



**Mike Goulian Aviation Pro Tip of the Month – Engine Starting in Cold Weather
by our Director of Maintenance: Levi Fischer, A&P, IA**

Now that cold weather is upon us in New England there is a few things you should consider before starting your Cirrus. Cold soaked engines, tired batteries and improper priming procedures can leave you stuck on the ramp.

Let's start by talking about one of the biggest contributors to hard starts in cold weather, oil/engine temp. We recommend any time the OAT is below 50 deg. you should plug your Cirrus engine preheater in. This heats both the engine oil as well as the engine crank case and cylinders. Starting an engine with cold oil can cause extremely high oil pressure, blowing out crank case seals resulting in unnecessary repairs. Failure to preheat the cylinder may result in abnormal wear. Cylinders are primarily made of steel and the pistons are made of aluminum. As the aluminum piston heats up it expands faster than the steel cylinders, causing tighter than average tolerances and premature cylinder wear.

A cold battery doesn't have the same cranking power as it normally would, causing your engine to turn slower when trying to start. Having the correct prime can help limit the amount of cranking your battery has to do. More on priming later. Keep in mind the battery will only freeze when they are discharged and the only way to recover a frozen battery is by replacing it.

The most important factor to starting an engine is fuel air mixture. The proper fuel air mixture can cause the aircraft to start in one blade length. The easiest part for us to control is how much fuel we are adding during prime. Be careful not to over prime the engine as you may not have the battery to clear the engine from an over prime condition.

Hopefully the engine starts off without a hitch, however if it doesn't it's important to remember your starters' limits. The starter is limited to cranking for 10 seconds with a 20 second cooling period between cranks.

When flying in cold weather there are many more things to consider. But hopefully, this will help you get started.