

The following timeline is submitted to the IIC for the NTSB Accident Investigation in the case of N506PH on 21 February 2019. The on-site investigation took place over a two day period, from 5 March 2019 to 6 March 2019. The following is a brief synopsis of the investigation.

5 March 2019:

0800: Myself and Mark Favor met Joan Gregoire, John Hobby, and Dave Riser.

0840: I called Juan Sanchez to ensure he arrived into Kona.

0950: Juan Sanchez arrived to the company location.

1010: Unlocked and opened hangar door. Took pictures of the layout of the hangar while tarp was on the aircraft. Removed tarp.

1015: Took pictures without tarp.

1025: Mark Favor began removing engine doors. Removed right door but left door had one screw that would not come off. Elected to keep left engine door attached by single screw.

1041: Dave Riser began removing exhaust clamp. Joan Gregoire began removing back panel behind rear seats.

1050: I took a restroom break.

1057: Arrived back at hangar.

1102: John Hobby manipulated the throttle. Had trouble moving it.

1104: John Hobby manipulated the collective up and down.

1106: John Hobby manipulated the throttle but exhibited limited range of motion.

1117: John Hobby and Joan Gregoire continued removing panels in the cabin. Noted compression in pilot seat and observed damage to the control linkages underneath the middle seat.

1127: Battery turned on by John Hobby. Caution Panel indicated Gen Out, Eng Out, and XMSN Oil Press.

1130: Dave Riser and John Hobby asked about gauges removed from the instrument panel. I told them that we removed them in the field to preserve them from the heavy rains. They were contained in a tupperware box with a yellow lid inside the hangar.

1132: Observed first vacuum test of the engine fuel performed by Mark Favor. No fuel produced.

1155: Observed another vacuum test of the engine fuel. Did not produce fuel.

1200: I witnessed a discussion between John Hobby and Dave Riser about what the vacuum test failures meant and what troubleshooting steps were required next. Noticed some disagreement between them that ended up getting resolved.

1220: John Hobby began isolating the airframe fuel system. Mark Favor assisted Dave Riser in readying the engine for removal.

1300: John Hobby observed and noted the Airframe filter drain valve nut was loose. With the loose nut, the Airframe filter failed the suction test from the drain valve to the filter entry. With the nut off, both the Airframe filter and the drain valve passed the suction test.

1330: Obtained a hoist and cherry picker to extract the engine.

1400: Assisted in moving the aircraft out of the hangar and under the hoist. Moved the hoist on top of the helicopter.

1425: Held the tailboom while Mark Favor pulled the engine with Dave Riser using the cherry picker. Engine removed and placed on an engine stand by Mark Favor.

1436: Noted the bleed air valve in the closed, or down, position. Observed a "nick" in one of the compressor blades.

1440: I spun the compressor blades and power turbine blades after seeing Dave Riser do the same thing.

1555: Suggested to John Hobby and Dave Riser that we attach the Diamond J temperature gauge that was removed to preserve the gauge. They agreed. Mark Favor installed the gauge.

1557: Power applied to gauge. Observed the gauge indicating an Operational Exceedence (O E) of 937 for 31 seconds. Strangely, subsequent cycles of power to the gauge showed an Operational Exceedence (O E) of 1001 for 19 seconds. I recorded several cycles of power to the Diamond J including the first initiation of power - the only time that 937 for 31 seconds displayed. I also observed the needle on the Diamond J gauge moving steadily up with the initiation of power.

1633: Overheard John Hobby discussing with Mark Favor that he was detecting continuity of the wires to the TOT gauge using a voltmeter. He was expecting no continuity with the engine removed.

1635: Discussed Dave Riser's desire to send the engine to Keystone in Pennsylvania. Discussed the possible need of an engine can.

1644: Began cleaning up the hangar.

1656: Hangar closed and investigation stopped for the day.

6 March 2019

0828: Opened the hangar for Juan Sanchez to take pictures.

0846: Hangar closed and locked. Obtained permission from Juan Sanchez to move the Airframe, Engine, and Aircraft Flight logs to our conference room.

0850: John Hobby, Joan Gregoire, and Dave Riser arrived to our Corporate spaces. They set up in our conference room to review the airframe and engine logbooks, as well as the Aircraft Flight Logs.

0905: Juan Sanchez arrived to our conference room from the hangar.

0908: Party representatives began looking through the logbooks. I was present but only observing.

0913: I printed out the airframe component and engine component worksheets for the party representatives.

1045: Unsure on exact timing but answered a question for Dave Riser about the installation of the bleed air valve on 23 January 2019. He initially had confusion about where in the AFL logs this maintenance action was recorded. I found the appropriate AFL page and showed him the signed off maintenance action which matched the engine logbook.

1215: Unsure when we began the debrief, but went around the room and each rep discussed their finding of facts. Below is a brief summary that I wrote down from this discussion. This is not meant to counter any of their reports but just to share what I wrote down.

- Airframes:

- Requested a statement, via email, on the amount of fuel drained and an estimate of how many gallons leaked at the mishap site to validate the fuel assumptions. I took this for action.
- Noted little chordwise damage on blades, no scarring
- Noted control continuity but fracture above copilot bellcrank area
- Noted control and drive system integrity
- Noted overrunning clutch functional
- Noted tail boom in good condition with driveshaft intact. No indication of main rotor contact with the tail boom.
- Noted tail rotor showed one bent blade and one straight blade, no chordwise scarring.
- Noted damage to head representative of flapping and excessive lead/lag
- Noted integrity of the fuel system except drain valve nut on Airframe filter. Structural damage to landing gear strut and brace including multiple fractures noted below the Airframe filter.
- Noted N2 beep worked.
- Could not position throttle to cutoff or verify idle due to impact damage.
- Unclear Diamond J gauge indications. Noted continuity of the temperature wires in the engine compartment.
- Engine
 - Noted he had to assume Operational Exceedence based on Diamond J readings.
 - Noted bleed valve in the closed position. Expectation that it would be open.
 - Noted compressor and power turbine wheels moved by hand.
 - Noted slight bend in the igniter line.
 - Discussed testing the engine for pneumatics and fuel in Pennsylvania
- Me
 - Emphasized the difference in the Diamond J gauge reading during initial power up and subsequent power ups. Noted the needle of the Diamond J gauge rising during the initial power up.
 - Highlighted key components of the pilot statement including the noticing of the TOT above 900, the torque indicating 0, and running out of RPM during the cushion to landing phase of the approach.
 - Asked questions of the other party representatives regarding engine governor and pneumatic malfunctions, gauge indications, blade and head damage indications.
 - Asked about the engine testing in Pennsylvania.
 - Attempted to find if we had an internal statement about the defueling volume on site. My recollection was somewhere around 43 or 43.5 gallons.

1305: On-site portion of the accident investigation concluded and Party Representatives and FAA departed corporate spaces.

1430: Asked our DOM, Lauren Douglas, to send me an email regarding the amount of fuel drained at the site and estimate of how many gallons leaked prior to defuel.

1506: Received email from our DOM, Lauren Douglas, indicating that 42.5 gallons were defueled and she estimated 6 gallons leaked into the ground.