

## ***Mattes Engine Rework***

Specializing in Performance Improvement for Nostalgia and Modern Model Engines

### **Suggestions for the Nelson Head fitted OK Cub**

I suggest that you use a prop/fuel combination that keeps the RPM around 19000 or maybe a bit less to keep from breaking the engine. Crankshafts are easy to blow in the Cub. Also use a fuel with around 25% oil with at least ½ of that being castor. My test runs are with 40% nitro fuel and an APC 6X2 prop. I recommend 40% as the maximum amount of nitro to use in a Cub. If you burn out too many glow use of a lower nitro content fuel is recommended as the engine is already running very fast on 40% nitro. Whatever prop you use do not use the red plastic Cub prop as they run too fast and have a tendency to throw a blade or two.

Use of a pressure fuel system is recommended unless you specifically request setup for suction feed. For pressure I recommend the use of the "Little Red Cap" which provides a medium/low pressure compatible with the stock NVA. It can be purchased direct from the supplier at <http://www.littleredcap.com> or from various retailers such as Amazon, Ace, and Rockler Woodworking. It is very economical and works fine for all sizes of engines. I also carry a stock of the cap for sale.



I have included what I call a clamp ring which is used in conjunction with a pair of water pump pliers to tighten/hold the cylinder. This eliminates the ugly pliers marks present on the fins of many Cubs. If for some reason you need to remove/replace the head use the clamp ring to hold the cylinder. This preserves the cylinder/case joint which can be over torqued.

On some Cub engines the piston drag at BDC is sensitive to torque and I have tried to install the cylinders tight enough to stay in place but not so tight to present excessive drag. Also many of the cylinders have been lapped below the ports to reduce drag around BDC. If you do loosen the cylinder please be careful when tightening not to add drag around BDC.

Also please double wrench the head and plug when changing a burnt-out Nelson plug to prevent tightening or loosening of the head/cylinder joint. Properly done this keeps all torque off of the joint preserving the integrity of the sealed head and the cylinder/case joint



There are two good sources for Nelson plugs that I use. Doug Galbreath at <http://www.the-printer.net/DookCat.html> has Nelson heavy duty plugs listed under Nelson Heads for Cox, AME .049. "Kitting It Together", a neat U Control site at <http://kittingittogether.com/> also has the Nelson heavy duty plugs as well as the "Hot" or standard Nelson plugs. Personally I only use the heavy duty plugs. They have a little notch as shown in corner of the hex of the plug as compared to no notch for the standard Nelson plug. (Note: Appearance of the Nelson plug sometimes changes, just be sure to get the Heavy Duty version