

AeroShell TECH TALK

ENGINE PRESERVATION OILS

WHY USE A PRESERVATIVES OIL?

When the winter period comes bringing shorter days and worse weather than is enjoyed during the summer months, many owners decide to hanger their aircraft and not fly until the Spring. An integral part of the process of preparing an aircraft for storage should be to use a preservation oil to give protection against corrosion, which greatly accelerates the rate of wear in an engine.

When an engine stands idle for long periods the oil absorbs water from the atmosphere and, combined with condensation on the internal engine components, causes rust to form. Once the rust has formed it remains in the oil and acts as a grinding paste, causing increased wear, reduced engine life and potentially higher maintenance bills.

If an aircraft is flown frequently (at least once every two weeks) then this water evaporates as the engine temperature rises and therefore does not cause a problem. However if the aircraft is not flown as often as this, then the owner should consider using a preservation oil.

AEROSHELL FLUID 2F

Shell produce such an oil AeroShell Fluid 2F, which is a mixture of AeroShell Fluid 2XN and AeroShell Oil 100 (straight oil) which is intended for use as an inhibited flyaway oil - and we'll come back to this point in a moment. This resulting mix is excellent for use in engines that are going to be inactive for several months as is often the case over the winter months.

This product, AeroShell Fluid 2F can be used in any certified aviation piston engine, although we don't recommend its use in 2 stroke or automotive derived engines.

As mentioned, this oil can be used as a flyaway oil. This means that unlike some preservation oils it can be used as an operational oil in most engines (large radials excepted) for up to a maximum of 50 hours during the

TBO cycle. Note that this is 50 hours during the total TBO cycle, not 50 hours every time you use the oil. This means that if you want to fly then you still can without needing to drain the oil and replace it with your usual AeroShell grade; but remember that this oil is a 100 weight oil and so if the temperature is too low for this weight of oil in your engine then the oil should be preheated. Extensive flying on this oil will not harm the engine, but engine cleanliness may be effected as the preservation oil does not contain an ashless dispersant additive as the AeroShell W series of oils do.

SO HOW IS IT USED?

AeroShell Fluid 2F is designed to replace your normal engine oil by simply draining your normal piston engine oil, and replacing with this product prior to storage. After changing the oil, run the engine for about 15 minutes - either on the ground or in the air - to circulate the oil. Shut the engine down and follow your normal storage procedure. For additional protection, this oil can also be sprayed into the cylinders and other areas. Once the engine has cooled, it is also worth blanking off the intake and exhaust if possible to reduce the flow of air (and therefore moisture) through the engine. However remember to placard the cockpit to remind yourself and other pilots that this has been done.

Once you are ready to change back to your normal oil, pull the propeller through several times, drain the preservation oil and refill with the correct grade of aviation oil.

MORE INFORMATION

Many of you with low utilisation aircraft are currently taking advantage of the anti wear and anti corrosion additives in our AeroShell Oil W 15W-50 multigrade, and you may be wondering whether or not to use a dedicated inhibiting oil such as AeroShell Fluid 2F. The answer lies in the utilisation of your aircraft.

If you intend to carry on flying throughout the year, but may have a few periods of several weeks inactivity, then

use the AeroShell Oil W 15W-50. However if you intend to lay the aircraft up for several months (winter or summer) and perhaps enjoy the occasional flight during this period, then you should use AeroShell Fluid 2F.

Finally, if you have an engine that will lie idle for an indefinite period, such as a spare engine, then you should use AeroShell Fluid 2XN in its pure form. This product is not normally stocked in Australia, however it can be purchased if required.

By using these simple solutions, no matter how often you fly, you can be sure that you are giving your engine the best protection possible.

OTHER STORAGE TIPS

As a general reminder, below is a list of other things that you should consider doing even if the aircraft is in a hanger.

Change the Oil - if you are not planning on using a preservation oil at least change the oil

Chock the wheels front and back and release the parking brake - This will prevent the brake seizing on, whilst keeping the aircraft static.

Blank the inlets exhaust and vents - Pitot and static vent covers are essential to ensure that the orifices do not become blocked with insects or dirt. The last thing you need on your first familiarisation flight of the Spring is to find that your ASI or altimeter is inoperative. Furthermore, blanking engine intakes and exhausts will significantly reduce the amount of moisture able to get into your engine which can cause the onset of that dreaded corrosion.

Apply a canopy cover or at least tie a dust sheet over the cockpit area - Not only does sunlight effect perspex, but bird droppings can be quite corrosive and etch the surface if not removed for a period of time.

Apply airframe grease - Whilst doing your storage checks it is prudent to re-lubricate hinges and linkages as you go around. Most light aircraft use AeroShell Grease 6 as a general purpose airframe grease, but check with your maintenance engineer.

Check that the fuel cocks are closed and master switches off - Why not also consider removing the battery to prevent any leakage current from draining it?

Fill the fuel tanks - Ensuring that the fuel tanks are full prevents the build up of condensation in the tanks over winter. This condensation is inevitable if air is present in the tank and will in turn lead to the build up of water in the bottom of the tank. This will again mean corrosion and potentially expensive tank repairs. This is particularly important if your aircraft is stored outside. However you must ensure that, if your aircraft is hangared, you have permission to store your aircraft with full tanks - some hangar managers consider it to be a potential fire hazard and frown on such practice.

By completing the above steps, and using a preservation oil like AeroShell Fluid 2F, you can feel confident that come spring your aircraft will perform as you want it too!

Happy flying

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