



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

March 18, 2021

COMPONENT EXAMINATION SUMMARY

WPR21LA098

This document contains 7 embedded photos.

A. PRELIMINARY REPORT

On January 31, 2021, about 1144 Pacific standard time, a Cessna T182T airplane, N291FR, was substantially damaged when it was involved in an accident near Crescent City, California. The flight instructor and pilot had minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

During the flight, the flight instructor noticed a flashing red turbine inlet temperature (TIT) warning light. He enriched the fuel mixture resulting in the TIT to return to normal settings. Shortly after, the engine began to run rough. The flight instructor switched to the left magneto and the engine shut down. He then switched to the right magneto and the engine restarted and ran rough. He switched back to both magnetos and the engine continued to run rough. The flight instructor then adjusted the mixture and turned on the auxiliary fuel pump. Despite his actions he was unable to get the engine to operate to maintain altitude. The flight instructor located an open field and initiated a forced landing. The airplane landed in marshland and during the landing roll the airplane nosed over.

The airplane was recovered and will be examined.

B. EXAMINATION PARTICIPANTS:

Andrew Swick
Aviation Accident Investigator
National Transportation Safety Board
Phoenix, Arizona

Tim Varga
Owner
Aircraft Engine Specialists
Chandler, Arizona

C. SUMMARY

Examination of the magnetos took place on March 18, 2021, at Aircraft Engine Specialists, Chandler, Arizona. The examination of the magnetos revealed internal corrosion of parts and bench testing failure of the capacitors of both magnetos. The No. 6 upper and lower sparkplugs had carbon type debris in the electrode area preventing full spark during the test. The ignition leads and remaining sparkplugs were tested and examined and revealed no evidence of preexisting malfunctions or failures.

D. DETAILS OF THE INVESTIGATION

1.0 Examination

The magnetos were examined, and the exterior surfaces were undamaged. The original magneto 'Slick' data tag had been removed and a Quality Aircraft Accessories (QAA) data tag installed. The magneto drives were rotated by hand and some resistance was noted. The magnetos were setup on a bench with a slaved ignition lead assembly. No spark was produced from either magneto.



Figure 1-Magnetos.

The magnetos were disassembled, and corrosion and rust were noted on the interior surfaces and interior components.



Figure 2-Magneto's internal surfaces.

The points were removed from the magnetos, and corrosion was noted on the contact surfaces. Sandpaper was used to remove the corrosion from both sets of points. Deformities such as deterioration and buildup of the contact surfaces were visible. (See figures 3 and 4.)



Figure 3-Left magneto point contact surfaces.

Deformatiy



Figure 4-Right magneto point contact surfaces.

The points were reinstalled on the magnetos and the magnetos were installed on the test bench. No spark was produced from either magneto.

The magneto's capacitors were bench tested and both failed under normal testing. An ohmmeter was used on the each of the (4) point assemblies and revealed inconsistent resistance on the surface areas (high points) of each point.

A used set of points and capacitors were installed on the magnetos. The magnetos were installed on a bench and a normal amount of spark was observed. The used set of points had about 500 hours of operation during the test.

Submitted by: Andrew Swick