National Transportation Safety Board
Office of Aviation Safety
Washington, DC 20594

WPR22FA229

ONSCENE EXAMINATION

June 28, 2022

A. ACCIDENT

Location: Kerrville, Texas
Date: June 25, 2022
Time: 1823 LCL
Airplane: Mooney M20J, N4267H

B. ONSCENE EXAMINATION

Attendees:

Eliott Simpson
Senior Aviation Accident Investigator
National Transportation Safety Board

Robert Thomason
Aviation Safety Inspector
FAA, Flight Standards District Office
San Antonio, TX

C. DETAILS OF THE EXAMINATION

1.0 Examination

The airframe was examined at the accident site on June 26 & 27, 2022. Inspector Thomason was in attendance for the morning of June 26.

The airplane came to rest at an elevation of about 1,600 ft on the slope of a hill, about 4,200 ft beyond the runway 12 threshold, and 20° offset the runway centerline. The first identified point of impact was a cleanly cut swath of tree branches and limbs, at an angle of about 60° relative to the horizon (figure 1). The airplane was located about 30 ft southwest of the swath, at the base of a felled 50-ft tall oak tree (figure 2). The tree exhibited impact damage along its north face.

Most of the wings and the tail section were thermally consumed, however, sections of all major airframe components along with the primary flight controls, and control surface balance weights were found within the immediate vicinity of the accident site.

All flight control push-pull rods were examined, along with the control surface remnants and their respective hinges. The flight controls were significantly disrupted, bent, and twisted, and a number of hinges had melted. Examination of all the damaged components revealed signatures consistent with overload, followed by thermal discoloration and consumption.

Examination of the airframe did not reveal any evidence of bird strike. The entire runway surface along with the overrun area beyond the runway 30 threshold and up to the airport perimeter were inspected the day after the accident, and no bird remnants were found.

The cabin skins were consumed by fire, with only crushed and bent steel frame members remaining (figure 3). The instrument panel, flight instruments, control switches and circuit breakers were consumed by fire, such that their operation and position at the time of the accident could not be determined.

The cabin door handle was in the locked position, and the corresponding locking pins were extended.

All seatbelts sustained thermal damage, destroying their webbing. Both forward seat latches were located, and were in the locked position, with their shoulder strap buckles still attached (figure 4).

The inboard seat rail for the left seat was about 3 inches short of the full forward position; its locking pin was in place within the rail. The same rail for the right seat was in the full forward position. Thermal damage to the seat tracks prevented an accurate assessment of the position of both outboard seat rails.

The landing gear actuator assembly had partially melted, and its jack screw appeared to be fully retracted, consistent with the landing gear being extended at impact (figure 5). The remaining landing gear components and assemblies had sustained such extensive damage during the accident and subsequent fire, that the systems operational viability during the flight could not be determined.

The left wing came to rest against the tree (figure 6). The inboard section of the aileron was attached by its hinge, and most of the inboard skins along with the main and aft spar were consumed by fire. The outboard aileron and wing tip had separated and were found in the debris field about 40 ft downrange from the impact site. Remnants of the fuel tank remained, and the fuel cap was securely in place at its filler neck.

The leading edge of the right wing was adjacent to the remnants of the cabin. The trailing edge sections were almost completely consumed by fire (figure 7).

The stall warning switch assembly was found undamaged in the debris and could be heard and felt to “click” when its tab was moved.

The flap actuator was consumed by fire, with only the steel remnants of its jack screw and barrel end remaining. The jack screw extension was about 2.6 inches, which corresponded to a flaps up position (figure 8).

Fire damaged empennage remnants were found comingled in the aft cabin. The steel elevator and rudder control system assembly could be identified, along with both elevator tips and remnants of the rudder tip and their respective balance weights (figure 9).

The aft moving tail assembly jack screw exhibited 6 exposed threads, which corresponded to the takeoff trim position (figure 10). The cabin center-mounted elevator trim assembly exhibited an extension dimension of 1.2 inches from the trim stop to the aft jam nuts, which also corresponded to a takeoff trim position (figure 11).

2.0 Examination Photographs

Figure 1- Accident site with cut tree swath

Figure 2 – Main wreckage

Figure 3 – Forward cabin

Figure 4 – Front seatbelts

Figure 5 – Landing gear actuator

Figure 6 – Left wing

Figure 7 – Right wing

Figure 8 – Flap actuator jackscrew

Figure 9 – Tail section balance weights and hinges

Figure 10 – Moving tail aft assembly jack screw threads

Figure 11 - Cabin pitch trim assembly

Submitted by:
Eliott Simpson
Senior Aviation Accident Investigator