

Air Top 2000 STC Motorhome Kits Universal Installation Guidelines

Air Top 2000 STC

- Carefully read all instructions before beginning the installation
- Use the checklist on page 15 to ensure that all points have been covered
- The following notes and illustrations are intended as advice for the installing technician and as such are not binding. For information concerning special applications or applications you are unsure of, contact the technical help-line on 01302 322232
- The installation must be completed in accordance with the Webasto A5 booklet "AT2000 STC Installation Instructions"

Contents	Page
Installation location	2
Illustrated Parts Lists	3
Heating Air System	4
Ducting & Accessories	7
Fuel Supply	9
Metering Pump	9
Floor Mounting Plate	10
Combustion Air Supply	11
Exhaust Pipe	12
Electrical Connections	13
Installation Checklist	17
Notes	18

Installation Location

Where possible the heater should be installed in the vehicle's interior

If the heater is installed externally in an installation housing, the housing must be of a Webasto-approved design

When installed in the vehicle's interior, the floor/heater interface must be sealed against water ingress. For this purpose, the special gasket supplied with heater must be used. The gasket must be renewed prior to each re-installation

The heater should be located in or as close as possible to the area being heated. In the case of motorhome installations, this is typically in a seat box or locker

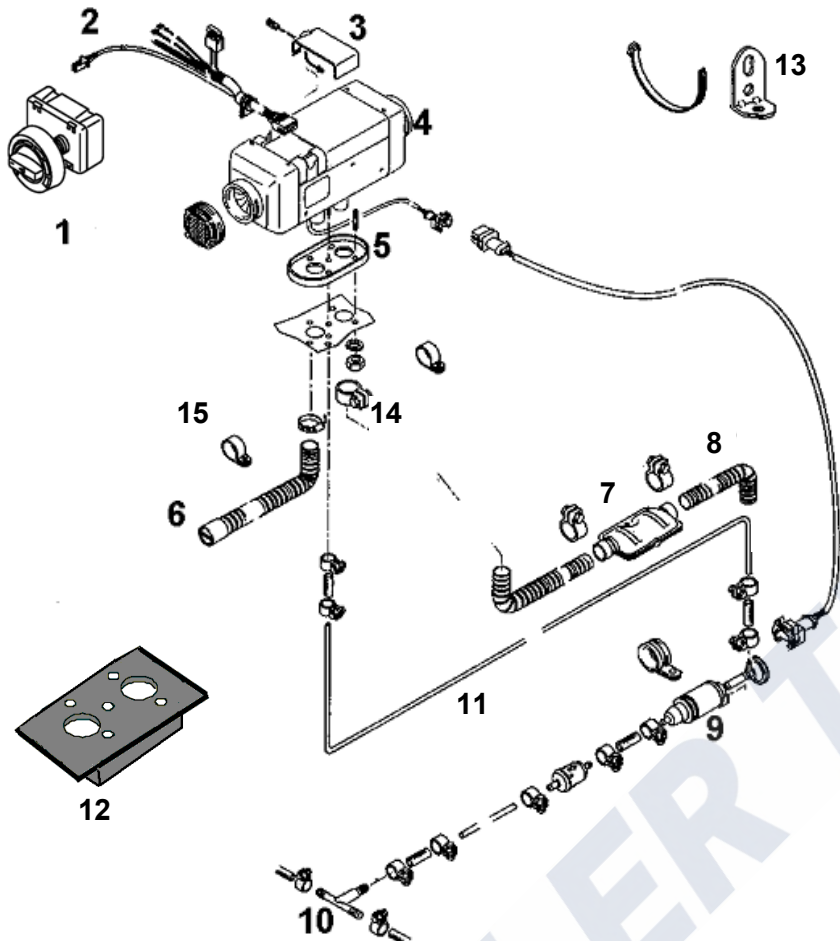
This is acceptable provided the following criteria is observed and adhered to:

- Exhaust, combustion air intake and fuel connections must be located outside of the vehicle's interior
- The heater must be mounted either on a flat surface to provide an air-tight seal between the heater, gasket and vehicle, or on the Floor Mounting Plate included in the kit
- When using the Floor Mounting Plate ensure that the join between mounting plate and vehicle floor is adequately sealed so as to avoid water ingress
- Where the heater is mounted externally, a splash proof housing must be provided
- Consider the position of an external housing in relation to the vehicle components e.g. allow for movement of the vehicle exhaust, do not impair the operation of hand-brake cables in any way, consider the ground clearance of the vehicle

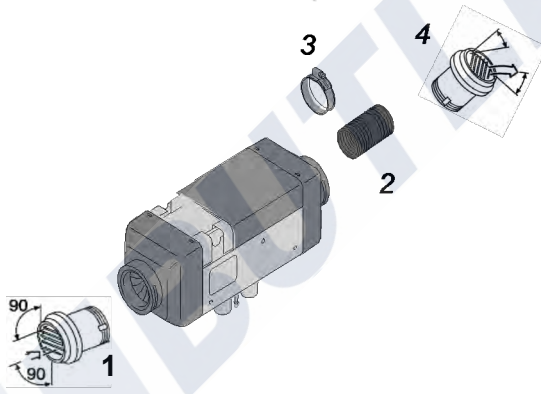
When selecting a location for the heater, consider the following:

- Sufficient space for heating air inlet and outlet ducting. Preferably, where it cannot be damaged during normal use
- Combustion air and exhaust location, specifically, clearance around under-floor cross-members and structures, and heat sensitive components—bear in mind that no flammable material (flammable liquids, vapours and gases) must be stored in the vicinity of the heater and its exhaust hose
- Fuel line connections and routing
- Electrical harness routing
- Access to the heater for servicing

Illustrated Parts Lists - Typical Motorhome Kits



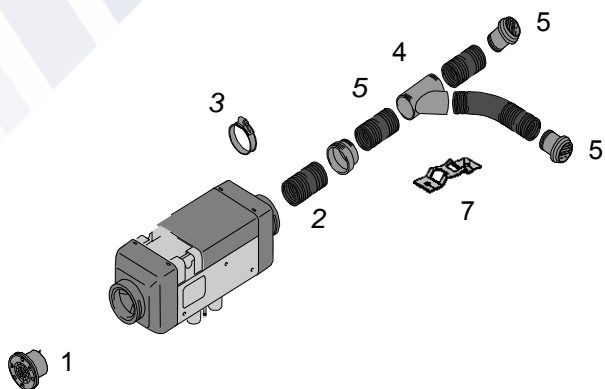
Item	Description	Qty.
1	Rheostat Switch AirTop	1
2	Wiring Harness AirTop	1
3	Remote Temp. Sensor	1
4	AirTop 2000STC Diesel 12V	1
5	Floor Gasket	1
6	Combustion Air Hose	1
7	Exhaust Silencer	1
8	Exhaust Hose 22mm	1M
9	Fuel Pump & Fittings	1
10	Fuel T Piece Kit	1
11	Fuel Hose	8M
12	Floor Mounting Plate	1
12	Floor Mounting Plate (Not Shown)	1
13	Angle Bracket	2
14	Exhaust Clamp 22mm	3
15	Exhaust P Clip 25mm	1



Typical 1 Outlet Ducting Kit

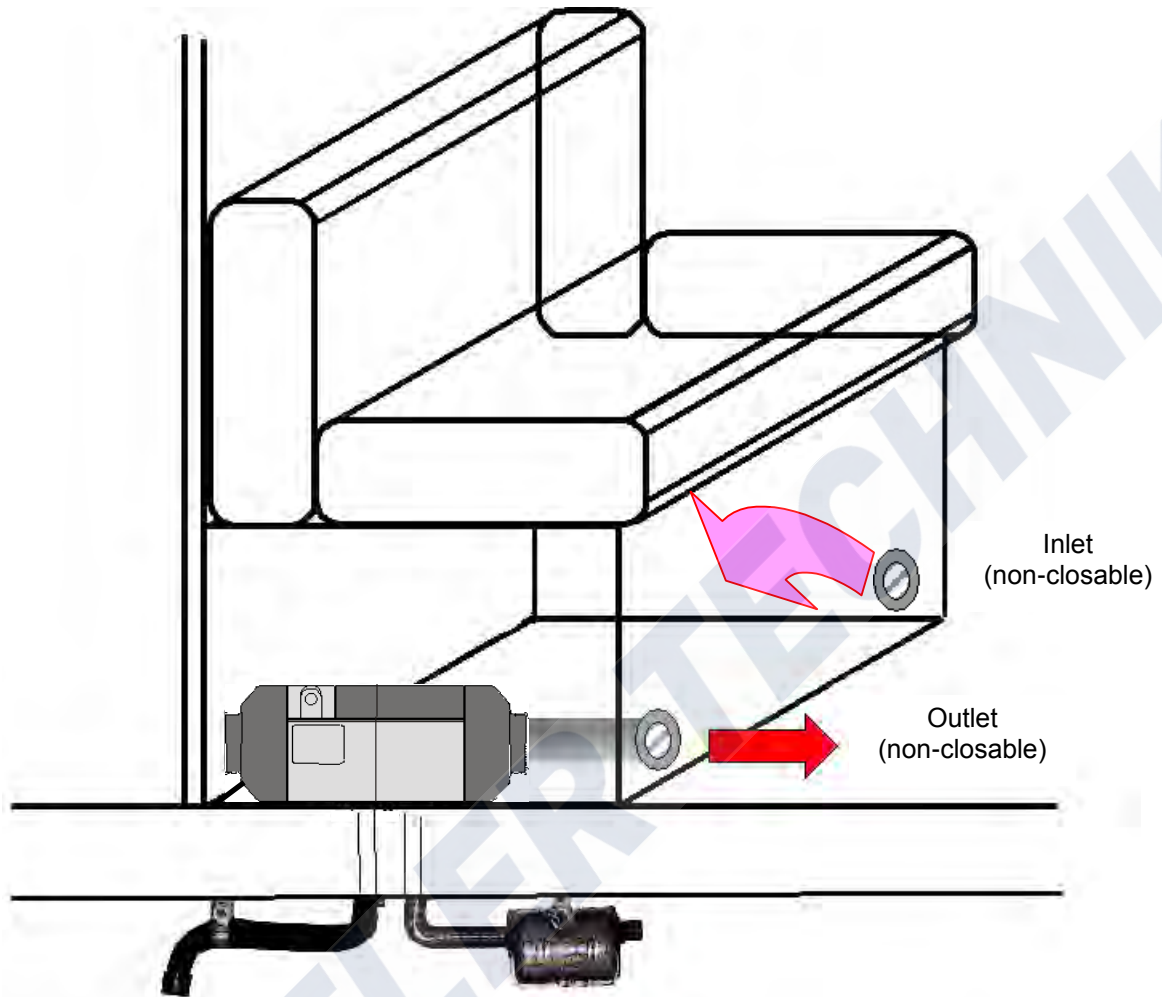
Item	Description	Qty	Notes
1	Air Inlet 60mm (90deg)	1	Black
2	60mm Ducting	1	
3	Hose Clip 50-70mm	2	
4	Outlet 60mm (45deg)	1	Black
5	Screw 4Gx3/8" Self Tapper	4	Not Shown
6	Outlet Backing Nut	1	Not Shown

Typical 2 Outlet Ducting Kit



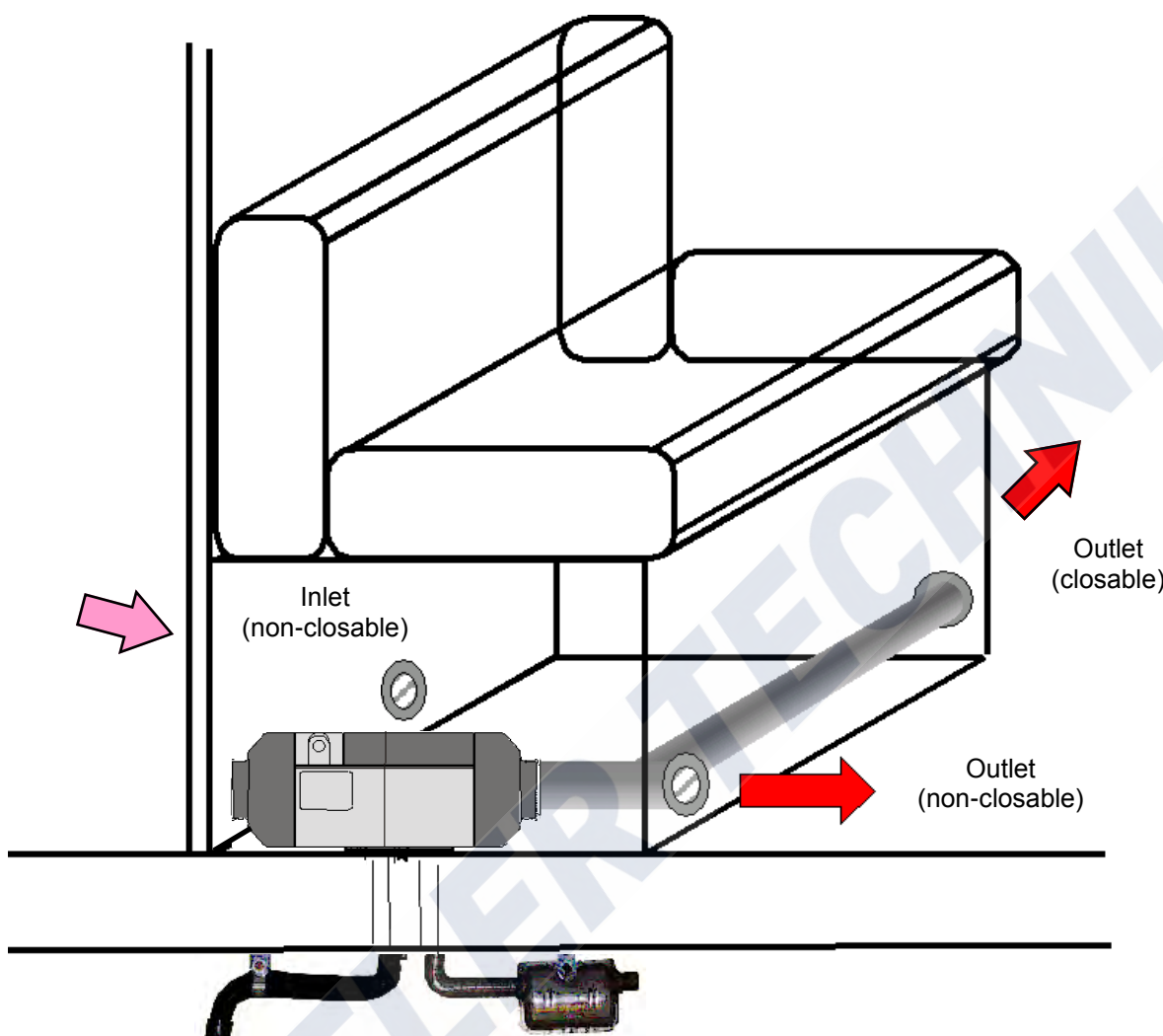
Item	Description	Qty.	Notes
1	Inlet 60mm (90deg)	1	Black
2	60mm Ducting	2.5m	Spec PAK for external Mount
3	Hose Clip 50-70mm	8	
4	60x60x60 Y Branch	1	
5	Outlet 60mm (45deg)	2	Black
6	Outlet Backing Nut	2	Not Shown
7	Ducting Clamp	2	
8	Screw 4Gx3/8" Self Tapper	1	Not Shown

Heating Air System



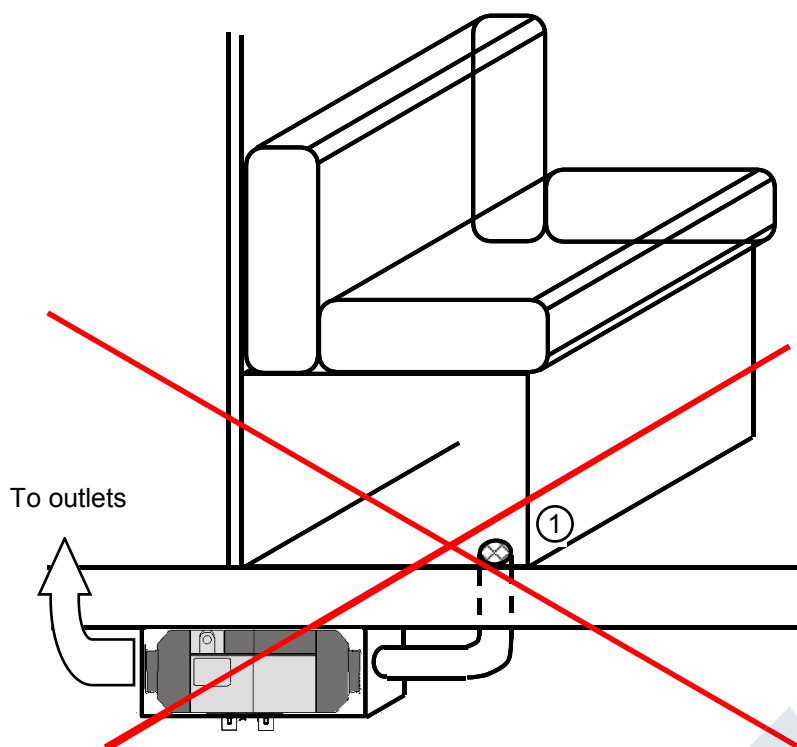
Example of a single outlet installation mounted internally inside a seat box

- All air heater kits must **ALWAYS** have a non-closable inlet and have at least 1 non-closable outlet
- It is not necessary for the non-closable inlet to be connected to the heater inlet via ducting provided that the inlet into the enclosed space (seat box or locker) and the inlet to the heater are unobstructed
- Mount the remote temperature sensor in the main living area away from the compartment where the heater is installed, at mid-height preferably on a vertical surface which is not directly in the hot air stream from a heater outlet (Webasto or vehicle heater), and not in direct sunlight



Example of a two outlet installation mounted internally inside a seat box

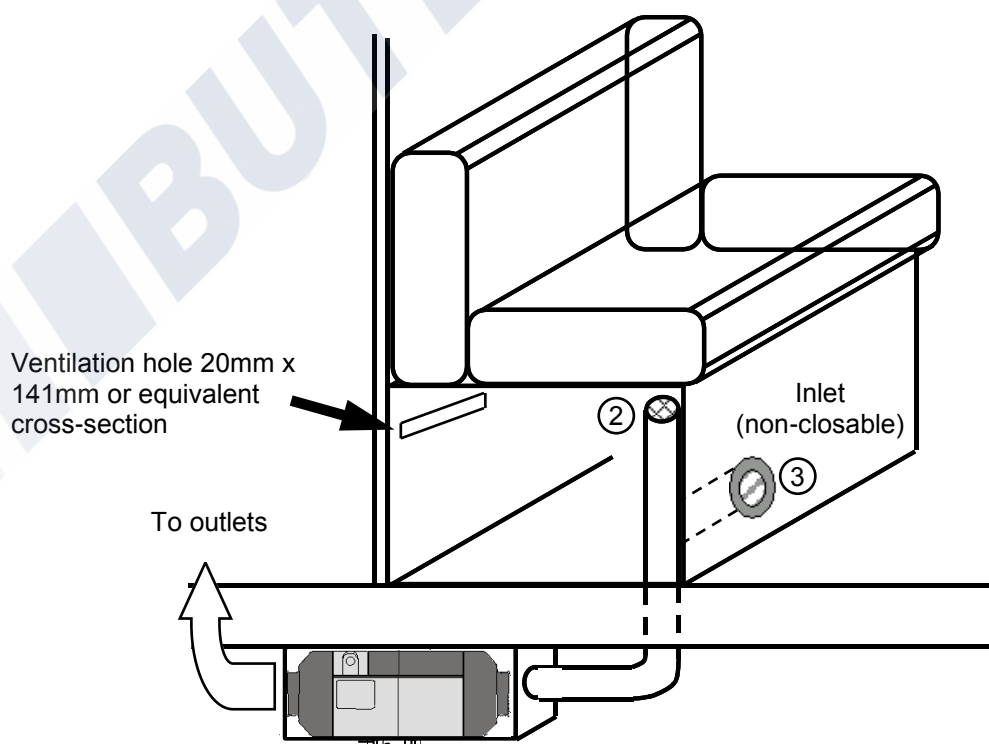
- All air heater kits must **ALWAYS** have a non-closable inlet and have at least 1 non-closable outlet
- It is not necessary for the non-closable inlet to be connected to the heater inlet via ducting provided that the inlet into the enclosed space (seat box or locker) and the inlet to the heater are unobstructed
- Mount the remote temperature sensor in the main living area away from the compartment where the heater is installed, at mid-height preferably on a vertical surface which is not directly in the hot air stream from a heater outlet (Webasto or vehicle heater), and not in direct sunlight



- The intake air for the heater should always be taken from within the vehicle to avoid circulating exhaust gases and other noxious fumes into the vehicle interior

Example of an externally mounted installation

- The mounting of heater inlets or outlets onto a horizontal surface such as the bottom of a seat box (1) is not recommended as the risk of obstruction by loose objects is high
- It is preferable to either mount the inlet higher in the seat box (2) and provide adequate means of ventilating the compartment equivalent to at least the cross-sectional area of the ducting ($\text{Ø}60\text{mm}$ ducting = 2827mm^2 = a square hole in the side of the compartment $20\text{mm} \times 141\text{mm}$ or equivalent) OR connect the ducting directly to a non-closable inlet mounted in a vertical face in the side of the compartment (3)

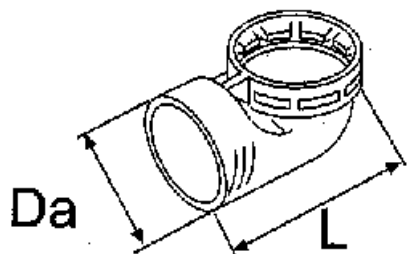


Ducting & Accessories

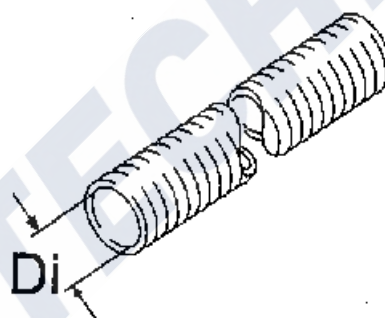
The illustrated parts shown in this section can be used in any configuration providing that they are assembled in accordance with the following points: -

- All ducting systems must include at least 1 non-closable outlet
- The total resistance value of the ducting system must not exceed 150

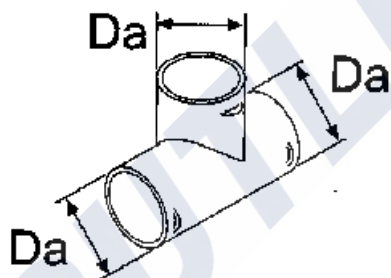
Note: The following parts are all finished in Black



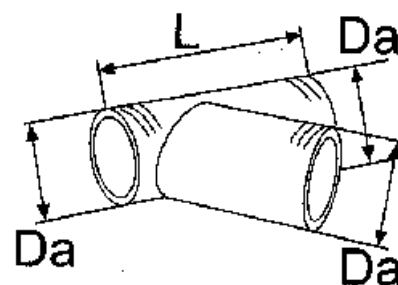
Elbow - Da = 5 L = 100 101404
 Da = 60 L = 133 29849A
 Da = 80 L = 120 116909
 Resistance Value - 32



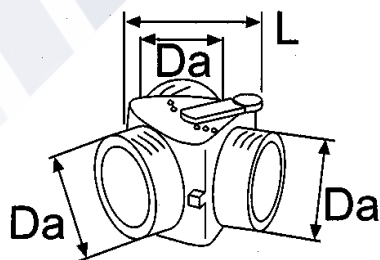
Ducting - Di = 55 441376
 Di = 60 398497
 Resistance Value - 7 per metre



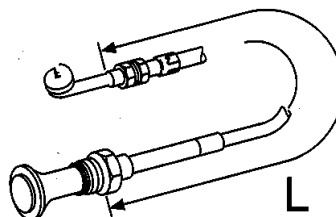
T Piece - Da = 60 86643A
 Resistance Value - 3



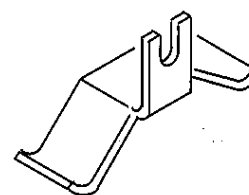
Y Piece - Da = 55 495697
 Resistance Value - 1



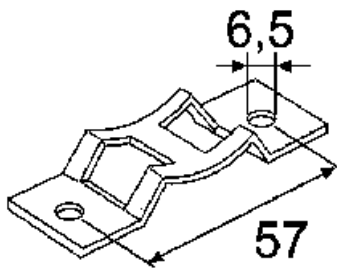
Y Piece with flap valve - Da = 55 L = 95 101374
 Resistance Value - 17



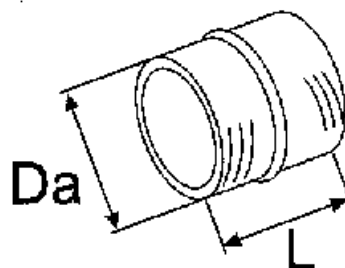
Control Cable - L = 850 107812
 L = 1500 108932



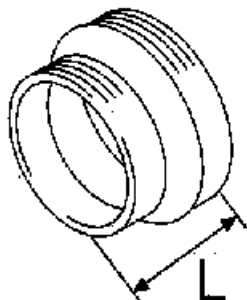
Support - 109006



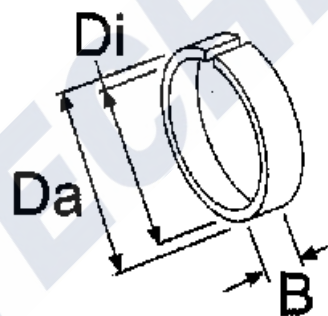
Ducting Support - 492515



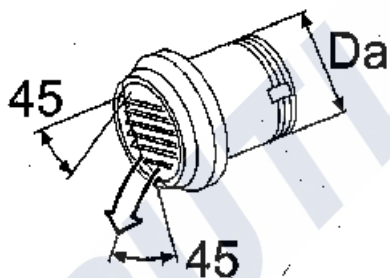
Ducting Connector - Da = 55 L = 55 495638
Resistance Value - 6



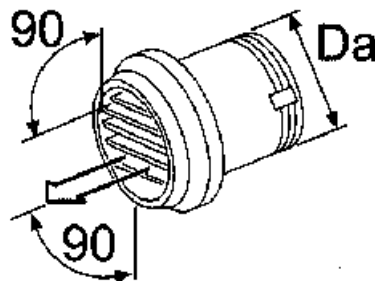
Reducer - D = 55/60 L = 35 29852A
Resistance Value - 9



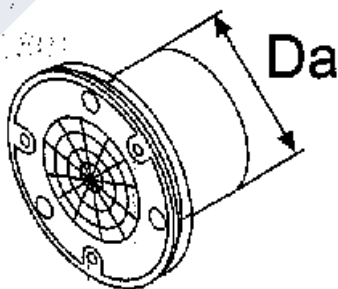
Adapter - Da = 60 Di = 55 B = 17 92971A
Resistance Value - N/A



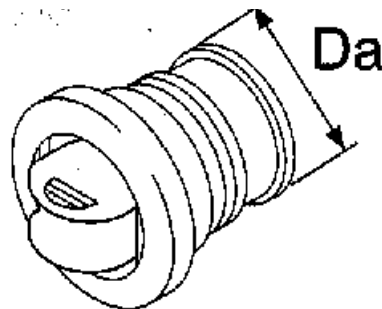
Outlet - Da = 55 (45°) 107836
Resistance Value - 60



Outlet - Da = 55 (90°) 101625
Resistance Value - 7



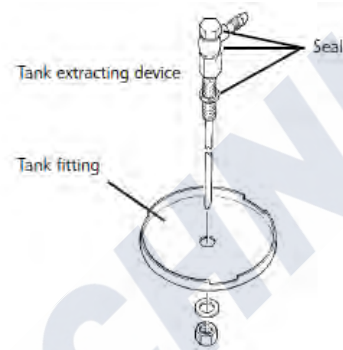
Outlet - Da = 60 87389A
Resistance Value - 6



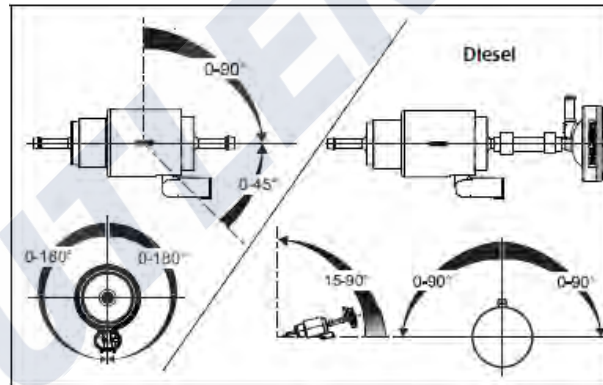
Outlet (Closable) - Da = 55 429570
Resistance Value - N/A

Fuel Supply

Due to variations in vehicle design and application requirements there are multiple fuel integration methods available. If unsure please contact Webasto to discuss exact requirements and possible solutions.

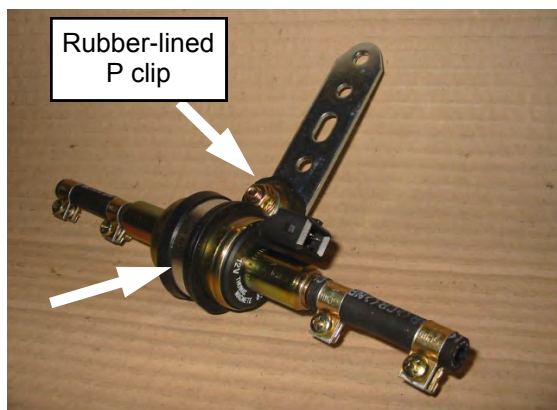


Metering Pump



There are 2 types of metering pump, 1 with diaphragm 1 without both are sensitive to installation orientation. Identify the pump by matching it against the illustrations shown above. Note that the pump with diaphragm should be mounted at an angle of between 15° - 90° in order for

Metering Pump continued



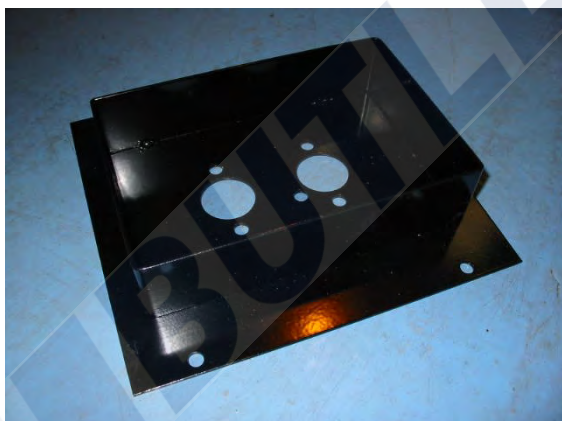
Metering Pump assembly



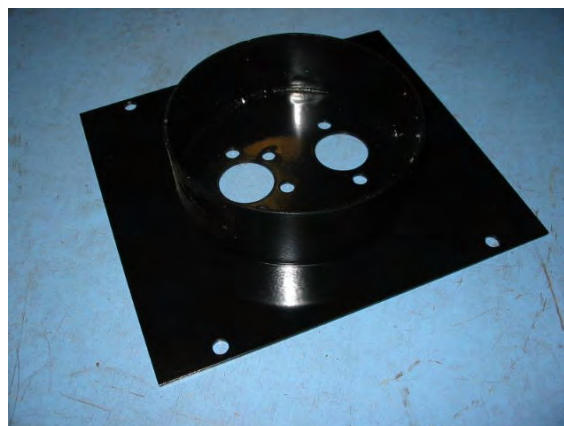
Optional Metering Pump Mounting

- Assemble the pump with the P clip and Anti-vibration mounting as shown above left
- Mount the pump as close to the vehicle fuel tank as possible
- In certain installations the sound of fuel metering pump when operating may be heard inside the vehicle. To avoid this the pump (DP30 type only) can be mounted in the optional flexible sling shown above right part No: AB-120W

Floor Mounting Plate



Part No: 4145000



Part No: 41C0193

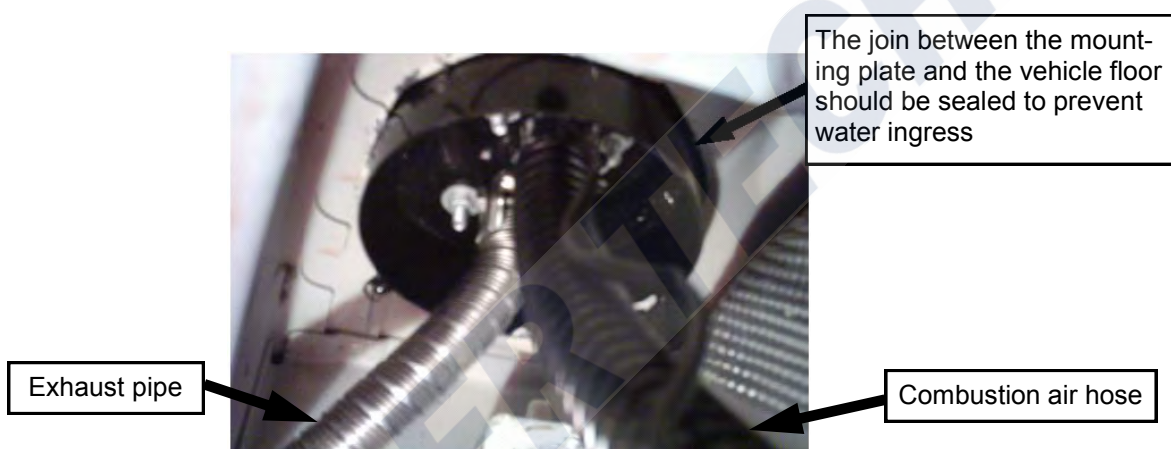
The floor mounting plate allows the heater to be mounted on thick composite floor sections and also uneven steel floors. The floor plate shown above right requires a 5" / 127mm hole saw for installation

Mount the heater on the floor plate and attach the combustion air hose, exhaust pipe and fuel hose to the heater before mounting the assembly to the floor using a suitable sealer

Floor Mounting Plate continued



Use the 10mm hose clip with the hexagon head shown above to ease fitment of the fuel hose connector to the heater



Installation using the circular floor plate 41C0193 in a steel vehicle floor

Combustion Air Supply

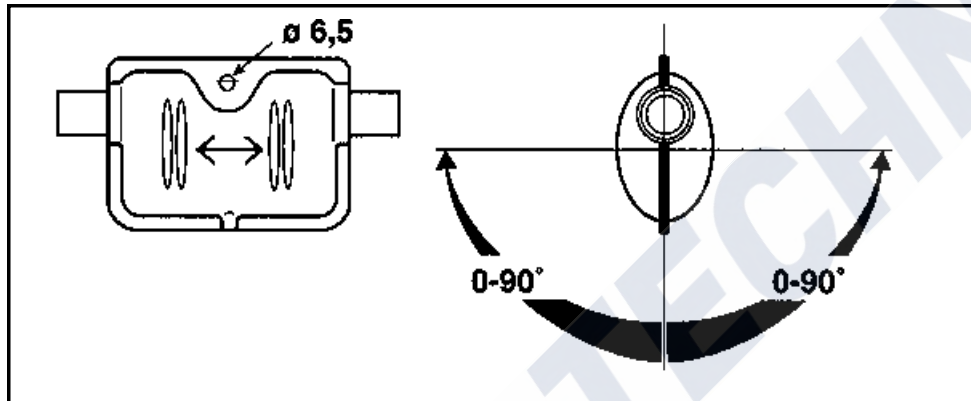
- Use the full length of the combustion air hose as this will keep noise to a minimum
- Position the inlet to the hose away from the heater exhaust outlet and other heat sources, avoiding areas which may be directly exposed to water splashes and road debris
- The combustion air hose must be routed in a downward pitch to allow condensation to drain away from the heater
- **The combustion air must never be extracted from the vehicle interior under any circumstances!**



Combustion air hose mounting example

Exhaust Pipe

- Use the full length of the exhaust pipe and mount the silencer close to the heater (typically 250 - 300mm from the heater) - this will keep noise to a minimum
- The exhaust pipe must be routed in a downward pitch to allow condensation to drain away from the heater
- Position the exhaust pipe and silencer so as to avoid areas which may be directly exposed to water splashes and road debris from the vehicle road wheels



The exhaust silencer must be mounted within these limits to allow drainage of condensation

- The exhaust pipe must be positioned such that its direction of discharge is approximately vertical $\pm 10^\circ$ (Refer to the Webasto A5 booklet "AT2000 STC Installation Instructions")
- Support the exhaust pipe no more than 150mm from its end using the 25mm P clip
- **The combustion exhaust must never be vented into the vehicle interior under any circumstances!**
- Position the outlet of the exhaust such that its discharge is directed away from awnings, vehicle windows, vents and other openings



Exhaust mounting example (without silencer)

Electrical Connections

- All electrical connections are to be carried out in accordance with the wiring diagrams shown in the Webasto A5 booklet "AT2000 STC Installation Instructions"
- It is recommended that the positive feed (red 2.5mm²) & negative (brown 2.5mm²) be connected directly to the leisure battery
- The main fuse must be installed at a maximum distance of 1 m from the battery positive pole
- Install the heater wiring harness such that all connections are located away from areas which may be directly exposed to water splashes and road debris
- If it is necessary for any of the harness cables to be extended then their cross-sectional area must be increased in accordance with the table shown in the Webasto A5 booklet "AT2000 STC Installation Instructions"
- A spare fuse terminal is supplied to enable shortening of the positive (red 2.5mm²) cable to the heater
- If a battery master switch is installed then it must not be used to disconnect the power supply to the heater until it has completed its shut-down phase as this could cause permanent damage to the heater

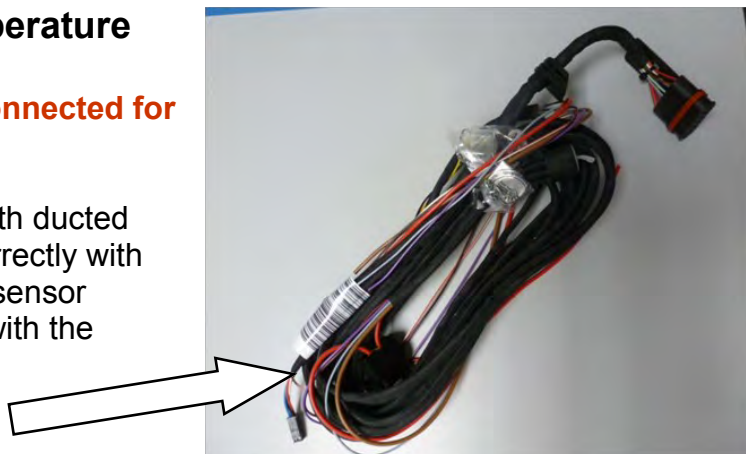


- Terminate the fuel pump cable using the terminals and female plug from the kit
- Ensure that the white grommets are over the cables before crimping on the terminals. (Older type housings do not use the white grommets but have a black boot which must be slid over the cable before crimping on the terminals).
- The polarity of the 2 cables is not critical.

Connection of the Remote Temperature Sensor

(It is Mandatory that this Sensor is connected for the Heater to operate correctly)

- Certain motorhome installations with ducted warm air are unable to function correctly with the standard internal temperature sensor therefore this should be replaced with the remote sensor from the kit
- Identify the Main Wiring Harness.



Connection of the remote temperature sensor continued

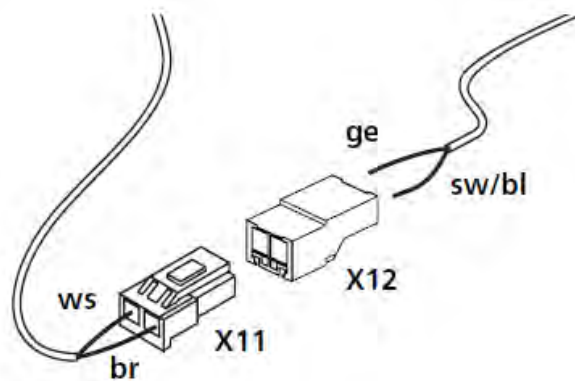
- Identify the position of the RESISTOR in the Harness. It is located near the 4 Way plug that connects the Heater to the Rheostat Controller
- Cut the YELLOW & BLUE/BLACK wires here.



- Identify the Remote Temperature Sensor and the 2 way Plug terminated at the connection end of the Harness.



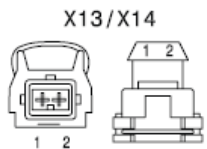
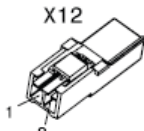
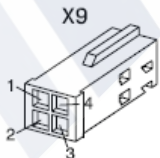
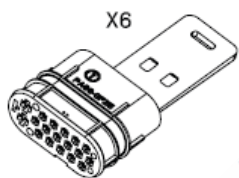
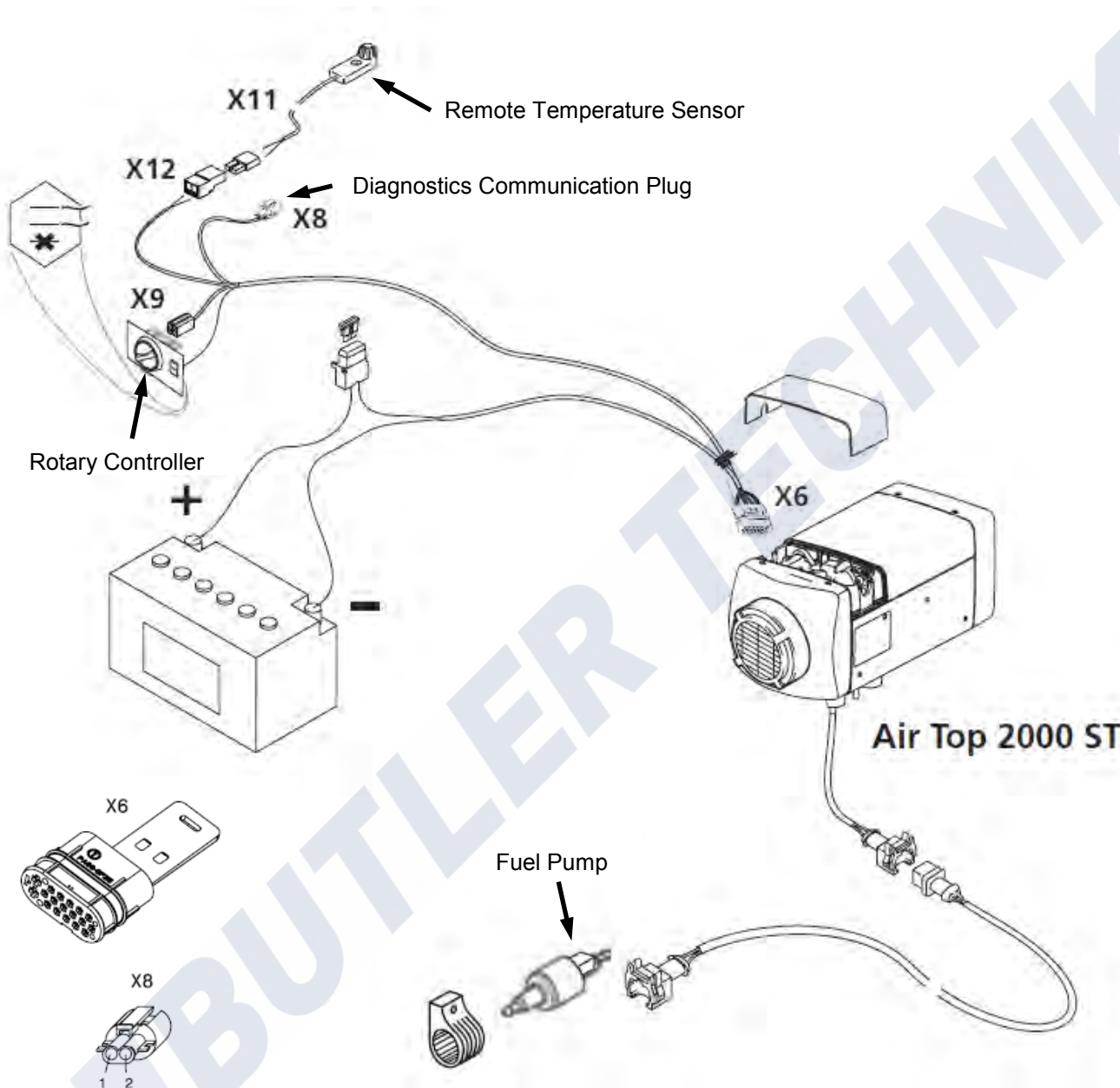
- Using the TERMINALS and CONNECTORS supplied, connect the Main Harness to the External Temperature Sensor Harness



- Mount the remote temperature sensor in the main living area away from the compartment where the heater is installed, at mid-height preferably on a vertical surface which is not directly in the hot air stream from a heater outlet (Webasto or vehicle heater), and not in direct sunlight

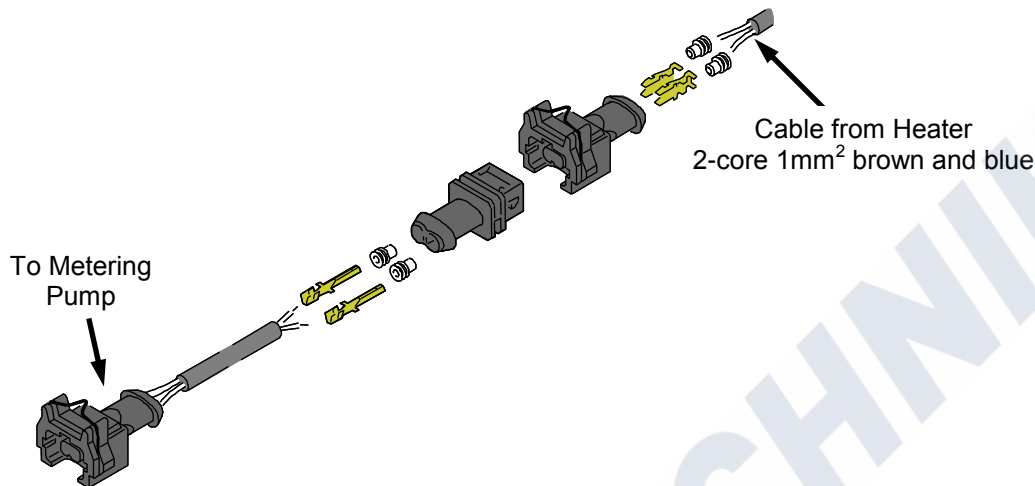


Air Top 2000 STC Motorhome Kits; Electrical Connections cont...

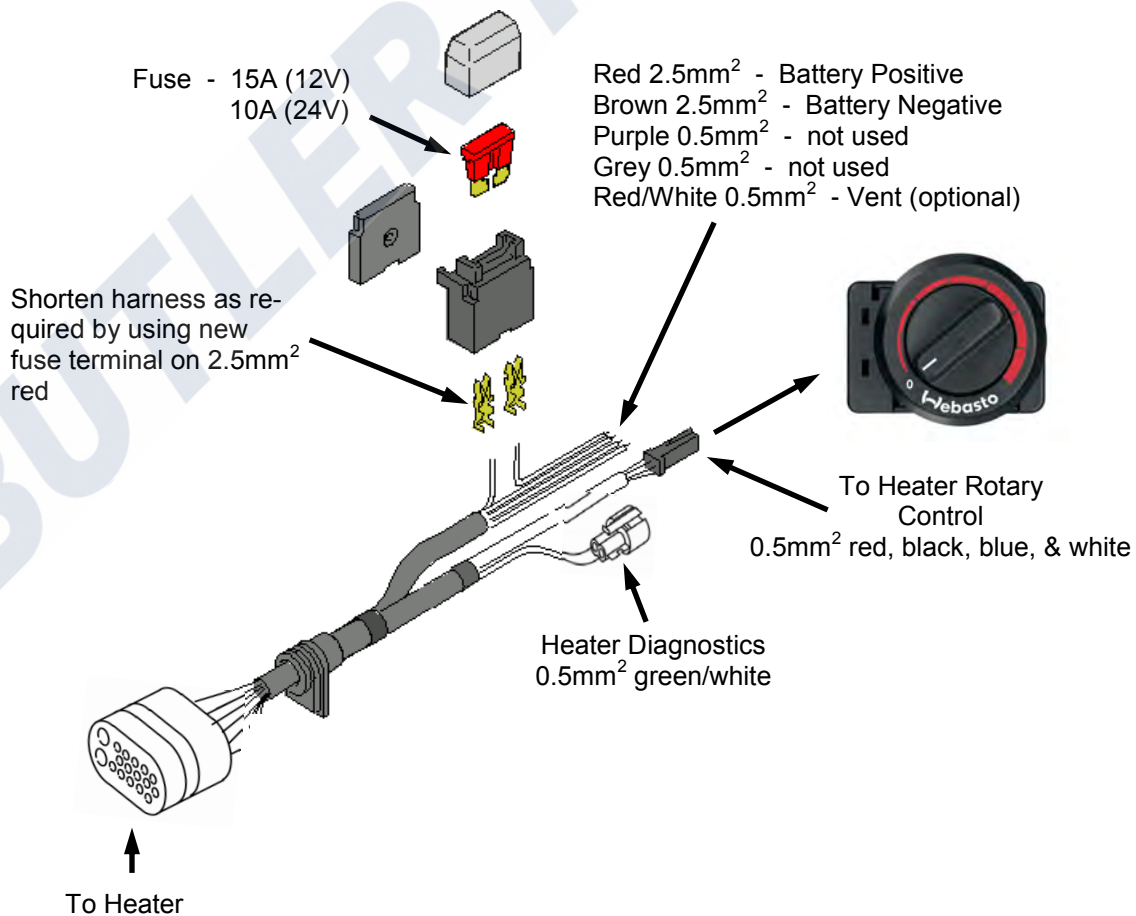


X1 - X7	Plug connection	At Pos. A2
X8 - X13	Plug connection	
X14	Plug connection	to item Y1
X15	Plug connection	to item P

Electrical Connections cont...



Metering Pump Harness



Heater Harness

Air Top 2000 STC Motorhome Kits Installation Checklist

Refer to the Webasto A5 booklet "AT2000 STC Installation Instructions"

Installation Location

- Decide where the heat distribution is required
- Consider the heater location in relation to the ducting route
- Consider the chosen heater location & the underside of the vehicle i.e. chassis members etc.

Heating Air System

- Air should ideally be drawn from within the vehicle via a ventilated seat/storage box
- Optionally, fresh air from outside the vehicle or re-circulated air may be drawn in using a ducting Y piece with control flap (Part No. 101374)
- Use the larger, non-closable air outlets in the main living area
- In other rooms (bathroom, garage) use the smaller air outlets; they may be closable
- At least one of the air outlets in the system must non-closable
- Ensure that the maximum permissible resistance value is not exceeded (page 7)

Fuel Supply / Metering Pump

- Mount the pump as closely to the tank as possible
- Avoid mounting the metering pump onto the vehicle's main support structures as this will transmit the noise of the pump into the vehicle's interior
- Check for the base vehicle's recommended method of fuel extraction, i.e. T into vehicle fuel return hose or use separate tank extraction device

Combustion Air Supply

- Air must only be drawn from outside the vehicle
- The end of the combustion air hose must always point downwards
- Ensure that the combustion air intake cannot be obstructed by loose objects

Exhaust Pipe

- The exhaust pipe exit must point vertically downwards
- Ensure that the exhaust gas exit is away from windows or ventilation openings
- Mount the silencer close to the heater. The longer the tailpipe the quieter the exhaust
- The total radius of bends should not exceed 270°
- Avoid bending the pipe too sharply

Electrical Connections

- Ensure that all connections are shielded from direct water splash and road debris to avoid corrosion

Notes

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