



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

October 27, 2021

ENGINE EXAMINATION

WPR21LA294

This document contains 10 embedded photos.

A. ACCIDENT

Location:	Indian Springs, Nevada
Date:	July 28, 2021
Aircraft:	Kuykendall Charles, Lancair IV, N26PD
NTSB Investigator-in-Charge:	Tealeye Cornejo

B. PARTICIPANTS

Eric M. Gutierrez
Air Safety Investigator
National Transportation Safety Board
Federal Way, Washington

Kenneth Ryan Turner
A&P
Ly-Con Aircraft Engines
Visalia, California

Charles W. Estes
Accessories Dept. Manager
Ly-Con Aircraft Engines
Visalia, California

C. SUMMARY

The examination of the recovered engine revealed no evidence of any mechanical anomalies that would have precluded normal operation.

D. DETAILS OF THE INVESTIGATION

Engine Examination

Engine Manufacturer: Continental
Engine Model Number: TSIO-550-B (1)
Engine Serial Number: 802034

Examination of the recovered engine revealed that it remained attached to the engine mount attachment points. The engine mount frame was cut from the airframe to facilitate transportation. All six cylinders and all engine accessories remained attached. No evidence of any mechanical damage was observed to the engine crankcase. Impact damage was observed throughout the entire air induction system. The entire engine sustained thermal damage. Additional impact damage was observed to the intake port on the No. 1 cylinder.

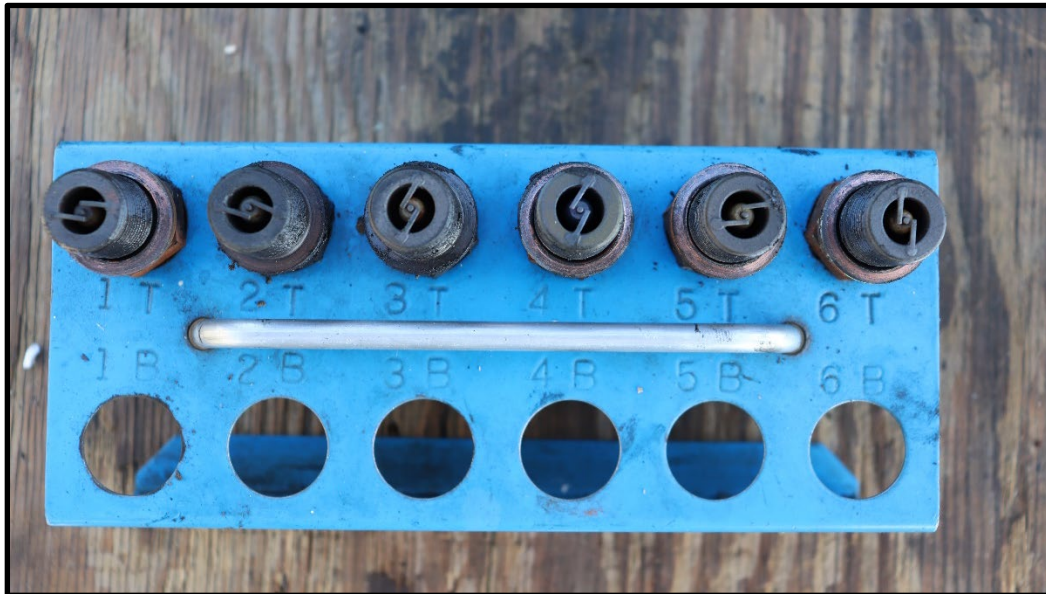


The rocker box covers were removed. All intake and exhaust rocker arms were intact, and oil coated. All intake and exhaust valve springs were in place and visually appeared to be undamaged. The upper spark plugs were removed, and all six cylinders were examined internally using a lighted borescope. A normal amount of combustion deposits was observed within the combustion dome of each cylinder and piston face. All the intake and exhaust valves were unremarkable. The crankshaft was rotated by hand using the propeller. Rotational continuity was established throughout the engine and valve train. Thumb compression and suction were obtained on all four cylinders.





The top spark plugs were removed from the engine, and they were the fine-wire type. When compared to the Champion Check-A-Plug chart, the sparkplugs were light grey in color and exhibited "NORMAL".



The left and right magnetos remained attached to the engine accessory case with no external damage noted. Both magnetos were removed and disassembled. Impact damage was observed to both magneto distributor blocks, which prevented functional testing.



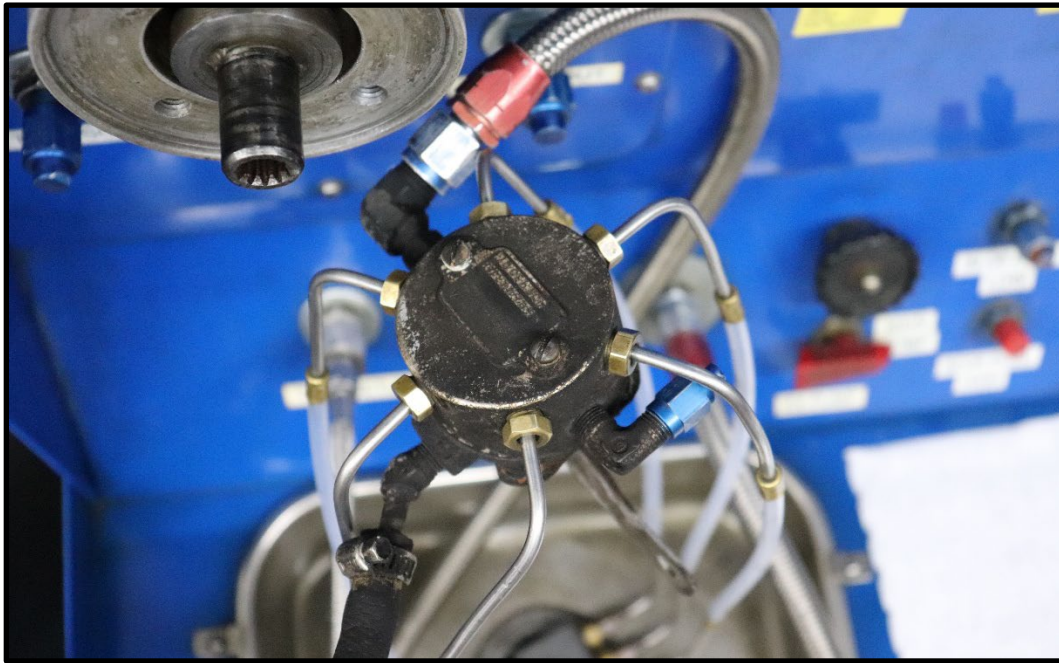
The engine driven fuel pump remained attached to the engine accessories case. Thermal damage was observed to the fuel pump, which prevented functional testing.



The throttle body was intact and undamaged. The throttle body was removed, connected to a test stand, and performed within manufactures specifications when tested.



The fuel flow divider was intact and undamaged. The fuel flow divider was removed, connected to a test stand, and performed within manufactures specifications when tested.



Five fuel injector nozzles were removed from the cylinders and found to be free of debris or restrictions. The number three-cylinder fuel injector nozzle broke during the removal process. The five fuel injector nozzles were connected to a test stand and performed within manufactures specifications when tested.

The exhaust system remained secure to the cylinders. No evidence of any exhaust leaks around the cylinder attach points were observed. The left and right turbochargers exhibited crushing throughout, consistent with impact damage.

The propeller governor remained attached to the engine. The propeller governor screen and gaskets were intact and free of debris. The propeller governor arm remained attached to the control; thermal damage to the propeller governor prevented the control lever from moving. The drive shaft rotated freely when rotated by hand.

The engine was equipped with a three blade, constant speed propeller. All three propeller blades remained attached to the propeller hub, with S-bending present about mid span on all three propeller blades. The blades exhibited various striations on the cambered side of the blades.



Submitted by: Eric M. Gutierrez