NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

October 7, 2015

AIRFRAME AND ENGINE EXAMINATION

WPR16FA002

This document contains 26 embedded photos.

A. ACCIDENT

Location:	Cedar City, Utah
Date:	October 3, 2016
Aircraft:	Cessna 152, Registration Number: N6449M, Serial #: 15284733
NTSB IIC:	Patrick H. Jones

B. EXAMINATION PARTICIPANTS:

Name: Patrick Jones
Title: Air Safety Investigator
National Transportation Safety Board
[redacted]
San Dimas, CA 91773

Name: Peter J. Basile
Title: Senior Air Safety Investigator
Textron Aviation
[redacted]
Wichita, Kansas 67206

Name: John Butler
Position: Senior Air Safety Investigator
Company: Lycoming Engines
[redacted]
Arlington, Texas 76014

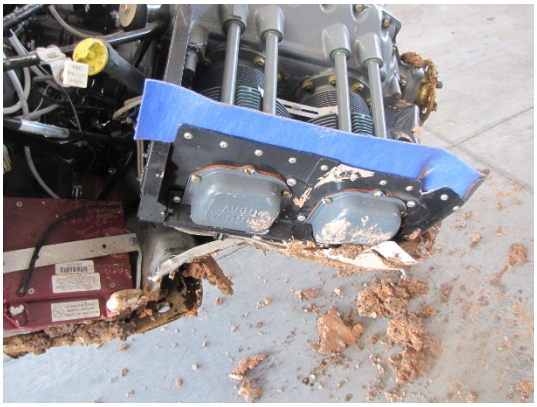
C. SUMMARY

Examination of the recovered airframe and engine was conducted on October 7, 2015, at the facilities of Air Transport Inc., Phoenix Arizona. No evidence of pre-impact mechanical malfunction was noted during the examination of the recovered airframe and engine that would preclude normal operation.

Nothing was observed during the course of this examination that would have precluded airframe or engine from normal operations prior to impact.

D. DETAILS OF THE INVESTIGATION

The exam commenced on the morning of October 7, 2015, at Air Transport, Phoenix, AZ. The engine, a Lycoming O-235-L2C (Serial # L-22278-15) and airframe a Cessna 152 was transported from the accident site and was in storage at Air Transport. The engine was separated from the main wreckage and placed on a table to facilitate the exam and disassembly. The propeller hub remained attached to the engine.

1.0 Airframe Examination

Impact Sequence and Airframe Structure

The aircraft impacted the ground with the belly and came to rest upright. There were no ground impact marks around the aircraft to indicate any forward momentum. The outboard right wing leading edge exhibited tapering compression damage. The left wing was canted forward and the right wing was canted aft.

All primary flight control surfaces and major system components were identified and located at the wreckage site prior to the wreckage being recovered. The aileron and flap cables were cut by recovery personnel at the wing roots.

The aircraft was equipped with standard fuel tanks (26 gallon capacity) and it was fueled with 14 gallons of 100LL before the flight the operator calculated based on previous flight records that the airplane departed with a total of 23 gallons. The left and right fuel tanks punctured the bottom of the wings. Both fuel tanks exhibited hydraulic deformation in a downward direction and were breached. First responders reported fuel dripping from both wings at the site.

1.1 Airframe Exam Photos

2.0 Engine Examination

Engine compression and valve train continuity were established. The magnetos produced spark at all leads. The top spark plugs appeared new. The carburetor was disassembled and a trace amount of fuel was observed which tested negative for water. One float exhibited hydraulic deformation. The fuel strainer bowl was full of fuel which also tested negative for water and the strainer screen was clean.

The carburetor was impact displaced and was imbedded in the left side lower firewall. It was removed and examined. It was observed fractured radially at the throttle plate. The float bowl was removed and approximately 10 drops of fuel was observed, it was tested using Kolor Kut water disclosing paste, with negative results.

Hydraulic deformation was observed on one of the floats. All fuel lines were empty of any liquid.

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The gascolator was secure on its mount. It was removed and examined, fuel was observed, it was tested using Kolor Kut water disclosing paste, with negative results.

The inlet fuel screen was removed and was observed free of contaminants.

The fuel selector was removed and examined by the airframe investigator, it was observed in the on position.

Both magnetos were secure on their respective mounts. The engine was rotated by hand using a turning tool inserted into the vacuum pump drive pad, both magnetos sparked at all outlet points as required.

The top spark plugs were removed and examined, they displayed a color consistent with normal combustion when compared to the Champion Check a plug chart.
The lower spark plugs could not be removed due to impact deformation of the exhaust system.

The ignition harness was intact, the number one lower spark plug lead could not be removed due to damage to the exhaust, it was cut to facilitate the spark test.

Spark was obtained at all harness outlet points.

Propeller

Both propeller blades remained straight and exhibited no damage to indicate rotation at the time of impact.

2.1 Engine Exam Photos








Submitted by: Investigator Patrick Jones