

How to set up your cooling system

KLRC recommends that you use a radiator on all cars that have water chambers in the block and cylinder heads. This will keep the engine at a constant temperature so you can have a stable tune up platform. On DYO cars you want a consistent temperature so the car is more consistent. We can supply a small electric water pump that draws very little power and pumps enough water to keep the engine at operating temperature. Almost every car that we have built in the last 5 years has one of these water pumps. We have sold at least 40 of these water pumps for other customers to install on their cars. We have never had a pump need to be replaced for any reason. Never had one wear out or not be large enough to flow enough water to cool the engine in any race car. We also have water pump mounts for flat back mount to a safety plate or a clamp mount to mount the pump to a chassis rail. There is a trick electrical connection available for the power connection on the water pump. We can supply a compact light weight radiator to suit your car as well. The radiator has available a trick swing away mounting. The water (coolant) must enter the engine from the original water pump mounting holes. This will insure that the water flow will push the air up and out of the engine as air is difficult to push down with the water in the cooling system. The water should be pumped from the radiator to the front of the engine this will allow the water pump to be exposed to the coolest water in the system. Starting at the top front of the engine the water lines should go to the radiator inlet and from the radiator outlet to the water pump inlet and from the water pump outlet to the front of the engine. This will complete the loop in the cooling system. One note here is to place the fitting for the hose going back to the radiator as low as possible in the intake manifold cross over passage. This will insure a larger chamber for expansion above it. You want to keep this hose submerged with water as if it can draw air it will put air back into the system. On big block Chevrolet there is a 1/2" port on the front centre of the manifold use this to return the water to the radiator. On small block Chevrolet you should add a port to the front of the manifold or use a large expansion chamber on top of the manifold. On a Ford Cleveland engine the water exits the engine on the top of the block. A flange shaped like the thermostat housing with a 8" tall pipe welded on it with a radiator filler bung soldered on the top will make a good expansion chamber. Just add a fitting near the bottom front to allow the water to exit back to the radiator. Again remember this fitting should never be allowed to draw air as it will put unwanted air back into the system. At KLRC we can provide you with any of these cooling system accessories. On some engines it is probably a good idea to tap the rear corners of the intake manifold to add air bleed valves (petcocks) to let the air out of the top of the cylinder heads. In a normal

passenger car the engine sits in the chassis at an angle with the front higher. Just look at a stock intake manifold and see the angle the carburetor mounts is. The carburetor is meant to mount level when the engine is in the car. This difference in angle between a stock car and a dragster or altered will trap air in the back of the engine and this will make hot spots in the engine. .Once all the connections are made fill the system with water and turn the pump on. As the water level drops add more water if the system wants to air lock use the vent petcock in the radiator to vent the trapped air in the radiator do this until the water starts to drop and you have to add more water to the system Continue to do this until the system is full. Once the water gets hot it will push some out into the vent tank.. When the engine goes cool it will draw air into the system and you will have to top off the cooling system before you race again. Capturing the water in the vent tank and putting it back into the engine will help you determine if you are losing water somewhere else. Race car cooling systems are typically small and as such are not tolerant of air in the system be sure all the air is kept out of the system. One way is to plumb the water overflow from the engine to the vent tank to the bottom of the tank so when the system cools it will take the coolant back into the engine. You must use a recovery cap on the water fill if you do this. The KLRC vent tanks have two 1/8" NPT ports on the side and a 1/4" NPT drain on the bottom. Just add a 1/4 turn shut off valve for the drain. The mounting is usually done on the safety plate and most cars come with the safety plate drilled for the mounting just to bolt on. They are available in plain aluminum, black or gold anodized.

Cooling accessories -----

40577-00002 Radiator (trans oil 13304)

40577-00001 **Radiator** (water)

40578-10001 **Radiator mounting** for **LOWE** radiator on Rear Engine Dragster standard Super car configuration

40571-10001 **Water pump** 12VDC electric 3/4" connections

83185-91220 Water pump 12vdc molded snap on connector

40155-81620 Water pump mounting clamps-flat back 1/4" hole mount

40155-81621 Water pump mounting clamps- 1 1/4" tube clamp (ea)

40246-00001 Chevrolet filler neck w/rad cap top

40246-00011 351C Ford filler neck w/rad cap top

40150-00007 Radiator cap 7 lb

40330-00001 Water neck housing Chevrolet/cast aluminum 1 1/4 neck

40330-00002 Water neck housing Chevrolet/cast aluminum -12 SAE o-ring

40330-00012 Water neck housing 351C Ford/cast aluminum -12 SAE o-ring

40251-10001 12" electric 12vdc Plastic cooling **fan** with rear guard

Water overflow tanks (vent tanks) 700ml

40740-10001 Water overflow tank with mount flange, drain port, fill port, vent port

40740-10002 Water overflow tank with mount flange, drain port, fill port, vent port, **polished**

40740-10003 Water overflow tank with mount flange, drain port, fill port, vent port, **anodized**