

Huhn Michael

From: Elliot Seguin <[REDACTED]>
Sent: Thursday, May 26, 2016 8:19 AM
To: Huhn Michael
Cc: [REDACTED]
Subject: Re: N68TQ Questions (WPR16LA110)

Michael,

Thank you.

See below.

Elliot
[REDACTED]

On May 26, 2016, at 7:43 AM, Huhn Michael <[REDACTED]> wrote:

Morning Elliot

Thanks

OK re the timeline attempt/fail; no need to pursue, Ill use the narrative

But a few specific Questions:

- a) In the email below you stated you took off w "85 minutes" of fuel – Do you really mean 8.5 (8 decimal 5) or 85?

I meant 85 minutes. That is in economy cruise at 80 mph, PFLF (power for level flight). Full power on both engines the duration is much much shorter. Full power on both engines we are also climbing at greater than 2,000 fpm.

- b) As requested in one of my emails from yesterday or the day before, Id like a simple breakout/timeline of the various phases of the entire operation, from engine start to flameout/impact. Estimates OK – something akin to "Engine start/idle 3 minutes, taxi 5 minutes, system or power checks, 3 minutes," etc etc

I can get you that. Short answer. We started the engine at the hold short line, ran for 3 minutes at 20% power to recharge the batteries after the engine start. Then applied full power for take off. Full power for 1-2 minutes. Idle descent for 7 minutes. Shot an approach to 26 down to 500 feet. 20 seconds full power. Glide to 12 at idle thrust. And you know the rest.

- c) Do you know if the ECU/FADEC has any NVM that captures run or anomaly data? If so, and you plan to dump or have the mfg dump it, Id like that data please. Our lab is far too backed up for me to route it thru there

We don't think it does. Just in case we have not powered anything up since the accident. The engine manufacturer will therefore have the best chance of recovering something.

- d) You used the acronym "PFLF" in your narrative but that's a new one on me – can you please elaborate/spell out?

thanks

Michael Huhn
Air Safety Investigator
NTSB Western Pacific Region
M: [REDACTED]
[REDACTED]

From: Elliot Seguin [[mailto:\[REDACTED\]](mailto:[REDACTED])]
Sent: Thursday, May 26, 2016 7:17 AM
To: Huhn Michael
Cc: [REDACTED]
Subject: Re: N68TQ Questions (WPR16LA110)

Michael,

I spent last night going through the video. It is not very good for this purpose.

The video matches the narrative below. I started going through and recording the instruments at every second of video through the crash. Because the airplane doesn't have an artificial horizon or a directional gyro quantifying the attitude of the airplane each second is not very repeatable. The left (failed) engine gauge is readable, but the right is not. Airspeed is pretty consistently readable through the accident. The yarn tuft is hard to quantify but indicates some heavy gusts throughout the accident, and a consistent nose left slip through the entire maneuver (consistent with a failed left engine). The pilot has full right aileron and full right rudder throughout the maneuver. The pilot is very busy with the elevator and the right throttle lever throughout the video.

On the fuel question the airplane took off with 85 minutes of fuel at 80 MPH based on the L/D check we did on flight one. That fuel is in one 7 gallon (1 gallon unusable) tank under the pilot's legs, the two other fuel tanks (20 gallons total) were never filled with fuel. The fuel plan for the flight was, 1/2 tank is bingo, below which there is no testing and that airplane was to be landed. The airplane was not to be flown out of the glide-cone of the airport. The tank is gauged with a very repeatable float type mechanical fuel gauge on the top of the tank. The fuel goes through one fuel line to a tee fitting and through two shut off valves, both valves were found in the on position at the accident site. Fuel indication is between 3/8 and 1/2 tank in the accident video. The left (failed) engine is the most intact of the two engines in the wreckage currently. The fuel line and electrical control cable are still connected to the engine in the wreckage. The fuel line is transparent and the length of the line is full of fuel. All of the electrical components to the engines (ECU, Display, Throttle, Fuel Pump) appear to be intact, but we need to send them back to the manufacturer to be sure.

My narrative is below.

Elliot
[REDACTED]

Accident 5/13/16:

The biggest risk to the program was engine reliability (experimental engine). Engine reliability is the highest risk of the program because the engines are new and have not yet flown. The Quickie airframe was a natural choice because it's low drag meant that in a single engine situation it could climb on one engine, and if both engines were lost the glide ratio would also be favorable. From a procedural standpoint for the first flights the decision was made to minimize power changes near the ground and in the event of an engine failure the second engine would be shut down and the airplane landed without power, likely straight ahead.

In the afternoon the winds were forecast to increase from calm to 25 knots out of the west. From 2:00 to 3:00 we watched the winds sit at roughly 100 degrees and 10 knots with gusts to 15, producing a 7 knot crosswind component (in the gust). There is no published crosswind limit for the Quickie in the POH. 5 knots crosswind was our company limit for the first flight only and we hoped to understand crosswind handling as soon as possible, to allow us to operate in Mojave. A quick flight in the current winds seemed like a great way to open that envelope. Shortly after takeoff (3:15) the ground crew informed me that the wind gust had increased significantly and the

direction was shifting to from the West. I pulled the power back to idle and set up to land. 12-30 was the preferred runway because it is so much wider than the other runways at Mojave.

On short final to 12 I applied full crosswind controls and found they weren't enough to parallel the runway. I continued the descent, approaching at 70 MIAS, and setting up to land with a slight cross track diagonally across the runway. With five to ten feet to go, there was a large gust from the right that rolled the airplane left more than 45°. I decided to go around and selected full power.

Applying full power I heard the engines spool up, I felt the thrust push me back in my seat, and I started to pull the nose up to climb attitude. I heard an engine quit, the engine monitor confirmed that the left engine (downwind) had shutdown and gone into cool down mode. Rolled into the dead engine and pointed towards the 747s landing straight ahead was not an option. I distinctly remember thinking at this moment that this was a worst case scenario.

We had briefed that in the event of an engine failure the second engine would be shut off and the airplane landed straight ahead. Without a suitable landing spot in sight I kept the right engine powered up and attempted to climb. I reduced the right engine to less than forty percent (predicted PFLF) and then added and removed power working on the Lat/Dir problem that was pushing me into a downwind turn and the boneyard/747s. The airplane clearly needed more speed to become controllable but I couldn't climb high enough to lower the nose and accelerate. I could not raise the left wing and the airplane was consistently in a hard slip to the left with the nose slicing left. Once it became clear I wasn't going to get above the 747s I reduced power to get lat/dir control and between the tails. As I got through the tails and looked deeper into the boneyard, I was below everything in front of me (specifically a silver convair 880) and there was no open ground to land. I decided climbing was the only way I would survive. I added power, the slip got worse, the airplane stalled and rolled left. An abandoned mobile home sat in foreground in front of the broad side of two 747s that were much taller than I could climb. I accepted the mobilehome as a better accident site than the landing gear of an airliner and pulled the right engine back to idle. At this moment I remember feeling exhausted that the fight was over and relieved that the puzzle had been solved, no matter how bad the result.

I closed my eyes before impact. When I opened my eyes I was on the ground in the boneyard, canopy and visor were gone and the sudden change in sunlight was a surprise. I visually inspected the limbs that I could see. Then I moved my neck and back and felt nothing strange. I picked up my arms and visually inspected for blood. Then did the same for my legs. Finally I unlatched the seatbelt and stood up. Shortly after stepping out of the wreck Justin Gillen and the crew came around the corner in the chase truck. Airport security showed up roughly 5 minutes later. Ambulance after that, and then the fire department (drove from Cal City).

On Wed, May 25, 2016 at 9:26 AM, Huhn Michael <[REDACTED]> wrote:

Hi Elliot,

OK thx for all that.

Im fine w you guys doing your own internal investigation but my position requires that I do it independently, so i need the specific data to enable me todo that.

FYI you are free to submit any factual or conclusory info to me to assist in the investigation

Thx again

Michael Huhn

Air Safety Investigator

NTSB Western Pacific Region

M: [REDACTED]

Fa [REDACTED]

From: Elliot Seguin [mailto:[REDACTED]]
Sent: Wednesday, May 25, 2016 9:19 AM
To: Huhn Michael
Cc: [REDACTED] Jason Wolf
Subject: Re: N68TQ Questions (WPR16LA110)

Michael,

I have the form and wasn't sure whether we needed to fill it out since we were working with you. I can get on that tonight.

I have written a pilot account of the accident as you requested. This was written without seeing the video.

We do not yet have the crash video, but plan to document it as you asked. It was supposed to be delivered yesterday but got held up. I am copying Karga 7, who has the video, on this email.

We have internally eliminated fuel starvation as a cause for the accident and we can document the associated details.

Elliot

[REDACTED]

On May 25, 2016, at 8:58 AM, Huhn Michael <[REDACTED]> wrote:

Morning Elliot & Justin

Im still awaiting the completed NTSB accident form, plus the video timeline- can you please acknowledge receipt of those requests, and estimated completion dates?

Additionally I have the following specific questions/requests:

- a) A synopsis of the phases/timeline of the entire flight (eg start, idle/runup times, taxi time, and flight time)
- b) Condition/status of fuel situation as found post –accident: tanks/lines intact or breached, fuel spill, observed fuel quantity etc
- c) Fuel tank quantity (total and unusable)
- d) Airplane equipment and status (operational, accuracy) of fuel quantity indication system
- e) Methods/Guidance/strategies to ensure adequate fuel remaining for flight

thanks

Michael Huhn

Air Safety Investigator

NTSB Western Pacific Region

M: [REDACTED]

Fax: [REDACTED]

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