

# JPI Instructions

Both 76V and 4NK now have a new JPI 730 engine monitor which will help you (and me) run the engines safer and more efficiently. See attached photos "Panel 76V" and "Panel 4NK" Here's the key points to know:

**1. Takeoff and extended climb:** Once you have done the initial climb out and are in cruise climb, monitor the CHTs. The JPI will alert you by a flashing red indication when CHT's reach 420 or above. This is **too hot** and it can happen even on a cool day (it happened to me today on a test flight). If you get the alert, just reduce power a little. Today, I reduced RPM from 2500 to 2400 and the engine instantly cooled below the alarm threshold.

**2. Cruise Leaning:** When you reach cruise altitude, just press the white Lean Find (LF) button (see attached photo "Cruise") and slowly start leaning. When the hottest cylinder peaks, the blue bar that represent EGT will flash on that cylinder. Then tap the Lean Find (LF) button again to see the EGT temperature difference as you increase the mixture. Stop increasing the mixture when the difference reaches 10-20 degrees. Then press the black Step button to exit the leaning process. If this technique still results in a CHT alarm (over 420) richen the mixture a little more. As long as the CHT does not reach the alarm threshold of 420, I'm happy. Normally the fuel flow will be about 10.5 GPH at this leaning level. Note: EGT are blue bars and CHT are white bars on each cylinder.

### 3. Other Important Alerts:

**Shock Cooling:** The JPI scans all cylinders in a rotation and the text "CLD" (see photo) indicates the rate at which cylinders are cooling. Pulling back on the RPM (ie going from cruise power to idle) will cool the engine too quickly. Try to keep the rate of cooling less than 60 degrees CHT per minute. Easy to remember - there's 60 seconds in a minute right? See attached photo "Cold". To demonstrate this, I had to chop the power so please don't do this unless it is necessary for a maneuver or emergency.

**Cylinder Differential:** The JPI scans to see if any cylinder is running at a significantly different temperature than the others. The alarm is currently set at 250 degrees so if the EGT on any cylinder varies by 250 degrees or more from any other cylinder, you will see a red "DIF" on the JPI. A continuously running display of DIF, CLD, and Volts is always shown on the upper right. A DIF of more than 250 degrees is an indication that one of the spark plugs has fouled and if it occurs in cruise, maintenance will be needed. On run-up, this can often be corrected by the usual technique for spark plug fouling.

Engine parameters that show up in red are not good, so if you do nothing else, keep an eye out for anything in red and take steps to mitigate that.

A short video on the JPI 730 can be found at this link

<https://youtu.be/QrLXYsEBW5A>

The JPI has a USB port that allows me to download all engine parameters for every flight so I can monitor if the engine has not been operated properly. That's about it. Let me know if you have any questions and have fun flying 4NK and 76V.