

From:

Subject:

Date:

Re: HACman control Questions (WPR17LA148)

Friday, August 4, 2017 7:33:53 PM

Michael, answers below:

- a. Recommended by Greg Hobbs. It is used by many of the Lightning builders.
- b. It was installed on the original build. I replaced a defective unit during the test phase.
- c. I installed the HACman . The first HACman was defective. The replacement unit appeared to work as intended. I used it at higher altitudes to increase the EGT temperatures to an optimal range (near 1400degF).
- d. I physically inspected it.
- e. The only time it was disconnected was during replacement of the defective unit. The defective unit was evidenced on September 22, 2016 on a transition training flight. My instructor turned it 1/2 turn counter-clockwise and the engine lost power. He turned it back to the full clockwise position and the engine regained power. Engine hours ~24.3. The defect was identified during the next several days and I installed a new unit on September 28, 2016. Install was completed at 24.5 hours.
- f. The HACman changes the fuel/air ratio. In the full clockwise position, the unit is "off". To engage the HACman, you turn it counterclockwise to it's stop which is the maximum "lean". Typically, engaging the HACman to max would increase EGT 25-40degF. I would turn the HACman to lean one cylinder to just below 1400degF. Cylinder #5 was usually the first cylinder to reach desired temperature first.
- g. I did not use the HACman during the accident flight. I normally would not engage the unit until I reached a cruise altitude. I flew on July 6, 2017 and collected some data in advance of changing the prop pitch. The maximum lean I was able to achieve was 1381degF on cylinder #5. This was at 9400 msl. This is lower than the range (1395-1400)that I had previously achieved during use in 2016 after I replaced the defective unit. I made a mental note, but had not pursued further investigation. It could have been barometric pressure/air density/etc.

I did not change the HACman position post-accident.

OIL-

1-2 quarts is surprising. If the engine had seized, there would be zero rpm. Low on oil would have caused the cylinder head temperatures to climb rapidly if it was starving for lubrication. They were in normal operating range (no alarms).

1. On a 3.7 quart max....1 quart is a lot....so 1-2 quarts range has a huge margin of error.
2. Residual oil will be in the oil cooler——1/3 quart and the Oil filter....so together perhaps 1/2 quart.
3. There was no indication of oil dripping from the fuselage when it was lifted off the ground to put on the trailer.
4. During the pre-flight the oil indication was mid-range on the dipstick. I believe that's 3-3.25 quarts. I'm religious with my oil checks, so I'm extremely confident that it was in range.
5. Oil Pressure and Oil temperatures were in the operating range. That was one of the checks I made on the instruments upon loss of power. They had been in normal operating change from the beginning of the flight.
6. There is a potential that the collapse of the nose gear might have hit the oil quick

drain.....but, I didn't observe any oil leakage at the time of the accident.

Jack

On Aug 4, 2017, at 12:41 PM, Huhn Michael [REDACTED] wrote:

Some Qs about the 'HACman' mixture control

- a. What person, organization, or info prompted the installation of this device?
- b. Was it installed during the original build or subsequent?
 - a. If subsequent, when/how many hrs?
- c. Who physically installed & plumbed it?
- d. Who physically Inspected/OK'd it?
- e. Was it (or its plumbing) ever disconnected (eg for mx access) after it was installed ?
 - a. If so, when & by whom?
- f. Please describe your procedures for using it
- g. Do you have any specific recollections of your use of it on the accident flight, either before or after the engine problem, or post-accident?

Thanks again

Michael Huhn
Air Safety Investigator
NTSB Western Pacific Region

M: [REDACTED]
[REDACTED]

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