Thermal / Radiator Heating

I've seen a lot written in articles and blogs & posts about gas, electric and diesel heating for Caravans but very little information is out there on thermal radiator heating. Gas heating is a great idea but installation is critical in having flue venting. Even though every van has gas available it is yet another appliance to install with difficult choice of suitable location. The same can be said about diesel heating and the necessity to carry another source of fuel. Electric heating, when free camping, means running a generator and, also, carrying another source of fuel.

So, when heating your van water, usually by gas, for dish washing and showers, why not utilise that hot water also for interior heating, as in a car. Gas hot water heating is, also, efficient and cheap. So the following information is about installing a thermal radiator type heater. The photos here show the main parts I purchased and used in the assembly of the heater system. Other photos show how the parts were able to fit in a confined space without the need to sacrifice other valuable space. As you can see the heater radiator fits neatly in the Suburban hot water heater cavity and the pump, solenoid valve and manual tap also fit neatly in the Van Water Pump location behind the Suburban heater.

The parts were all sourced locally and on Ebay. Mine is not the commercially available heater costing over $600.00 plus various fitting parts etc. For more information on that see posts here by OutbackMK "Installing an Ecotherm heater in a Jayco poptop".

Hope this helps those seeking information for these types of heaters. I fitted mine in a 2004 Jayco Freedom Pop Top (tandem, island bed, ensuite, aircon). The cost of mine came in under $375.00 for all (new) parts required. The installation could be done much cheaper (half the cost) if the heater radiator was sourced from a motor wreckers, but I could not be bothered time and search wise. When sourcing the heater radiator it is preferable to get a copper core type…something to do with the Magnesium Electrode in the water heater (I believe).

Installation notes:

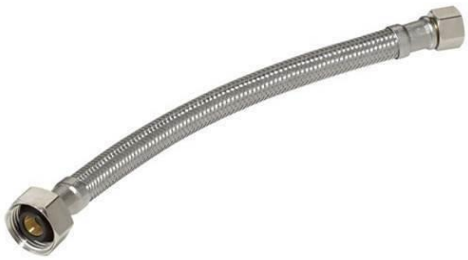
The **heater radiator** was purchased on Ebay. It is an integrated unit with a 3 speed fan. There are many other types available. I found that the lowest fan speed was still too fast so added a **variable voltage controller** (15v-3v) from Jaycar. You could also try a ceiling fan controller perhaps.

The inlet flexible air **ducting** was from Super Cheap Autos 76mm x 1m extended. You can get it cheaper on Ebay.

The **water pump** is a solar type 15mm M>M submersible water pump bought on Ebay.

The **solenoid** isolator valve is 12v and 15mm M>M bought on Ebay.

The **other parts** of manual valve, flexible hoses, T-pieces, joiners, plastic vent covers, plastic tubing etc. were from Bunnings. The 90mm ducting tube was over kill and it could be replaced with 50mm instead. The flexible ducting fits into 90mm diameter which could then be reduced to 50mm and upscaled to 90mm at the inlet vent.



The Heater **Radiator** was mounted on angle aluminium brackets within the Water Heater cavity.

The **pump**, **solenoid** valve, manual valve **tap** and **hoses** all fit neatly behind the Hot Water cavity in the same space that houses the main water pump for the van. The connections to the radiator were 2 x 15mm male thread to barbed ends unions and joined to the radiator inlet/outlet with auto heater rubber hose secured with hose clamps. I used standard flexible hoses to all other connections as seen below.

I fitted a **Thermosta**t for temperature control (not critical). Got it on Ebay and easy to install. Works great!

Does it all work?

You better believe it! The Suburban water heater puts out 70C+ water temp at the outlet. That heated water runs through the manual valve, solenoid valve, radiator, pump and back into tank with little loss of heat in the water. The gas heating is not noticeably longer than normal. There would be very little additional gas used running the heating. As an example, when the Suburban hot water heater gas is turned off, the heat output from the radiator heater continues for another 20-30 minutes utilising the 20 litres of hot water in the tank!

My Suburban water heater (on gas) takes approximately 20 minutes to reach hot from cold start. With an inside van temperature of 8C and outside temperature of 5C it takes about 30 minutes to heat the van to 20C. If the hot water is no longer required…dishes washed and shower taken, then the gas can be turned off and the heater continues to put out heat for another 20-30 minutes before the water cools.

Comparison? I would compare the output of the radiator thermal heater to a 1kw electric heater minimum. When you are free camping and cold that heat is HEAVENLY.

Do it again?

You bet I would! With improvements.

Not get an integrated radiator core with fan assembly. Install a thicker (2 x deeper minimum) radiator core allowing more hot water flow through. Install a low cost variable speed fan (120mm cheap on Ebay) to push air through core (a thicker radiator core means using a higher speed fan with result of more heat output). The other items would be the same.

Summary

I am not advocating that this is the BEST system out there. For me and in my opinion it is the cheapest, most efficient and user friendly free camping van heater when installed.