

National Transportation Safety Board

Office of Aviation Safety

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N5798T - AIRFRAME AND ENGINE EXAMINATION REPORT

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TABLE OF CONTENTS

A. ACCIDENT.....	3
B. N5798T - AIRFRAME AND ENGINE EXAMINATION REPORT.....	3
C. DETAILS OF THE EXAMINATION.....	3
1.0 ACCIDENT SITE	3
2.0 AIRFRAME EXAMINATION (CESSNA 172E, SERIAL NUMBER 17251698).....	4
3.0 ENGINE EXAMINATION (CONTINENTAL MOTORS O-300-D4D, SERIAL NUMBER 28828-D4D) 5	
4.0 PROPELLER EXAMINATION (McCAULEY, UNDETERMINED MODEL AND HUB SERIAL NUMBER)	6
5.0 MAINTENANCE RECORDS	7

A. ACCIDENT

Location: Hardy, Arkansas
Date: December 26, 2021
Time: 1729 Central Time
Helicopter: N5798T, Cessna 172E

B. N5798T - AIRFRAME AND ENGINE EXAMINATION REPORT

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C. DETAILS OF THE EXAMINATION

1.0 Accident Site

The wreckage was examined by the NTSB IIC, an FAA airworthiness inspector, and a Textron Aviation air safety investigator on December 28, 2021, at the accident site.

The airplane came to rest in a heavily wooded area, with rolling hills, on private property. The area was composed of various deciduous trees about 50 ft tall and a collapsed and abandoned house (the house was collapsed before the accident).

The airplane came to rest, nose down, with an approximate 6 ft deep by 6 ft wide impact crater. The engine (the case was intact but was covered in dirt) and the propeller (which was broken in two pieces at the hub) was buried in the dirt and had to be dug out. There was no postimpact fire or evidence of an explosion. No smell of fuel was present. No signs of fuel were observed in the wreckage. All four corners of the airplane were accounted for, and the wreckage was confined to the immediate area around the impact crater. The airplane was destroyed.

Several of the 50 ft trees had limbs broken, however no trees appeared to have fallen

due to an impact with the airplane. The damage to the various trees was consistent with a near vertical descent angle that terminated in the ground. The ground at the accident site consisted of dirt, leaves, and large rocks.

The wreckage (impact crater) had an impact heading of 274°, and with an accident site elevation of 730 ft above msl. The wreckage was 45 ft southeast of the abandoned building and 90 ft north of Nine Mile Ridge Road.

The cockpit and cabin areas were destroyed from the impact sequence. The two occupants' suitcases and personal items were set aside to be weighed later at Dawson Aircraft. The two occupants' suitcases and personal items were examined. The two occupants pill cases and pills were given to the Fulton County (AR) Sheriff's Office. The pilot's flight log and the airplane's weight and balance records were recovered and secured. No onboard recording devices were observed in the airplane.

The Fulton County (AR) Sheriff's Office reported there were no video surveillance systems in the area. The wreckage was recovered by Dawson Aircraft and transported to their facility in Clinton, AR.

2.0 Airframe Examination (Cessna 172E, serial number 17251698)

The wreckage was examined by the NTSB IIC, an FAA airworthiness inspector, and a Textron Aviation air safety investigator on December 29, 2021, at Dawson Aircraft in Clinton, Arkansas.

All major components of the airframe were accounted for at the facility. Both wings, the cabin, cockpit, and the empennage were all separated and sustained crush and impact damage.

The airframe was destroyed. There were no signs of a fire.

Flight control continuity was established from the control surfaces to fuselage station 63. Cockpit control continuity could not be established due to the damage sustained.

The left and right fuel tanks were both breached from the accident sequence. The right and left fuel tank caps were found detached but connected with the chain lanyard. The right fuel cap had minor cracking in the rubber gasket. Both fuel tanks did not have bladders. No signs of fuel were found in the fuel tanks. The insides of both tanks were examined, and no issues were noted. No major debris was found that would have inhibited fuel delivery in both tanks.

The vents for both fuel tanks were destroyed from the impact sequence. The wing tank finger screens were clear of debris. The two fuel lines from both wings to the engine were destroyed from the impact sequence.

Airframe to engine control continuity could not be determined due to the impact damage. The cockpit area was destroyed along with the various instrumentation.

The attitude indicator gyro was recovered and was disassembled. Rotational scoring was observed on the gyro.

The flap position could not be determined as the flap handle assembly was severely impact damaged.

The airplane was not equipped for instrument flight.

All four seating positions and restraint systems were destroyed.

The onboard baggage was weighed at 152 pounds.

The ELT was destroyed from the impact sequence.

No onboard data recording devices were installed on the airframe.

3.0 Engine Examination (Continental Motors O-300-D4D, serial number 28828-D4D)

The engine was washed with water before the examination, to remove a large amount of dirt that covered the engine.

The engine cowling was separated from the engine. The engine mount destroyed.

The cylinders were attached to the crankcase. The number 5 and 6 cylinders were pushed aft due to the impact damage. The crankcase had various impact cracks throughout it.

There were no signs of a fire.

All the spark plugs were removed and showed signs of normal operation, consistent

with the Champion Check-A-Plug chart.

The alternator and generator were destroyed by the impact sequence.

The left magneto remained attached but was damaged.

The wires/ignition harness for both magnetos were all destroyed and separated from the spark plugs.

The right magneto was found removed. The magneto was rotated via the impulse coupling, by hand, and all leads produced a spark.

The fuel and oil lines were all found detached and damaged.

The oil level was undetermined as the oil sump was breached; however, a large amount of oil was observed at the bottom of the impact crater at the accident site.

Attempts were made to rotate the crankshaft at the accessory port (where the vacuum pump connects) with a drive bit, however, the crankshaft could not be rotated by hand. Thumb compression could not be obtained.

The cylinder rock box covers were removed, and all rocker arms were present and intact.

The air intake system was destroyed. The exhaust system was destroyed.

The vacuum pump was rotated by hand with no abnormalities noted. All internal parts were intact and the four carbon pieces were intact.

The oil tank and cap were destroyed and separated from the engine.

The carburetor was destroyed into two pieces and was full of dirt.

The gascolator was destroyed.

The oil filter was not observed.

No onboard data recording devices were installed on the engine.

4.0 Propeller Examination (McCauley, undetermined model and hub serial

number)

The propeller sustained impact damage that separated the hub and both blades were found separated. The hub sustained several impact fractures.

Chordwise scratching was observed on both blades.

Both blades remained mostly intact.

The spinner was not observed.

5.0 Maintenance Records

The airframe, engine, and propeller maintenance records were not available for review. The FAA historical airworthiness records were accessed and reviewed.

Submitted by:

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Investigator-In-Charge