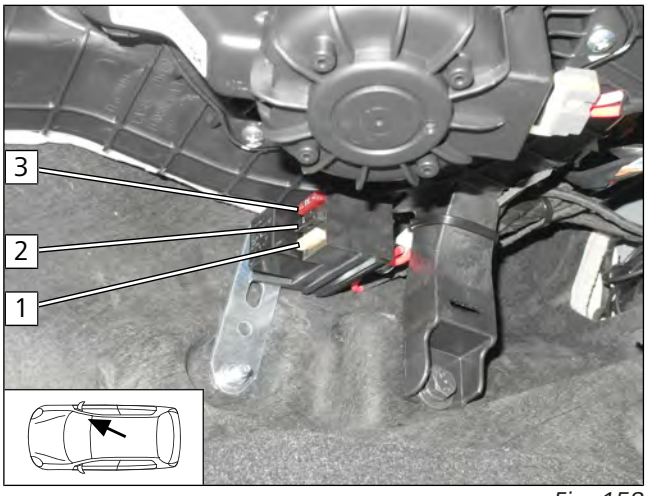


Fig. 158

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

19 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

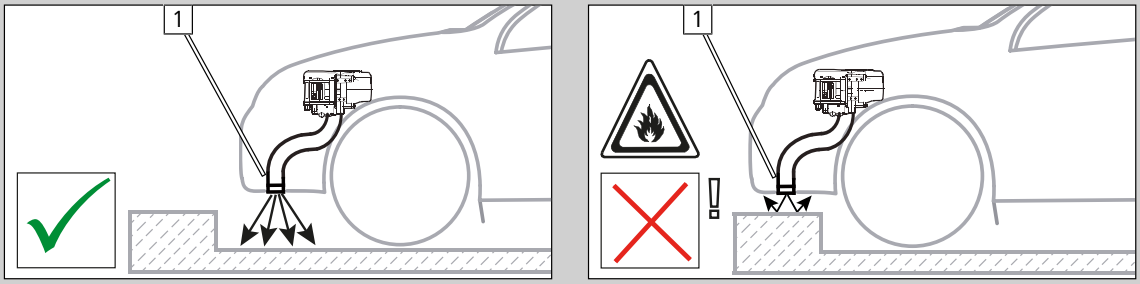
Your vehicle is equipped with a passenger compartment preheating unit. There is **no** engine pre-heating.

Note for current consumption in case of parking heating mode

Depending on the vehicle model, there may be an increased quiescent current consumption message in the vehicle information system during or directly after operation in parking heating mode.

▶ This is not an error that can affect the vehicle on a technical level.

Notes on parking heater exhaust outlet 1



19.1 A/C control panel settings

Automatic A/C control panel

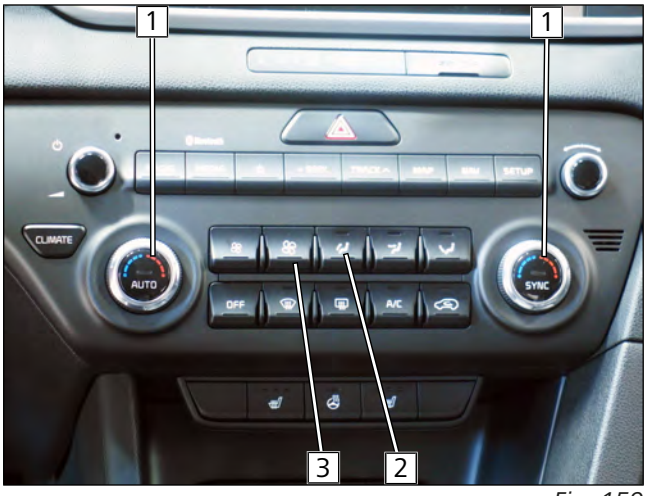


Fig. 159

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

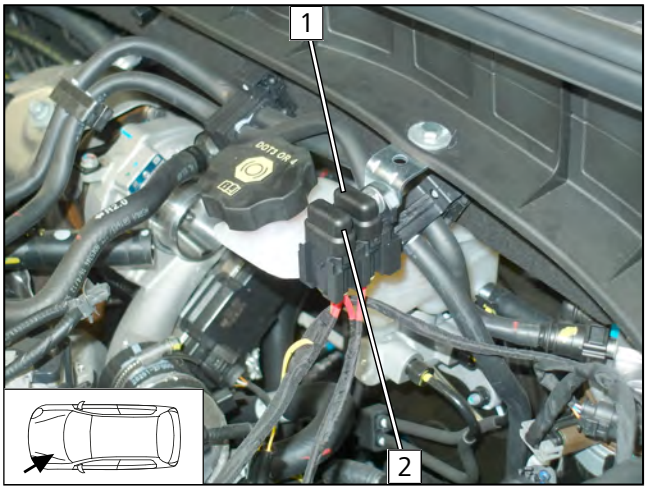


Fig. 160

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

Fuses in passenger compartment

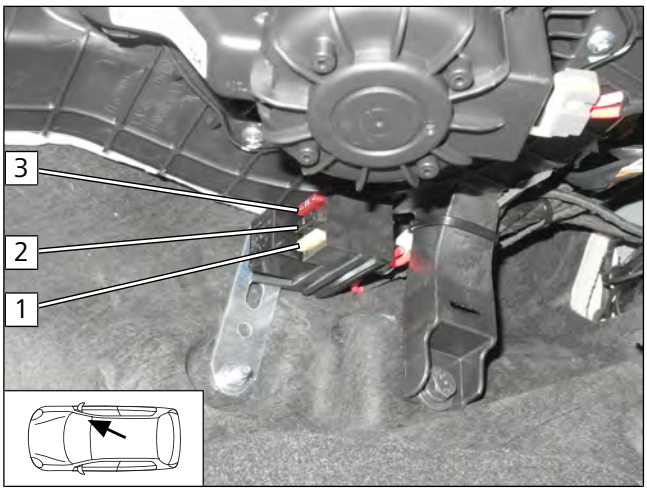


Fig. 161

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