

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

INVESTIGATION SUMMARY

-- CEN20LA134 --

A. ACCIDENT

Location: Mesquite, Texas
Date: March 29, 2020
Time: 1518 central daylight time
Aircraft: Muse P-51D (s/n F869), N151JD

B. PARTICIPANTS

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

Daniel Montie
Aviation Safety Inspector
Federal Aviation Administration
Irving, Texas

C. ACCIDENT SUMMARY

On March 29, 2020, at 1518 central daylight time, a Muse P-51D airplane, N151JD, was destroyed when it was involved in an accident near Mesquite, Texas. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 flight.

D. HISTORY OF FLIGHT

A witness reported the airplane appeared to maintain the runway heading in a “steep, aggressive climb out” after takeoff. Just past the departure end of the runway, the airplane entered a “steep, climbing right turn,” and the engine sound decreased slightly for a short time before increasing again. As the airplane appeared to be turning to downwind, it “seemed to enter a stall and rapidly began losing altitude. Midway through the stall, the airplane repositioned to an almost direct nose down position.” The airplane descended behind a tree line. During the final portion of the descent, he “heard the throttle being manipulated, followed by the impact and explosion.”

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D. HISTORY OF FLIGHT *(continued)*

A second witness reported the takeoff appeared normal and the engine sounded good at that time. The airplane entered a right turn and became established on a right crosswind. The airplane subsequently entered a right turn to downwind and rolled wings level for about 5 to 10 seconds before it entered another right turn. The turn appeared to be controlled at first but gradually got steeper as it progressed. About 90° through that turn, the bank angle was about 65° (right wing down) and by the time the airplane reached 180° through the turn, the nose of the airplane was oriented "nearly straight down." During the descent, the elevator appeared to be deflected trailing edge up and the airplane appeared to pitch up "just a little bit." The airframe appeared to be intact during the entire flight.

A third witness, who was also a friend of the pilot, reported that the takeoff and initial climb appeared normal. The airplane entered a right turn and subsequently leveled on crosswind. This was unexpected since the plan for the flight was to climb to 4,000 feet agl and proceed to the practice area. The airplane then entered a turn to downwind which appeared initially as a normal bank of 15° to 20°. However, about halfway through the turn the bank angle "steepened quickly" to about 60° to 70° right wing down. The airplane transitioned into a wings level descent; about a 45° to 50° nose down attitude. The engine "sputtered" once or twice while in the descent.

Automated Dependent Surveillance – Broadcast (ADS-B) data revealed the airplane departed from runway 36 at 1517 and appeared to enter a right traffic pattern. The airplane leveled about 1,800 ft. mean sea level (msl) on a crosswind before beginning a turn from crosswind to downwind about 1518:44. About 3 seconds later, the airplane entered a descending right turn from about 1,700 ft. msl. The final data point was recorded at 1518:53; the altitude was about 900 ft. The average descent rate over the last 6 seconds of data was about 8,000 ft per minute.

E. AIRCRAFT INFORMATION

The owner/builder reported the accident occurred during the third flight of the airplane. The plan was for the pilot to conduct airwork in the local area. He planned to takeoff on the left fuel tank, switch to the right fuel tank for the airwork, and then return to the airport on the left fuel tank. This was to assist in determining fuel consumption.

After the second flight, the pilot informed the builder that he had inadvertently moved the fuel selector to the OFF position while attempting to change tanks. He was able to correct the situation and had no further difficulties. In addition, the pilot reported that the tachometer was not working. The owner/builder subsequently observed that the alternator was turned off. The tachometer worked normally during a follow-up engine run-up with the alternator on. Finally, the rudder trim was found to be rigged opposite; this was corrected before the accident flight.

A friend of the pilot reported that the pilot had cut the second flight short because continuous right rudder input was required, and he had gotten fatigued. For the accident flight, the pilot planned to takeoff with full right rudder trim to counteract engine torque. She verified that full right rudder trim was set on the ground prior to engine start.

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F. WRECKAGE AND IMPACT INFORMATION

The accident site was located one mile east-northeast (126°) from the departure end of runway 36 at Mesquite Metro Airport (HQZ). The airplane impacted an open field and was fragmented. The debris was centered on three ground impact depressions. A post-recovery examination did not reveal any anomalies consistent with a preimpact failure or malfunction. However, the examination was hindered by the extent of the impact and postimpact fire damage.

The airframe was fragmented and exhibited evidence of a post-impact fire. The cockpit area was compromised, and the flight control system was damaged consistent with impact and post-impact fire damage. The aileron and rudder control cables remained attached to the cockpit controls. The flight control system exhibited multiple cable separations consistent with overstress failures due to impact forces. The flap actuator was fully extended consistent with a flaps-up configuration. The fuel selector was separated from the airframe. The selector handle was in place and free to rotate; however, the locking mechanism was contaminated with a small amount of debris. The left and right tank detents were not pronounced.

Three of the four propeller blades were separated at the hub, and all four blades were splintered and delaminated across the span. The propeller hub remained attached to the reduction drive assembly. The reduction drive assembly was dislocated from the engine. The input drive shaft was twisted consistent with engine power (torque) at impact. The engine assembly was damaged consistent with impact forces and the post-impact fire.

G. MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed by the Dallas County (Texas) Medical Examiner's Office on March 30, 2020. The pilot's death was attributed blunt force injuries sustained in the accident. Toxicology testing performed by the Federal Aviation Administration Forensic Sciences Laboratory did not identify the presence of any substances in the testing profile.

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