Appendix B: Diesel heater cleaning:

OK, so the diesel heater isn't getting very warm, or isn't staying running, or is just dumping black smoke. It's just dirty inside and needs to be cleaned. In the back room is a black and yellow tool box with a spare heater, tools, and some spare parts. This is a little messy so you'll want to put on some gloves to save water when you clean it.

Step 1: Shut off the main power switch. Disconnect the black duct, the intake, exhaust, and fuel lines from the bottom of the unit, you may need to grab a socket and ratchet out of the tool box to get the exhaust pipe off. Pull the main power jack. Pull the whole unit out and set it on the bench. Open the tool box and pull out the spare. It connects up the same way so just reverse the process. Once it's all hooked up, go turn on the heater and it should fire up just fine.



Time for some disassembly. Unscrew the black intake grate and lift off the light grey cover to get to the unit. You'll need to dig out a few tools now, the metric Allen wrenches, the flat screwdrivers, the brushes, needle nose pliers, razor blades, red RTV and the Brakleen/carb cleaner. The magnetic parts tray might be useful too as I don't have any spare screws. Put on gloves!!! This is gonna get messy!

Take the larger flat screwdriver and gently pop off the back end of the duct, set it aside. Lift the heater assembly out of the plastic housing. You'll see a flat plastic box on top, that's the controller. A 2.5mm Allen will take the retaining screw out and you can lift it off. Unplug all the wires and set the controller aside.



There is a rubber grommet on the side covering the glow plug. GENTLY slide that cover down the wire to get to the plug. Reach in there with some needle nose pliers to unscrew the plug. Once it's free you should be able to spin it out by hand. BE GENTLE!! IT'S FRAGILE!!



The thermostat is held in with a spring clip. Use the needle nose pliers to loosen and remove the clip and sensor.



Under the fan you'll see 4 Allen screws holding the end on. Grab the wrench (4mm) and take those screws out. Now you should be able to separate the housing end. You'll be lucky if you don't damage the gasket, but that's what the RTV is for.



Gently pry the top end out and you'll see the top side of the burn chamber. 4 more screws to separate that and slide the burn chamber out. Again, you'll probably destroy the gasket, don't worry.



Slide the burn chamber out the top end, be careful of the fuel line that slides out with it's rubber. The inside of the burn chamber will look like shit and be all gunked up. The exhaust chamber probably won't look much better.



Grab the brushes and take the parts outside and start brushing out all the soot and carbon. The small screwdriver can get down into the groove of the burn chamber. Using brushes, carb cleaner, and Brakleen scrub out all the black as much as possible.

In the glow plug hole is a small screen. Try to get it out and clean it, but if you destroy it there are spares in the box. There is a tiny hole in the side of the glow plug hole that needs to be cleared out as well.



Reassembly is pretty much the reverse of what you did. Use the razor blades and small brushes to get the gasket surfaces all nice and clean, new gaskets (if needed) are in the heater box. Slide it back in and screw it back down. Be careful to get the fuel line rubber back in its groove.



Put the gasket on the outside of the intake cover and screw it back together.



Reinstall the thermostat and clip by laying the wires out in their grove, setting the ceramic in its little slot, stick the end of the spring clip in the hole, fold it down over the sensor, and clip it back into place.

The glow plug goes in finger tight and then just snug it down with the needle nose pliers.

Reconnect the controller board and stick it back into its mount and screw.

Slide the whole unit into the housing, stick the plastic back end back on.

Slide the light grey top back in place and screw the cap back on.

Wipe down and put all the tools back in the box, put the newly cleaned heater back in the tool box it came from for the next guy.

I've found that the unit is only good for about 3-4 weeks of 24/7 max running before it gets gummed up. Fortunately it WILL keep the whole place warm on its own in a pinch.