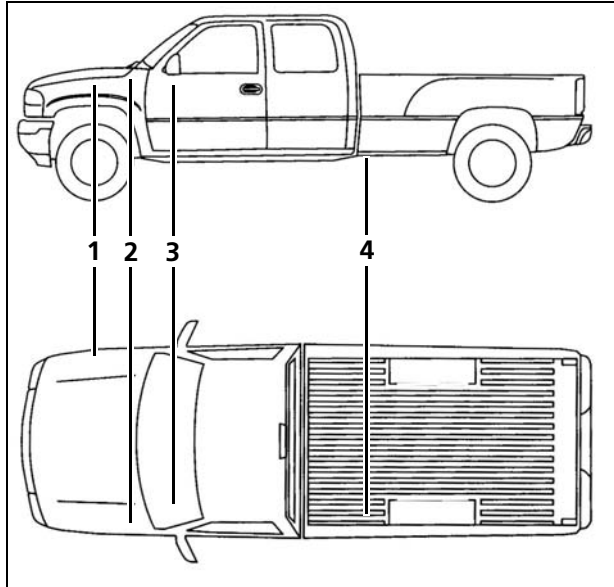


Thermo Top



Chevrolet Silverado 1500 / 2500 GMC Sierra 1500 / 2500

2003 - 2004 4.8/5.3/6.0 Liter Gasoline

Special instructions for these models

Part locations may differ slightly dependent on the vehicle model.

Legend

- 1 BlueHeat Coolant Heater, Exhaust Muffler, and Combustion Air Intake Silencer
- 2 Fuse Holder and Resistor
- 3 Timer Control
- 4 Fuel Pump

Special Tools

- Hose Clamping pliers
- Torque Wrench (1/4' Drive)

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- Improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide leading to serious injury or death.
- Installation and repair of Webasto heating and cooling systems requires special Webasto training, technical information, special tools and special equipment.
- NEVER attempt to install or repair Webasto heating or cooling system unless you have successfully completed the factory training course and have the technical skills, technical information, tools and equipment required to properly complete the necessary procedures.
- ALWAYS carefully follow Webasto installation and repair instructions and heed all WARNINGS.
- Webasto rejects any liability for problems and damage caused by the system being installed by untrained personnel.

Foreword**Parts List**

Quantity	Part	Part Number
1	Heater Kit	5000516C
1	Installation Kit	5000847C

Vehicle Information

Manufacturer	Model	Year	Engine Type
Chevrolet	Silverado 1500 / 2500	2003 - 2004	4.8/5.3/6.0 Liter Gasoline
GMC	Sierra 1500 / 2500	2003 - 2004	4.8/5.3/6.0 Liter Gasoline

This installation requires special expertise from a Webasto training course to install a Webasto Thermo Top C/Z, which means that it may only be installed by a specially trained workshop or dealership. Webasto cannot accept any liability for faults and damage caused by the system being installed by untrained personnel.

Scope and Purpose

These non-binding installation instructions are intended to support authorized Webasto trained distributors, dealers and personnel in the installation of the Thermo Top C/Z and BlueHeat Coolant Heaters.

These non-binding installation instructions apply to the vehicles listed on the front cover of this installation document unless technical modifications on the vehicle influence the installation, excluding all liability claims. Depending on the version and equipment in the vehicle, changes may be required to the installation work set out in these installation instructions. In any event, however, the directives in the "installation manual" and "operating manual" Thermo Top C/Z must be followed. Acknowledged engineering conventions must be observed for the installation work.

CAUTION

Location of heater, installation of coolant lines, fuel system and components, wiring and control devices are important for proper operation. Failure to comply with the installation instructions provided may result in poor operation or damage to heater and vehicle components.

**ATTENTION**

All relevant state and provincial licensing regulations if any, governing the installation and use of auxiliary heating devices must be observed!



Symbol Identification

Symbols that define sections in manual



Mechanical Preparation



Fuel



Electrical



Exhaust



Coolant



Combustion Air Intake

General Symbol Descriptions



Warning



Refer to Webasto or Manufacturer Manual



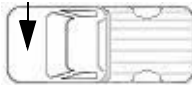
Caution



Attention



Flammable or Combustible



Part Location on Vehicle

General References

- Bare body parts, for example around drilled holes, must be treated with anti-corrosive coating.
- Secure hoses, cables and wiring harnesses with cable ties and fit protective hoses around them at chafing points.
- Fit edge protectors (opened fuel hose) to sharp edges.

Preparation

Heater Kit

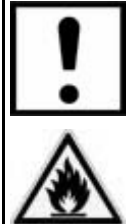
- Verify and identify all contents of kit.

Vehicle

- Verify fuel content in tank.

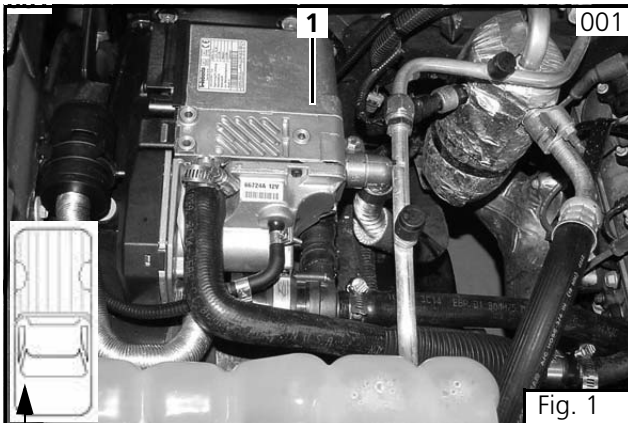
CAUTION

For reasons of safety due to the possibility of fuel spillage during the installation of a fuel standpipe, it is recommended there be no more than 1/4 tank of fuel present. If fuel quantity is greater than 1/4 of capacity, make provisions to reduce quantity of fuel.



Heater Installation Site

- (1) Webasto Auxiliary Coolant Heater mounted on the right inner fender.





Installation

Electrical - Overview

ATTENTION

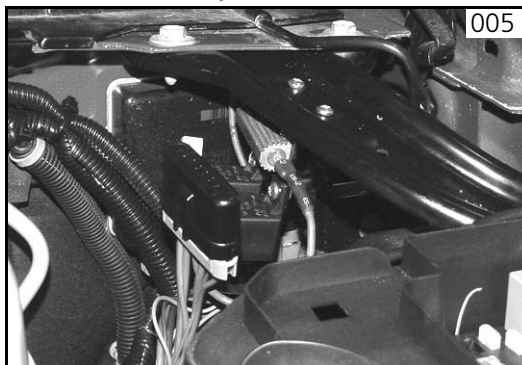
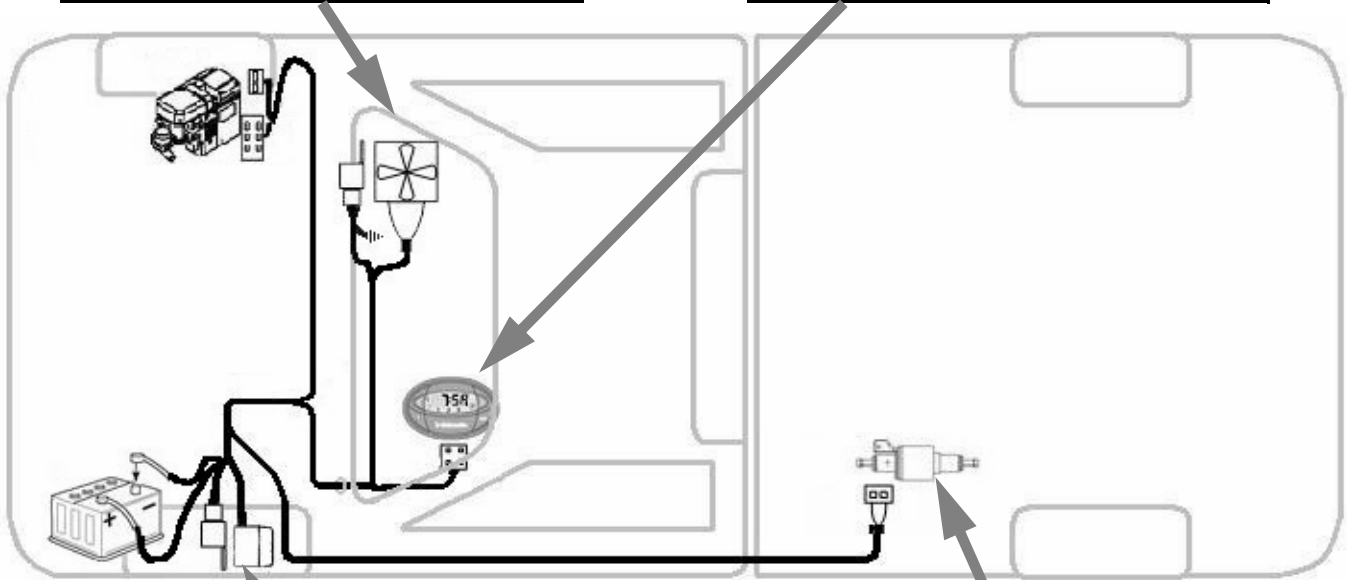
The timer control location is a recommendation only. Please consult with the customer before mounting.



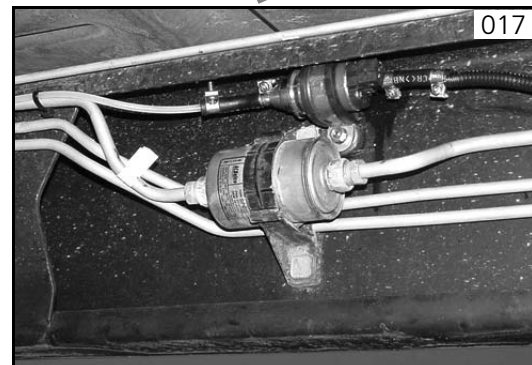
Vehicle HVAC Blower Motor



Timer Control Location



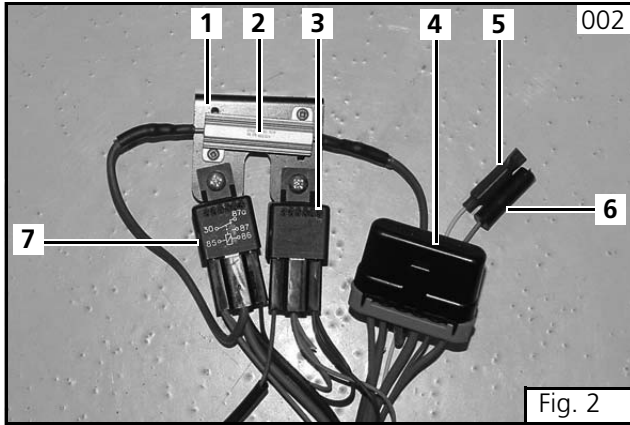
Webasto Blower Relay



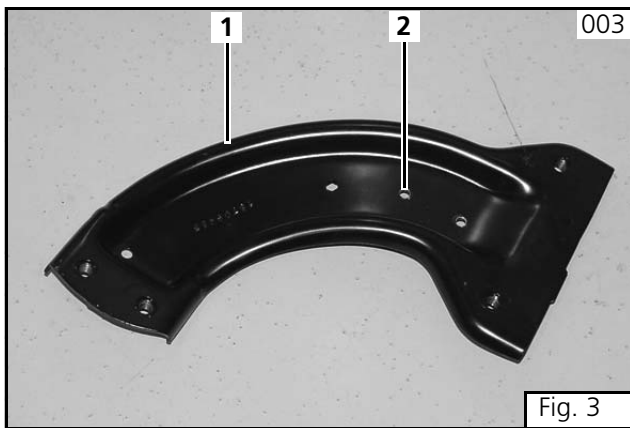
Webasto Heater Fuel Pump



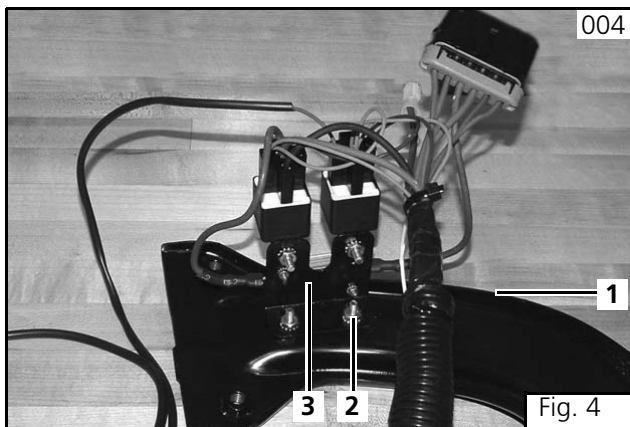
Electrical Harness



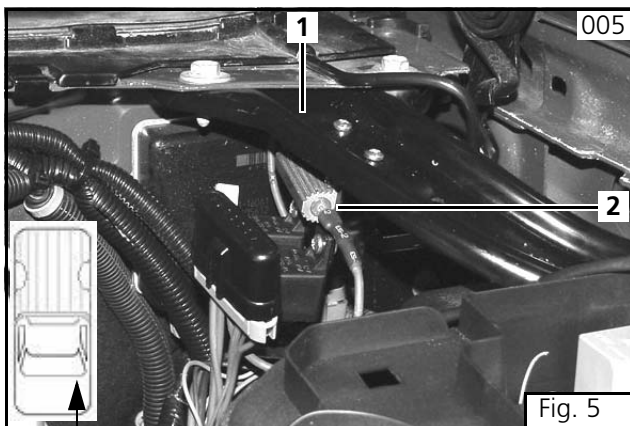
- (1) Mounting Bracket
- (2) Resistor
- (3) K1 Relay
- (4) Fuse Holder
- (5) Diagnostic Connector (Unused)
- (6) Supplemental Heat Connection (Option)
- (7) K2 Relay



- (1) Fender Support Bracket
- (2) Bore two 5 mm (3/16 in.) holes using mounting bracket as a template.



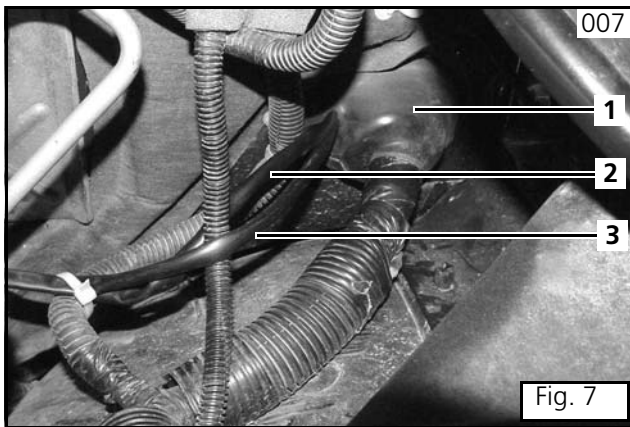
- (1) Fender Support Bracket
- (2) 10-32x5/8 Screws, Lockwashers, and Nuts
- (3) Mounting Bracket



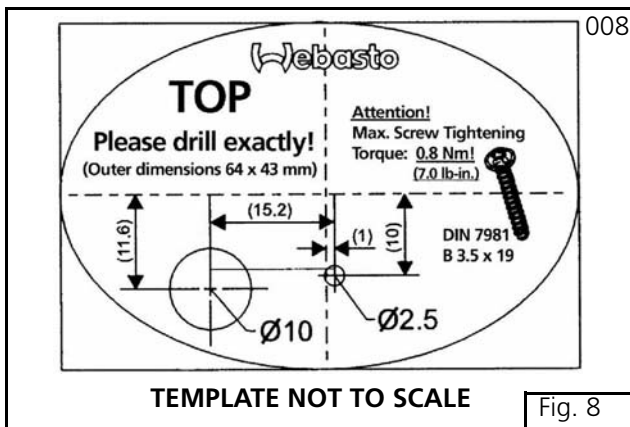
- (1) Fender Support Bracket Installed
- (2) Webasto Fuse Holder, Resistor, and Relays



- (1) Heater Ignition ON Lead
- (2) Underhood Fuse Block



- (1) Bulkhead Grommet
- (2) Blower Control Harness
- (3) Timer Control Harness



Timer Control

CAUTION

Before drilling into any panels, ensure there are no hidden components behind the panel that may be damaged or interfere with the timer installation!

ATTENTION

Before installing the timer, please confirm the installation site with your customer.

ATTENTION

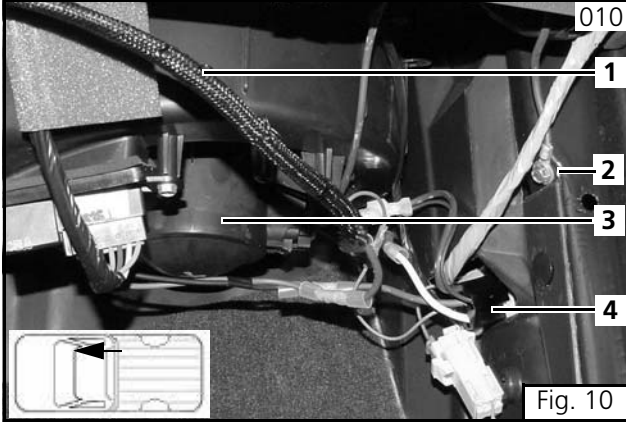
DO NOT OVER TIGHTEN MOUNTING SCREW! Maximum torque - 0.8 Nm (7.0 lb.-in.).



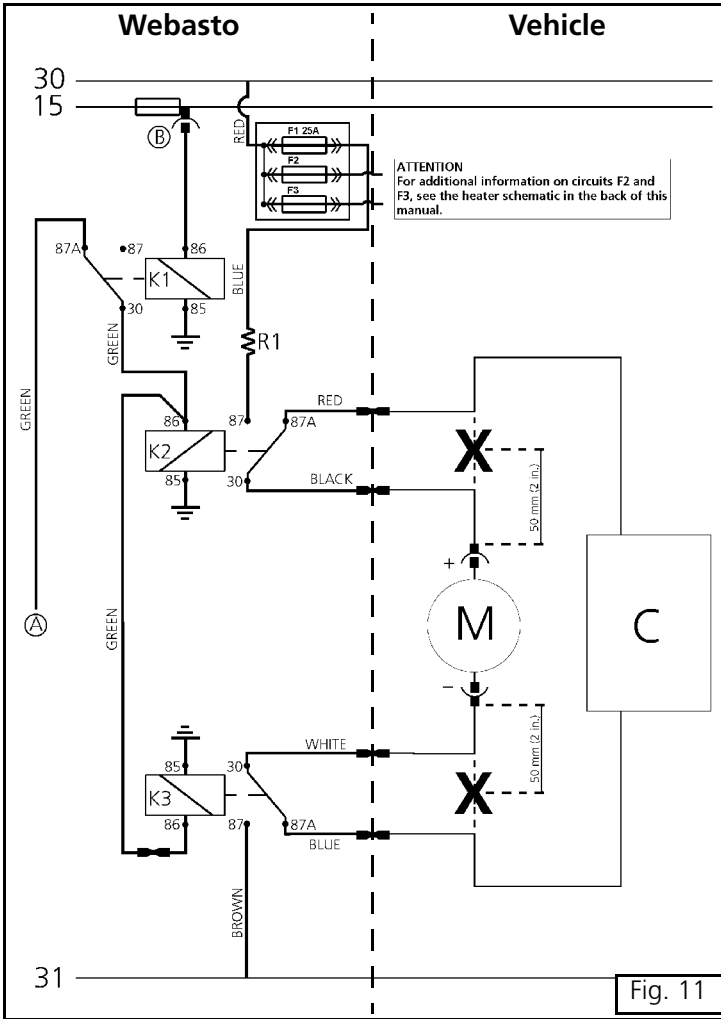
- (1) Timer Control (Mounting example only)



HVAC Harness Connections



- (1) Webasto Blower Control Harness
- (2) Auxiliary Control Harness Ground
- (3) Vehicle Blower Motor (Passenger Footwell)
- (4) Webasto Auxiliary Control Harness K3 Relay



ATTENTION

Check your wiring! Ensure that all connections have been done in accordance with the wiring diagram shown (Fig. 11). Sensitive electronic controls can be damaged if wired incorrectly!

ATTENTION

Secure HVAC blower control wiring to vehicle structures with nylon wire ties (Image not available)

Legend for Figure 10

- A** From Webasto Heater X1
- B** 12 VDC Ignition 'On' Fuse Tap
- C** HVAC Control Module
- M** HVAC Blower Motor
- X** Cut wire at 50 mm (2 in.) from motor
- F1** Fuse - Blower Circuit 25 Amp.
- K1** Relay - Ignition 'On' Interrupt
- K2** Relay - Positive Side of Blower Motor Circuit
- K3** Relay - Negative Side of Blower Motor Circuit
- R1** Resistor - Blower Speed Control





Integration into Fuel System

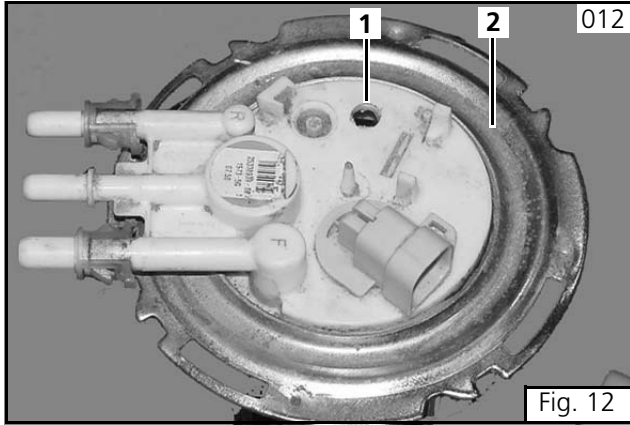


Fig. 12

ATTENTION

To prevent fuel leakage, remove burrs from both sides of sending unit before installing standpipe.

- (1) Bore a 8.5 mm (21/64 in.) through fuel sender
- (2) Fuel Sending Unit

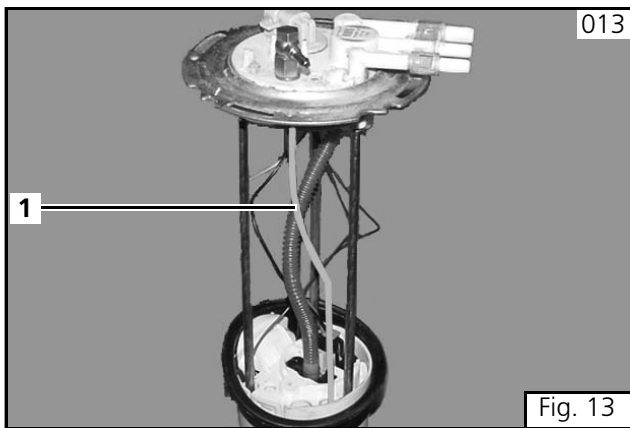


Fig. 13

ATTENTION

Cut stand pipe to a length approximately 25.4 mm (1 in.) from the bottom of the sending unit and form as shown.

Ensure area where standpipe enters the sending unit is clear of obstructions.

- (1) Webasto Standpipe Assembly



ATTENTION

Refer to figure 14 for banjo fitting installation sequence. Tighten locknut to 9.0 - 9.5 Nm (80 - 84 lb.-in.)

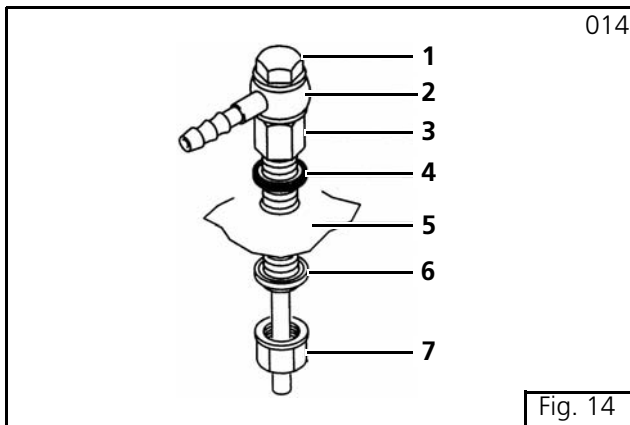


Fig. 14

Legend for Figure 14

- 1 Banjo Bolt
- 2 Banjo Fitting
- 3 Standpipe
- 4 Upper Sealing Washer
- 5 Fuel Tank Sending Unit
- 6 Lower Sealing Washer
- 7 Lock Nut

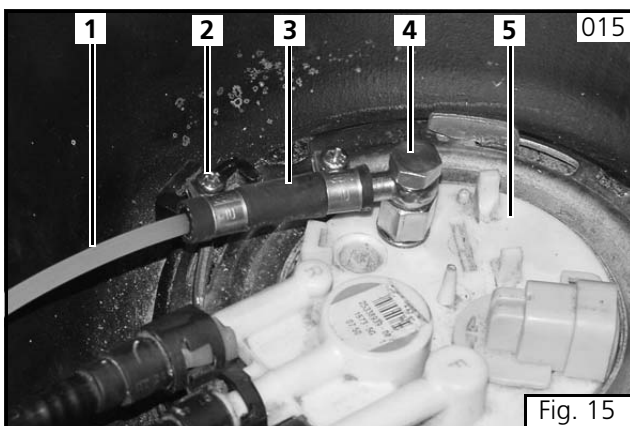
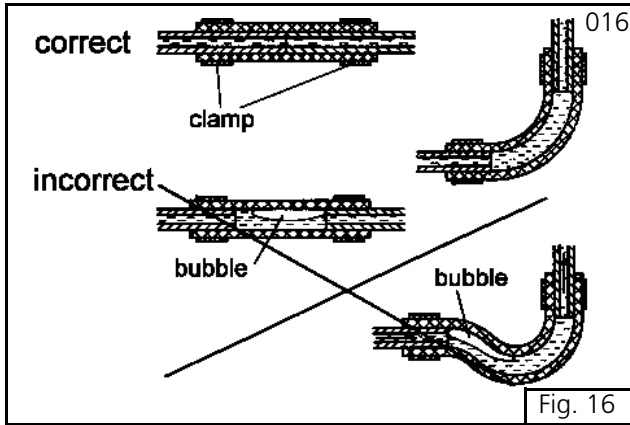


Fig. 15

- (1) Fuel Line
- (2) Hose Clamp
- (3) Fuel Line Adapter
- (4) Standpipe
- (5) Fuel Sending Unit (Installed)

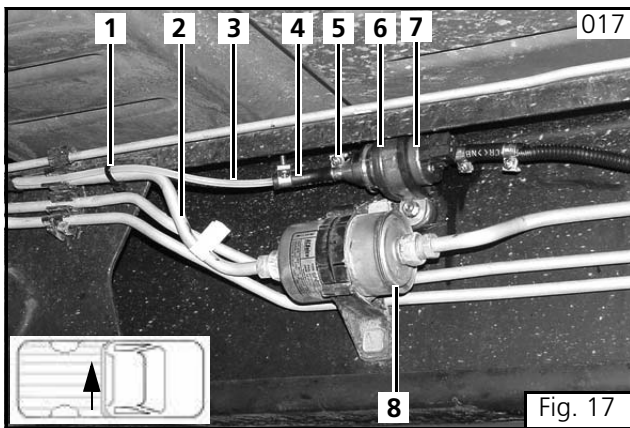


CAUTION

Always cut fuel line with a sharp razor knife or razor. DO NOT cut with side cutters, scissors, or similar tools as doing so will cause a restriction inside the fuel line.

ATTENTION

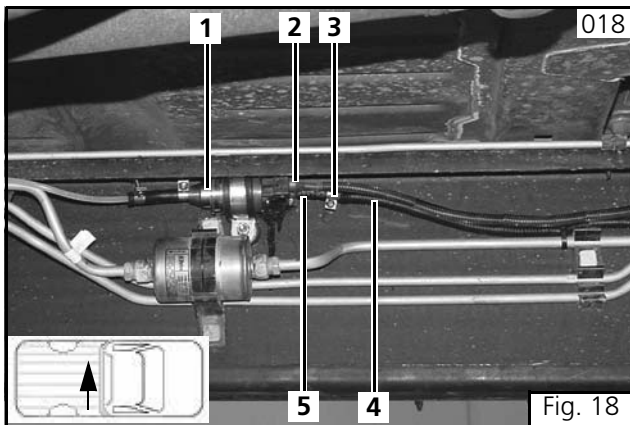
Ensure the fuel lines are fully seated within the line connectors and any 90 degree bends are not buckled. Refer to fig. 16.



ATTENTION

Route heater fuel line (connected from fuel standpipe) to fuel pump.

- (1) Nylon Wire Tie
- (2) Vehicle Fuel Line
- (3) Heater Fuel Line
- (4) Fuel Line Adapter
- (5) Hose Clamp (2 ea.)
- (6) P-clamp
- (7) Heater Fuel Pump
- (8) Vehicle Fuel Filter



ATTENTION

Route fuel line from fuel pump outlet along existing fuel lines to heater location.

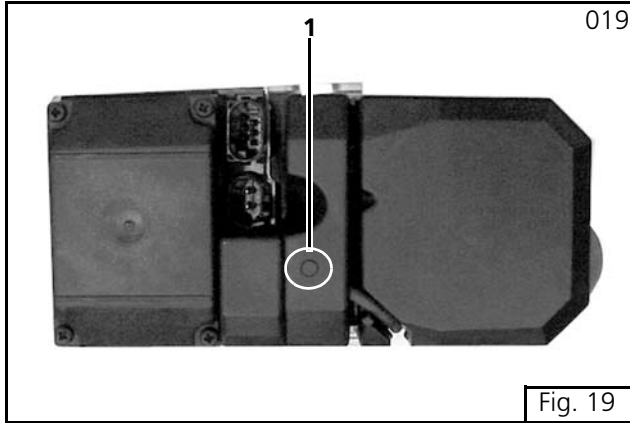
Route fuel pump wiring harness from engine compartment along vehicle fuel line to heater fuel pump location.

- (1) Heater Fuel Pump
- (2) Fuel Pump Electrical Harness
- (3) Hose Clamp (2 ea.)
- (4) Heater Fuel Line Covered With Plastic Loom
- (5) Fuel Line Adapter





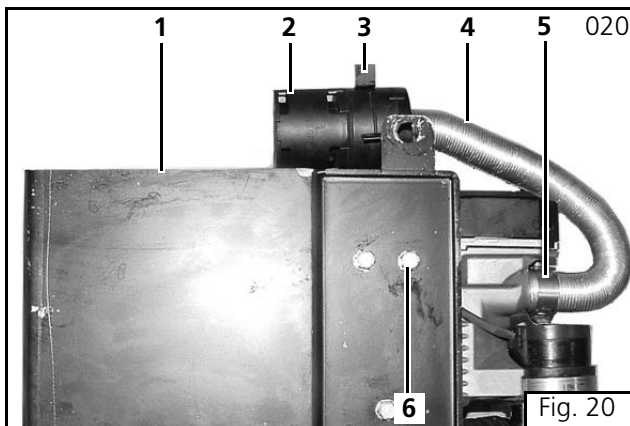
Heater Preparation and Installation



ATTENTION

Remove knock out on heater cover as shown.

- (1) Circular Knock Out

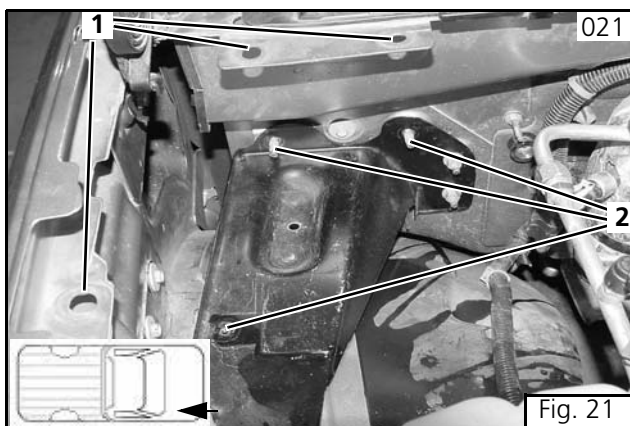


ATTENTION

Cut air intake tube to 279.4 mm (11 in.).

Mount air intake silencer and combustion air intake tube to heater using knock out (previously removed) from heater cover.

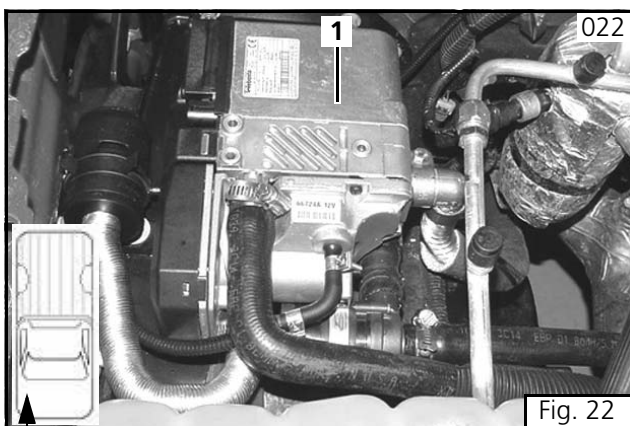
- (1) Heater Mounting Bracket
- (2) Air Intake Silencer
- (3) Air Intake Silencer Clamp
- (4) Combustion Air Intake Tube
- (5) Narrow Band Clamp
- (6) EJOT Screws



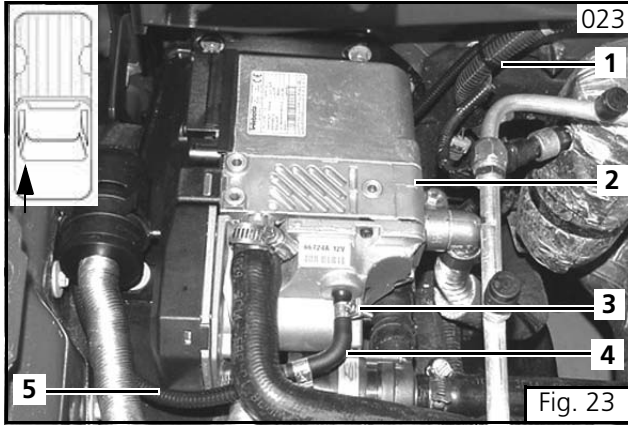
ATTENTION

Mount heater to vehicle using existing retaining nuts and studs. Ensure heater is secure before continuing.

- (1) Upper Fender Bracket Retaining Bolts Removed
- (2) Lower Fender Bracket Retaining Nuts Removed



- (1) Webasto Coolant Heater Installed

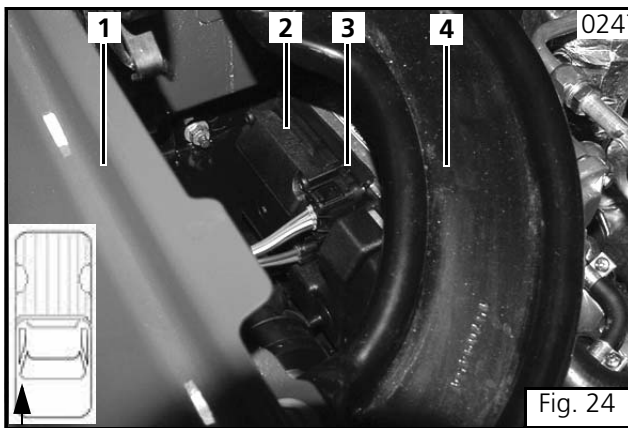


Connecting the Fuel Line to Heater

ATTENTION

Route fuel line along wiring harness over to the right inner fender as shown.

- (1) Wiring Harness
- (2) Webasto Heater
- (3) Hose Clamp (2 ea.)
- (4) 90 Degree Fuel Line Adapter
- (5) Heater Fuel Line Covered With Plastic Loom

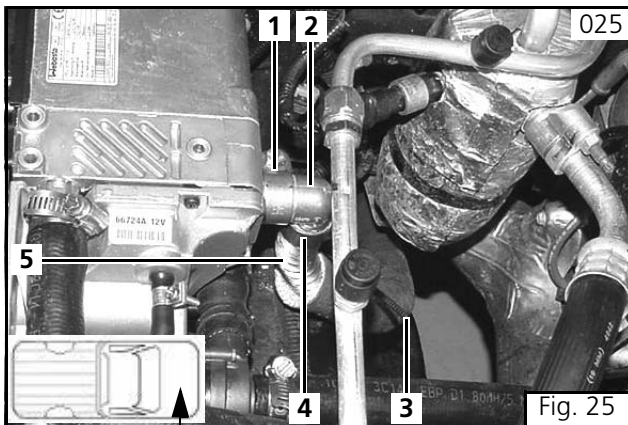


Connecting the Control Harness to Heater

ATTENTION

Route heater control harness along vehicle wiring harness over to the right inner fender as shown.

- (1) Right Fender
- (2) Webasto Heater
- (3) Heater Control Harness
- (4) Fender Support Bracket

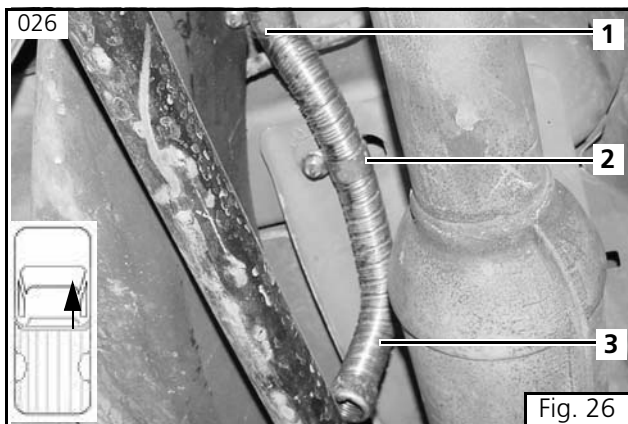


Exhaust Routing and Installation

ATTENTION

Install heat insulating sleeve over exhaust tube and route to underside of vehicle as shown.

- (1) Exhaust Clamp
- (2) 90 Degree Exhaust Fitting
- (3) Heat Insulating Sleeve
- (4) Exhaust Clamp
- (5) Exhaust Tube



ATTENTION

Ensure that the tail pipe is positioned downward.

- (1) Exhaust P-clamp
- (2) Exhaust P-clamp
- (3) Exhaust Tailpipe





Integration into Coolant System

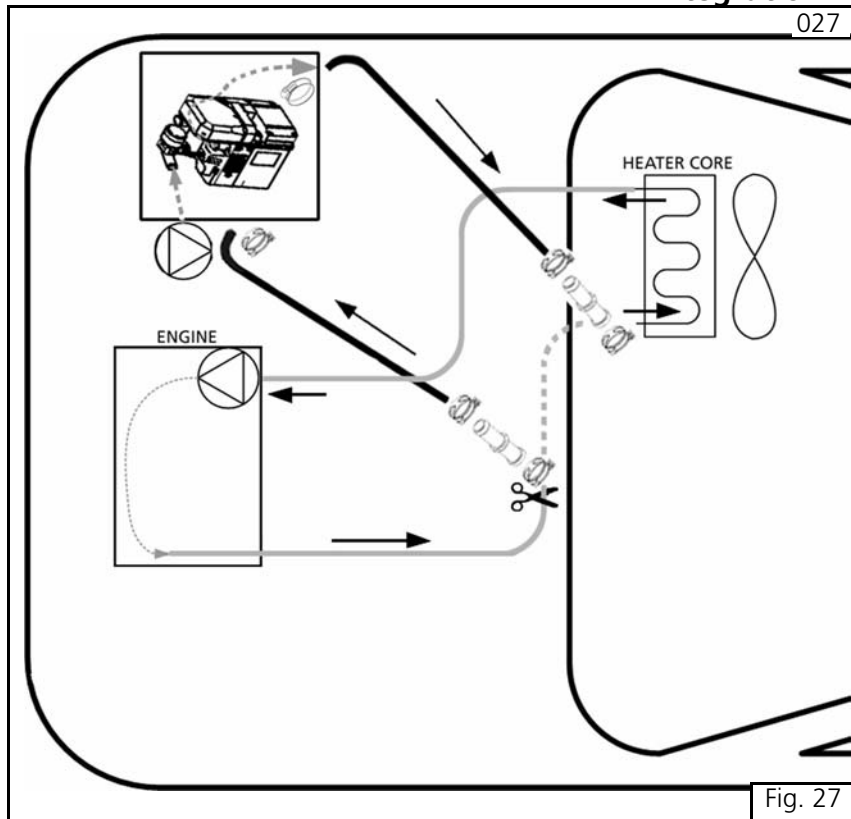


Fig. 27

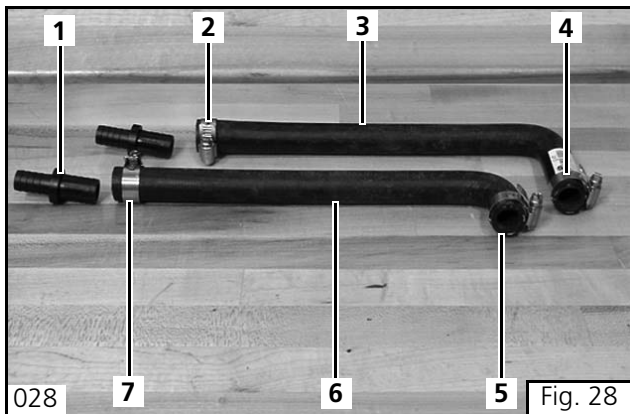
ATTENTION

Fig. 27 displays the integration of the Webasto Coolant Heater into the vehicles cooling system.

Also see the plumbing schematic in the back of this manual for a general outline of the coolant circuit arrangement.

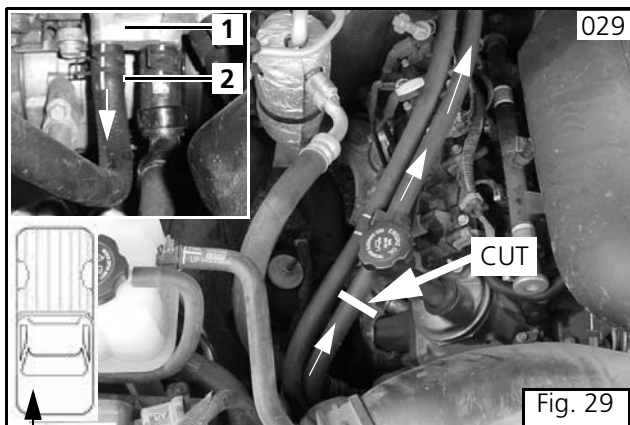
ATTENTION

Torque all hose clamps to 2.0 - 2.5 Nm (18 - 22 lb.-in.).



- (1) Coolant Hose Adapter (2 ea.)
- (2) Connect to Cut Hose at Heater Core Inlet
- (3) Coolant Hose from Heater Outlet to Heater Core Inlet
- (4) Connect to Heater Outlet
- (5) Connect to Heater Inlet
- (6) Coolant Hose From Engine Block to Heater Inlet
- (7) Connect to Cut Hose from Engine Block

Fig. 28



ATTENTION

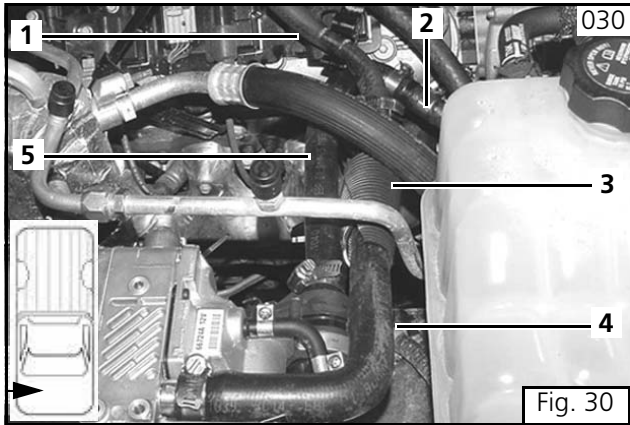
Verify coolant flow (as shown in Figure 29) before cutting hose.

Cut vehicle heater core inlet hose 18 inches from bulkhead as shown in Figure 29.

- (1) Engine Block
- (2) Heater Core Inlet Hose

Fig. 29

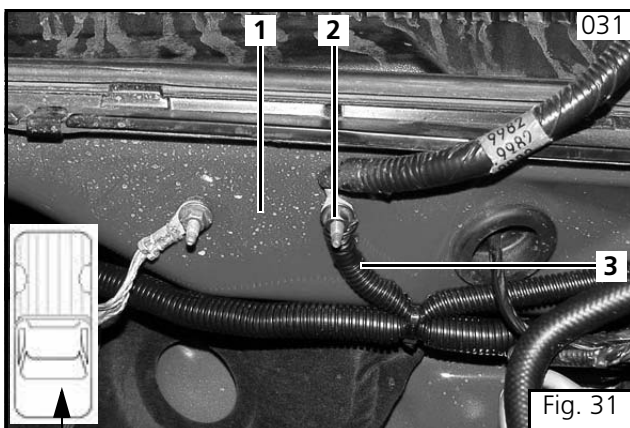




ATTENTION

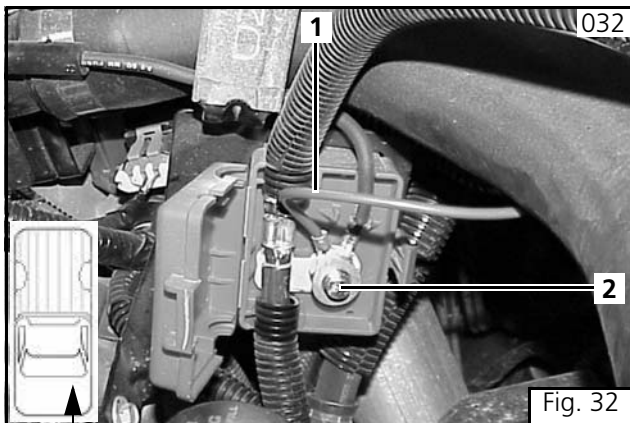
Secure coolant lines to available components with nylon wire ties. Keep lines away from hot exhaust components.

- (1) Heater Core Side Inlet Hose
- (2) Engine Side of Heater Core Inlet Hose
- (3) Plastic Loom
- (4) Webasto Heater Outlet Hose
- (5) Webasto Heater Inlet Hose



Power/Ground Connection

- (1) Vehicle Bulkhead
- (2) Vehicle Ground Stud
- (3) Webasto Heater Ground



- (1) Webasto Power Lead
- (2) Vehicle Power Stud

Concluding Work

- Install all vehicle parts, panels and components removed during heater installation.
- Check that all hose lines, hose clamps, pipe clips and electrical connections are secure.
- Secure all loose lines and cables with nylon cable ties.
- Spray the heater components and electrical connections with an anti-corrosive wax coating.



Final Inspection and Initial Start-up

Final Inspection

Inspect installation for:

- Loose fasteners.
- Exhaust system routing and clamp tightness.
- Combustion air intake tube routing and clamp tightness.
- Loose coolant line clamps.
- Pinched coolant lines.
- Routing of coolant lines and coolant lines securely tied and protected against chafing and related damage.
- Loose fuel line clamps.
- Routing of fuel lines and fuel lines securely tied and protected against chafing and related damage.
- Loose wiring connections and battery connections.
- routing of wiring harness and wiring harness securely tied and protected against chafing and related damage.
- Check operation of vehicle heater fan with Webasto heater OFF.

Initial Start-up

1. Top off cooling system with coolant per engine/vehicle manufacturers recommendations.
2. Set interior heater control to maximum heat position (hot) and switch off air conditioning system.
3. Start the vehicle engine and run on fast idle for 5 minutes to purge any remaining air from the Webasto heater and coolant system. While the engine is running check:
 - Hose connections for leaks.
 - Coolant level in expansion tank. (Add coolant as needed)
4. Switch off the engine.



ATTENTION

More than one start-up attempt of the heater may be required to purge air from fuel system before heater will start. Cycle heater Off and On after each failed start attempt until heater starts successfully. After 3 consecutive unsuccessful start attempts, the webasto control unit enters into Heater lockout. See Heater Lockout section for reset instructions.



5. Switch on the Webasto heater by means of the instant heat button on timer and check:
 - Timer panel and instant heat indicator illuminates.
 - Circulating pump in operation.
 - Initiation of start-up sequence.
 - Successful start-up and operation.
6. Allow heater to run for 20 minutes or until coolant is heated to temperature. Re-tighten all hose clamps.

ATTENTION

Engine coolant temperature gauge may read lower than actual Webasto heater output temperature. This is due to the location of the temperature gauge sensor on engine.





Heater Lockout Reset Procedure

The BlueHeat is designed with a lockout safety feature built into the control unit. After 3 consecutive unsuccessful startup attempts, the heater will lock itself out from any further start attempts. The heater may also enter the lockout mode after experiencing an overheat condition.

Reset Heater "Lockout" mode by performing the following procedure:

1. Ensure timer or switch is in the "OFF" position. Turn timer or switch to the "On" position. Remove main fuse F2 (20 Amp), reinsert after 5 seconds.
2. Cycle timer or switch off and then back on once more. Remove fuse F2 once again and reinsert after 5 seconds. Heater should attempt to start after inserting fuse.

ATTENTION

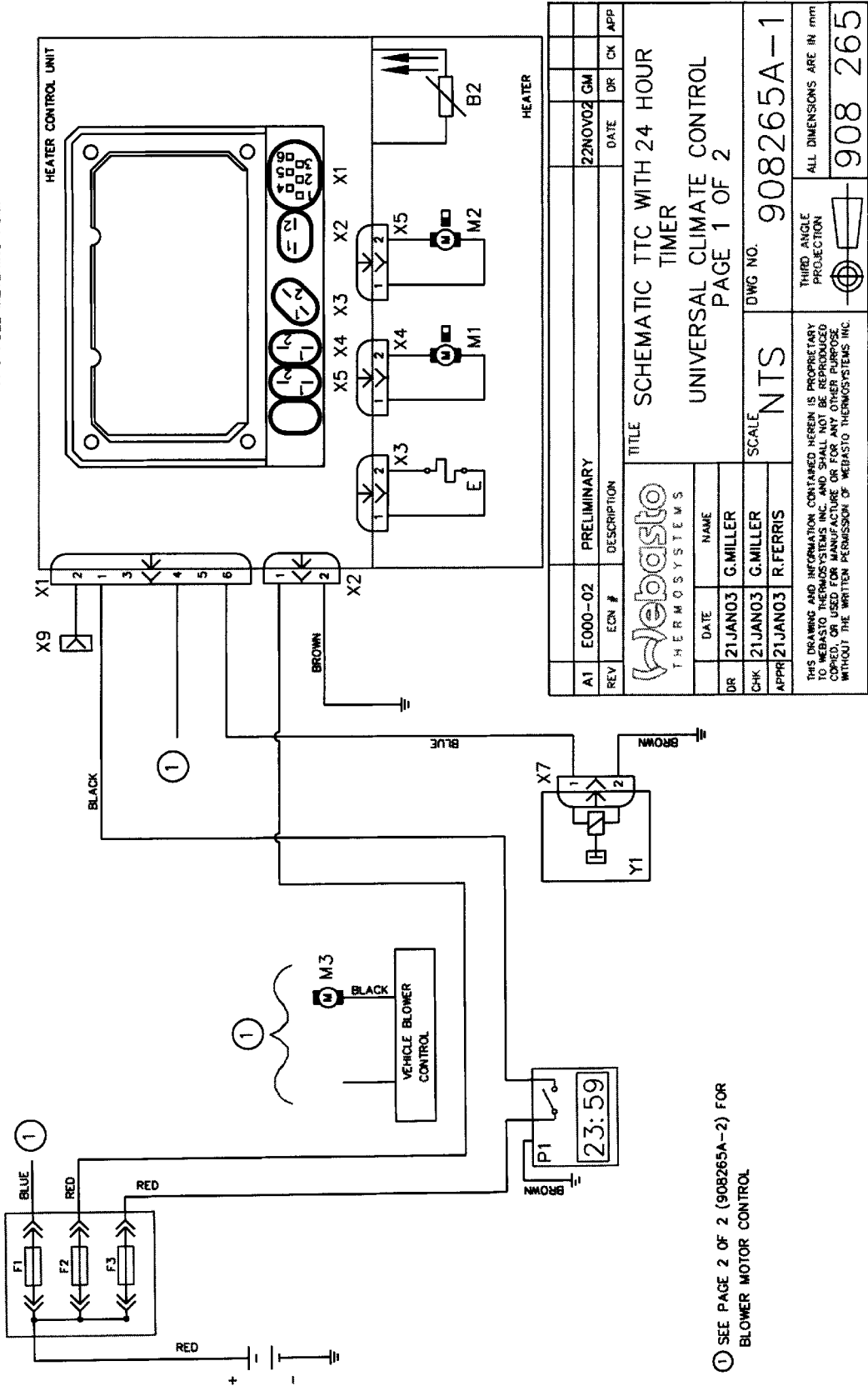
- Coolant temperature must be below the lower threshold before heater will attempt to start.
- The engine coolant must be below 86 °F (30 °C) before the Webasto heater will attempt to start.
- Should the heater fail to start or operate correctly, call your Webasto technical representative at:
1-800-555-4518





Wiring Schematic Part 1 - Heater Control

- B2 : TEMPERATURE SENSOR - COOLANT
- E : CERAMIC IGNITOR / FLAME DETECTOR
- F1 : 25A BLOWER INTERLOCK
- F2 : 20A HEATER
- F3 : 2A TIMER
- K1 : IGNITION BLOWER CONTROL RELAY
- K2 : BLOWER RELAY 1
- K3 : BLOWER RELAY 2
- M1 : COMBUSTION AIR FAN
- M2 : COOLANT CIRCULATING PUMP
- M3 : VEHICLE BLOWER HTR/AC
- P1 : TIMER 24 HOUR
- R1 : RESISTOR 10HM/50W
- X9 : DIAGNOSTIC LINK
- Y1 : FUEL METERING PUMP

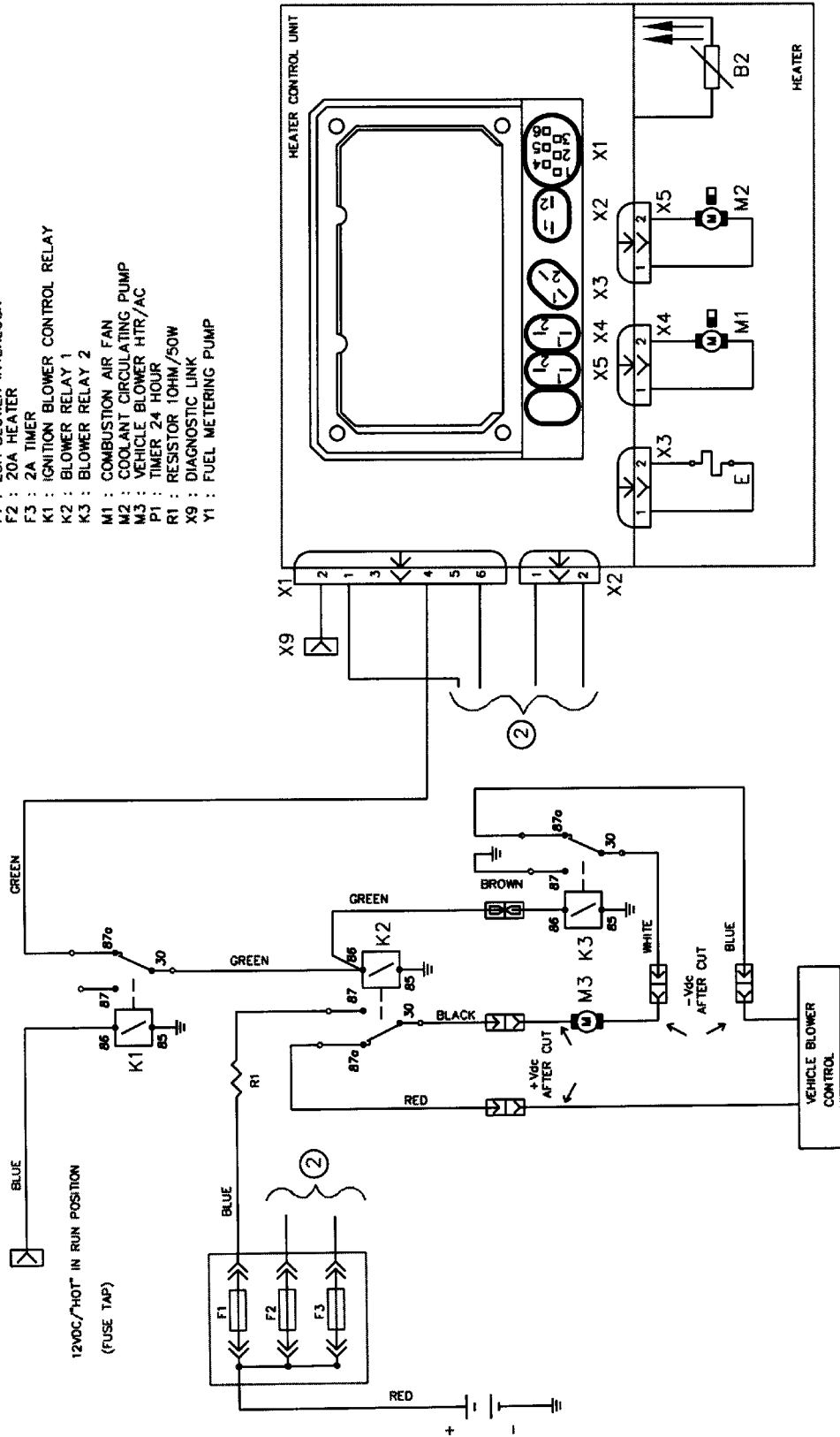


① SEE PAGE 2 OF 2 (908265A-2) FOR BLOWER MOTOR CONTROL



Wiring Schematic Part 2 - Blower Control

- B2 : TEMPERATURE SENSOR - COOLANT
- E : CERAMIC IGNITOR / FLAME DETECTOR
- F1 : 25A BLOWER INTERLOCK
- F2 : 20A HEATER
- F3 : 2A TIMER
- K1 : IGNITION BLOWER CONTROL RELAY
- K2 : BLOWER RELAY 1
- K3 : BLOWER RELAY 2
- M1 : COMBUSTION AIR FAN
- M2 : COOLANT CIRCULATING PUMP
- M3 : VEHICLE BLOWER HTR/AC
- P1 : TIMER 24 HOUR
- R1 : RESISTOR 10HM/50W
- X9 : DIAGNOSTIC LINK
- Y1 : FUEL METERING PUMP



FUNCTION : WHEN HEATER IS SWITCHED ON AND COOLANT REACHES 60°C (140°F) THE WEBASTO HEATER SENDS A SIGNAL THROUGH K1 TO K2 AND K3 VEHICLE BLOWER WILL COME ON AT LOW SPEED IF A VEHICLE IGNITION SIGNAL IS PRESENT AT K1, THE VEHICLE RETURNS TO NORMAL HVAC/OPERATOR CONTROLS

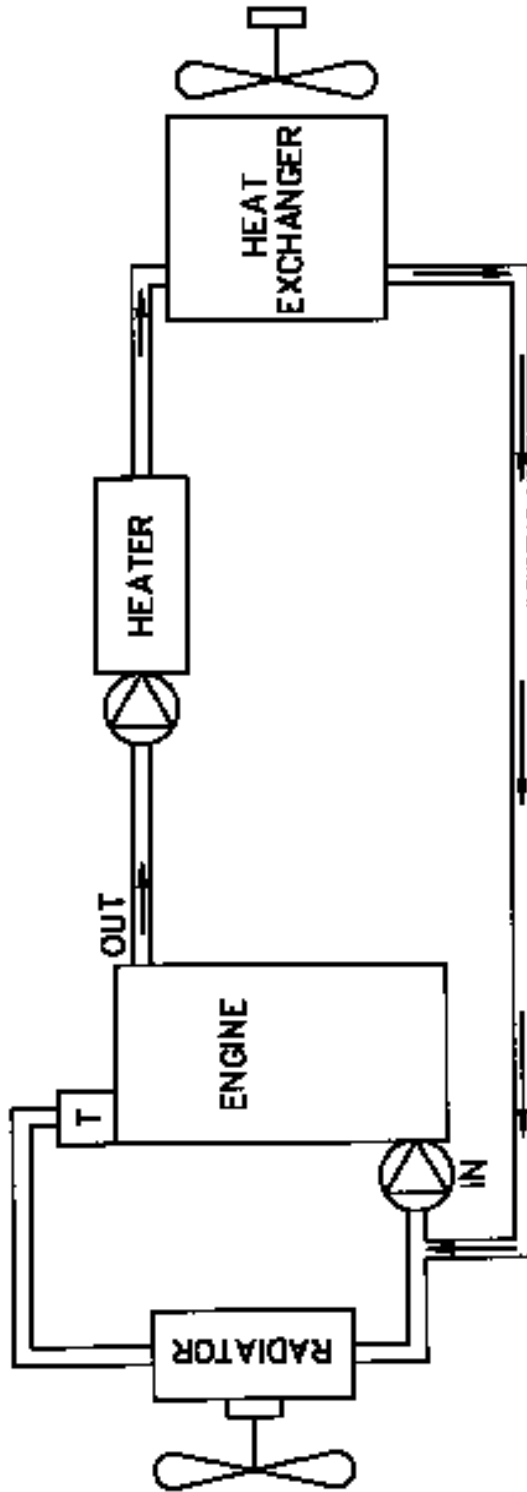
② SEE PAGE 1 OF 2 FOR ALL OTHER HEATER CONTROLS

Webasto THERMO SYSTEMS		TITLE SCHEMATIC TTC WITH 24 HOUR TIMER	
DR	21JAN03	G.MILLER	UNIVERSAL CLIMATE CONTROL PAGE 2 OF 2
CHK	21JAN03	G.MILLER	SCALE NTS
APPR	21JAN03	R.FERRIS	DWG NO. 908265A-2
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			ALL DIMENSIONS ARE IN mm 908 265



Heater Plumbing Schematic - Inline Method

WEBASTO THERMO TOP C INLINE COOLANT SCHEMATIC



T = THERMOSTAT

⊠ = COOLANT PUMP (2 PLC'S)

NOTES:



Webasto Product N.A., Inc.

Technical Assistance Hotline

USA: (800) 555-4518

Canada: (800) 667-8900