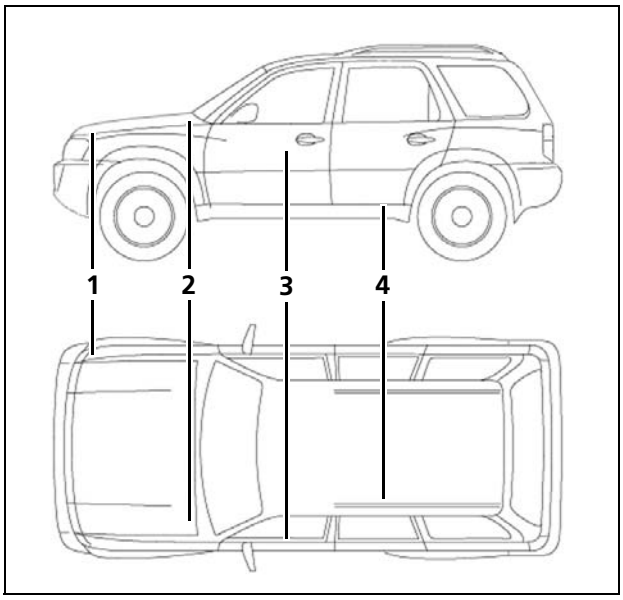
Blue*Heat* *Coolant Heater*

Webasto
Feel the drive

Thermo Top



Buick Rainier - 2004
Chevrolet Trailblazer - 2002/2004
GMC Envoy (All Models) - 2002/2004
Oldsmobile Bravada - 2002/2003

Special instructions for these models
Part locations may differ slightly dependent on the vehicle model.

Legend

1 Blue*Heat* 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)

Table of Contents

DOC. P/N 5000867A KIT P/N 5000869B Printed in USA Webasto Product N.A., Inc.

– 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	5000869B

Vehicle Information

Manufacturer	Model	Year	Engine Type
Buick	Rainier	2004	All
Chevrolet	Trailblazer	2002/2004	All
GMC	Envoy	2002/2004	All
Oldsmobile	Bravada	2002/2003	All

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 Blue*Heat* 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

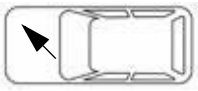

Warning


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.

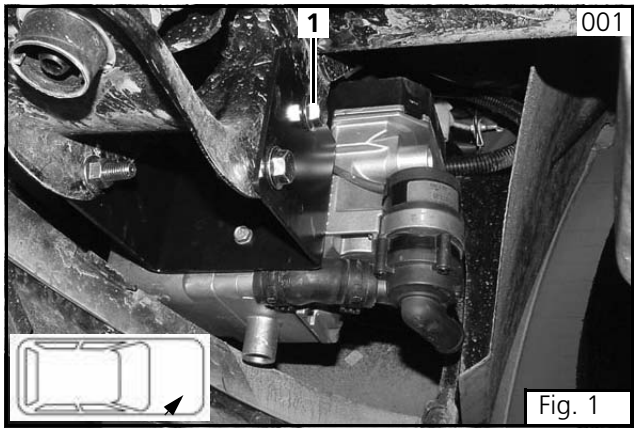


Fig. 1

Heater Installation Site

– (1) Webasto Auxiliary Coolant Heater mounted on the right front lower corner of the vehicle.

Installation

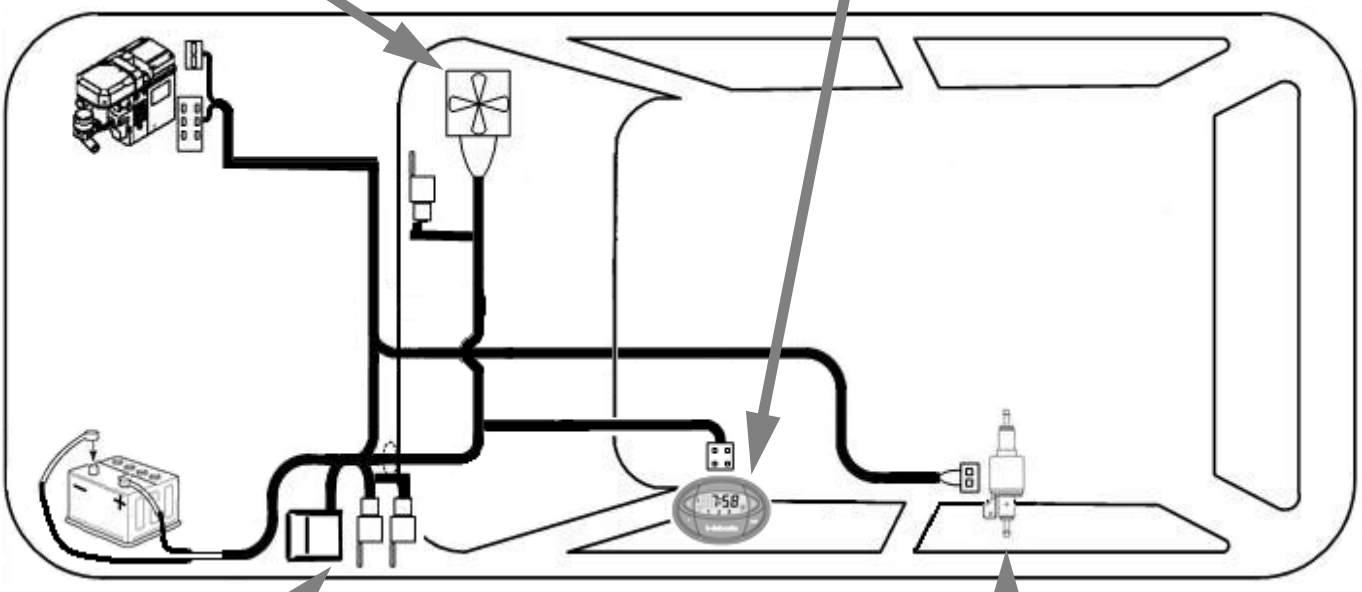
Electrical - Overview

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

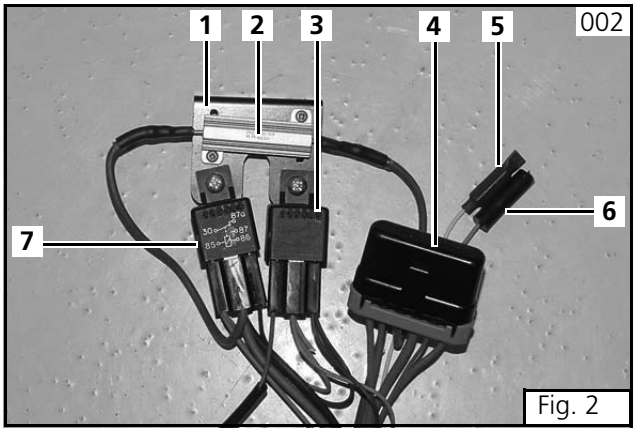


Fig. 2

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

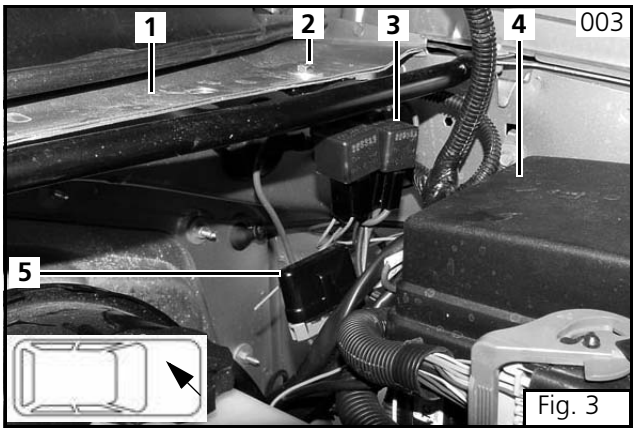


Fig. 3

– (1) Vehicle Bulkhead
– (2) Existing Vehicle Hardware
– (3) Webasto Heater Relays and Resistor Mounting Location
– (4) Underhood Fuse / Relay Center
– (5) Webasto Heater Fuses

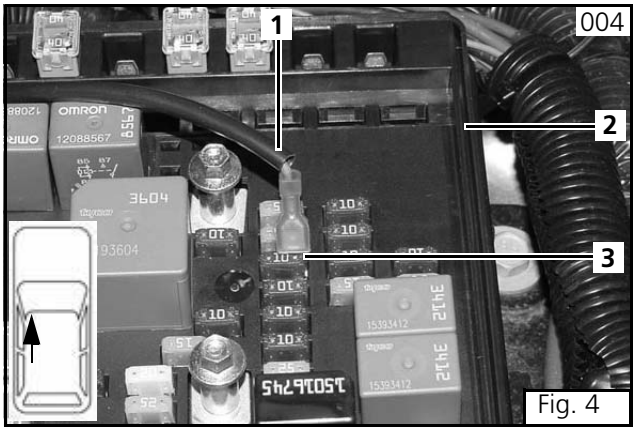


Fig. 4

– (1) Webasto Heater Ignition On Harness Lead
– (2) Vehicle Underhood Fuse / Relay Center
– (3) Ignition "Hot" Fuse (Fused Side)

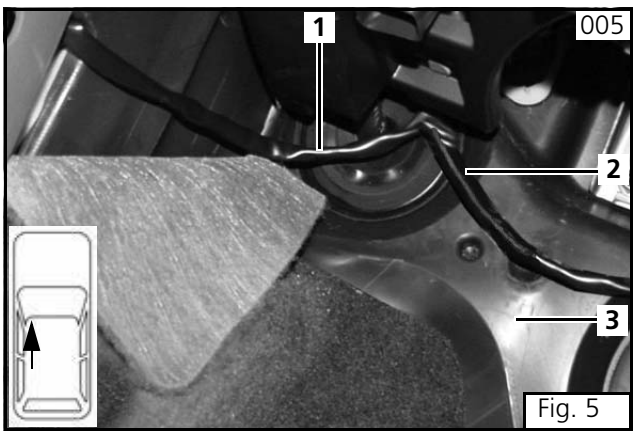
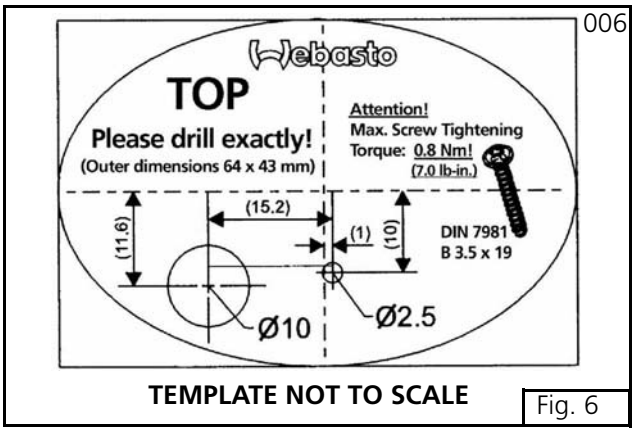
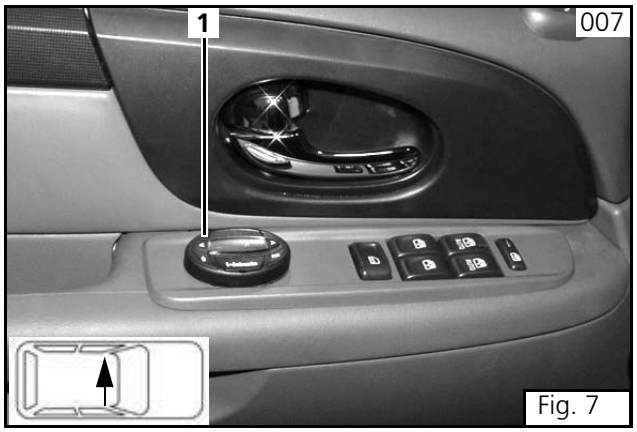


Fig. 5

– (1) Timer Control Harness Routed Through Bulkhead
– (2) Blower Control Harness Routed Through Bulkhead
– (3) Drivers Footwell Area





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)

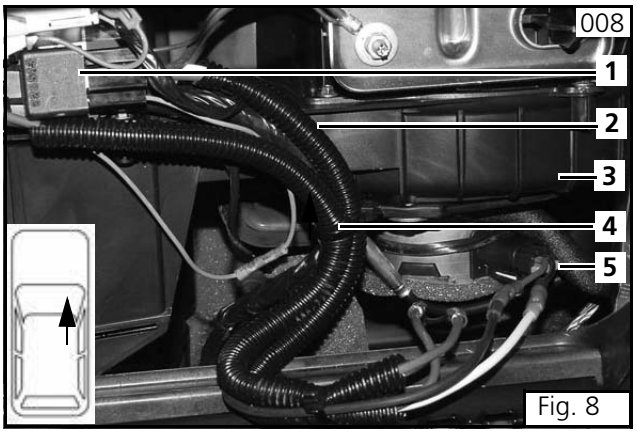


Fig. 8

HVAC Harness Connections

– (1) Webasto Auxiliary Control Harness K3 Relay
– (2) Auxiliary Control Harness
– (3) Vehicle Blower Motor (Passenger Footwell)
– (4) Webasto Blower Control Harness
– (5) Vehicle Blower Motor Connector

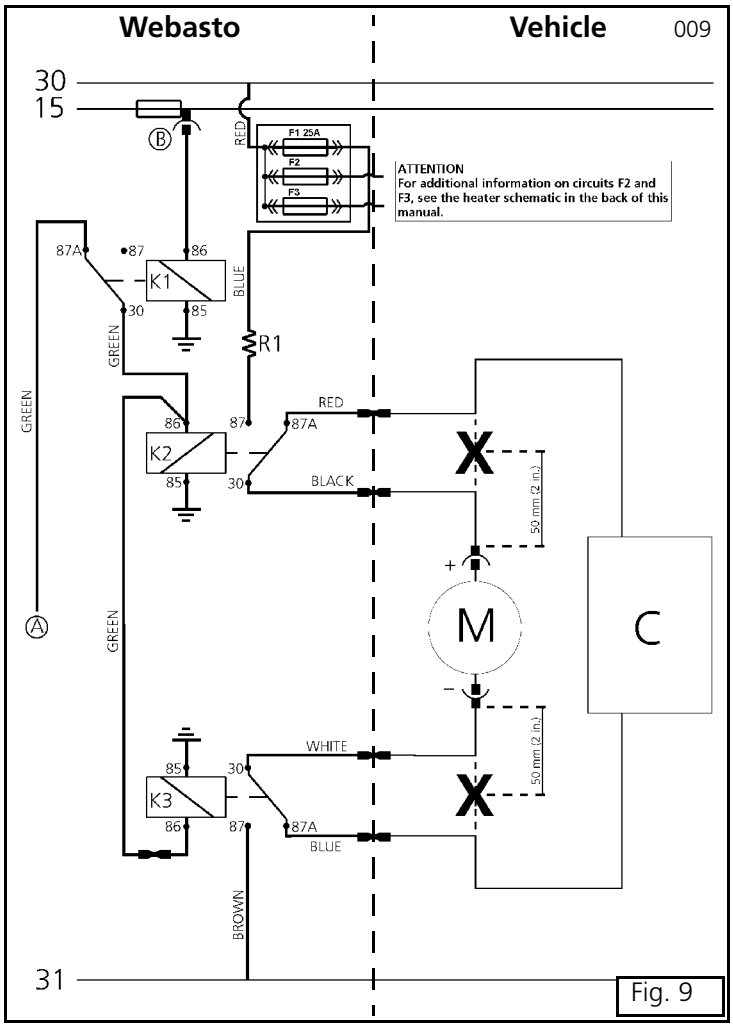


Fig. 9

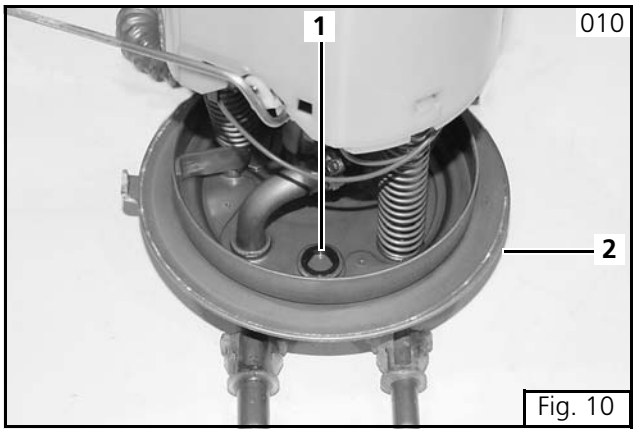
ATTENTION
Check your wiring! Ensure that all connections have been done in accordance with the wiring diagram shown (Fig. 9). Sensitive electronic controls can be damaged if wired incorrectly!

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

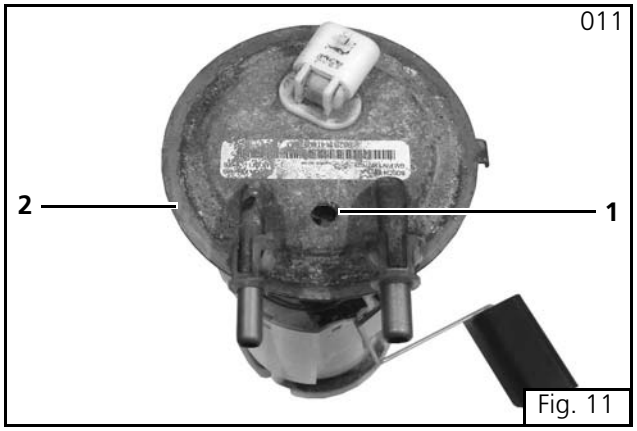
Legend for Figure 9

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

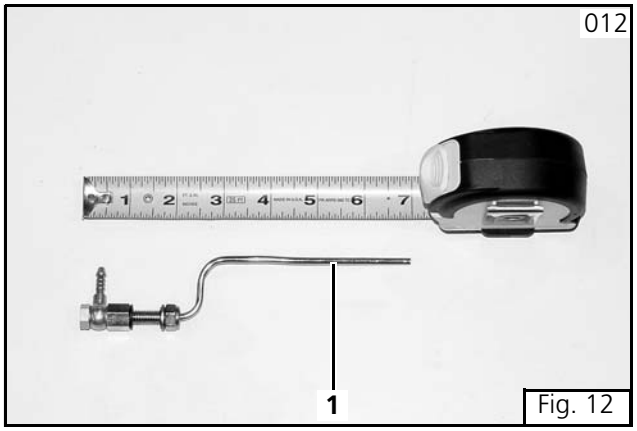


– (1) Bore a pilot hole through fuel sender where shown.
– (2) Fuel Sending Unit



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

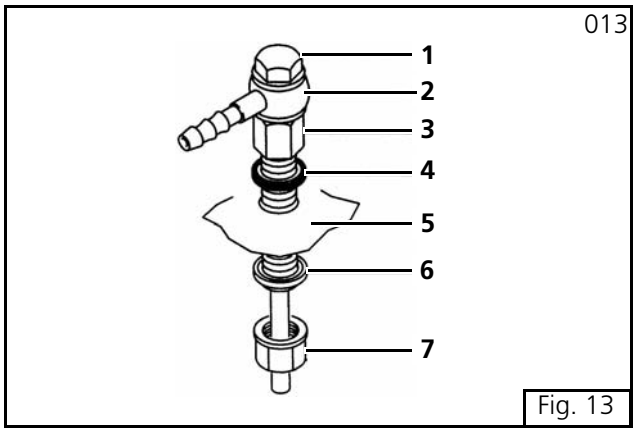


ATTENTION
Cut stand pipe to a length approximately 25.4 mm (1 in.) from the bottom of the sending unit and form as shown.

Ensure standpipe is clear of obstructions.

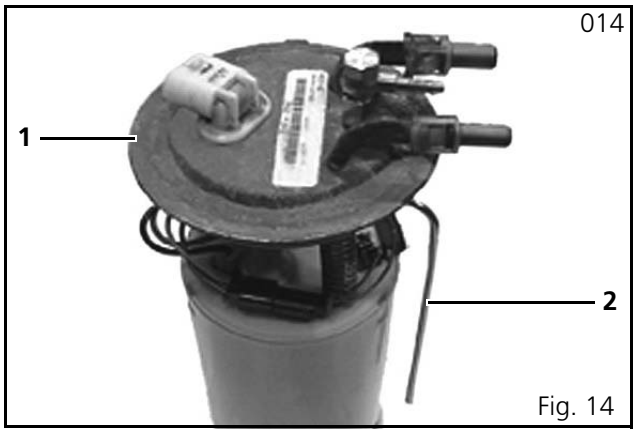
– (1) Webasto Standpipe Assembly

ATTENTION
Refer to figure 13 for banjo fitting installation sequence. Tighten locknut to 9.0 - 9.5 Nm (80 - 84 lb.-in.)

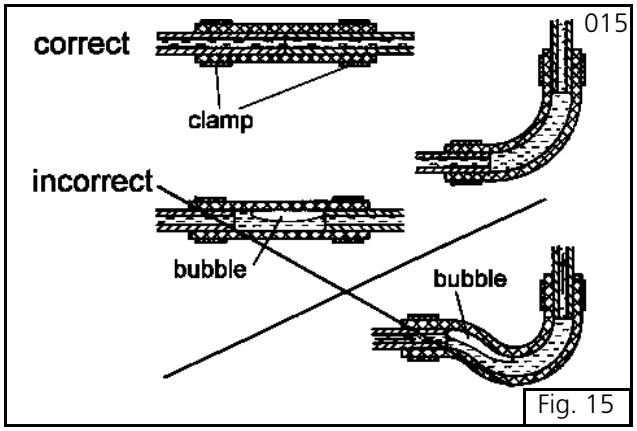


Legend for Figure 13

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



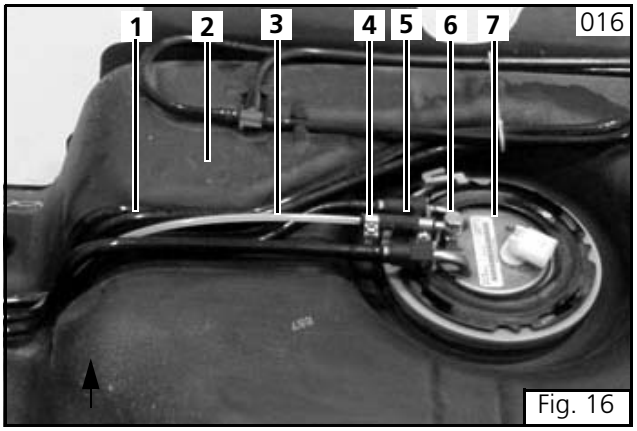
– (1) Fuel Sender
– (2) Fuel Standpipe Installed



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.

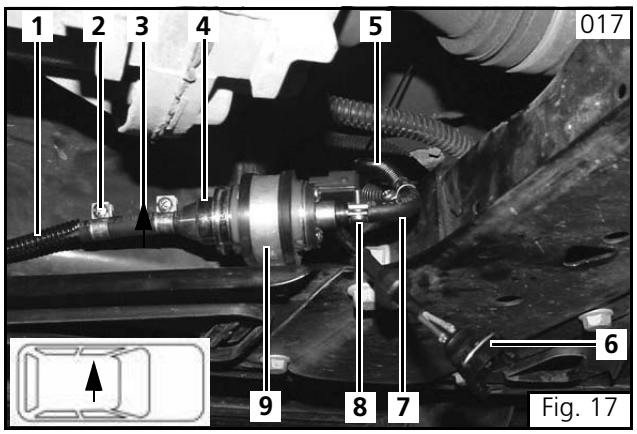
ATTENTION
Ensure the fuel lines are fully seated within the line connectors and any 90 degree bends are not buckled. Refer to fig. 15.

Tighten all fuel line clamps to 1.0 - 1.4 Nm (8.8 - 12.4 lb.-in.)



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

– (1) Vehicle Fuel Line
– (2) Fuel Tank
– (3) Heater Fuel Line
– (4) Hose Clamp (2 ea.)
– (5) Fuel Line Adapter
– (6) Fuel Standpipe
– (7) Fuel Sending Unit



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

Cover fuel line was plastic conduit.

– (1) Fuel Line From Fuel Sender
– (2) Hose Clamp (2 ea.)
– (3) Fuel Line Adapter
– (4) Heater Fuel Pump
– (5) Fuel Line To Heater
– (6) Fuel Pump Electrical Harness
– (7) 90 Degree Fuel Line Adapter
– (8) Hose Clamp (2 ea.)
– (9) P-clamp and Mounting Hardware

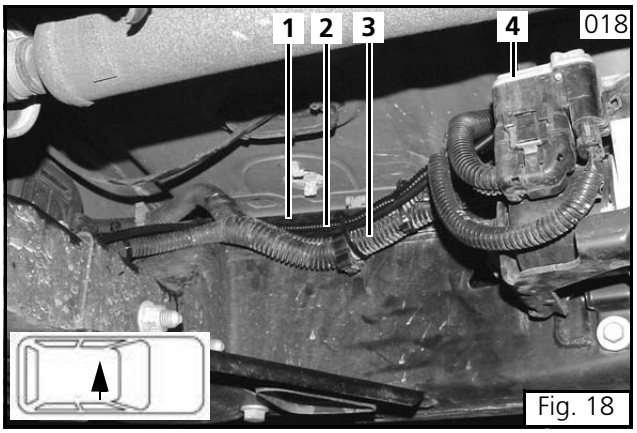


Fig. 18

– (1) Fuel Pump Electrical Harness
– (2) Fuel Line To Heater
– (3) Vehicle Electrical Harness
– (4) EVAP Canister

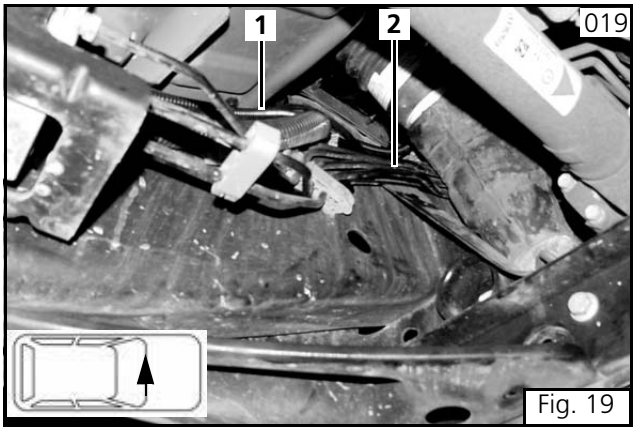


Fig. 19

– (1) Fuel Line To Heater
– (2) Vehicle Fuel Lines

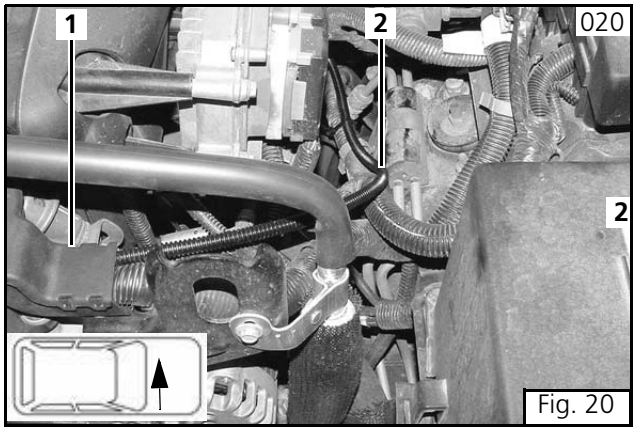


Fig. 20

– (1) Harness Housing
– (2) Fuel Line

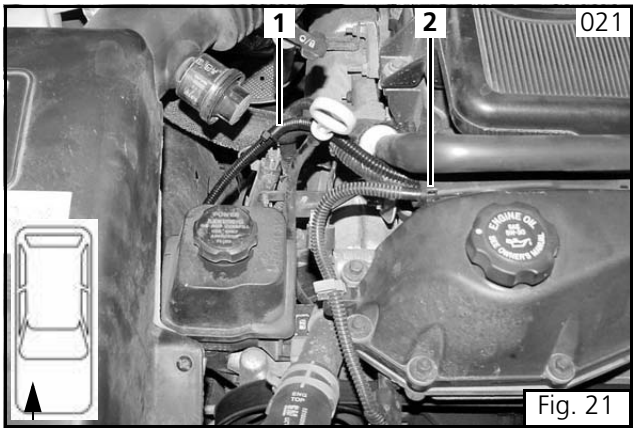


Fig. 21

– (1) Fuel Line
– (2) Harness Housing

Heater Preparation and Installation

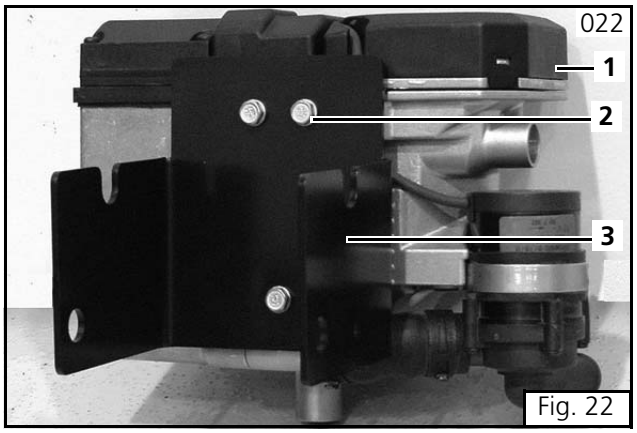


Fig. 22

– (1) Webasto Heater
– (2) EJOT Screws - Tighten to 10 Nm (88 lb - in.)
– (3) Heater Mounting Bracket

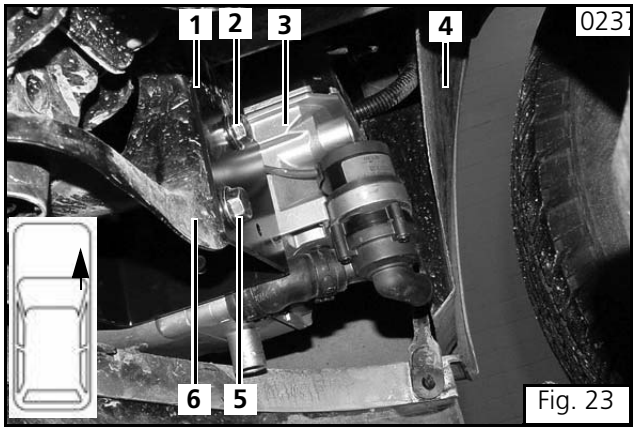


Fig. 23

– (1) Heater Mounting Bracket
– (2) Existing Vehicle Hardware
– (3) Webasto Heater
– (4) Right Front Facia
– (5) Existing Vehicle Hardware
– (6) Engine Cradle

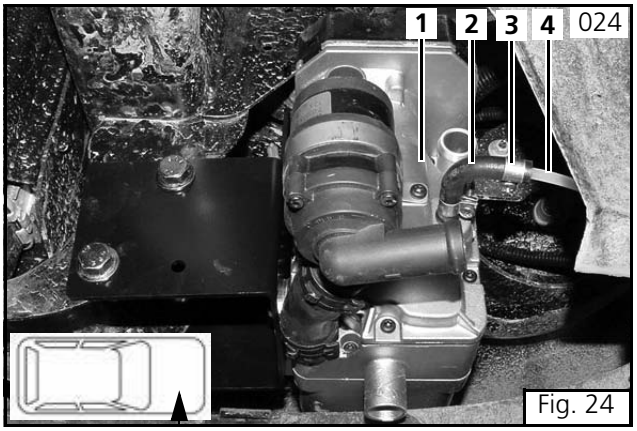


Fig. 24

Connecting the Fuel Line to Heater

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.

– (1) Webasto Heater
– (2) 90 Degree Fuel Line Adapter
– (3) Hose Clamp (2ea.)
– (4) Fuel Line

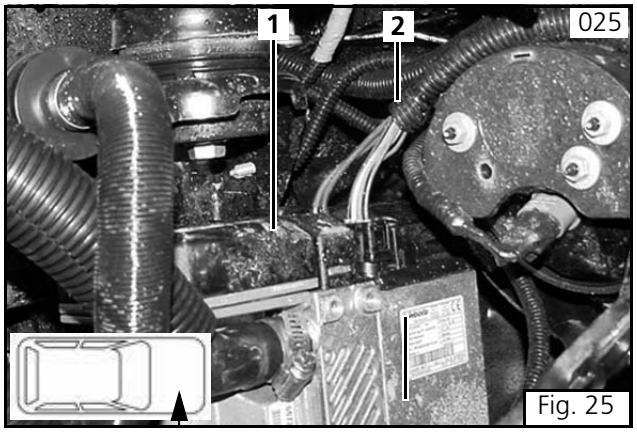


Fig. 25

Connecting the Control Harness to Heater

ATTENTION

Ensure control harness connectors are firmly seated in heater.

– (1) Webasto Heater
– (2) Webasto Heater Control Harness

Exhaust Routing and Installation

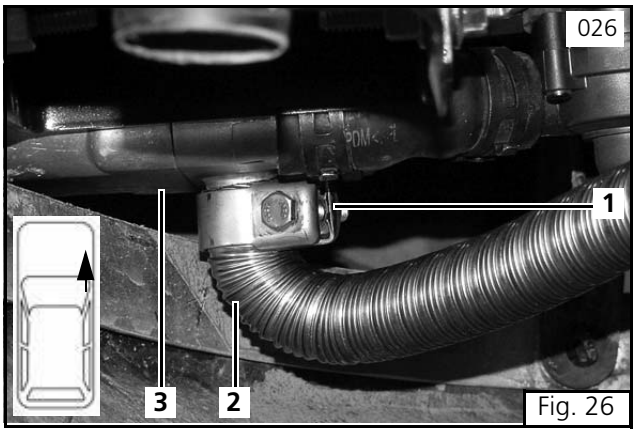


Fig. 26

– (1) Exhaust Clamp
– (2) Exhaust Tube
– (3) Bottom of Webasto Heater

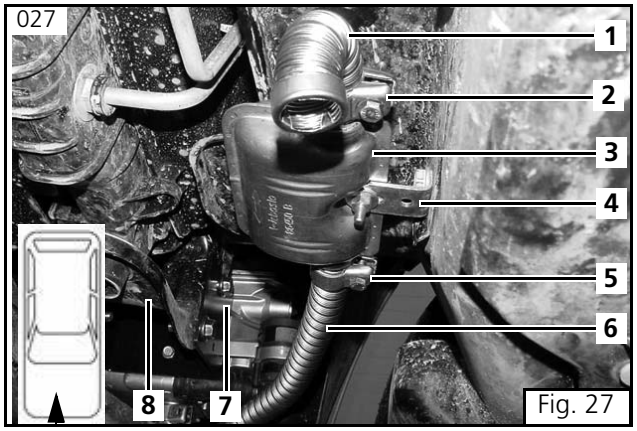


Fig. 27

ATTENTION
Ensure that the tail pipe is positioned downward.

– (1) Exhaust Tailpipe
– (2) Exhaust P-clamp
– (3) Muffler
– (4) Muffler Bracket
– (5) Exhaust P-clamp
– (6) Exhaust Tube
– (7) Heater Mounting Bracket
– (8) Right Front Engine Cradle

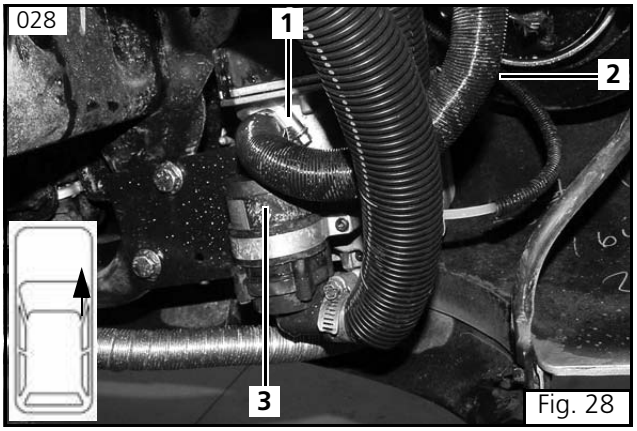


Fig. 28

– (1) Narrow Band Clamp
– (2) Air Intake Silencer Tube
– (3) Heater Water Pump

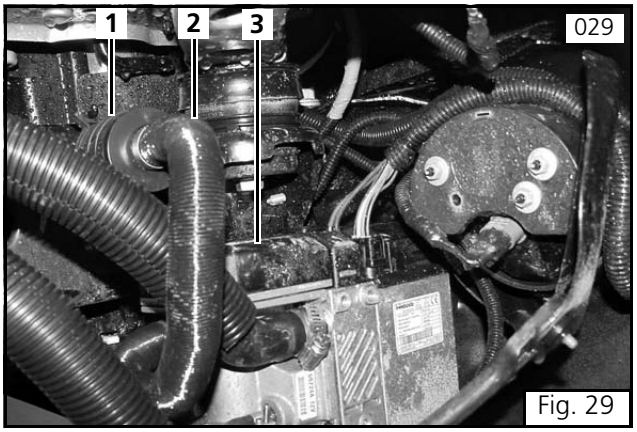
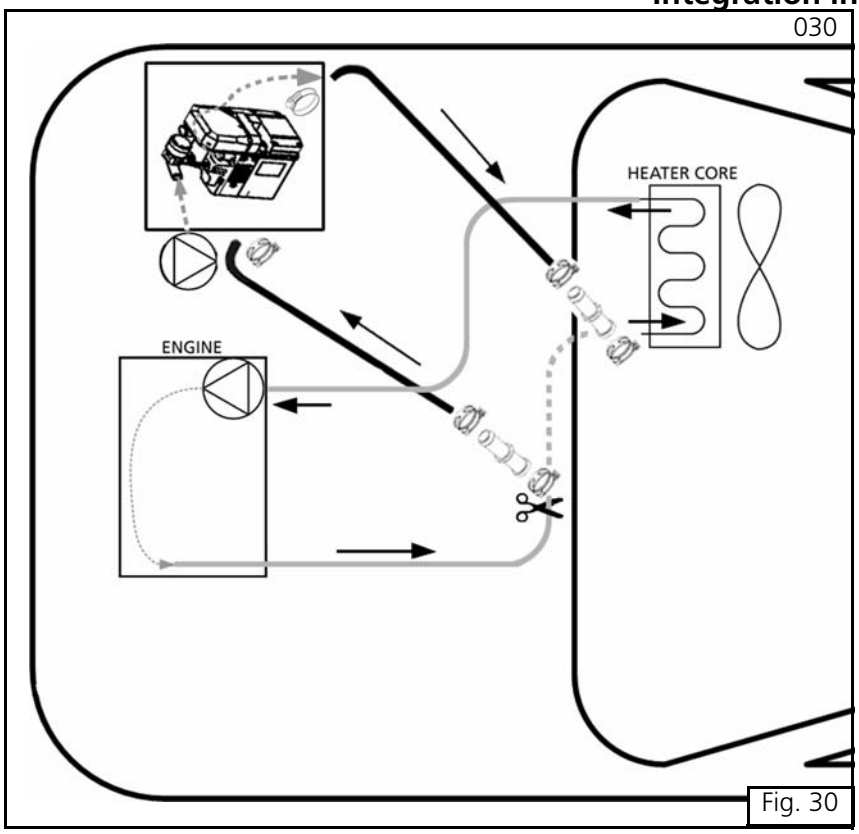


Fig. 29

– (1) Air Intake Silencer
– (2) Air Intake Silencer Tube
– (3) Webasto Heater

Integration into Coolant System



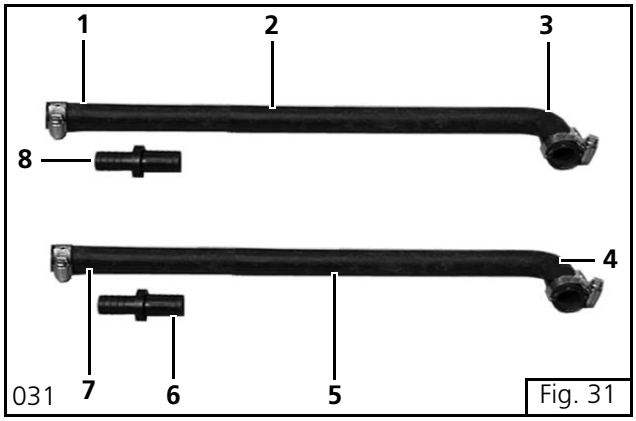
ATTENTION

Fig. 30 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

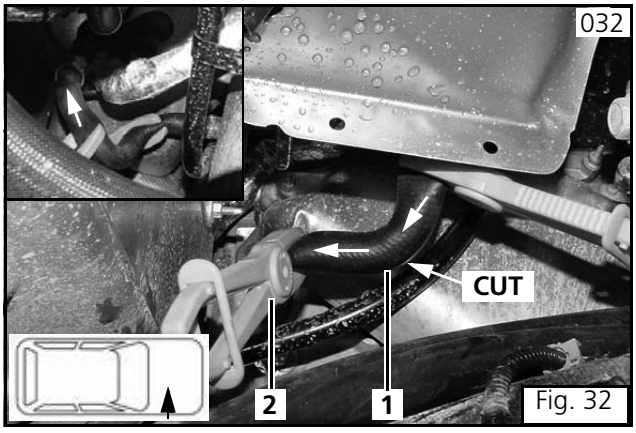
Torque all hose clamps to 2.0 - 2.5 Nm (18 - 22 lb.-in.).



ATTENTION

Cut supplied coolant hose as shown. Trim coolant hose to appropriate length after routing.

– (1) Connect to Cut Hose at Heater Core Inlet
– (2) Coolant Hose from Heater Outlet to Heater Core Inlet
– (3) 90 Degree End - Connect to Heater Outlet
– (4) 90 Degree End - Connect to Heater Inlet
– (5) Coolant Hose From Engine Block to Heater Inlet
– (6) Coolant Hose Adapter
– (7) Connect to Cut Hose from Engine Block
– (8) Coolant Hose Adapter



ATTENTION

Verify coolant flow before cutting hose.

– (1) Coolant Supply to Heater Core
– (2) Hose Clamping Pliers

Coolant Connections

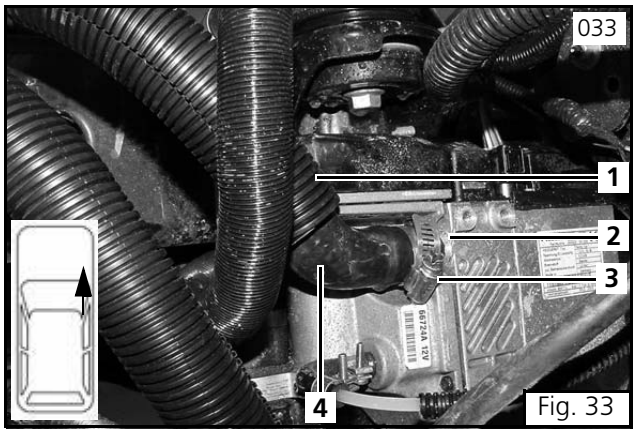


Fig. 33

– (1) Plastic Conduit
– (2) Webasto Heater Outlet
– (3) Hose Clamp
– (4) Webasto Heater Outlet Hose

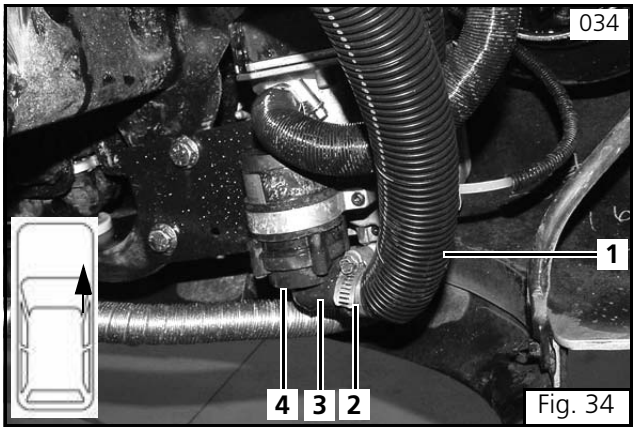


Fig. 34

– (1) Webasto Heater Inlet Hose (Cover with plastic conduit)
– (2) Hose Clamp
– (3) Webasto Heater Inlet
– (4) Webasto Heater Coolant Pump

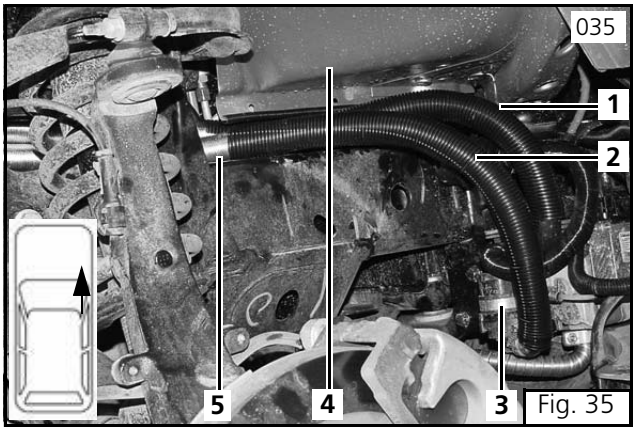


Fig. 35

ATTENTION

Route coolant hoses as shown in figure 35 and cover with protective sleeving or conduit where shown.

– (1) Webasto Heater Outlet Hose (Cover with plastic conduit)
– (2) Webasto Heater Inlet Hose (Cover with plastic conduit)
– (3) Webasto Heater Water Pump
– (4) Right Inner Fender
– (5) Metal Conduit (Cover Webasto heater inlet and outlet hoses)

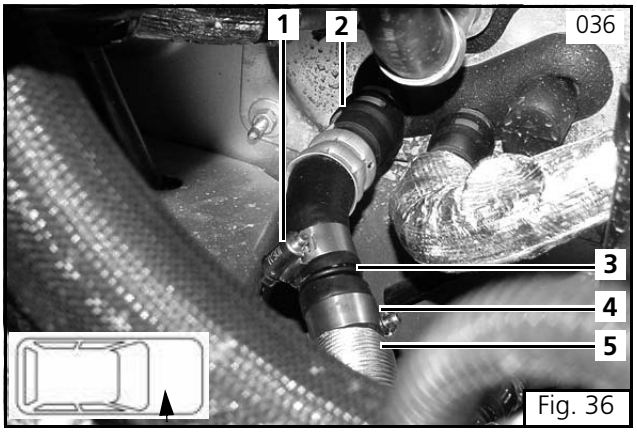


Fig. 36

– (1) Hose Clamp
– (2) Heater Core Inlet Hose
– (3) Coolant Hose Adapter
– (4) Hose Clamp
– (5) Webasto Heater Outlet Hose (Cover with metal conduit provided)

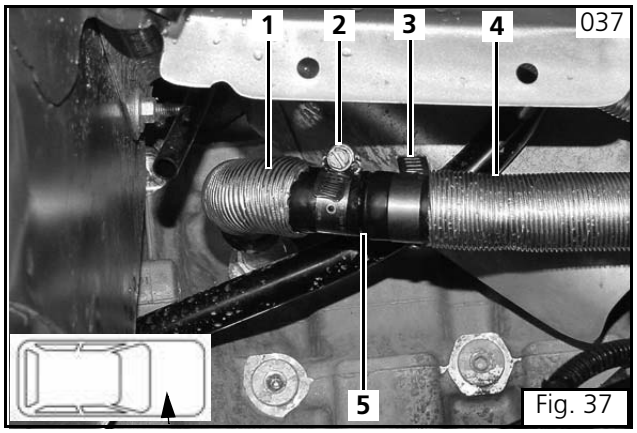


Fig. 37

ATTENTION

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

– (1) Heater Supply Hose From Engine (Covered with metal conduit provided)
– (2) Hose Clamp
– (3) Hose Clamp
– (4) Webasto Heater Inlet Hose (Cover with metal conduit provided)
– (5) Coolant Hose Adapter

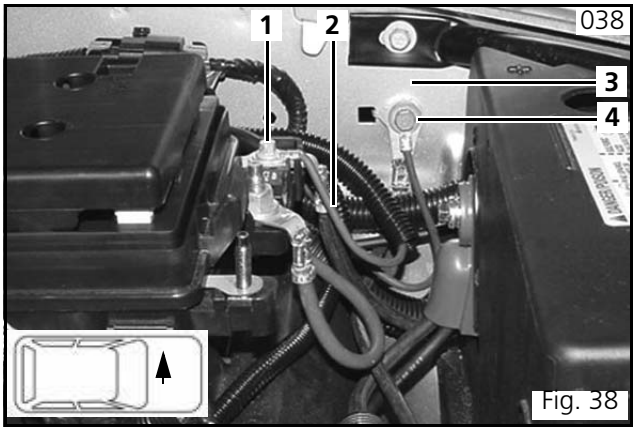


Fig. 38

Power/Ground Connection

– (1) Vehicle Power Stud
– (2) Webasto Heater Power Lead
– (3) Left Fender
– (4) Webasto Heater Ground (Existing vehicle ground location)

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 Blue*Heat* 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.

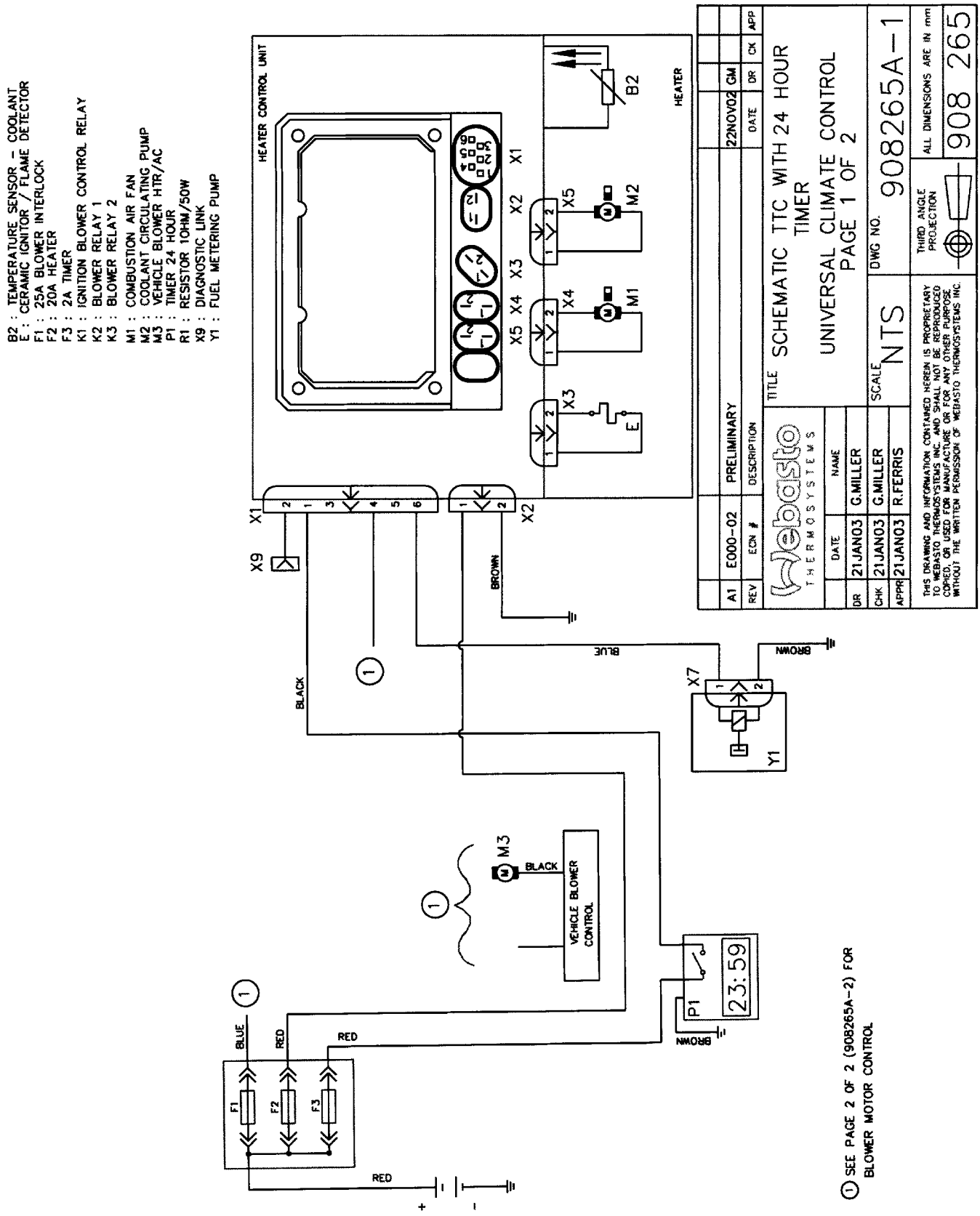
Reset Heater "Lockout" mode by performing the following procedure:

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.

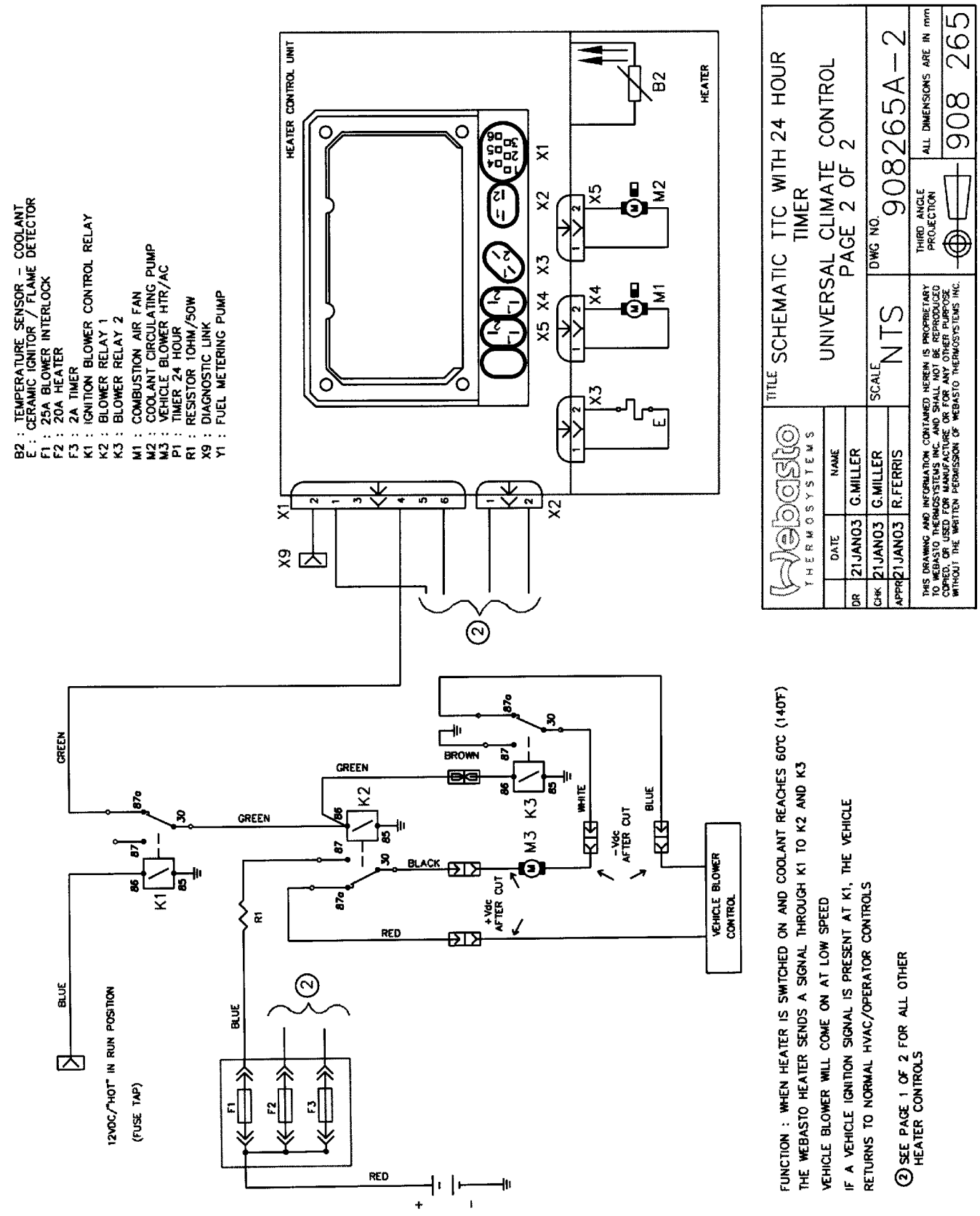
ATTENTION

– 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

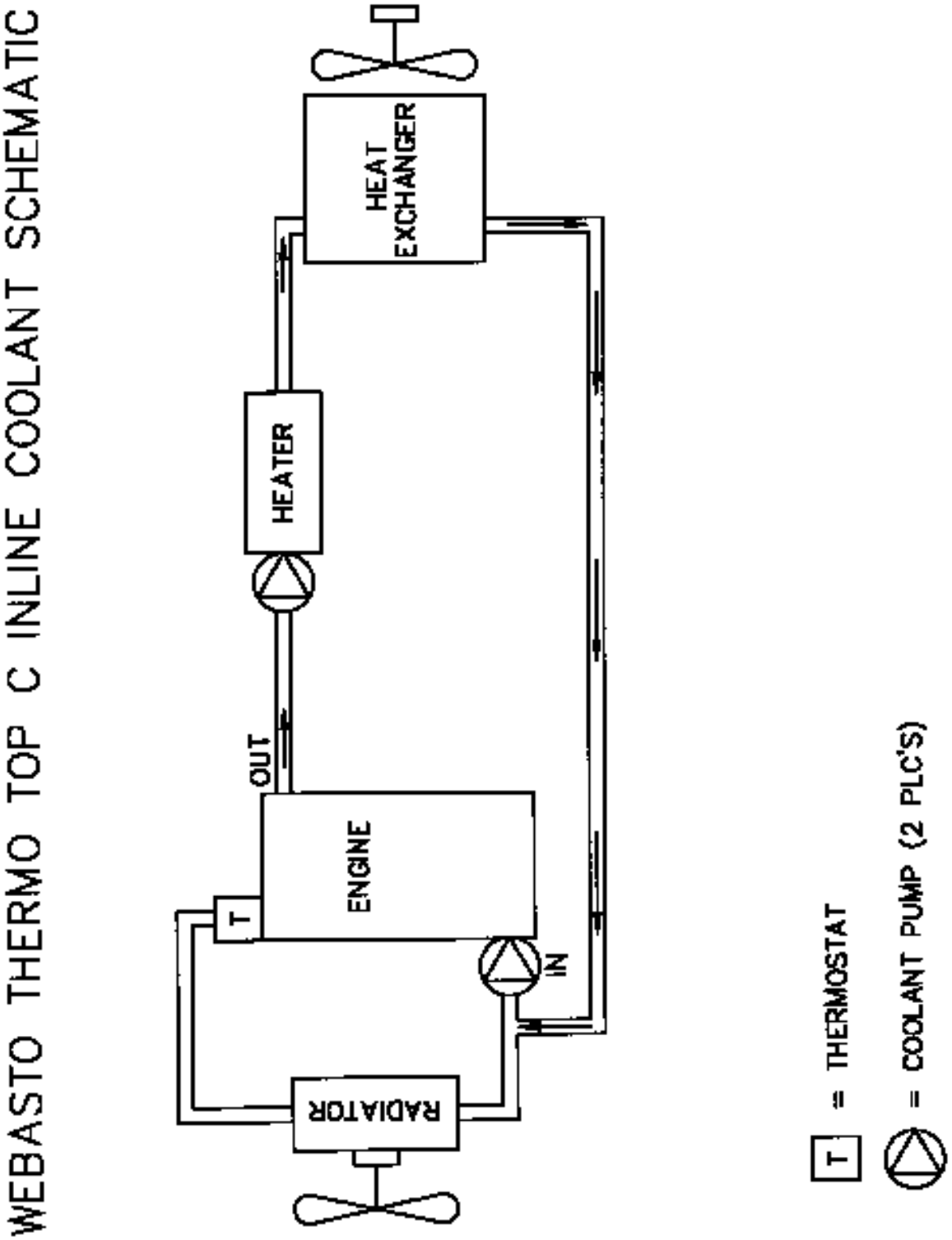
Wiring Schematic Part 1 - Heater Control



Wiring Schematic Part 2 - Blower Control



Heater Plumbing Schematic - Inline Method



NOTES:

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Canada: (800) 667-8900

www.webasto.us
www.techwebasto.com

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