



Prepared by Nathanael Walton

INTRODUCTION

A brief synopsis was requested by William Thompson on behalf of the FAA regarding flight XKS1162 on August 1st, 2020 operating in South Carolina on the project B496. All observations unless otherwise noted are my personal recollection and point of view.

CONDITIONS OF DAY

Airport of departure and intended return was KMNI. The air was smooth and temperatures below average for the duration of the flight.

From memory the weather that morning on August 1st, 2020 was calm and reported as: Wind between 250-270 @ 5-7kts, Temp 25C, Visibility in excess of 10sm, Altimeter apx 30.03. The sky was reported as SCT around 1,500

AIRCRAFT WEIGHT AND BALANCE

Sample W&B calculations were carried onboard as permitted by Terraquest COMs where configuration does not change which flight XKS1162 did not deviate from.

Gross Weight was 6771 lbs. with an Arm of 135.9 and Moment of 920395.

FUEL

Total useable fuel capacity for inboard and outboard tanks was 184 USG for a planned flight of 5.5 hrs and a reserve of .6 hours. C-GXKS was re-fueled the afternoon prior (July 31, 2020) by the PIC Nathanael Walton and no contamination or fuel less than full outboard and inboard tanks was noted on the walk around of August 1, 2020.

CREW

Nathanael Walton was the PIC occupying the right seat, and Alexis Beauchamp-Desbois was occupying the left seat for the duration of the flight.



SYNOPSIS XKS1162

Pre-flight briefing and take-off departing RWY 20 was performed by Alexis Beauchamp-Desbois as per SOPs at approximately 0630L. Performance was slightly less than what I had come to expect between 0600L and 0700L at this aircraft weight and OAT. I estimate we used apx 300 ft more on our roll and the stall horn sounded briefly as we cleared the trees at the end of RWY 20. The difference we noted was only slightly marginal from what we both were accustomed to and we do not consider this at the time to be extra-ordinary, but worth mention.

After take-off checks and cruise checks were completed “read-do” by me. Our first survey line begins at approximately 5nm to the NW of KMNI to which we descended and began survey operations at an altitude of approximately 300’ AGL.

From this position we proceeded to our area of survey, ranging from 8nm East to 20 nm South East of KSSC where we remained until approximately 0820L. During this time Alexis Beauchamp-Desbois verbally gave control of the aircraft to me and in this manner he and I would alternate as the pilot flying the aircraft, both in this instance and over past months. We have routinely exchanged the role of Pilot Flying and Pilot Not Flying for periods between 45 minutes to 65-70 minutes as an effective way to combat fatigue on routine flights of 5 hours that become exhausting in cabin temperatures that commonly exceed 33C.

I was the Pilot Flying when we transitioned from the area of survey near KSSC to another “block” beginning at KSMS and ending approximately 30nm to the SE of KSMS. This transition occurred between 0830-35L and marked the point of 2 hours of airtime since departing KMNI. Our first fuel change from Inboard tanks to Outboard tanks routinely takes place at a time of 2 hours airtime followed by a second change from Outboard tanks to Inboard tanks at 4.3 hours of airtime. Fuel planning and tank selection are planned based on the considerations outlined in Chapter 8-App A in the Terraquest COM V6B.

As per our SOPs, the Pilot Not Flying will assist the Pilot flying in the following ways:

- Monitor Radio communications and make necessary transmissions. (Radio transmission causes negative feedback on the aerial sensors Terraquest Aircraft employ. All transmission must be noted in zulu time requiring two hands.
- Monitor electrical load, since only one alternator is used on survey
- Monitor fuel to ensure sufficient reserves for all scenarios
- Monitor airspeed and groundspeed
- Maintain a lookout for tower, birds, and other obstacles

The Pilot Flying will commonly request the Pilot Not Flying to assist with tank switching procedure since the tank selectors are behind the pilot’s seats and are not visible without looking behind and downwards. The clock and timer on the transponder of XKS are primarily relied upon by the crews of XKS to monitor airtime and change tanks.



(SYNOPSIS XKS1162 cont.)

At a time of apx 2:02 airtime as indicated by the transponder, I noticed that we had not changed from Inboards to Outboards. I changed the tanks from inboards to outboards; confirmed that fuel quantities read at full; and started a new timer on the transponder as the Pilot Flying but neglected to verbally notify the Pilot Not Flying, Alexis DB. I continued as Pilot Flying for approximately 75 minutes longer before giving him control.

At a time of 3.5 hours airtime when Alexis DB was Pilot Flying, straight and level at 300', the left engine made a surging noise and rapidly began developing less power. Alexis verbalized this immediately and we both confirmed verbally on the MP reading near 17" from original configuration of 30". I began the memory items for a cruise failure in cruise verbally calling out what I did in order. Beginning with "fuel selectors to inboard", "boost pumps on high", "power full, propellers full and mixtures full".

Initially the fuel pressure was low on the left engine and constant on the right, oil pressures were within limits on both engines. I was not able to check them again. MP continued to decay near 15". We were unable to maintain altitude within the right engine still developing full power and reading a steady 40.5" MP. We tried to initiate a turn to the north as we were roughly 5 nm south of KSMS. Alexis DB was forced to exchange altitude for airspeed to stay at VMC and we were no longer able to stay above tree line. I attempted to feather the left engine that has fallen below 10" MP and was not likely to be producing more thrust.

At this point I took control of the aircraft and began a turn into a field that had just appeared below us as we approached from the east. During this last 4-5 seconds of flight we were no longer maintaining VMC and I made a conscious decision to not retard/shut down the right engine for fear of losing more control. I was unable to rollout completely in the last 1-2 seconds before impact and lost control in the final act of trying to lift the nose. (Alexis DB personally noted in the final moments of our flight that the fuel gauges were reading empty. While I cannot personally recall the fuel levels, I thought I saw a slight dip from 40.5" on the right engine MP" in the last moments.)

Impact was hard and both left and right side-windows shattered; there was nearly no movement after initial contact. Alexis immediately tried to set mixtures to cutoff but was unable and so was I, as they had jammed in the forward position. 2-3 seconds after impact the right outboard tank exploded, and I exited the aircraft followed immediately by Alexis.

The right wing was burning intensely, and we left the scene heading towards a service road between the Sumter Lee Regional Detention center and the Sumter County Sheriff's Office.

POST-CRASH EVENTS

Omitted for this report.

END OF REPORT