Blue*Heat* *Coolant Heater*

Webasto
Feel the drive

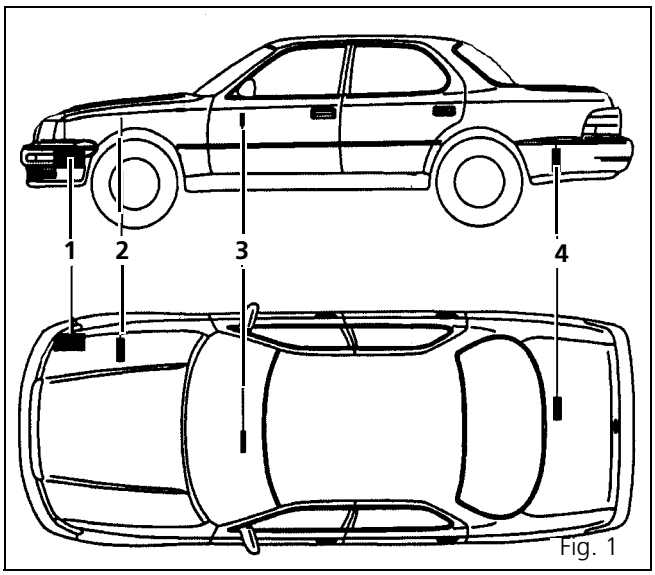


Fig. 1

Ford Crown Victoria
Lincoln Town Car
Mercury Marquis
Grand Marquis
& Marauder

2002–2004 4.6 Liter V8

Special instructions for this model

Part locations may differ slightly dependent on the vehicle make.

Legend

1 Blue*Heat* Coolant Heater, Exhaust Muffler, and Combustion Air Intake Silencer
2 Fuse Holder and Blower Relay
3 Timer Control
4 Fuel Pump

Special Tools

– Hose Clamping pliers
– Torque wrench (1/4' Drive)

Table of Contents

DOC P/N 5000611A KIT P/N 5000477A Printed in USA 8/2003 Webasto Product North America, 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 factory 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.

Parts List

Quantity	Part	Part Number
1	Heater Kit	5000516A
1	Installation Kit	5000477A

Vehicle Information

Manufacturer	Model	Year	Engine Type
Ford	Crown Victoria	2002-2004	4.6 Liter V8
Lincoln	Town Car	2002-2004	4.6 Liter V8
Mercury	Marquis	2002-2004	4.6 Liter V8
Ford	Grand Marquis	2002-2004	4.6 Liter V8
Ford	Marauder	2002-2004	4.6 Liter V8

Foreward

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 Z/C/E must be followed. Acknowledged engineering conventions must be observed for the installation work.

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

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.

Symbol Identification

Symbols that define Sections of manual.

Mechanical Preparation

Fuel

Electrical

Exhaust

Coolant

Air intake

General Symbol Descriptions

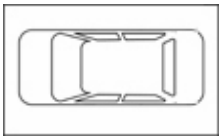
Warning

Refer to Webasto or manufacturer manual

Caution

Attention

Flammable or Combustible



Part Location on Vehicle

General References

– Secure all loose lines and cables with nylon cable ties.
– Spray the heater components and electrical connections with an anti-corrosive wax coating.
– Ensure all hoses and harnesses are clear from moving parts.

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 3/4 tank or less of fuel present. If fuel quantity is greater than 3/4 of capacity, make provisions to reduce quantity of fuel.

Heater Installation Site

– The Webasto auxiliary coolant heater is to be installed on the right frame rail near the front bumper.

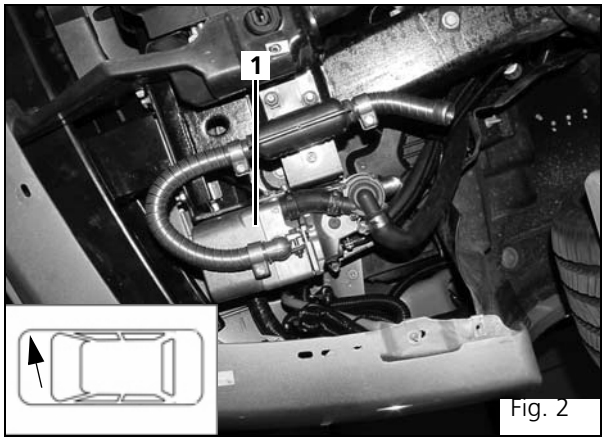


Fig. 2

Installation

Electrical - Overview

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

Webasto Heater Installed

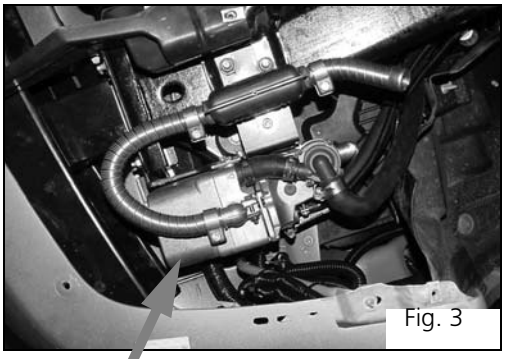
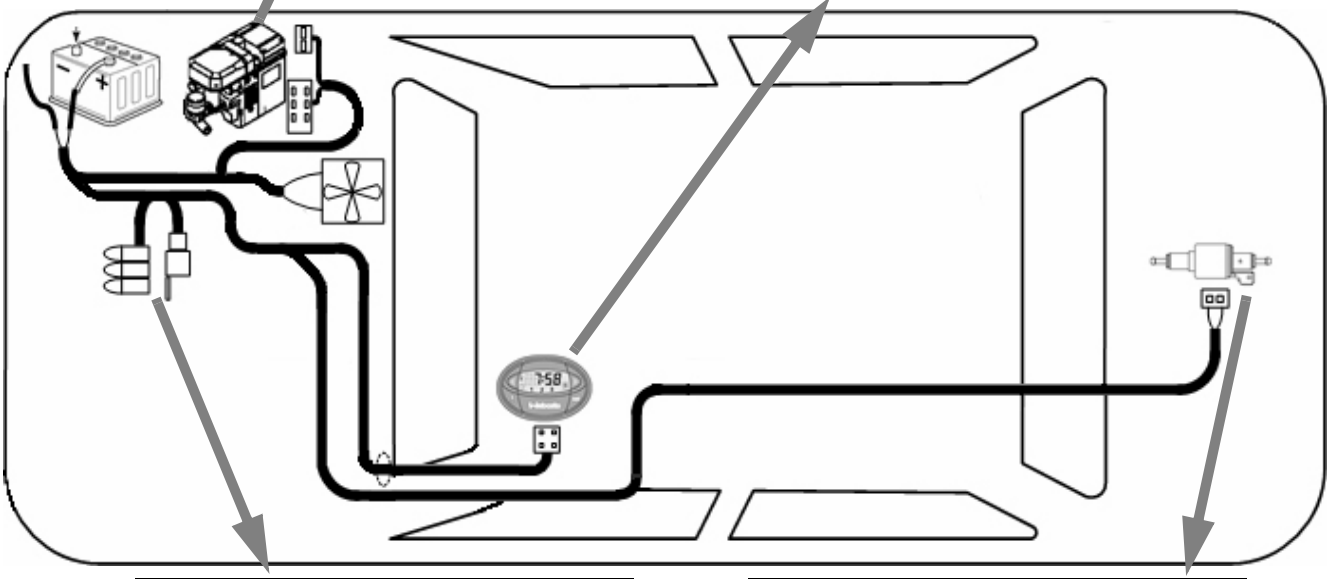


Fig. 3

Timer Control Location

Fig. 4



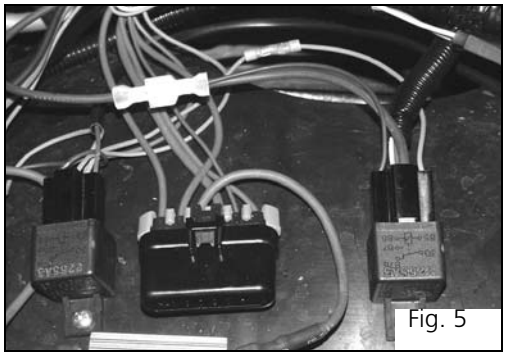


Fig. 5

Blower Relay and Fuse Holder

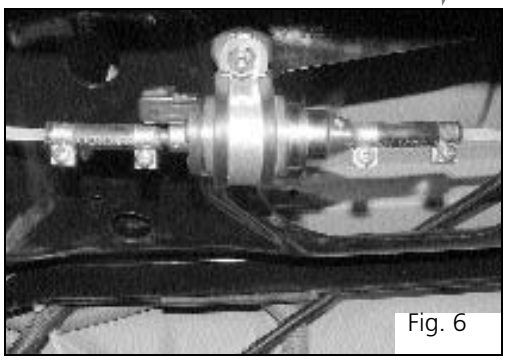


Fig. 6

Fuel Pump Assembly

3-Relay HVAC Harness Connections

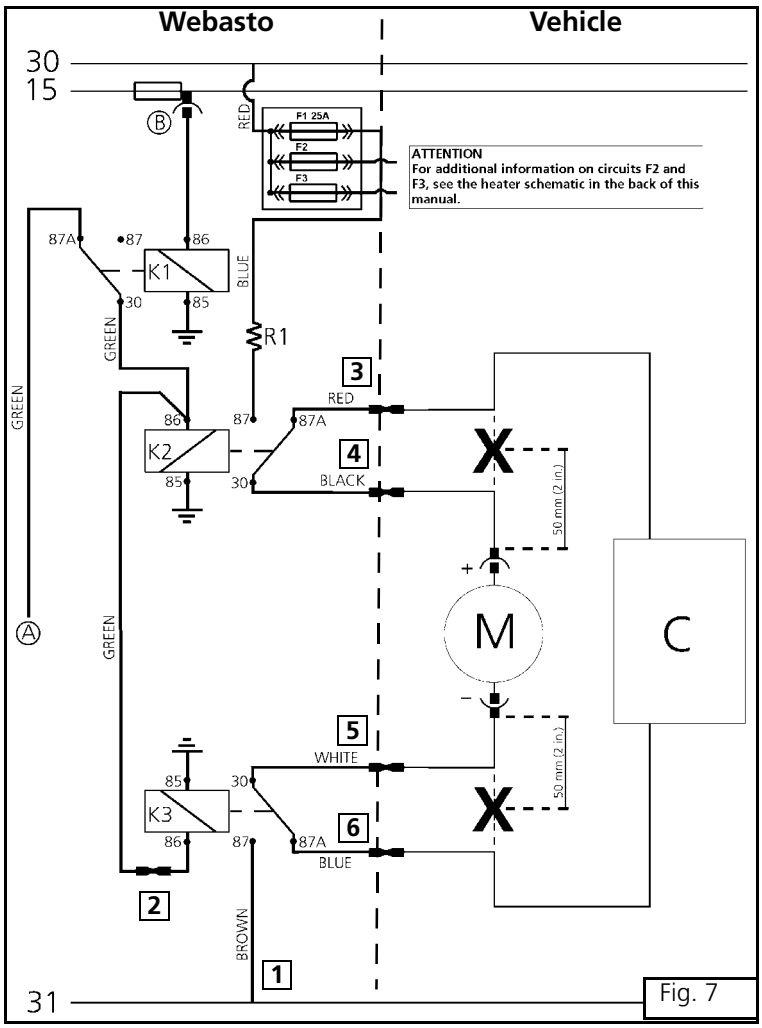


Fig. 7

ATTENTION

Check your wiring! Ensure that all connections have been done in accordance with the wiring diagram shown (Fig. 7). Sensitive electronic controls can be damaged if wired incorrectly!

(1) To chassis ground
(2) Butt-splice green wire to green wire
(3) Cut, strip and crimp
(4) Cut, strip and crimp
(5) Cut, strip and crimp
(6) Cut, strip and crimp

Additional

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

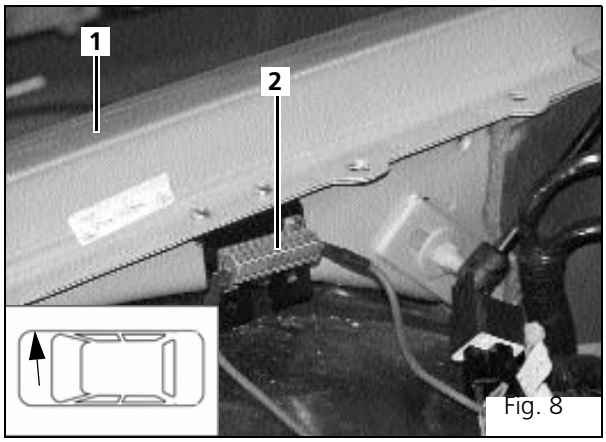


Fig. 8

Electrical Harness Routing

(1) Right Front fender.
(2) Resistor
– Drill two holes and secure resistor to inside portion of right fender.

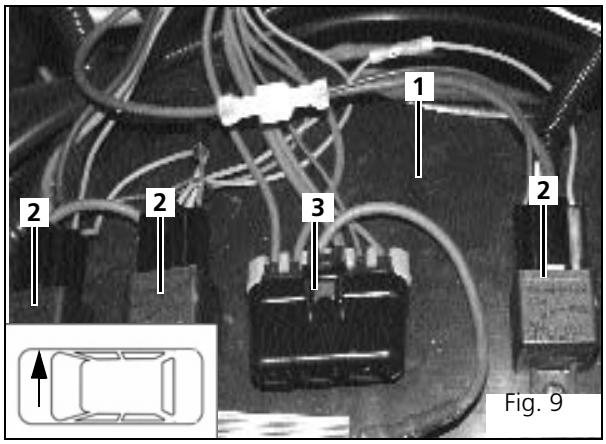


Fig. 9

(1) Right inner fender.
(2) K1, K2, and K3 relays
(3) Fuse Holder
– Secure relays and fuse holder to inner fender.

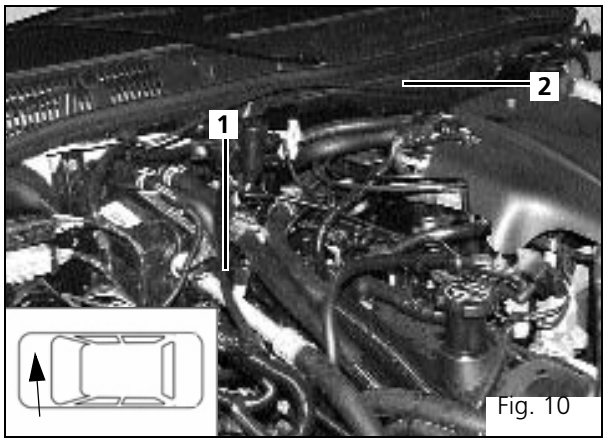


Fig. 10

(1) Timer control harness.
(2) Vehicle Bulkhead
– Route harness along side bulkhead to drivers side of vehicle.
– Route heater control harness down right inner fender to heater mounting location.

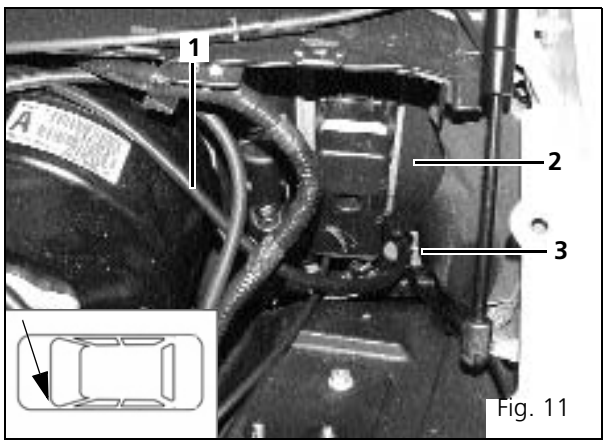


Fig. 11

(1) Timer Harness
(2) Bulkhead
(3) Grommet
– Remove hardware securing vehicle speed control to left inner fender. Reposition speed control to gain access to grommet.
– Route timer harness through Grommet to underside of dash board.

Integration into Blower System

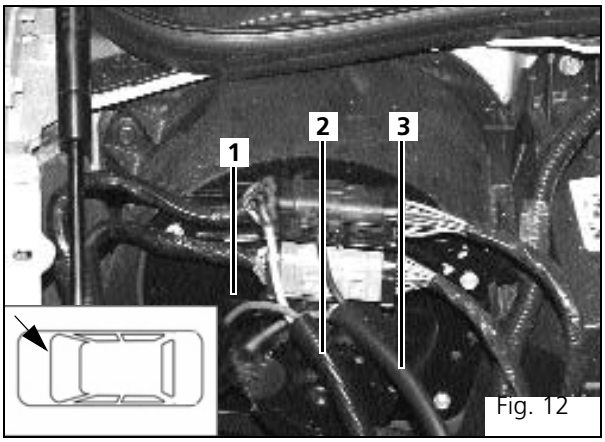


Fig. 12

(1) Blower Motor
(2) Auxiliary Blower Control Harness
(3) Blower Control Harness

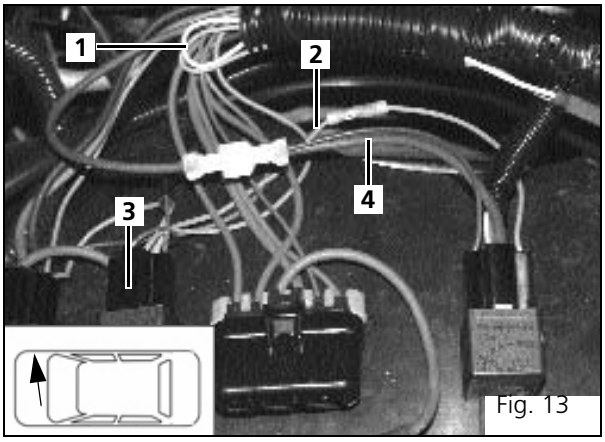


Fig. 13

(1) Main Harness
(2) Green wire from harness to relay connector.
(3) K2 Relay
(4) Brown Ground Wire

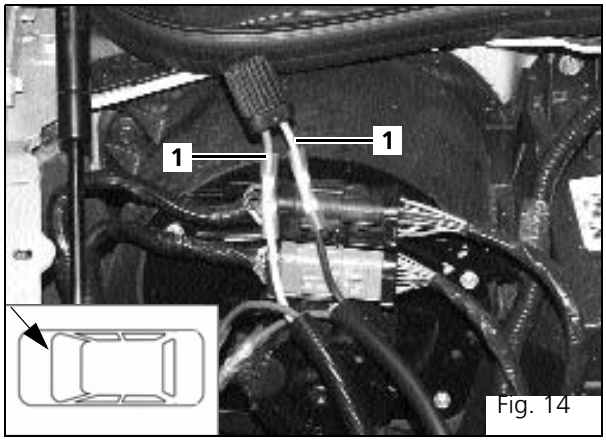


Fig. 14

(1) Positive and negative blower control wires

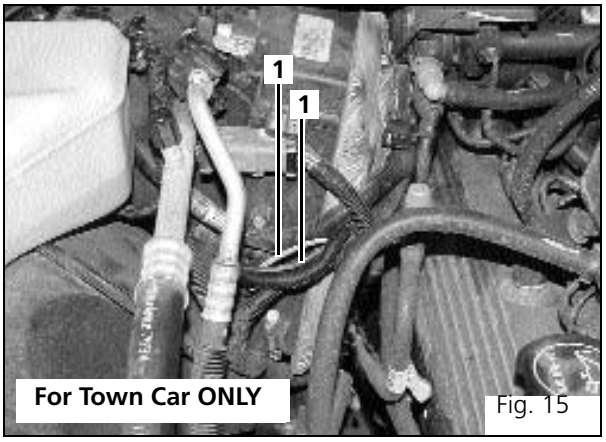


Fig. 15

(1) Positive and negative blower control wires for Town Car **only**.

ATTENTION
Check your wiring! Ensure that all connections have been done in accordance with the wiring diagram shown in (Fig. 7). Sensitive electronic controls can be damaged if wired incorrectly!

Timer Installation

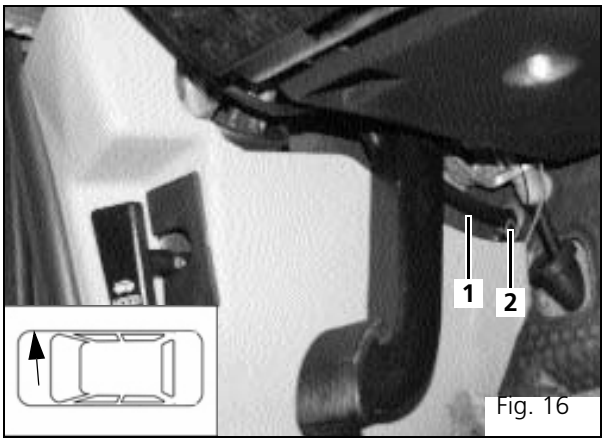
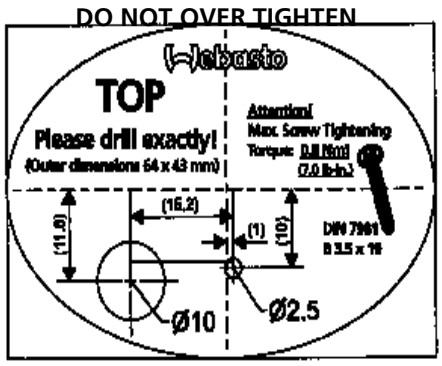


Fig. 16

(1) Timer Harness
(2) Grommet
– Pull timer harness through grommet in drivers foot well area.

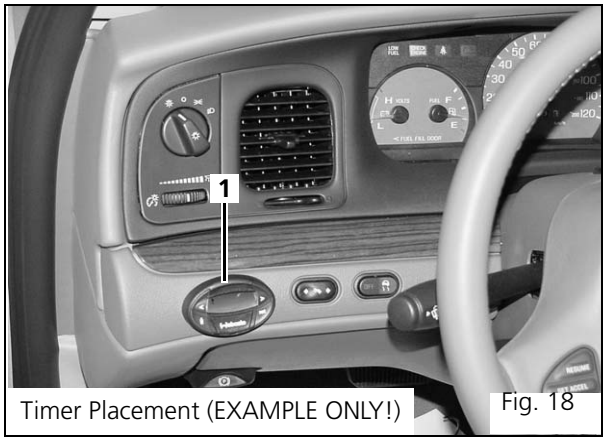
CAUTION
Before drilling into any panels, ensure there are no hidden components behind the panel that may be damaged or interfere with the timer installation!

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



Timer Template (NOT TO SCALE!) Fig. 17

– Drill the 10 mm (25/64in.) and the 2.5 mm (3/32 in.) holes
– Route the timer harness through the 10 mm (25/64 in.) hole
– Tighten screw no more than 0.8 Nm (7.0 lb.-in.).



Timer Placement (EXAMPLE ONLY!) Fig. 18

(1) Mounted timer control. (EXAMPLE ONLY)

Fuse Tap Connection - Relay K1

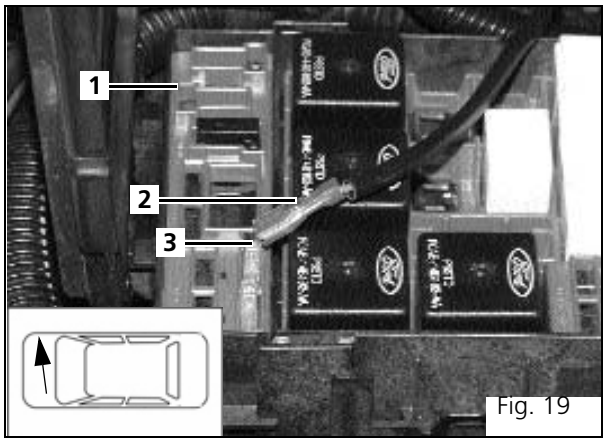


Fig. 19

(1) Vehicle Fuse Panel
(2) Fuse Tap
(3) "Fused" side of the selected fuse
– With a test light, find an "Ignition ON" power source. (Light must be off when ignition key is in the OFF position)
– Using the supplied fuse tap connector, tap into the "fused" side of the selected fuse as shown.

Integration into Fuel System

WARNING

Full to partially filled fuel tanks are heavy and awkward to handle. Ensure fuel tank is near empty.before attempting to access the fuel sending unit. Ensure fuel tank is well supported prior to removing mounting hardware. Failure to follow this caution may result in injury to personnel.and damage to vehicle equipment.

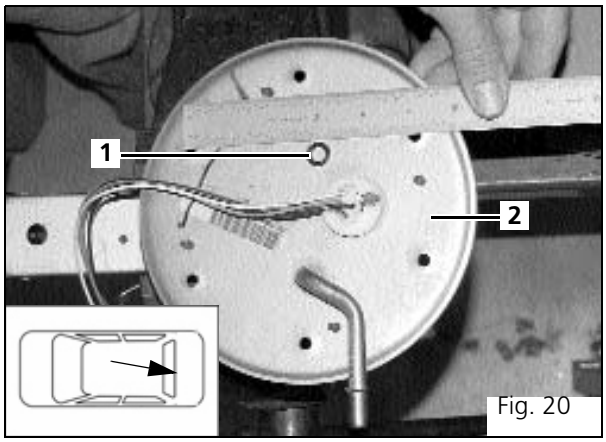


Fig. 20

(1) Location of hole to be drilled.
(2) Vehicle Sending Unit.
- Drill an 8.5 mm (21/64 in.) hole through the fuel sender in location (1).
- To prevent fuel seepage around standpipe, remove burrs from both sides of hole after drilling.

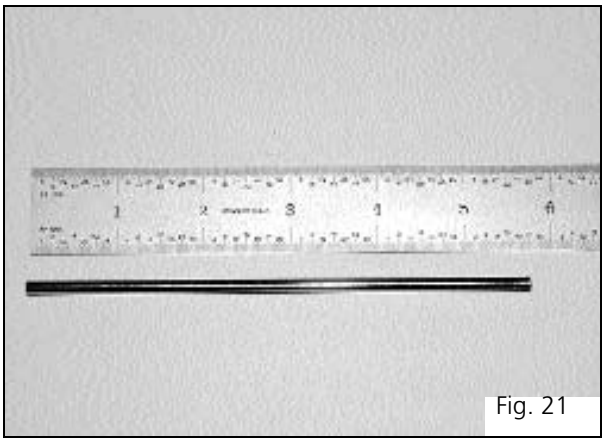


Fig. 21

- Cut 5 inches from standpipe ensuring a 45° slash-cut at the end.
- Remove any burrs after cutting tube.

ATTENTION

The standpipe must reach a point just above the vehicle's fuel pickup tube without any obstructions. (Approximately 1 inch above vehicle pickup tube)

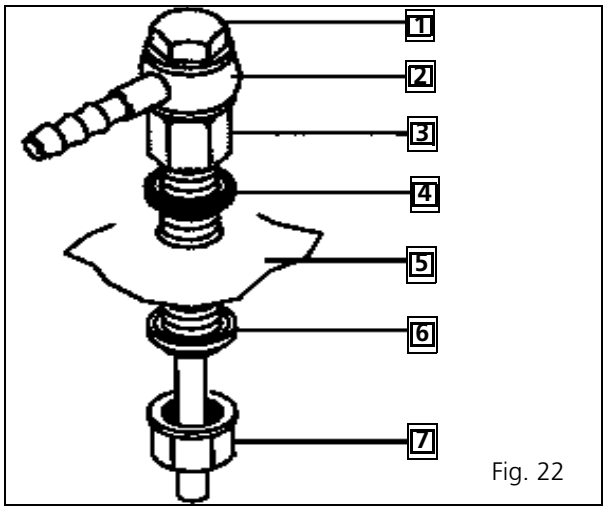


Fig. 22

Standpipe with 90 Degree Banjo Fitting

1 Banjo Bolt
2 Banjo Fitting - 90 Degree
3 Standpipe
4 Sealing Washer
5 Fuel Tank or Sender Plate
6 Sealing Washer
7 Lock Nut

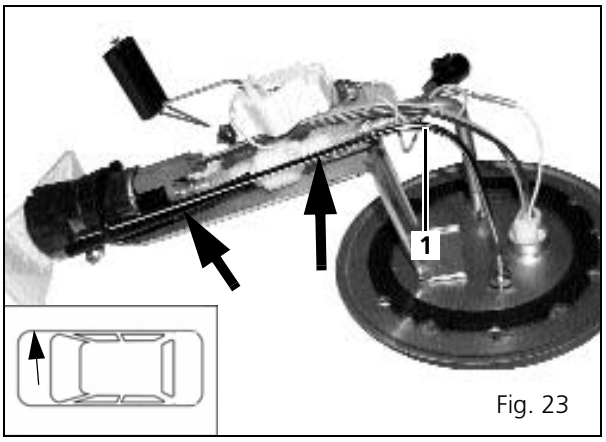


Fig. 23

(1) Fuel Standpipe installed in sending unit
- Tighten lock nut to a torque of 9 ± 0.5 Nm. (80 ± 4.4 lb.-in.).
- Tighten banjo bolt to a torque of 9 ± 0.5 Nm. (80 ± 4.4 lb.-in.) after repositioning outlet.

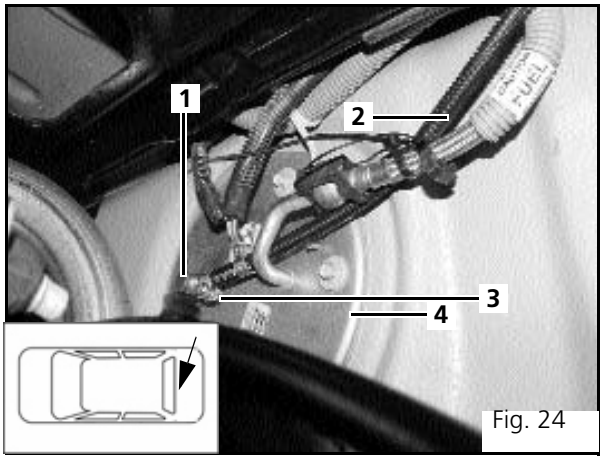


Fig. 24

(1) Standpipe outlet fitting
(2) Fuel line with protective Loom
(3) Fuel line adapter
(4) Fuel Sending Unit
- Follow the manufacturers service procedure to access and remove the fuel sender unit from fuel tank.

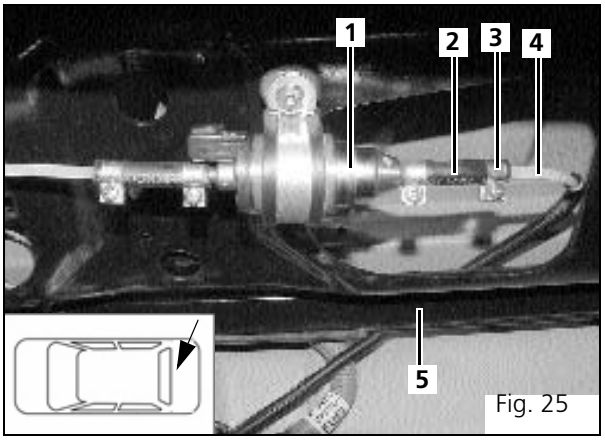


Fig. 25

(1) Fuel Pump
(2) Fuel line adapter
(3) Hose clamp
(4) Fuel Line
(5) Vehicle cross frame
- Mount fuel pump on vehicle cross frame above rear axle housing using rubber mount, bolt, and P-clamp provided.
- See Fig 26 for additional image of fuel pump location.

ATTENTION
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.

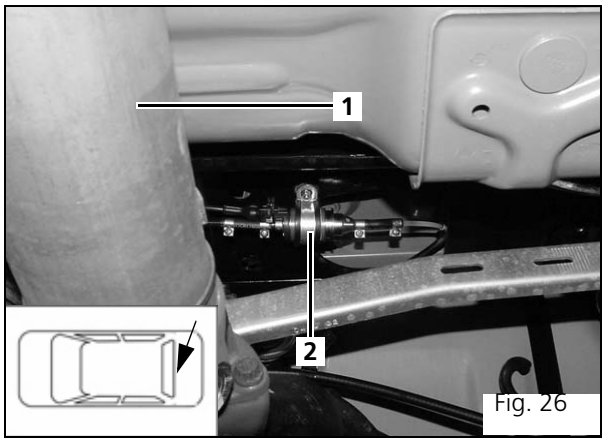


Fig. 26

(1) Vehicle Driveshaft
(2) Webasto fuel pump
– Distance view of Webasto fuel pump location.

Heater Mounting and Preparation

ATTENTION
The heater must be pre assembled before installing into vehicle.

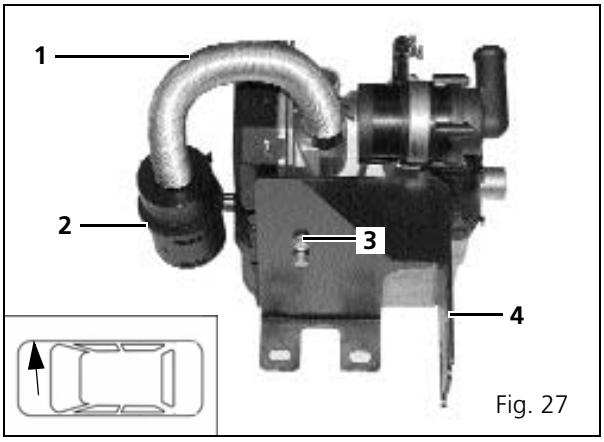


Fig. 27

(1) Combustion Air Intake Tube
(2) Air Intake Silencer
(3) EJOT mounting screws
(4) Webasto Heater Bracket
– Mount heater to mounting bracket using three EJOT screws provided.

ATTENTION
Previous to mounting heater, ensure Combustion Air Intake Tube and Silencer have been installed. Refer to Combustion Air Intake section for installation instructions.

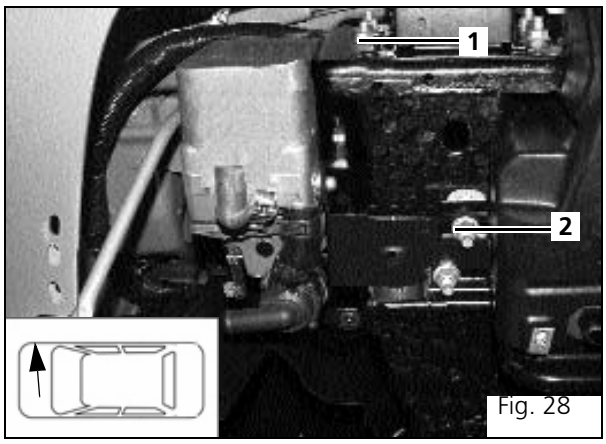


Fig. 28

(1) Existing Vehicle Hardware
(2) Existing Vehicle Hardware
– Using vehicle hardware, secure heater into location as shown.

Fuel Line Connection to Heater

ATTENTION
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.

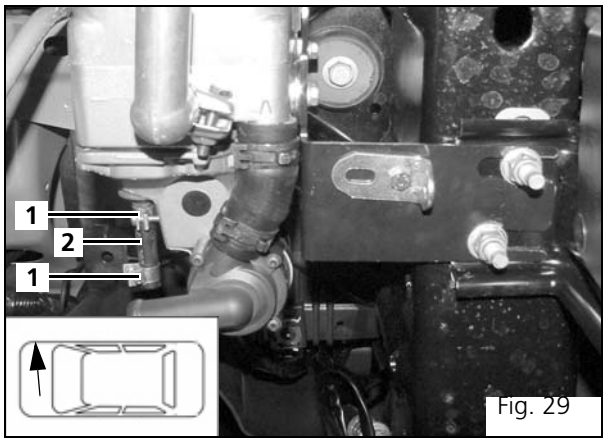


Fig. 29

(1) Hose Clamp
(2) Fuel Line Adapter
– Cut white fuel line to length. Ensure adequate line length is maintained to properly secure fuel line to heater fuel inlet.

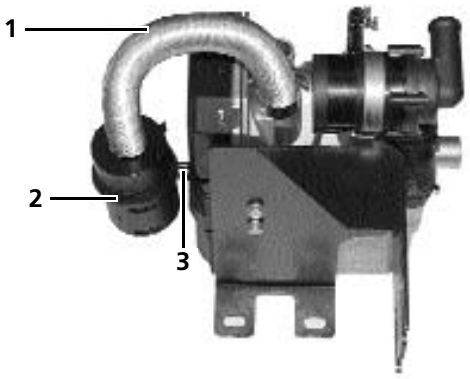


Fig. 30

Combustion Air Intake and Silencer

(1) Air Intake Tube
(2) Air Intake Silencer
(3) Heater cover Knock out Location
- Attach air intake tube (slit end) to air inlet connection pipe on heater with hose clamp.
- Remove knock out on cover of heater for mounting the air intake silencer.
- Connect air intake silencer to combustion air intake tube.
- Mount combustion air intake silencer to top of heater using clamp provided.

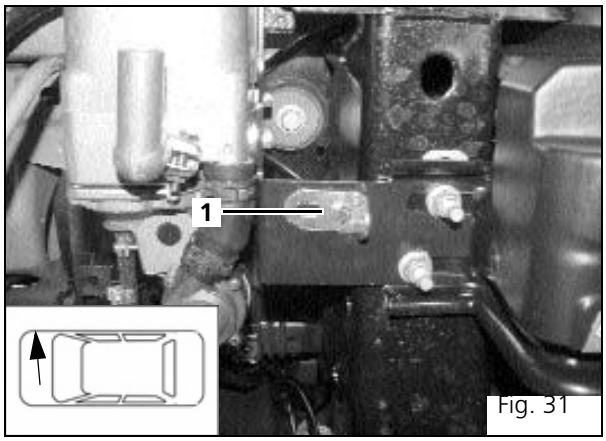


Fig. 31

Exhaust System

(1) Exhaust Muffler Mounting Clamp
– Mount exhaust muffler mounting clamp to heater bracket as shown. Nut and Bolt supplied with kit.

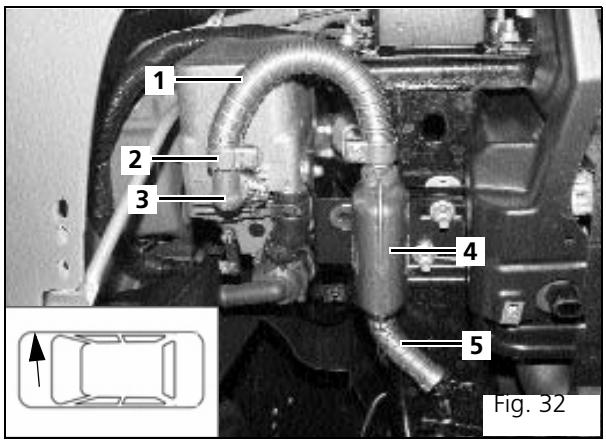


Fig. 32

(1) Exhaust Tube
(2) Exhaust Clamp
(3) 90 degree exhaust fitting
(4) Exhaust Muffler
(5) Exhaust Tailpipe

– Connect 90 degree exhaust fitting to heater and secure with clamp as shown.
– Form a 180 degree bend with long section of exhaust tube. (Cut to fit)
– Attach exhaust tube to 90 degree fitting and secure with clamp.
– Connect exhaust tube to muffler with clamp.
– Mount muffler to bracket as shown.
– Connect 3 1/2 inch section of exhaust tube to muffler and secure with clamp.
– Position exhaust tube down and back.

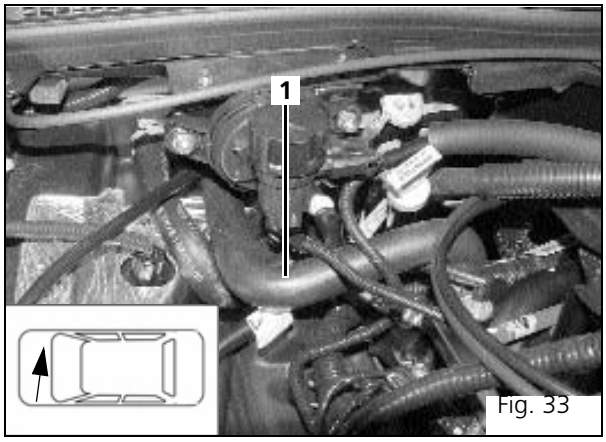


Fig. 33

Integration into Coolant System

(1) Heater Core Inlet Hose
– Locate heater core inlet hose from engine intake manifold to heater core inlet pipe.

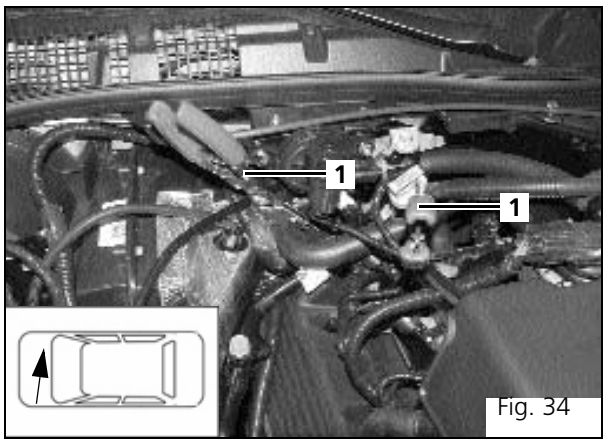


Fig. 34

(1) Hose Clamp Pliers
– Install coolant hose clamp pliers onto the heater core inlet hose as shown.
– Cut and remove 90 degree elbow from coolant hose.

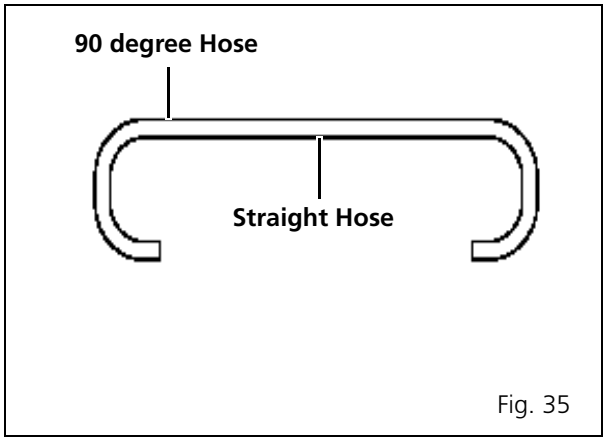


Fig. 35

ATTENTION
*The supplied coolant hose shown in Fig. 35 must be cut as necessary to connect **BOTH** inlet and outlet hoses to vehicle Coolant system.*

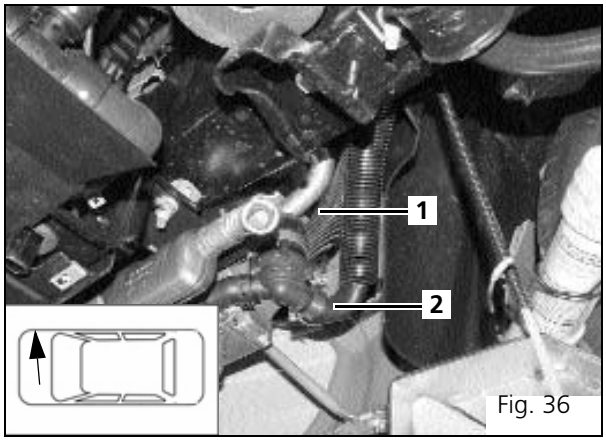


Fig. 36

(1) Webasto Heater Coolant Outlet Hose
(2) Webasto Heater Water Pump Inlet Hose
- Connect supplied coolant hose with 90 degree end to water pump inlet on Webasto heater and secure with hose clamp.
- Route hose up to the engine compartment and cut to fit as necessary.
- Connect coolant hose with straight end to Webasto heater outlet and secure with hose clamp.
- Route hose up to the engine compartment and cut to fit as necessary.

ATTENTION
Cover supplied hoses with split-loom where needed to protect from chaffing.

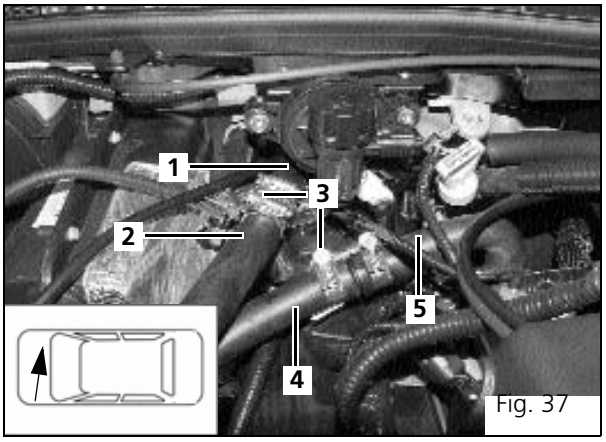


Fig. 37

(1) Heater Core Inlet Hose
(2) Webasto Heater Outlet Hose
(3) Hose Clamps
(4) Webasto Heater Water Pump Inlet Hose
(5) Intake Manifold Side of Heater Core Inlet Hose
- Connect Webasto heater Water Pump inlet hose to hose from intake manifold on engine, Use adapter and two hose clamps to connect.
- Connect Webasto heater outlet hose to heater core inlet hose. Use adapter and two hose clamps to connect.

ATTENTION
Torque all hose clamps to 1.7 Nm (15 lb.-in.).

CAUTION
Ensure coolant lines are secured away from all suspension parts and heat sources!

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.
– Turn to "Final Inspection" and "Initial Start-up."

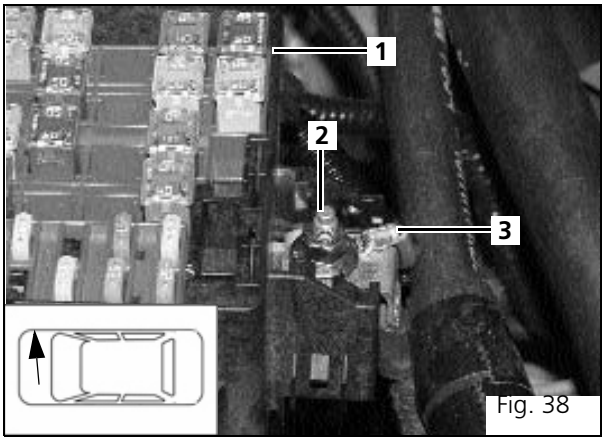


Fig. 38

Power Connection

(1) Vehicle Fuse Panel
(2) Fuse Panel Power Stud
(3) Webasto Power Lead
– Connect red power lead to existing power stud in front of fuse panel as shown.

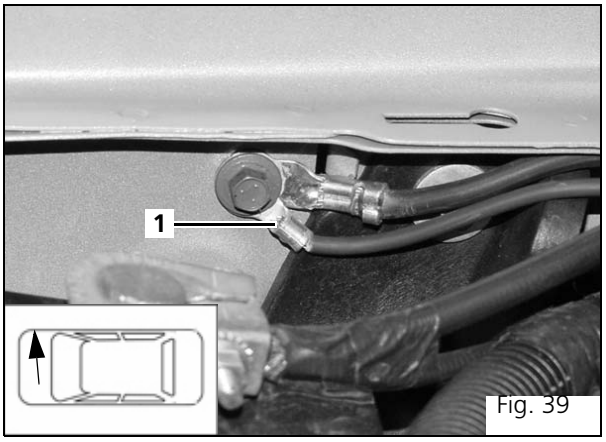


Fig. 39

(1) Webasto Harness Ground Wire
– Connect Brown ground wire to existing ground stud located near battery on right front fender.

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 chaffing and related damage.
- Loose fuel line clamps.
- Routing of fuel lines and fuel lines securely tied and protected against chaffing and related damage.
- Loose wiring connections and battery connections.
- routing of wiring harness and wiring harness securely tied and protected against chaffing 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.

ATTENTION

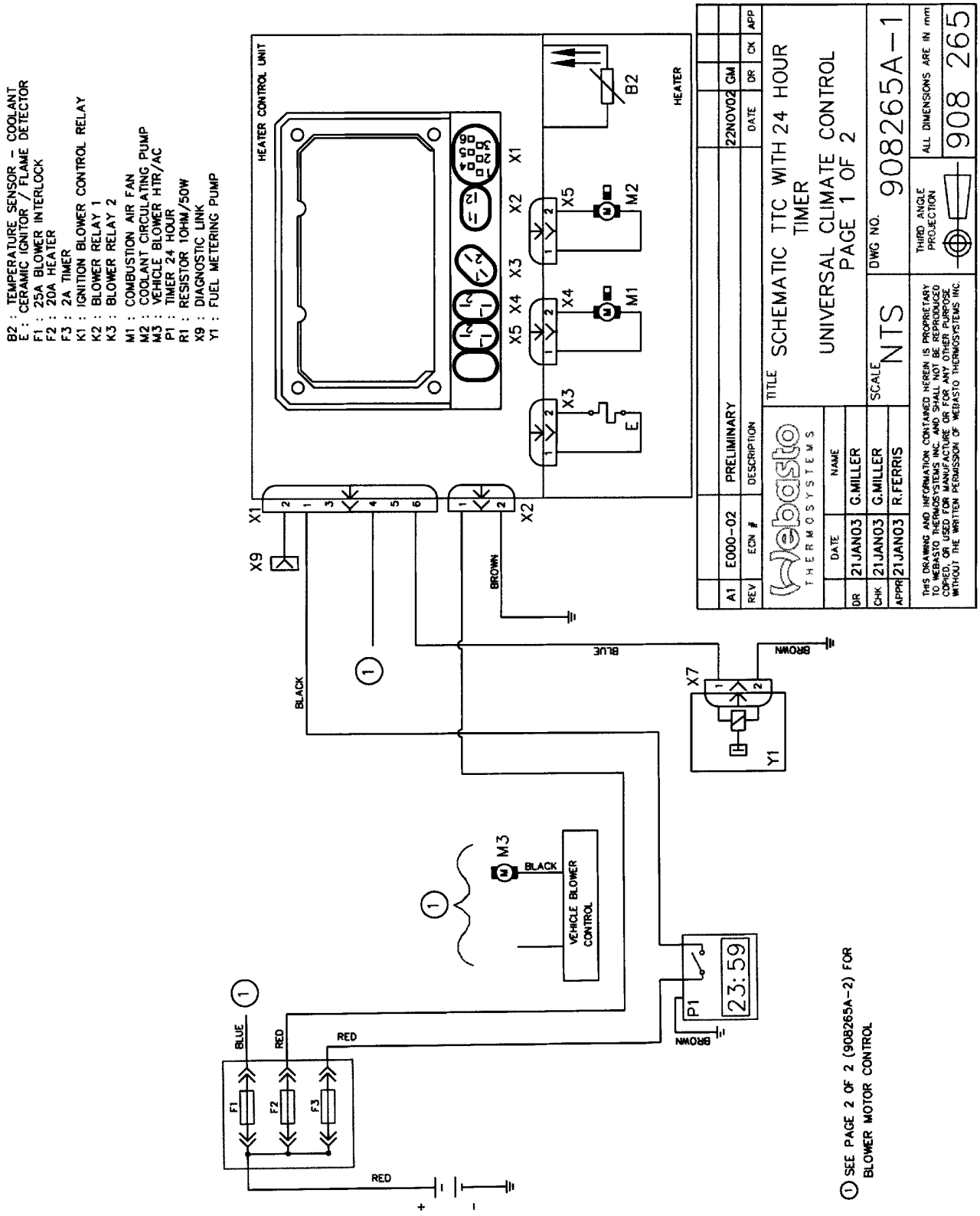
The engine coolant must reach 86 °F (30 °C) before the Webasto heater will attempt to start the vehicles blower fan.

ATTENTION

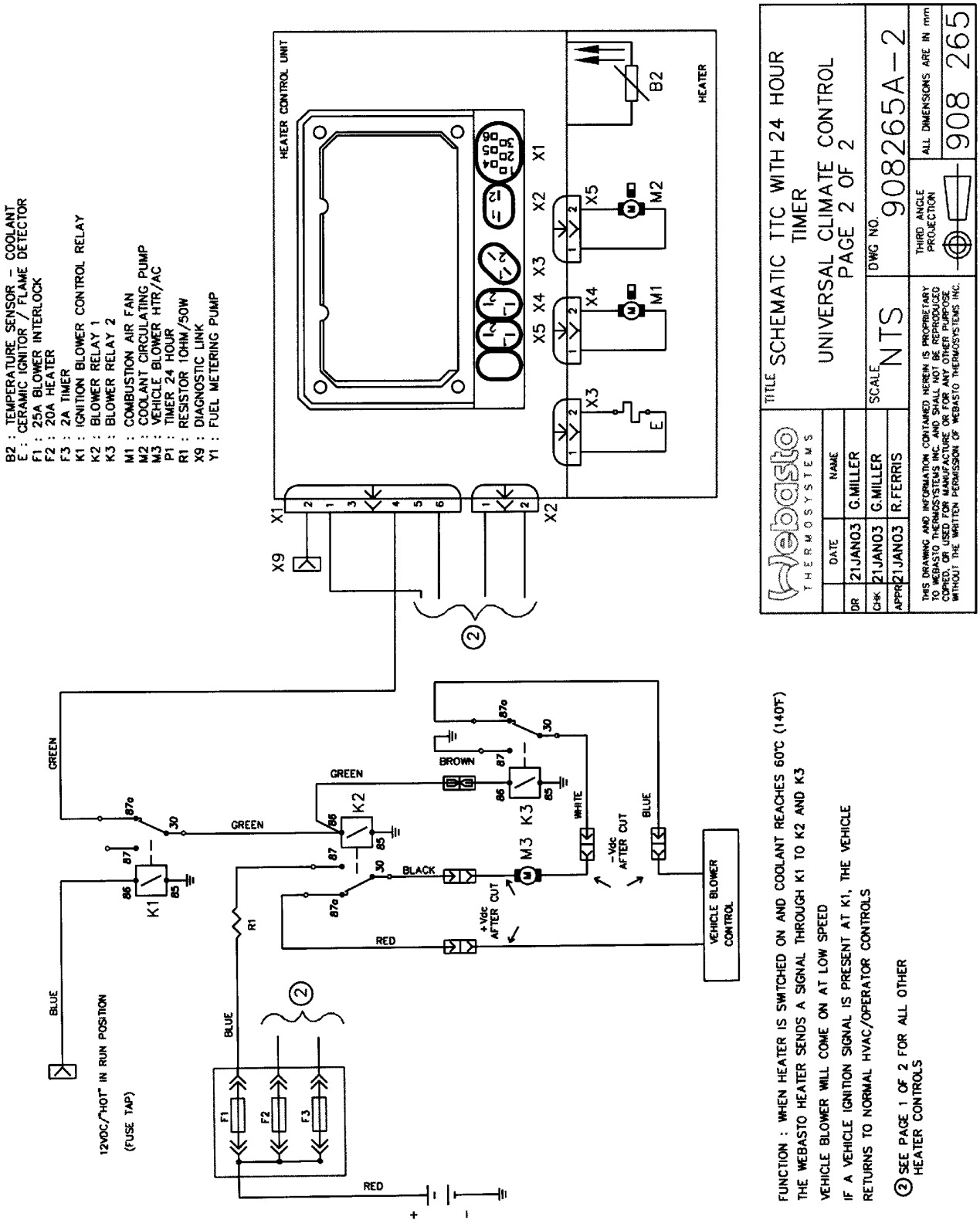
Should the heater fail to start or operate correctly, call your Webasto technical representative at:

1-800-555-4518

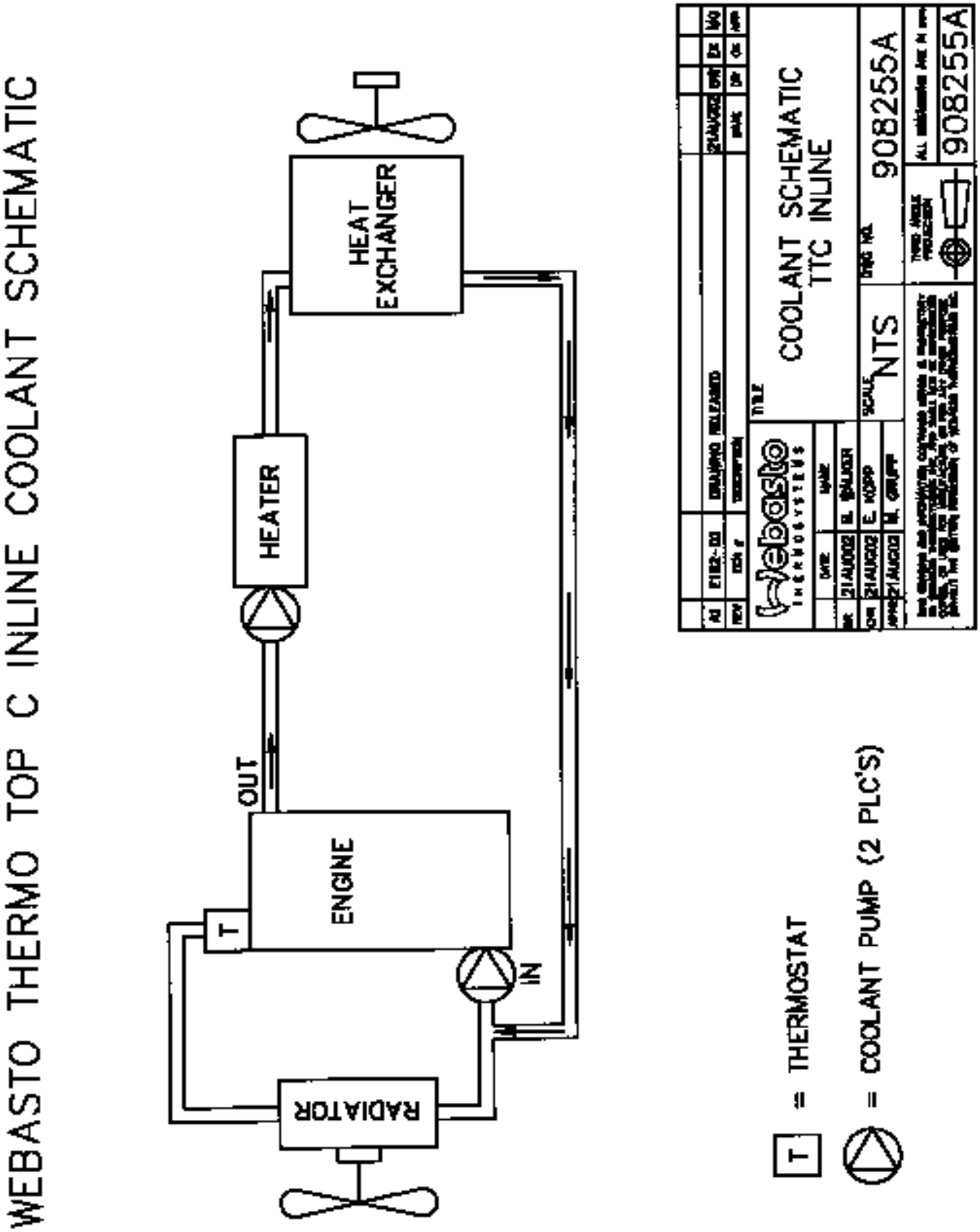
Electrical Harness Schematic - Part 1, Heater Control



Electrical Harness Schematic - Part 2, Blower Control



Heater Plumbing Schematic - Inline Method



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