

National Transportation Safety Board

Office of Aviation Safety

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CEN22LA157

AIRCRAFT EXAMINATION

December 14, 2022

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A. ACCIDENT

Location: Rayville, Louisiana
Date: March 26, 2022
Time: 1614 CDT
Airplane: Air Tractor AT-401

B. AIRCRAFT EXAMINATION

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C. SUMMARY

On March 26, 2022, about 1614 central daylight time, an Air Tractor AT-401, N9192E, was substantially damaged when it was involved in an accident near Rayville, Louisiana. The pilot was seriously injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 137 aerial application flight.

The pilot reported that he was making the final agricultural spray passes on a field when the airplane engine began to "spit and sputter and miss". He exited the field and climbed over trees and power transmission lines when the engine again started running abnormally. He examined the area for a safe place to land and the engine stopped producing power. He noted that the engine re-started and stopped two or three times as he maneuvered for a subsequent landing. After touching down in a field, the airplane went over an embankment alongside a water filled ditch. After it touched down on the opposite side of the ditch, the right wing struck an irrigation unit, the airplane turned sideways, and then nosed over, resulting in substantial damage to both wings.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

The airplane was examined at Southern Aircraft Recovery in Baton Rouge, Louisiana, where the airplane had been relocated after the accident.

1.1 Fuselage

The fuselage of the airplane was sitting upright on its landing gear. The left landing gear was bent inward. The forward fuselage where the hopper would

normally reside was exposed tubing from recovery. The airplane fuselage side skins from the cockpit and forward had been removed for transport. The fuselage structure was intact. The vertical tail and rudder were still attached to the fuselage and were predominately intact. The top of the vertical tail was crushed downward, forward and to the left but was intact except for this bend. The access panels near the tail had been removed to facilitate removal of the horizontal tail and elevator. Both had been removed for transport.

The fuselage flight controls were examined, and the rudder cables were continuous from the rudder pedals to the rudder. The rudder moved as expected when the rudder pedals were actuated. The elevator pushrod in the tail moved as expected when the control stick was moved fore aft. The elevator pushrod had been disconnected from the elevator for removal of the elevator during transport. The aileron bellcranks were located at the fuselage sides and actuated pushrods in the wings. The bellcranks moved as expected when the control stick was moved side to side. The bellcranks had been disconnected from the pushrods in the wings for transport. The elevator trim pushrod moved as expected at the tail when the trim lever in the cockpit was actuated. The trim pushrod had been disconnected from the tail for transport.

1.2 Wings

The wings were examined in outside storage. Both wings exhibited damage at the tips. The control linkages were intact. Each wing had provisions for containing 63 gallons of fuel. The fuel lines were intact and the tanks were not breached.

1.3 Cockpit

The roof of the cockpit had impact damage indicative of a nose-over. The cockpit windshield was smashed and fragmented. The instrument panel was loose and was bent rearward. The occupiable space did not appear compromised except for the bent over instrument panel.

1.4 Fuel/Fuel System

The fuel lines from the fuselage mounted header tank to the fuel shutoff valve, wobble pump and forward to the carburetor were intact. The fuel lines from the wing tanks were intact.

1.5 Other Systems

2.0 Engine Examination

The engine was still mounted on the airframe. Initially the engine would not rotate. After removal of the front spark plugs, oil drained from the #6 cylinder. After the oil drained from the cylinder, the engine rotated freely. All cylinders except for the number 8 cylinder exhibited compression and suction when rotated. The #8 cylinder had no compression or suction. Borescope examination of the #3 cylinder showed that the exhaust valve was open and would not close. The cylinder was removed and examined. There were no anomalies noted with respect to the valves after staking the exhaust valve. There were lead deposits in the cylinder and in the exhaust port. After staking, the cylinder was placed on a table with the head down and gasoline was poured into the cylinder. The gasoline did not leak out. The number 8 piston was removed and the ring at the bottom of the piston skirt was broken. 2 pieces of piston ring were found, but about a 2 inch long portion was not located. Examination of the carburetor did not reveal any anomalies. An attempt was made to spark the magnetos by spinning their input shafts with an electric drill but no spark could be obtained from either magneto. It was unlikely that both magnetos would have failed simultaneously and the pilot had reported that the pretakeoff magneto checks showed no issues with either magneto. For this reason the magneto test procedure was likely deficient. No further anomalies were found with respect to the engine or its systems.

Submitted by:

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