



September 17, 2020

Inspectors Statement

On August 28, 2020 FAA Inspector In Charge (FAA IIC) of Aero Commander 500-S N900DT, Serial Number 3056 accident with inspectors, Marcelo Martin, Jesus Ramos and Monica Skinner were assigned to perform investigation with NTSB IIC Investigator Timothy Monville.

Examination of the accident site revealed that the aircraft impacted the 5th floor of a storage unit building at [REDACTED] Hallandale Beach, FL [REDACTED]. After impact, the aircraft fell down to the parking lot. A significant damage to the building, where the left engine opened a hole on the wall, left wing impacted, tire marks which apparently was impacted by the left landing gear, and dragging scratches that indicated a hit by the front section of the fuselage. No fire damage observed.

Examination of the parking lot revealed the aircraft spun counter-clockwise 180 degrees to final laid down at the south side of the building. Concrete debris was found at the east side of the building right below the impact zone. No fire damage observed.

Examination of the aircraft revealed the fuselage has the front area missing, crushed by the impact. Wings were still attached but heavily damaged, a damage of the left wing by the impact with the building, a heavy impact at the right wing, between the fuselage and the right engine bay, a light impact of the right wing leading edge with a lighting pole, one of the fixtures found on ground. Tail section was separated but only held by control cables and wiring. Both engines were separated from the wings. No fire damage observed.

Examination of the left engine revealed that it was separated from the fuselage and was found approximately 25 feet to the east of the fuselage, in an upside down position. Propeller was attached but blades were bent. Blades were found in a power pitch position. Propeller governor piston was detached at impact with the building. Found oil spill surrounding the engine. No fire damage observed.

Examination of the right engine revealed that it was separated from the fuselage and it was found at 40 feet to the west of the fuselage in an upside position. Engine case was cracked and several accessories were separated and they were found in a 20 foot area from the engine. Propeller was attached but blades were bent. Blades were found in a power pitch position. Found oil spill surrounding the engine. No fire damage observed.

Examination of the aircraft also revealed that Mr. [REDACTED] was sit in the left seat and Mr. [REDACTED] was sit in the right seat.

Examination of the surrounding areas revealed that several pieces departed at impact with the building to the south of the storage building. Pieces of front windshield and windshield frame were found in the adjacent property.

A sample of fuel was taken from the fuel tanks (bladder), located in the center section of the wings, and the following was found with approximate measured all collected fuel was placed in police evidence cans and sealed for further exact measurements:

1. Left forward: 8 ounces of avgas, no water found.
2. Left rear: 12 ounces of avgas, no water found.
3. Right forward: No fuel collected.
4. Right rear: 6 ounces of avgas. No water found.
5. Center section fuel collector: No fuel collected.
6. Left and right fuel shut-off valves at the fuel collector were found in the OPEN position.

On September 16, 2020, inspectors from FSDO SO-19 arrived to Florida Air Recovery facility at Ft. Pierce Airport to continue with the accident investigation involving N900DT, Aero-Commander 500S, Serial No. 3056.

Inspectors were focused in the aircraft's fuel indication system at this time. The fuel indication harness was retrieved and checked for continuity through the different sections of the system found.

First, the fuel quantity indicator's connector was found, broken at the indicator. Also, the indicator case and display were found, but destroyed by the accident impact.

Fuel indicator electrical harness was tested:

- From the connector (Pin A) to ground. No discrepancies found.
- From the connector (Pin B) to Tank Transmitter Connector (Pin C) (Wire No. 5702(x)-20). No discrepancies found.
- From the connector (Pin C) to Tank Transmitter Connector (Pin B) (Wire No. 5701(x)-20). No discrepancies found.
- From the connector (Pin D) and through a circuit breaker panel (5 Amp CB: Fuel Indicator). Contact at the CB Panel connector were found corroded.
- From Master Power Panel T-Strip (Pin 5) to dampening Capacitors (Wire No. 5701D-20). No discrepancies noted.
- From Master Power Panel T-Strip (Pin 6) to dampening Capacitors (Wire No. 5702D-20). No discrepancies noted.

Conducted Additional Circuit Test and Checks described as follows:

Wire to wire, and wire to ground resistance ohm tested 5702C1-20, 5701C-20 and GND -20 carried out with connector P3B installed on fuel quantity transmitter. No discrepancies noted.

Ohm readings on transmitter P/N EA515B – 1404M, S/N 982 between pins:

A – B Empty Range= 197.9 ohms and Full Range= 196.7

B – C O.L

C – A O.L

NOTE: Detected erratic high/low spiking of ohms between pins A – B, while sweeping full ascending and descending travel of fuel quantity transmitter float.

Verification for compliance of Modification: Low Level Fuel Warning Switch Installation. Verified instrument panel and center fuel tank for modification components. This modification was not complied with in this aircraft.

Performed an accurate measure of the fuel found in the 4 wing tanks (bladders):

Left Front: 5 Oz.

Left Rear: 11 Oz.

Right Front: 0 Oz. Note: Bladder was ruptured at impact

Right Rear: 7 Oz.

Center Tank: 0 Oz. Note: Daily drain valve was ruptured at impact

Inspection of all five fuel cell tanks multiple interconnected points between fuel tanks properly installed with no blockage. The interconnected fuel cell piping have observed no baffles between any of the five fuel cell tanks. The aircraft fuel shutoff valves PN: AV16B-1159 for both left and right engines were observed in the open position and not damaged from crash.

All fuel cells are serviced through a single filler port, located on top of the right wing above the forward fuel cell. This area suffered major structural damage from accident. The fuel port filler location did not have any of the approved required placards in accordance with Twin Commander Aircraft Flight Manual, unapproved placard where made to place around the fuel port filler area. The unapproved placards used, none of the placards warned the pilot and fueling personnel “ TO ASSURE PROPER FUEL LEVEL, ALLOW EXTENDED FUELING TIME TO EQUALIZE FUEL LEVEL AMONG THE INTERCONNECTED TANKS’, placard PN: SB215-1.

The fuel indication harness was retrieved and checked for continuity through the different sections of the system found. First, the fuel quantity indicator’s connector was found, broken at the indicator. Also, the indicator case and display were found, but destroyed by the accident impact.

The Fuel Level Transmitter PN: EA515B-1404M, was removed from center fuel cell assembly center fuel cell, the center tank cell suffered and outside aluminum box suffered no damage from crash. The fuel level transmitter inspection found no damage and float movement operated smoothly. The Fuel Level Transmitter indicator electrical harness was tested and the following results observed:

- From the connector (Pin A) to ground. No discrepancies found.
- From the connector (Pin B) to Tank Transmitter Connector (Pin C) (Wire No. 5702(x)-20). No discrepancies found.
- From the connector (Pin C) to Tank Transmitter Connector (Pin B) (Wire No. 5701(x)-20). No discrepancies found.

- From the connector (Pin D) and through a circuit breaker panel (5 Amp CB: Fuel Indicator). Contact at the CB Panel connector were found corroded.
- From Master Power Panel T-Strip (Pin 5) to dampening Capacitors (Wire No. 5701D-20). No discrepancies noted.
- From Master Power Panel T-Strip (Pin 6) to dampening Capacitors (Wire No. 5702D-20). No discrepancies noted.

N900DT did not have secondary control surfaces on both left and right ailerons, they are fixed attachment surfaces. The aircraft right horizontal elevator have secondary trailing edge tab controls. The rudder flight control surface also contained a secondary flight control surface.

Measure and document the flap actuators for extension to determine position could not be determined or accomplished due to flaps where moved during removal of aircraft from crash site. Examination of flaps at the crash site indicated the right outer flap was in the down position around 10 percent and undamaged, all the other flaps inner and outer left flaps and inner right flap sustained major damage from crash and unable to determine flap position. Inspection of flight controls there was no pre-impact failures or malfunction of the flight controls.



Juan C Garcia
Aviation Safety Inspector