

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 18000 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 which I would recommend as the maximum amount of nitro to use in a Cub. 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 Menards, Amazon, Ace, and Rockler Woodworking. It is very economical and works fine for all sizes of engines.



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 the cylinder or head use the clamp ring to hold the cylinder. If you need to add a shim to lower compression due to too many blown glow plugs install an extra 0.005 shim at the case/cylinder joint in preference to under the head. This preserves the sealed head which is installed using Red Permatex silicone sealant to fill the threads and the thread relief at the top on

the head. The sealant is a key to performance and should be replaced if you remove the head. Install the gasket on the head and apply a small bead of sealant to the gasket and to the threads. The sealant is then smoothed with your finger. Shown is a stock head with the sealant. It helps make the stock head run faster also. Make sure there is no sealant in the combustion chamber and reinstall the head again using the clamp ring.



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 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. If you damage the integrity of the sealed head it may be necessary to reseal the head as described above to obtain max performance.



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)

Nelson Head Conversions, Sleeve Bearing Replacement, Crankshaft Balance, R/C to FF & CL Conversions, General Rework, and Specialized Repair