Water Heater Unit



Thermo Top C Additional Heater

e1 00 0002

# **Installation Instructions**

# **Chevrolet Captiva**

2.4 Gasoline and 2.0 Dieselfrom Model Year 2006Left-hand drive vehicleManual transmission



WARNING!

Hazard warning:

Incorrect installation or repair of Webasto heating systems may cause a fire or result in the emission of carbon monoxide, which can be fatal. Serious or fatal injuries can be caused as a result.

Specialist company training, technical documentation, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.

NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills, or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.

ALWAYS follow all Webasto installation and repair instructions and observe all warnings.

Webasto does not accept any liability for defects and damage that are attributable to installation by untrained staff.

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### Validity

Manufacturer Model		Type EG-BE No./ABE	
GM Daewoo	Chevrolet Captiva	KLAC	e4 * 2001 / 116 * 0113

Engine type Engine model		Output in kW	Displacement in cm <sup>3</sup>
Z20 S	Diesel	110	1991
Z24 SED	Gasoline	100	2405

Vehicle and engine types, equipment variants and national specifications not listed in these installation instructions have not been tested. However, installation according to these installation instructions may be possible.

The installation location of a digital timer and summer/winter switch should be confirmed with the end customer before installation.

### Heater Unit/Installation Kit

Quantity	Description	Order No.:
1	Retail accessories with desired heater control	See price list
1	Installation kit for Chevrolet Captiva Gasoline and Diesel (basic kit)	9017037A

#### Also required for 2.4 Gasoline:

Quantity	Description	Order No.:
1	Additional kit for Chevrolet Captiva 2.4 Gasoline	9017041A

#### Also required with automatic air-conditioning:

Quantity	Description	Order No.:
1	Kit for Chevrolet Captiva with Automatic Air-Conditioning	9017052B

### Foreword

These installation instructions apply to Chevrolet Captiva vehicles with a 2.4 Gasoline and 2.0 Diesel engine and a manual transmission - for validity, see page 2 - from model year 2006 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 these installation instructions.

However, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* must always be observed.

The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

### **General Instructions**

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.

Sharp edges should be fitted with edge protectors (split-open plastic hose).

Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329).

### **Special Tools**

- Torque wrench for 2.0 10 Nm
- Hose clamping pliers
- Metric Thread-Setter Kit

# **Chevrolet Captiva Explanatory Notes on Document** To provide you with a quick overview of the individual working steps, you will find an identification mark on the outside top right corner of the page in question. Mechanical system **Electrical system** Coolant connection **Fuel connection** Exhaust system **Combustion air**

Special features are highlighted using the following symbols:



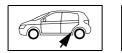
Specific risk of injury or fatal accidents.

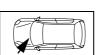
Specific risk of damage to components.

Specific risk of fire or explosion.

Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.

Reference to a special technical feature.





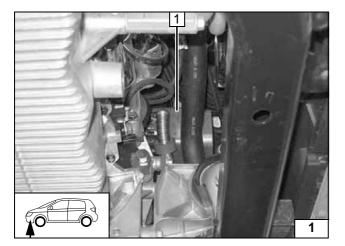
The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

### **Preliminary Work**

### WARNING!

- Disconnect the battery "earth" or "ground" connection.
- Depressurize the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Completely remove the battery
- Remove the fuse and relay box
- Remove the engine cover
- Remove the engine control unit
- Disconnect the power-steering fluid reservoir
- Disconnect the expansion tank
- Remove the charge-air tube between the air filter and the turbocharger
- Disconnect the air hose from the charge-air tube to the engine at the engine
- Remove the filler neck of the window washer system
- Remove the vent line at the top to the coolant expansion tank
- Open the fuel tank cap, ventilate the tank.
- Close the tank cap again.
- Remove the underride protection
- Open the left tank mounting service lid
- Remove the glove compartment

Remove page 31 "Operating Instructions for End Customer" and add to the vehicle operating instructions.



### Heater unit installation location

1 Heater unit

Installation location



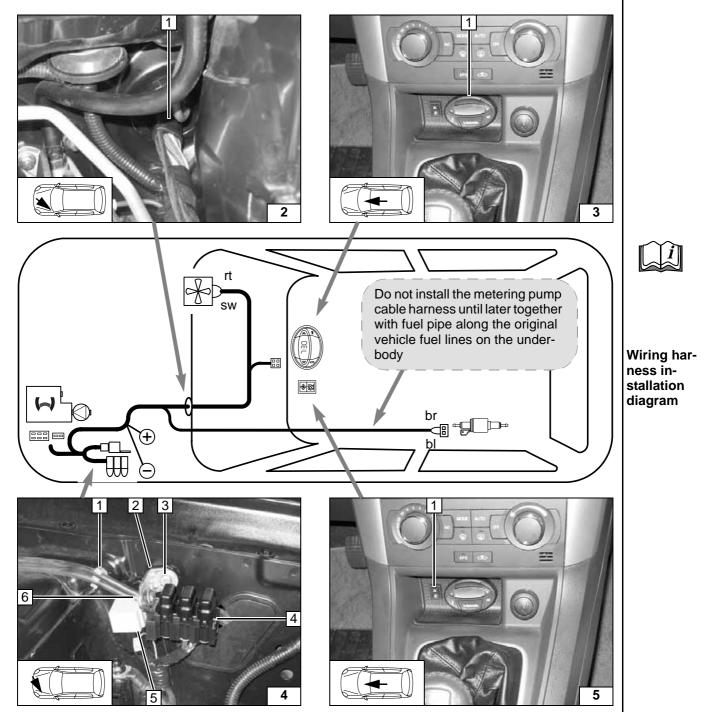
### **Electrical Connections**

### Wiring harness pass through

1 Protective rubber plug

### **Digital timer**

1 Digital timer

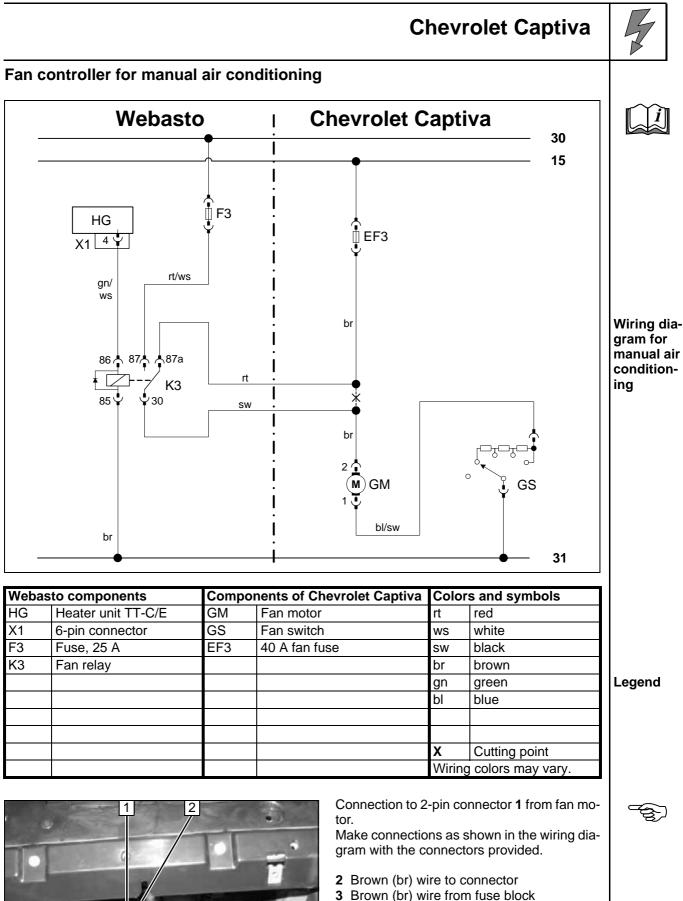


### Fuse holder, K3 relay

- 1 Move original vehicle clip
- 2 Angle bracket
- **3** Drill out hole to 9 mm dia., mount M6 rivet nut, M6x20 bolt, spring lockwasher
- 4 Fuse holder
- 5 K3 relay
- 6 Align M5x16 bolt, large diameter washer, M5 flanged nut to right in oblong hole

### Summer/winter switch option

1 Summer/winter switch, drilled hole 12 mm dia.



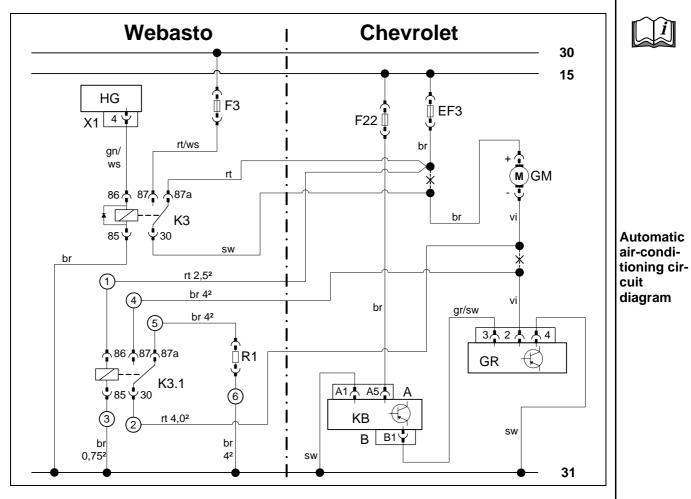
4 Red (rt) wire to K3/87a

6

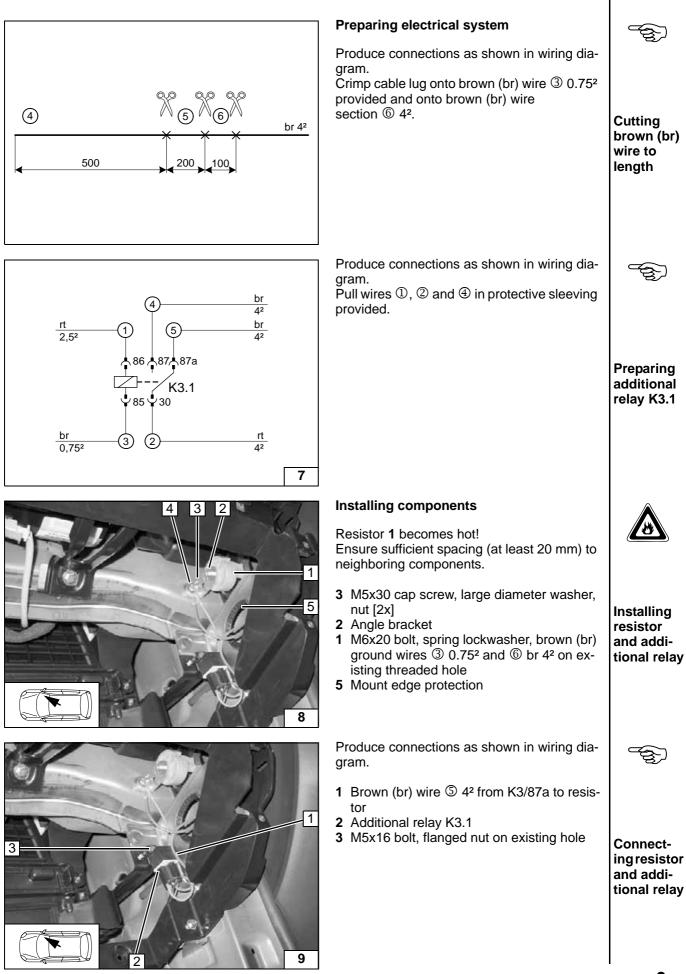
5 Black (sw) wire from K3/30

Connecting fan motor





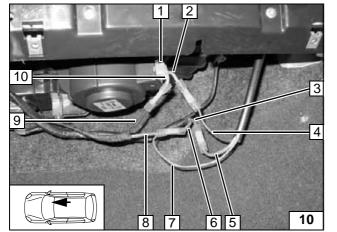
Webas	sto components	Compo	nents of Chevrolet Captiva	nevrolet Captiva Colors and symbols		
HG	Heater unit TT-C/E	GM	Fan motor	rt	red	
X1	6-pin heater unit connector	GR	Fan controller	WS	white	
F3	Fuse, 25 A	KB	Air-conditioning control ele- ment	sw	black	
K3	Fan relay	F22	Fuse 10A	br	brown	
K3.1	Additional relay	EF3	Fuse 40A	gn	green	
R1	0.9 ohm resistor	A	Connector for A/C control panel	bl	blue	Legend
		В	Connector for A/C control panel	GR	gray	
				vi	violet	
				Х	Cutting point	
				Wiring	g colors may vary.	

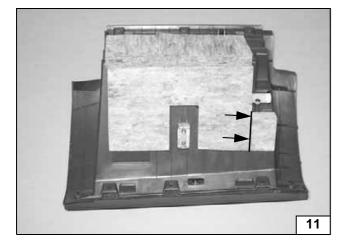




Connecting fan mo-

tor





Connection to 2-pin connector 1 from fan motor.

Produce connections as shown in wiring diagram (crimp and shrink).

- 2 Violet (vi) wire from connector
- **3** Violet (vi) wire to fan controller

- 4 Red (rt) wire 2 4<sup>2</sup> from K3.1/30 5 Brown (br) wire 4 4<sup>2</sup> from K3.1/87 6 Brown (br) wire 4 4<sup>2</sup> from K3.1/87 7 Red (rt) wire 1 2.5<sup>2</sup> from K3.1/86
- 8 Red (rt) wire to K3/87a
- 9 Black (sw) wire from K3/30

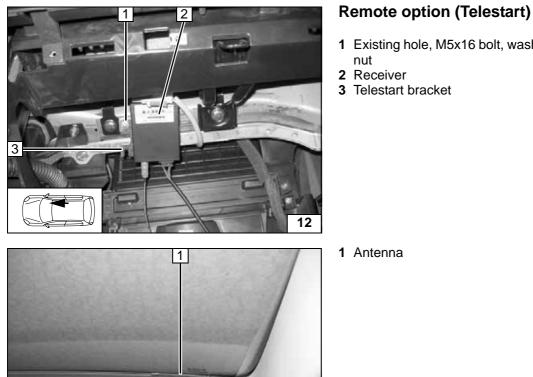
10Brown (br) wire to connector

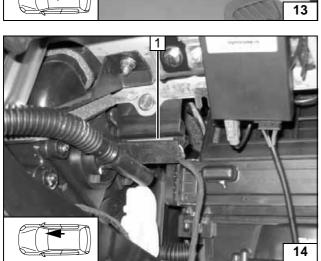
Cut away insulation of glove compartment at marking.



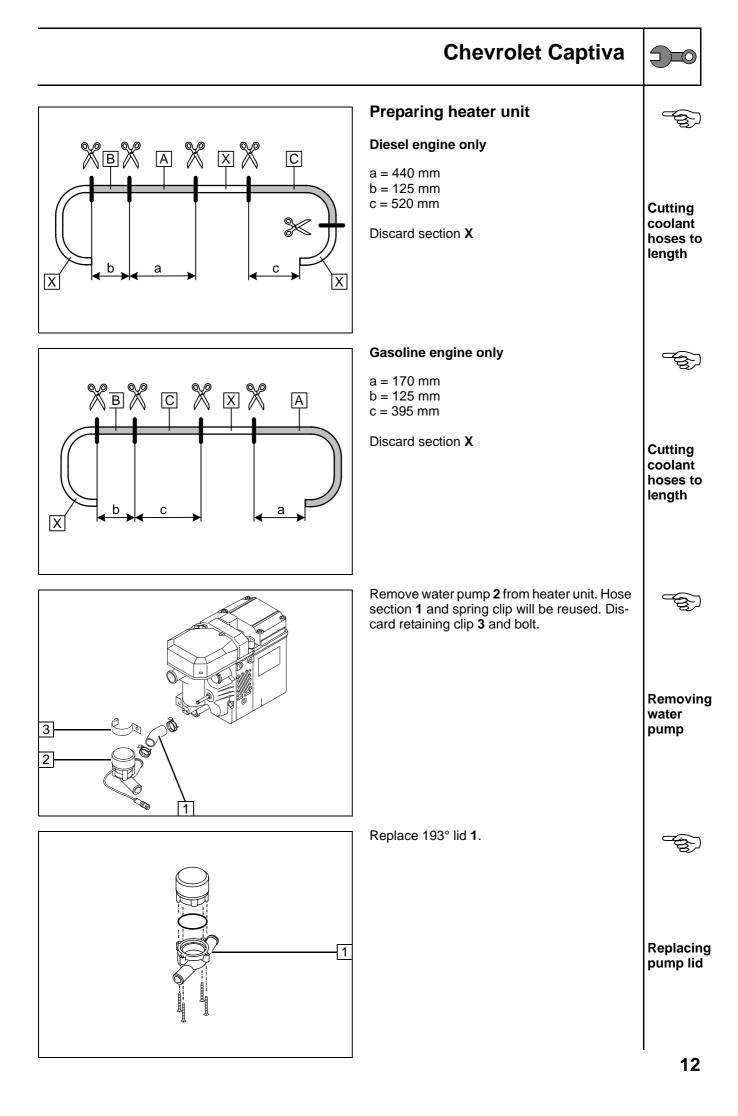
Cutting away insulation

7





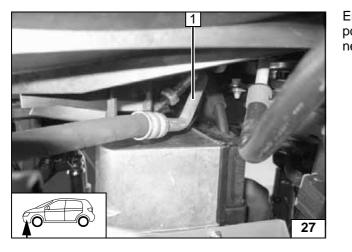
<ol> <li>Existing hole, M5x16 bolt, washer, flanged nut</li> <li>Receiver</li> <li>Telestart bracket</li> </ol>	Installing receiver
1 Antenna	Installing antenna
Temperature sensor for HTM100 only	
<ol> <li>Fasten temperature sensor with suitable means (double-sided adhesive tape)</li> </ol>	Installing tempera- ture sensor

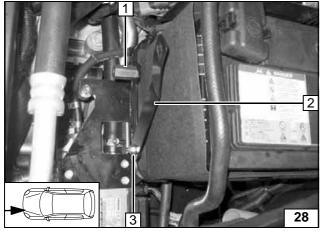


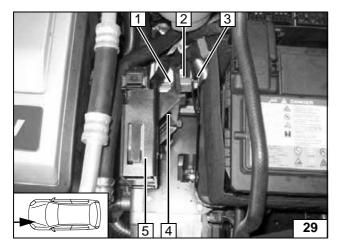
### **Chevrolet Captiva** 5 $\Box 0$ Connect adapter line of water pump 1, cut to 2 1 \$ length and connect identical colors to wiring harness of water pump 2 using connectors (crimp and shrink). **Connect**ing circulating pump 15 Ejot stud, tightening torque 10 Nm! 1 Ejot stud [3x] 2 Existing spring clip [2x] Preassembling heater unit 1 16 2 B 2 Ejot screw 2 [3x], tightening torque 10 Nm! 2 1 3 1 Bracket part 1 Preassembling bracket 1 on heater unit 17 2 1 20 mm spacer 1 2 Water pump 3 Rubber-coated pipe clamp, 48 mm dia. 4 M6x35 bolt, M6 flanged nut Preassem-2 bling water pump 18 3

### **Chevrolet Captiva Preparing installation location** 2 1 Cross member for battery carrier 2 Drill out thread to 10 mm dia. [2x] **Drilling out** thread 19 Remove bracket 3 of hydraulic line 5 and ිතු mount as shown. Original vehicle bolt 1 will be reused 2 Perforated bracket 5 3 M6x16 bolt, M6 flanged nut 2 Repositioning hy-4 draulic line 20 2.4 liter gasoline engine only 1 Ś Bend angle bracket by approx. 90° at position 1. Drill out to 10.5 mm dia. at position 2. Preparing angle bracket 21 1 Rubber-coated pipe clamp, 48 mm dia. 1 2 2 Coolant hose **3** Original vehicle bolt 4 Prepared angle bracket 5 M6x20 bolt, M6 flanged nut Repositioning coolant hose 22

# **Chevrolet Captiva** 1 80 mm edge protection 2 Coolant hose Installing edge protection 23 Installing heater unit **1** Preassembled heater unit 2 Loosely mount M8x30 bolt Installing heater unit 24 Remove original vehicle screw 1 and discard. To-Installing bracket 25 1 Bracket part 2 3 2 M6 flanged nut [3x] 3 M8x40 bolt, spring lockwasher, large diameter washer Installing bracket 26







	•	
р	nsure sufficient spacing to neighboring com- onents, especially to A/C line <b>1;</b> correct if ecessary.	(A)
		Aligning heater unit
	epositioning control unit for gas- line engine only	
	30 mm spacer nut on existing stud bolt	
	Strut Flanged nut on existing stud bolt	Reposi- tioning control unit
2 3	M6x30 bolt, large diameter washer Spacer nut, 15 mm Flanged nut	
	M6x16 bolt, spring lockwasher, large diameter washer Control unit	Reposi- tioning control unit

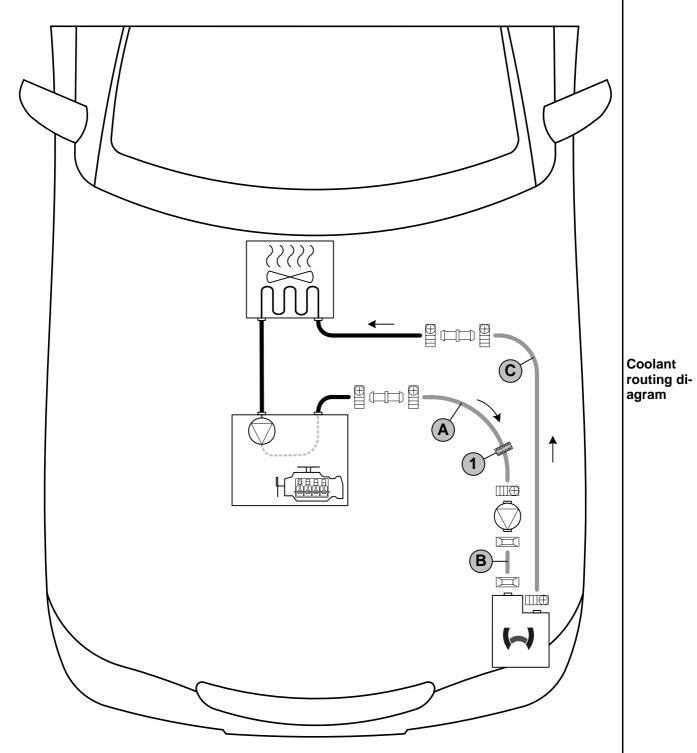
### **Chevrolet Captiva Repositioning control unit with** 1 Autogas 2 Cut away bar at position 2. 1 Control unit bracket Preparing control unit 30 Remove nuts at position 1 before installing. TS: 1 30 mm spacer nut [2x] on existing stud bolts Installing spacer nuts 31 Fasten control unit bracket 1 with M6x16 bolt, ÷ spring lock washer and large diameter washer on rear spacer nut. Ensure sufficient spacing to neighboring components, and especially to servo line (at least 5 mm). Reposi-2 Mount M6x20 bolt, large diameter washer, tioning flanged nut in existing hole control 3 Strut unit 4 M6x16 bolt, spring lock washer and large 3 diameter washer on front spacer nut 32

### Coolant connection for diesel engine

### WARNING!

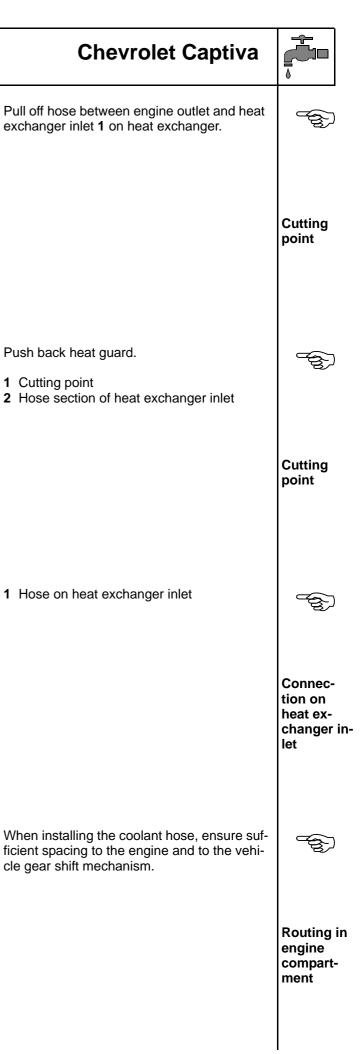
Tighten all hose clamps to 2.0 + 0.5 Nm.

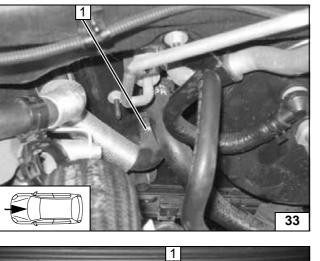
Any coolant running off should be collected using an appropriate container! Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position hose clamps and spring band clamps so that no other hose can be damaged. The connection should be "inline" based on the following diagram:

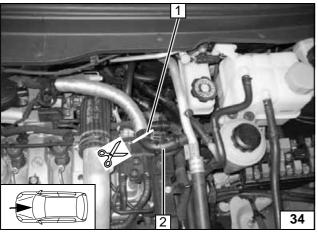


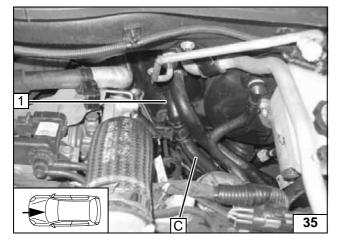
All spring clips without a specific designation  $\square = 27 \text{ mm}$  dia. All connecting pipes  $\square \square = \emptyset \text{ 18x20.}$ All hose clamps without a specific designation  $\square \square = 20-27 \text{ mm}$  dia  $\mathbf{1} = \text{Black}$  (sw) rubber isolator  $\square \square$ .

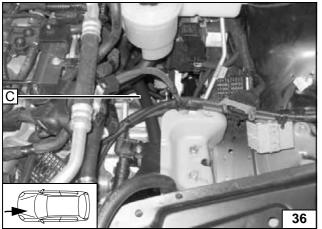
Tog



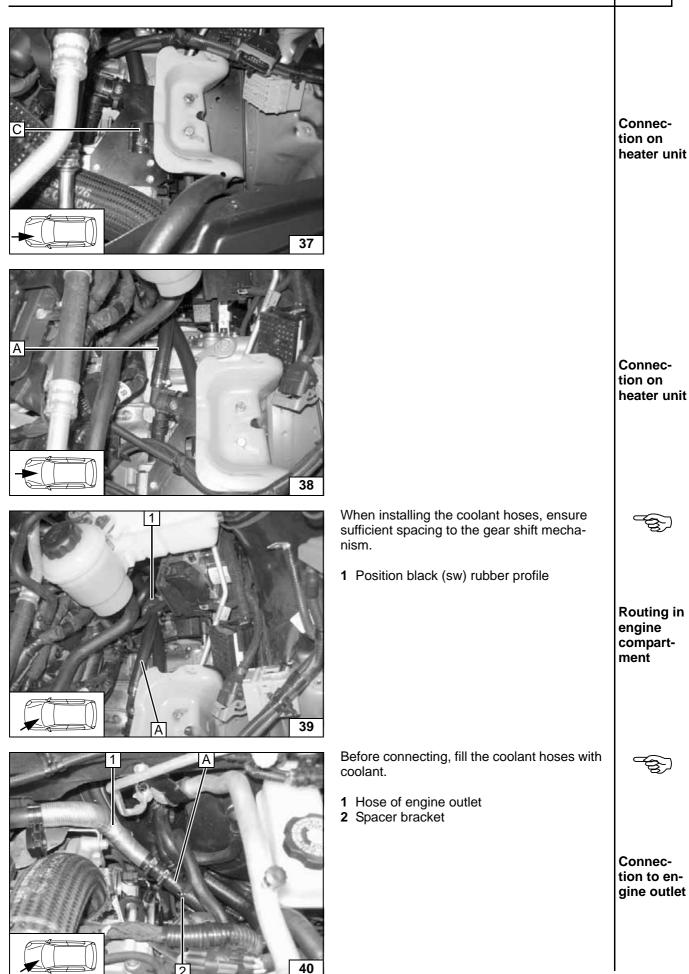












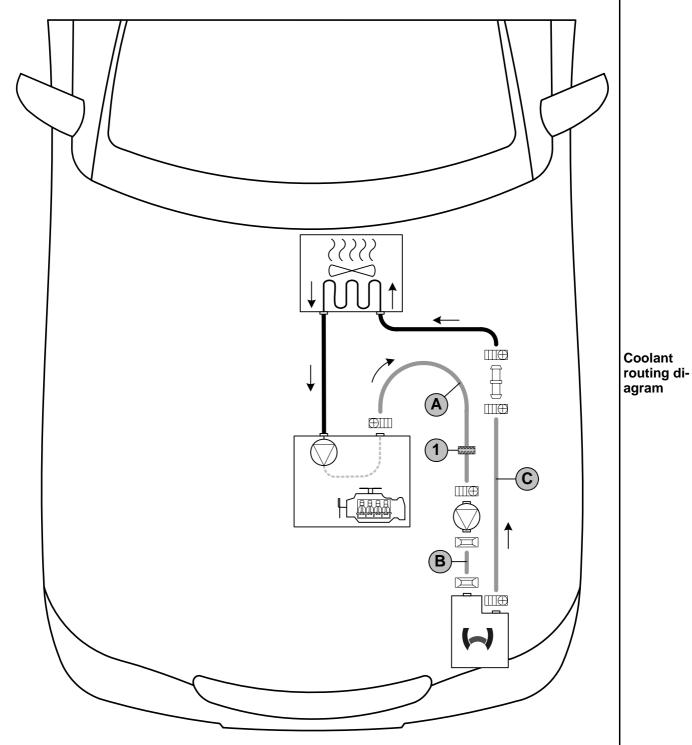


### **Coolant connection for gasoline**

### WARNING!

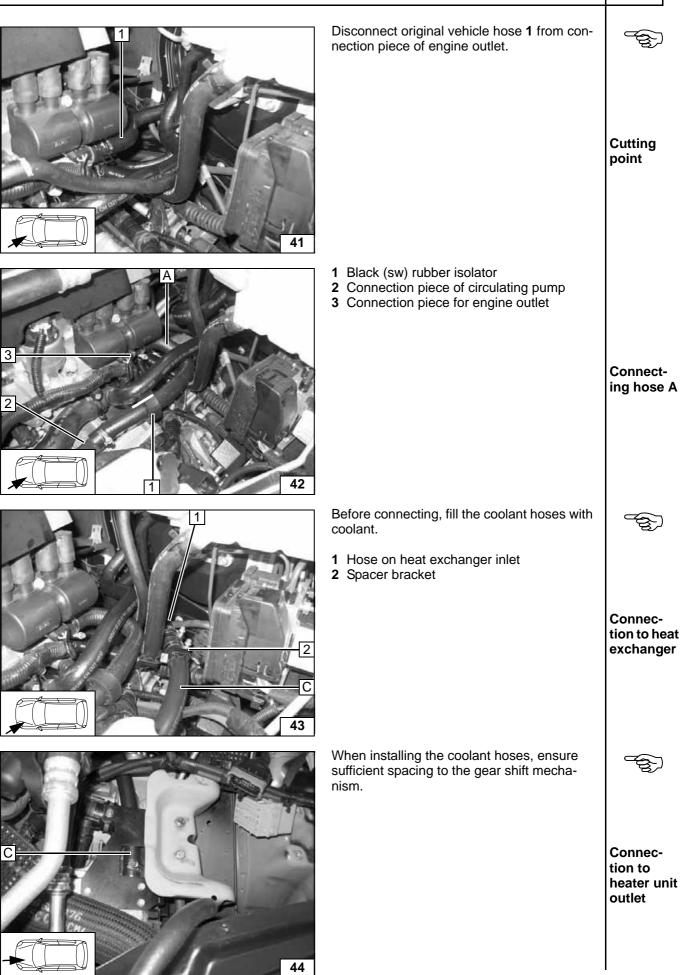
Tighten all hose clamps to 2.0 + 0.5 Nm. Any coolant running off should be collected using an appropriate container! Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties. Position hose clamps and spring band clamps so that no other hose can be damaged. The connection should be "inline" based on the following diagram:

On vehicles with an Autogas drive, the evaporator is integrated in the line to the heat exchanger inlet!



All spring clips without a specific designation  $\square = 27 \text{ mm}$  dia. All connecting pipes = dia. 18x20. All hose clamps without a specific designation  $\square = 20-27 \text{ mm}$  dia **1** = Black (sw) rubber isolator  $\square$ 





### **Fuel Connection**

#### **CAUTION!**

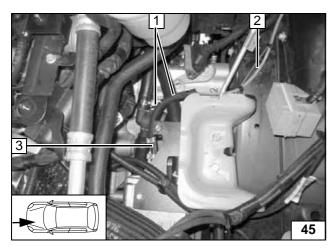
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off with an appropriate container.

Install fuel line and metering-pump wiring harness so that they are protected against stone impact. Unless specified otherwise, always fasten using cable ties. Mount the fuel line and wiring harness with rub protection on sharp edges.

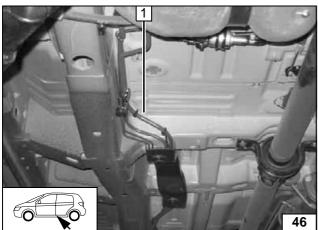
#### WARNING!

The fuel line and wiring harness are routed to the metering pump in as shown in the wiring harness routing diagram.



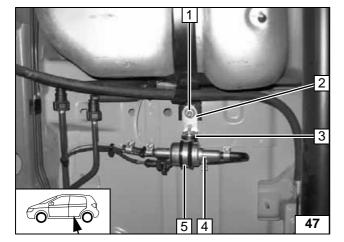
- 1 Included hose section as scuff guard [2x]
- 2 Mecanyl fuel line
- **3** Hose section, 10 mm dia. hose clamp [2x]

Connection on heater unit



### **Diesel engine only**

1 Mecanyl fuel pipe and metering pump cable harness



Ensure proper installation position of metering pump **4**, see "Installation Instructions". Installation location in front of vehicle fuel tank!

- 1 Original vehicle bolt
- 2 Angle bracket
- 3 Silent block, flanged nut [2x]
- 5 Rubber-coated pipe clamp

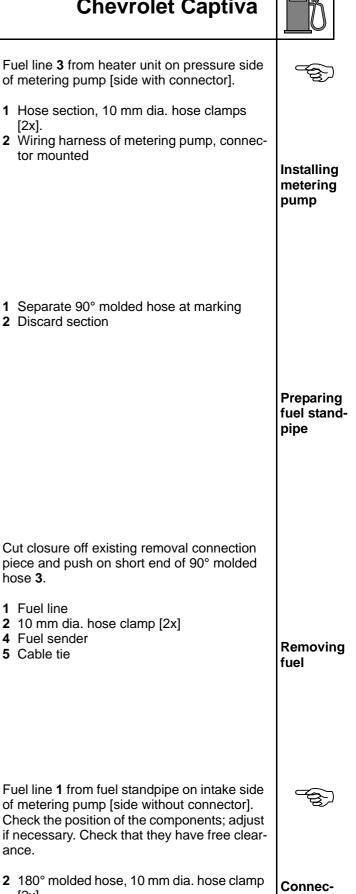
Installing lines

Installation location of metering pump



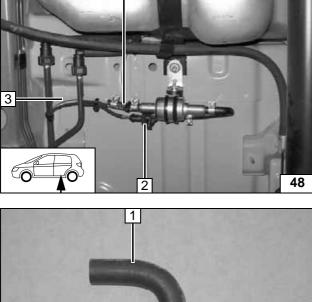
ļ

[2x].

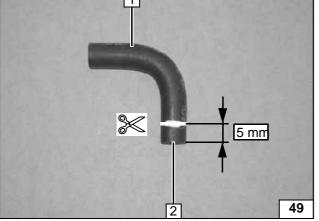


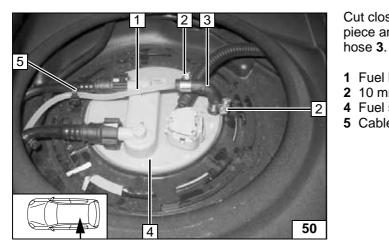
- of metering pump [side without connector]. Check the position of the components; adjust if necessary. Check that they have free clearance.
- 2 180° molded hose, 10 mm dia. hose clamp [2x] tion to me-

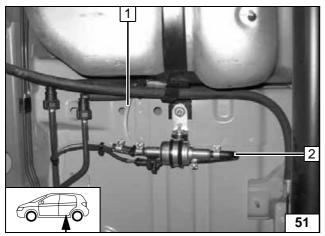
tering pump



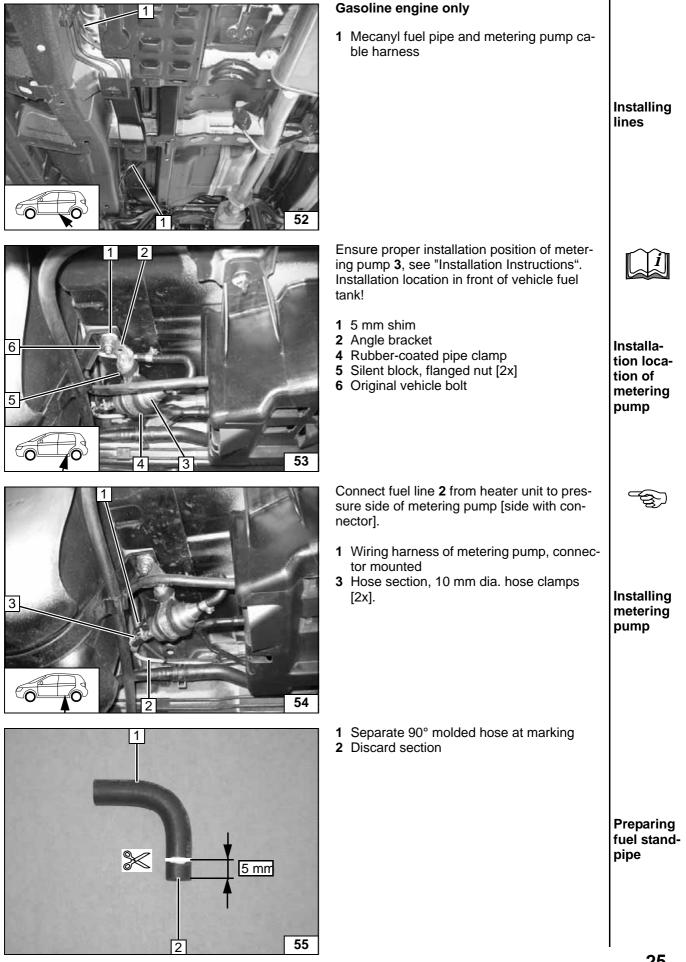
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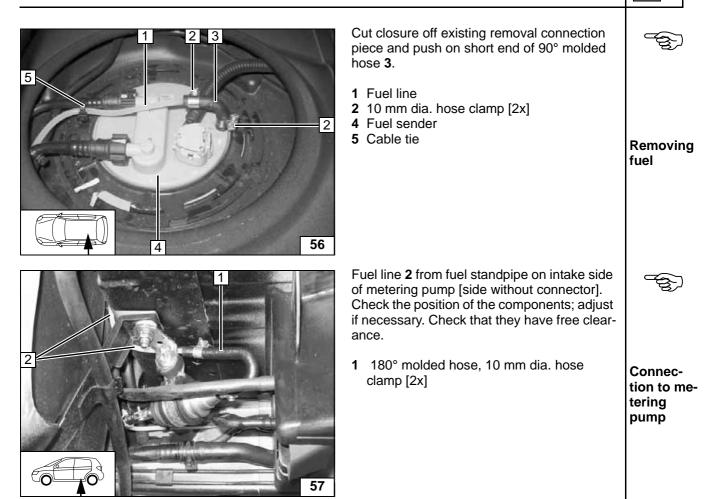


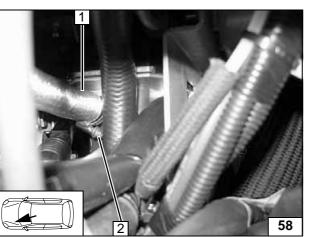


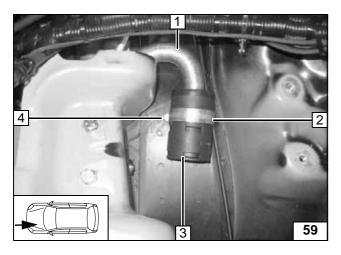






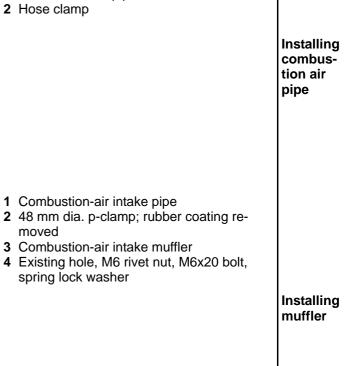






### **Combustion air**

- 1 Combustion air pipe
- 2 Hose clamp



# **Chevrolet Captiva Exhaust system** 1 2 1 Exhaust pipe a = 330 mm 2 Exhaust end section b = 120 mm Preparing exhaust Discard section X pipe b а Х Bend perforated bracket provided approx. 2 (A) 45° [2x]. Preparing perforated bracket 60 1 M6 rivet nut in existing hole Installing rivet nut 61 1 M6x20 bolt, flanged nut 2 2 Exhaust muffler 3 Perforated bracket 4 M6x20 bolt, spring lockwasher Installing exhaust Δ muffler

62

# **Chevrolet Captiva** ر دې 1 Hose clamp 2 1 2 Exhaust pipe 3 Push on red (rt) rubber isolator and position Installing exhaust pipe 63 Shape exhaust pipe 1. Ensure sufficient dis-(Legal) 2 tance to neighboring components. 2 Hose clamp Installing exhaust pipe 64 1 Hose clamp 2 Push on red (rt) rubber isolator and position 3 Exhaust end section Installing exhaust end section 65

### **Final Work**

#### WARNING!

Reassemble the disassembled components in reverse order.

Check all hoses, hose, spring and Caillau clamps, as well as all electrical connections for firm seating. Secure all loose cables using cable ties.

Only use manufacturer-approved coolant.

- Connect the battery

- Set the digital timer.

structions.

tions for the end customer".

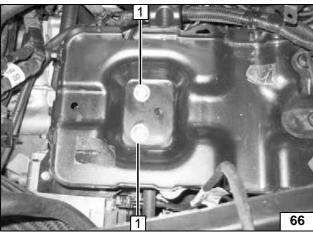
Spray the heater unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Bleed and fill the coolant circuit according to the vehicle manufacturer's specifications.

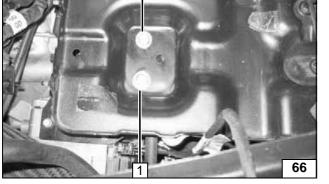
- Attach the "Switch off additional heater before refueling" sticker to the left-hand B-pillar.

- Set the manual air conditioning or automatic air conditioning according to the "operating instruc-

- Check the proper operation of the additional heater, see the operating instructions/installation in-



1 M8x30 bolt, spring lockwasher, flanged nut [2x each]





Installing battery car-

rier

(-)ebasto Feel the drive

Printed in Germany 02/07Printed by: Steffen

### **Operating Instructions for End Customer**

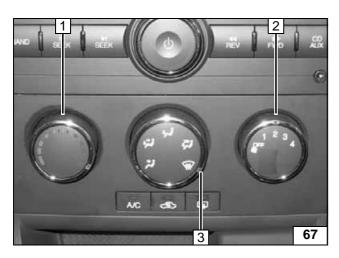
Please remove page and add to the vehicle operating instructions.

#### Note:

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.

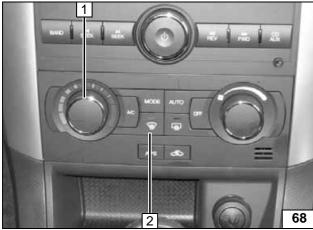
If the summer/winter switch option has been installed, this must be switched in accordance with the time of year. The heater unit will then only switch on the vehicle fan to ventilate the vehicle interior in the position Winter wheat and in the position Summer S.

Before parking the vehicle, make the following settings:



- 1 Set temperature to "max."
- 2 Set fan to level "1", or possibly "2"
- 3 Direct air outlet toward windshield

Manual air conditioning



- 1 Set temperature to "max."
- 2 Air outlet to windshield

Automatic air-conditioning