

**NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594**

SUMMARY OF AIRCRAFT EXAMINATION

-- CEN18LA205 --

A. ACCIDENT

Location: Union, Illinois
Date: May 27, 2018
Time: 1815 central daylight time
Aircraft: Cessna 150L (s/n 15074368), N19366

B. PARTICIPANTS

Timothy Sorensen
Senior Aviation Accident Investigator
National Transportation Safety Board
Denver, Colorado

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Textron Aviation
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C. ACCIDENT SUMMARY

On May 27, 2018, about 1815 central daylight time, a Cessna 150L airplane, N19366, was substantially damaged during an in-flight collision with power lines and terrain after an attempted go-around at the Sky Soaring Airport (55LL), Union, Illinois. The pilot sustained serious injuries. The airplane was registered to and operated by Sky Soaring Inc. as a Title 14 *Code of Federal Regulations* Part 91 glider tow flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The local flight originated from 55LL about 1800.

D. AIRCRAFT DESCRIPTION

Airframe

The Cessna 150L airplane was a single-engine, high-wing, two-place design configuration with a fixed tricycle landing gear arrangement. It incorporated a conventional flight control arrangement, with the flight control surfaces directly actuated by cables from the dual cockpit controls. The accident airplane was issued a utility category standard airworthiness certificate by the Federal Aviation Administration in March 1973.

Summary of Aircraft Examination

Engine / Propeller

The Lycoming O-360-A4M engine was a four-cylinder, horizontally-opposed arrangement capable of developing 180 horsepower at 2,700 rpm. Thrust was provided by a two-blade McCauley 1A170/EFA7556 fixed pitch propeller assembly. The engine was controlled through direct cable linkages from the cockpit controls to the engine carburetor.

E. DETAILS OF AIRCRAFT EXAMINATION

The airplane was recovered to the Sky Soaring Aviation facility at 55LL after the accident. Federal Aviation Administration inspectors conducted a post-recovery examination on May 29, 2018. A post-recovery examination was conducted by the NTSB investigator-in-charge on June 17, 2018. Textron Aviation provided on-scene technical support as a party to the investigation.

F. DESCRIPTION OF ACCIDENT SITE

The accident site was located in an agricultural field immediately west of Route 20 and south of Getty Road. This was approximately 900 feet from the departure end of runway 27 at 55L. The airplane came to rest upright on a southeast heading at approximate coordinates of 42.1536° north / 88.5185° west.

A set of power lines ran along the west side of Route 20. The lines were about 30 feet above the level of the roadway. One of the lines was equipped with orange marker balls. Trees about 50 feet in height were located near the intersection. An FAA inspector reported fresh tree breaks immediately northeast of the intersection, near the extended runway centerline.

G. SUMMARY OF AIRCRAFT EXAMINATION¹

Airframe – Cessna 150L (s/n 15074368)

The airplane exhibited damage consistent with impact forces. The engine assembly, with the propeller and cowling attached, was displaced downward. The engine remained attached to the engine mount, and the mount remained attached to the firewall. The mount was deformed, and the structural tubing was separated at several locations. The separations appeared consistent with overload separations.

The engine cowling was dented and buckled. The upper surface of the cowling exhibited a linear dent with loss of paint oriented diagonally from the forward right corner to the aft left corner. This was aligned with a leading-edge dent and skin tear on the left wing near the strut attachment. The forward edge of the strut also exhibited marks below the wing damage.

The firewall was deformed over the entire assembly. The upper left corner was separated from the mating fuselage structure consistent with the engine mount damage. The forward fuselage was deformed. The lower fuselage immediately aft of the left and right door frames was also deformed. The windshield and aft cabin window were separated and fragmented. Both cabin doors remained attached. The nose landing gear was

¹ Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

Summary of Aircraft Examination

G. SUMMARY OF AIRCRAFT EXAMINATIONS *(continued)*

partially collapsed; both main landing gears appeared intact. The lap belts and shoulder harnesses appeared intact and operational. Data tags were not observed on the belts.

The wings and wing struts remained attached to the fuselage. Both wings were bent upward at the wing tips, with the damage extended inboard 2 to 3 feet. In addition, both wings exhibited deformation and buckling of the upper skin at the aft wing roots consistent with aft displacement of the wings over the span. Both fuel caps were securely installed. Fluid consistent in appearance and odor to 100 low-lead aviation fuel was present in both fuel tanks; the remaining amount was not determined.² The fuel selector was in the Off position at the time of the exam. Fuel was obtained at the firewall when the fuel selector was moved to the On position; fuel flow stopped when it was moved back to the Off position.

The left wing exhibited a forward-aft oriented tear, about 6 inches in depth, and localized deformation immediately inboard of the strut attachment. The leading edge of the strut displayed marks located below the wing leading-edge damage. The wing and strut damage appeared to be aligned with the linear dent in the top of engine cowling. Together this damage appeared to be consistent with a wire strike.

The ailerons and flaps remained attached to the wings. Both ailerons displayed freedom of movement and control continuity was confirmed from each aileron to the cockpit control wheels. The flap actuator appeared intact. The actuator extension was about 1.5 inches.³

The left horizontal stabilizer and elevator appeared undamaged. The right horizontal stabilizer and elevator was creased diagonally from near mid-span at the leading edge to near the root/inboard edge at the elevator trailing edge. The right horizontal stabilizer and elevator appeared otherwise intact. The vertical stabilizer and rudder appeared intact and undamaged. Control continuity was confirmed from the elevators and rudder to the cockpit control wheel and rudder pedals, respectively. Elevator trim control continuity was confirmed. The elevator trim actuator extension measured about 1.375 inches.⁴

The tachometer indicated 794.9 hours at the time of the examination.

Engine – Lycoming O-360-A4M (s/n L-27444-36A)

Propeller – McCauley 1A170/EFA7556 (s/n P78983)⁵

The engine assembly appeared intact with no obvious impact damage. Throttle, mixture, and carburetor heat control continuity was confirmed from the cockpit to the carburetor and air intake assembly.

Internal engine and accessory section continuity was confirmed via crankshaft rotation. Compression and suction was obtained on all cylinders. All spark plugs and ignition

² A representative of the soaring club noted that some fuel had leaked from the airplane at the accident site.

³ According to the airframe manufacturer, the flap actuator extension corresponded to approximately a 5° flap deflection.

⁴ According to the airframe manufacturer, the trim actuator extension corresponded to approximately a 2° tab trailing edge down deflection.

⁵ The propeller model and serial numbers were obtained from the maintenance records. They were not compared to the installed propeller.

Summary of Aircraft Examination

G. SUMMARY OF AIRCRAFT EXAMINATIONS *(concluded)*

harness leads were securely installed. The upper spark plugs were removed; the lower spark plugs were not examined. The no. 1 and no. 3 upper spark plugs exhibited normal wear signatures. The no. 2 and no. 4 upper spark plug electrodes were elongated but appeared operational. The body of the no. 2 upper spark plug exhibited corrosion. The ignition harness appeared intact, with exception of minor damage to the external braiding near the no. 4 upper spark plug.

Both magnetos remained attached to the engine. The left magneto was equipped with an impulse coupling; the right magneto did not appear to be equipped with an impulse coupling. Neither magneto was removed. A spark was observed on each lead corresponding to the left magneto during crankshaft rotation.

The carburetor remained attached to the engine. It was removed and disassembled. The butterfly valve was intact and rotated freely. The accelerator pump operated during rotation of the throttle lever. The floats and needle valve were intact and free. The fuel screen was intact and free of debris or sediment. The carburetor contained fluid consistent in appearance and odor to 100 low-lead aviation fuel. No contamination was observed. The gascolator was intact. The bowl was clean and free of debris or sediment. Fluid consistent in appearance to fuel was present in the fuel line from the boost pump to the carburetor, and in the primer line.

The propeller remained secured to the propeller flange. The spinner appeared undamaged. One blade appeared undeformed; it exhibited minor leading-edge nicks and paint abrasion. The second blade was bent aft about 30° near the root. The blade also exhibited slight forward bending over the outboard one-quarter span. Leading-edge nicks and paint abrasion was present near the tip. In addition, the aft face of the blade displayed a clean scrape mark near the tip and oriented at a 45° angle.