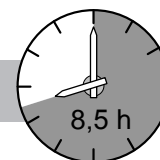


- (D)** Einbauanleitung / nur Händlereinbau
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- (F)** Consignes de montage / Montage uniquement par le concessionnaire
- (NL)** Montagehandleiding / Montage alleen door dealers
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K Installation documentation

for Thermo Top Evo water heater

Opel Insignia

Left-hand drive vehicle

Manufacturer	Model	Type	Model year	EG-BE-No. / ABE
Opel	Insignia	Z-B	from 2018	e8*2007/46*0264...

Motorisation	Fuel	Emission standard	Transmission type	Output[kW]	Displacement[cm ³]	Engine code
1.5P	Petrol	Euro 6 / 6D temp.	6-speed SG	103	1490	B/D15XHL (LFV)
1.5P	Petrol	Euro 6 / 6D temp.	6-speed SG 6-speed AG	121	1490	B/D15XHT (LFV)
1.6P	Petrol	Euro 6 / 6D temp.	6-speed SG 6-speed AG	147	1598	D16SHT (LWC)
2.0P	Petrol	Euro 6	8-speed AG	191	1998	B20NFT (LTG)
1.6D	Diesel	Euro 6	6-speed SG	81	1598	B16DTE (LWQ)
1.6D	Diesel	Euro 6D temp.	6-speed SG	81	1598	B16DTN (LXO)
1.6D	Diesel	Euro 6 / 6D temp.	6-speed SG 6-speed AG	100	1598	B/D16DTH (LVL)
2.0D	Diesel	Euro 6 / 6D temp.	6-speed SG 6-speed AG	125	1956	B/D20DTH (LFS)
2.0D	Diesel	Euro 6D temp.	8-speed AG	154	1956	D20DTR (LFO)

Validity	Equipment variants	Model
		Insignia
Verified equipment variants	2 zone automatic air-conditioning	x
	LED Matrix main headlights	x
	Halogen main headlights and front fog lights	x
	LED daytime running lights	x
	Alarm system with passenger compartment monitoring	x
	Automatic Start-Stop system	x
	Ad Blue (diesel)	x
	2 WD / 4 WD	x
Unverified equipment variants	Manual air-conditioning	x

Total installation time	Note
7.5 hours	2 WD
8.5	4 WD

Contents

1	List of abbreviations	5	10.3.1 Hose routing diagram for 1.6P and 1.6D	40
2	Installation notes	6	10.3.2 Preparing hose group for 1.6P and 1.6D	41
2.1	Information on validity	6	10.3.3 Hose routing diagram for 2.0D	42
2.2	Components used	6	10.3.4 Preparing hose group for 2.0D	43
2.3	Information on total installation time	6	10.3.5 Coolant circuit installation for 1.6P, 1.6D and 2.0D	44
2.4	Installation recommendations	6	10.3.6 Coolant connection for 1.6P	48
3	About this document	7	10.3.7 Coolant connection for 1.6D	50
3.1	Purpose of the document	7	10.3.8 Coolant connection for 2.0D	51
3.2	Warranty and liability	7	11 Fuel	53
3.3	Safety	7	11.1 Preliminary work	53
3.4	Using this document	8	11.2 Petrol	55
4	Technical Information	9	11.3 Diesel	58
5	Preparing measures	10	11.4 Fuel pump, all vehicles	61
5.1	Vehicle preparation	10	12 Exhaust gas 2	63
5.2	Heater preparation	10	13 Electrical system of passenger compartment	65
6	Installation overview	11	13.1 Preliminary work	65
7	Electrical system of engine compartment	12	13.2 Mounting in passenger compartment	68
7.1	Mounting the SH1 and SH2 with the battery crosswise	14	13.3 Wiring diagram	71
7.2	Mounting the SH1 and SH2 with the battery lengthwise	16	13.4 Fan controller	73
7.3	Wiring harness routing, all vehicles	17	14 Final work	75
8	Mechanical system	19	15 Tank extracting device template for 2WD	79
8.1	Preparing installation location	19	16 Tank extracting device template for 4WD	81
8.2	Premounting the heater	21		
8.3	Heater mounting	24		
9	Exhaust gas 1	26		
10	Coolant circuit	28		
10.1	Preliminary work for coolant circuit	28		
10.2	Coolant circuit for 1.5P and 2.0P	31		
10.2.1	Hose routing diagram	31		
10.2.2	Preparing hose group for 1.5P	32		
10.2.3	Preparing hose group for 2.0P	32		
10.2.4	Coolant circuit installation for 1.5P and 2.0P	33		
10.2.5	Coolant connection for 1.5P	37		
10.2.6	Coolant Connection for 2.0P	38		
10.3	Coolant circuit for 1.6P and 1.6D	40		

1 List of abbreviations

2 WD	Front wheel drive
4 WD	All-wheel drive
AG	Automatic transmission
DP	Fuel pump
HG	Heater
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 - see page 1 – and later, 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	GM part number
Specific scope of delivery of Thermo Top Evo petrol	13 437 784
Specific scope of delivery of Thermo Top Evo diesel	13 476 204
Installation kit for Opel Insignia petrol and diesel	39 096 340

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 $\frac{1}{4}$ 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 information for the correct 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	
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.



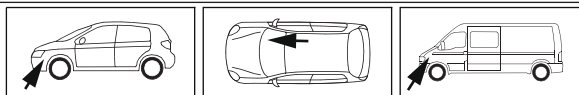
a note on a special technical feature

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 gas	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 / A	Position numbers for the image descriptions
1 / 12	Position numbers for the image descriptions for electrical wires and wiring harnesses and coolant hose sections

4 Technical Information

Dimension specifications

- All dimensions specified in mm

Tightening torque specifications

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

Specified temperature for fabric heat shrink plastic tubing

- Shrink temperature max. 230°C

Necessary special tools

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

5 Preparing measures

5.1 Vehicle preparation



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

- ▶ Open the fuel tank cap
- ▶ Ventilate the fuel tank
- ▶ Close the fuel tank cap again
- ▶ Depressurise the cooling system
- ▶ Remove the earth connection
- ▶ Completely remove the air filter
- ▶ Positive support point cover
- ▶ Remove the bumper
- ▶ Remove the drive shaft on the right
- ▶ Remove the right front wheel
- ▶ Remove the right wheel well trim
- ▶ Remove the right horn
- ▶ Remove the lower engine cover
- ▶ Remove the rear exhaust system
- ▶ Remove the rear wheel on the right (4WD only)
- ▶ Remove the cardan shaft (4WD only)
- ▶ Remove the fuel tank
- ▶ Remove the glove box
- ▶ Remove the lower instrument panel trim on the right
- ▶ Remove the footwell trim on the driver's and front passenger's side

Carry out the following work only during the corresponding installation sequence:



DANGER

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

- ▶ Detach the tank fitting

5.2 Heater preparation



Observe the general installation instructions of the heater.

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



6 Installation overview

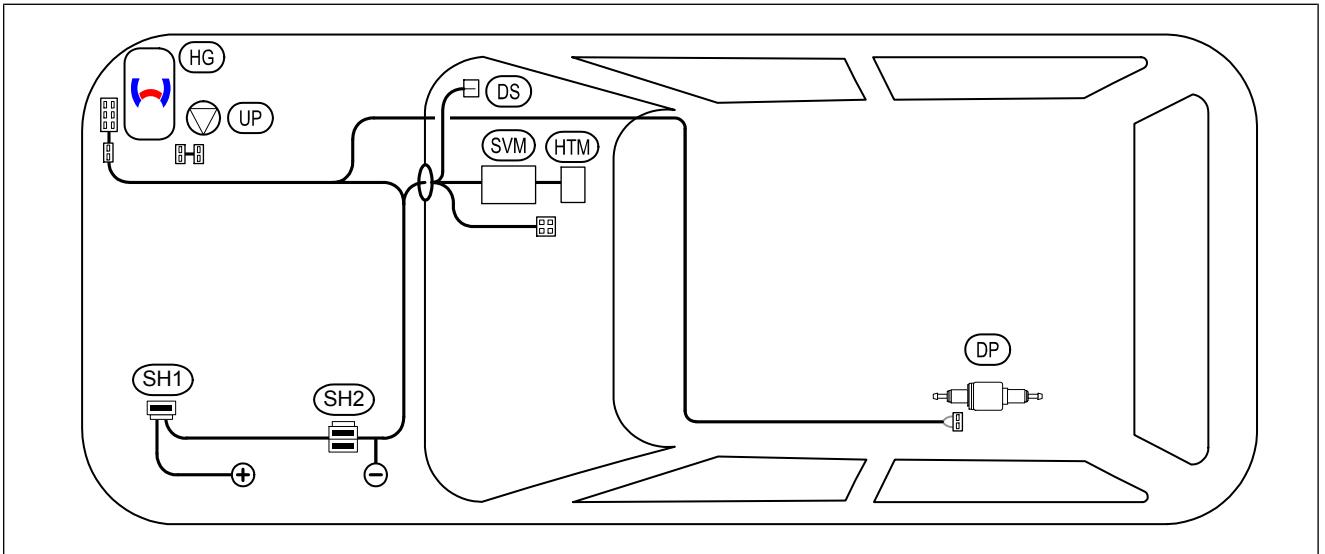
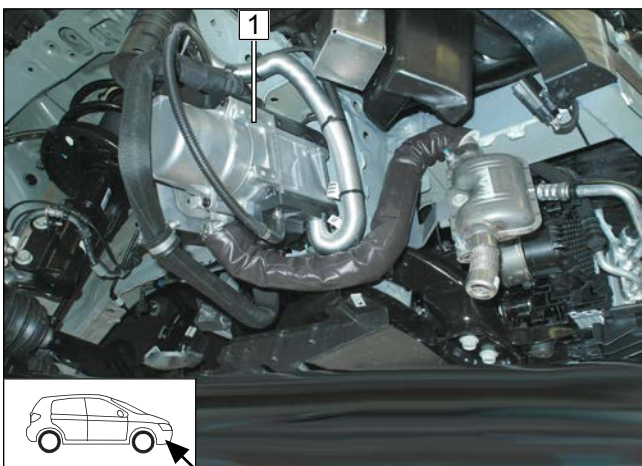


Fig. 1

Legend to installation overview

Abbreviation	Component
DP	Fuel pump
DS	Diagnosis connection
HG	Heater
HTM	TelestartT100
SH1	Engine compartment fuse holder for F0
SH2	Engine compartment fuse holder for F1/F2
SVM	Special Vehicle Module
UP	Coolant pump

Heater installation location



1 Heater

Fig. 2



7 Electrical system of engine compartment

Preparing wiring harness

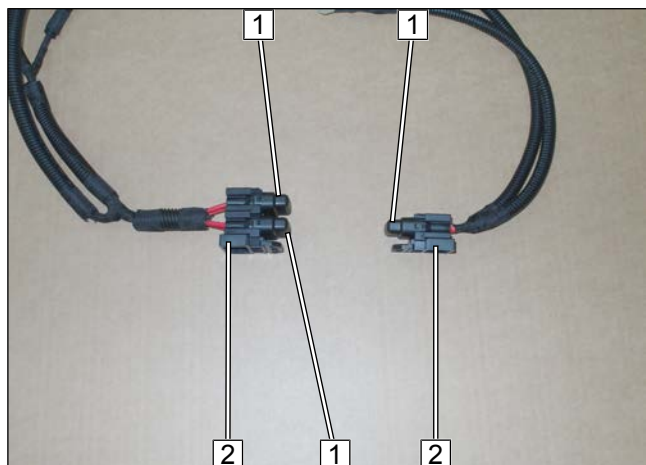


Fig. 3

- 1 Remove cover and fuse
- 2 Remove retaining plate

Premounting retaining plate SH1

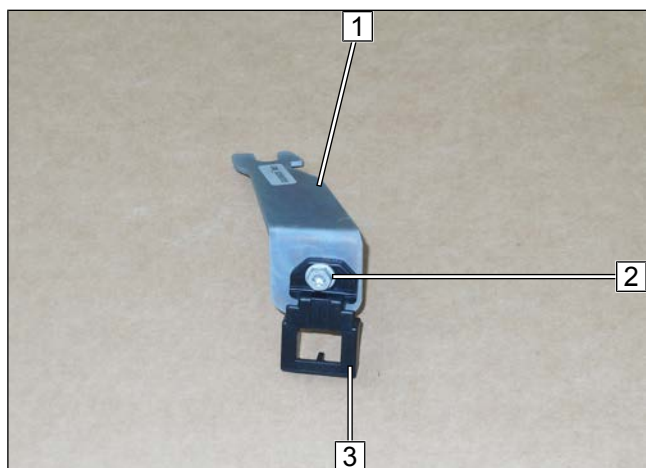


Fig. 4

- 1 Fuse holder
- 2 M5x13 collar screw
- 3 Retaining plate SH1

Premounting retaining plate SH2

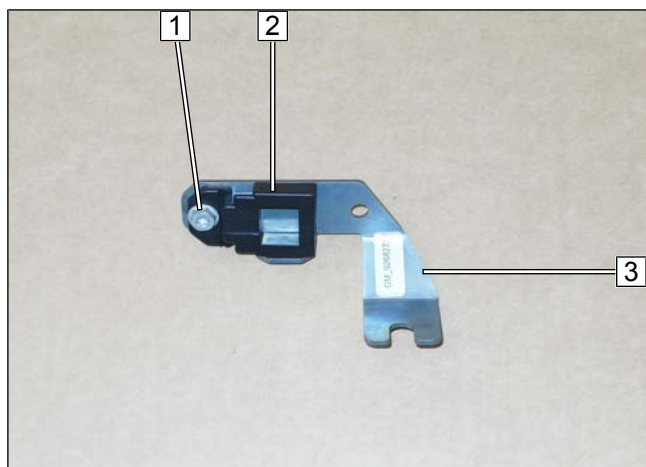


Fig. 5

- 1 M5x13 collar screw
- 2 Retaining plate SH2
- 3 Fuse holder



Preparing wiring harness routing

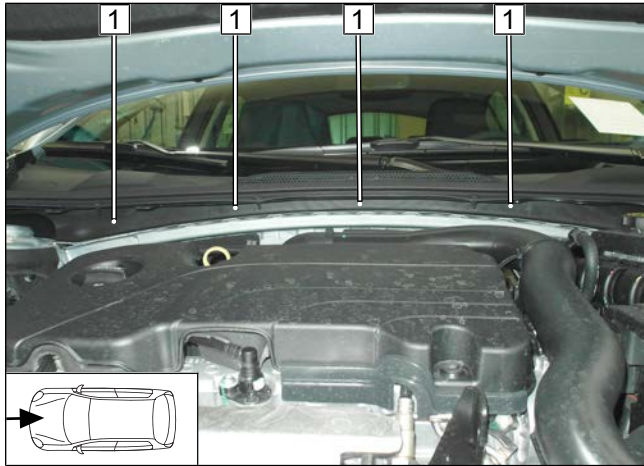


Fig. 6

► 8mm dia. hole **1** as shown.

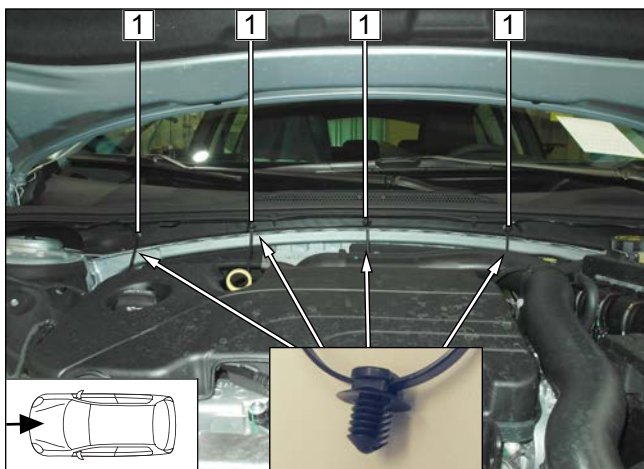


Fig. 7

1 8mm dia. eyelet cable tie

Copying hole pattern of passenger compartment pass through

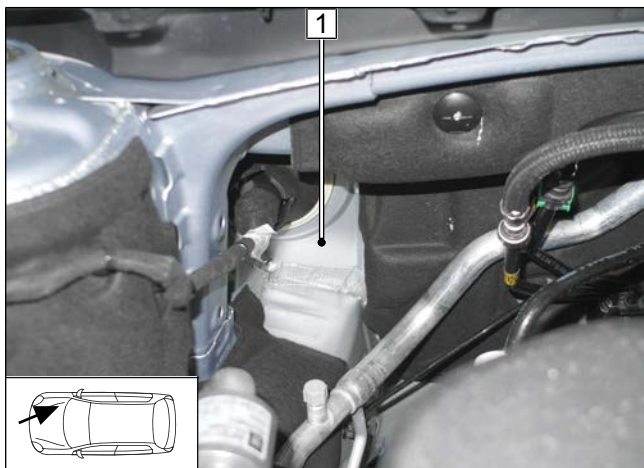


Fig. 8

► Copy hole pattern **1** as shown.



Drilling hole

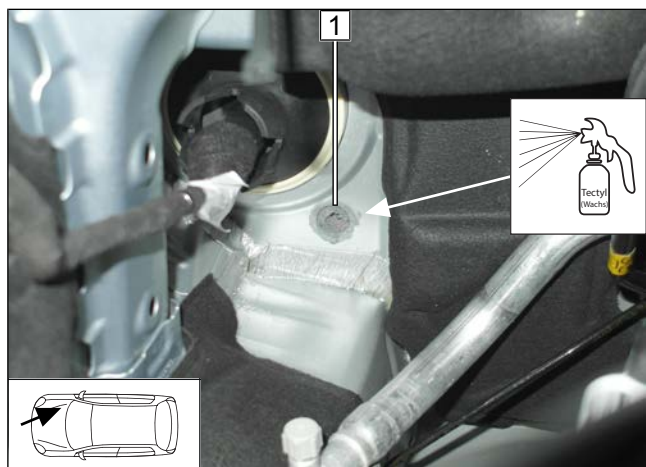


Fig. 9

- 1 20mm dia. hole

7.1 Mounting the SH1 and SH2 with the battery crosswise

Installing cable tie

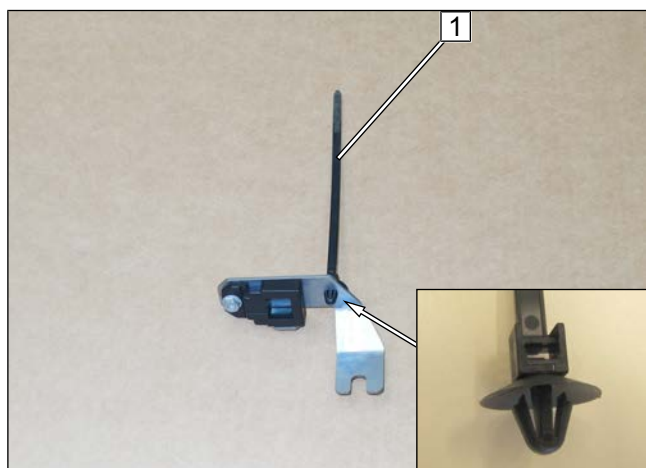


Fig. 10

- 1 6mm dia. eyelet cable tie

Installing SH2

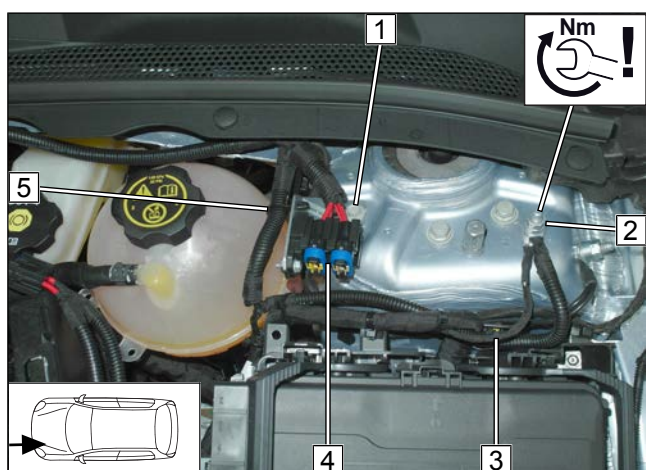


Fig. 11



DANGER

Fire hazard due to insufficient tightening torque

► Observe tightening torque

- 1 6x16 collar screw, original vehicle thread
- 2 Original vehicle earth point
- 3 Earth wire
- 4 SH2
- 5 Fasten wiring harness using eyelet cable tie



Installing positive wire on positive support point

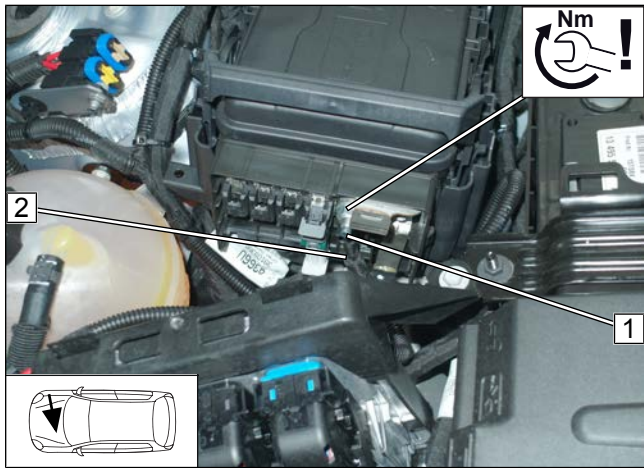


Fig. 12



DANGER

Fire hazard due to insufficient tightening torque

► Observe tightening torque

- 1 Original vehicle positive support point
- 2 Positive wire

Installing cover

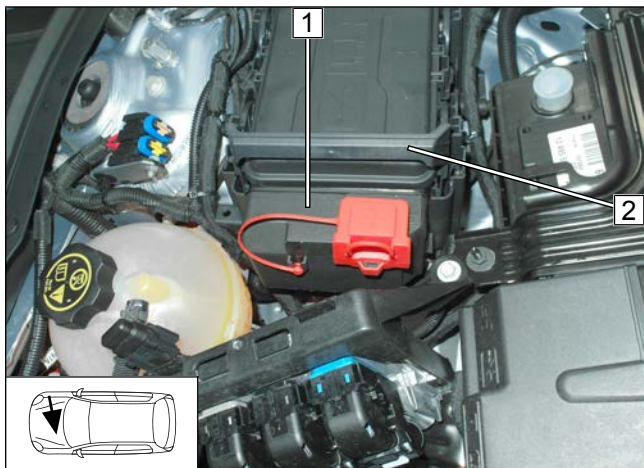


Fig. 13

- 1 Positive support point cover
- 2 Engage locking device

Installing SH1

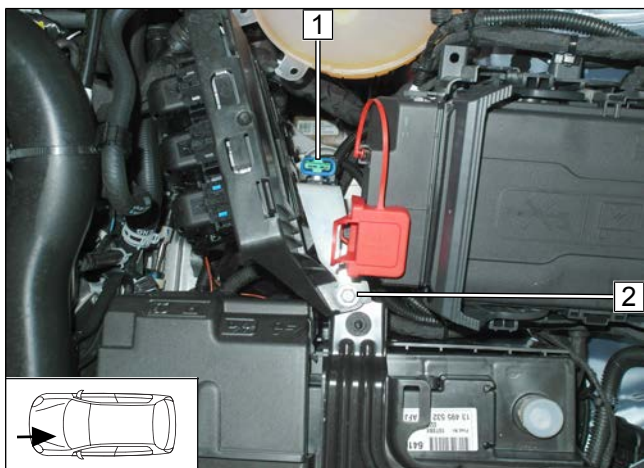


Fig. 14

- 1 SH1
- 2 Original vehicle bolt, fuse holder, original vehicle thread



7.2 Mounting the SH1 and SH2 with the battery lengthwise

Installing SH2

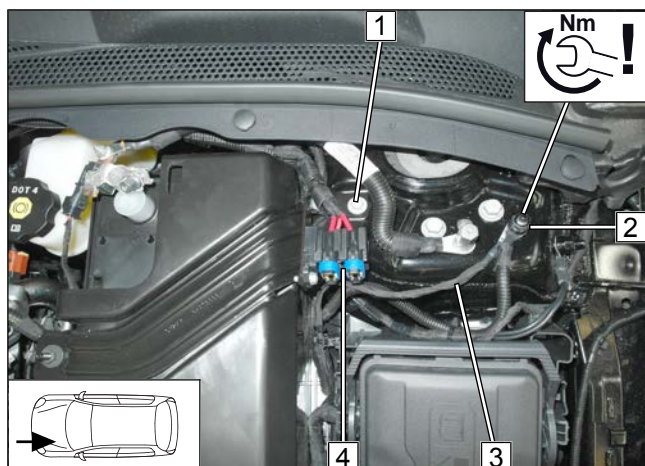


Fig. 15



DANGER

Fire hazard due to insufficient tightening torque

► Observe tightening torque

- 1 6x16 collar screw, original vehicle thread
- 2 Original vehicle earth point
- 3 Earth wire
- 4 SH2

Installing positive wire on positive support point

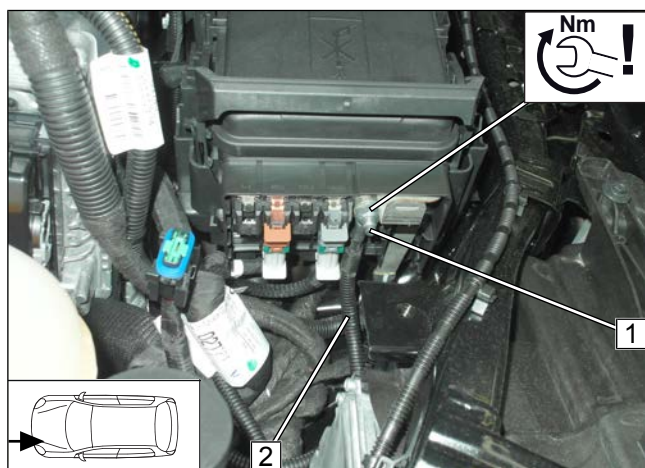


Fig. 16



DANGER

Fire hazard due to insufficient tightening torque

► Observe tightening torque

- 1 Original vehicle positive support point
- 2 Positive wire

Installing cover

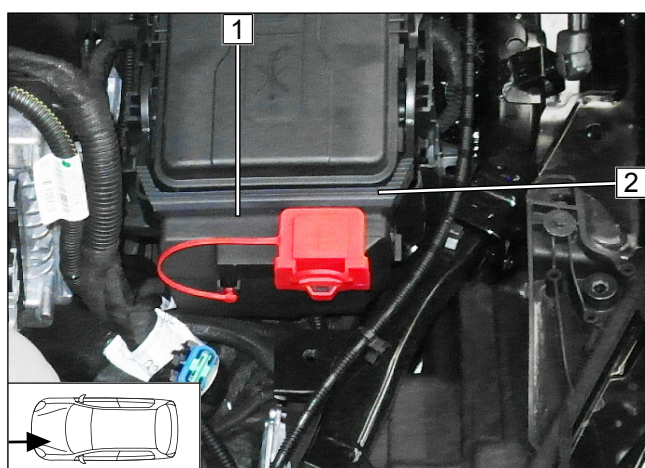


Fig. 17

- 1 Positive support point cover
- 2 Engage locking device



Installing SH1

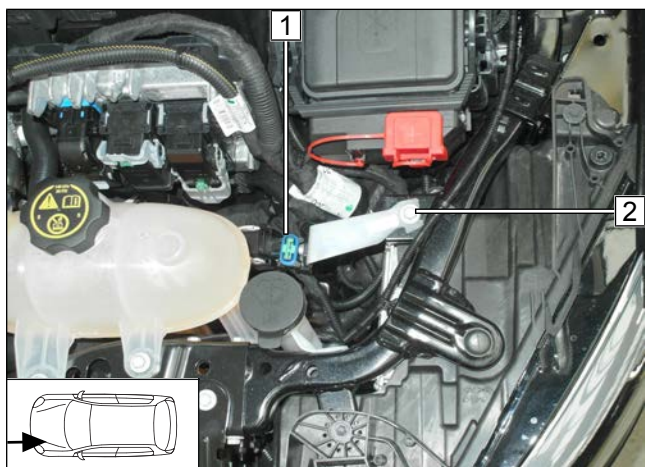


Fig. 18

- 1 SH1
- 2 M6x16 collar screw, fuse holder, original vehicle thread

7.3 Wiring harness routing, all vehicles

Routing wiring harness

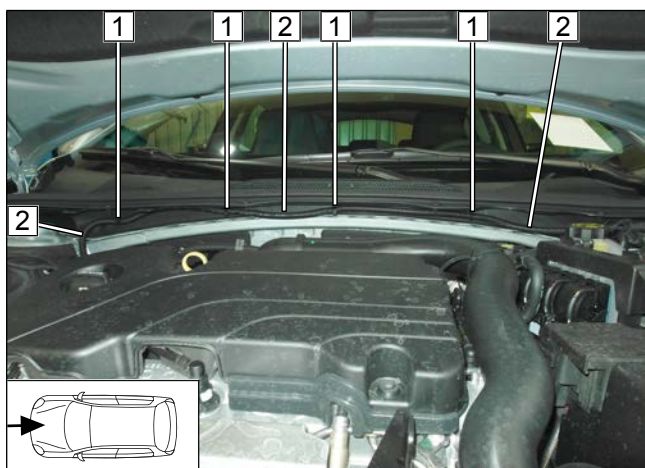


Fig. 19

- 1 8mm dia. eyelet cable tie
- 2 Passenger compartment wiring harness and heater

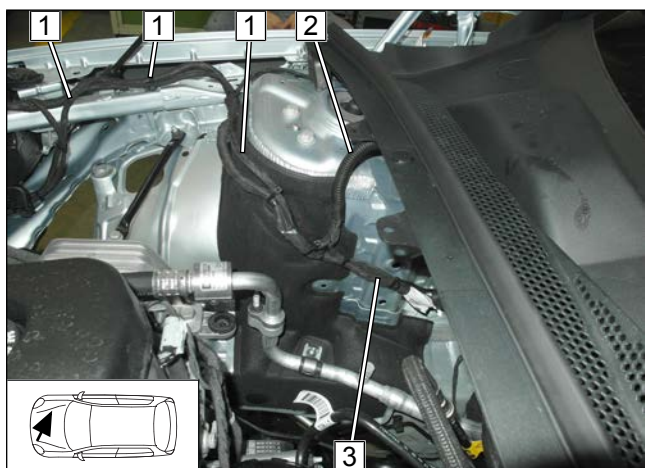


Fig. 20

- 1 Heater wiring harness
- 2 Fuse holder wiring harness
- 3 Passenger compartment wiring harness

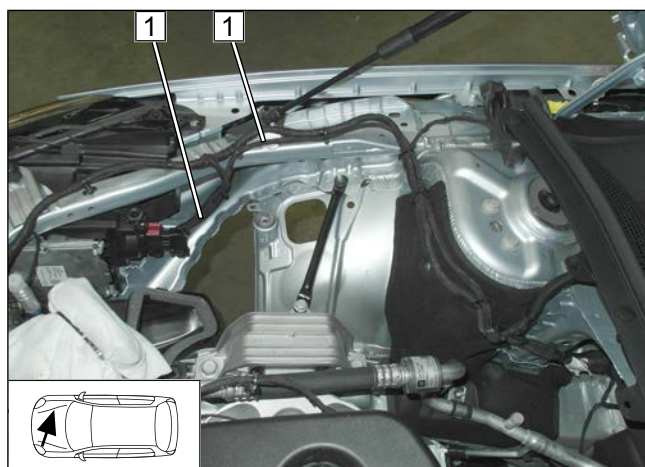


Fig. 21

- 1** Route heater wiring harness to heater installation location

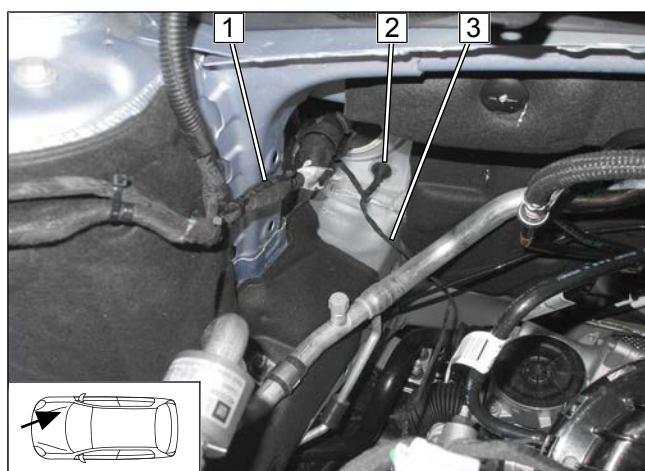


Fig. 22

- 1** Passenger compartment wiring harness
- 2** Seal off grommet by using an appropriate sealing compound
- 3** Fuel pump wiring harness



8 Mechanical system

8.1 Preparing installation location

Inserting rivet nut

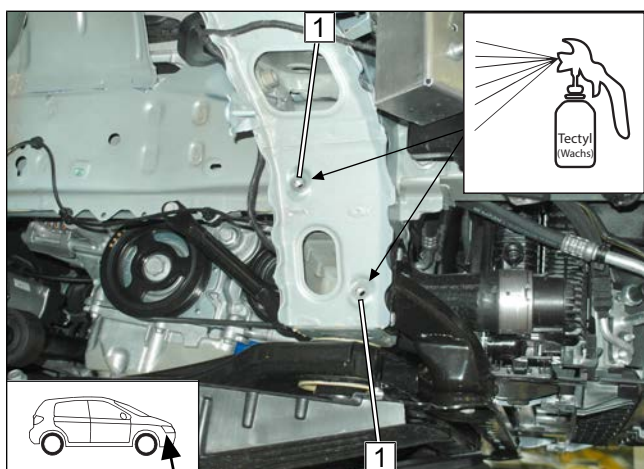


Fig. 23

► Drill out original vehicle hole at position **1** to 12.5 mm dia.

1 M8 rivet nut

Installing bracket 1

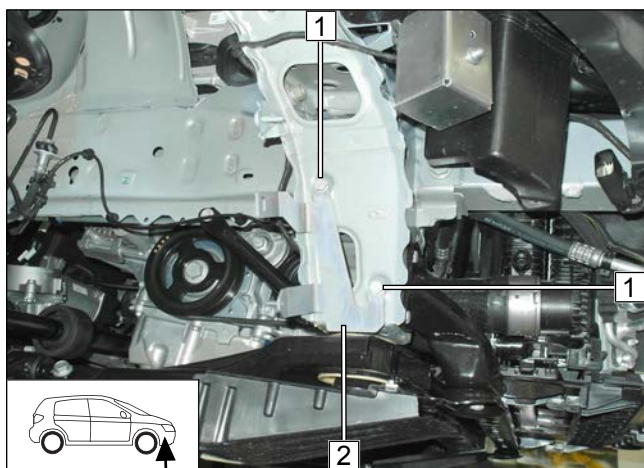


Fig. 24

1 M8x20 bolt, spring lockwasher

2 Bracket 1

Fastening wiring harness

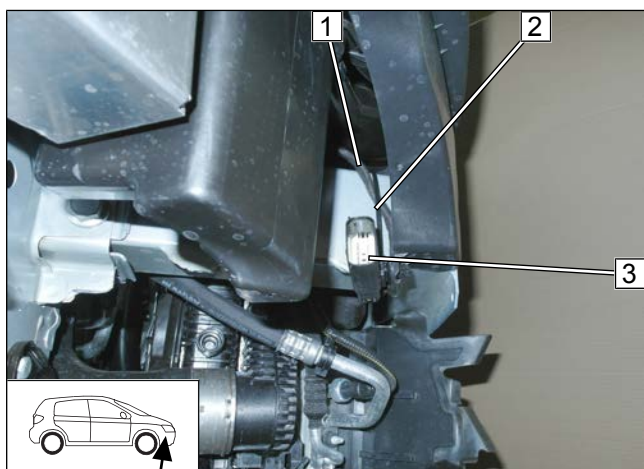


Fig. 25

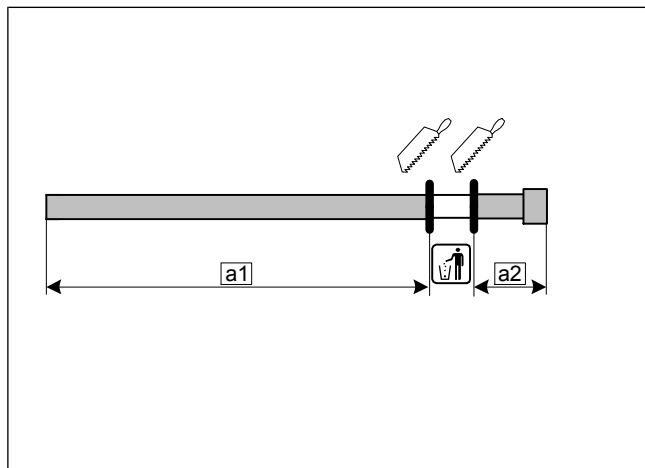
1 Original vehicle wiring harness

2 Cable tie

3 Connector for bumper



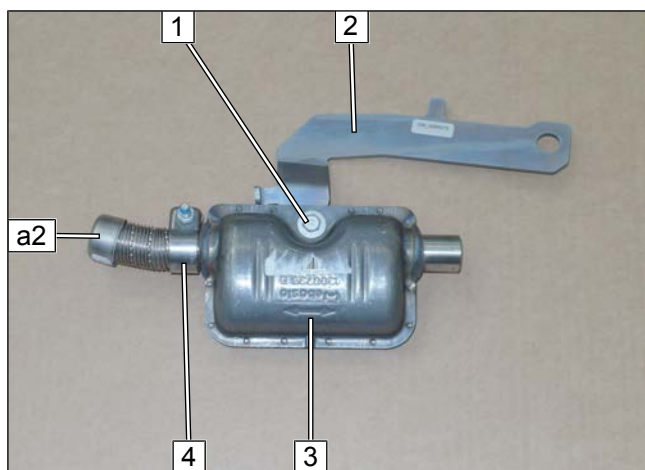
Cutting to length exhaust pipe



a1	490
a2	50

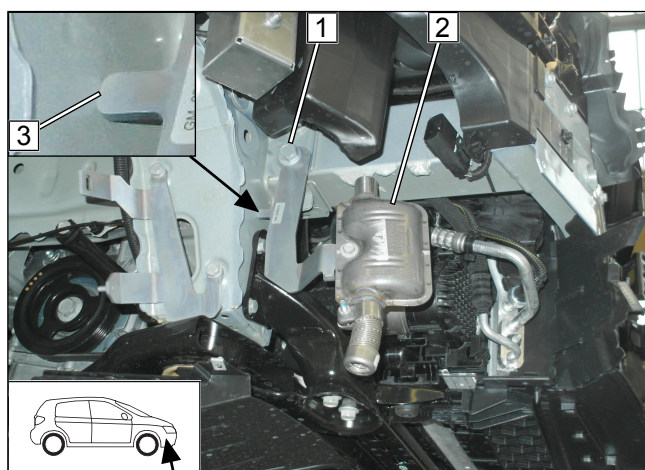
Fig. 26

Premounting exhaust silencer



- 1** M6x16 collar screw, flanged nut
- 2** Exhaust silencer bracket
- 3** Exhaust silencer
- 4** Hose clamp
- a2** Exhaust pipe

Fig. 27



► Position bracket of exhaust silencer at position **3** on vehicle frame.

- 1** Original vehicle bolt
- 2** Exhaust silencer

Fig. 28



8.2 Premounting the heater

Installing water connection piece

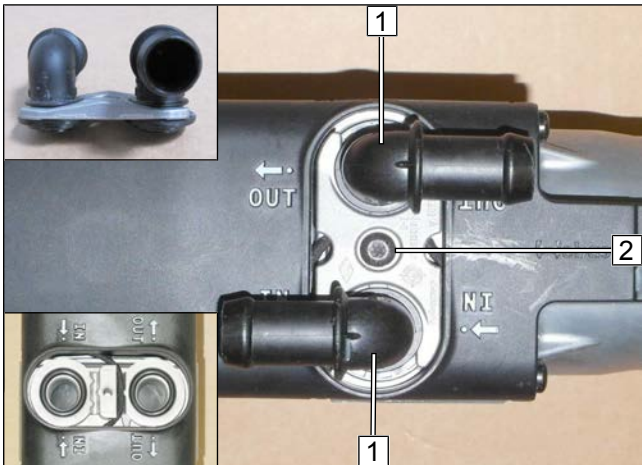


Fig. 29



Observe the general installation instructions of the heater.

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

Preparing bracket 2 mounting

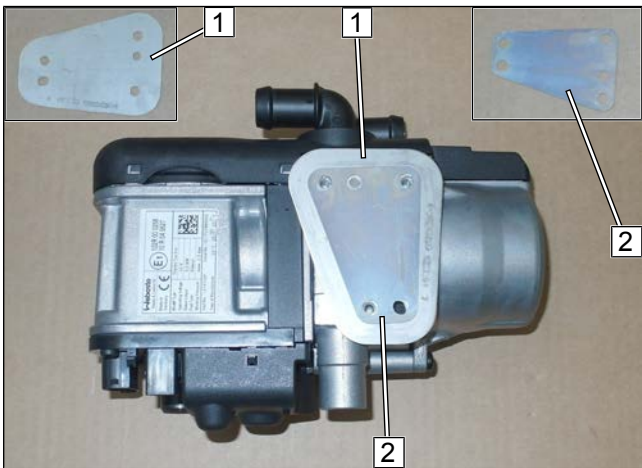


Fig. 30

- 1 Position clamping plate 1
- 2 Position intermediate plate

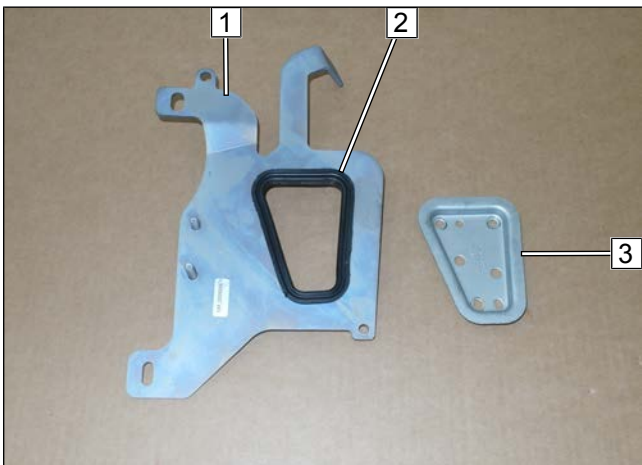


Fig. 31

- 1 Bracket 2
- 2 Decoupling rubber
- 3 Clamping plate 2



Installing bracket 2

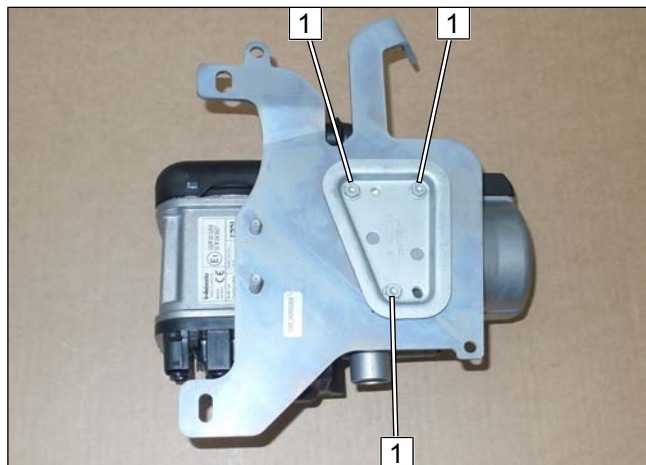


Fig. 32

- 1 5x13 self-tapping bolt

Premounting coolant pump

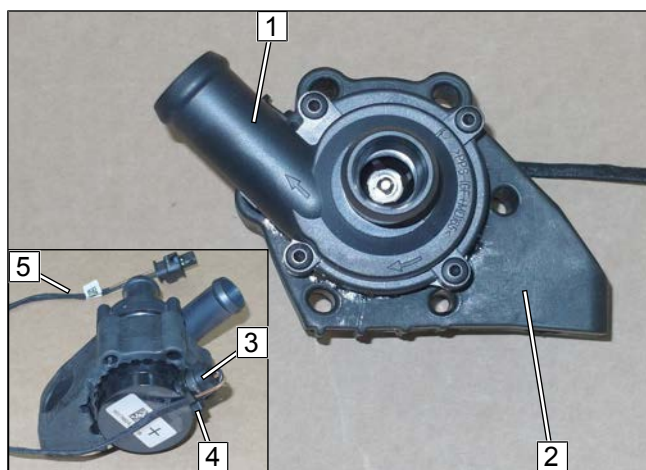


Fig. 33

- Align coolant pump 1 and coolant pump mount 2.
- 3 Coolant pump wiring harness connector
- 4 Cable tie
- 5 Coolant pump wiring harness

Installing coolant pump

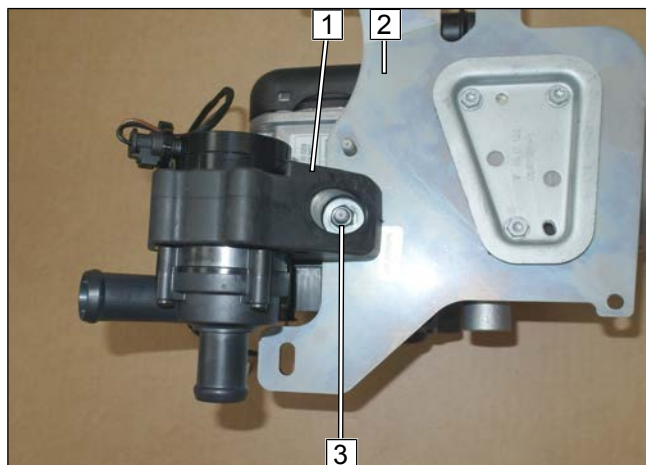


Fig. 34

- 1 Coolant pump mount
- 2 Bracket 2
- 3 Large diameter washer, self-locking nut



Installing hose

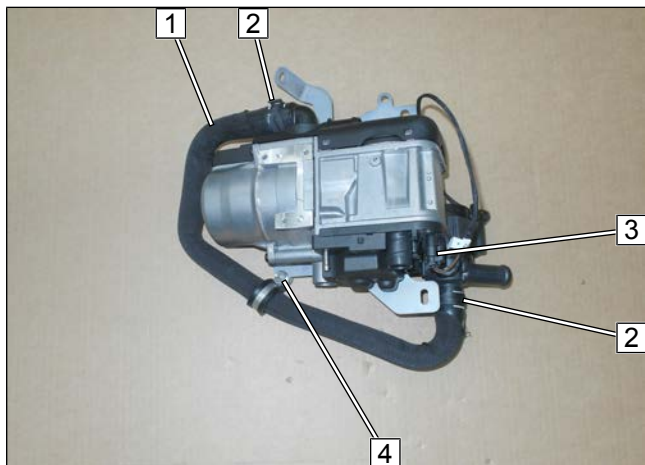


Fig. 35

- 1 Hose B for petrol vehicles
- 1 Hose C for diesel vehicles
- 2 27mm dia. spring clip
- 3 Coolant pump wiring harness connector
- 4 M6x16 collar screw, bracket 2, 25mm dia. rubber-coated p-clamp, flanged nut

Installing fuel line

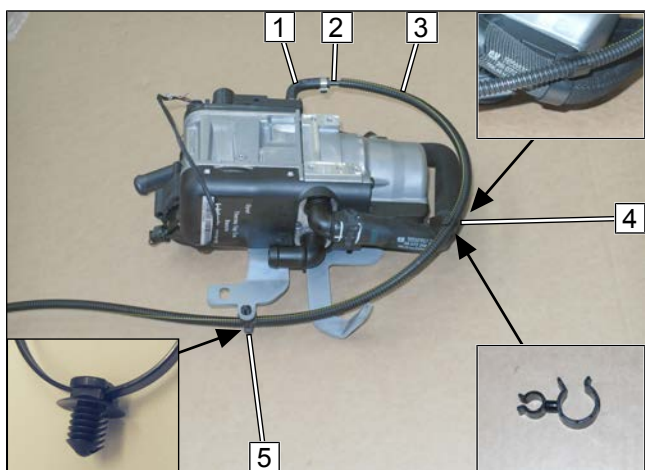


Fig. 36

- 1 90° moulded hose, 10mm dia. clamp [2x]
- 2 Fuel line
- 3 6mm dia. corrugated tube
- 4 8x23 hose bracket
- 5 Eyelet cable tie

Installing combustion air pipe

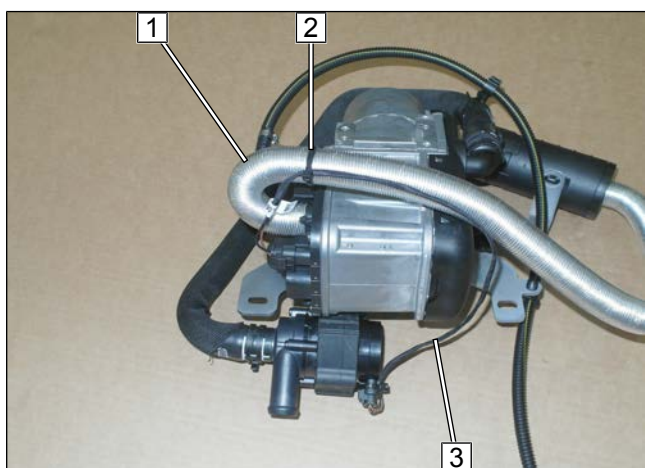


Fig. 37

- 1 Combustion air pipe
- 2 Cable tie
- 3 Coolant pump wiring harness

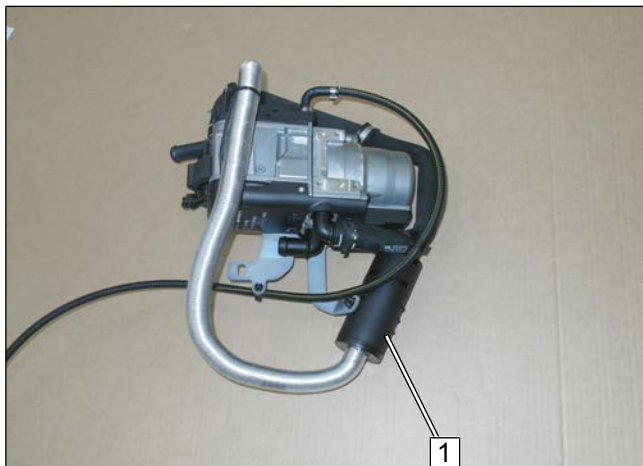


Fig. 38

1 Install combustion air silencer on bracket 2

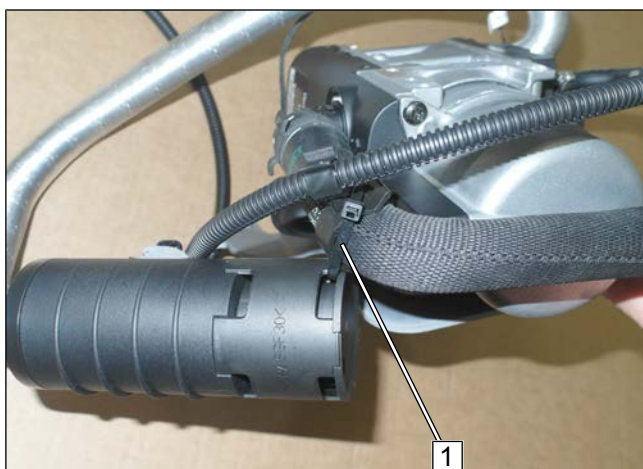


Fig. 39

► Secure combustion air silencer using cable tie **1**.

8.3 Heater mounting

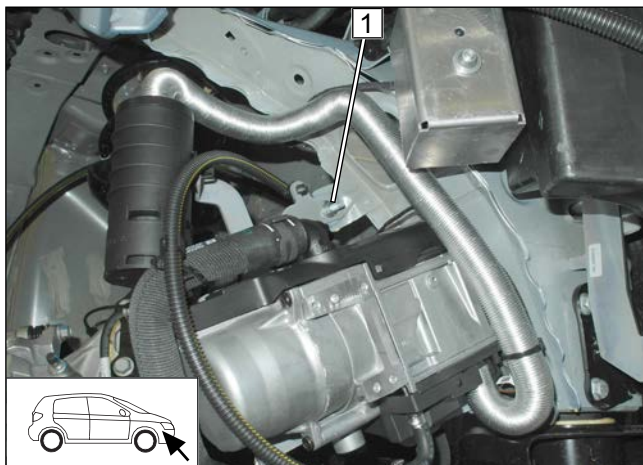


Fig. 40



Observe the general installation instructions of the heater.

1 Original vehicle stud bolt, bracket 2, flanged nut

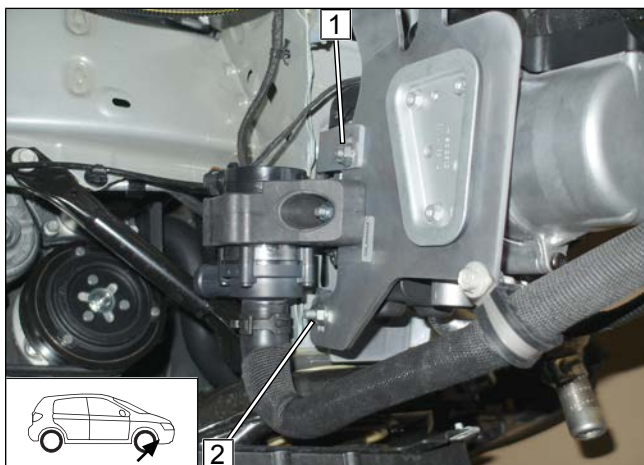


Fig. 41

- 1 Bracket 2 stud bolt, bracket 1, flanged nut
- 2 Bracket 1 stud bolt, bracket 2, flanged nut

Installing wiring harness

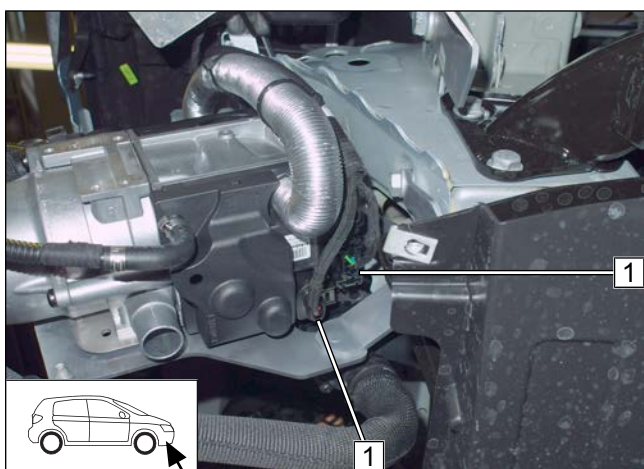


Fig. 42

- 1 Heater wiring harness connector

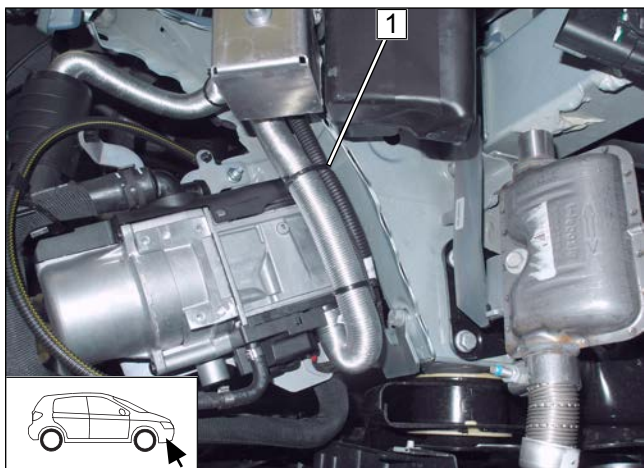


Fig. 43

- 1 Cable tie



9 Exhaust gas 1

Premounting exhaust pipe **a1**

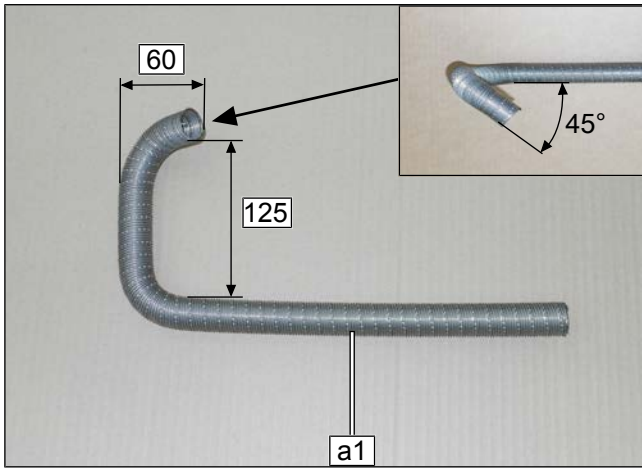


Fig. 44

► Bend as shown.

a1 Exhaust pipe

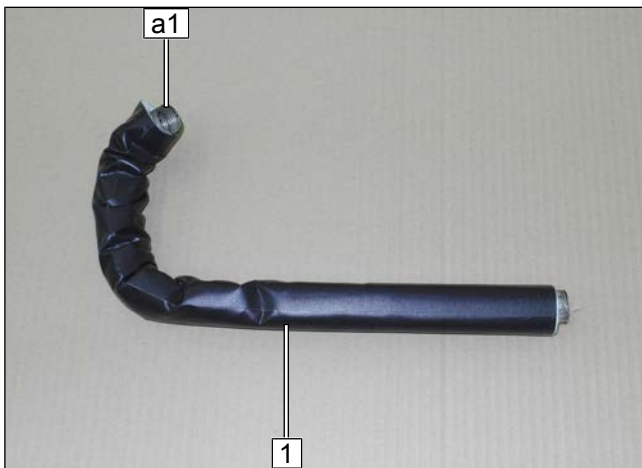


Fig. 45

1 Install protective sleeving

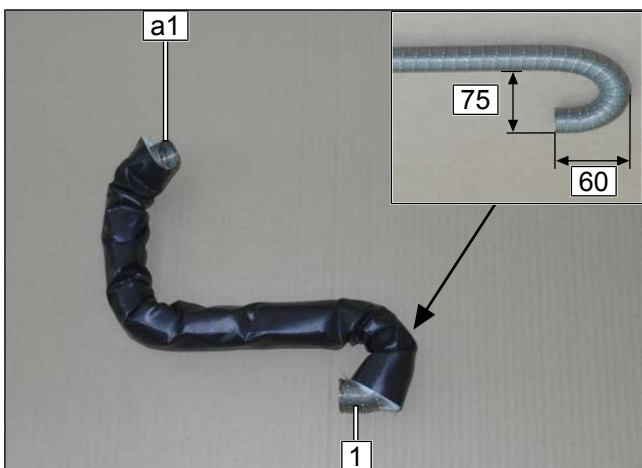
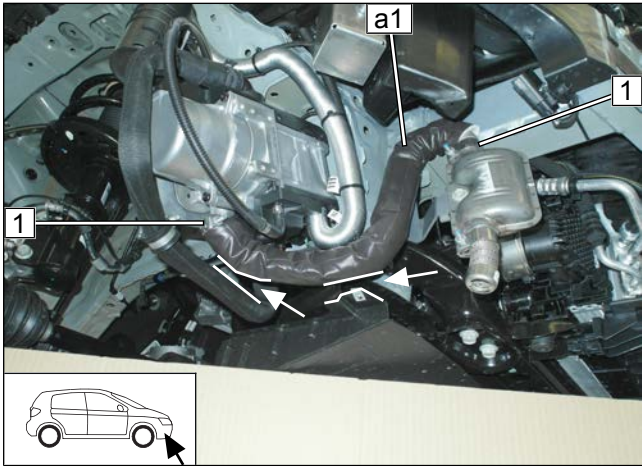


Fig. 46

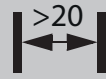
► Bend hose **1** as shown.



Installing exhaust pipe **a1**



Ensure sufficient distance from neighbouring components, correct if necessary.



1 Hose clamp

Fig. 47



10 Coolant circuit

10.1 Preliminary work for coolant circuit

Premounting hose bracket

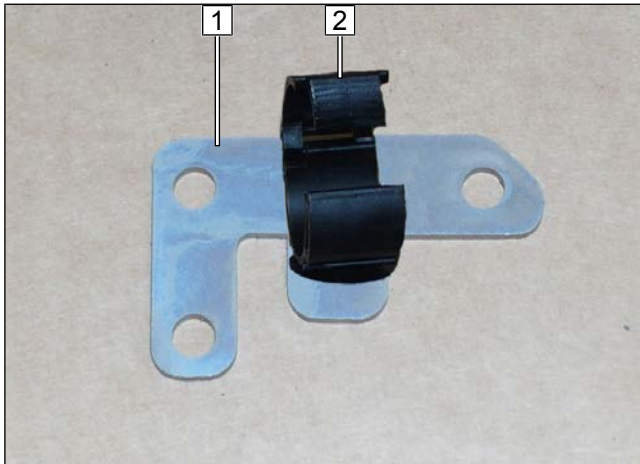


Fig. 48

- 1 Strut 1
- 2 Closable hose bracket

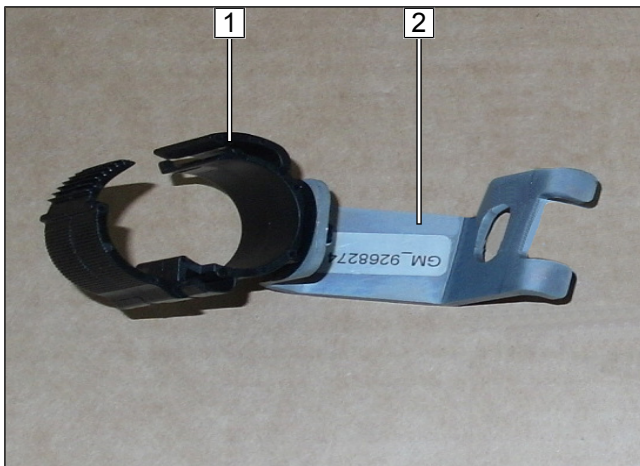


Fig. 49

- 1 Closable hose bracket
- 2 Strut 2

Installing hose bracket

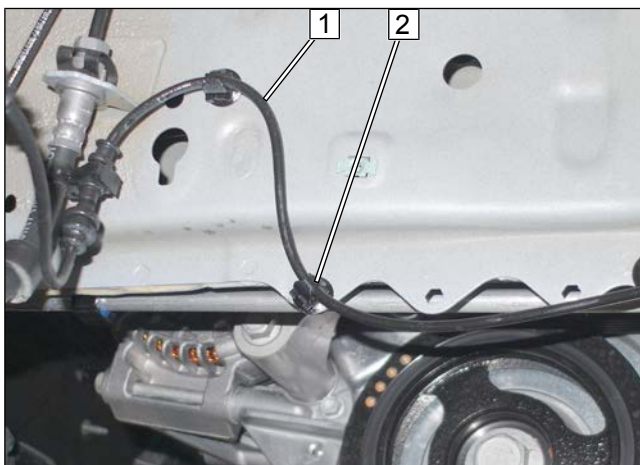


Fig. 50

- 1 ABS line
- 2 Remove and discard clip

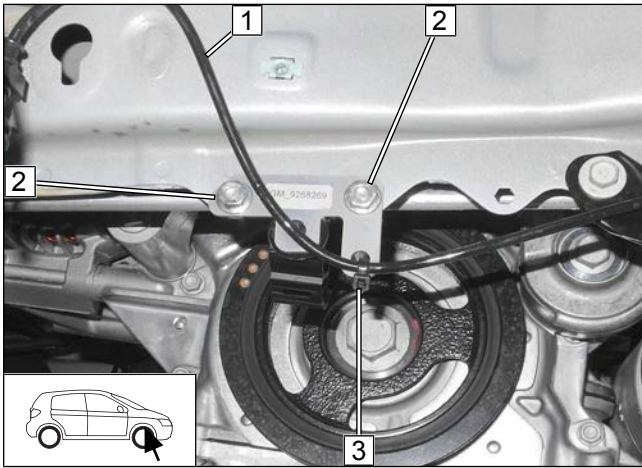


Fig. 51

- 1** ABS line
- 2** M6x12 bolt, original vehicle hole, strut 1, flanged nut
- 3** Cable tie

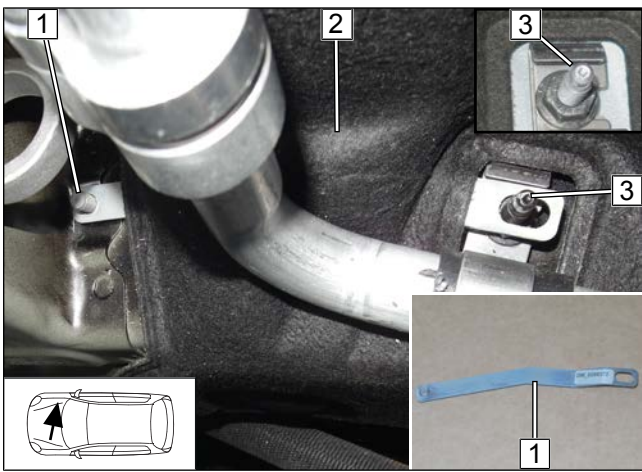


Fig. 52

► Position strut **1** behind insulation **2** and on original vehicle stud bolt above nut **3**.

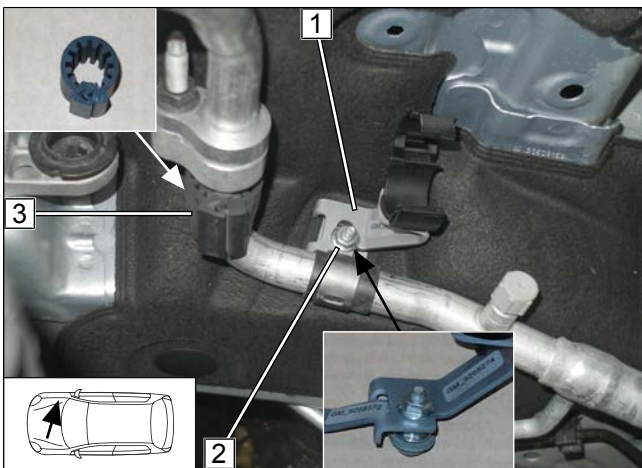
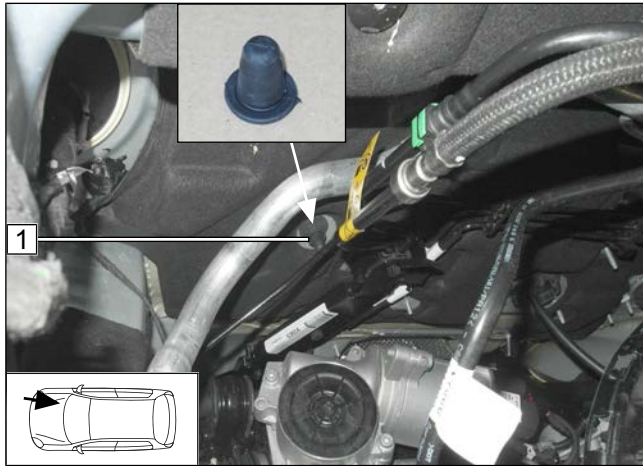


Fig. 53

- 1** Strut 2 with hose bracket
- 2** Flanged nut
- 3** Black (sw) rubber isolator on A/C line



Installing rubber plug



1 Rubber plug

Fig. 54



10.2 Coolant circuit for 1.5P and 2.0P

10.2.1 Hose routing diagram

'Inline' coolant circuit

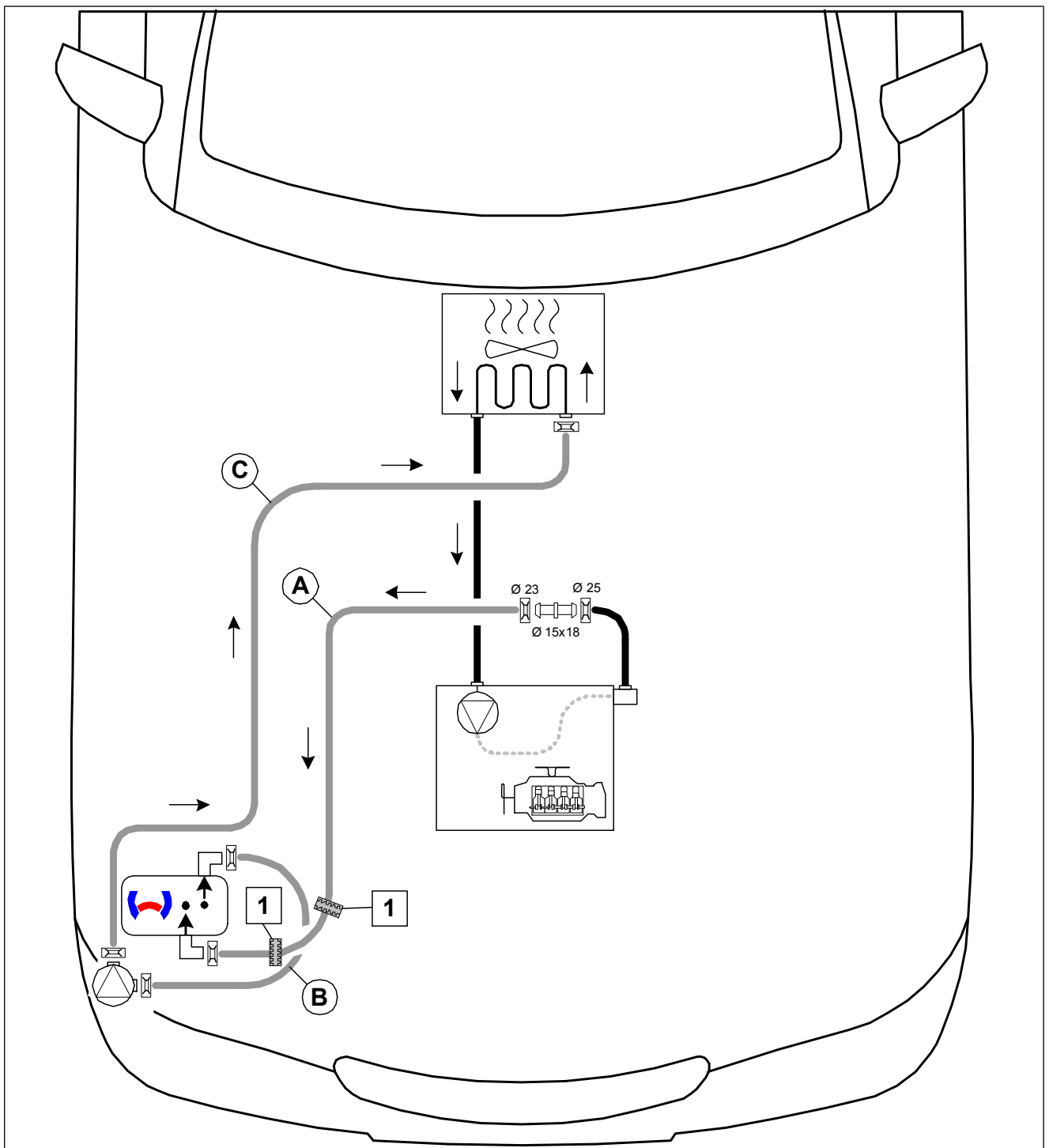



Fig. 55

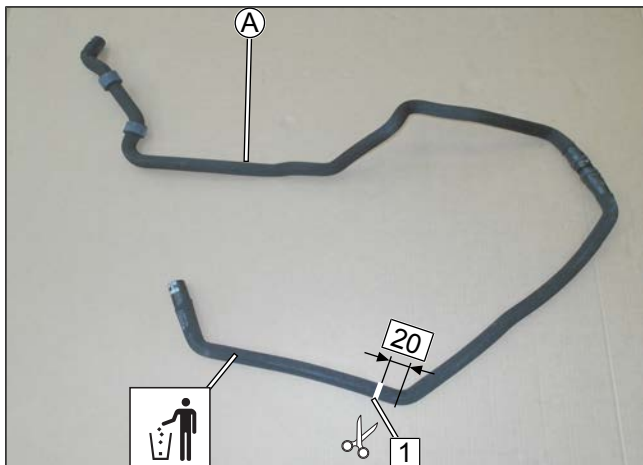
All spring clips without a specific designation  = 27mm dia.

1 Black (sw) rubber isolator 



10.2.2 Preparing hose group for 1.5P

Preparing hose **A**



1 Cutting point

Fig. 56

Installing connecting pipe

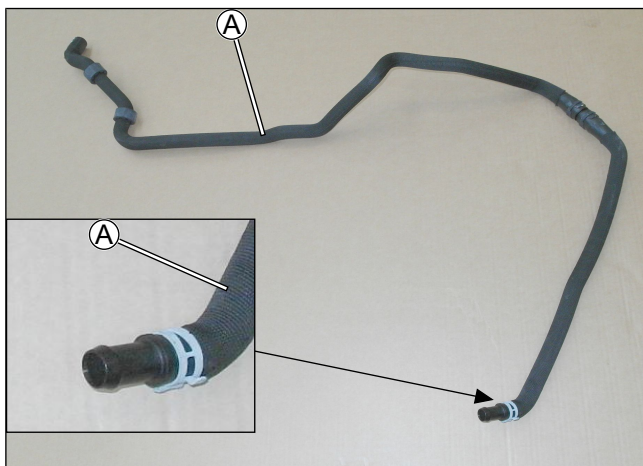
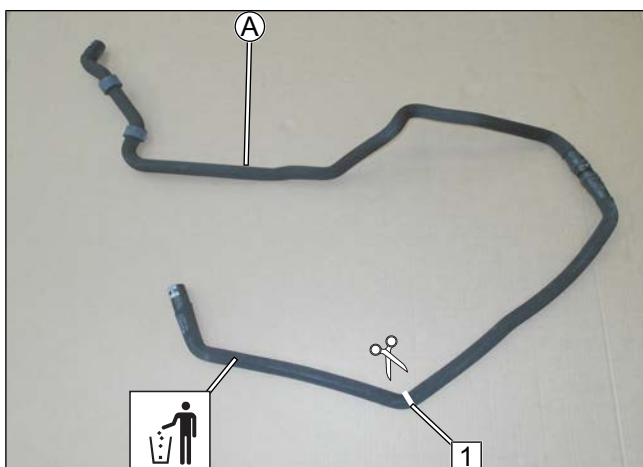


Fig. 57

10.2.3 Preparing hose group for 2.0P

Preparing hose **A**



1 Cutting point

Fig. 58



Installing connecting pipe

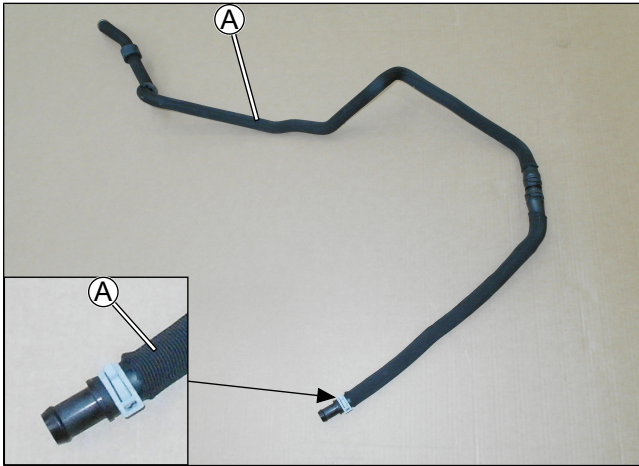


Fig. 59

10.2.4 Coolant circuit installation for 1.5P and 2.0P

Premounting hose bracket

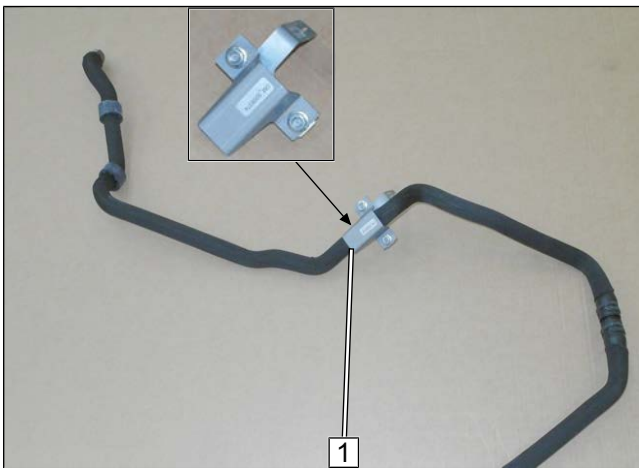


Fig. 60

- 1 Hose bracket, flanged nut [2x]

Installing hose C

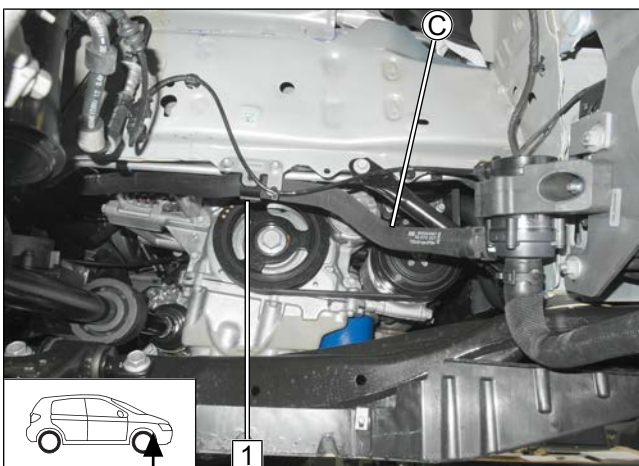


Fig. 61

- 1 Close hose bracket



Routing hose C

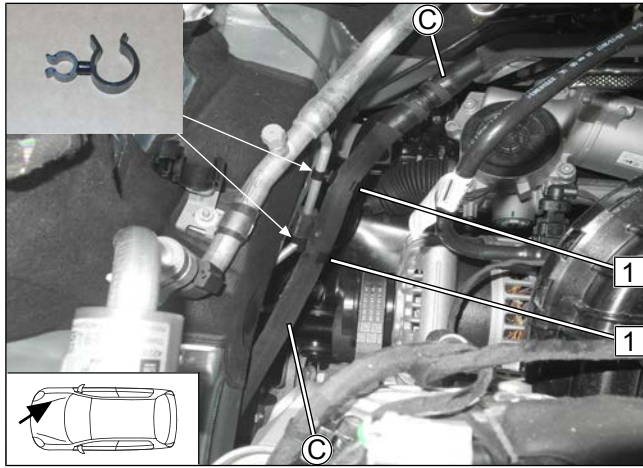


Fig. 62

- 1 23x8 hose bracket between A/C line and hose C

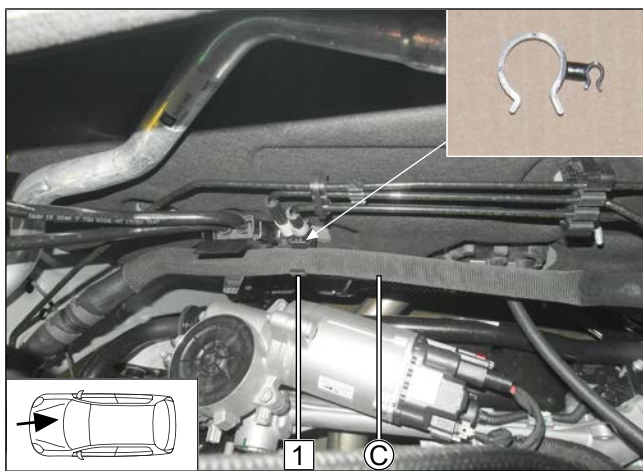


Fig. 63

- 1 20x4.5 hose bracket between hose C and brake line

Connecting hose A to heater inlet

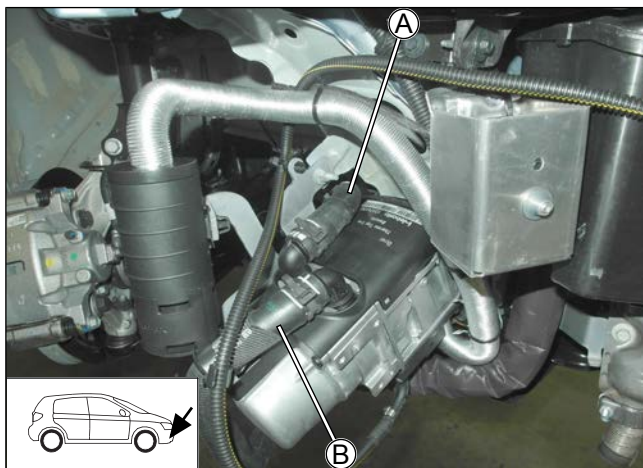


Fig. 64



Routing hose A

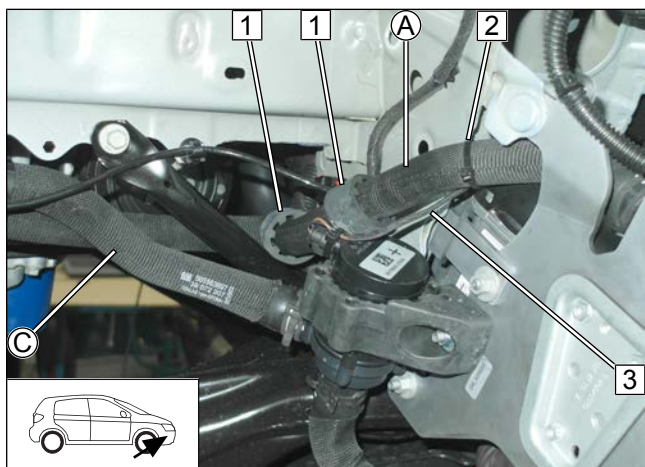


Fig. 65

► Attach coolant pump wiring harness **3** using cable tie **2**.

- 1** Position black (sw) rubber isolator

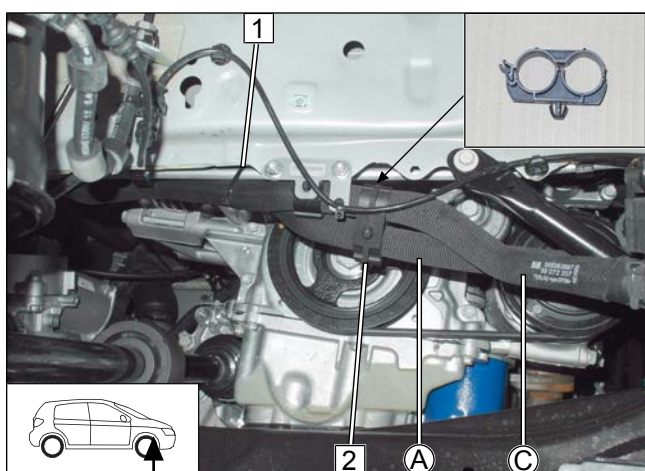


Fig. 66

- 1** Cable tie around A/C line and hose A

- 2** Hose bracket

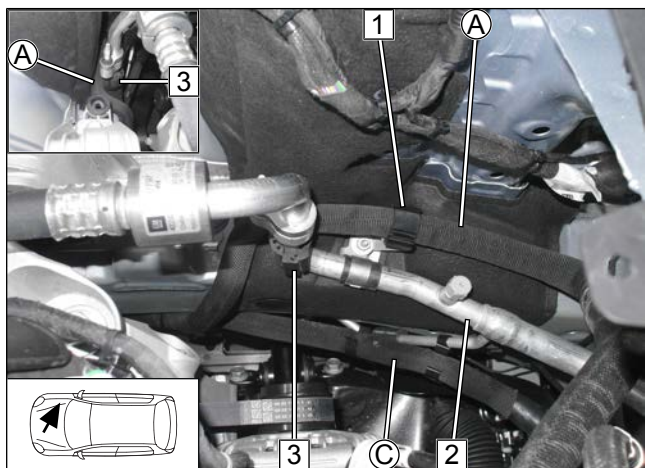
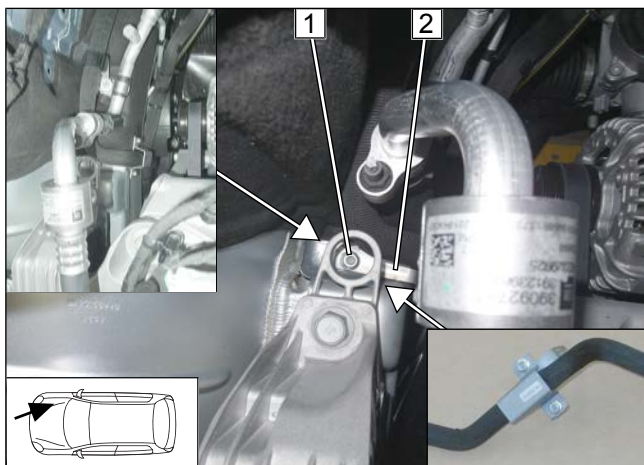


Fig. 67

► Route hose **A** behind A/C line **2**.

- 1** Close hose bracket

- 3** Position black (sw) rubber isolator



- 1 Flanged nut
- 2 Hose bracket

Fig. 68

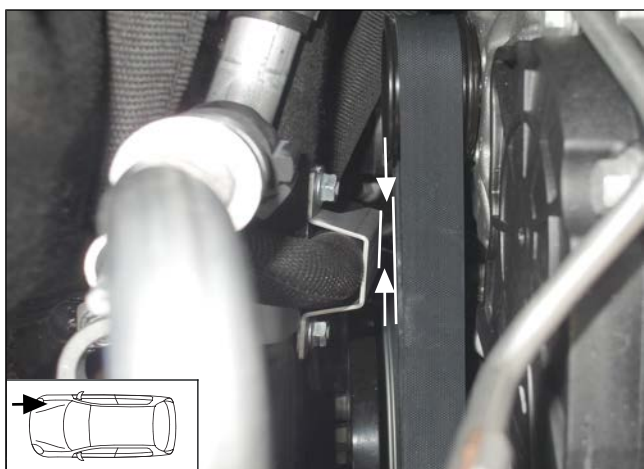


Fig. 69



Ensure sufficient distance from neighbouring components, correct if necessary.



Fig. 70



Ensure sufficient distance from neighbouring components, correct if necessary.



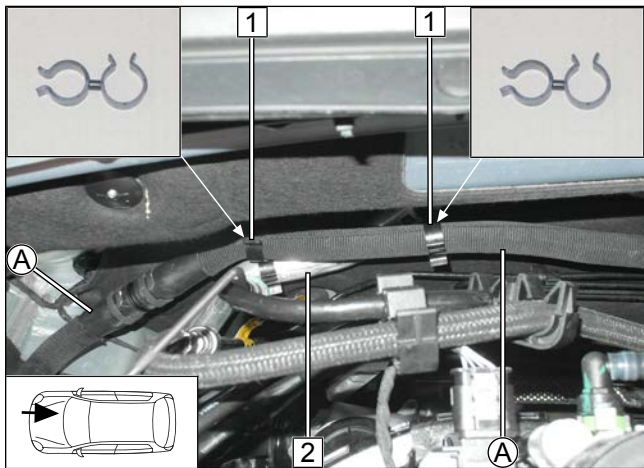


Fig. 71

- 1 Hose bracket between 21x23 A/C line and hose bracket A
- 2 A/C line

10.2.5 Coolant connection for 1.5P

Cutting point

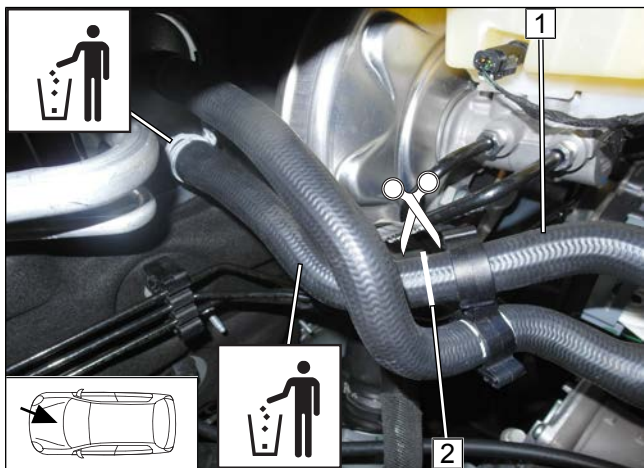


Fig. 72

- 1 Hose of engine outlet
- 2 Cutting point

Engine outlet / heat exchanger inlet connection

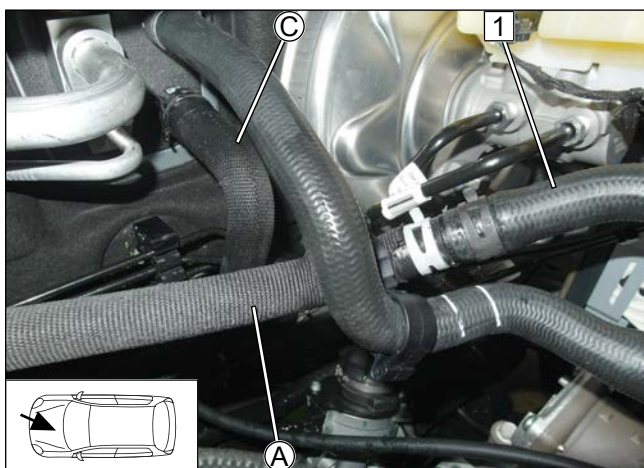


Fig. 73

- 1 Engine outlet hose section

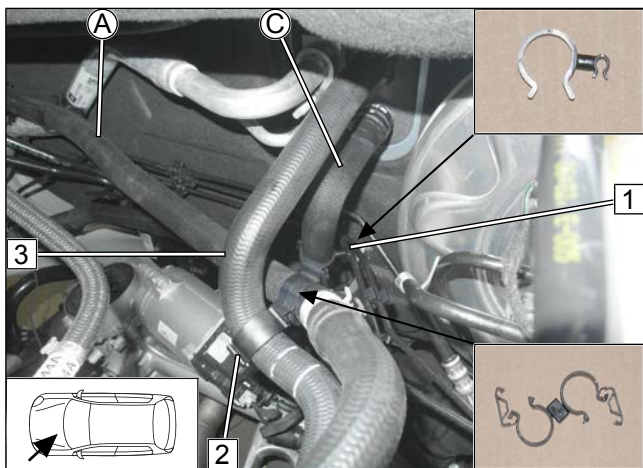


Fig. 74

- 1** 20x4.5 hose bracket between hose C and brake line
- 2** Lockable 25x25 hose bracket
- 3** Hose of heat exchanger outlet

10.2.6 Coolant Connection for 2.0P

Cutting point

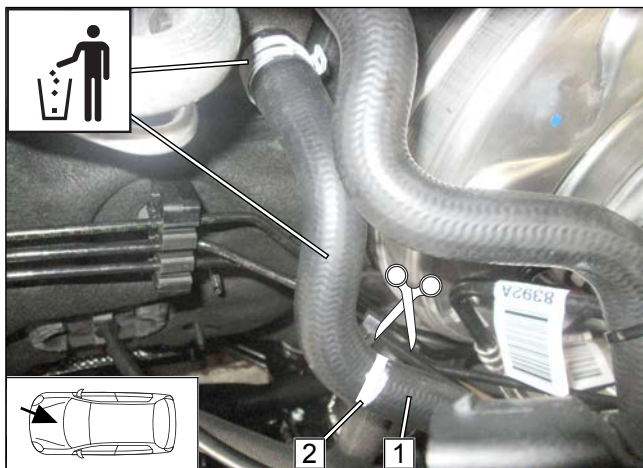


Fig. 75

- 1** Hose of engine outlet
- 2** Cutting point

Connecting engine outlet

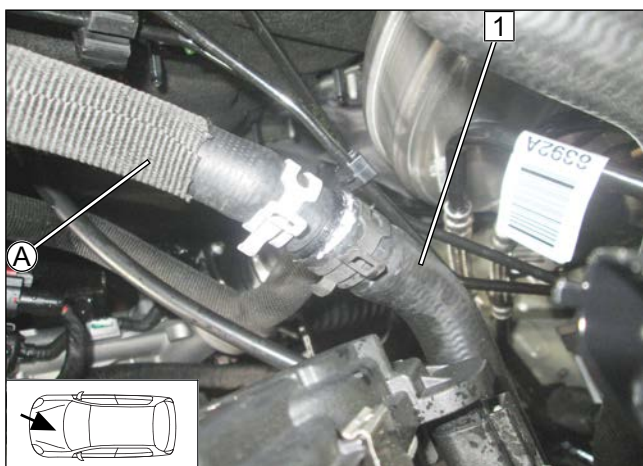
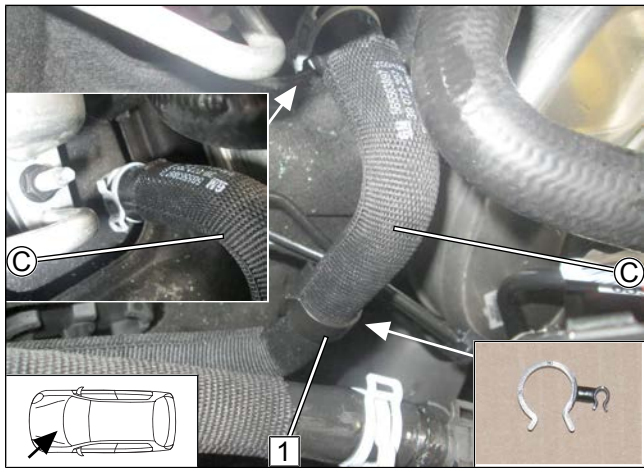


Fig. 76

- 1** Engine outlet hose section



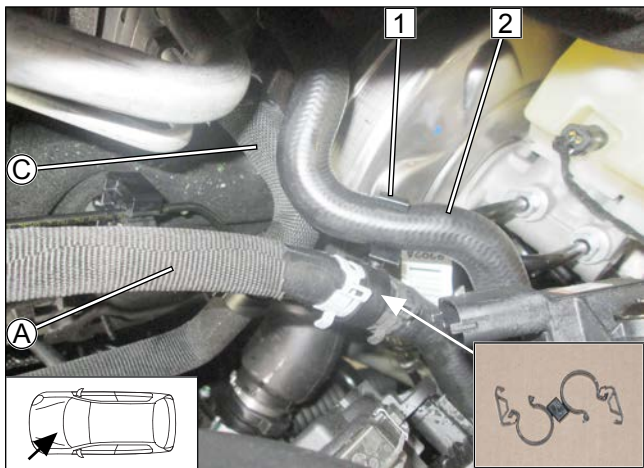
Connection of heat exchanger inlet



- 1 20x4.5 hose bracket between hose C and brake line

Fig. 77

Installing hose bracket



- 1 Lockable 25x25 hose bracket
- 2 Hose of heat exchanger outlet

Fig. 78



10.3 Coolant circuit for 1.6P and 1.6D

10.3.1 Hose routing diagram for 1.6P and 1.6D

'Inline' coolant circuit

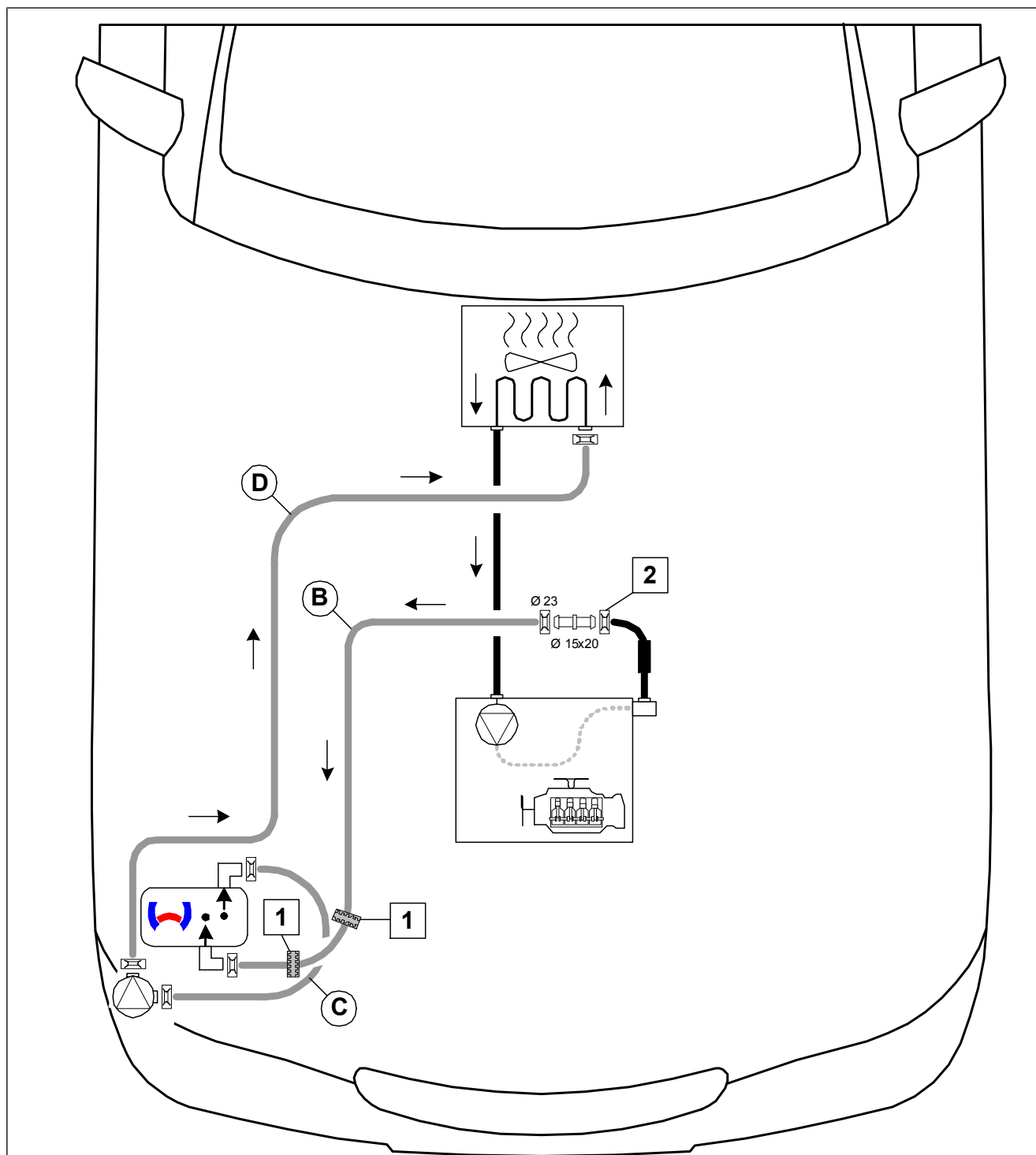


Fig. 79

All spring clips without a specific designation  = 27mm dia.

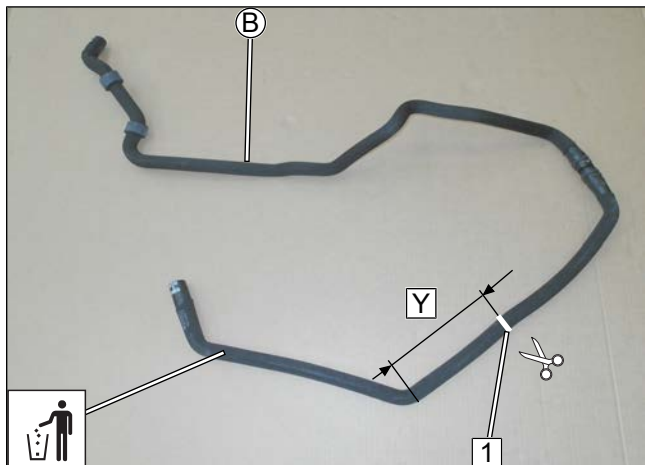
1 Black (sw) rubber isolator 

2 Original vehicle spring clip



10.3.2 Preparing hose group for 1.6P and 1.6D

Preparing hose B



1 Cutting point

	1.6 P	1.6 D
Y	180	220

Fig. 80

Installing connecting pipe

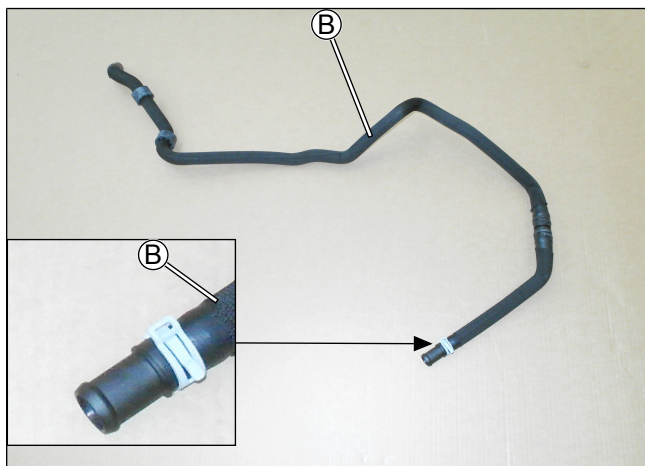


Fig. 81



10.3.3 Hose routing diagram for 2.0D

'Inline' coolant circuit

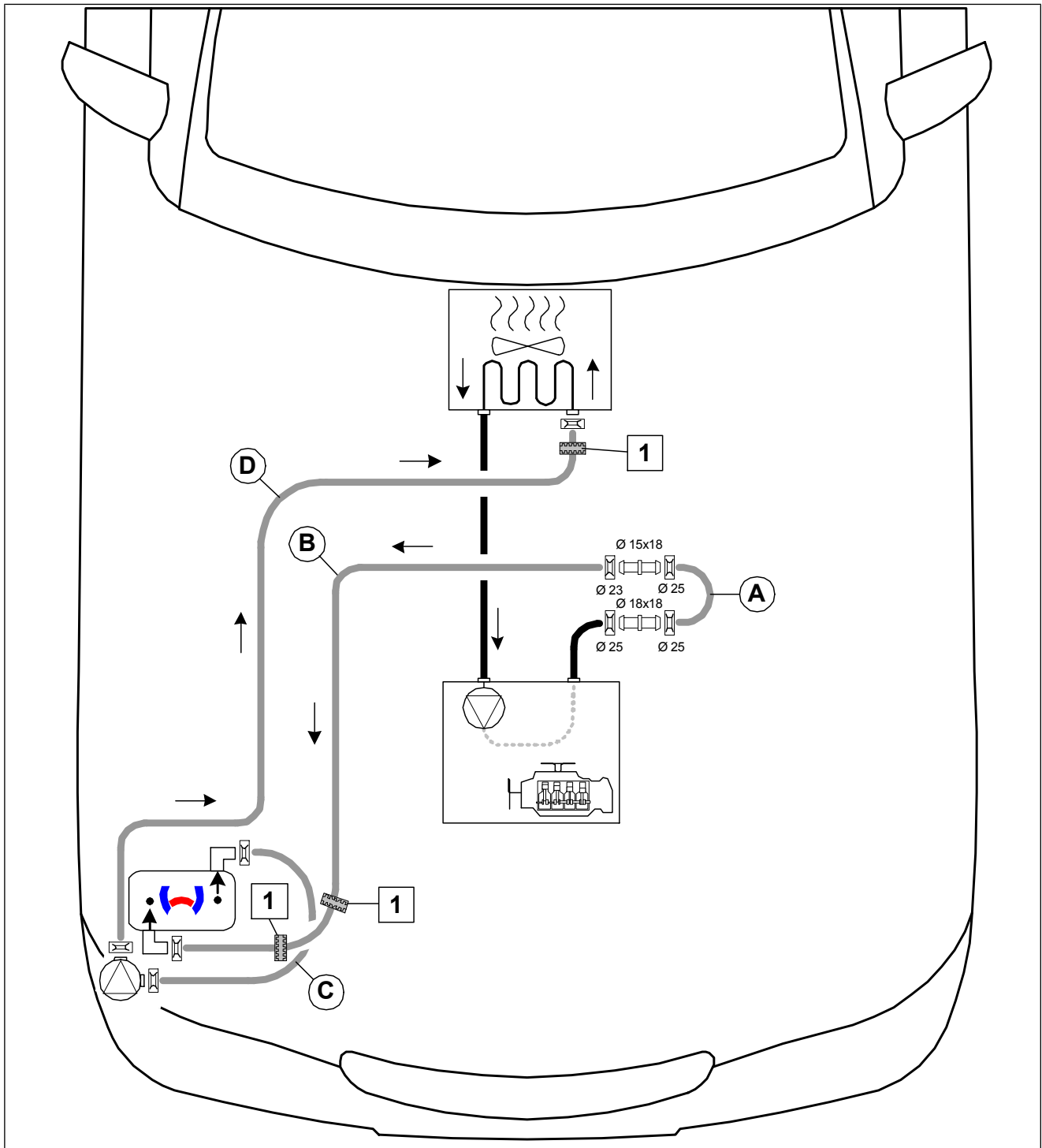


Fig. 82

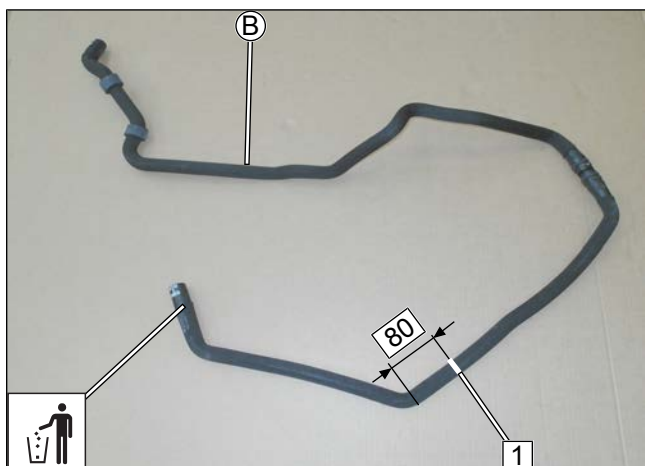
All spring clips without a specific designation  = 27mm dia.

1 Black (sw) rubber isolator 



10.3.4 Preparing hose group for 2.0D

Preparing hose B



1 Cutting point

Fig. 83

Installing connecting pipe

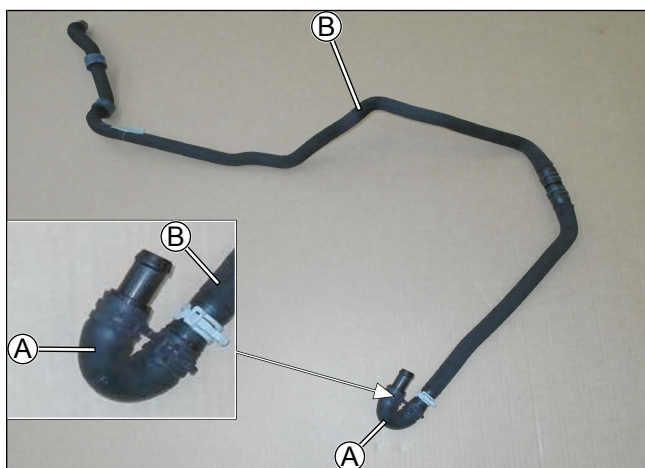


Fig. 84



10.3.5 Coolant circuit installation for 1.6P, 1.6D and 2.0D

Installing hose bracket

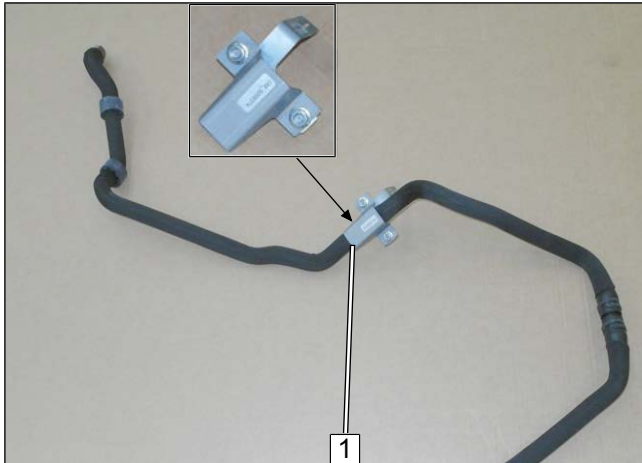


Fig. 85

- 1 Hose bracket, flanged nut [2x]

Premounting rubber isolator

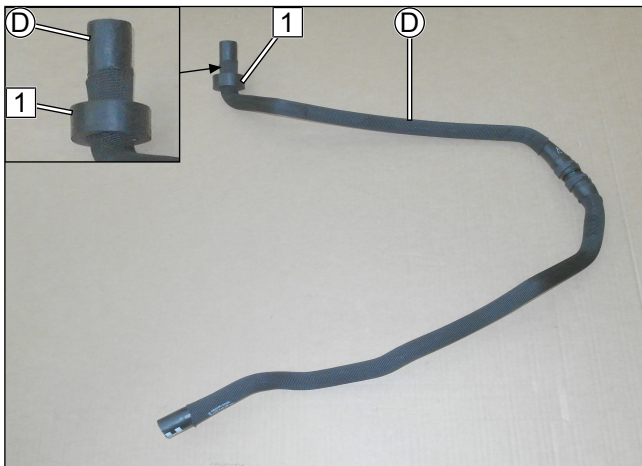


Fig. 86

- 1 Black (sw) rubber isolator

Installing hose D

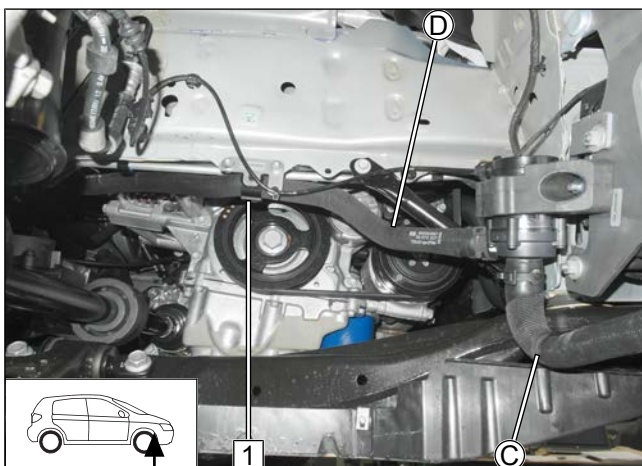


Fig. 87

- 1 Close hose bracket



Routing hose **D**

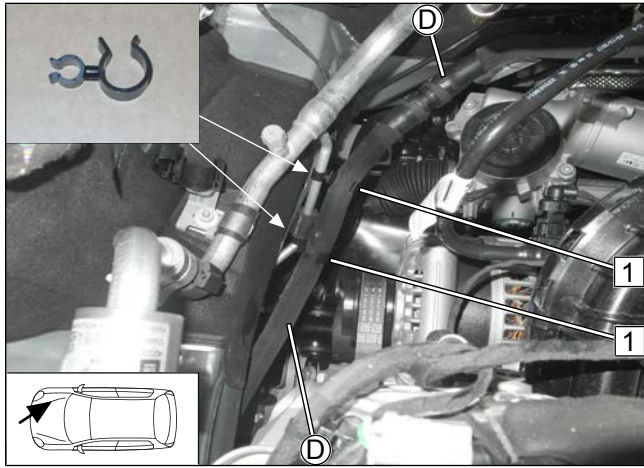


Fig. 88

- 1 23x8 hose bracket between A/C line and hose D

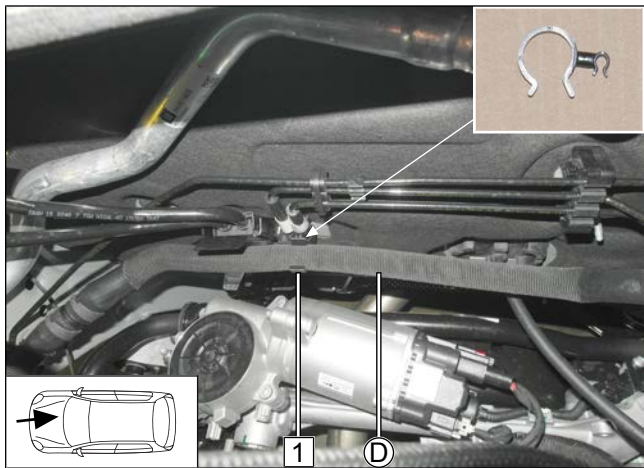


Fig. 89

- 1 20x4.5 hose bracket between hose D and brake line

Connecting hose **B** to heater inlet

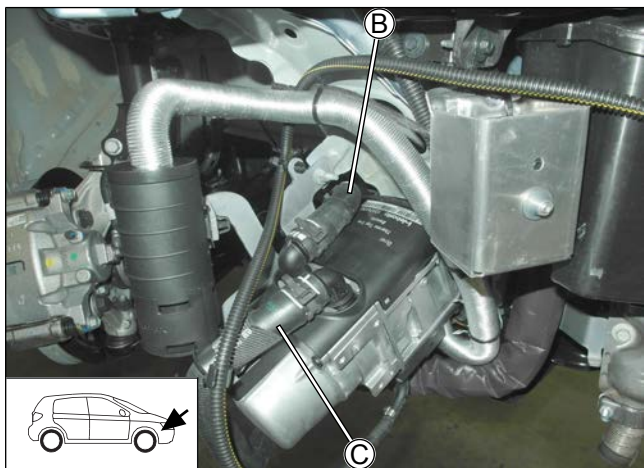


Fig. 90



Routing hose B

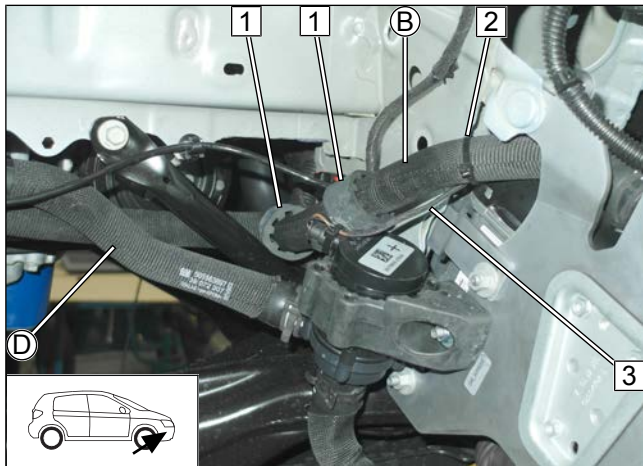


Fig. 91

► Attach coolant pump wiring harness **3** using cable tie **2**.

1 Position black (sw) rubber isolator

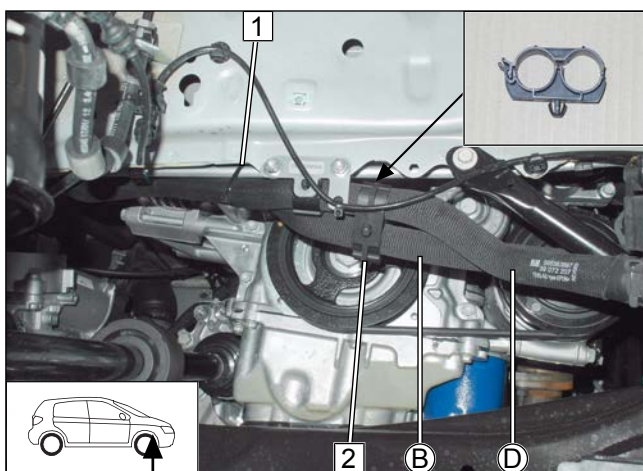


Fig. 92

1 Cable tie around A/C line and hose D

2 Hose bracket

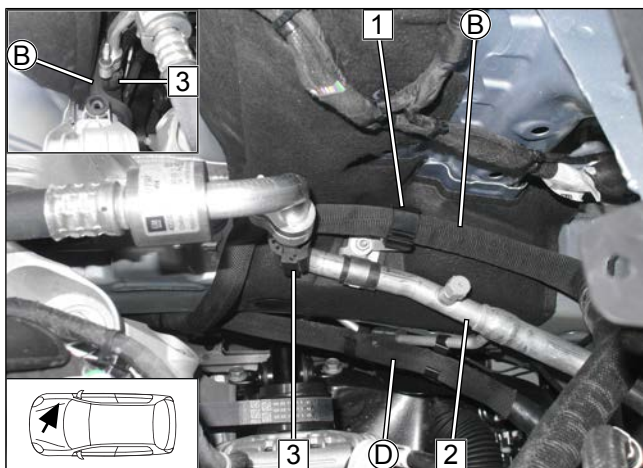
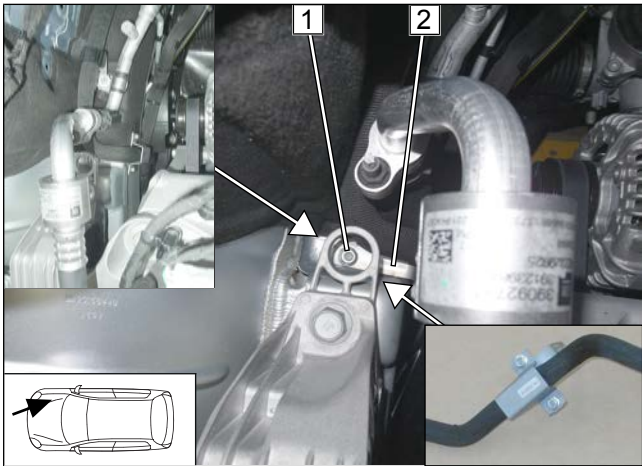


Fig. 93

► Route hose B behind A/C line **2**.

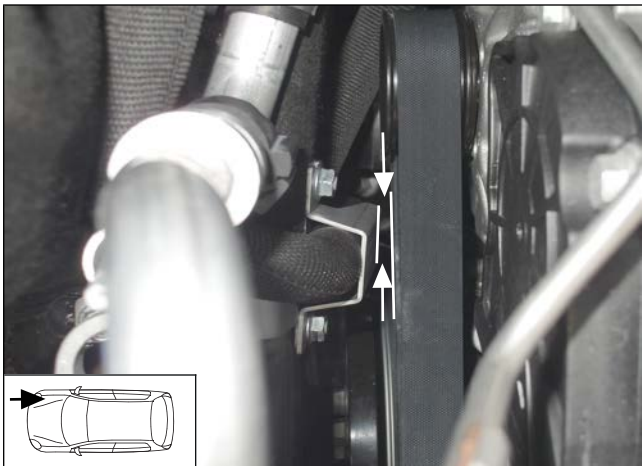
1 Close hose bracket

2 Position black (sw) rubber isolator



- 1 Flanged nut
- 2 Hose bracket

Fig. 94



Ensure sufficient distance from neighbouring components, correct if necessary.

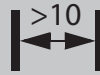
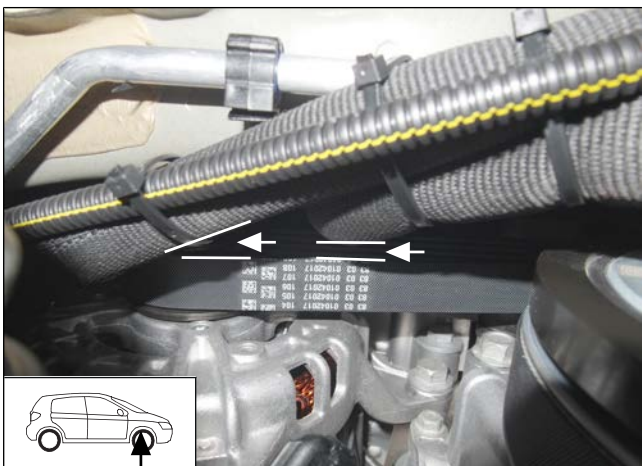


Fig. 95



Ensure sufficient distance from neighbouring components, correct if necessary.

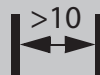


Fig. 96

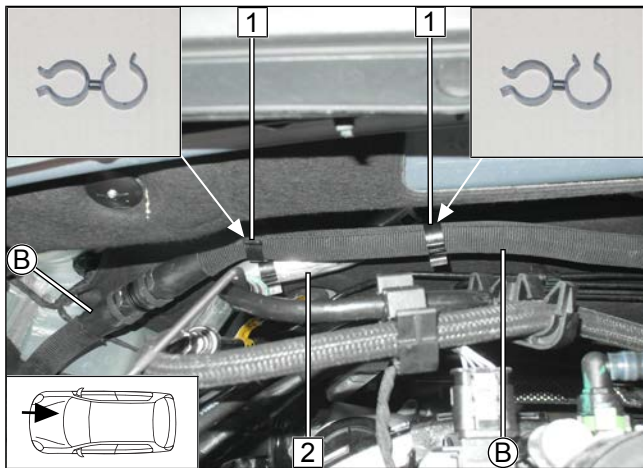


Fig. 97

- 1** Hose bracket between 21x23 A/C line and hose bracket B
- 2** A/C line

10.3.6 Coolant connection for 1.6P

Detaching hose



Fig. 98

- 1** Hose of engine outlet / heat exchanger inlet
- 2** Heat exchanger inlet connection piece, original vehicle clamp (will be reused)

Connecting engine outlet

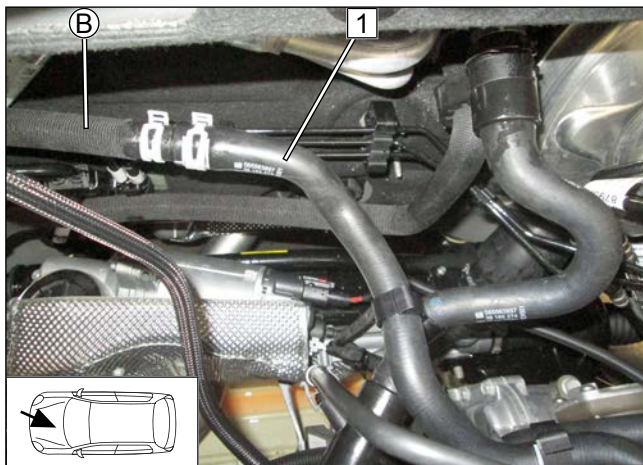


Fig. 99

- 1** Engine outlet hose section



Connection of heat exchanger inlet

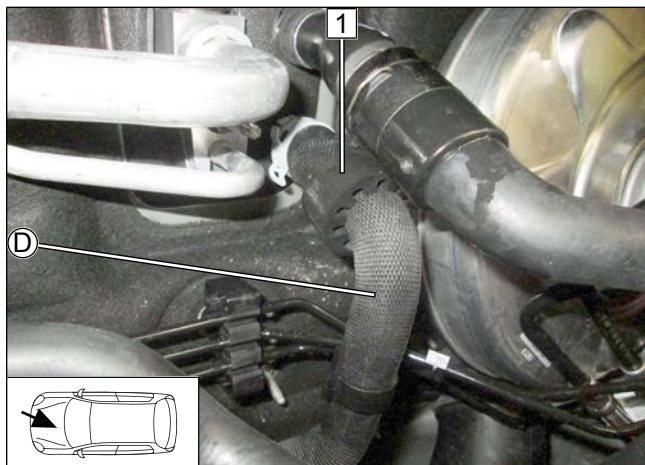


Fig. 100

- 1 Position black (sw) rubber isolator

Installing hose bracket

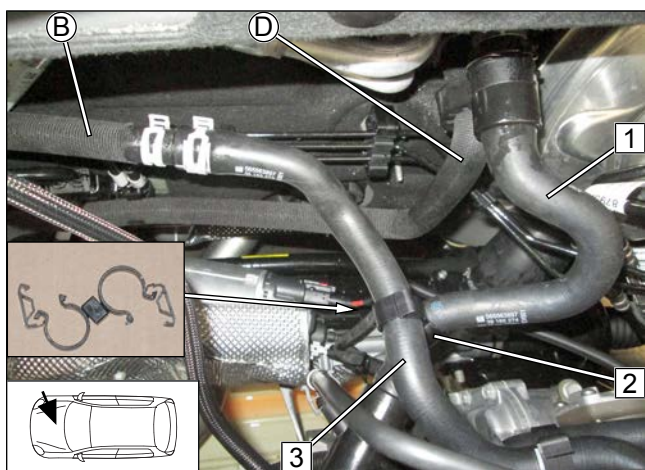


Fig. 101

- 1 Heat exchanger outlet hose section
- 2 Position and close original vehicle hose bracket
- 3 Engine outlet hose section

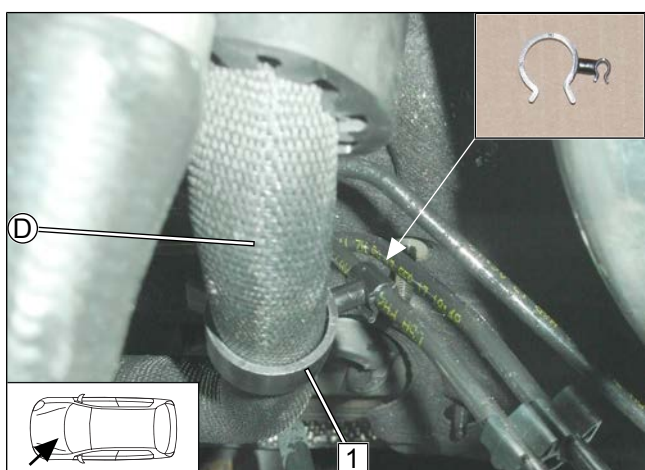


Fig. 102

- 1 20x4.5 hose bracket between hose D and brake line



10.3.7 Coolant connection for 1.6D

Detaching hose



Fig. 103

- 1 Open original vehicle hose bracket (will be re-used)
- 2 Hose of engine outlet / heat exchanger inlet
- 3 Heat exchanger inlet connection piece, original vehicle clamp (will be reused)

Connecting engine outlet

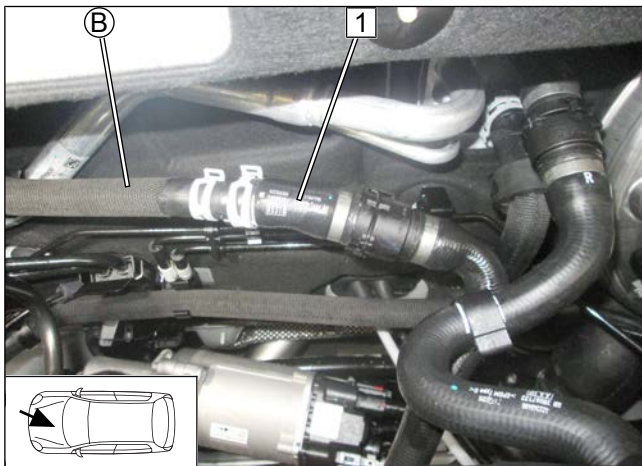


Fig. 104

- 1 Engine outlet hose section

Connection of heat exchanger inlet

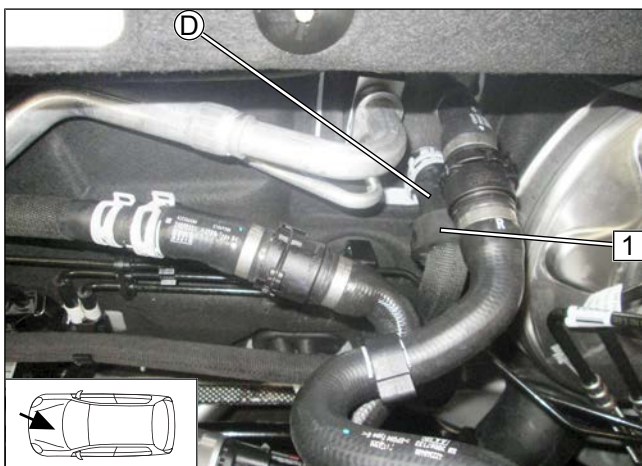


Fig. 105

- 1 Position black (sw) rubber isolator



Installing hose bracket

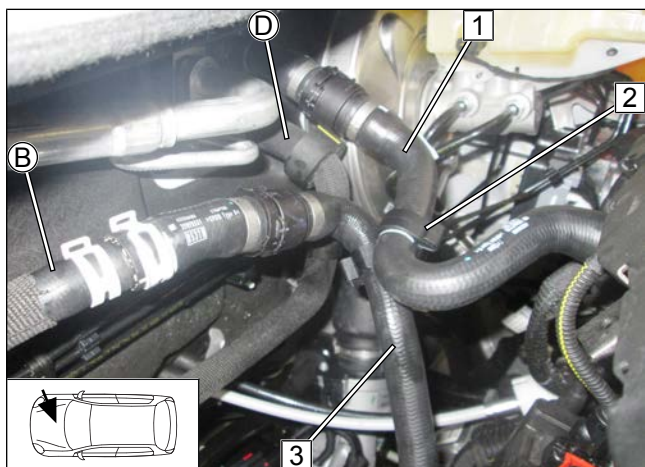


Fig. 106

- 1 Heat exchanger outlet hose section
- 2 Position and close original vehicle hose bracket
- 3 Engine outlet hose section

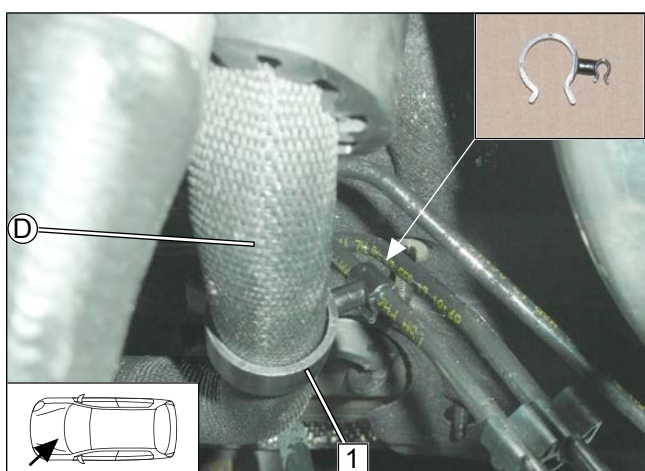


Fig. 107

- 1 20x4.5 hose bracket between hose D and brake line

10.3.8 Coolant connection for 2.0D

Cutting point

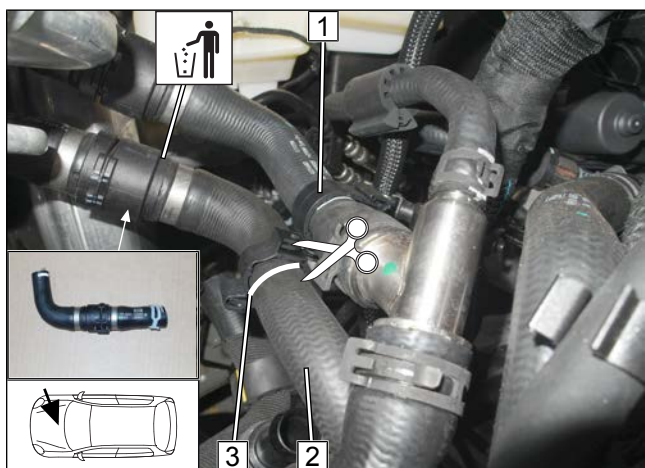


Fig. 108

- 1 Open original vehicle hose bracket (will be re-used)
- 2 Hose of engine outlet
- 3 Cutting point



Connection of heat exchanger inlet

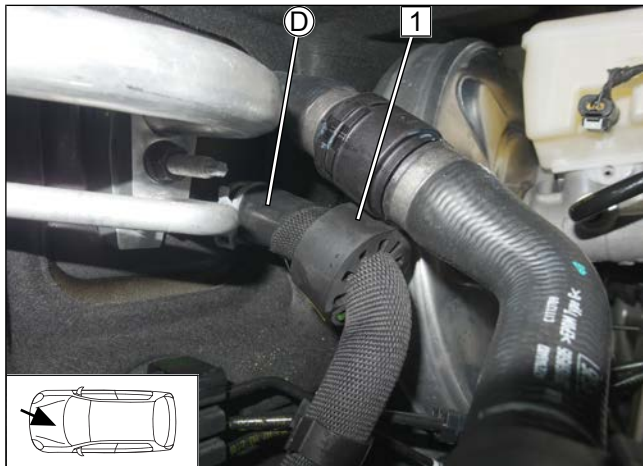


Fig. 109

- 1 Position black (sw) rubber isolator

Connecting engine outlet

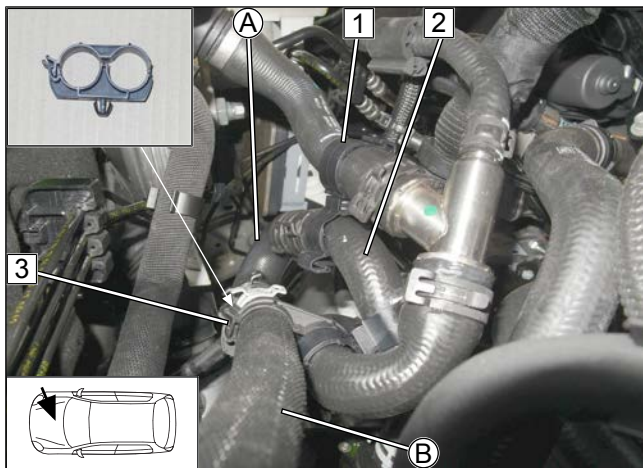


Fig. 110

- 1 Position and close original vehicle hose bracket
- 2 Engine outlet hose section
- 3 Lockable 25x25 hose bracket

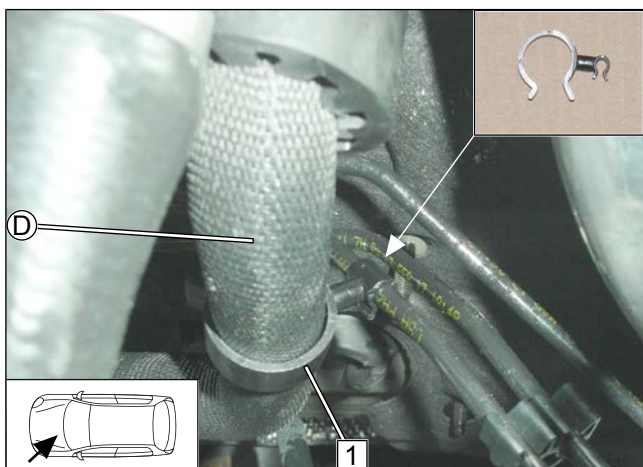


Fig. 111

- 1 20x4.5 hose bracket between hose D and brake line



11 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.

11.1 Preliminary work

Routing fuel line

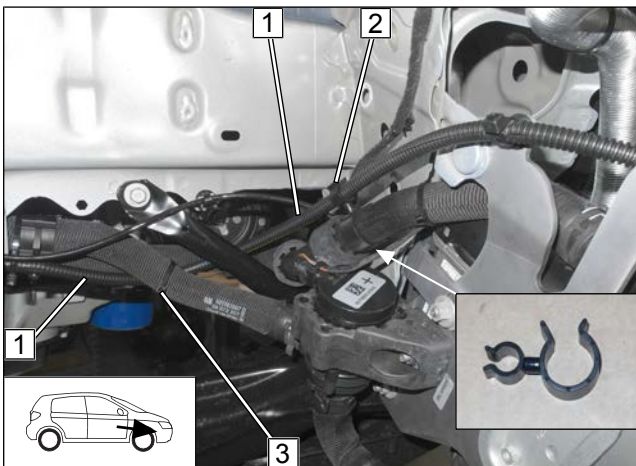


Fig. 112

- 1** Fuel line in 6mm dia. corrugated tube
- 2** 8x23 hose bracket
- 3** Cable tie

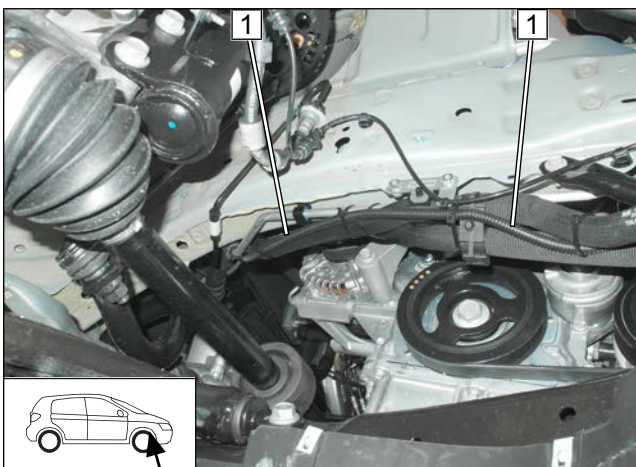
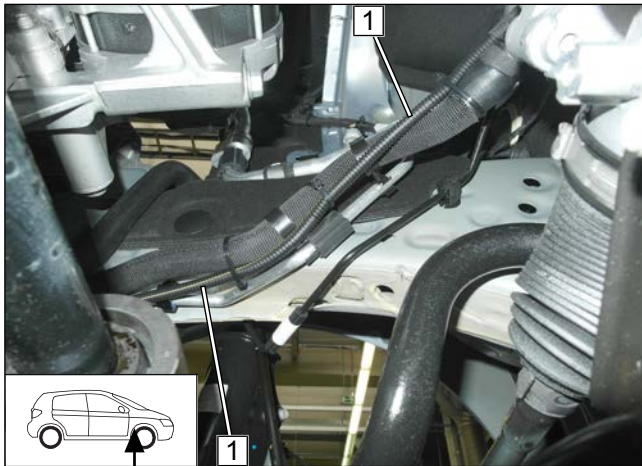


Fig. 113

- ▶ Route fuel line in corrugated tube **1** along original vehicle line and attach using cable ties.



► Route fuel line in corrugated tube **1** along original vehicle line and attach using cable ties.

Fig. 114

Dismantling fuel pump connector X7

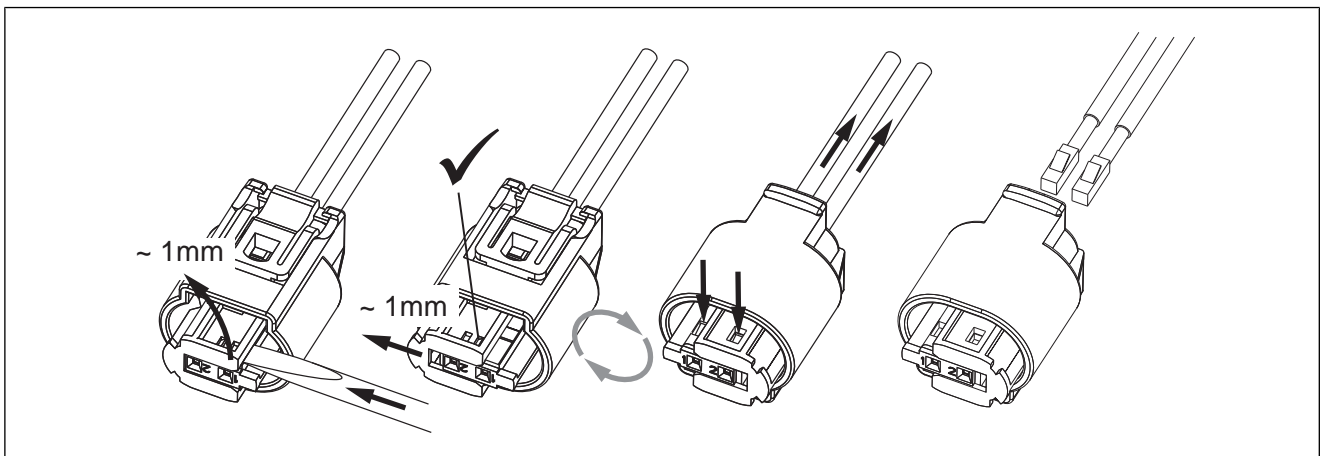


Fig. 115

Routing fuel line

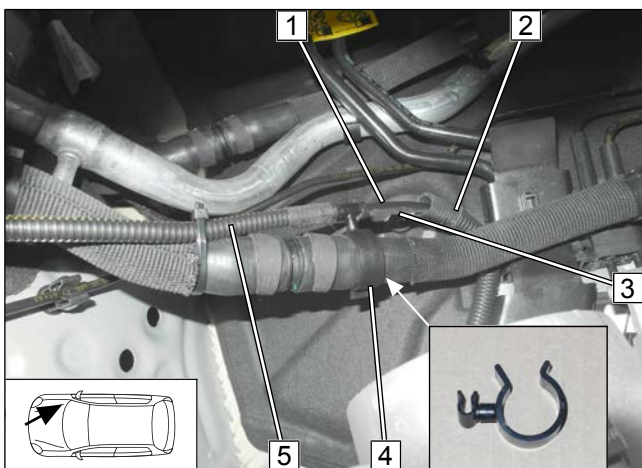


Fig. 116

► Route 10mm dia. corrugated tube **2** with fuel pump wiring harness **3** and fuel line **1** along original vehicle fuel lines to the underbody.

- 4** 20x4.5 hose bracket
- 5** Fuel line in corrugated tube

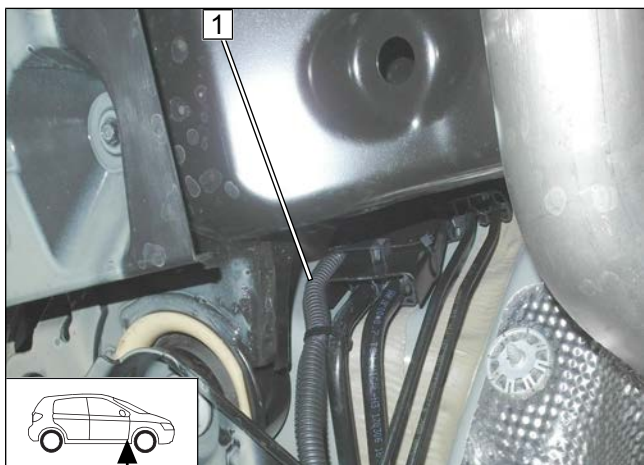


Fig. 117

► Route 10mm dia. corrugated tube **1** along original vehicle line and attach using cable ties.

11.2 Petrol

Routing on underbody

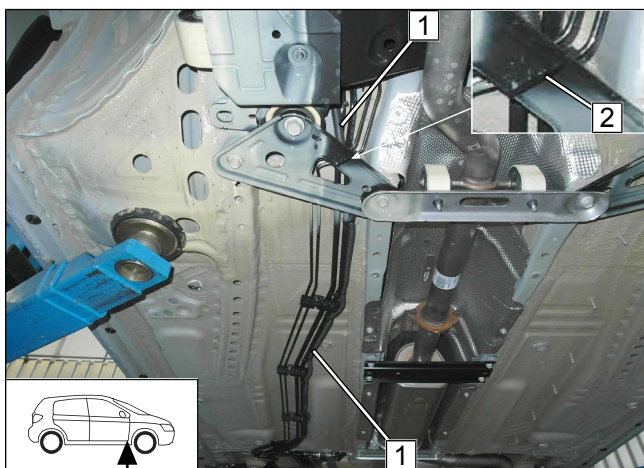


Fig. 118

► Route fuel line and fuel pump wiring harness in corrugated tube **1** on underbody to fuel pump installation location, attach to original vehicle lines using cable ties as shown.

Drilling hole

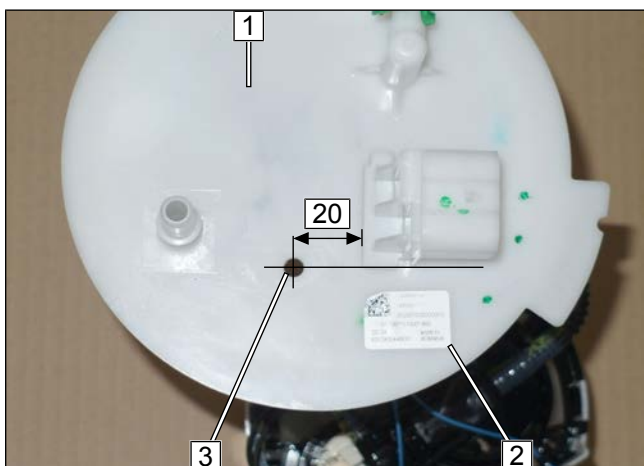


Fig. 119



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

► Remove the fuel tank.

- 1** Tank fitting
- 2** Move label
- 3** 6mm dia. hole



Installing tank extracting device

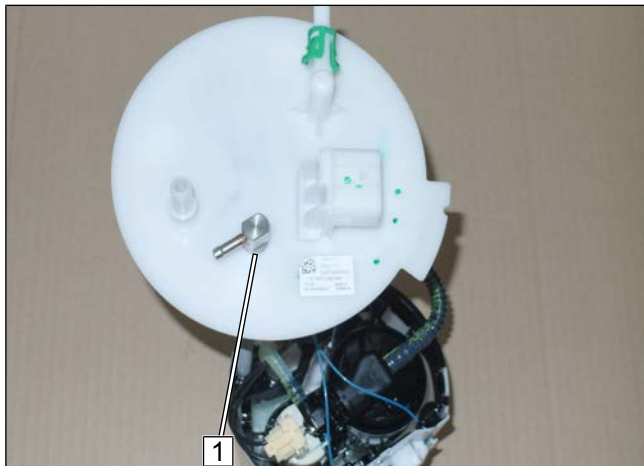


Fig. 120



Observe the installation instructions of the tank extracting device.

► Bend tank extracting device **1** according to template and cut to length.



Differences between 2WD/4WD must be considered.

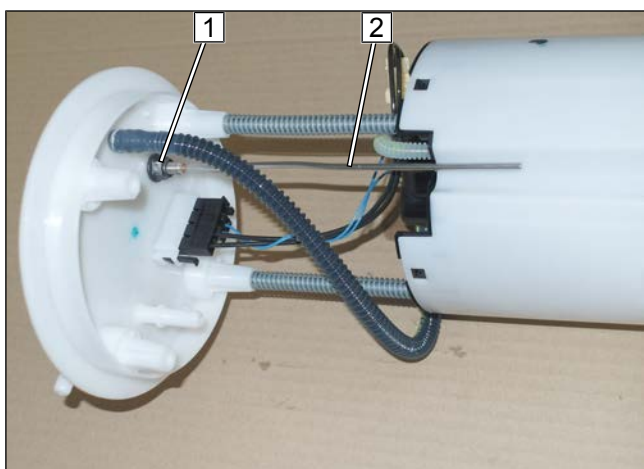


Fig. 121



Figure shows 2WD, see diesel vehicle section in case of mounting in a 4WD.

- 1** Self-locking nut
- 2** Tank extracting device

Shortening moulded hose

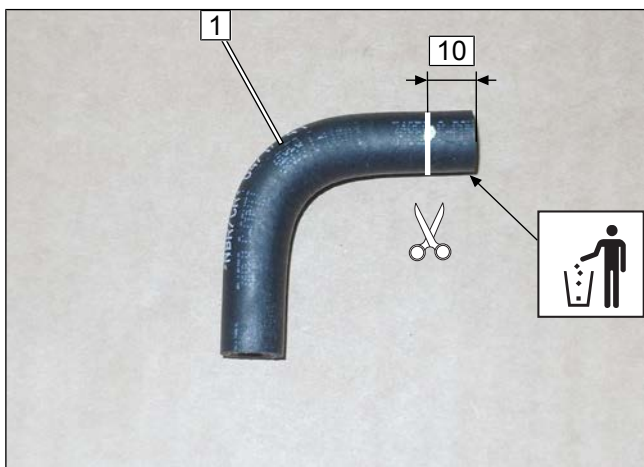


Fig. 122

- 1** 90° moulded hose



Premounting fuel line

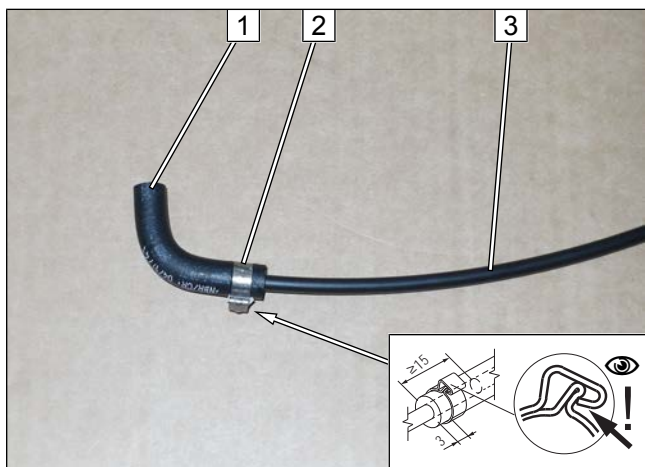


Fig. 123

- 1** 90° moulded hose (shortened side)
- 2** 10mm dia. clamp
- 3** Fuel line

Installing fuel line

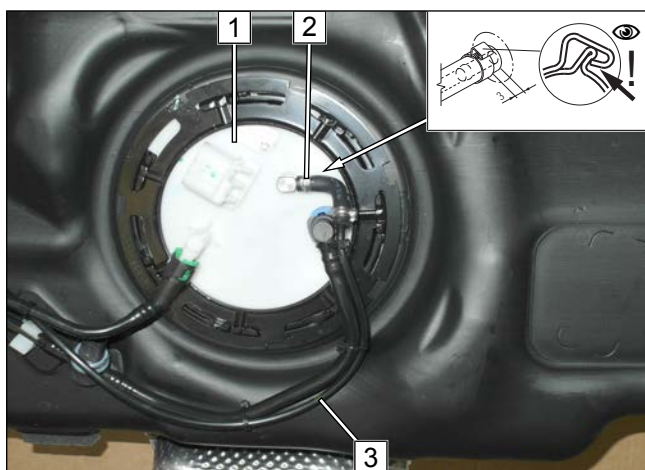


Fig. 124



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

► Install tank fitting **1**.

- 2** 10mm dia. clamp
- 3** Fuel line

Routing fuel line

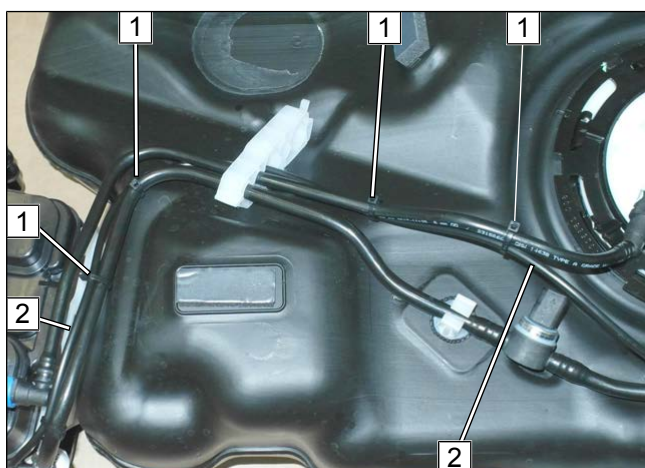


Fig. 125

- 1** Cable tie
- 2** Fuel line

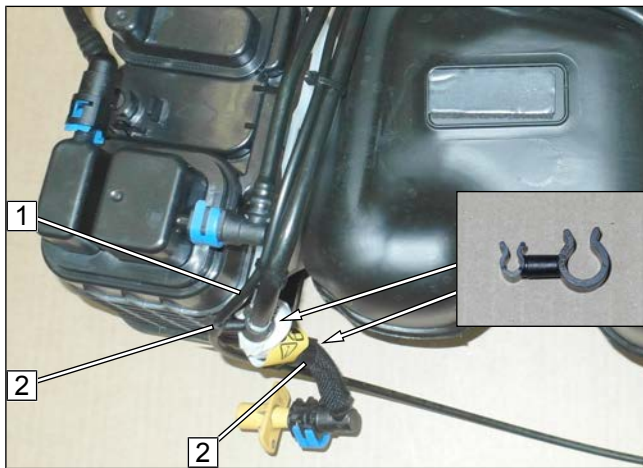


Fig. 126

- 1 Fuel line
- 2 4x10 hose bracket



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

► Install fuel tank.

11.3 Diesel

Routing on underbody

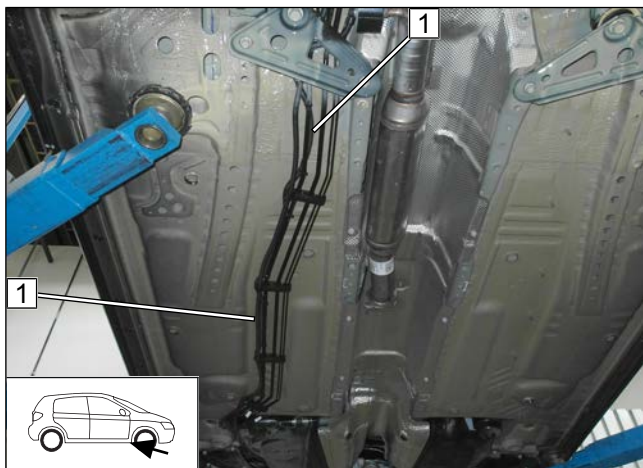


Fig. 127

► Route fuel line and fuel pump wiring harness in corrugated tube **1** on underbody to fuel pump installation location, attach to original vehicle lines using cable ties as shown.

Drilling hole

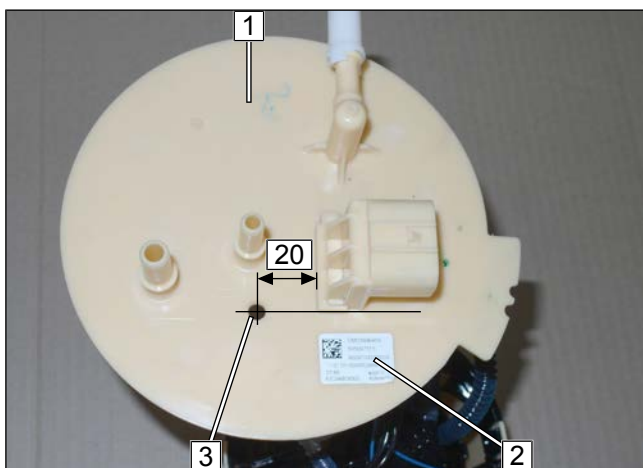


Fig. 128



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

► Remove the fuel tank.

- 1 Tank fitting
- 2 Move label
- 3 6mm dia. hole



Installing tank extracting device



Fig. 129



Observe the installation instructions of the tank extracting device.

► Bend tank extracting device **1** according to template and cut to length.



Differences between 2WD/4WD must be considered.

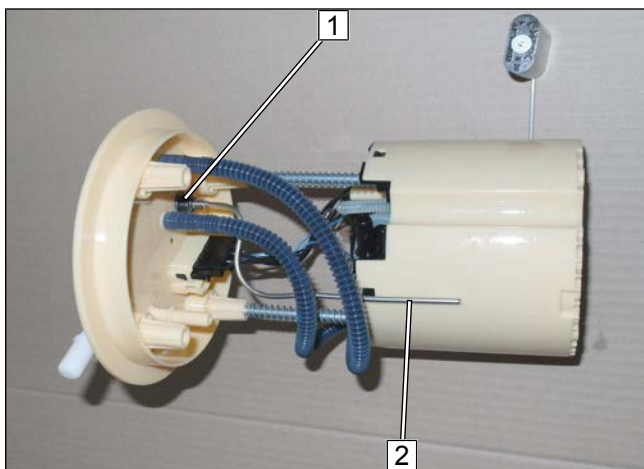


Fig. 130



Figure shows 4WD, see petrol vehicle section in case of mounting in a 2WD.

- 1** Self-locking nut
- 2** Tank extracting device

Shortening moulded hose

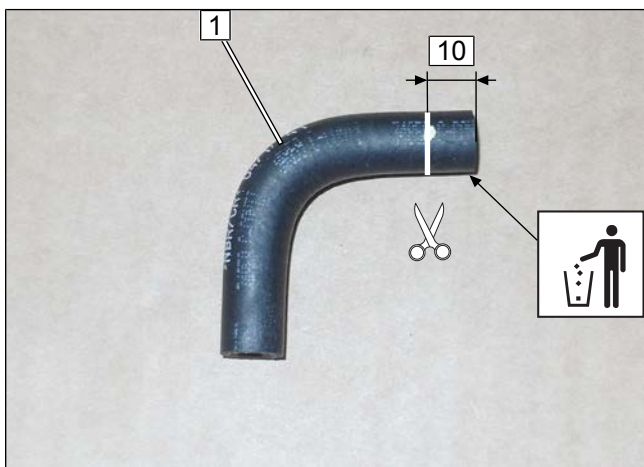


Fig. 131

- 1** 90° moulded hose



Premounting fuel line

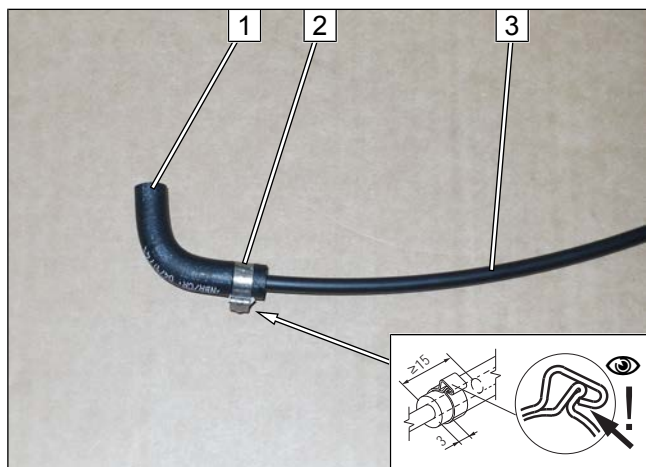


Fig. 132

- 1** 90° moulded hose (shortened side)
- 2** 10mm dia. clamp
- 3** Fuel line

Installing fuel line

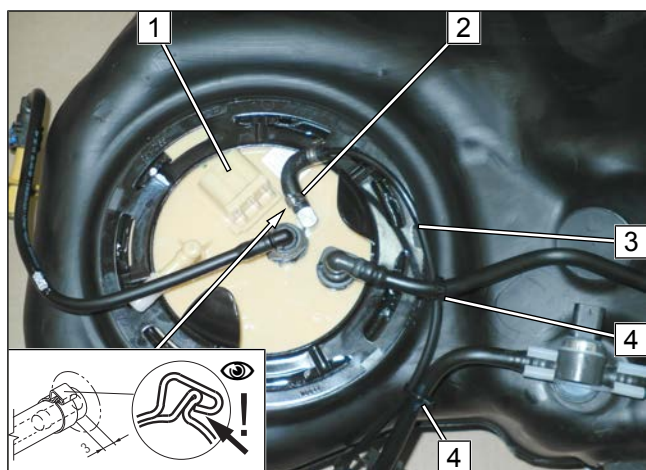



Fig. 133

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

► Install tank fitting **1**.

- 2** 10mm dia. clamp
- 3** Fuel line
- 4** Cable tie

Routing fuel line

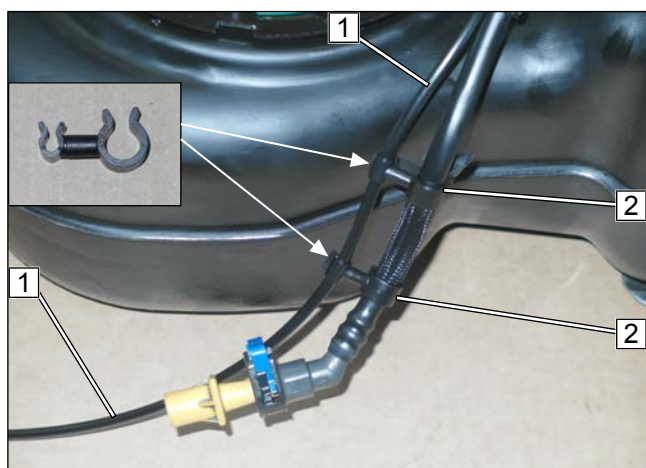



Fig. 134

- 1** Fuel line
- 2** 4x10 hose bracket

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

► Install fuel tank.



11.4 Fuel pump, all vehicles

Premounting fuel pump

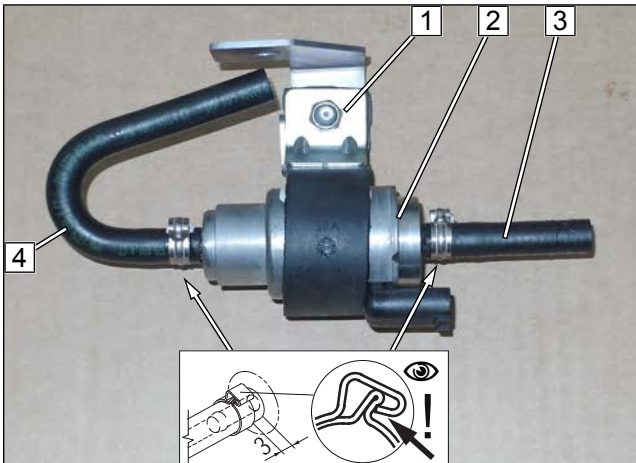


Fig. 135

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

Installing fuel pump

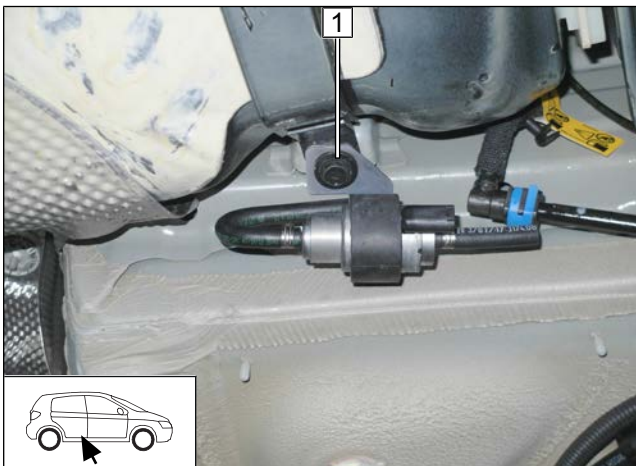


Fig. 136

- 1 Original vehicle bolt

Connecting fuel pump

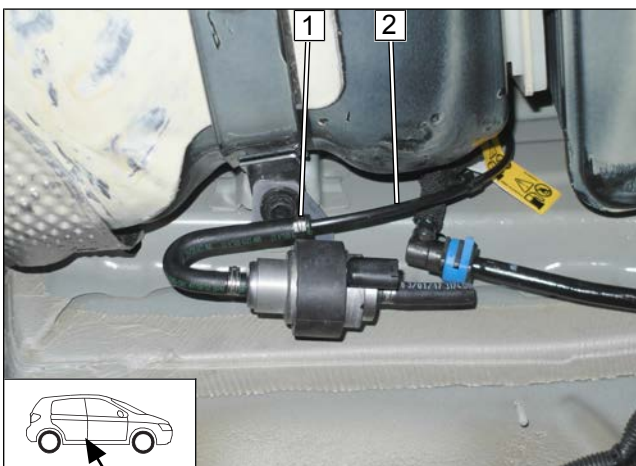


Fig. 137

- 1 10mm dia. clamp
- 2 Fuel line of tank extracting device



Mounting fuel pump connector X7

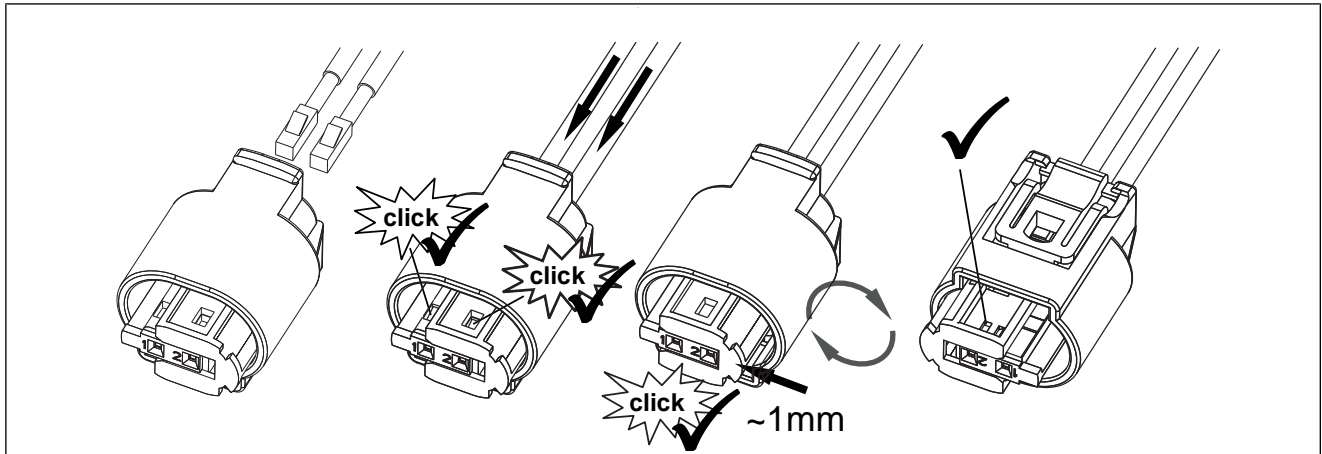
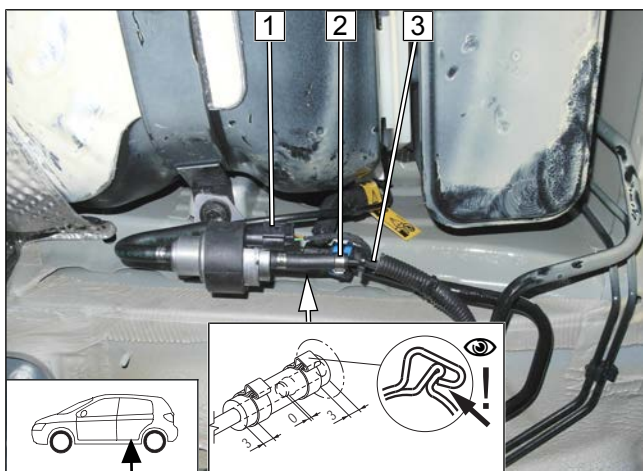


Fig. 138



- 1 Fuel pump wiring harness, connector X7 mounted
- 2 10mm dia. clamp
- 3 Heater fuel line

Fig. 139



12 Exhaust gas 2

Copying hole pattern in bumper

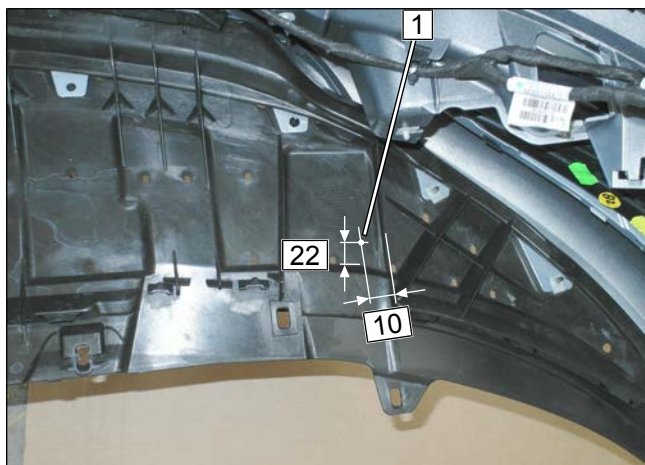


Fig. 140

1 Hole pattern

Drilling hole

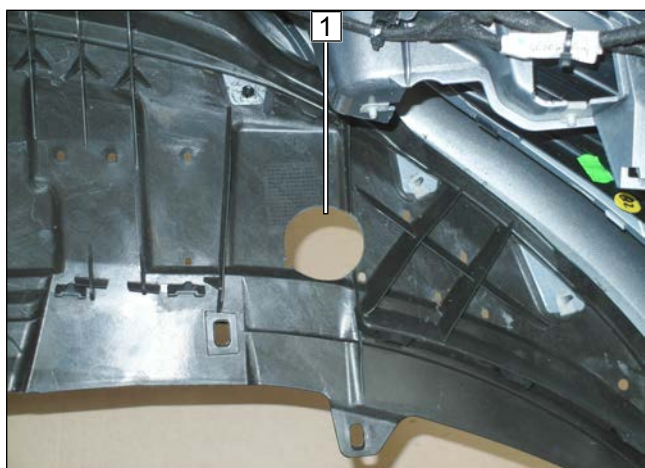


Fig. 141

1 60mm dia. hole

Fastening wiring harness to bumper

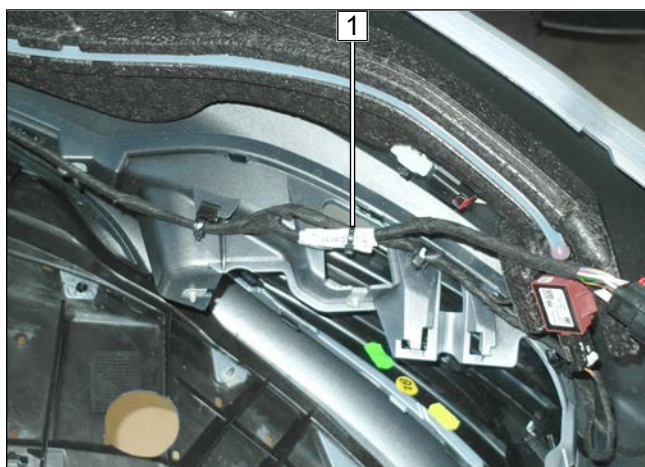


Fig. 142

► Attach original vehicle wiring harness using cable tie as shown.



Checking distance

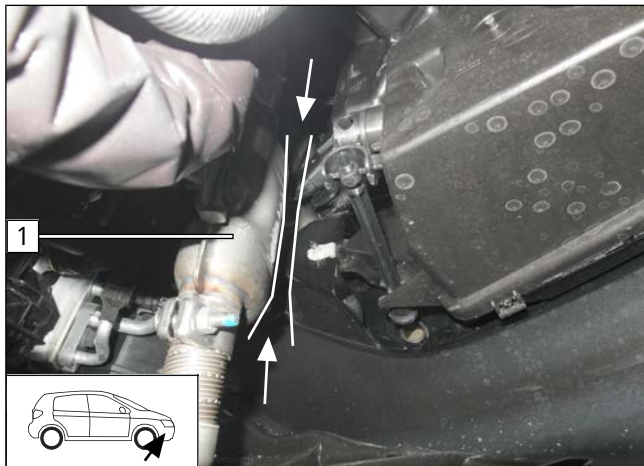
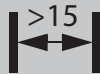


Fig. 143

► Mount bumper



Ensure sufficient distance from neighbouring components, correct if necessary.



1 Exhaust silencer

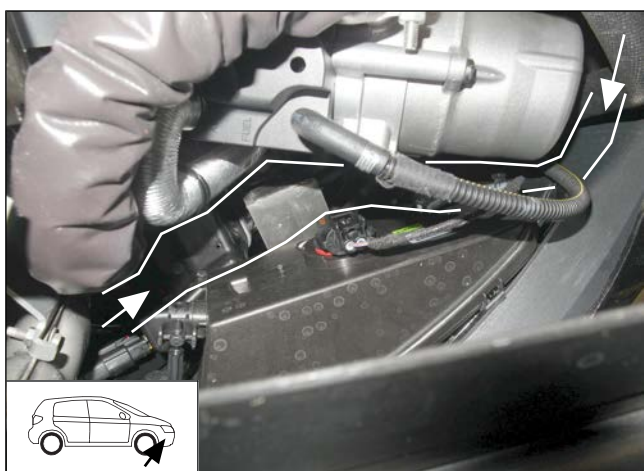


Fig. 144



Ensure sufficient distance in the marked area between heater and neighbouring components, correct if necessary.



Aligning exhaust pipe a2

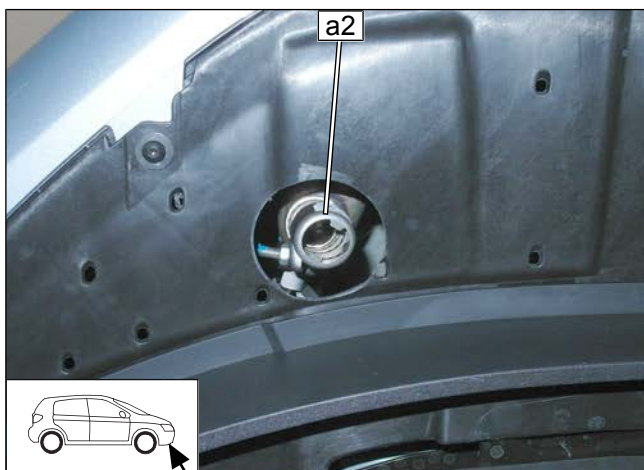


Fig. 145

► Align exhaust pipe **a2** with the centre of the hole as shown.



13 Electrical system of passenger compartment

13.1 Preliminary work

Installing SVM module

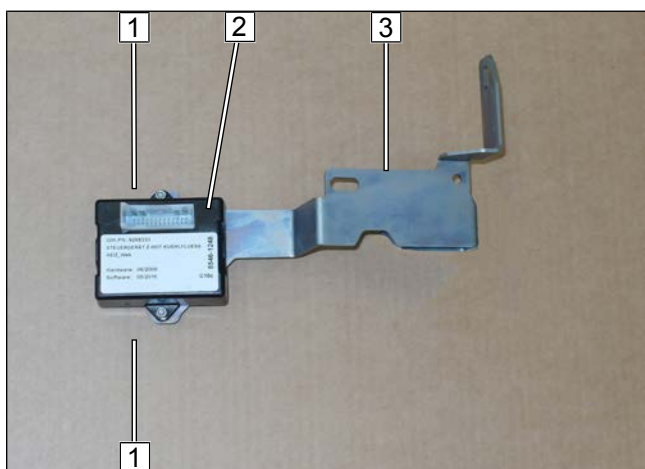


Fig. 146

- 1 M4 nut
- 2 SVM module
- 3 SVM module bracket

Installing Telestart T100

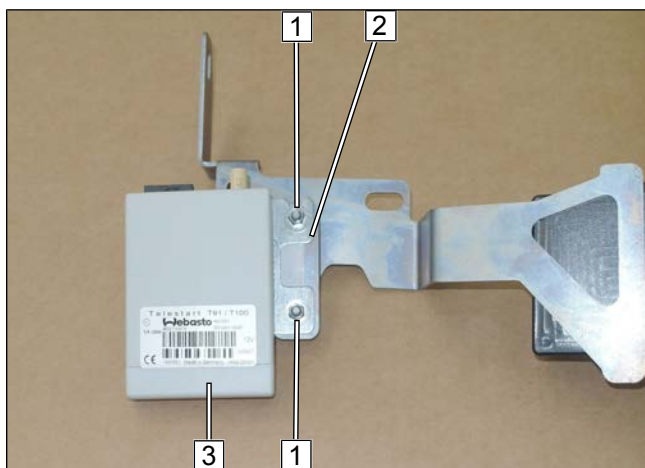


Fig. 147

- 1 M4 nut, large diameter washer
- 2 Telestart T100 bracket
- 3 Telestart T100 receiver

Assigning passenger compartment wiring harness

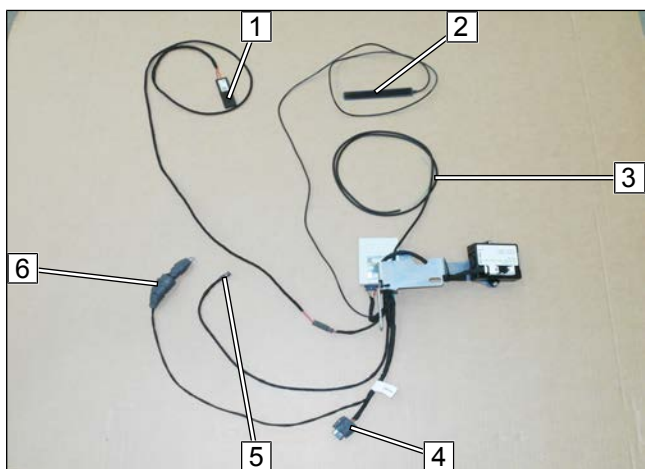


Fig. 148

- 1 T100 temperature sensor
- 2 T100 aerial
- 3 Green/white (gn/ws) wire of SVM module
- 4 Passenger compartment connector wiring harness
- 5 4-pin push button connector
- 6 Webasto diagnosis connector



Connecting passenger compartment wiring harness and SVM module

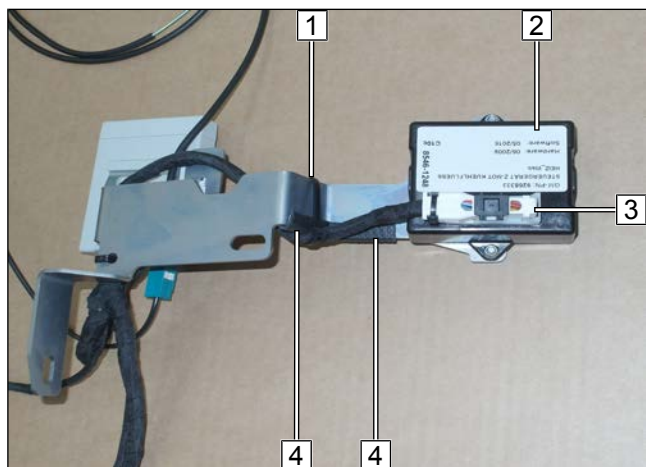


Fig. 149

- 1** Cable tie
- 2** SVM module
- 3** SVM module connector
- 4** 30mm long edge protection

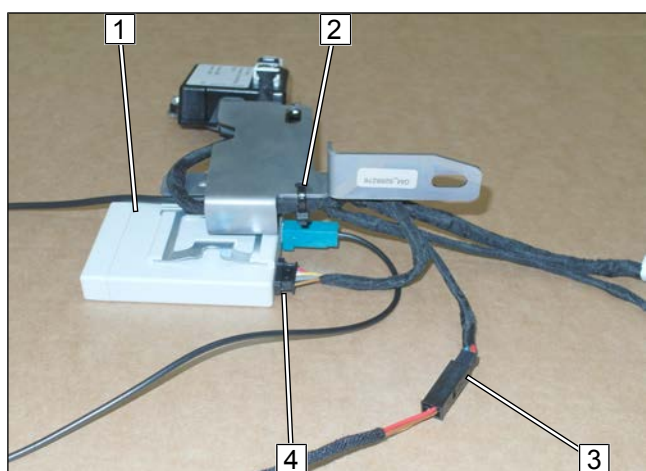


Fig. 150

- 1** T100 receiver
- 2** Cable tie
- 3** T100 temperature sensor connector
- 4** T100 receiver connector

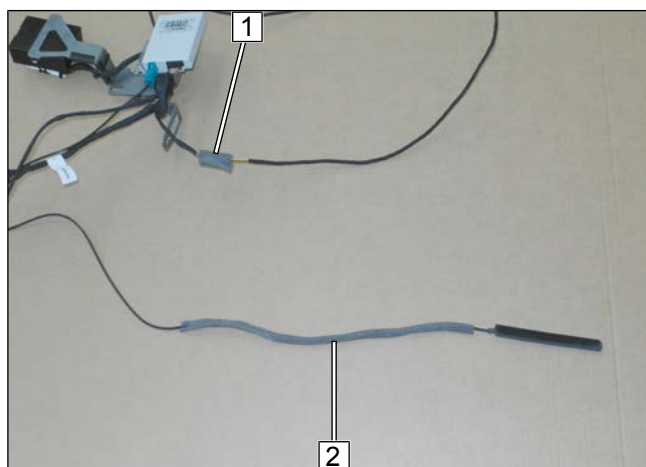


Fig. 151

- 1** Insulation material around T100 temperature sensor connector
- 2** Insulation material around T100 aerial line



Attaching temperature sensor

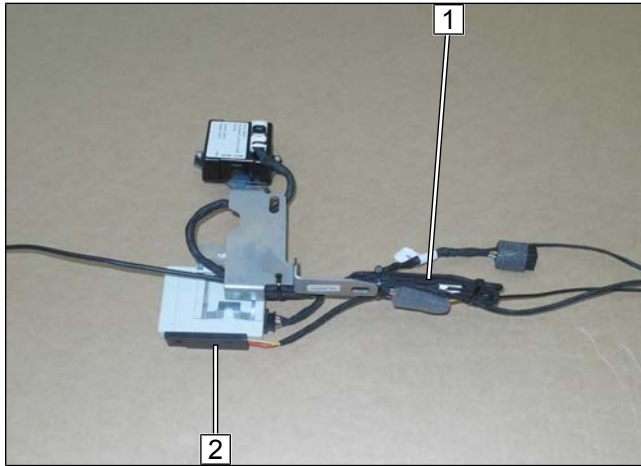


Fig. 152

- 1 Attach T100 temperature sensor line as shown
- 2 Attach T100 temperature sensor with double-sided adhesive tape

Insulating push button wire

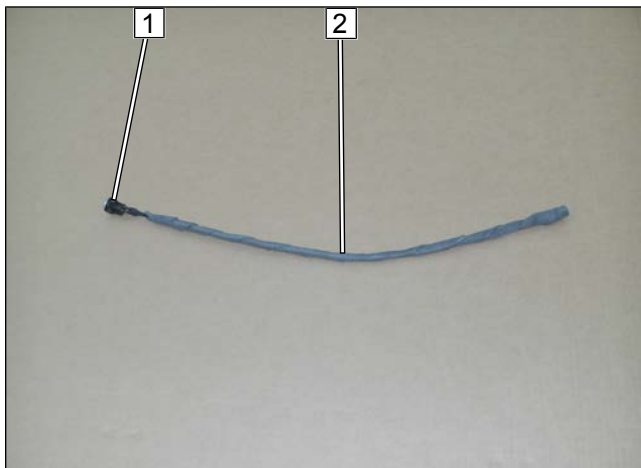


Fig. 153

- 1 Pushbutton
- 2 Insulation material around push button wire

Preparing mounting of push button

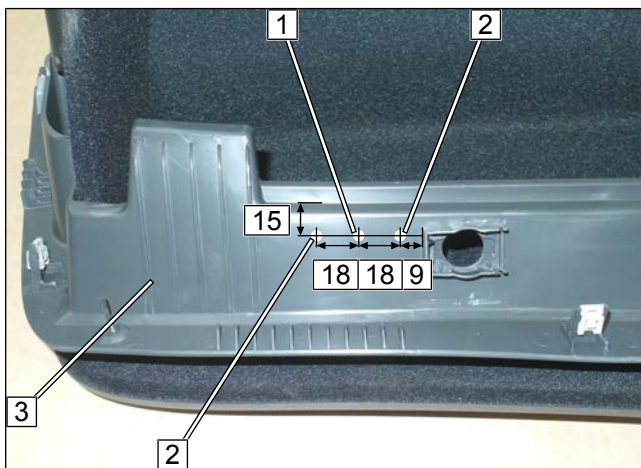
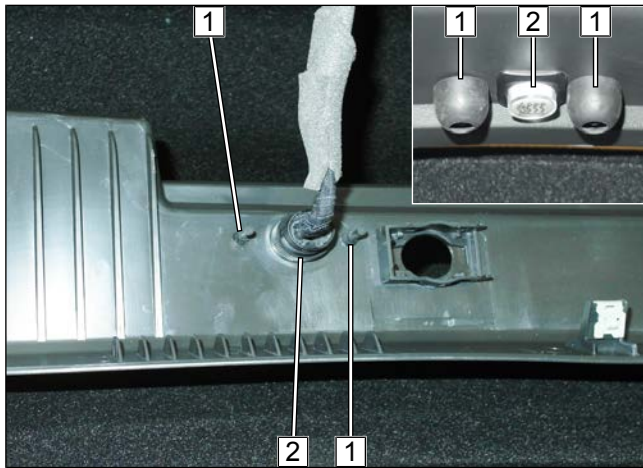


Fig. 154

- 1 Copy hole pattern, 16mm dia. hole
- 2 Copy hole pattern, 4mm dia. hole
- 3 Glove box



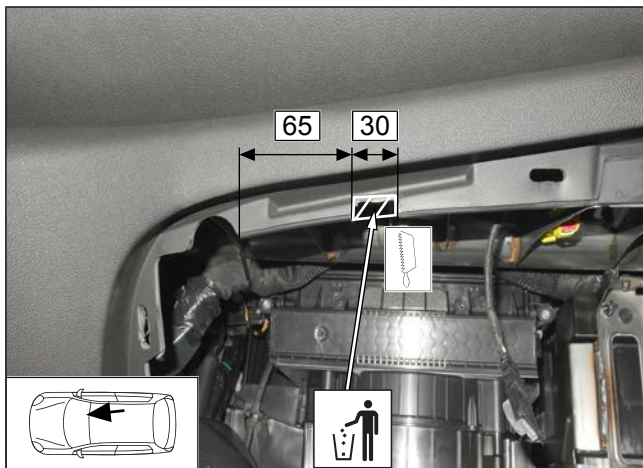
Installing push button



- 1** Rubber plug
- 2** Pushbutton

Fig. 155

Adapting instrument panel

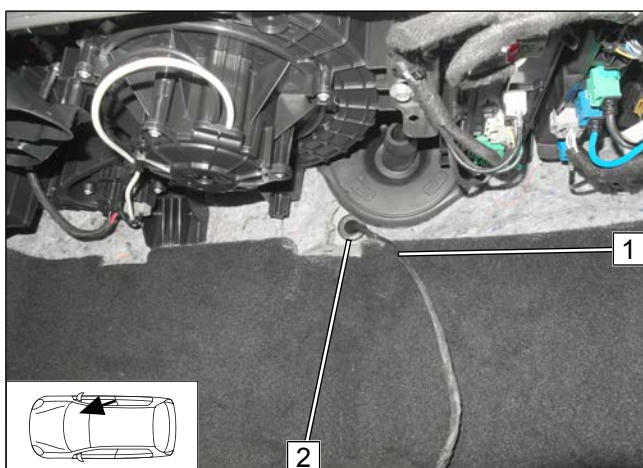


► Cut out section as shown.

Fig. 156

13.2 Mounting in passenger compartment

Routing wiring harness in passenger compartment



- 1** Wiring harness of engine compartment
- 2** Pass through

Fig. 157



Installing SVM and Telestart

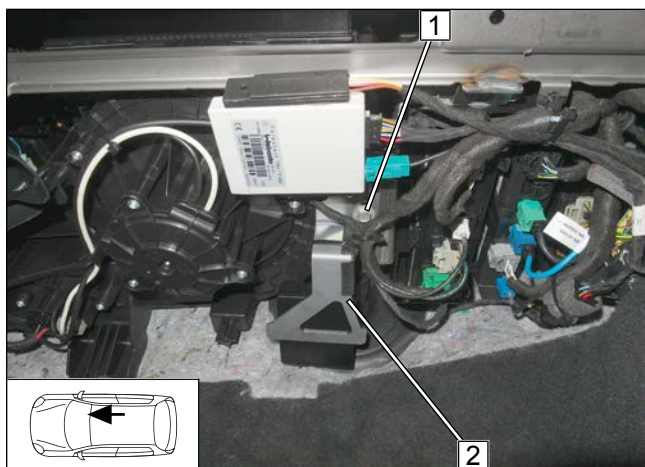


Fig. 158

- 1 Original vehicle bolt
- 2 SVM and Telestart bracket

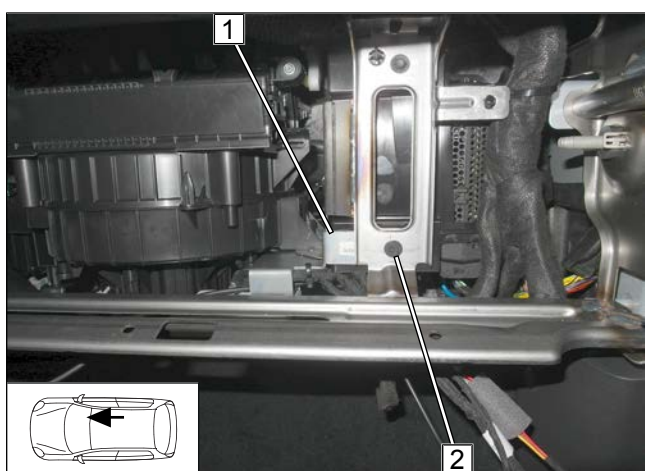


Fig. 159

- 1 SVM and Telestart bracket
- 2 Original vehicle bolt

Connecting wiring harnesses

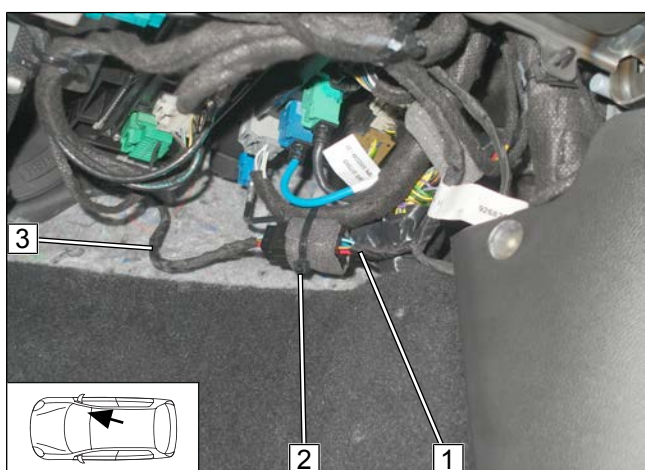


Fig. 160

- 1 Passenger compartment wiring harness
- 2 Insulation material around connector, cable tie
- 3 Engine compartment wiring harness



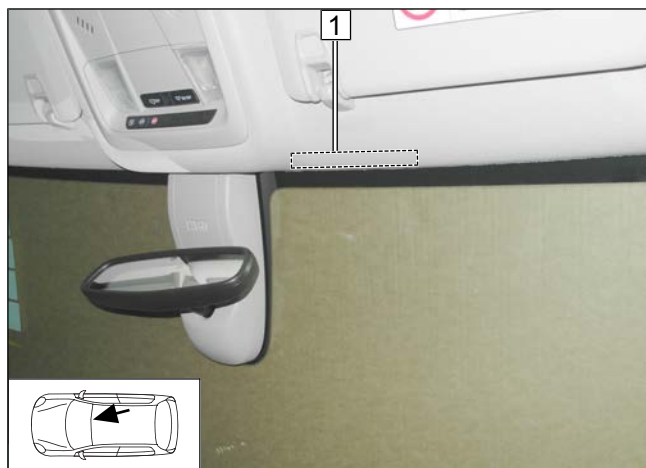
Routing aerial line



- ▶ Route aerial line **1** underneath the A-pillar trim as shown.

Fig. 161

Installing aerial



- ▶ Route aerial **1** on the headliner at the windscreen as shown.

Fig. 162



13.3 Wiring diagram

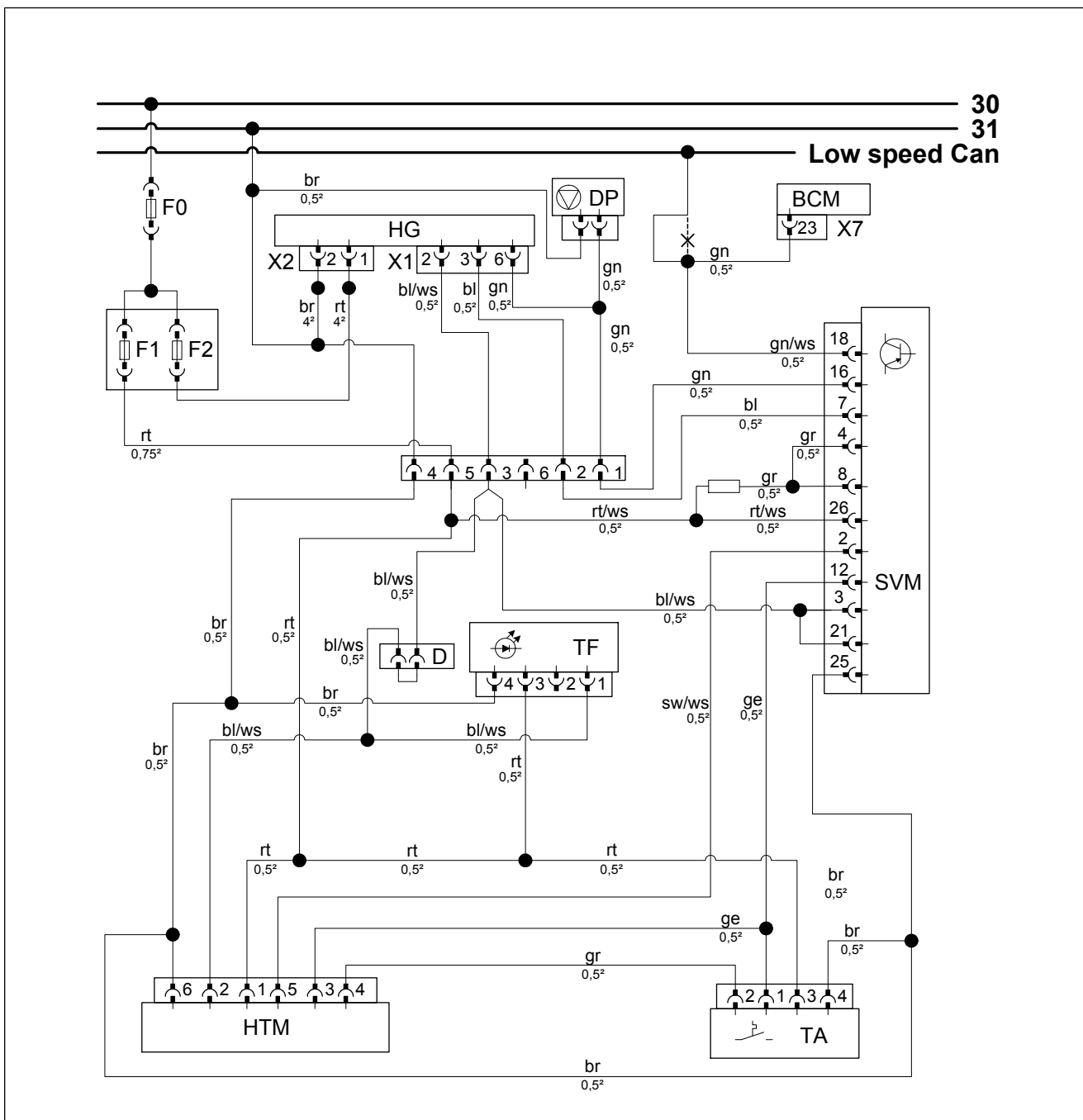


Fig. 163



Legend to wiring diagram

Vehicle components		Symbols	
Abbreviation	Component	Abbreviation	Designation
BCM	Body control module	X	Cutting point

Webasto components		Cable colours	
Abbreviation	Component	Abbreviation	Colour
HG	Heater TT-Evo	br	brown
X1	6-pin heater connector	rt	red
X2	2-pin heater connector	sw	black
HTM	Telestart HTM 100	ge	yellow
TF	Temperature sensor	gn	green
TA	Pushbutton	gr	grey
D	Diagnostic connector	ws	white
F0	Additional fuse for power supply	bl	blue
F1	5A passenger compartment / control element fuse		
F2	20A heater main fuse		
SVM	Special Vehicle Module		



13.4 Fan controller

View of BCM connector

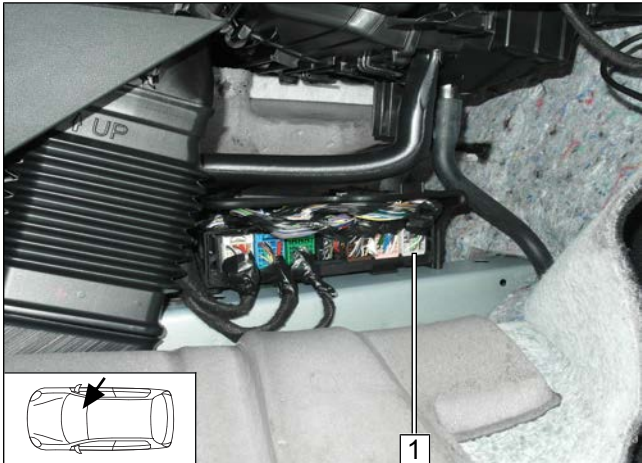


Fig. 164

- 1 Connector X7 of BCM

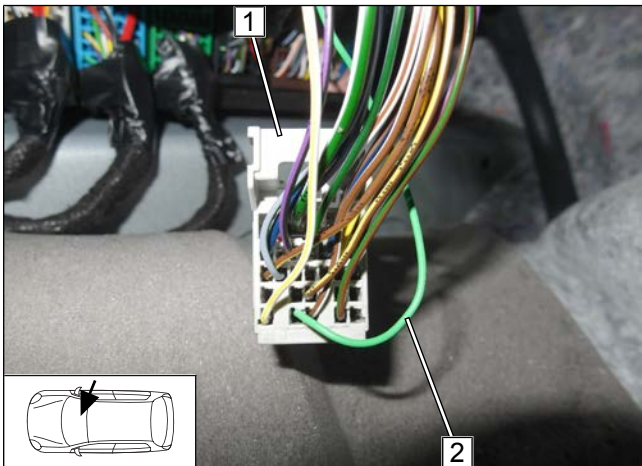


Fig. 165

- 1 Connector X7 of BCM
- 2 Green (gn) wire of pin 23

Connecting connector of BCM

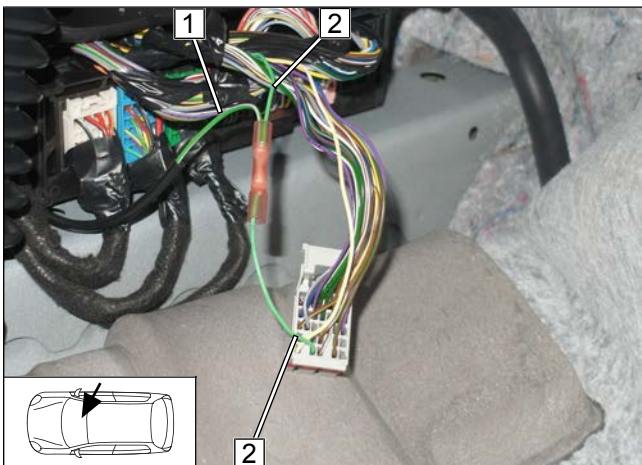
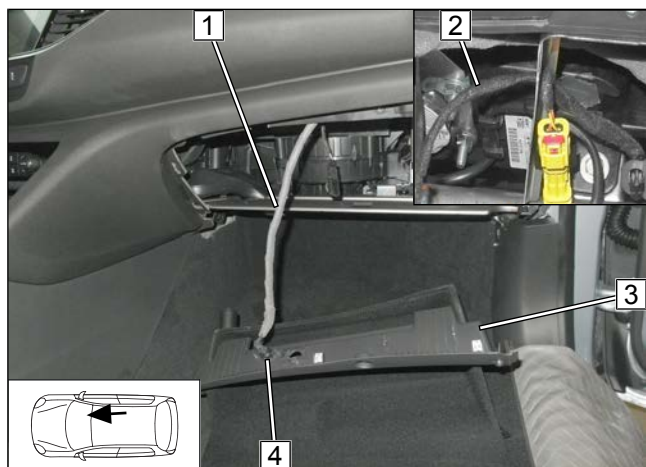


Fig. 166

- 1 Green/white (gn/ws) wire of SVM
- 2 Green (gn) wire of pin 23

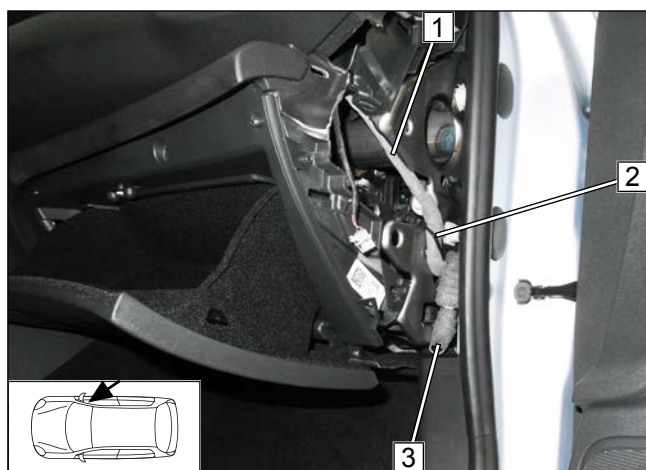


Connecting push button



- 1** Push button wire
- 2** Route push button wire as shown
- 3** Glove box
- 4** Pushbutton

Fig. 167



- 1** Diagnostic connector wire
- 2** Cable tie
- 3** Diagnostic connector

Fig. 168



14 Final work

Preparing hand-held transmitter

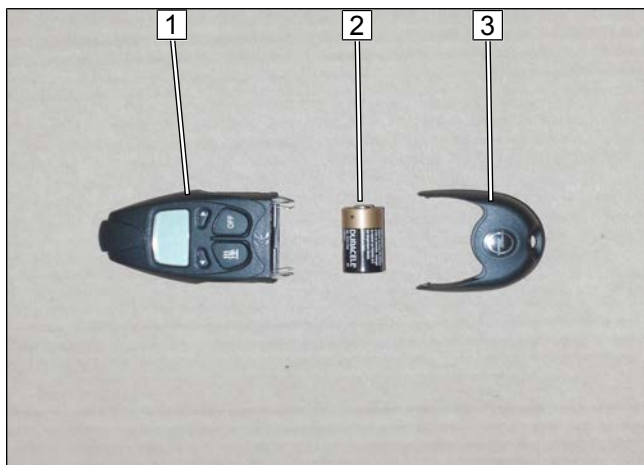


Fig. 169

► When inserting battery **2** ensure correct polarity.

- 1** Hand-held transmitter
- 3** Battery compartment cover

Inserting main fuse F0

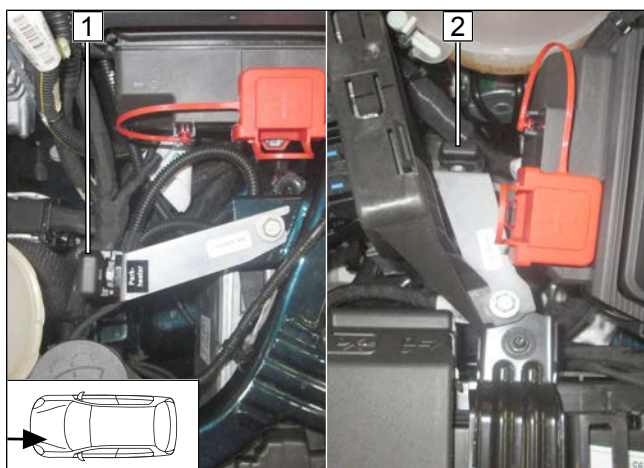


Fig. 170

- 1** 30A main fuse F0, battery lengthwise
- 2** 30A main fuse F0, battery crosswise

Inserting fuses F1 and F2

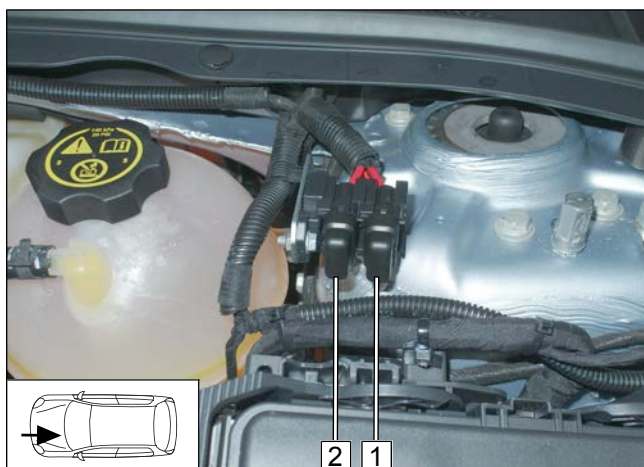


Fig. 171

► Hand-held transmitter and push button are to be taught when inserting 5A fuse F1 **1**.

- 2** 20A heater fuse F2



Placing duplicate label



1 Duplicate label (type label)

Fig. 172



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.

- ▶ Initial operation and functional test
- ▶ Affix 'Switch off parking heater before refueling' caution label in area of filler neck

Part numbers: 13437784_eng_insignia / 13476204_eng / 39096340

Part numbers: 13437784_eng_insignia / 13476204_eng / 39096340

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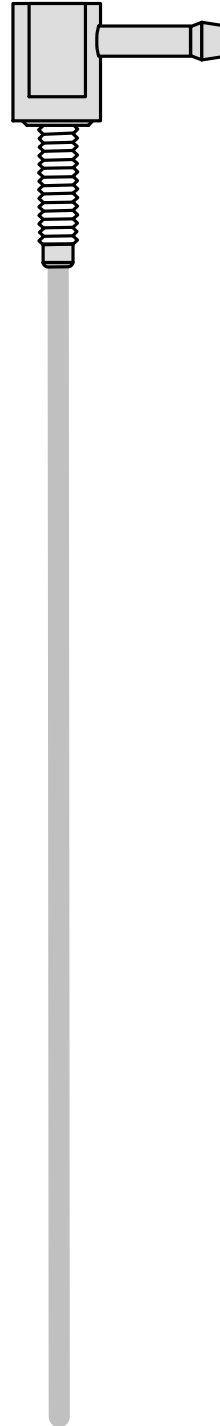
Technical Extranet: <https://dealers.webasto.com>

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



WWW.WEBASTO.COM

15 Tank extracting device template for 2WD



100mm

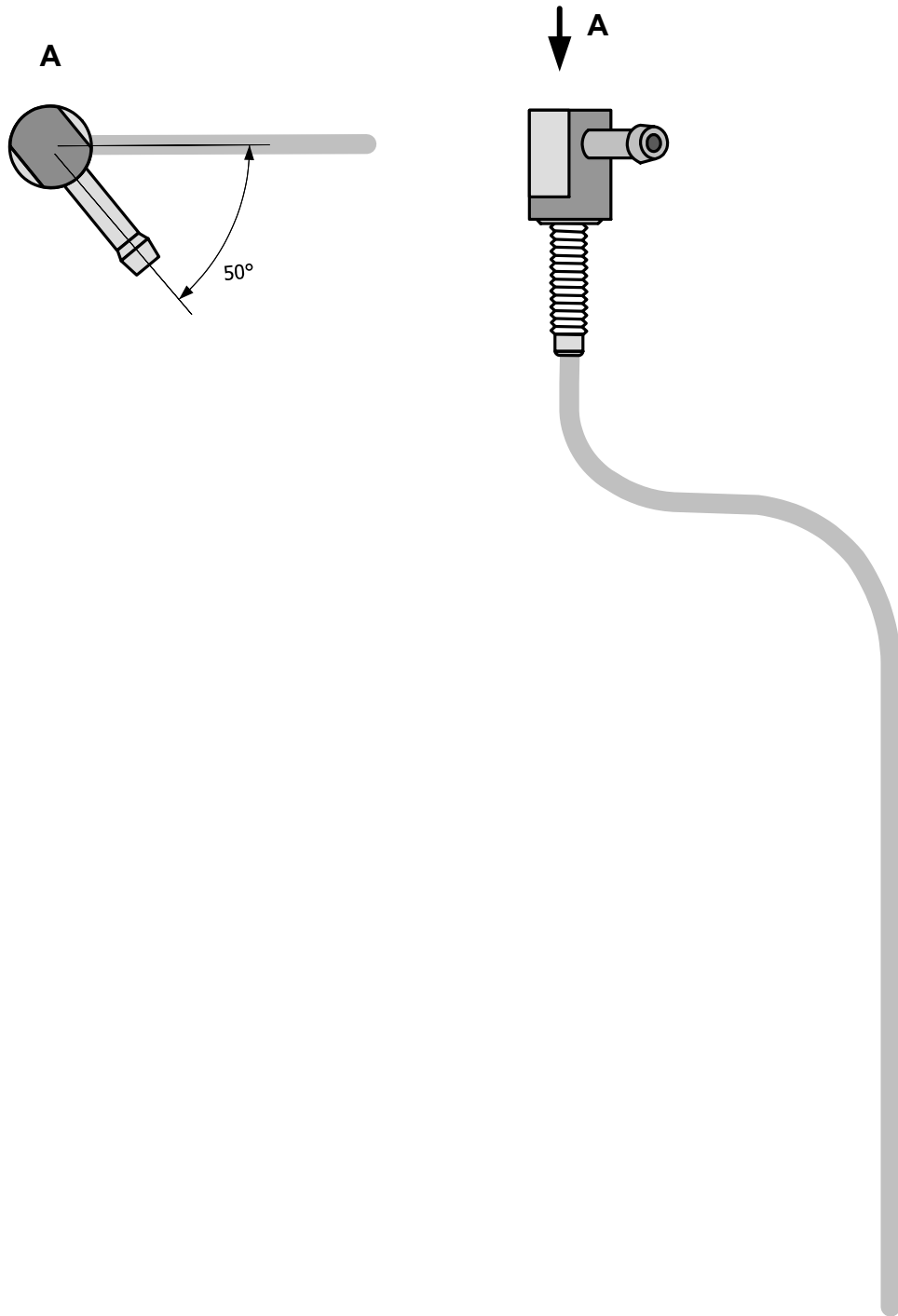
Scale 1:1
Compare size of printout with dimension lines.
Maximum permitted tolerance 2%.
Set the printer settings to no 'margin' or 'minimise margins' and 100% of the normal size.

0

100mm

Part numbers: 13437784_eng_insignia / 13476204_eng / 39096340

16 Tank extracting device template for 4WD



100mm

0

100mm

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

Part numbers: 13437784_eng_insignia / 13476204_eng / 39096340