

The Basics of Aircraft Preheating



**Aviation Safety Starts with Tanis Preheat
COPA Safety Seminar October 2021**

Why to Preheat



THE MAIN GOALS OF PREHEATING

1. Reduce engine wear
2. Increase engine life – to TBO and Beyond
3. Obtain full battery use and extend life
4. Ease of starting
5. Reduce the chance of frosting the spark plugs
6. Reduce warm up time to save fuel – Radial Engines - War Birds

Why to Preheat



7. Prevent cylinder scoring
8. Ensure proper oil flow – crankcase clearances
9. Heat all critical driveline components
10. Increase safety
11. Engine manufacturers mandate preheating

Goals of Preheating

The preheating method that is selected should at least do the following to allow the engine to start safely and easily.

1. Produce a cylinder head temp of at least 50 degrees F above ambient
2. Produce an oil temp of at least 40 degrees F above ambient but should not exceed 120 degrees F and never warmer than the cylinder temp. Think Dew Point and condensation.

Dew point

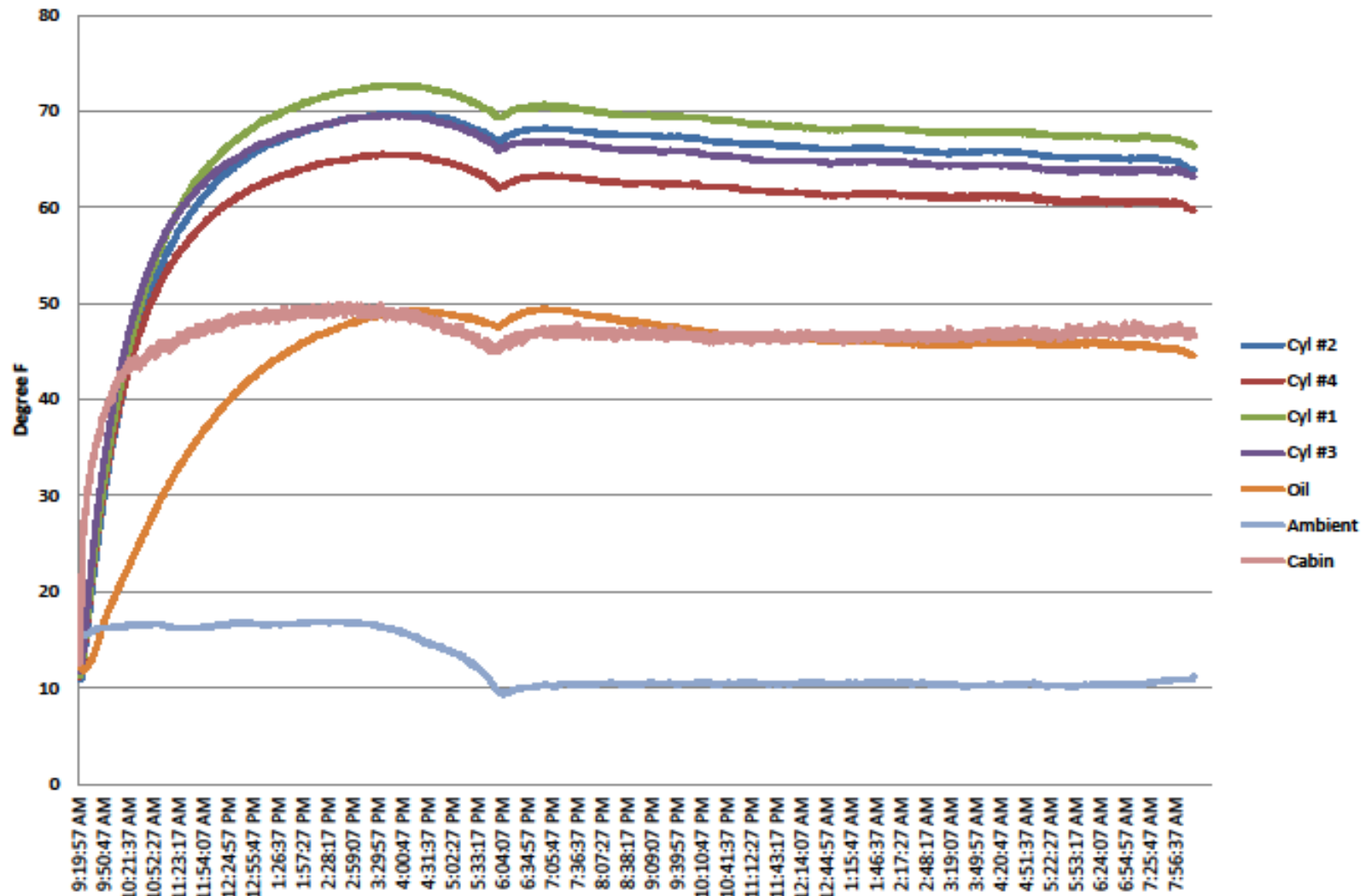
1. Our complete multipoint preheat system keeps the cylinder head and all other parts of your engine above the oil line above the dew point so when moisture evaporates it will not condense on the metal inside your engine. This is the most important factor.
2. We have designed our complete preheat system in such a way that you can leave the system plugged in all the time.

**Tanis Aircraft Products
confirms these results via
tests that you can do
yourself.**

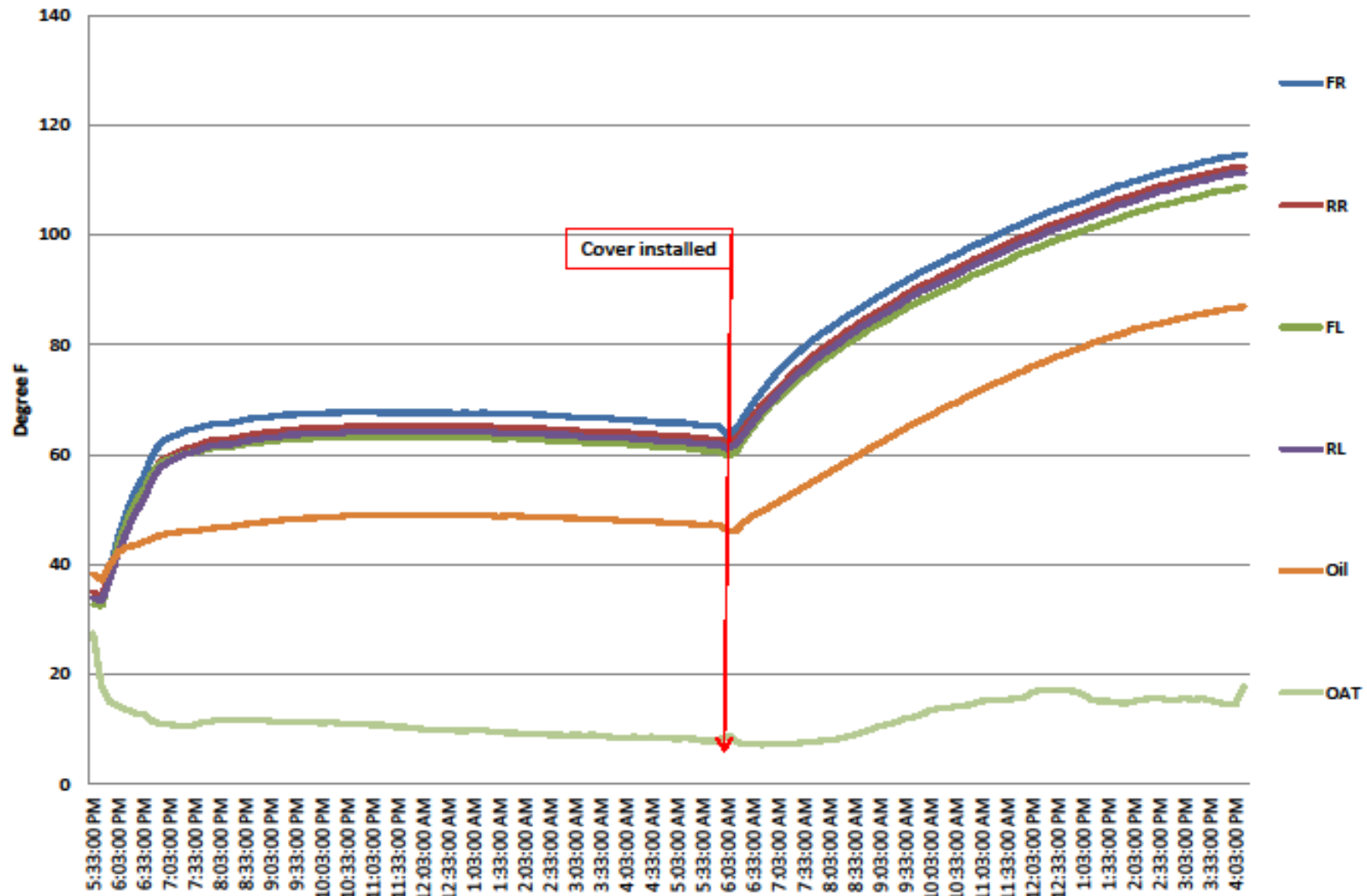




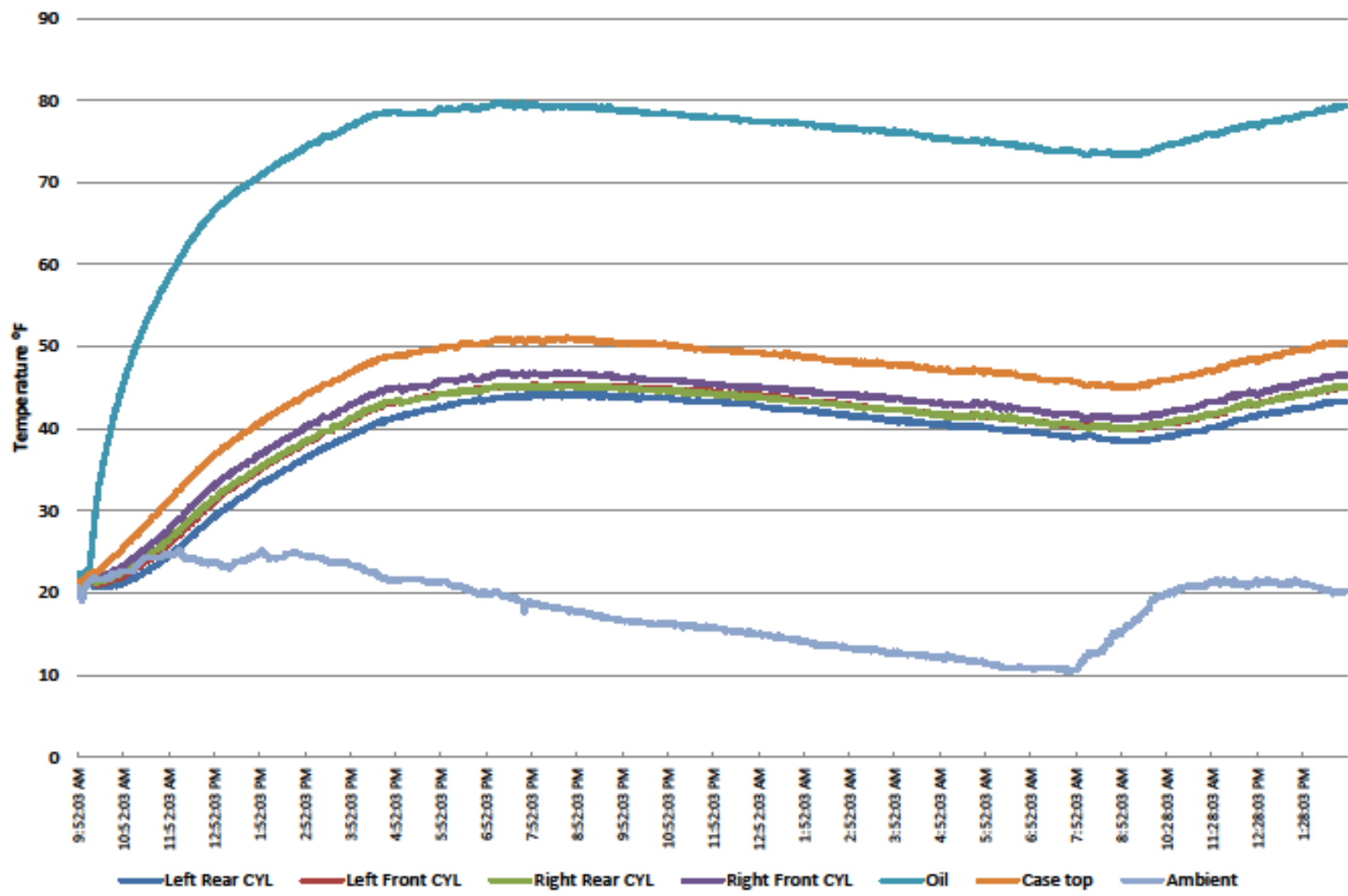
172 Temp Map with Cabin Heater



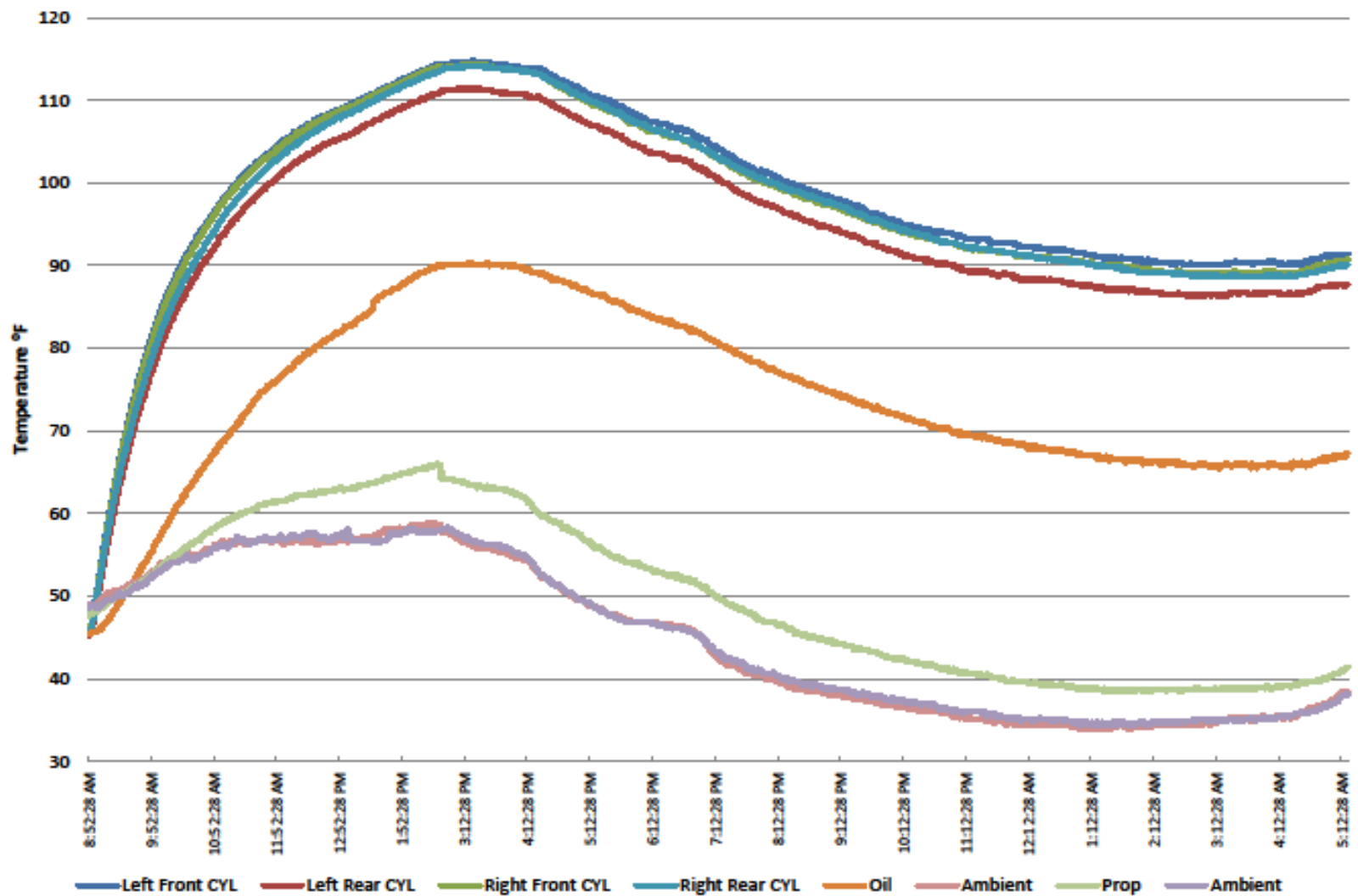
Cessna 177B chart



Bellanca Citabria with an Lycoming O-320, Brand X Sump only element



Bellanca Citabria with an Lycoming O-320, Tanis system,



THANK YOU

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