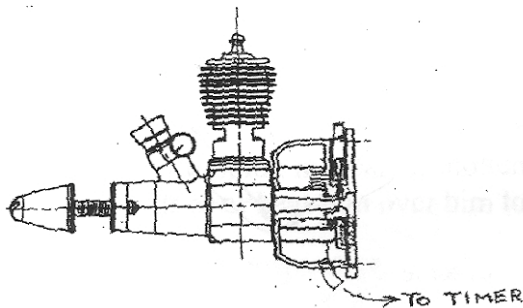


# TEE DEE .020 TANK PROBLEMS?

By Bill Schmidt

*From Sept 2007 WHAM News Views and Reviews*

The Cox Tee Dee .020 that is the engine of choice in SAM old timer and NFFS nostalgia events suffers at the hand of its plastic gas tank design. The fuel line attach nib at the bottom has a std. 7 degree draft angle on it to permit extraction from the molding die. Unfortunately this tends to make the fuel line want to slip off of it very easily. The tank to crankcase fit is without a gasket and can leak base compression between these two parts. To check for leakage here put some solvent around this interface and turn the prop. Bubbles will appear around the fit. A leak here will reduce the engine's output. The plastic tank back plate and its attendant gasket are another source of leakage, this time it's raw fuel. If on the flying field you wish to shim some side or down thrust into the model, the chances of a fuel leak are greatly increased. The two hole mounting design isn't optimum for placing shims behind, or for that matter the up and down reciprocating motion of the running engine. Lastly, the plastic material from which the tank is made doesn't hold up too well in the high nitro fuels that we use. It's too bad that production shortcuts/costs etc. got in the way of an otherwise good design.



The solution to these shortcomings is a simple fix. Adapt a Cox Pee Wee reed valve .020 tank and back plate assy. to the back of your Tee Dee .020. The Pee Wee .020 is a common engine that almost everyone has in his engine stash. If you don't have one, your friends do. They can also be purchased from engine guys and on E-bay if you look into it. The tank assy may be available new from the Cox people themselves.

Here's how you do the conversion. Clean the parts up if they are dirty and assemble the engine to determine where you want the fuel outlet fitting to be located in relationship to your timer. This will be slightly off center at the bottom aft edge of the aluminum tank itself. Carefully center punch this location and drill, starting out with a small size drill bit like .046 or smaller so as not to drift and make a mess of the exercise. The final hole size is to be .082 done with a #45 drill. Now tap this hole carefully with a 3-56 tap and light oil. Take a 3-56 die and thread some 3/32" o.d. K&S brass tubing from the hobby shop about 1/16" long. Cut the threaded end off about 1/4" long and with some Loc Tite thread retainer on it, screw the fitting into the bottom of the tank. I stick it on a needle file for easy aim and installation. Now fill the reed valve area with J-B weld epoxy filler and cut a small circle out of alum. or brass and put it in the front of this area to close it out nicely. I have a lathe and make up precision alum. pill to fill this area. Now fill the needle valve cavity, the internal fuel pick up nib, and the rear air intake area with J-B weld and you are finished. Use a Pee Wee tank to crankcase gasket on assy. The factory gasket is .005 Vellumoid. This is the paper gasket material obtained at the auto supply but is only available as thin as .010. This will work fine. They say it is 1/64," but if you mic. it you will see that it's .010 thick. The two top tank fill pipes will be used to fill the tank same as before.

You now have solid, rigid, and nonleaking fuel tank on that Tee Dee .020. Now if you want to add side or down thrust to the engine mount it can be done with the security of the 4 bolt attachment design that the Pee Wee engine gives you.