

de Havilland Employees' Sports Club - Flying Section

Notes on Winter Operations

D.Lye : December 2001

Pilots should be familiar with the Cold Weather Operation notes, in Section 2 of the appropriate Owner's Manual. Please take the time to read this material.

It is a good idea to pull the propeller through a few times during the pre-flight inspection, to loosen-up the engine and circulate the oil, especially when the engine hasn't run for a while. It's also a good idea to suck the priming fuel into the cylinders, by swinging the prop forward by hand (with mags off). If there are two people, one primes while the other swings the prop, or if solo - swing the prop a few times after each priming stroke. Both of these actions are recommended by Cessna in cold weather (as it says in the Owner's Manual) to make the engine easier to start. The injected fuel atomizes into the air better when the primer is pushed in quickly. Be aware that greater use of the primer does lead to increased chances of an engine intake fire, if a backfire occurs on starting.

For safety, if touching the prop ALWAYS handle it as though the ignition is live, ensure that you have a good footing clear of ice, and that the aircraft is secured, and swing the prop 'forwards', so the oil pumps and circulates properly. Swing it as though you expect it to start up (because one day it might).

The Club has an engine pre-heater, stored in the shed. It operates rather like a propane barbecue with a fan on it. It's a good idea to use it to warm up the engine compartment if it's below about zero C. Instructions are on it, but the procedure in brief, once the unit is in position near the engine, is to :-

- 1) connect the fan motor wires to the battery, with clips
- 2) turn on the switch for the fan (it's the only switch) and check that you hear the fan running
(if fan does not run then the heater will not be effective)
- 3) turn on the propane valve, on top of the tank (but do NOT adjust the red pressure regulator)
- 4) press & hold the red button to open the fuel supply (there's only one red button)
- 5) click the igniter to light the burner (red button needs to be held for about 30 seconds till unit gets hot)
- 6) use the heater to warm up the engine compartment, for perhaps 10 minutes, as required
then, when ready to shut down :-
- 7) turn off propane bottle & wait for burner to extinguish
- 8) turn off the fan switch
- 9) disconnect the fan motor wires from the battery

If the outside air temperature is below -7 C (20 F) Cessna recommends that Winter Kit blanking plates should be fitted, to partially blank off some of the engine cooling inlet area. If it is warmer than -7 C then these plates should be removed. The Pilot in Command is responsible for checking these items, and for installing or removing them as required. For each aircraft, a screwdriver & machine screws are required (kept with the plates). The blanking plates, together with screws and screwdriver, should be kept in the back of the appropriate aeroplane when not installed.

If the battery is too weak to start the engine (but still has some life in it) then you could choose to swing the prop to get the engine started. This is not for everybody, but is quite possible for many members with some training as required. Both our engines can be started by hand by the same method, but the C-172 does require more strength. If the master switch has been left on and the battery is COMPLETELY flat, then it's NOT worth swinging the prop to start up, because the very low battery voltage will have caused the battery contactor to open, which isolates the alternator. So even if you start the engine, the alternator can't come on line to charge the battery. A battery charger will have to be hooked up to the battery. See the Electrical System description in the Owner's Manual for more details.

A short amateur video is available (on loan, from David Lye Ext 3806) showing how to use the pre-heater, the inlet baffle plates, refuelling, and prop-swinging.