



DIESEL GENERATORS

Customer Support: (03) 9316-9700
E-Mail: sales@wellcross.com.au

Installation Instructions W&C Jacket Heater - 2013

W&CJHEAT Rev A
P/N: 20-1KW-JACK HEAT-13

WARNING READ CAREFULLY FOR PROPER INSTALLATION & OPERATION

CAUTION

Heater Damage: Do not connect unit to electricity until the following steps have been completed. Never operate heater in air (verify heater is full of coolant and properly plumbed).

NOTICE

Please read carefully: W&C's tank style jacket heaters operate on the simple principle that heated fluid expands slightly and rises. Reliable and efficient operation of the heater is dependent on proper mounting location and installation. As the temperature of the coolant in the heater tank increases, its density decreases causing it to rise through the outlet of the jacket heater tank and into the engine. The coolant leaving the jacket heater tank is replaced with coolant drawn from the engine in a continuous cycle.

Mounting and installation:

Before selecting a mounting position, consider the impact of: mounting locations, jacket heater inlet and outlet ports, engine coolant ports, as well as the routing for hoses and electrical cord. The supply hose to the heater and the return hose to the engine should preferably be on the same side of the engine and as far apart as possible with coolant drawn from the front and returned to the rear of the engine, with the port where coolant is returned to the engine ideally higher than the port where the coolant is pulled from. This allows for maximum heat distribution throughout the engine. See Figure 1 and 2 showing recommended plumbing locations.

- See Minimum Plumbing Sizes (NPT Fittings and I.D. Hose)

1. Drain and thoroughly flush cooling system.
2. Using supplied hardware, mount heater to the engine frame or skid ensuring that the jacket heater outlet is as close to directly below where the coolant will be returned to the engine as possible and that the heater is below the lowest point of the water jacket. See Figures 1 and 2.
3. Jacket Heater Outlet: Install the hose between the outlet of the jacket heater and where the coolant will be returned to the engine. The hose must be routed to have a continuous rise from the heater to the engine. See Figure 3A.

NOTE: If isolation valves are installed, they must not increase flow restriction. Use only "full flow" type valves.

CAUTION

Personal Injury: Do not energise the jacket heater with closed isolation valves. Excessive pressure could result.

4. Jacket Heater Inlet: Connect hose from the inlet of the jacket heater to where the coolant will be pulled out of the engine. There must be no high spots in the routing of the hose. See figure 3B.
5. Refill the cooling system following the engine manufacturer specifications for coolant. Start engine and allow it to run until the engine thermostat opens. This will help purge the air out of the heater and plumbing. Once the engine has reached operating temperature, shut off and check for leaks. After the engine has cooled down, check coolant level and top off if needed.
6. Secure power cord at intervals with tape or wire ties to avoid contact with all hot or moving parts.
7. Connect heater to a properly grounded power source making sure to follow national and local electrical codes.

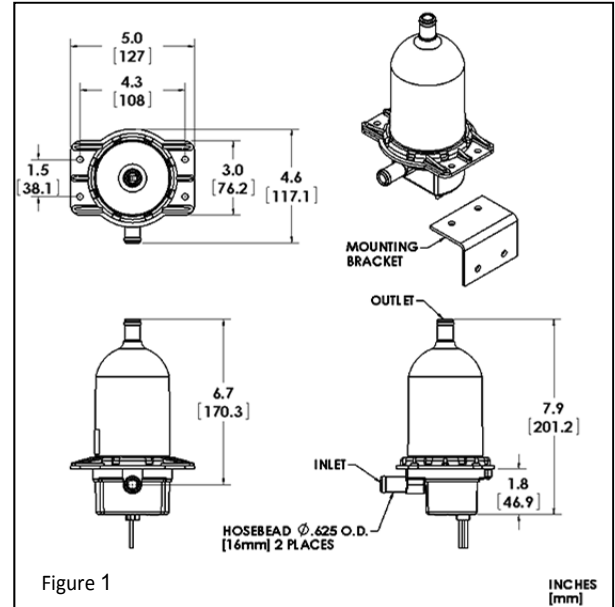


Figure 1

INCHES [mm]

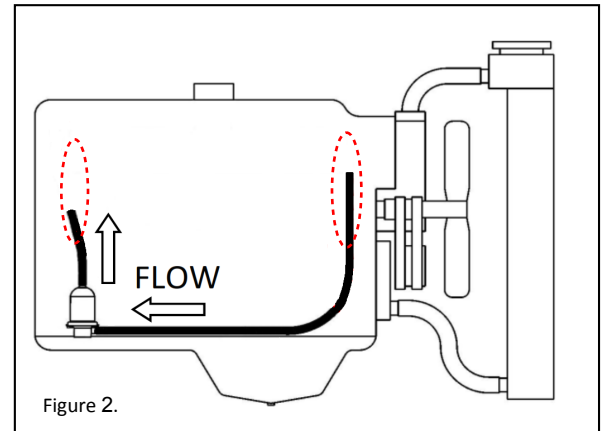


Figure 2.

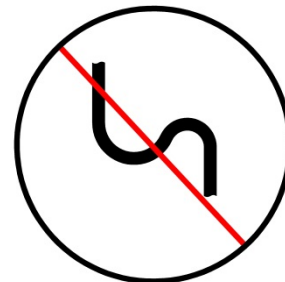


Figure 3A.

WRONG!

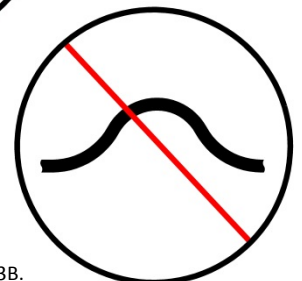


Figure 3B.

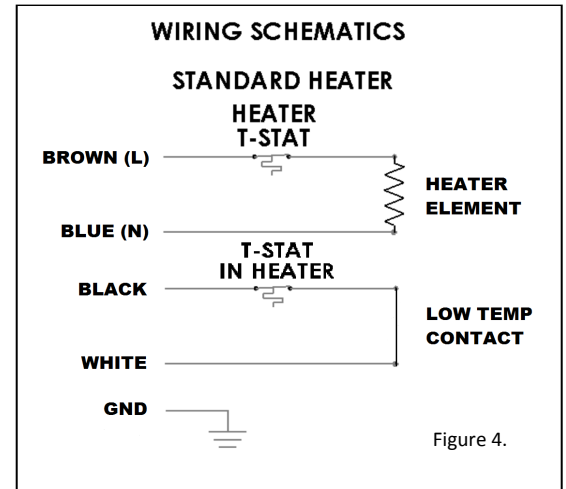
Evaluating Heater Performance

To ensure that the W&C jacket heater has been installed correctly, the coolant temperature going into the engine should be well below 90°C (200°F) and the heater should cycle on and off as required. An outlet temperature higher than 90°C or the inlet hose that is hotter than the outlet hose indicates limited or no circulation. This will result in decreased heater/hose life and poor engine heating.

If poor circulation is suspected, it could be due to one or more of the following reasons:

- Airlocks may be present. Airlocks can form in hoses due to loops, routing over the top of the engine, excessive hose lengths, or kinks in hose.
- Jacket Heater is mounted too high relative to the engine water jacket.
- Jacket Heater is not mounted properly i.e. outlet not vertical.
- Contaminants in coolant restricting flow path.

The thermostats in W&C jacket heaters are designed to measure the coolant as it enters the jacket heater. This is the coolest water in the circuit. For example, if a heater has a thermostat rated for on at 38°C and off at 49°C, the average engine temperature should be approximately 55°C.



Maintenance and Service



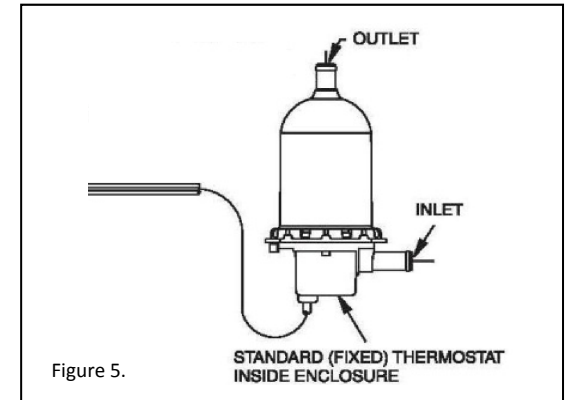
Personal Injury: Disconnect and lockout electrical supply to heater before servicing the heater or any part of the installation.

Once per year:

- Drain, clean, and flush cooling system
- Visually inspect the Jacket Heater ports for any obstructions
- Check for cracked and/or weakened hoses and replace if necessary
- Check electrical wiring and connections for wear and excessive heat



Personal Injury: Do not energise the jacket heater with closed isolation valves. Excessive pressure could result.



Testing the W&C Jacket Heater

Step 1: Energise the Jacket Heater

Step 2: Feel the jacket heater outlet hose at the engine connection. It should get hot.

NOTE: If the jacket heater is hot and the top of the jacket outlet is not, disconnect power to the jacket heater. Disconnect and bleed the outlet line at the engine.

Step 3: If the jacket outlet hose is hot, the block and jacket intake hose should begin to warm up as the circulation back to the jacket heater is completed.

Minimum Plumbing Sizes

- 1/2" NPT Fittings, 5/8" I.D. Hose
- 3/4" NPT Fittings, 1" I.D. Hose