AeroShell TECH TALK

REMOVING YOUR AIRCRAFT FROM STORAGE

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Three months ago I covered some tips in preparing your aircraft for winter storage (Tech Talk number 6), so now that the flying season is almost upon us in the Southern States, then what activities can be carried out, more than a thorough walk around, to ensure that the first flight after storage will be a safe one?

First of all make sure that the battery is in good condition and fully charged. It is not only the first start after a period of inactivity that may put a heavy demand upon the battery, but also it would be beneficial to have some enough battery power to help with some additional engine cranking as we shall see in later. The best way to ensure battery charge is to remove the battery from the aircraft and use a slow "trickle" charger rather than a rapid charger. This has less risk of damaging the battery. Slow charging of the battery has more chance of recovering a discharged battery and also rapid charging of a battery can sometimes cause damage by delaminating the cell plates.

Next check the fuel for water. Condensation will form on the inside walls of a fuel tank and also on the fuel surface if the fuel temperature is below that of the dew point. This can cause some water to become suspended in the fuel as well as water to form in the bottom of the tank. What we need to think of when checking fuel drains is that as the temperature of fuel decreases, so does it's ability to hold water in suspension. So the fuel will contain less water after being exposed to cold ambient temperatures - which tends to be overnight. It would also help if the aircraft has been stood still without any movement as agitation will encourage the mixing of water and fuel at the boundary where the two meet. This all leads to the best time to check fuel drains is first thing in the morning before the aircraft is moved.

Next thing to turn our attention to is a full walk around. This should also include the condition of the brakes. It is possible that the brakes could be seized if the aircraft has been left unused for a period, so care should be taken to make sure that the brakes are free. This is especially important if the brakes are seized off. It is best not to find out that the park brake is on in the cockpit, but the brakes are not actually on, after you have started the engine - this could be an expensive oversight.

During the walk around, remove all of the control locks, pitot and static blanks, and any engine blanks that you may have applied to exhaust, inlet etc. Once the blanks are removed, have a thorough check for any stowaways that you might have. Birds, animals and insects all find dormant aircraft a good place to make their home so have a good look in the engine bay, in accessible areas of the airframe and especially pitot and static vents. If there is any evidence of insect debris in the pitot and static vents do not be tempted just to remove the visible blockage, think what may be happening inside. Some insects use these vents as homes and use the pipe runs as small breeding areas. So what you found as a blockage at the vent opening may only be an indication that there is a further obstruction of insect larvae further down the line. So if you find evidence of insect infestation at the vent opening, have an engineer check the whole line for obstructions. This is often not too complicated and better to find nothing on the ground than to be left in the air without pressure instruments.

Next we need to turn our attention to the engine. If the engine has been stored for several months, it should have been inhibited with a storage oil and desiccant plugs put in place of one set of spark plugs to keep moisture out of the combustion chamber. First of all we need to remove the desiccant plugs. If we do this and then leave the plug out then the engine will not have any compression. With the cowling

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removed, the engine can then be turned over on the starter motor with the fuel turned off and the mixture lever in the idle cut off position, and magnetos in the "off" position. Without engine compression offering any resistance, the engine will turn over quite rapidly. This should allow the oil pump to rotate quickly enough to supply some oil to the oil gallery thus limiting the time that the engine will run without full lubrication after engine start. Now replace the spark plugs and start the engine for a brief ground run, just enough to warm the oil enough to make it more fluid to aid the drain.

Drain the preservative oil, replacing the filter if necessary, and refill with an operating oil. If your aircraft is normally under utilised - perhaps you have periods of more than 2 weeks when the aircraft is not used - then consider using an oil with a corrosion inhibitor and anti scuffing additive to reduce wear on start up. Oils such as the multigrade AeroShell Oil W 15W-50 or the monograde AeroShell Oil W100 Plus are two such oils.

Now the engine is prepared for the season, why not consider the other areas of the aircraft that might need lubrication? Light aircraft joints, such as flap and control surface operating linkages and other general purpose applications are normally lubricated by AeroShell Grease 6. Wheel bearings are commonly packed with AeroShell Grease 5. Often these grease application points go for long periods without adequate grease reapplication. The old grease appears dark and hard in nature and should be replaced. Some applications can be made by the pilot or operator, but perhaps it may be safer to ask your engineer to recharge these points with fresh grease. With applications that have grease nipples, fresh grease should be applied so that it flushes out the old product and fresh grease is seen emerging from the part being lubricated. With wiping applications, then the old grease should be cleaned off as far as possible and fresh grease applied and the joint cycled to help the grease to penetrate.

Next have a look at the Perspex of the cockpit canopy. Has developed any new surface marks over the winter period - scratches, abrasion marks or even surface damage from bird droppings? These surface marks can be removed by using specialised Perspex blending and polishing kits which can significantly improve visibility especially when flying into a low sun, something that happens quite frequently in the early and late parts of the season.

Finally make sure that full and thorough pre flight run ups are completed. If the aircraft has been in extended storage and not run for some months, then gums and lacquers could have formed in the fuel system which could restrict fuel flow - especially if Mogas has been used. So ensure that full power is available when doing the magneto checks and also check the throttle stop idle speed. One final thing to pay attention to is variable pitch propellers. These are normally operated by engine oil pressure being fed to the propeller hub and, with the engine having had the oil changed, make sure that the propeller has full oil supply by cycling the pitch properly during the ground run.

HAPPY FLYING

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