

## **Winterizing Engines?**

*by Paul Geders*

Recently, I have had several members ask me; "How do you winterize your engines"? My response usually catches them off-guard when I state; "I don't, they are always winterized". If you read any of the magazine engine column guru's, such as Clarence Lee, Joe Wagner, Brian Winch, etc., they all tell us to put after-run oil in the engine.

Many of you have seen me "taking care of my engines" before leaving the field. Always empty the fuel tank, then start the engine and choke it to get every last drop of residual fuel left in the tank and the engine itself. When the engine will no longer start it is presumed to be dry. Now all you do is put some Automatic Transmission Fluid (ATF), my favorite after-run oil, in the intake.

I use a Marvel Mystery Penetrating oil can (which is an ATF like oil with a solvent in it to make it penetrate) with the small removable red cap (like a 3-in-1 oil can). With the carburetor in the "idle" position, fill up the carburetor and then turn the engine over by hand to pull the ATF into the engine. Do this three times and you have just preserved your engine from rust (on the steel parts) and corrosion.

Remember, raw model airplane fuel is hygroscopic (meaning it draws moisture right out of the air) and it starts immediately. Another by-product of combustion is nitric acid (from the nitro methane) which attacks most metals if left alone. When you run the engine dry you still have a chance of corrosion from the residual nitric acid. Once you add the ATF you are providing a good oil barrier to all the parts of the interior of the engine.

The same principle applies to four-stroke cycle engines except they are a little more difficult to induce the ATF. My method has been to put the ATF in the intake or exhaust/muffler/pressure chamber and turn the engine over a couple of times. This gets the upper portion of the cylinder/s and valves coated with ATF. The lower end of most four-stroke cycle engines have a vent and that is the place to put in the ATF to protect the lower end (crankshaft, bearings, connecting rod bearing, and cam/cam gears).

Some of the new O.S. engines have removed the vent and basically have sealed the crankcase. As Clarence Lee suggested, he would drill and tap the back plate and put in a vent fitting with some fuel line on it and a screw in the end of the fuel line during normal operation and remove the screw to put in the after-run oil in the lower end.

Have been doing this to my engines for more than 30 years after learning that not doing it ruins engines. Most of you have seen me fly my Das Little Stik with the tuned pipe ducted fan O.S. 25. That engine and airframe are right at 30 years old and I replaced the piston and sleeve about 3 years ago...but it still has the original ball bearings in it. Using after run oil in that engine is a great testament to its viability.

Again, if you don't use an after run oil the corrosion process will start almost immediately. Trust me, it is worth doing! I have many engines (i.e. Fox .35's, K&B .35 Green Head, YS .45, Nelson's, O.S.'s etc.) stored in zip-lock type plastic bags where the engine was treated with ATF many years ago and they still are like new!