

Air Heater Installation Manual



Chevrolet Silverado and GMC Sierra Crew Cab Trucks

Diesel and Gas Engines
Beginning Model Year: 2007

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

Special Tools

Installation Tool - P/N 82229A

Torque Wrench

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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.

Parts List

Quantity	Part	Part Number
1	AT 2000ST Base Kit - Diesel	5001151B
1	AT 2000ST Base Kit - Gas	5001148B
1	Vehicle Specific Kit	5001275A

Foreword

This installation requires special expertise from a Webasto training course to install a Webasto Air Top 2000ST, 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 Air Top 2000ST and BlueHeat 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" Air Top 2000ST must be followed. Acknowledged engineering conventions must be observed for the installation work.

CAUTION

Location of heater, 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



Exhaust



Electrical



Combustion Air Intake



Fuel

General Symbol Descriptions



Warning



Refer to Webasto or Manufacturer Manual



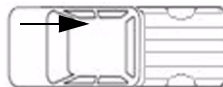
Caution



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 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.

Heater Installation Site

ATTENTION

The installation instructions within this manual are intended for basic installations in common over-the-road vehicles. For information concerning special applications or applications you are not sure of, contact an authorized Webasto dealer/distributor or Webasto Product North America, Inc. directly at 1-810-593-3334.



The following criteria must be observed and adhered to:

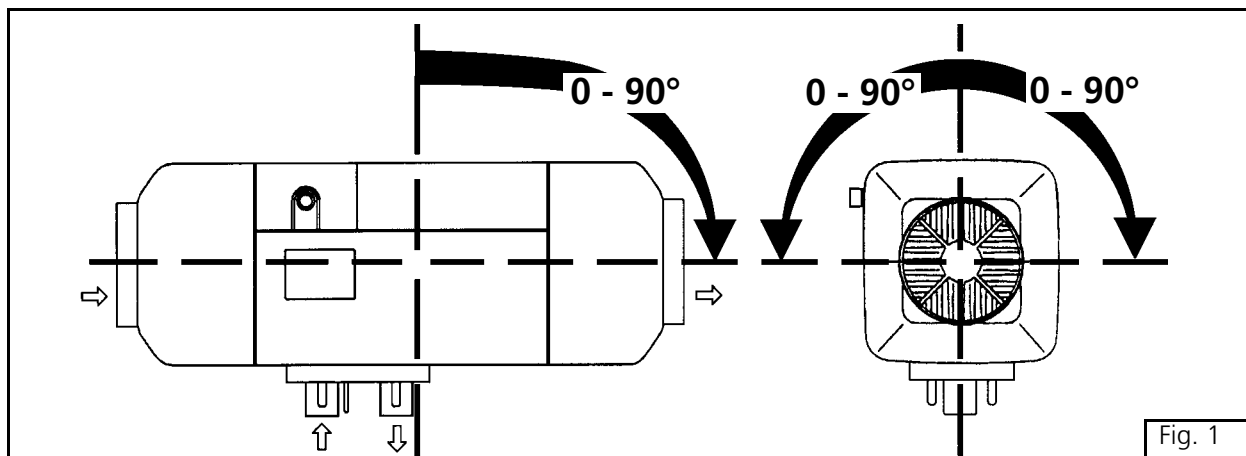
1. Exhaust, combustion air intake and fuel connections must be located outside of the vehicle's interior.
2. The heater must be mounted on a flat surface to provide an air-tight seal between the heater, gasket and vehicle.

When selecting a location for the heater, consider the following:

1. Sufficient space for heating air inlet and outlet ducting. Preferably, where it cannot be damaged during normal use.
2. Combustion air and exhaust location, specifically, clearance around subfloor cross-members and structures, heatsensitive components and impediments to proper routing of tubes.
3. Fuel line connections and routing.
4. Control / power harness routing.
5. Access to the heater for seasonal maintenance and servicing.

ATTENTION

- The specified horizontal and axial angles of inclination must not be exceeded for diesel burning air heaters.
- Webasto recommends installing gasoline-operated heaters so that the exhaust gas outlet points vertically down. Other installation positions may cause increased burner wear.

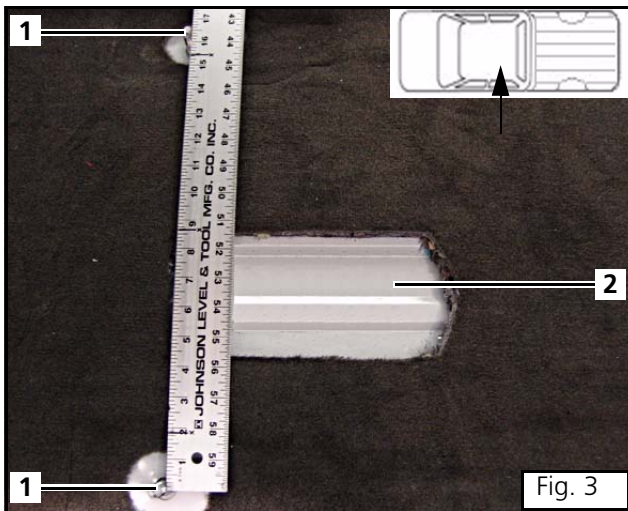




Recommended Mounting Location

Mount the air heater under the left rear passenger seat as shown in Figure 2.

- (1) Left Rear Passenger Seat
- (2) Air Heater



Mounting the Air Heater

ATTENTION

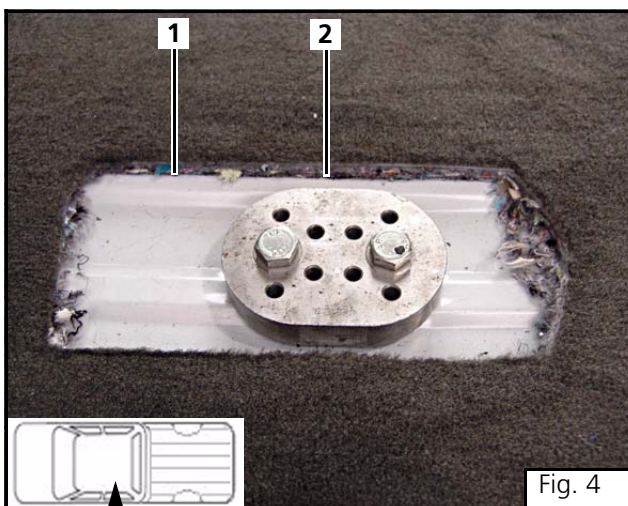
The rear seat was removed for ease of installation only. The air heater could be installed without seat removal.

Center the heater approximately 6 1/4 in. (158.75 mm) from the left-front seat mounting stud. Align the heater outlet with the rear seat front mounting studs.

Draw an outline around the base of the heater with a grease pencil or similar device and set the heater aside.

Cut and remove the carpet from the heater mounting location.

- (1) Rear Seat Front Mounting Studs
- (2) Vehicle Floor (carpet removed)



Momentarily place the air heater in the mounting location.

Transfer air heater mounting stud locations to the floor of vehicle with a grease pencil.

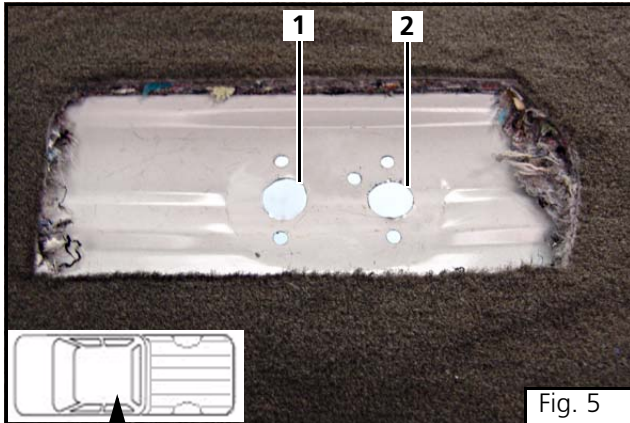
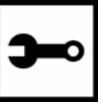
Align air heater installation special tool with the marks made previously and drill the two large holes.

Assemble the air heater installation special tool. Tighten bolts until metal between special tool is flat.

Using the special tool as a template, drill the remaining five holes (one for the fuel inlet nipple).

- (1) Floor of Vehicle
- (2) Installation Special Tool





ATTENTION

The holes for the air intake and exhaust tube may have to be enlarged slightly for the air heater to seat properly.

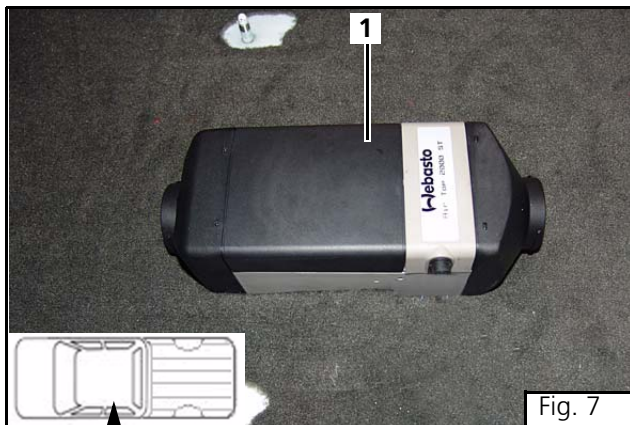
Check fit of air heater to vehicle floor and adjust as necessary.

- (1) Hole for Exhaust
- (2) Hole for Air Intake



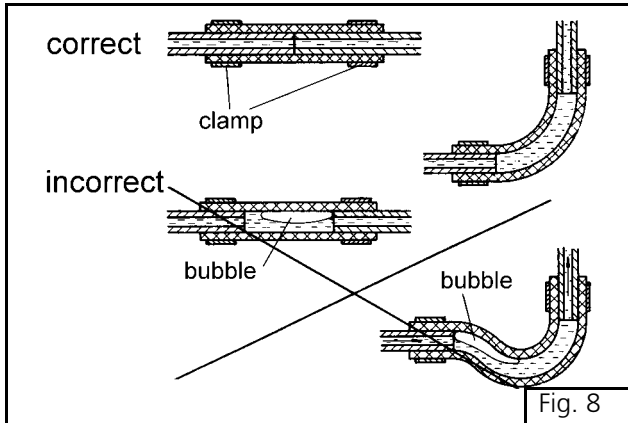
Install the rubber gasket on the air heater.

- (1) Rubber Gasket



Install the heater to the vehicle floor with four M6 nuts provided in the kit.

- (1) Heater Installed



Integration into 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 5.
- Tighten all fuel line clamps to 1.0 - 1.4 Nm (8.8 - 12.4 lb.-in.).
- 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.



Standpipe Installation

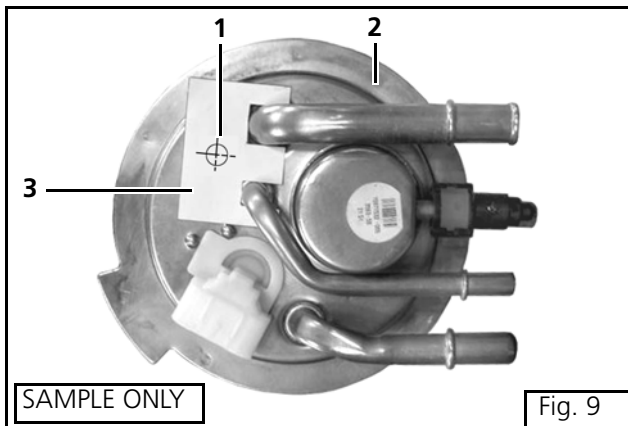
Lower vehicle fuel tank in order to access fuel sending unit. Remove the sending unit from the fuel tank.

ATTENTION

Use the template located in the back of this manual to properly locate the fuel standpipe hole (See Figure 9).

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

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



ATTENTION

- Cut stand pipe to a length approximately 25.4 mm (1 in.) from the bottom of the sending unit and position as shown.
- Ensure area where standpipe enters the sending unit is clear of obstructions.

- (1) Webasto Standpipe Assembly

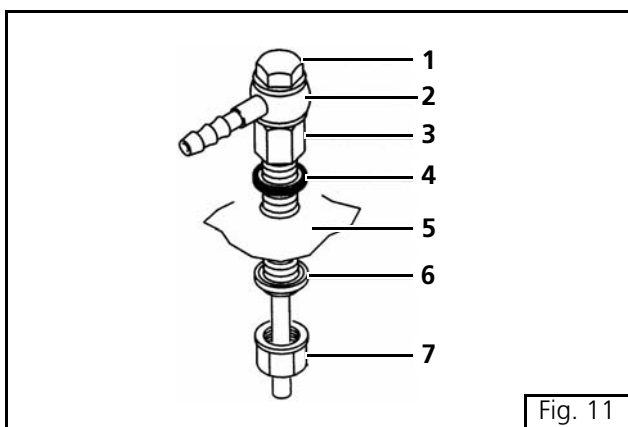


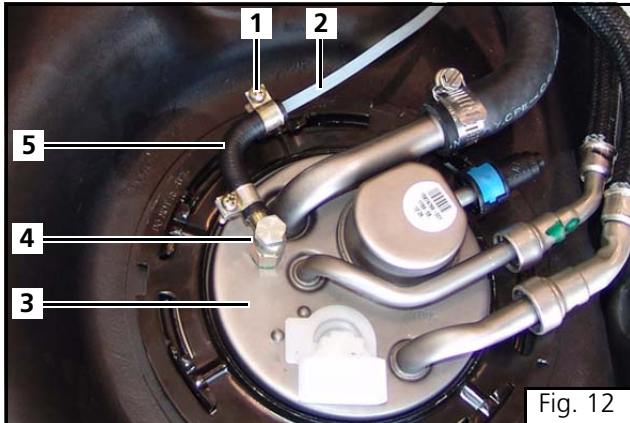
ATTENTION

Refer to figure 11 for banjo fitting installation sequence. Tighten locknut to 9.0 - 9.5 Nm (80 - 84 lb.-in.)

Legend for Figure 11

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





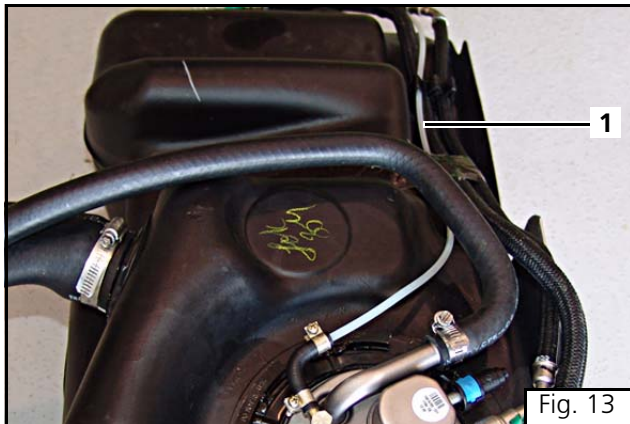
Connecting Fuel Line To Standpipe

ATTENTION

- Ensure the fuel lines are fully seated within the fuel line couplers and any 90 degree bends are not buckled. Refer to Figure 5.
- Tighten all fuel line clamps to 1.0 - 1.4 Nm (8.8 - 12.4 lb.-in.).

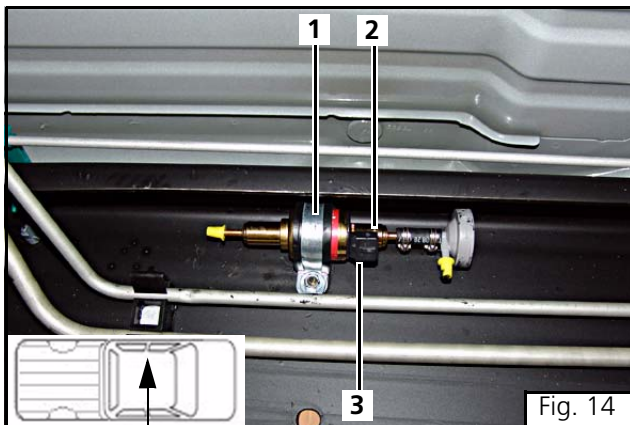


- (1) 10 mm Fuel Line Clamp 2ea.
- (2) Fuel Line
- (3) Fuel Sending Unit (Installed)
- (4) Standpipe
- (5) 90° Fuel Line Coupler



Route fuel line along vehicle fuel lines and secure with cable ties.

- (1) Heater Fuel Line



Fuel Pump Installation

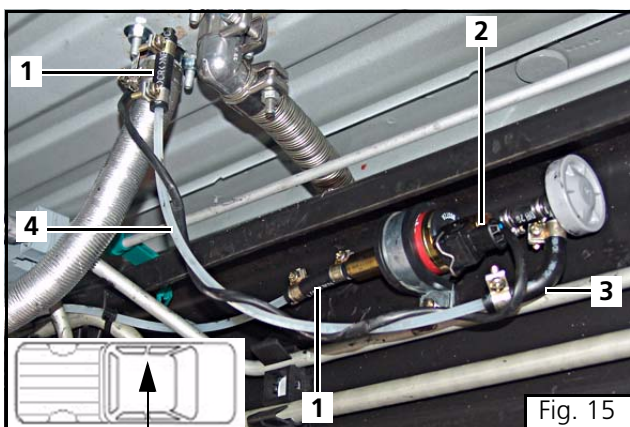
ATTENTION

The outlet side of the metering pump is located on the same end as the electrical connector.

Install the fuel metering pump using an existing hole in the left fender rail with the p-clamp, nut and bolt provided.



- (1) P-clamp, M6 Bolt and Nut
- (2) Fuel Metering Pump
- (3) Fuel Pump Electrical Connector

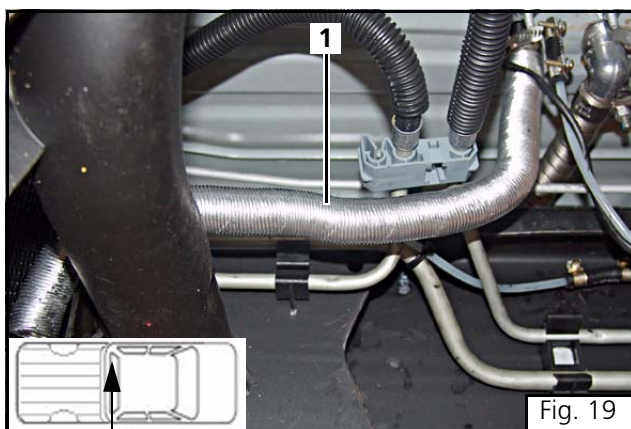
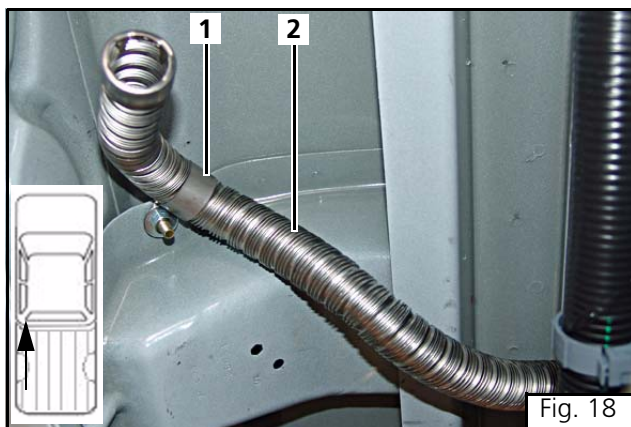
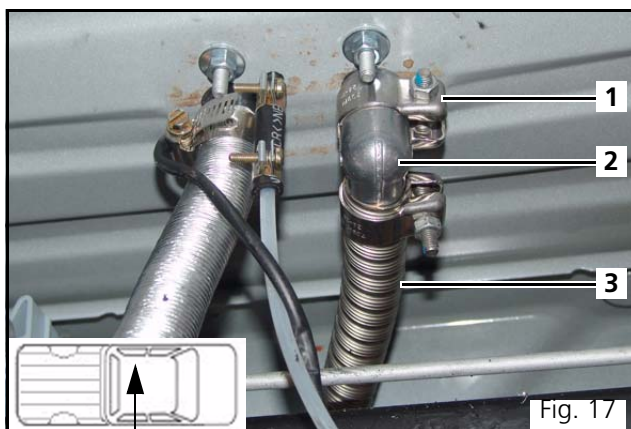
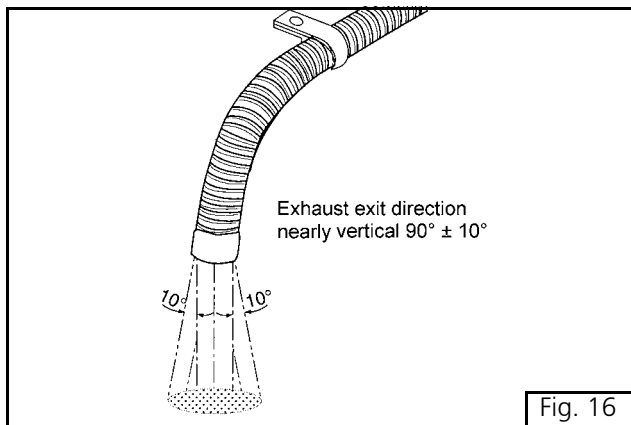


Connect the fuel line coming from the fuel standpipe to the fuel pump inlet with fuel line coupler and two clamps.

Connect the fuel line between the fuel pump outlet and the air heater inlet with two fuel line couplers and four clamps.

Install the fuel pump electrical harness connector and connect harness to the fuel metering pump.

- (1) Fuel Line Coupler and Two Clamps
- (2) Fuel Metering Pump Electrical Connector
- (3) 90° Fuel Line Coupler and Two Clamps
- (4) Air Heater Fuel Line



Exhaust Installation

WARNING

Due to the risk of carbon monoxide poisoning causing death or serious injury to personnel, the exhaust tube must be routed so the possibility of exhaust gases entering the passenger area is avoided.

CAUTION

Keep exhaust tube away from heat sensitive vehicle components.

ATTENTION

Any collection of condensation in the exhaust pipe must be drained immediately; drill a small drain hole at the lowest point of the exhaust pipe.

ATTENTION

Ensure all exhaust clamps are properly tightened. Check for exhaust leaks during heater operation. The discharge opening of the exhaust pipe must not point in the direction of travel.

Install the exhaust tube on the air heater with 90 degree elbow and two clamps provided.

- (1) Exhaust Clamp
- (2) 90° Exhaust Elbow
- (3) Exhaust Tube

Secure the exhaust tube in the location shown in Figure 18 with a p-clamp.

- (1) P-clamp, M6 Bolt and Nut
- (2) Exhaust Tube

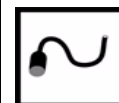
Combustion Air Supply

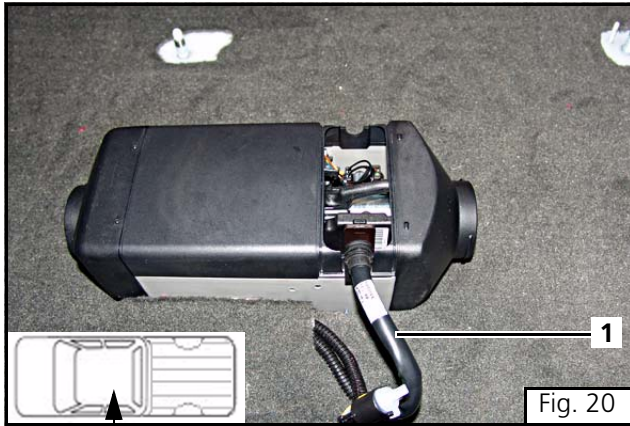
ATTENTION

- The combustion air must never be drawn from the occupant area of the vehicle. If the heater is installed in an enclosed housing, a vent hole of at least 3 cm (1.2 in.) is required
- Ensure the combustion air intake opening on the heater is positioned to prevent the possibility of clogging due to contamination.

Locate the combustion air intake tube in a splash-proof area, if possible.

- (1) Combustion Air Intake Tube





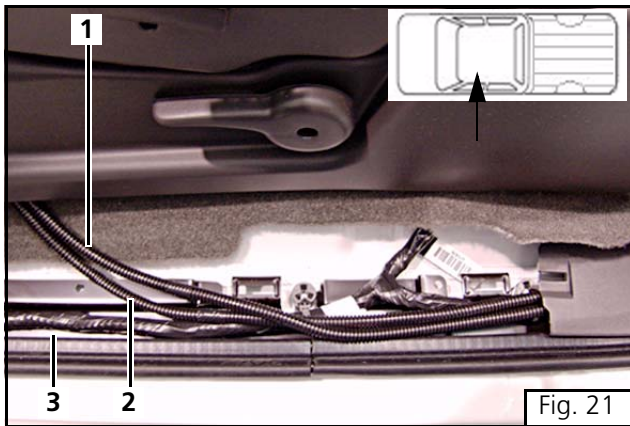
Installing the Electrical Harness

Remove top access cover from heater and plug the harness into the control unit receptacle socket as shown.

ATTENTION

Check your wiring! Ensure that all connections have been done in accordance with the wiring diagrams located in the back of this book. Sensitive electronic controls can be damaged if wired incorrectly!

- (1) Heater wiring harness

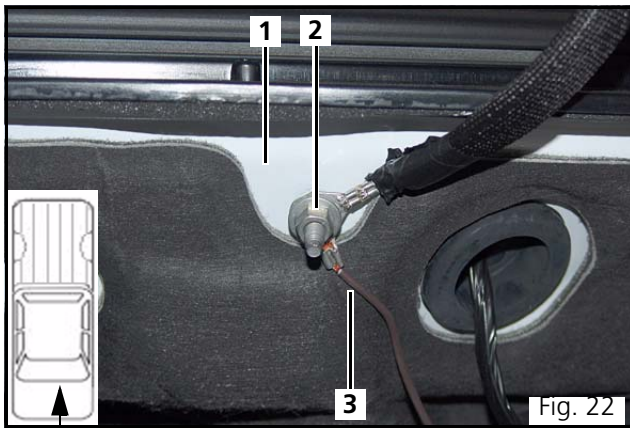


Route the air heater power / ground and heater rheostat control harnesses under the sill plate to the front of the vehicle.

Continue routing the power and ground harness to the engine compartment through the bulkhead grommet.

Route the heater rheostat control harness to the back of the instrument panel.

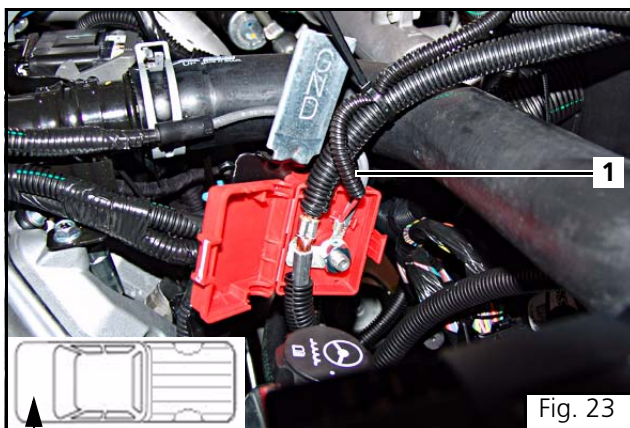
- (1) Heater Rheostat Control Harness
- (2) Heater Power and Ground Harness
- (3) Door Sill



Ground Connection

Secure heater ground to existing vehicle ground.

- (1) Vehicle Bulkhead
- (2) Existing Vehicle Ground
- (3) Heater Ground



Power Connection

ATTENTION

If the fused power circuit has to be cut to facilitate installation ensure it is properly spliced back together. A weather tight butt splice (blue) is provided in the kit for that purpose.

Mount the power circuit fuse holder (15 amp fuse provided) using an existing screw or cable tie.

Connect the heater power wire to battery positive voltage with a 15 amp inline fuse.

- (1) Heater Power Wire





Rheostat Control Dial Installation

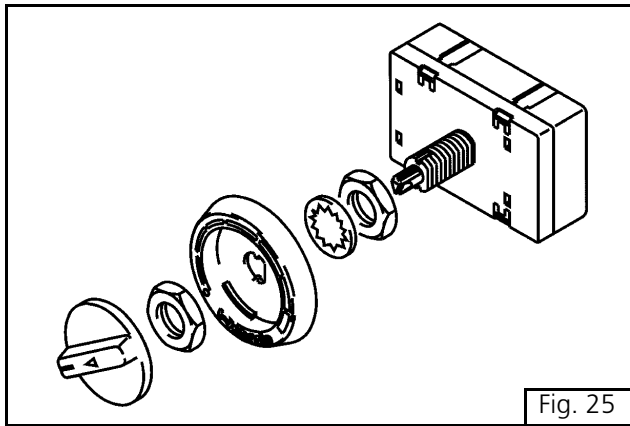
CAUTION

Check behind panels for obstructions before drilling holes.

ATTENTION

Before installing the heater control, please confirm the installation location with the customer.

– (1) Recommended Switch Location



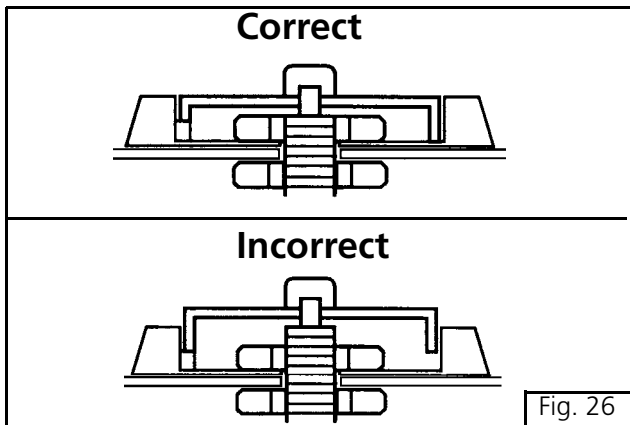
ATTENTION

The control element is not affected by temperature. Temperature is monitored inside the heater.

The wiring harness is prepared for connection to the control element.

Install rheostat control, refer to Figures 25 and 26 for correct installation, and connect wiring harness.

Secure wiring harness with cable ties.

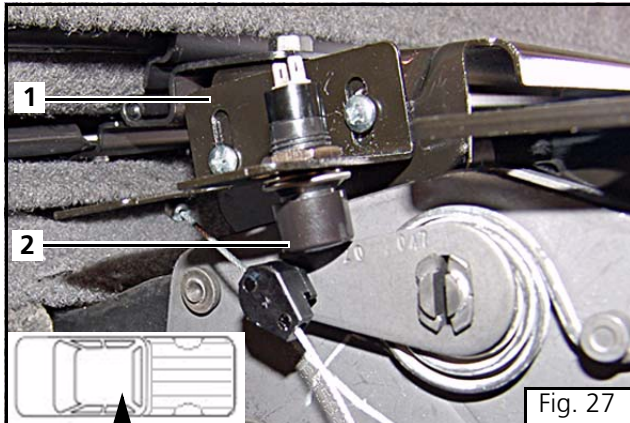


ATTENTION

The optical fiber must be in contact with the rotary knob.

The rotary knob must sit flush with the bezel.





Heater Shutoff Switch

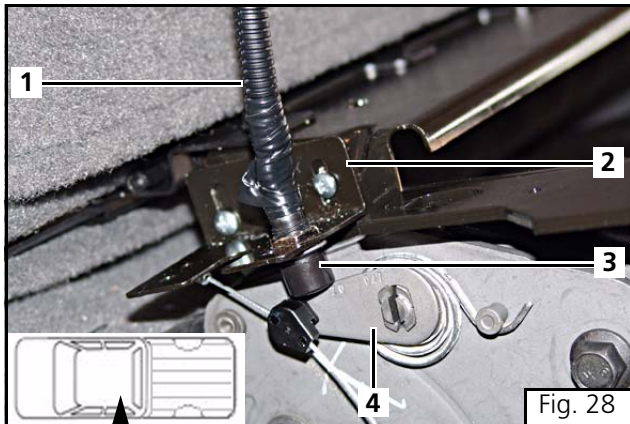
CAUTION

A heater shutoff switch is used to turn the heater off when the left rear seat back is lowered and therefore air heater operation is stopped until the seat back is returned to the upright position. This is done to prevent damage to the heater and the seat back.

Install the electrical mounting bracket on the left rear seat frame as shown in Figure 27.

Enlarge the existing hole in the electrical mounting bracket to facilitate shutoff switch installation.

- (1) Electrical Mounting Bracket
- (2) Shutoff Switch

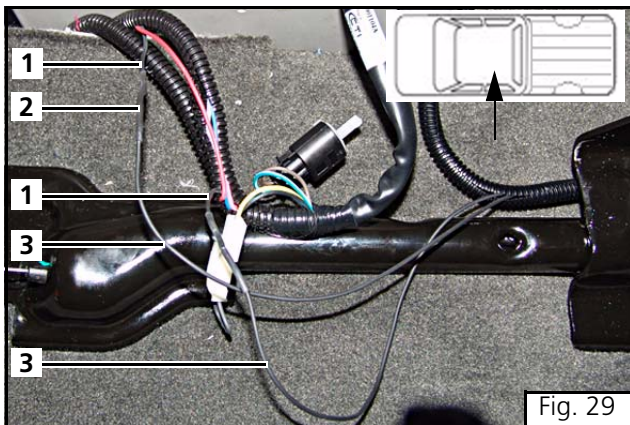


Install shutoff switch on electrical mounting bracket.

Slidder wire provided to switch terminals and seal with plastic loom and electrical tape.

Adjust the electrical mounting bracket so the shutoff switch is fully pressed in by the seat back release lever when the left rear seat back is in the upright position.

- (1) Shutoff Switch Wiring
- (2) Electrical Mounting Bracket
- (3) Shutoff Switch
- (4) Rear Seat Back Release Lever



Route the shutoff switch wires to the air heater mounting location.

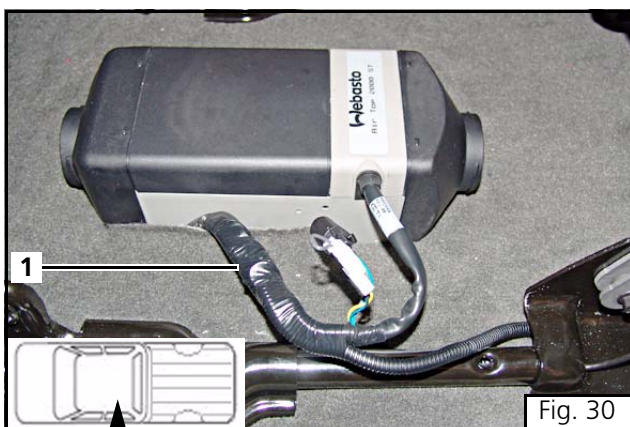
Cut heater ground wire located in plastic loom.

ATTENTION

Position heat shrink on wires prior to making connections.

Splice shutoff switch wires to 20 gauge black wire in heater harness.

- (1) 20 Gauge Black Wire In Harness
- (2) Red (Heat Shrink) Butt Splices
- (3) Shutoff Switch Wire



ATTENTION

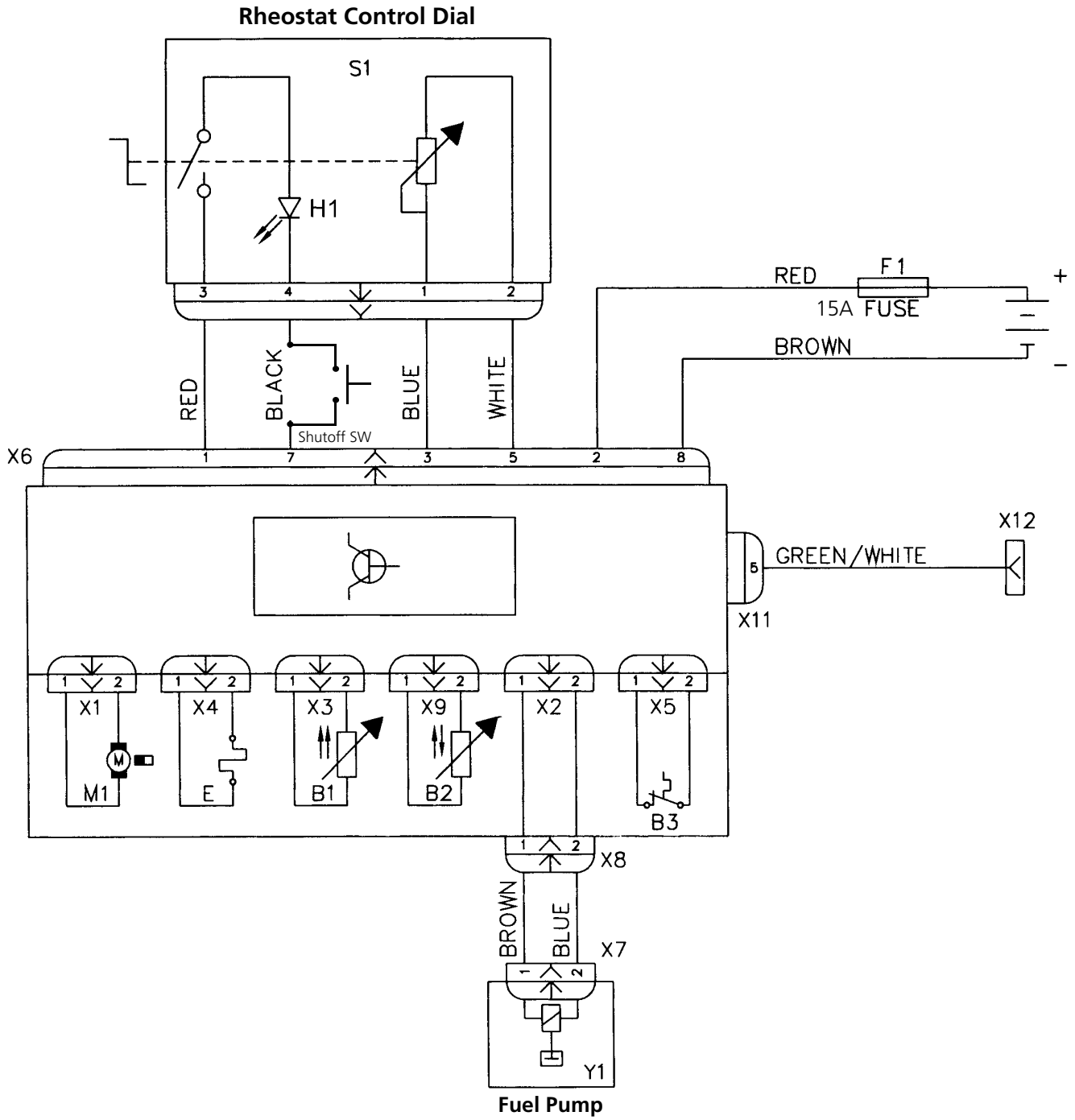
Use plastic loom and electrical tape to protect shutoff switch wires.

Secure switch wires with cable ties where necessary.

- (1) Shutoff Switch Wires Protected



Wiring Schematic - Rheostat Control Dial





Concluding Work

1. Install all vehicle parts, panels and components removed during heater installation.
2. Secure all loose lines and cables with nylon cable ties.
3. Spray the heater components and electrical connections with an anti-corrosive wax coating.

Final Inspection

Inspect installation for:

- loose fasteners.
- Exhaust system routing and clamp tightness.
- Combustion air intake tube routing and clamp tightness.
- 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.

Initial Start-up

1. Set time and day of week on heater timer according to operating instructions found in the owners manual.
2. Switch on the Webasto heater by means of the instant heat button on timer and check:
 - Timer panel and instant heat indicator illuminates.
 - Initiation of start-up sequence.
 - Successful start-up and operation (heat produced at heater outlet).

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

1-800-555-4518





Heater Maintenance

The Webasto BlueHeat heater is designed for minimal maintenance. Under normal circumstances it should be inspected for proper function at least once annually, preferably, just prior to the heating season.

To ensure trouble-free operation, the following should be part of an annual and periodical inspection:

1. Operate the heater a minimum of 10 minutes every month to keep fresh fuel in the system and the fuel pump lubricated.
2. Keep the heating air outlet clear of obstructions.
3. Keep the heater inlet grille clear of obstructions.
4. Inspect the combustion air tube and exhaust tube for obstructions and damage. Check to ensure they are securely attached to the heater and vehicle. Repair damaged items where necessary.
5. Inspect the fuel system and all connections for leaks. Tighten clamps if loose. Ensure fuel line is well secured to the vehicle. Replace fuel filter if equipped.

Documentation Feedback Form

Detailed user feedback is extremely valuable to us in producing accurate, comprehensive, and useful documentation. Please complete the relevant parts of the form below; your comments and suggestions will help us improve our documentation. Thank you.

	Unsatisfactory			Excellent	
Please rate the overall usefulness of the documentation.	1	2	3	4	5
Rate the completeness and clarity of the instructions: did the procedures provide enough detail?	1	2	3	4	5

What could be added or clarified? _____



Please list any other comments, concerns, or suggestions. _____

Please provide contact information below.

Name: _____

Company Name: _____

City / State: _____

Phone: _____

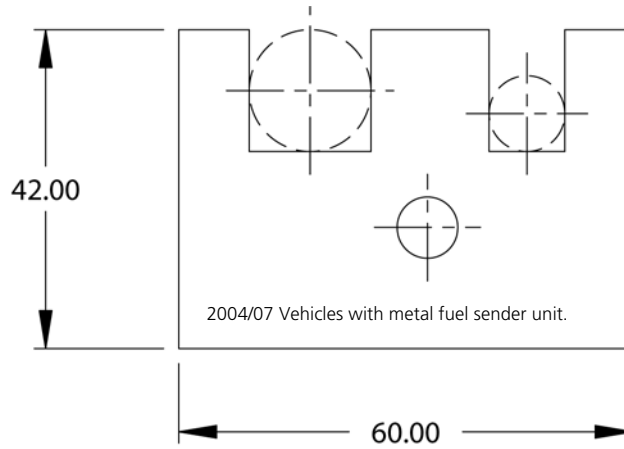
Email: _____

Mail to:
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15083 North Road
Fenton, MI 48430
Attention: Documentation
Group
or
Fax to: (810) 593-6137

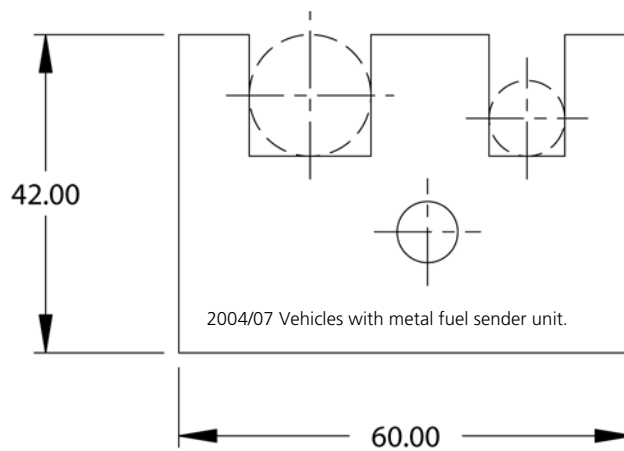
GM 2500/3500 Crew Cab Truck

Sender Unit / Standpipe Template for Model Year 2004/07 Vehicles

Cut out along solid outline of template.



Cut out along solid outline of template.



(Spare template)



Webasto Product N.A., Inc.

Technical Assistance Hotline

USA: (800) 555-4518

Canada: (800) 667-8900