From: Larry Visoski <[redacted]>
To: Je vacation <jeevacation@gmail.com>
Subject: GIV pylon update
Date: Fri, 08 Apr 2016 23:33:21 +0000

Jeffrey,.
I spoke to Pete,. Here is latest from him,.
The air that is exhausted overboard thru the Pylon precooler comes From inside engine cowling from FAN duct Bleed air, it's regulated by LP "Fan Air" valve,. See Petes description for system operation below, he recommends swapping duct temperature sensor again for the system.

Larry,
As to the air system problems-
I suspect that all of the control and monitoring systems are working properly-
You may wish to swap the Temp sensors prior to next flight to TEB.
One was replaced by me a while ago-
They are the ones on the duct's in the hell hole-

They are one of the 3 that I showed you-
Temp sensor on top,
Bleed duct overheat switch middle,
Anticipator on the bottom.

They have a "Click" on connecter, 9/16 wrench is the only tool needed.
Record the P/N and S/N's if you swap them.

I believe that the left side is operating properly-
It seems to be controlling the LP air valve to maintain a slightly open position-
It should be regulating to 400 degrees- (F)
You mentioned that the engine's TGT were around 500 Degrees-(that's about 900 degrees F)
That is registered in "Celsius", and is after the combustion process,
The bleed air system is taken prior to the combustion stage, and is in Fahrenheit.

If the bleed air system on the left sensed 425F, it would send a lower electrical signal to lower the voltage/pressure to allow the LP valve to open slightly.
Full closing would be higher voltage, and pressures, such as seen on the right-
Valves are full open, ie: full cold, with no input-
3 volts/psi, would equate to allowing the valve to be partially open, cooling the bleed air to 400 degrees.
The valves do not show the actual position, the panel only shows the signals input to them for control-
They are not an open/closed valve, they are modulating valves, being commanded to variable positions from the controller.

I believe that the right side is trying to close the valve, to get the 400 degrees, and we are seeing the high voltage, and pressure at the panel,
but the valve may not be responding to the signal-
The system does not see the proper temperature at the sensors causing the reaction, so it continues to increase the command signal.
On the ground, the checks are for no airflow over the precooler at idle, and "some" airflow when anti-ice is selected.

The system has been checked by me, and at Westfield, doing the swap of the Torque Motor Operational checks.

The pictures/video show that the right side is trying to close the LP valve, and decrease the Temp to the bleed air system input.
At idle, doing the normal checks, the pressure into the valve is low-
The valve is spring loaded open anyway-
The line that we replaced at the start of this project is part of the input to the valve-
There may be an air leak in the line from the Torque motor to the valve-
From hell hole, through pylon, to valve, allowing the pressure to bleed off and not closing the valve.
The right LP- "Fan air" valve my be at fault-
There is pressure applied from the duct- 4 inch- to the valve, maybe 5 psi at idle, but unknown at normal power settings in flight-
Maybe the pressure at the 4 inch line is too much for the control input air- internal leaking?

The pressure on the panel are what is being supplied to the valve.
There could be an issue with the internals of the right valve-
OK with low input pressure, but can't' handle the higher pressures involved at higher power, or a possibly a cold soak item.

Cut to the chase-
Next idea is to swap the left and right Precooler "fan air" valves left to right.
Time intensive, since the pylon panels need to be accessed for each.
We should be able to disconnect and leak check the lines from the torque motors to the valves.

this is from "Tail Chaser"

Regards,
Pete

Sent from my iPad