BlueHeat Coolant Heater

Webasto
Feel the drive

Thermo Top

Dodge 1500 Truck

5.7-liter Hemi
Beginning Model Year: 2007

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

Be sure to check **WWW.techwebasto.com** for the latest addition of this manual.

Special Tools

– Hose Clamping pliers
– Torque Wrench

Table of Contents

Warning

- *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 a 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 or by improper installation.*
- *Improper installation or installation by untrained personnel voids all warranties on this product.*

If there are any questions regarding the installation or maintenance of this product, please contact technical support at **1-800-555-4518**.

Parts List

Quantity	Part	Part Number
1	Heater Kit	5000516C
1	Installation Kit	5001304A

Vehicle Information

Manufacturer	Model	Year	Engine Type
DaimlerChrysler	Dodge 1500 Truck	Beginning 2006	5.7L Hemi

Foreword

This installation requires special expertise from a Webasto training course to install a Webasto Thermo Top heater, 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 Blue*Heat* Coolant Heaters.

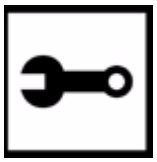
These non-binding installation instructions apply to the vehicles listed on the front cover of this installation document unless technical modifications on the vehicle influence the installation, excluding all liability claims. Depending on the version and equipment in the vehicle, changes may be required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

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 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


Line of Sight/Item 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

– Disconnect negative terminal of vehicle battery(s).
– Protect vehicle fenders, panels and interior with covers

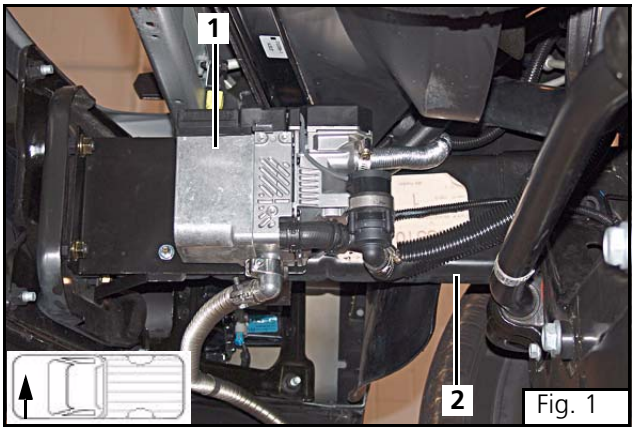


Fig. 1

Heater Installation Site

ATTENTION
The Webasto Auxiliary Coolant Heater is installed on right framerail where shown in Figure 1.

– (1) Webasto Auxiliary Coolant Heater (Installed)
– (2) Right framerail

Electrical - Overview

ATTENTION

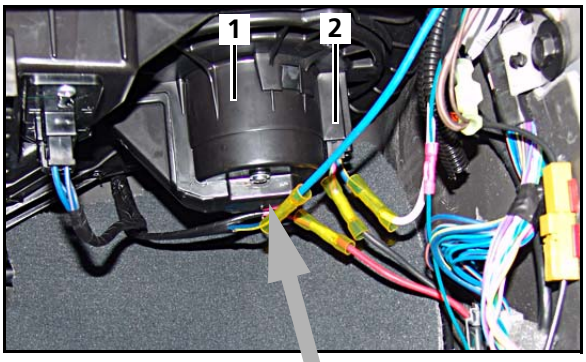
The routing of cables and wires are done in accordance to the general valid rules of engineering. If not described differently, securing of wiring and cables is done with cable ties to the vehicle's own wires and cable harnesses.

ATTENTION

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

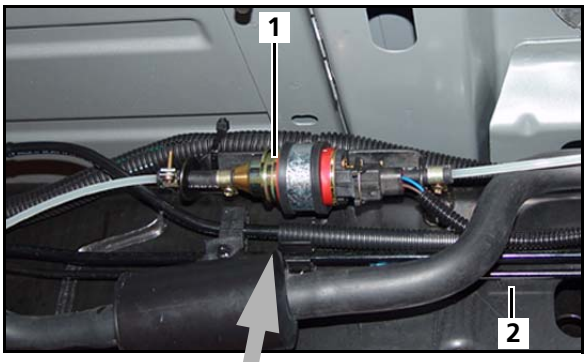
Blower Connection

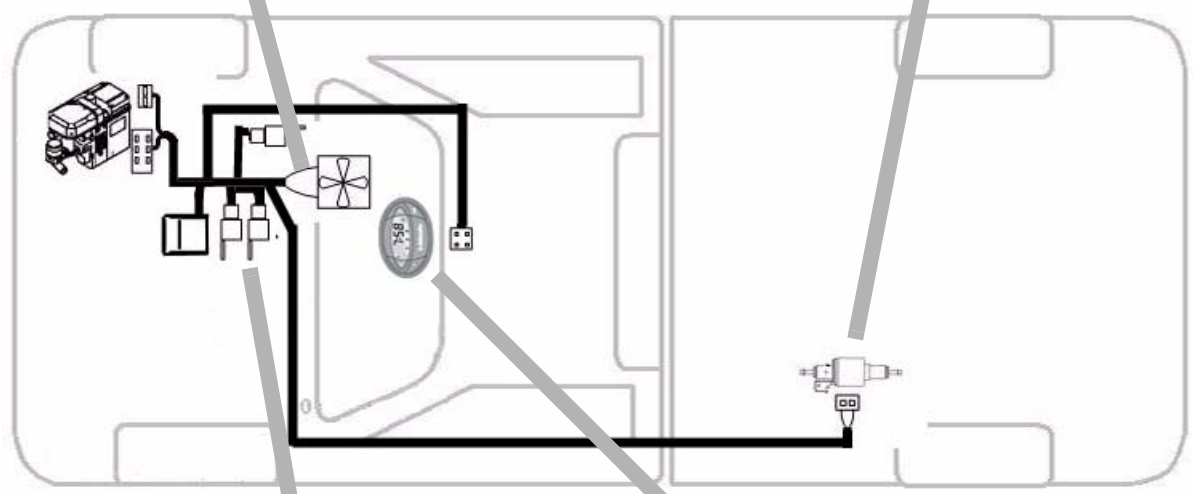
– (1) Blower motor
– (2) Blower motor connector

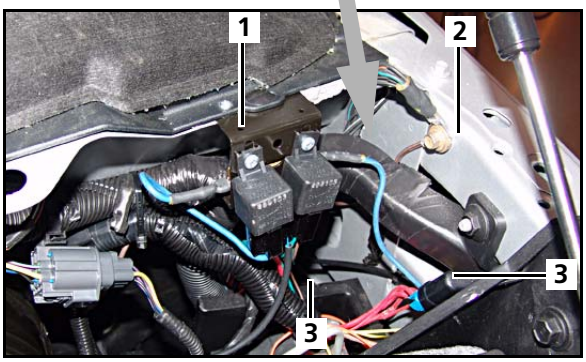


Fuel Metering Pump Location

– (1) Fuel metering pump
– (2) Left framerail







Heater Harness Relay and Fuse Holder

– (1) Heater harness relays and resistor
– (2) Left Vehicle Fender
– (3) Fuse holder

Digital Timer (Sample Location)

– (1) Front dash panel
– (2) Digital Timer

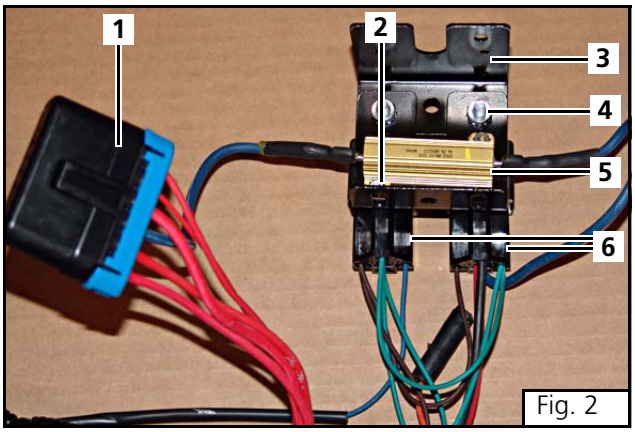


Fig. 2

Electrical Harness Installation

ATTENTION

Cut wire tie holding negative-side blower harness (with relay K3) from main harness and set aside.

Mount heater electrical components on mounting bracket as shown in Figure 2.

– (1) Fuse holder
– (2) Screw M3x10, nut M3 (2 ea.)
– (3) Electrical mounting brackets (2ea.)
– (4) Pan head screw 10-32x5/8", nut 10-32 (2ea.)
– (5) Resistor
– (6) Relays K1 and K2

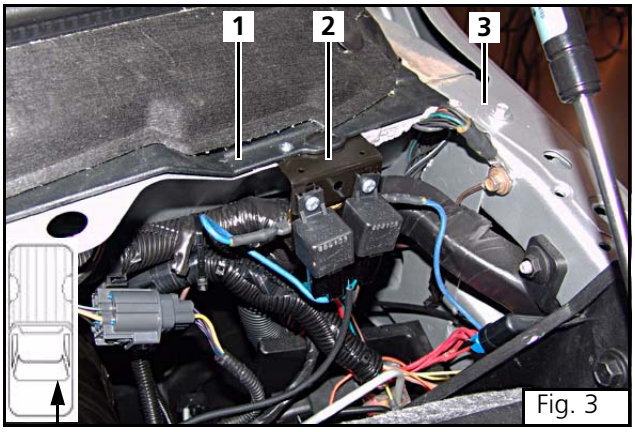


Fig. 3

Secure electrical mounting bracket to bulkhead with self-tapping screw. See Figure 3.

– (1) Bulkhead
– (2) Electrical mounting bracket
– (3) Left Fender

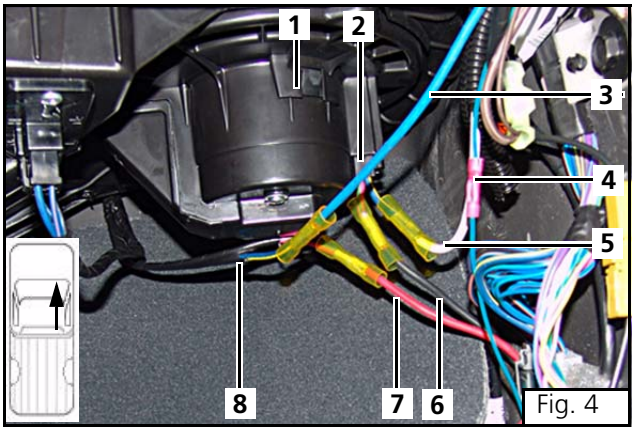


Fig. 4

Integration into the Blower System

ATTENTION

- *It is permissible to cut excess length from blower control wiring harness.*
- *Use a heat gun or similar tool to shrink the connectors at each splice.*

Identify the power side of blower motor connector with the ignition and blower switches in the On position.

Cut the wires going to the blower motor approximately 2 inches from the connector end.

Follow the instructions and diagram on the next page to make the blower connections.

– (1) Blower motor
– (2) Blower motor connector
– (3) Blue wire to blower harness ground wire
– (4) Splice green wire from K3 relay to green wire
– (5) White wire to connector ground wire
– (6) Black wire to connector power wire
– (7) Red wire to blower harness power wire
– (8) Blower motor harness

ATTENTION
Secure blower control wiring to vehicle structures with nylon cable ties.

Secure K3 relay near blower motor using an existing hole.

Install terminal end on relay K3 ground wire and install on vehicle where shown in Figure 5.

– (1) Right kick panel area
– (2) K3 relay ground point

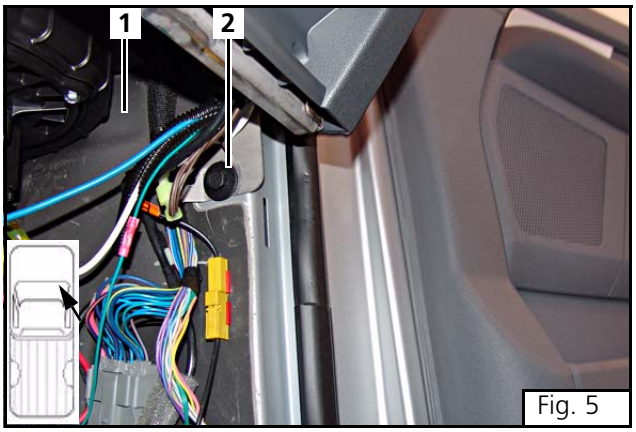


Fig. 5

3-Relay HVAC Harness Connections

ATTENTION
It is permissible to cut excess length from Webasto HVAC wiring harnesses to fit the application.

Cut motor wires where indicated by "**X**"

– (1) Chassis ground
– (2) Splice green wire to green wire
– (3) Strip and crimp red wire to controller side blower positive wire
– (4) Strip and crimp black wire to motor side blower positive wire
– (5) Strip and crimp white wire to motor side blower negative wire
– (6) Strip and crimp blue wire to controller side blower negative wire

CAUTION
Check your wiring! Ensure that all connections have been done in accordance with the wiring diagram shown (Fig. 6). Sensitive electronic controls can be damaged if wired incorrectly!

ATTENTION
Complete heater harness schematics are included on page 21 and 22 of this manual.

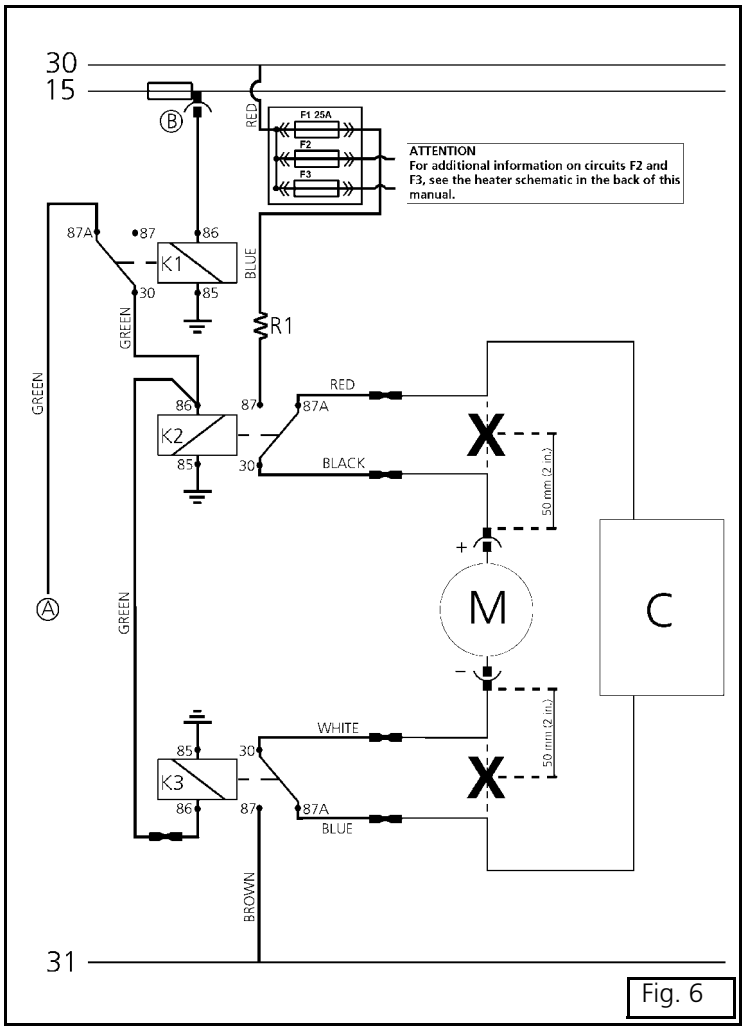


Fig. 6

Legend for Figure 6

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 (1 ohm) - Blower Speed Control
30	Battery Positive (Constant Power)
15	Ignition (Switched Power)
31	Battery Negative (Chassis Ground)

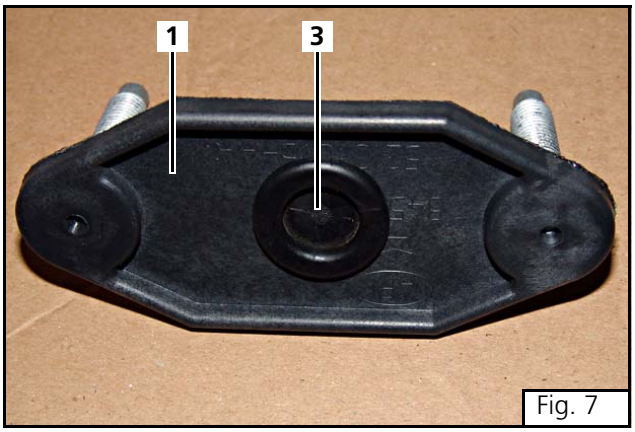


Fig. 7

Harness Routing

Remove bulkhead closeout cover from bulkhead. Make a slit in the center of the grommet. Insert blower and timer control harnesses through grommet. Install bulkhead closeout cover.

– (1) Bulkhead closeout cover
– (2) Grommet

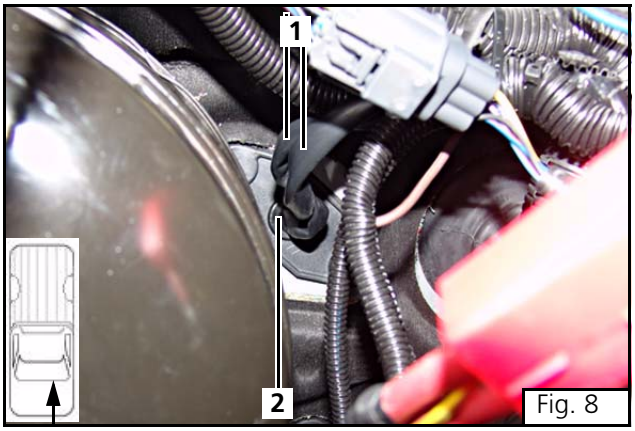


Fig. 8

Route blower and timer harnesses through bulkhead grommet into the interior of the vehicle.

– (1) Blower and timer harnesses
– (2) Bulkhead grommet

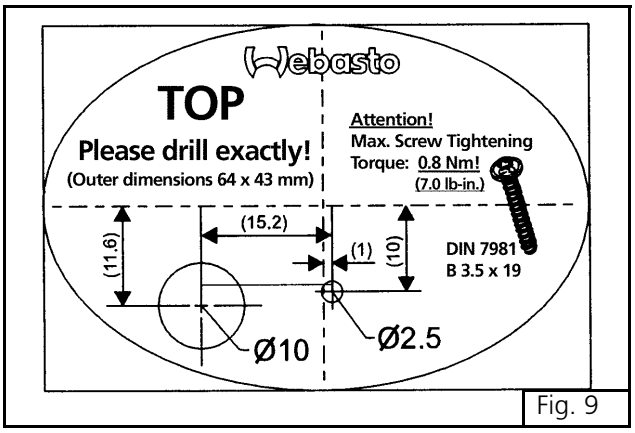


Fig. 9

Timer Installation

CAUTION
Check behind panels for obstructions before drilling holes.

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

Affix supplied template to panel. Drill 10 mm (25/64 in.) and 2.5 mm (3/32 in.) holes where indicated on template. Figure 9 shows a translated sample of the template supplied.

Fig. 10

Route timer harness over to mounting location and connect to back of timer. Do not overtighten mounting screw. Maximum torque is 0.8 Nm (7.0 lb-in.).

Install timer with screw provided and snap cover into place.

– (1) Timer

Heater Preparation / Installation

ATTENTION

- *Heater mounting bracket shown may be slightly different than the production bracket received. However, the installation is the same.*
- *Observe torque specifications.*

Install mounting bracket on heater with 3 EJOT screws. Tighten EJOT screws to 10 Nm (88.5 lb.-in.).

Install support bracket on mounting bracket with M6 bolt, washer and nut.

– (1) EJOT screws
– (2) Heater mounting bracket
– (3) Support bracket, M6 bolt, washer and nut

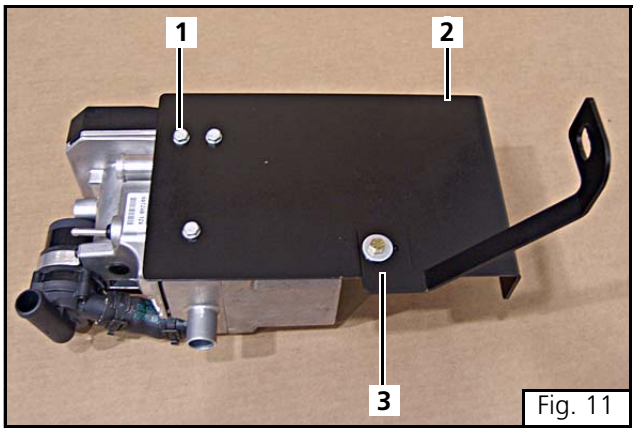


Fig. 11

ATTENTION

- *Three M16 flangenuts are provided in the kit for mounting the heater to the vehicle.*
- *Mount the heater to the right front bumper support using the existing vehicle bolts.*
- *Do not remove the existing nuts.*

Install heater on right front bumper support with three M16 flange nuts.

– (1) Front number support
– (2) Heater support bracket
– (3) Heater mounting bracket
– (4) M16 flangenut

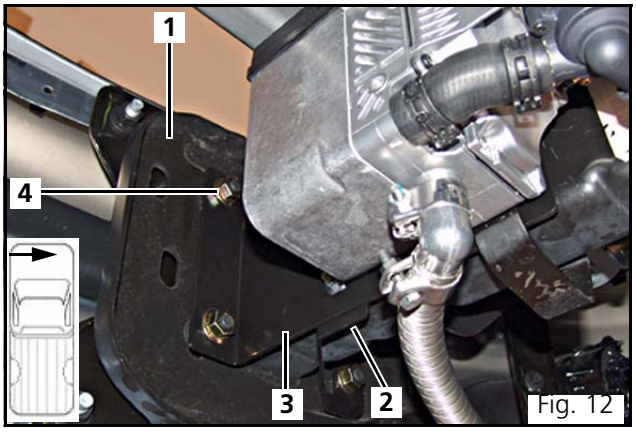


Fig. 12

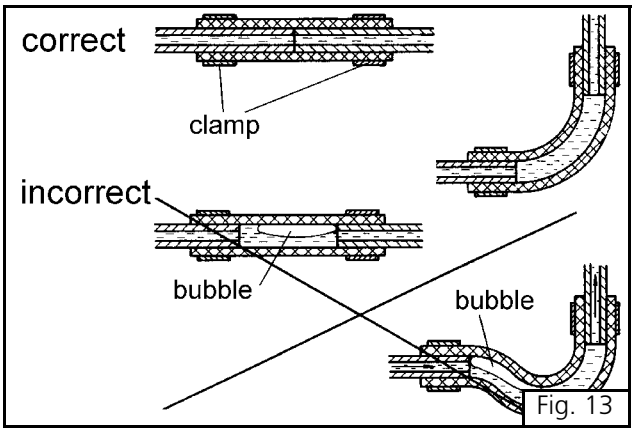


Fig. 13

Integration into the Fuel System

ATTENTION

- *Ensure the fuel lines are fully seated within the fuel line couplers and any 90 degree bends are not buckled. Refer to Figure 13.*
- *Always cut Mecanyl fuel line with a sharp razor knife or razor edged cutter. Using side cutters, scissors or similar tools will cause a restriction inside the fuel line.*
- *Tighten all fuel line clamps to 1.0 - 1.4 Nm (8.8 - 12.4 lb.-in.)*

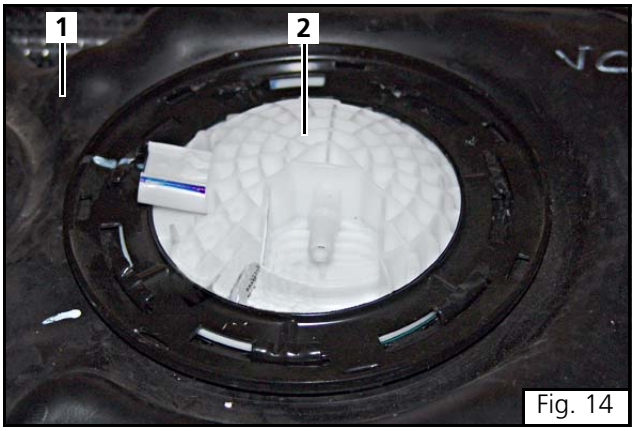


Fig. 14

Fuel Pickup Tube (standpipe) Installation

Lower vehicle fuel tank in order to access fuel sending unit.

Remove fuel sending unit from fuel tank per manufactures instructions.

– (1) Fuel tank
– (2) Fuel sending unit

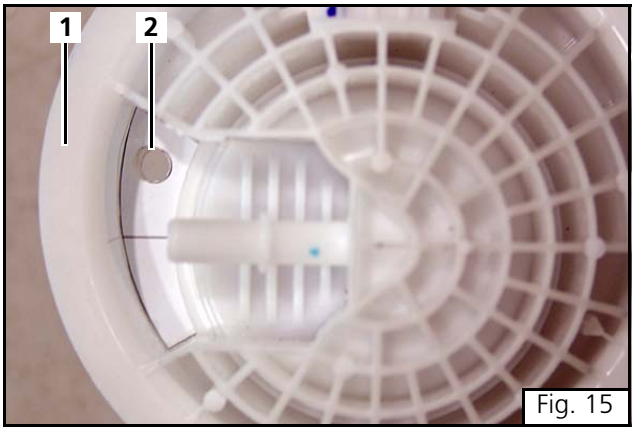


Fig. 15

ATTENTION

Deburr hole after drilling.

Locate the fuel sender drill template in the back of this manual and follow the directions for standpipe installation. See page 24.

Drill a 6 mm (1/4 in.) hole in fuel sending using the template. See Figures 15 and 17.

– (1) Fuel sending unit
– (2) 6 mm (1/4 in.) hole location

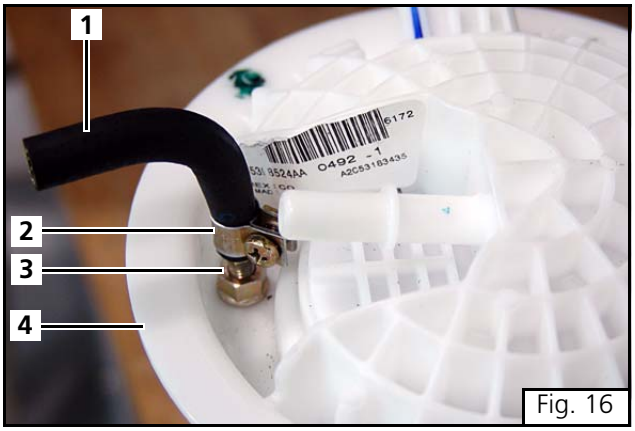


Fig. 16

ATTENTION

- *Ensure standpipe is cut approximately 1 inch above the bottom of the fuel tank when installed. Cut to fit (approximately 394mm or 15.5 inches) as necessary.*
- *Ensure standpipe does not interfere with the float movement.*
- *Tighten nut to 9 +/- 0.5 Nm (80 +/- 4.4 lb in.).*

Install standpipe and 90 degree fuel line coupler as shown in Figure 16.

– (1) 90 degree fuel line coupler
– (2) Fuel line clamp
– (3) Standpipe
– (4) Sending unit

ATTENTION

Figure 17 is a view of the standpipe installed from the bottom. It shows how critical the hole location is for a proper seal.

– (1) Fuel sender sealing surface
– (2) Standpipe

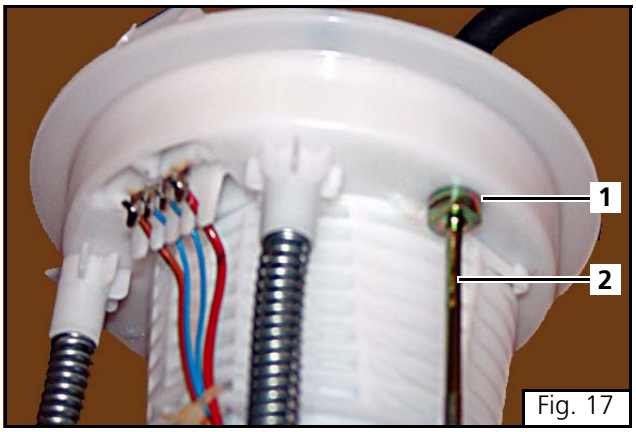


Fig. 17

Fuel Line Connection at Fuel Sender

Install fuel sender per manufactures instructions.

Modify fuel sender cover to accommodate the standpipe and 90 degree fuel line coupler.

Insert end of fuel line into fuel line coupler and tighten clamp.

Secure heater fuel line to vehicle fuel line with cable ties.

Install vehicle fuel tank in accordance with manufactures service instructions.

– (1) Heater fuel line
– (2) Fuel line clamp
– (3) Fuel sender cover
– (4) 90° fuel line coupler

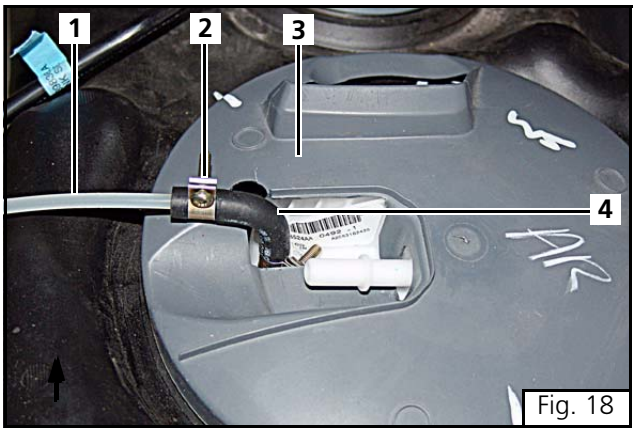


Fig. 18

Fuel Pump Installation

Install fuel line couplers on fuel pump with fuel line clamps.

Install fuel pump on left framerail, as shown in Figure 19, with p-clamp, M6 bolt and nut.

– (1) Left framerail
– (2) Fuel line coupler (2ea.)
– (3) Fuel line clamp (4ea.)
– (4) Fuel pump
– (5) P-clamp, M6 bolt and nut

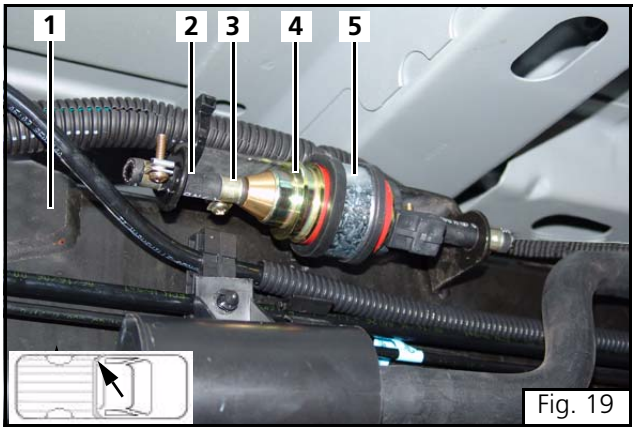


Fig. 19

ATTENTION

Secure fuel line to vehicle with cable ties.

Route fuel line from fuel sender to inlet side of fuel pump.
Insert fuel line into fuel line coupler and tighten clamp.

– (1) Fuel line
– (2) Fuel line clamp
– (3) Fuel line coupler
– (4) Inlet side of fuel pump

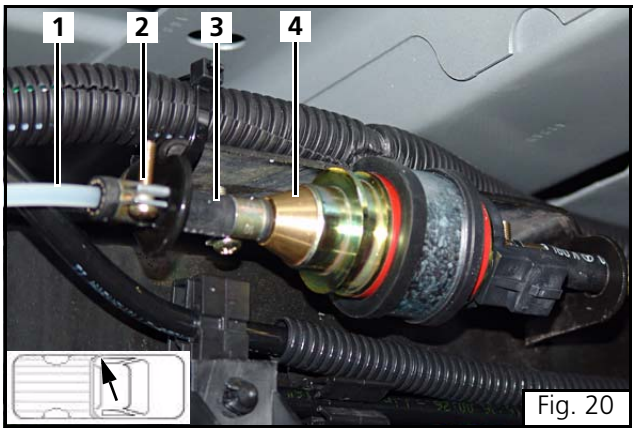


Fig. 20

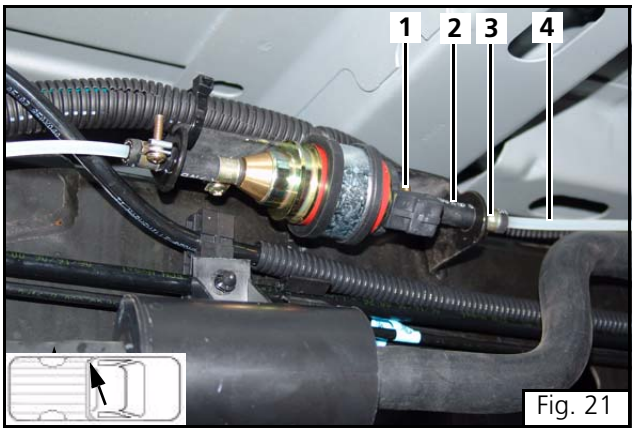


Fig. 21

Insert remaining section of fuel line into the outlet fuel line coupler and tighten clamp.

– (1) Fuel pump outlet
– (2) Fuel line coupler
– (3) Fuel line clamp
– (4) Fuel line

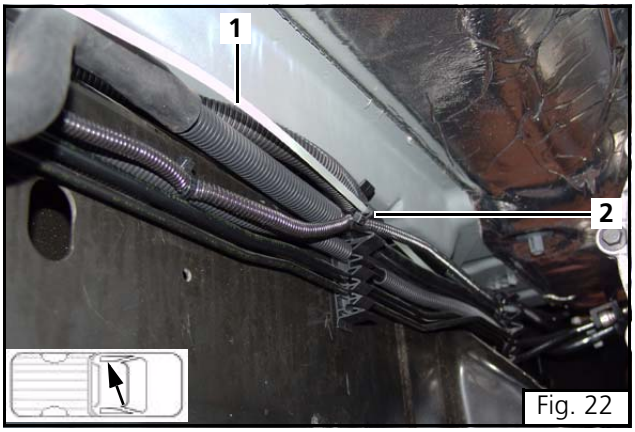


Fig. 22

Fuel Line Routing to Heater

ATTENTION

Use existing fuel line clips and cable ties to secure fuel line to vehicle.

Route heater fuel line along left framerail towards the front of the vehicle.

– (1) Heater fuel line
– (2) Vehicle fuel line clips

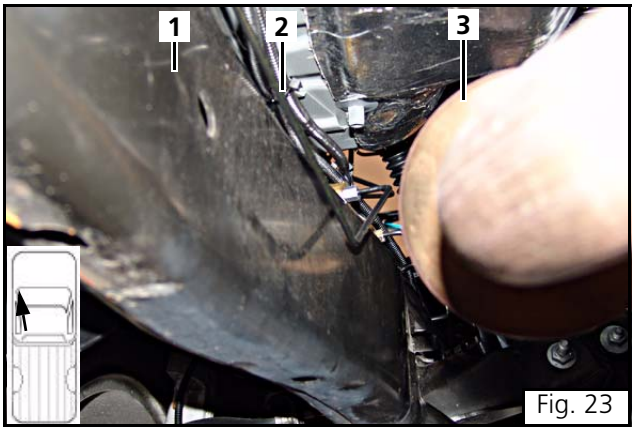


Fig. 23

ATTENTION

Secure fuel line away from vehicle exhaust with cable ties.

– (1) Left framerail
– (2) Heater fuel line
– (3) Vehicle exhaust

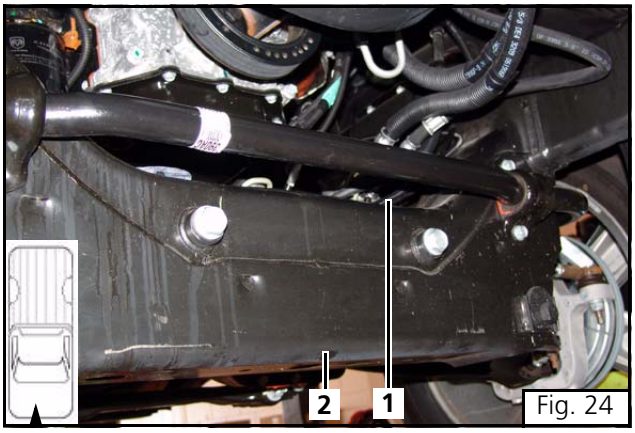


Fig. 24

Route heater fuel line on top of the front crossmember to the right side of the vehicle. Secure fuel line with cable ties. See Figure 24 and 25.

– (1) Heater fuel line (covered with protective loom)
– (2) Vehicle crossmember

ATTENTION
Secure fuel line to crossmember with cable ties.

Route fuel line as shown in Figure 25.

– (1) Heater fuel line (covered with protective loom)
– (2) Vehicle crossmember
– (3) Cable tie

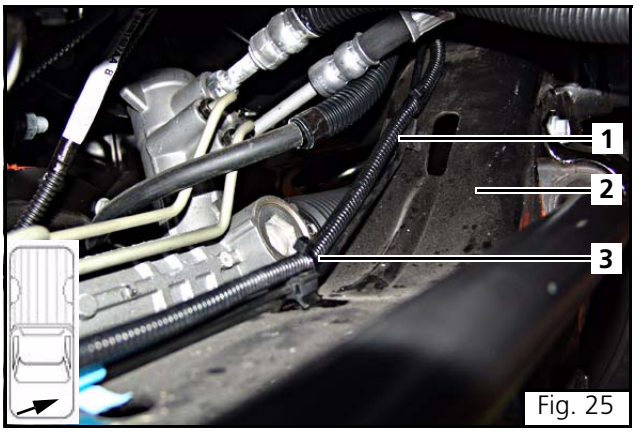


Fig. 25

ATTENTION
Always cut Mecanyl fuel line with a sharp razor knife or razor edged cutter.

Cut fuel line to length and connect to heater inlet nipple with fuel line coupler and two clamps.

Connect heater control harness at this time (not shown).

– (1) Heater fuel line (covered with protective loom)
– (2) Right framerail
– (3) Fuel line coupler and clamps
– (4) Webasto heater

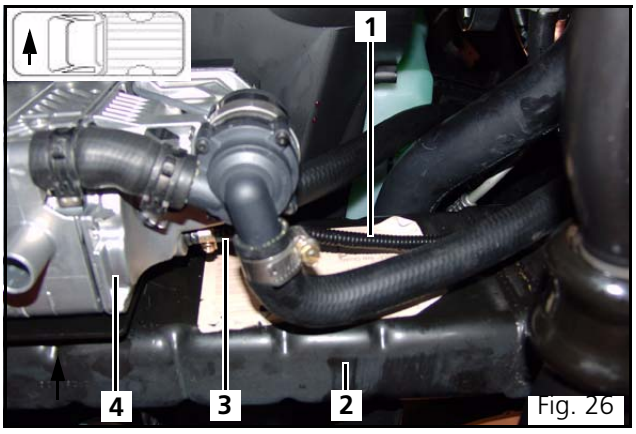


Fig. 26

Fuel Pump Harness Installation

Route fuel pump electrical harness to fuel pump following heater fuel line previously installed.

Secure fuel pump electrical harness to vehicle with cable ties.

– (1) Cable tie
– (2) Fuel pump electrical harness
– (3) Heater fuel line

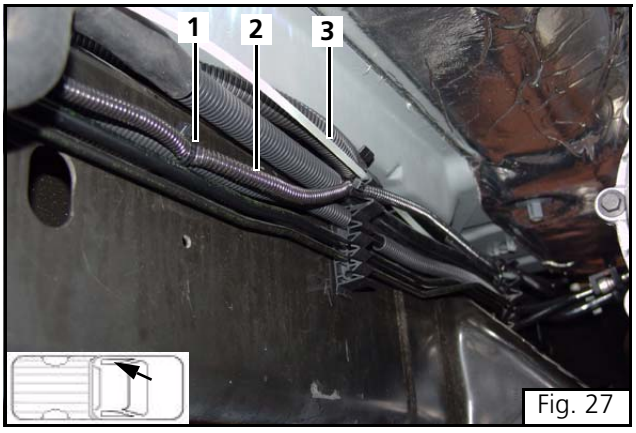


Fig. 27

Install fuel pump electrical harness connector per the instructions provided in the kit.

Plug harness connector into fuel pump.

– (1) Fuel pump electrical connector
– (2) Fuel pump harness
– (3) Fuel pump

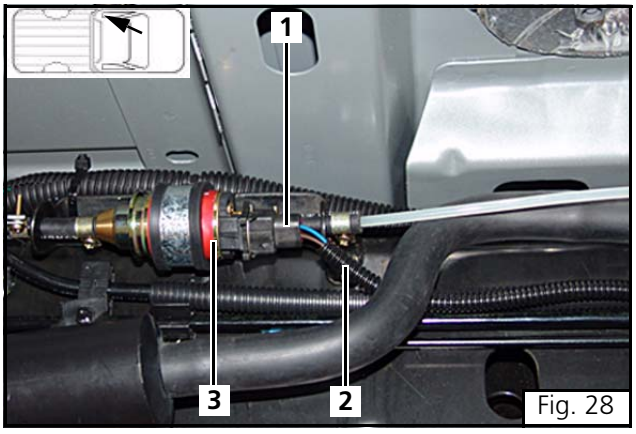


Fig. 28

Integration into the Coolant System

ATTENTION

- Torque hose clamps to 2.0 - 2.5 Nm (18 - 22 lb-in.)
- Avoid sharp bends and kinks when installing coolant hoses.
- Position hose clamps in such a way to avoid cutting or damaging adjacent components.
- Clamp vehicle coolant hose with hose clamping pliers prior to cutting to prevent coolant spillage.

The coolant heater integration into the vehicle heater circuit is done in an "INLINE" fashion. Refer to Figure 23.

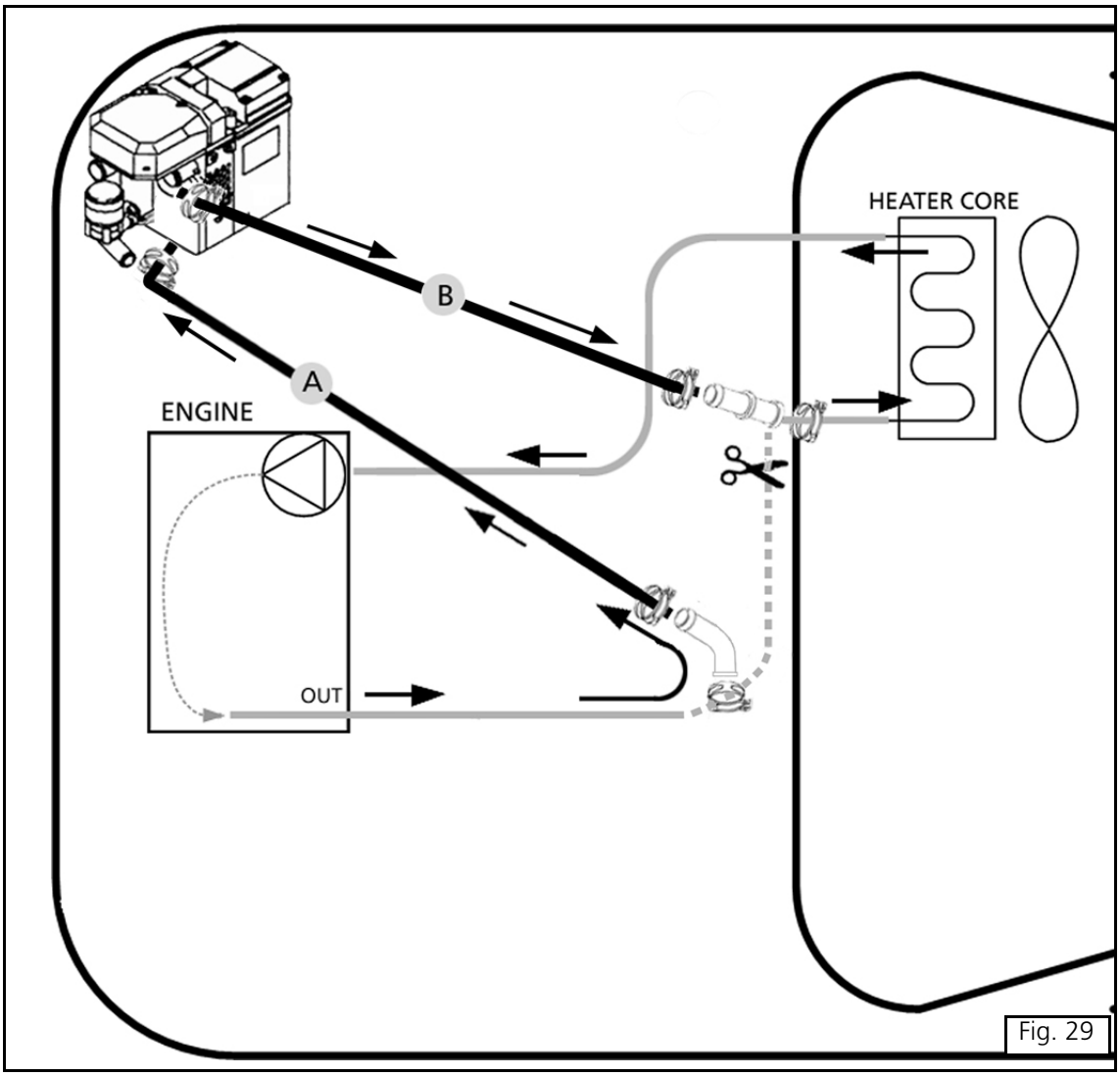


Fig. 29

Preparing the Coolant Hoses

Cut the heater coolant hoses as shown in Figure 30. Trim hoses to fit during installation.

– (1) 90° end connects to heater inlet (water pump)
– (2) Connects to coolant hose coming from the engine with 90° coolant hose adapter
– (3) Connects to heater core inlet hose with straight coolant hose adapter
– (4) Connects to heater outlet

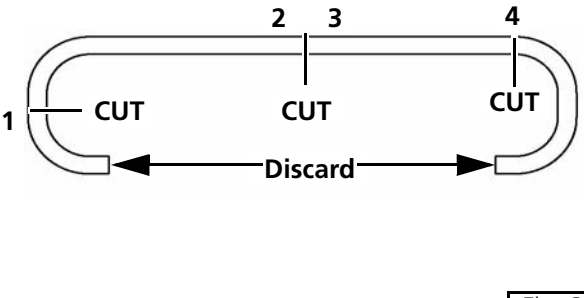


Fig. 30

Coolant Hose Connections at the Heater

Connect the 90° end of the coolant hose to the heater inlet (water pump).

Connect the straight section of coolant hose to the heater outlet.

– (1) Heater water pump
– (2) Heater inlet hose
– (3) Heater outlet hose

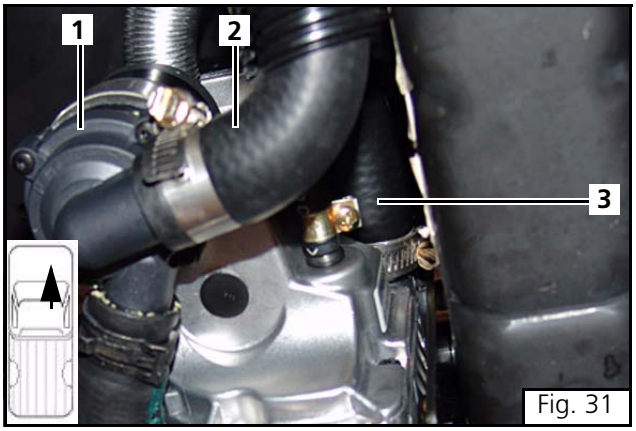


Fig. 31

Coolant Hose Connections at the Engine

ATTENTION

Use hose clamping pliers to prevent coolant loss when cutting coolant hose.

Cut the coolant hose going to the heater core inlet approximately 100 mm (4 inches) from the engine block.

Install the 90° coolant adapter into the section of hose coming from the engine.

Route the coolant hoses from the Webasto heater to the area where the vehicle hose was cut.

Trim the Webasto heater inlet hose to the required length and install on 90° coolant adapter as shown in Figure 32.

Trim the Webasto heater outlet hose to the required length and connect to the heater core inlet hose with coolant adapter.

– (1) 90° coolant hose adapter
– (2) Coolant hose coming from engine
– (3) Hose clamp (4 ea.)
– (4) Coolant hose going to the Webasto heater inlet
– (5) Coolant hose coming from the Webasto heater outlet (coolant adapter not shown)
– (6) Vehicle coolant hose going to the heater core

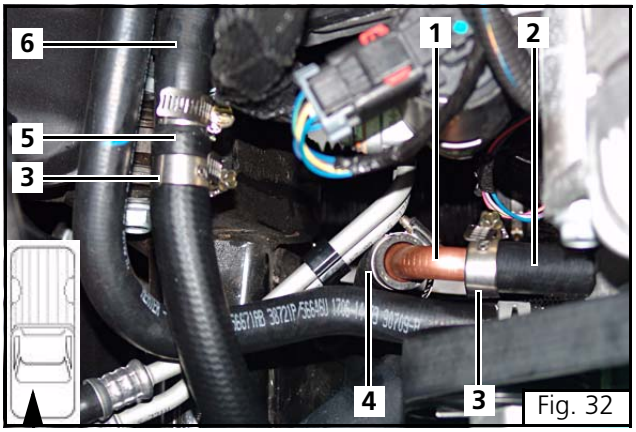


Fig. 32

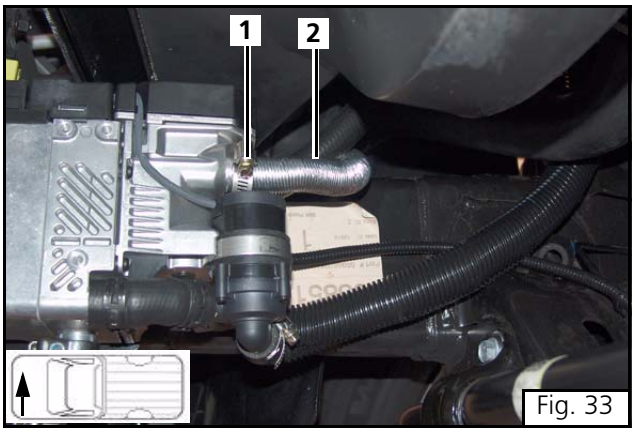


Fig. 33

Combustion Air Intake Installation

Install the combustion air intake tube on the heater with clamp.

– (1) Clamp
– (2) Combustion air intake tube

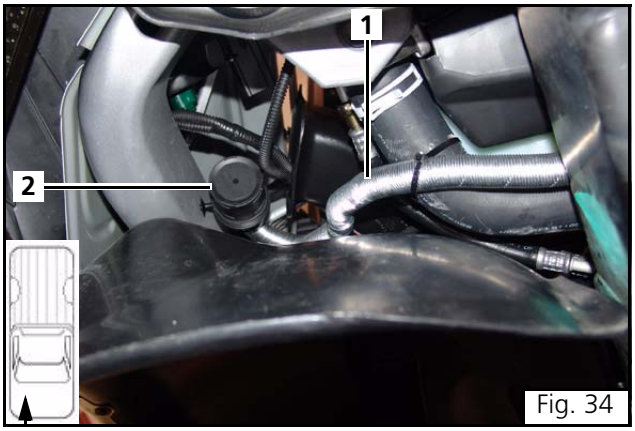


Fig. 34

Screw the air intake silencer into the combustion air intake tube.

Mount the air intake silencer to the vehicle with clamp provided. See Figure 34 for location.

Secure combustion air intake tube to lower radiator hose with cable tie.

– (1) Combustion air intake tube
– (2) Air intake silencer

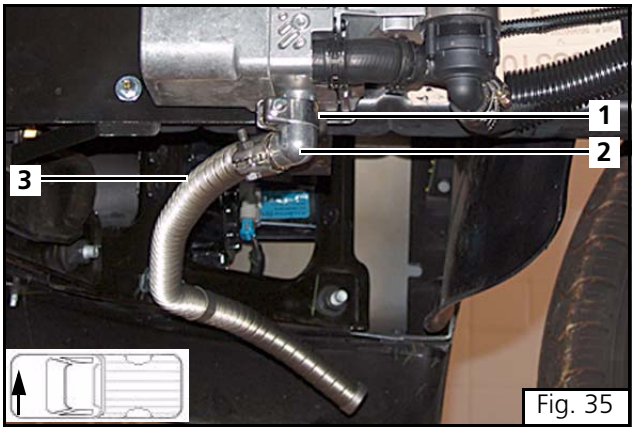


Fig. 35

Exhaust Tube Installation

ATTENTION
Keep exhaust tube away from heat sensitive vehicle components.

Cut exhaust tube to approximately 410 mm (16 inches).

Install 90° exhaust elbow on heater with exhaust clamp.

Install exhaust tube on 90° elbow with exhaust clamp.

– (1) Exhaust clamp (2 ea.)
– (2) Exhaust elbow
– (3) Exhaust tube

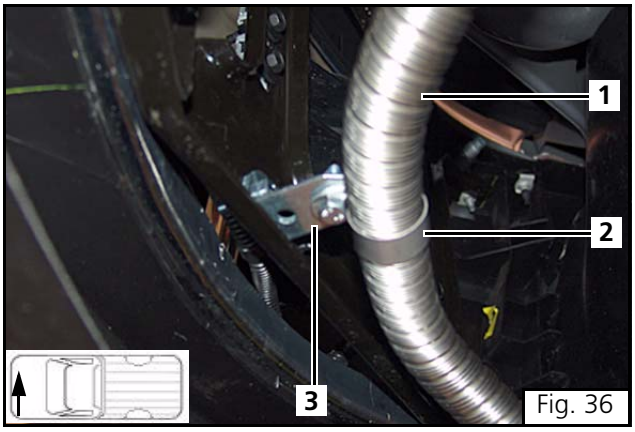


Fig. 36

ATTENTION
Point exhaust tube down and toward the rear of the vehicle.

Secure L-bracket to the vehicle with M6 bolt and nut. See Figures 35 and 36 for location.

Secure exhaust tube to L-bracket with p-clamp, M6 bolt and nut.

– (1) Exhaust tube
– (2) P-clamp, M6 bolt and nut
– (3) L-bracket, M6 bolt and nut

Fuse Tap Connection - Relay K-1

CAUTION

Tap into the "fused" output side of the selected fuse. Fuse must remain hot with the ignition in the "ON" position only.

Route blue fuse tap wire from relay K-1, to the underhood fuse/relay center.

– (1) Underhood fuse/relay center
– (2) Fuse tap

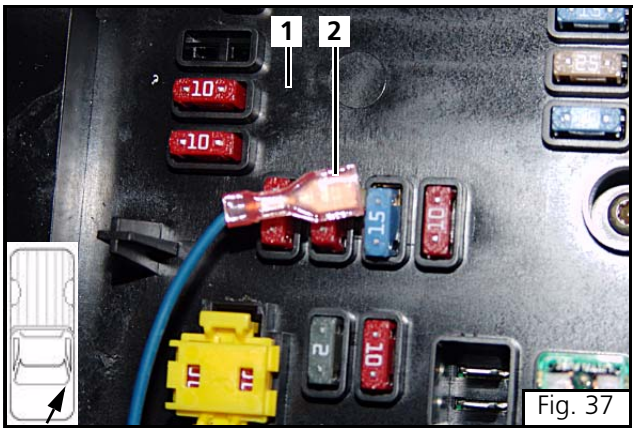


Fig. 37

Heater Power Connection

Secure heater power wire to positive terminal.

– (1) Underhood fuse/relay center
– (2) Positive terminal
– (3) Heater power wire

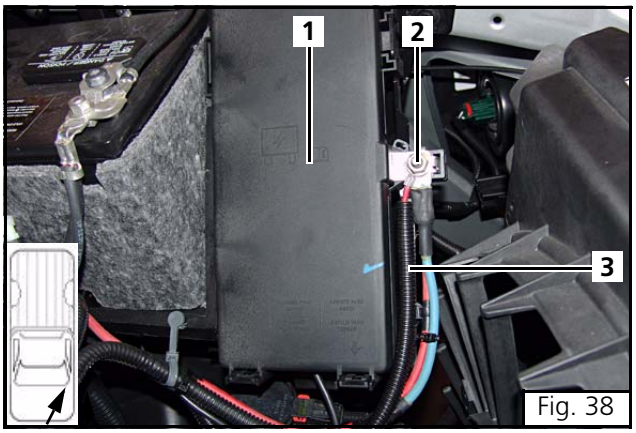


Fig. 38

Heater Ground Connection

Secure heater ground wire to known good ground.

– (1) Front bulkhead area
– (2) Existing stud
– (3) Heater ground wire

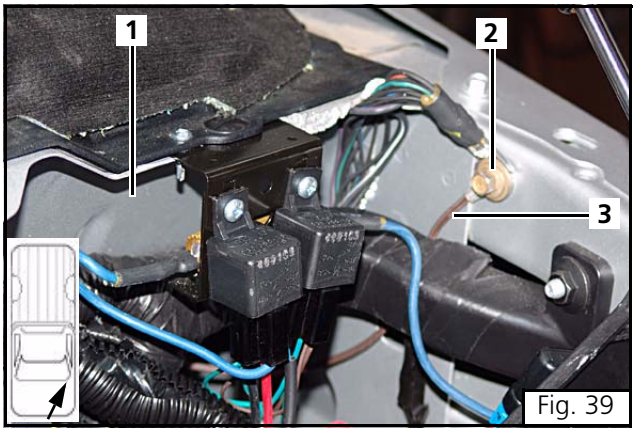


Fig. 39

Final Inspection Initial Start-up and Concluding Work

Connect battery ground terminal

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), fan speed between low and maximum, 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.

Concluding Work

- – 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.
- – Install all vehicle parts, panels and components removed during heater installation.

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:

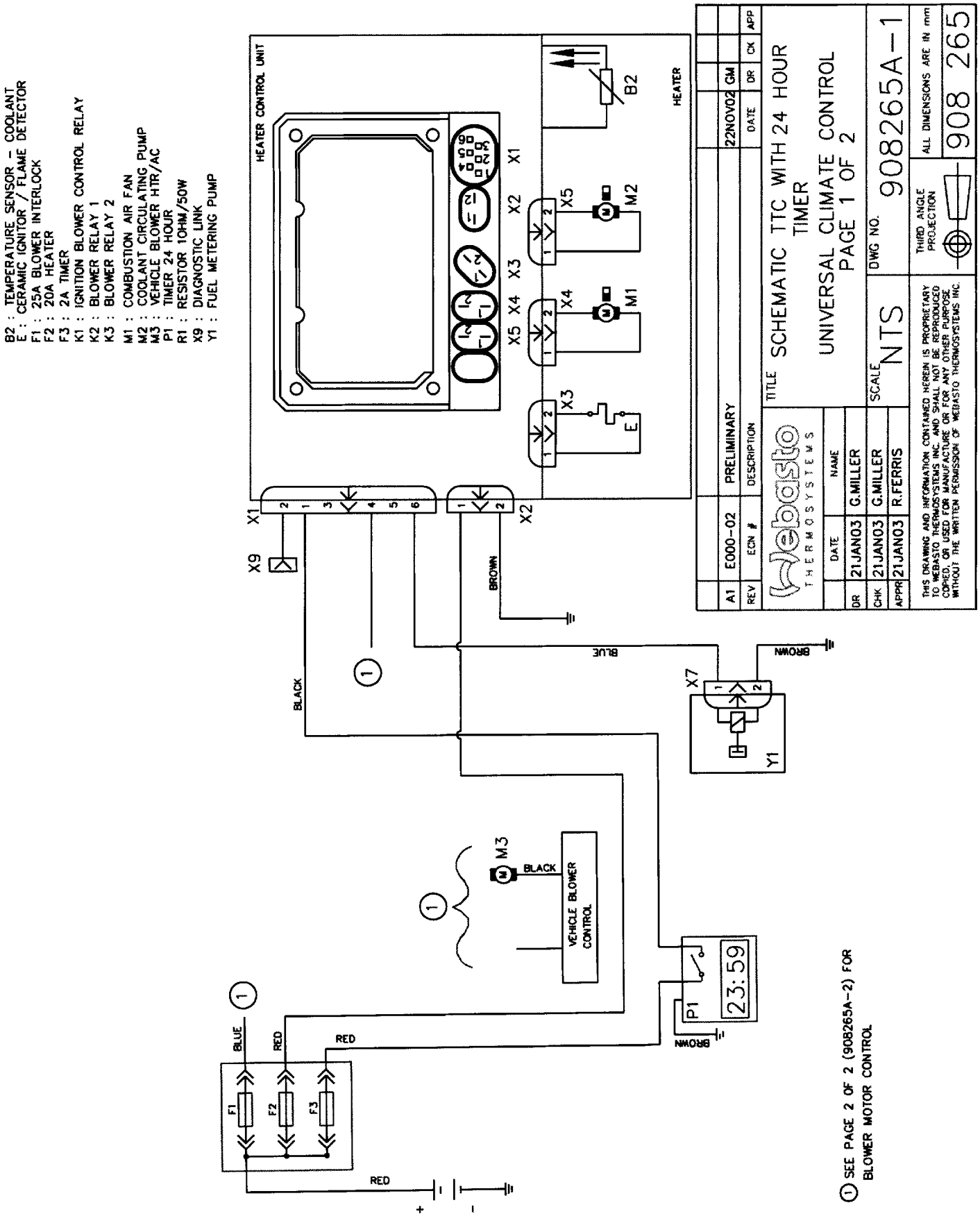
1 Ensure timer or switch is in the "OFF" position. Turn timer or switch to the "On" position. Remove main fuse F2 (20 Amp), reinsert after 5 seconds.
2 Cycle timer or switch off and then back on once more. Remove fuse F2 once again and reinsert after 5 seconds. Heater should attempt to start after inserting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

ATTENTION

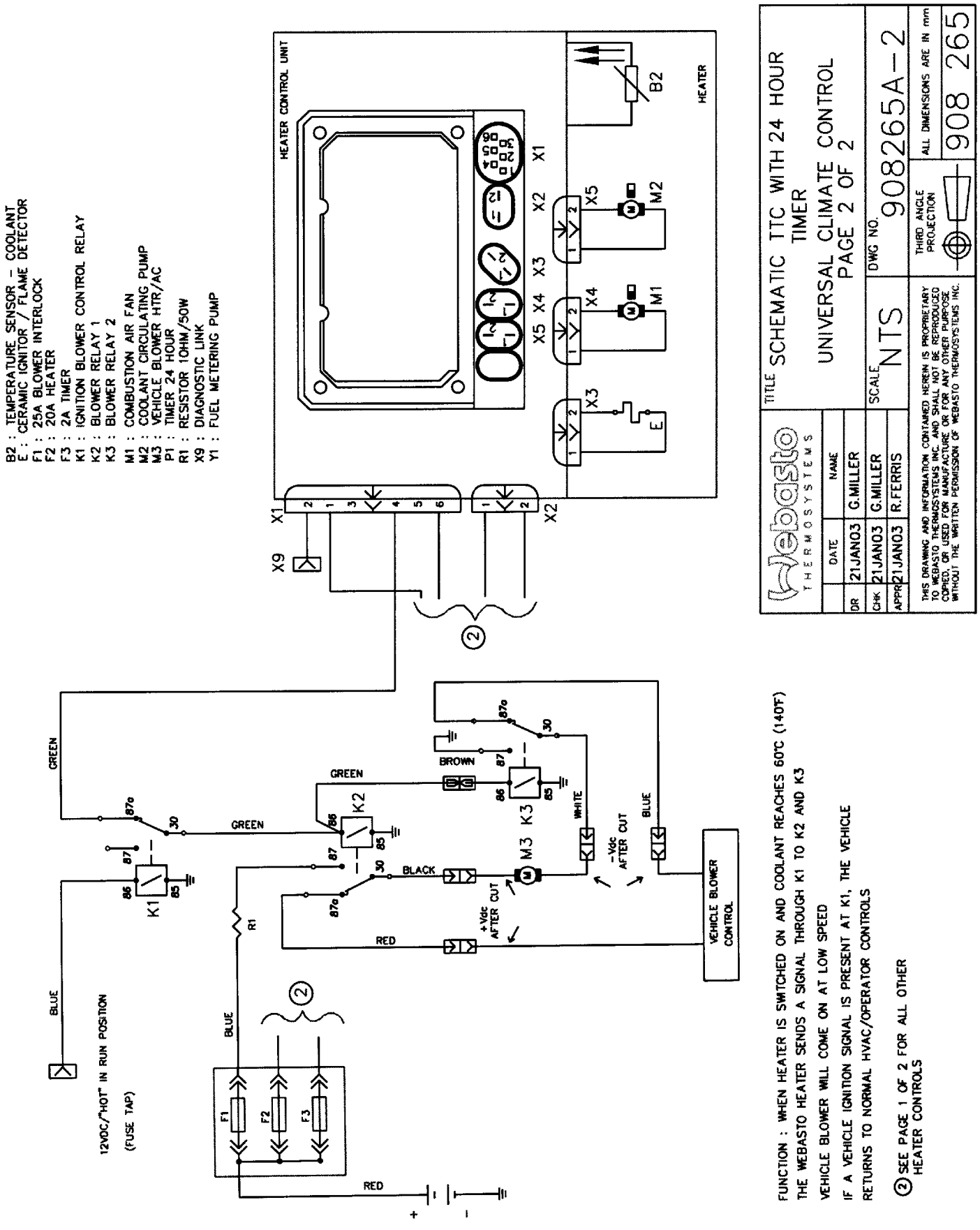
– The engine coolant must be below 86 °F (30 °C) before the Webasto heater will attempt to start.
– Should the heater fail to start or operate correctly, contact your Webasto technical representative at:

1-800-555-4518
www.techwebasto.com

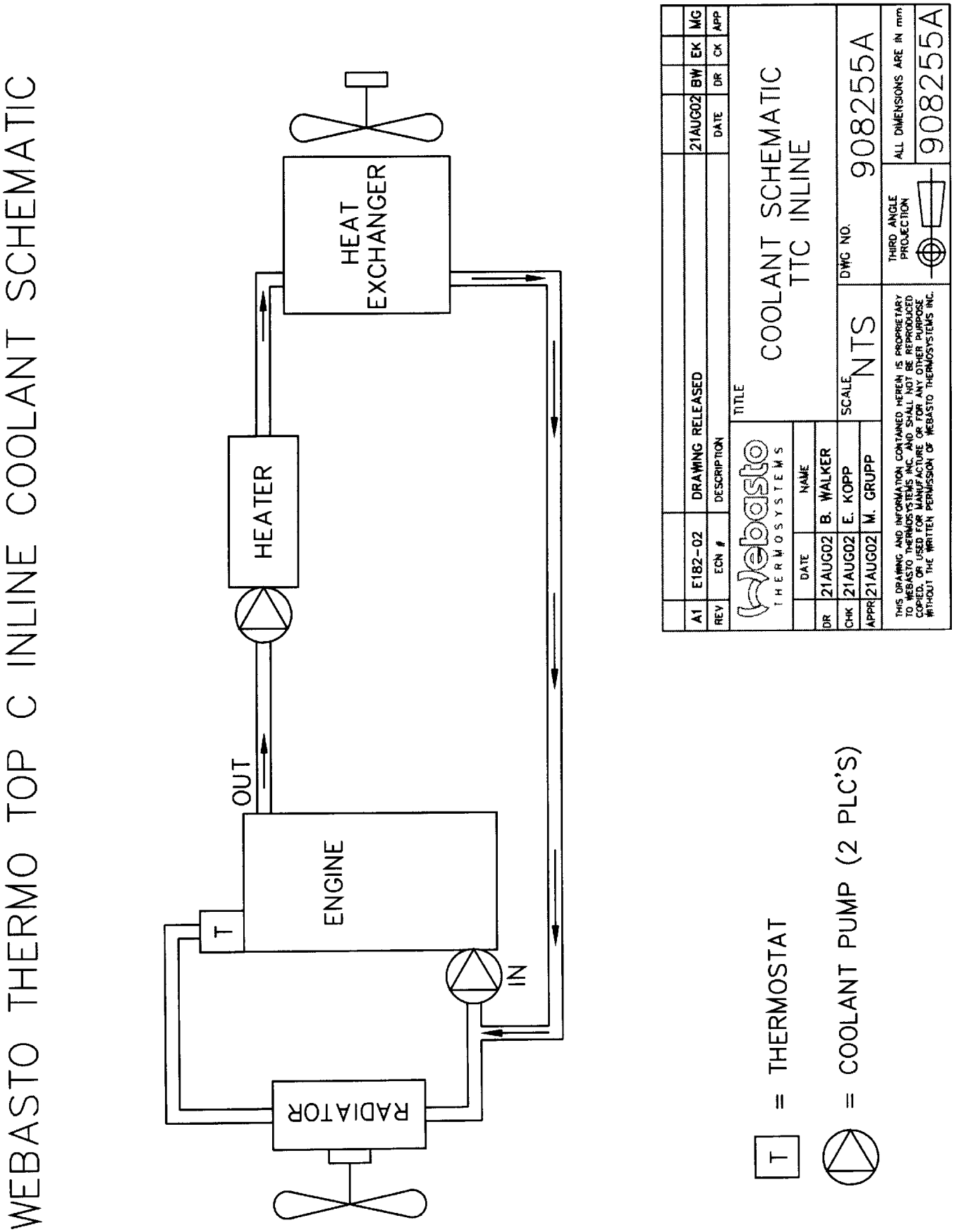
Electrical Harness Schematic - Sheet 1 of 2



Electrical Harness Schematic - Sheet 2 of 2



Inline Cooling Schematic



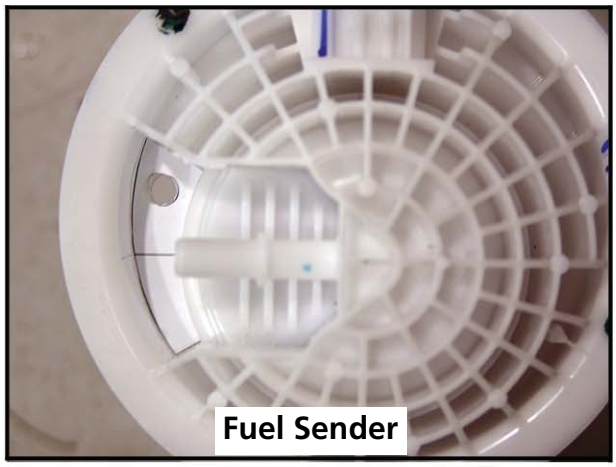
Fuel Sender Hole Template

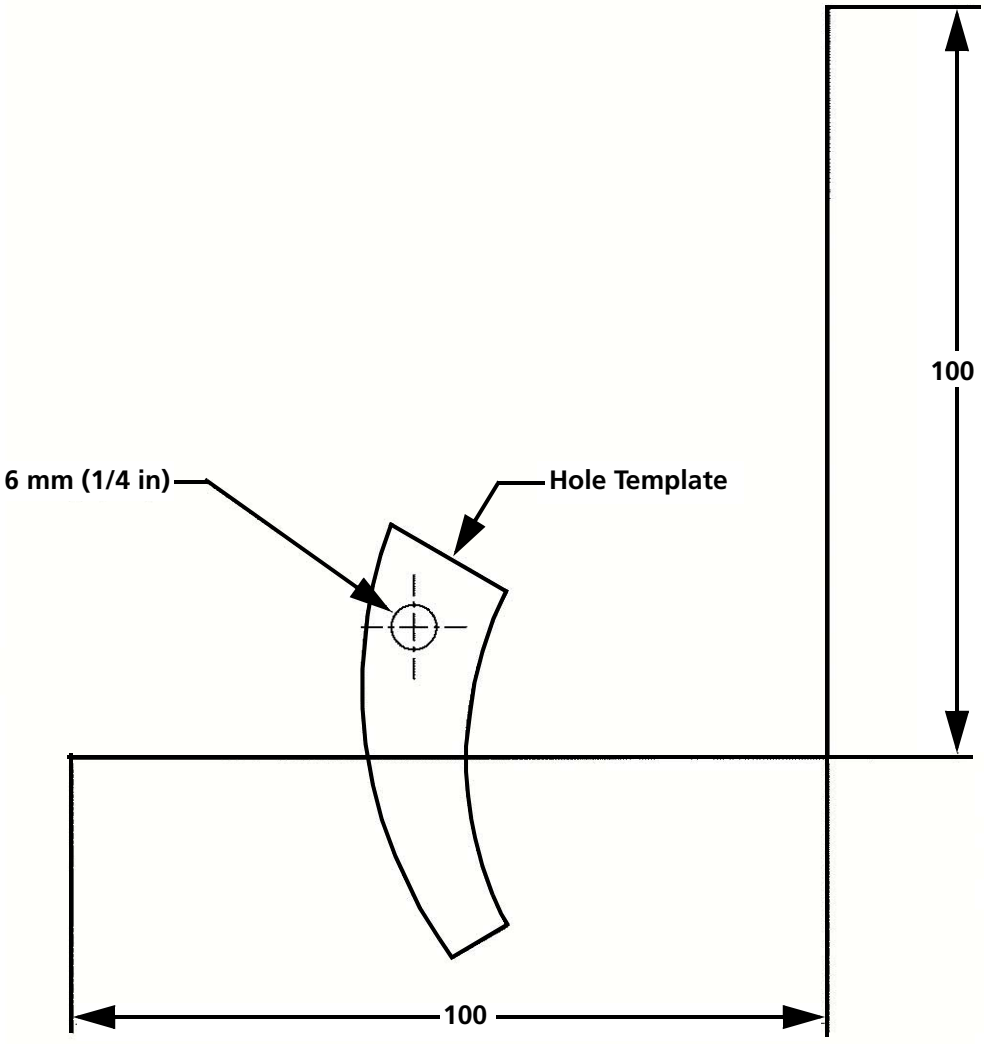
Cut out template below and place it in the top of the fuel sender.

Use a prick punch to locate the center of the hole before drilling.

Drill a 6 mm (1/4 in.) hole through the top of the fuel sender.

Deburr hole before installing fuel standpipe.





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