

CEN19FA170
Piper PA-28-180, N9754J
Accident date: 6/14/2019
Accident Location: Huntsville, Texas

EXAMINATION NOTES

ON-SCENE EXAMINATION 6/16/2019 – 6/17/2019

The accident was reported to have happened about 1830 cdt on 6/14/2019, but was not discovered until 6/15/2019 when the injured pilot called 911. The accident occurred in a wooded area at GPS coordinates 30:46.942, -95:29.249, altitude 136 ft msl, GPS accuracy 10.6 ft. The initial impact was a tree that was struck about 50 ft above ground level. The right wing had a semi-circular indent in the outboard section of the wing with wood debris jammed into the wing structure. The wing was separated from the fuselage and was about 40 ft from the initial tree that was impacted. The inboard root section was separated from the remainder of the right wing and the root section was located next to the fuselage. The outboard section was bent rearward about mid-span. The right fuel tank was dented and ruptured. The interior surfaces of the tank were clean, and the fuel pickup was visible and clean.



Figure 1- Right wing

The fuselage of the airplane was upright during examination but was reportedly rolled to this position to facilitate extraction of the occupant. It was reportedly lying on its top right side and inverted. The fuselage came to rest about 100 ft and 300 degrees from the initial tree impact and was oriented in a 300 degree direction. There was crushing damage on the top right of the fuselage cabin and rearward bending of the right front seat back. The fuselage was predominately intact from the firewall to the tail with dents and bending from impact. Both sides of the horizontal stabilator had separated except for about a 6 inch section of spar that is hinged to the aft fuselage. The vertical tail and rudder remained attached to the fuselage. The left wing was separated and located next to the fuselage along with the root section of the right wing.



Figure 2- Fuselage

The engine was located at the front of the fuselage and its engine mount was broken. The engine was mostly separated due to the engine mount and remained attached only by engine control cables, wiring, and hoses. The engine was intact with little visible damage. One propeller blade was straight and the other was stuck in the dirt and bent forward. There was little evidence of rotation.



Figure 3- Engine

Both stabilator halves separated from the center spar section at the root adjacent to the fuselage. The center portion of the stabilator spar remained attached to the fuselage. One half of the horizontal stabilator came to rest near the right wing. The other half came to rest near the nose of the airplane.



Figure 4- Stabilator 1



Figure 5- Stabilator 2

The left wing was separated from the fuselage at the root and came to rest next to the fuselage. The tank was intact and contained about 1 gallon of fuel, however; the fuel feed line from the wing was separated about 6 inches inside the wing root. The outboard section of the left wing was separated from the inboard section and the outboard section had a semicircular indent consistent with tree impact.



Figure 6- Left inboard wing



Figure 7- Left outboard wing

Flight control system integrity was established as follows:

Stabilator – Movement of either the yoke, or the stabilator spar resulted in corresponding movement at the other end of the system.

Rudder – Movement of the rudder resulted in corresponding movement of the pedals in the cockpit.

Aileron – The aileron control cable was traced starting at the chain at the yokes. The cables remained attached to the chain. One cable was continuous from the chain to the left aileron control bellcrank that had been ripped from the wing structure. The cable was still attached to the bellcrank. The other cable from the chain was separated about at the wing root. The corresponding broken end was found in the right wing and continued to the right aileron control bellcrank. The cable break exhibited signatures consistent with overload failure. The “balance” cable that connects the right aileron bellcrank to the left aileron bellcrank was separated into 2 pieces, and the break was consistent with overload failure. The right aileron bellcrank remained attached to the right wing structure and the pushrod remained attached to both the bellcrank and aileron. The left pushrod remained attached to the left aileron but was broken at the threaded shank of the rod end that connected to the bellcrank.

Examination of the cockpit revealed the following:

- Fuel selector valve positioned to the off position
- Magneto switch on both
- Throttle full in
- Mixture control aft (lean)
- Primer – locked
- Carb heat – on (aft)
- Recording tach 4405.11
- Hobbs – either 373.9 or 9262.8 (face was broken and reading may not be reliable)



Figure 8- Cockpit view



Figure 9- Fuel Selector

EXAMINATION AFTER REMOVAL FROM SCENE 6/18/2019

The airplane was removed from the scene on 6/17/2019 and transported to Air Salvage of Dallas for further examination and an attempt to run the engine. Subsequent entries are from the examination on 6/18/2019.

The electric fuel pump was removed and connected to a 12V battery. The pump ran and produced suction on the inlet and pressure on the outlet.



Figure 10- Electric fuel pump

The mechanical fuel pump was cracked and was removed and disassembled. No anomalies were noted and the diaphragms were intact.

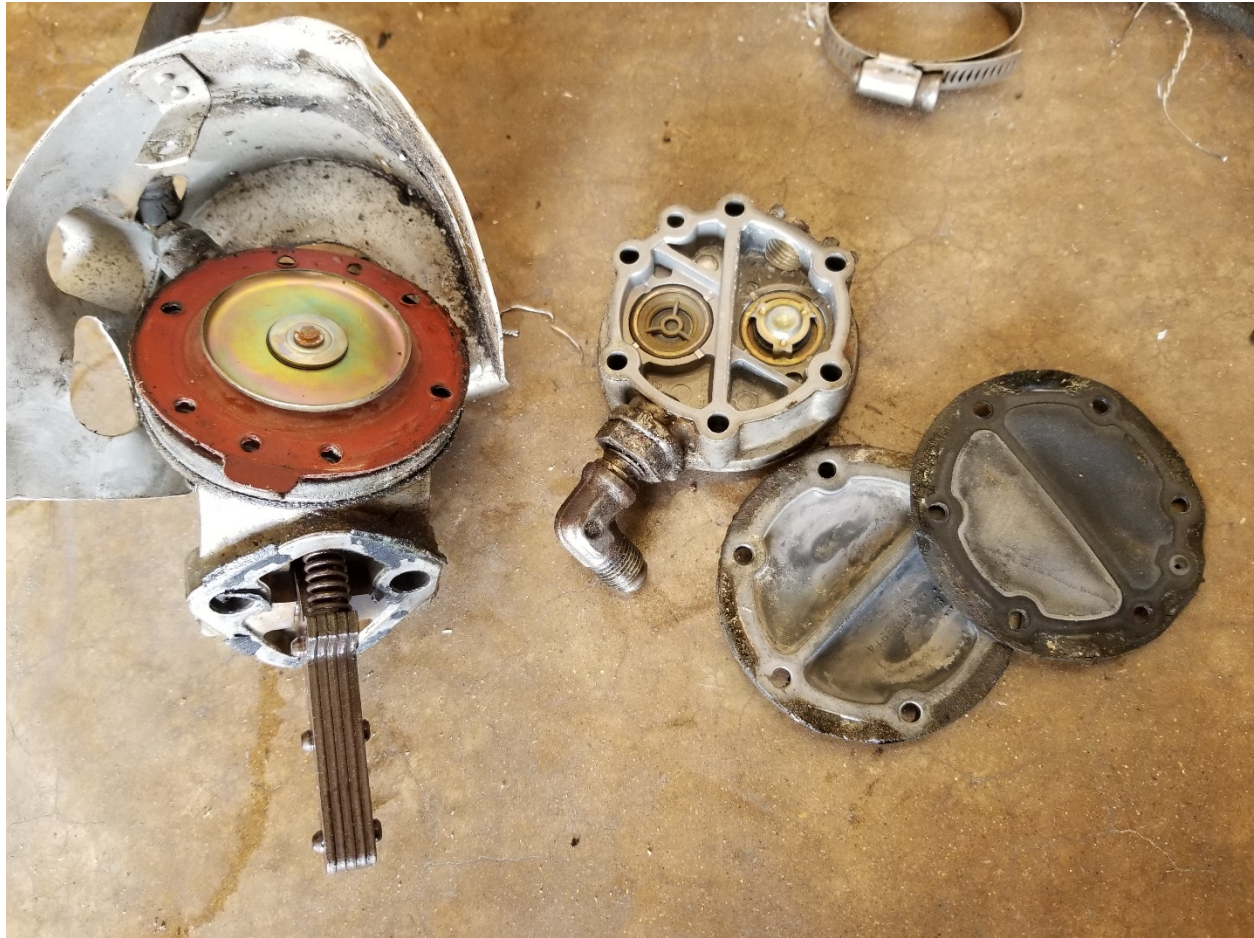


Figure 11- Mechanical fuel pump

The engine was prepared for a test run and the following items were changed from the as-recovered condition:

- Carburetor flange was cracked and the broken pieces were welded back on
- Carburetor economizer linkage was bent.
- Oil filter adapter was broken and a surrogate unit was acquired and placed on the engine.
- The mechanical fuel pump was cracked and was removed and the pad covered.
- Carburetor airbox removed.
- Oil cooler was bypassed.
- Removed alternator
- A different propeller was mounted.
- Engine mounted on another Piper airframe for test run with oil pressure and tachometer gauges.

After installation on the surrogate airframe the engine was started and was run for about 5 minutes. During the engine run the throttle was advanced and the engine produced 2,200 rpm with the test club propeller installed.

