



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Western Pacific Region

November 14, 2018

# **AIRFRAME AND ENGINE EXAMINATION**

**WPR19LA006**

This document contains 2 embedded photos.

## **A. ACCIDENT**

Location: Cape Girardeau, MO  
Date: October 9, 2018  
Aircraft: Vans RV-6A, N451JP  
Serial Number 23435  
NTSB IIC: Albert Nixon

## **B. EXAMINATION PARTICIPANTS:**

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

Louie Bettis  
Principle Maintenance Inspector  
Federal Aviation Administration  
St Ann, MO 63074

## **C. SUMMARY**

Examination of the recovered airframe and engine was conducted on November 14, 2018, at the facilities of Cape Aviation, at Cape Girardeau Regional Airport, Cape Girardeau, Missouri, by a certified airframe and powerplant mechanic, under the oversight of the NTSB investigator-in-charge and a FAA inspector. The examination of the airframe and engine revealed no evidence of pre-impact mechanical anomalies or malfunctions that would have precluded normal operation.

## **D. DETAILS OF THE INVESTIGATION**

### **1.0 Airframe Examination**

Flight control continuity was established to all flight control surfaces. The elevator trim indicator was observed in the neutral range. With aircraft battery power established, the elevator trim operated normally. The ailerons were observed in the neutral position. The aileron trim that moved the aileron in was operated and functioned normally.

Fuel supply line continuity was established. Fuel was drained from both tanks and was blue in color and clear of contamination. The fuel selector handle was positioned to each side and the fuel selector valve corresponded to the selected position.



**Figure 1: View of airplane in hanger for examination (left side).**

The left and right wings were attached. The outboard portion of the right wing's leading edge, exhibited a circular crushing impact damage on the outboard 2 ft. Recovered fragments of the windscreen showed no signs of an oil leakage or a bird strike. Throttle control continuity was established. A crease in the fuselage was observed near the cabin compartment. The canopy was scattered on the right side.

The flaps and ailerons were attached at all their respective attachment points. The horizontal stabilizers exhibited wrinkling in the skin and the elevators were attached. The right horizontal stabilizer was bent downwards about 6 inches from the trailing edge from the outer tip. The vertical stabilizer's top portion was crushed. The rudder was attached at all its respective attachment points. Near the middle attachment about mid-span, some impact damage was observed on the rudder. The main gear struts were attached. The nose gear strut was partially attached. All tires and wheels were intact. Brake continuity was established to both wheels. The left elevator's trim tab was observed to be in the neutral position.

The flaps were observed to be extended about 10°. With aircraft power, the flaps were cycled to the up and fully extended positions. The ENM hour meter indicated 210.6 hours.

The 4-point seat belts were observed attached at their respective attachment points.

A Dynon Avionics Inc., D100 EFIS device and Garmin Area 500 unit were removed and prepared for shipping for potential download of any available data.

## 2.0 Engine Examination



Figure 2: View of engine (left side).

Examination of the Lycoming O-320-H2AD engine, revealed that all engine components and accessories were present, and the engine remained attached to the airframe. The crankshaft was rotated by hand, utilizing the propeller, and rotational continuity was established throughout the engine. Accessory section, and valve train. During crankshaft rotation, thumb compression and suction were attained on all cylinders. A borescope inspection of the cylinders revealed evidence of normal operational conditions.

An engine run at various rpms was accomplished. During the engine run, a magneto check was accomplished and a slight drop in rpm was noted. A compression check of the cylinders revealed normal indications.

The two-bladed propeller remained attached to the crankshaft propeller flange with the blades attached. One propeller blade was slightly bent aft about mid-span and the other blade was intact and exhibited a few chord-wide scratches on the outer three inches.

The bottom sparkplugs were removed, and all spark plug electrodes were dark in color and exhibited normal to normal worn out wear signatures when compared to the Champion Check-A-Plug comparison chart.

The examination of the engine and the subsequent engine run revealed no evidence of pre-impact mechanical anomalies or malfunctions that would have precluded normal operation.

Submitted by: Albert Nixon