

I chose an original FE expansion tank that had the filler neck on the driver's side of the tank but still had the radiator hose outlet facing the passenger side. I figured using such a tank would afford me a little more hood clearance because the hood bows up in the center. This tank would also solve the problem of the filler neck of my radiator being slightly lower than the thermostat housing outlet which is a NO NO. In theory I decided that if I could cut off the original thermostat housing from the FE tank and modify a small block thermostat housing into a straight hose fitting I could connect the two parts with a 90° 1.5" radiator hose elbow and a couple of hose clamps and support the tank with a custom made bracket bolted to the front of the thermostat housing.

The first order of business was to prepare the tank by getting rid of the piece I didn't need. Measuring from the underside of my hood down to the top of the thermostat mount on the intake manifold gave me 4 7/8" of vertical clearance. Using a band saw I sliced through the 1 1/2" tube underneath the tank approximately 1 1/2 inches down from the underside of the tank. Then I cut through the rear support brackets approximately 7/8" down from the underside of the tank to separate the original FE thermostat flange from the unit. The lower segment of tubing, support bracket, and FE thermostat housing was then discarded. A mounting bracket was then fabricated from a piece of 3/32" thick aluminum plate measuring 3 1/4" square, and fashioned to fit around the radiator hose nipple on a small block thermostat housing and attach using the two stock bolt holes in the water outlet. I used a piece of cereal box cardboard to make a template because the cardboard is stiff enough to retain shape yet thin enough to cut and form easily. A water outlet gasket was used as a guide to locate the holes for the mounting bolts and the large center hole being certain to make the template perfectly perpendicular to the horizontal plane of the engine. I first cut a 2 1/8" hole in the center of the bracket blank to clear the radiator hose. Then I superimposed the cardboard template to locate the bolt holes. Finally I trimmed away the lower portion of the bracket so it would install around the radiator hose nipple while the water outlet was in place.

I chose a chrome Mr. Gasket 45° thermostat housing that uses a rubber O-ring seal rather than a gasket. The thermostat housing itself was modified by first sawing off the 45° angle radiator hose nipple. Then I removed more material down to the level of the bypass hose boss on the housing using a bench top milling machine and a 1/2" end mill to create a nice finished edge. A satisfactory result can also be obtained by chucking the housing in a vise and using a hack saw. I ended up leaving a 1 5/8" diameter hole and grafting on a straight pipe as shown in the photos below. I used a 1 3/4" ID to 1 1/2" OD (Pep Boys #548533) exhaust pipe reducer inserted through the rear of the thermostat housing. When the pipe was inserted and straight, using a scribe I marked the 1 3/4" end of the reducer flush with the thermostat ledge in the rear of the water outlet housing, removed the pipe and cut off the excess with a fine tooth hack saw. The rear edge of the 1 3/4" end must be flush with the recess for the thermostat. Then I measured 2" forward from that cut surface up to the 1 1/2" side of the reducer and cut off the excess 1 1/2" tube ending up with a 2" long length of pipe. All burrs and rough edges were smoothed. Using 220 grit sandpaper I roughed up the outside of the adapter as well as the inside of the water outlet housing, mixed up a batch of JB Weld and joined the two items together by buttering both surfaces to be joined and

pushing the tube into the rear of the water outlet housing with a slight twisting motion to evenly distribute the adhesive. After cleaning off any extra JB Weld with lacquer thinner and making sure the assembly was straight I set the unit aside overnight to cure.

I connected the 1 1/2" straight thermostat housing to the 1 1/2" diameter pipe stub remaining on the underside of the expansion tank with a 1 1/2" hose elbow cut from a radiator hose (Pep Boys #D71821, has TWO 1 1/2" 90° bends) and a pair of hose clamps I had laying around. After adjusting the aluminum mounting bracket and remaining original steel tank supports for an installed height of 4 3/4" measured from the top of the intake manifold thermostat mount to the top of the expansion tank filler neck I leveled the tank and pop riveted the bracket onto the tank supports. Note that the aluminum bracket slides up between the front and rear original tank supports so the pop rivets draw the original tank brackets tightly against the aluminum bracket. 1/8" or 3/32" x 3/8" steel pop rivets work nicely. If I was running a 302 rather than a 351W I could have easily made the tank height 1" higher without hood interference. I then trimmed the radiator hose elbow for best fit. I ended up shortening the brass tube on the underside of the tank to around 1 1/8" so the rubber elbow hose would fit properly. The support bracket plus the radiator hose elbow yields a strong support for the tank. Since my thermostat housing uses a rubber O-ring seal I didn't have to mess with a gasket and gasket sealer. A 1/8" hole was drilled in the top of the thermostat to help relieve any air pockets that might form in the water jacket of the manifold. When mounting the thermostat into the housing I applied four tiny dabs of silicone gasket sealer around the edge of the thermostat to hold the thermostat in place in its groove. Many times while mounting the thermostat housing the thermostat wants to slip out of the mounting flange resulting in a leak when the bolts are tightened. The silicone holds the thermostat in place nicely eliminating that problem. I opted to use a pair of 2 1/4" long carburetor studs rather than bolts to attach the water inlet housing to the intake figuring the studs would make aligning the outlet housing and the support bracket much easier.

After mounting the tank I fabricated an upper radiator hose using a 90° 1 3/4" hose elbow off the tank to a 1 3/4" OD x 1 1/2" OD exhaust pipe reducer and then a 45° 1 1/2" hose elbow to the upper radiator inlet. In order to be able to easily bleed off any air pockets in the radiator I installed a 18 lb. Stant Lev-R-Vent cap on the radiator. I used a standard 13 lb. cap on the expansion tank along with a catch can borrowed from a 1973 MGB to complete the coolant recovery system.





























