



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety

Western Pacific Region

November 19, 2018

### **Airframe and Engine Examination Notes**

**WPR18FA253**

## **ACCIDENT:**

Location: Jean, NV

Date: September 5, 2018

Aircraft: Commander Aircraft Company AC-114TC, Registration Number: N6064C, Serial #: 20024

NTSB IIC: Albert Nixon

## **EXAMINATION PARTICIPANTS:**

Albert Nixon  
Senior Aviation Accident Investigator  
National Transportation Safety Board  
Federal Way, WA 98003

Mark Platt  
Air Safety Investigator  
Lycoming Engines  
Williamsport, PA 17701

## **EXECUTIVE SUMMARY**

The airframe and engine examination was accomplished at Air Transport in Phoenix, Arizona, on November 19, 2018. No anomalies that would preclude normal operation were observed during the examination of the airframe and engine.

## **ENGINE**

Examination of the engine revealed that it was separated from the airframe during recovery and thermally damaged. The engine serial data plate was not located during the examination. The three-bladed propeller remained attached to the crankshaft flange. One blade was bent aft about 90° at the hub. Another blade was bent aft and twisted about mid-span and exhibited chord wise scratches. The remaining blade was relatively intact, but its tip was curled outward. The spinner was attached and crushed around the dome and had abrasion markings.

Cylinder No. 5 rocker box cover was crushed. All rocker box covers were removed, and valve assemblies were intact and undamaged. Manual rotation was unable to be accomplished due to the impact and thermal damage sustained. A hole was drilled in each cylinder and a borescope inspection accomplished. The borescope of each cylinder revealed normal operational conditions.

The vacuum pump was attached at the mount but was substantially thermally damaged. The rotors were fractured but the vanes were intact. Both magnetos were attached at their mounts, but the remainder of the magnetos were thermally destroyed. The fuel injection servo was separated and not located. The intake and exhaust tubing were separated from the engine from about 2 inches from their attachment point. The oil sump sustained extensive crush and thermal damage. The oil dipstick was observed bent 90° downward and its attachment standoff tube was thermally destroyed. The top spark plugs were removed and exhibited varying degrees of coloration consistent with exposure to the post-impact ground fire. The fuel injector line was attached at all

cylinder fuel injectors. The lines connected at the fuel flow divider had separated on the nos. 2, 3, and 5 cylinders. The fuel pump mounting flange was secure at the mounting pad, but the remainder of the pump was melted and thermally destroyed. The oil filter was thermally destroyed. Hydraulic pump was attached at the mount, but the remainder of the pump was thermally destroyed.

## **COCKPIT/CABIN OBSERVATIONS**

The cockpit area sustained substantial thermal damage and no instrumentation or controls were readable. Most of the area was a mass of molten metal, wires, and tubing.

All flight control surfaces were present.

A bell crank attached to the elevator flight control system in the empennage was observed separated. The crank was removed and shipped to the NTSB Materials laboratory to confirm the fracture signatures. Examination revealed no evidence of fatigue cracking and fracture surfaces were consistent with an overstress separation.