

## Getting your RAAus aircraft engine ready for storage

Due to the current unprecedented social distancing and movement restrictions due to the COVID-19 pandemic, many members have sought direction on what they should do prior to the storage of the aircraft and associated components. RAAus has listed 5 points that are recognised industry wide for the short- and long-term preservation of aviation components. Each aircraft will need to be assessed on a case by case basis. The below information is for guidance only. Your manufacturers maintenance manual must be reviewed prior to any actions being undertaken for any further essential steps for your make/model. Also don't forget that all 'remove before flight' covers should be fixed in place.

### Oil Change:

Get the engine up to operating temperature by taking the aircraft up for one last flight. Now that the engine is up to operating temperature, the oil and oil filter may be changed. By doing this we remove all of the contaminants in the engine and engine oil. If the engine were stored without doing this these contaminants would form into sludge in the engine, oil lines, oil cooler or oil tank.

After you have changed the oil and filter, with the ignition turned OFF, turn the engine over with the electric start making sure you have oil pressure. NEVER START an engine after an oil change UNLESS you have oil pressure! Now crank the engine over on the starter in two, 15 to 20 second bursts. This will ensure that any remaining contaminants are diluted and moved into the oil filter.

Do Not START the engine. If you start it any time during the storage period, you will cause condensation to form and will contaminate the oil. You can turn the engine over by hand, turning it ALWAYS in the direction of rotation, or with the electric starter if you can turn it over with the ignition turned OFF.

### Fuel:

It is suggested that the fuel from the tanks, fuel lines, fuel filter or gascolator and carburettor bowls be drained for storage. Only use fresh supplies of fuel and after a period of protracted storage, drain out any old fuel from the tank before filling up with fresh. Over a long period of time the fuel in the tank will evaporate away the more volatile 'fractions' through the tank vents, leaving a residue of low-volatility fuel which will cause poor starting, reduced performance and possibly engine damage through detonation or over-heating. When in storage, Mogas fuel has a much greater tendency to form gum deposits than Avgas, so it has a much

more limited 'shelf life' of just a few weeks. Avgas on the other hand can be kept in sealed drums for several years. Gum deposits can block carburettor jets and cause moving parts to 'stick'. Even if your engine appears to start and run well on last season's fuel, you should drain it off and replace with fresh.



### **Oiling the cylinders:**

Next step is to oil the pistons and cylinders. To do this we have to remove the top spark plugs, which may mean removing the engine cowl. Before removing the spark plugs, use a bit of compressed air to remove any dirt or debris from around the spark plug holes. Now remove the spark plugs. With the plugs removed, spray a bit of “fogging oil” (<https://www.sta-bil.com.au/products/sta-bil-marine-fogging-oil>) into each cylinder. DO NOT use WD 40 as it will evaporate and remove any oil that is on the cylinder walls! When you have about a tablespoon of oil in each cylinder with the TOP plugs OUT turn the engine over by hand 4 or 5 revolutions. Re-install the spark plugs putting a little silicone grease on the threads.

### **Carburettor and exhaust:**

After your exhaust has cooled take a little of the “fogging oil and spray it into the exhaust pipes. Some members have put a moth ball in each outlet and then cover the pipe ends with a rag or canvas cover secured by an elastic band or tie wrap. The moth balls will keep your friendly neighbourhood mice and or rats from taking up residence.

It is also a good idea to do this in the cabin, wings, storage areas etc. ANYWHERE mice or rats or possums may think of nesting.

If you have an air intake box or air filter it is also a good idea to cover them, putting a moth ball inside the cover but making sure it is clearly marked and identified as not to be missed when the aircraft enters back into operation.

### **Battery:**

One of the most frequently forgotten items during storage is the battery. Take it out of the plane and bring it inside, remembering to keep it charged, the best method of doing this is with a “smart charger”. This only charges it as much as needed and won’t boil it dry.

If you don’t have or don’t want to buy a smart charger, use / buy a cheap 12v trickle-charger (\$10 or so) and hook it up to an automatic timer, so the battery gets about 30 minutes of trickle-charging a day.

Unless you have a maintenance-free battery, check the battery’s fluid levels regularly to make sure the charger isn’t boiling away the electrolyte. If the levels are low, add distilled water only to bring the levels back up.

Charge the battery in a well-ventilated area, particularly if your battery isn’t “maintenance free.” Batteries can emit hydrogen gas while charging, which is fairly explosive. (This is why wires get hooked up in a specific order when hooking up booster cables.)

All batteries: clean the terminals with a wire brush and lube them with a dielectric grease before returning the battery to service.

### **Logbooks:**

It is recommended that an entry should be made in the logbook and create an open entry on the maintenance release or Hours and Maintenance form (HAM) to state that the aircraft is in preservation. It is also a good idea to list any work completed for preservation that is not considered to be airworthy in the maintenance log.

Read through your owner’s manual and perform any service that gets completed once a year or more frequently, even if it isn’t quite time yet.