

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

SUMMARY OF AIRPLANE EXAMINATION

-- CEN21FA320 --

A. ACCIDENT

Aircraft: Piper PA-28-180, N2801T

B. PARTICIPANTS

John Brannen
Senior Air Safety Investigator
National Transportation Safety Board
Denver, Colorado

John Hirsch
Piper Aircraft

Ryan Enders
Lycoming Engines

C. EXAMINATION SUMMARY

The airplane impacted a farm field near Muscatine, Iowa, on July 14, 2021. Based on ADS-B data the time of the accident was 1238 CDT.

The initial impact point was at 41°29'57.19"N, 91° 2'58.60"W, and green glass material consistent with the right navigation light lens was found at the initial impact point. The wreckage debris field extended from the initial impact point to the south about 430 feet, on a bearing of about 177 degrees. The debris field was about 100 feet wide. The fuselage came to rest at 41°29'52.98"N, 91° 2'58.09"W.

The airplane was fragmented with both wings and the horizontal stabilator separated from the fuselage. The stabilator was broken about its center and the horn/balance weight was separated. The forward fuselage was crushed rearward and the remainder of the fuselage was deformed and split open. The vertical tail and rudder remained partially attached to the fuselage. The engine was mostly separated from the fuselage and located at the front of the fuselage. It remained attached by hoses and cables.

The following is a list of major components and their relative positions from the initial impact point

Outboard rt. Wing – 80 ft, 145 deg

Inboard rt wing – 160 ft, 178 deg

Left wing - 235 ft, 170 deg.

Rt horizontal stabilator – 310 ft, 170 deg
Lt. horizontal stabilator - 365 ft, 165 deg.
Fuselage/vertical tail/engine – 430 ft, 177 deg.

Control system continuity was established from the cockpit controls to the respective surfaces except for the following:

- One stabilator cable broken beneath cabin floor consistent with overload failure
- One stabilator cable attachment tab broken from the stabilator horn/balance weight
- Aileron balance cable separated at location within right wing consistent with overload failure
- Left aileron cable separated within left wing consistent with overload failure
- Right aileron cable separated within right wing consistent with overload failure
- Right aileron cable separated from right aileron bellcrank. Bellcrank not located.
- Both rudder cables intact.

The engine came to rest inverted at the front of the fuselage. The carburetor was separated from the engine sump. A large portion of the engine sump was broken from the engine. The propeller flange was broken from the crankshaft nose. The engine accessories remained attached to the rear of the engine. The engine was raised and supported by a truck mounted crane for examination. When turned upright, oil drained from the hole in the sump. The rear accessories, rocker covers and top spark plugs were removed from the engine. The engine was rotated and valve action was noted on all valves on all cylinders. Thumb compression and suction was verified on all cylinders. Both magnetos produced spark on all leads when rotated by hand and the impulse coupling on the left magneto operated normally. The vacuum pump drive was intact. The vacuum center core was fractured and all vanes were in place and did not exhibit extensive wear. The fuel pump was fractured at the mount and could not be operated due to impact damage. Disassembly revealed no anomalies. The carburetor had one corner of the mounting flange broken off. The accelerator pump squirted fuel when the throttle arm was moved. The bowl was removed and contained fuel and was clean. The Fuel screen was clean.

No preimpact anomalies were noted during examination of the airframe, engine or related systems.