

### High efficiency copper core Radiators from ModTiger & Flying Tiger

For several years, Rob and I have been supplying custom radiator re-cores to the Tiger community. We began this process when we were restoring his Lord Rootes winning blue Tiger. We were looking for a high efficiency copper base core system which matched the OEM configuration. Many owners prefer using this stock appearance system over the aluminum alternatives.



Figure 1. This radiator re-core uses your OEM tanks and sheet metal supports. The core is 2" thick, the same as the original core, but much higher efficiency. If your core has the top and bottom sheet metal supports flattened for a fatter core, they will have to be returned to the OEM configuration at extra cost.

I have successfully run a copper core radiator for almost 20 years with the radiator cap moved to the top of the right hand tank. This modification accomplishes two important things. First it moves the radiator cap to the right hand tank where the cap is exposed to the lowest temperature and pressures in the coolant system. This means that the cap is going to be more effective in controlling the coolant. The temperature and pressure drop across the core are removed from a cap in this location. It took Automotive manufacturers a long time to figure this out, but that's how all modern coolant systems are designed. Secondly, for those that don't necessarily need or want the OEM "look", here's a way to remove the Reservoir from this over crowded area.

When we were restoring Rob's Tiger, he wanted to keep the reservoir and the OEM appearance, but he wanted to get the advantage of the relocated radiator cap for cooling performance. If we could connect the reservoir to the right tank, instead of the left, this would accomplish our goal.

We contacted a radiator core manufacturer and he provides us with a custom design, hi efficiency dimpletube core assembly that meets our requirements. For practicality, we installed a vent valve at the top of the right radiator tank to allow the purging of the air trapped at the top of this tank. This radiator design has proven quite successful and we have supplied many Tiger owners copies of this improved design for almost 10 years.

The radiator is installed in the standard procedure. We recommend using a cardboard face over the rear of the core during installation to minimize the potential for damage as it is moved into final position. We have an option for a 3/8 NPT pipe bung which is normally placed between the inlet and the 1" Reservoir outlet. This option allows for the installation of temperature switch to control an Electric fan. A fan may not be necessary or desired, but it's more expensive and difficult to add this bung at a later date.

The coolant system is filled through the Reservoir until it appears full. With the vent valve on the right tank open, coolant will flow by gravity and fill most of the system. When the system appears full, there is still a lot of air trapped in many places in the coolant system.

After closing the right vent valve, the engine

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can be run for brief period to allow the coolant to circulate. The heater valve should be open to allow coolant to pass through the heater core as this is the highest point in the coolant system. Add coolant as necessary to keep the reservoir close to full.

When this filling appears to have stabilized, the engine should be shut off and the right vent valve should be opened. I use low pressure air to force the coolant from the reservoir into the right tank to purge the air trapped in this tank. Using your hand as a valve and closure on the reservoir, very low pressure air can be applied to the reservoir through the overflow tube and this will push coolant into the right tank. When the coolant flows steadily from the vent valve with no air, this purging process is complete and the vent valve is closed.

Run the engine again and repeat this purging process a few times to completely fill the system. You can also simply blow through the top of the radiator to move the coolant. You don't want to open the vent valve when the engine is running, and after the system is full, it should act normally.

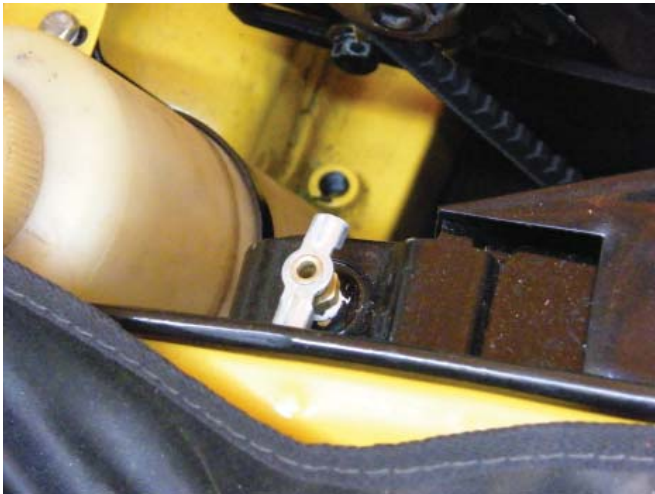


Figure 2. This is a shot of the vent valve on the top of the right hand tank. This valve allows separate venting of the right tank so that the air at the top of this tank can be vented out to allow this tank to be filled completely.

We hope that this high efficiency core and modified reservoir design serves you well for many years. We recommend using a 180 degree thermostat to start with, and this should keep your engine temperatures well within safe operational limits. Your coolant system is only as effective as it's weakest link, so if you need advice on other components, let us know.



Figure 3. This is the method I use to vent the right hand radiator tank. You'll want very low pressure from your air system. Holding your hand over the Reservoir top fitting, allows you to apply a small air pressure, through the overflow tube, to the reservoir to force the coolant into the right tank until it flows out the vent tube. This completes the purging of air out of the coolant system.