



RECORD OF CONVERSATION

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Eastern Region

Date: August 10, 2020
Person Contacted: Luke Maximilian Doldan
NTSB Accident Number: ERA20LA275

Narrative:

Mr. Luke M. Doldan was contacted by phone on August 7, 2020, at 1245 EDT. He was called at [REDACTED] and left a voice mail message. He returned the call the same day from the same phone number at 1621 EDT.

Mr. Luke M. Doldan was contacted by phone on August 10, 2020, at 1055 EDT. He was called at [REDACTED]. He provided an e-mail address of [REDACTED].

At the beginning of the interview he was advised that the NTSB is a federal agency mandated by Congress to investigate aircraft accidents, and NTSB has no authority to take any action against any individual. He was also informed that the purpose of an NTSB investigation is for safety only, and any person NTSB talks with has the right to representation; he agreed to the interview without representation.

He was provided an update regarding the status of the investigation and was advised that the Federal Aviation Administration (FAA) inspector-in-charge had run the engine to idle for a short period of time at the accident site. He was also advised that the NTSB intended to further inspect the engine.

He holds a commercial pilot certificate issued January 25, 2019, certificate number [REDACTED] with ratings for airplane single engine land and instrument airplane. He holds a 1st class medical certificate with limitation, "must wear corrective lenses" issued May 4, 2020. He was wearing corrective lenses at the time of the accident. He also holds a ground instructor certificate with instrument rating. He has about 350 hours total time, and about 50 hours total time in the Piper Pawnee which included about 10 hours during training flights.

He indicated that after being hired he did a dual flight to be checked out. He began his training on May 10, 2020 and was put on the FAA waiver on July 7, 2020. His training consisted of about 20 hours in different airplanes.

The accident flight was his first banner tow flight that day. After arrival at North Perry Airport (HWO) he got his schedule for the day. He obtained a hand-held very high frequency (VHF) transceiver and went to the airplane to perform a preflight inspection. After getting to the airplane he uncovered it, verified the master switch and magneto switches were off, and checked the ARROWW (airworthiness, radio station license, registration certificate, operating limitations, weight-and-balance, and the wavier paperwork). He then taped the stall warning vane in the up position and went back to the cockpit where he turned on the master switch and heard the stall warning horn operate. He then turned on the navigation lights, removed the tape from the stall warning vane, and checked all lights were functional. He returned to the cockpit, verified the stall warning horn was off, then turned off the master switch. He then dipped the fuel tank using the airplane's dipstick, confirming the fuel tank was full. While at the cockpit he verified the elevator trim was set for takeoff and was operable, and removed the tow releases. He then went from the cockpit to the empennage tactily feeling the airplane making sure no screws were missing.

While at the tail, he untied the rope and checked for tautness the 4 cables per side that secured the horizontal and vertical stabilizers to the fuselage. He also checked the elevator flight control surfaces for security, there was clear access to the springs for elevator trim, checked the rudder flight control surface for security, the rudder cables for attachment, the tailwheel cotter pin was in-place, and verified the tow releases worked ok and were greased. He verified any attachment hardware for the elevator and rudder primary flight control surfaces were attached. He then went up the right side of the empennage to the right door/window and checked it and the canopy. He then went to the rear of the right wing and checked the flap, flap return spring, and the flap control rod for binding and security. He looked under the wing to make sure the inspection plates were secure and checked the back of the wing strut for rust and/or corrosion. He then checked the aileron flight control surface for security and corrosion and checked the screws at the aft end of the lift struts were in place. He then went to the right wingtip and checked it for condition and security. Following that he went to the leading edge of the right wing and checked it for dents. He again visually checked the stall warning vane and checked the strut fairing for security (single screw attachment). He checked the leading edge of the strut for dents and corrosion, and then checked the right main landing gear. He visually checked the tire for proper pressure, checked the brake for proper thickness, and checked the bungee cords. He also checked for any brake leaks, but there was none. He checked the "jesus nut" at the strut and confirmed there was anti-slippage compound against the nut and mating attachment piece. He then went forward to the right side of the engine compartment, where he opened the right engine cowling.

With the right engine cowling open, he looked for signs of oil leaks, verified the carburetor heat control cable was attached, verified each ignition lead was tightly attached on that side of the engine, and visually inspected the magnetos. He also could see both sides of the lower oil cooler. He inspected as best as he could the top and bottom of the cylinders, then closed the cowling. He inspected the air induction filter and noted there were no obstructions of the upper oil cooler. He checked the leading edges of the propeller blades for nicks but reported there was none, adding

that it was almost a new propeller. He checked the alternator belt was tight, and there were no bird nests in the engine compartment. He went to the left side of the engine and opened the engine cowling. He checked the fuel hoses, the throttle control linkage, and the next thing he performed was to take a fuel sample from the fuel strainer and fuel tank. Both samples were clear and free of contaminants. He checked the oil quantity but did not recall adding oil. He thinks the capacity was at 12 quarts. He replaced the dipstick, then went to the left landing gear.

He inspected the left main landing gear tire visually for proper inflation, checked the brake for leaks, the bungee cords, and the main bolts for the strut. He checked the leading edge of the left wing for dents and checked the left wing inspection plates. He checked the pitot tube, and then checked the wingtip for security. He went to the back portion of the wing and checked the aileron, aileron control cables for the swaged fitting was not slipping, the flaps for condition and security, and the flap return spring. At this point of the conversation he indicated that he checked all flight control surfaces to make sure they were not holding water, they were not.

He added that his preflight was thorough because Dan (head mechanic) had showed him how to thoroughly inspect the airplane.

After his preflight inspection was completed, he went into the 2nd hangar and got 3 hooks. He taped them to the left side forward cable to keep them free of the tailwheel until they are released. All hooks were routed on the left side of the airplane. He closed the latches, and then checked each safety link, the cable for knots, and each rope was taught. He got his handheld VHF transceiver plugged into his headset and the auxiliary port to be able to listen to company and FAA. He flies with a kneeboard and logs his engine start time. He was scheduled for a 1300 “pick”.

He started the engine about 1240 and taxied with the mixture leaned to the runway making appropriate radio calls. He did an engine run-up with the mixture control full rich, operating the engine to 1,800 rpm. He noted the right magneto drop was 300-400 rpm, so he kept operating the engine with the mixture leaned which caused it to improve. He attributed that to be because the spark plugs were fouled. At the time he thought that was odd that the engine ran rough because that normally did not happen with that make and model airplane. During the run-up he checked the carburetor heat and noted there was a 100-rpm drop (normal) and removed it. He then checked the transponder was set to 1200, the radios were set to the tower primary and secondary frequency and got his first tow hook ready. He set the flaps to 10° (1st notch) and called the air traffic control tower (ATCT).

He was cleared for takeoff, and departed with the auxiliary fuel pump on. He made a left turn advising the ground crew. He turned base then called the ATCT and advised them he was turning final. At 150 ft he made the final call to the groundcrew. He told them his fuel load (72 or 73 gallons), threw out his first hook and kicked the rudder to avoid it getting caught by the stabilator and/or elevator. In this case it did get stuck around the stabilator and elevator and informed the groundcrew “hot hook.” He told the airport that he needed to return, and airport operations was waiting. He landed uneventfully, secured the airplane on the runway, and the tow rope was removed, and the airplane was inspected by him. He added that there was no damage. Because he had extra tape, he secured the tow rope, got into the airplane. He attempted to start the engine

but at this time reported it was difficult to start, which he characterized as having only $\frac{1}{2}$ revolution of the propeller. He was able to start the engine and called ground and was cleared to taxi to runway 10L. While there he performed another complete engine run-up. He received permission from the ATCT to depart. After takeoff he threw out the tow hook and noted he had a "clean hook" which he could see visually. He made a base to final turn for the banner box and while descending maintained 95 miles-per-hour (mph) and picked up at 1302 EDT on his first try. After snagging the banner he started to pitch up for 65 mph by nosing over, adding that it was his first time in that airplane. He noted it climbed slower than normal, but it was the biggest banner that they towed. He climbed while on an easterly heading and told the groundcrew he was climbing to 1,300 ft mean sea level (msl). He logged the tachometer and pick time and set the power. He leaned until the engine ran rough or a slight rpm drop then enriched the mixture one inch and cleaned up the airplane. He made a turn to the southeast and being new to the airplane observed the airspeed indicator and attempted to determine the minimum speed while towing which resulted in him fiddling with power. He then checked the carburetor heat the 1st time by applying it and noted the rpm decreased 100. He left it on for about 15 seconds to 30 seconds and removed it. He then noticed the airplane was losing "a little bit" of altitude. He said the throttle was an irritant because it did not have friction to keep it in place and added a slight amount of power. He was cleared for frequency change at I-95 and flew south, flying over Juliet Tuttle Causeway. He flew over the Port of Miami at 1,100 ft msl and checked the carburetor heat for the 2nd time during the flight leaving it in for about 15 seconds to 30 seconds noting that the rpm drop was about 100. He removed carburetor heat and added that he kept "fiddling with the throttle." He flew south of Fisher Island and made a radio call announcing he was at 1,100 ft msl turning north, descending to 700 ft. Before descending he applied carburetor heat, and before he touched the throttle the engine rpm dropped to 1,000 to 1,200.

He maneuvered the airplane over water with no boats nearby which caused him to lose 400 to 700 ft and dropped the banner over water. With full power applied, the mixture leaned, and carburetor heat on it felt to him like the engine was not producing power. He picked out the landing site, checked the magnetos, applied full rich mixture, and with carburetor heat still applied, he descended to between 50 and 100 ft. About that time, the engine sputtered "like it wanted to come back." Just before touchdown he pulled the throttle and mixture controls. He was fast at the intended landing site and touched down before a fence. He hit the fence after about 40 to 50 ft, and after coming to rest he secured the airplane. He did land with the fuel shutoff valve on. The engine was stopped when he came to rest, and he then turned off the magnetos, master, and pushed in the carburetor heat. He got out of the airplane and was OK with no head injury. He then called the ground instructor Charles to alert him of the accident. The EMT's came and did an EKG and checked his vitals.

He thinks the engine power loss occurred between 1325 and 1330 EDT.

The first people on scene from his company were Ryan, and Adam who had trained him, followed by Charles. They were all happy he was OK. He added that he felt fine at that time. He knew the FAA inspector was en-route but that took a couple hours. The mechanic's trailer arrived, but none of the company personnel touched anything. The fire department disconnected the battery, and they moved airplane debris while he was being attended to in the ambulance, which was against what he thought should have occurred. The FAA inspector (Juan Garcia)

spoke to him about what happened but did not give him the amount of detail as the phone call. The inspector took pictures, and Ryan indicated they suspected carburetor ice. Ryan asked if it was OK to start the engine and was approved. The propeller was scratched but not bent, and the propeller spinner was damaged. The FAA had him take fuel samples from the fuel tank and airframe fuel strainer, and both were clear of contaminants. Adam started the engine and operated it at idle only. It started after 7 or 8 blade passage. The airplane was released for recovery, and they removed the wings. He went back to the company with Dan and Ryan.

NTSB Follow-Up Questions:

What restraint were you wearing?

A four-point restraint that was tight against his body. There was a way to manually lock the inertial reel, but he did not do that before landing. He did state that it lock on landing and credited it with him not having any injuries.

When did you apply carburetor heat during the flight?

He checked it at the top of the initial climb at 1,300 ft msl, which was about 10 minutes after departure. He left it on for about 30 seconds. He also checked it while at Juliet Tuttle Causeway leaving it on for about 30 seconds. During each check the rpm drop was about 100. He finally before descending. He mentioned at this time that he was wearing noise cancelling headsets and when over the Port of Miami before the engine lost power he heard a pinging sound. The engine lost all power after he applied carburetor heat the 3rd time during the flight.

How soon after carburetor heat application did the engine rpm drop?

About 5 to 10 seconds afterwards. His first thought after the power loss was not about carburetor ice. He knew to keep carburetor heat out (on).

Was the engine sputtering?

The actual power loss was instantaneous. It sounded like it was windmilling. The engine sputtered about 50 ft above ground level, then never developed power.

Was the airplane equipped with a carburetor temperature gauge?

No. Every other airplane had one. The accident airplane also did not have a vertical speed indicator, though every other airplane does.

Was the airplane equipped with a fuel pressure gauge?

No.

Was the airplane equipped with an auxiliary fuel pump?

Yes. He can't recall if he turned it on.

Describe the descent?

He applied carburetor heat first, then never had time to adjust the throttle.

What was the airspeed when the power loss occurred?

70 mph indicated

What was the altitude when the power loss occurred?

About 1,000 ft msl.

Describe the engine sound?

The only reason he turned on carburetor heat during the descent he heard a pinging sound, which was high pitch. He also described it as a backfire through the exhaust. It was a faint sound that he had to remove his noise cancelling headset to hear, but it didn't overpower the exhaust sound.

Have you experienced a loss of engine power since beginning with Aerial Banners?

He had experienced carburetor ice, but "nothing like this."

On that previous carburetor ice event was that detected on the gauge?

No. He found it by his checks. He detected it during his regular top of climb check.

How do you feel about how the company maintains the airplanes?

"Maintenance is really good if a pilot speaks up." The company is good about responding. Every airplane is different. A pilot has to learn each airplane's peculiarities. They are good about correcting things.

Did he receive adequate flight training with the company?

Yes

Was it his first time flying a banner that size?

No. The first time he flew a banner that size was for his checkride. The company makes you fly the largest banner for the checkride. In addition, he had flown a banner that size 2 or 3 times previously.

Is there anything you can think that is important that I did not ask?

No.

At this point of the conversation he was advised that NTSB intended to check the engine which included a check of the air induction and exhaust systems. He pointed out that the airplane was not equipped with mufflers.

What model engine was installed?

It was a Lycoming O-540.

Did the company take punitive action as a result of your forced landing?

They did drug test him. They did not take punitive action. He flew dual the next day and then flew solo Friday, Saturday, and Sunday, with August 10th being his day off.

The call ended at 1233 EDT.

The digest was e-mailed to him for review on August 11, 2020. He replied on August 17, 2020, at 0045 EDT with comments that were incorporated into the narrative. The corrected digest was e-mailed to him on August 17, 2020. He replied the same day at 1104 EDT with, "Tim, This all looks correct. Thanks for all your help. Luke Doldan."