

# OS160FX Competition Engine Setup

Lance Van Nostrand

A number of people have complimented me on how well my OS160FX runs. It hand starts, idles forever without loading up, and is consistent in the air in Masters and FAI sequences where there are often negative pushes and long up lines. Everyone seems to assume that I'm using the "de facto" setup with a Perry pump but I'm not. For one thing, I've seen the Perry pump system drift over time and the pump itself can become finicky when it's set outside its sweet spot range. On top of that, some people find that they then need a perry carb to control their midrange. For another thing, I can be very cheap and since the pump is truly not needed I didn't want to buy one. In addition to a unique fuel delivery systems I also remove the needle from its steel bracket and remote mount it (I stuff it inside a phenolic stab tube in the side of the fuse just next to the carb) you can save weight over other options and then easy to adjust the needle while the engine is running (but that's rarely necessary). Here are the details on my setup. I find this simple and consistently reliable.

The low end needle is never set correctly from the factory. Adjust to just show daylight between the needle and tube when the carb is open. The o-rings in there sometimes tear so set it and forget it. Also, the factory bearings are worthless. It's important to replace the front bearing with a rubber sealed bearing 6001-2RS. This eliminates some burbles under stressful flight conditions. I assume it's because it helps reduce or eliminate an air or compression leak. I recommend replacing the rear bearings too only because the originals will not last long and you don't want them to disintegrate while you are flying. You have two choices. Either get replacement stainless steel bearings or become a "greaser" (see [www.aeroslave.com](http://www.aeroslave.com) publications for details). If you go this way, you'll was the shielded bearing 6004-ZZ .

To create the fuel delivery system use a bladder tank with exhaust pressure. Tap the header at the engine port for a 10-32 or 4mm pressure fitting and run a line to the outside of the bladder. This provides a small amount of fuel pressure boost and also lubricates the outside of the bladder tank.

Bladder tanks are really easy to use despite what some people say. There's a lot of misinformation out there. You need a vent line that exits the plane and is stoppered. You then need a carb line. If your carb line exits the plane you can connect the tank side to the fuel supply to fill the tank. Another way is to use the 3<sup>rd</sup> line in the tank for filling. If you do this, the tube should be cut flush with the stopper inside the tank. Use a gravity siphon to fill the tank. It will fill up and stop so you can leave it unattended. At this point there will be a small air bubble in the tank. Briefly release the vent line to burb this bubble. That is all there is to the procedure. The other thing to note about bladders is that they always inflate and deflate the same way, so you probably will have to blow it up and deflate it a few times on the bench while manipulating the bladder inside the tank with your extended finger to see where the creases will appear. You want a nice clear air bubble around the vent line so remove any creases there. Also, if there is a twist in the bag it might not collapse evenly around the pickup line and the tank will act empty when

there's still some fuel in the bladder. Inject a little light oil on the outside of the bag to prevent chafing. Done correctly bladder tanks are reliable, trouble free and provide consistent fuel to the last drop. I am convinced that regular tanks, although they appear to work fine, actually pass air bubbles to the engine and these constant short "lean outs" reduced engine life as well as risks reducing performance at unpredictable times.

There is no header tank. The tank is placed on the carb line as close to the engine as possible. I cut a hole in the firewall in the center of my Hyde mount that is a slip fit for the tank stopper. When doing the final tank installation, wipe a little silicone sealer around the stopper so the firewall is sealed. This is easily torn if the tank needs removal, but this is rarely necessary. This is the way a trainer ARF tank is mounted. Use Large fuel tubing. Short fuel tubing is critical.

The wraparound header required by this engine is under a twisting stress as the engine moves on a pattern style soft mount. Therefore you can not use a teflon coupler because it is too stiff. I have only been able to get life from the header by using a small extension tube and two silicone couplers with small gaps to allow for some flex. Set the pipe length as per the guides on the [AeroSlave.com](http://AeroSlave.com) website.

My success with this setup is an extension of lessons learned with the Mintor engines. I hope it helps you.