



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety-Eastern Region

Ashburn, Virginia 20147

June 28, 2016

MAGNETO EXAMINATION FIELD NOTES

A. ACCIDENT:

Location: Morrisville, New York
Date: September 20, 2015
Time: 1251 EDT
Aircraft: N22721, Cessna 150H

B. COMPONENT GROUP:

Chairman: Timothy W. Monville
National Transportation Safety Board (NTSB)
Senior Air Safety Investigator, Office of Aviation Safety
Ashburn, Virginia

C. SUMMARY

On September 20, 2015, about 1251 eastern daylight time, a Cessna 150H, N22721, registered to and operated by Bargabos Earthworks, Inc., dba Eagle View Flight, experienced a loss of control in-flight and collided with trees then terrain near Morrisville, New York. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91 personal, local, flight from Hamilton Municipal Airport (VGC), Hamilton, New York. The airplane was destroyed by impact forces and the private pilot and one passenger were fatally injured. The flight originated from VGC about 1217.

D. DETAILS OF THE INVESTIGATION

Following recovery of the airplane, the engine was examined by the NTSB investigator-in-charge (NTSB-IIC), and during that examination, the magnetos were documented and because of the extensive damage to both, they were retained for further examination. The

magnetos and separated magneto components were shipped to the NTSB investigator-in-charge on September 30, 2015, via UPS Ground airbill 1Z120X200316855985, and were delivered on October 5, 2015. They were secured pending examination.

On March 25, 2016, the NTSB-IIC travelled with the magnetos and separated magneto components to a Federal Aviation Administration (FAA) Certified Repair Station located in Fort Lauderdale, Florida, for testing and inspection.

Left Magneto Information:

Slick Electro, Inc.
Serial Number 0030143R
Model 4201

The magneto was placed on a bench as received for examination ([Figure 1](#)). Impact damage precluded operational testing of the magneto assembly. Examination revealed the mount flange of the frame was broken in one place. An impulse coupling was installed and felt satisfactory during hand rotation of the rotor. The spring of the impulse coupling was removed and the spring was not broken ([Figure 2](#)). The rotor shaft was bent but the rotor gear remained installed; no teeth of the rotor gear were missing and the rotor was tightly installed to the shaft ([Figure 3](#)). The coil remained installed in the frame by the 2 coil wedges, but the coil tab was broken off ([Figure 4](#)). The black colored wire from the coil remained securely attached to the frame, and the green colored wire from the coil was separated from the contact points (done during field investigation). The primary and secondary resistance of the coil measured 0.7 and 14,000 Ohms, respectively (Primary specification is 0.50 to 1.2 Ohms and Secondary specification is 13,000 to 20,500 Ohms). The distributor housing was separated but the capacitor remained secured to the distributor housing. The distributor gear and block remained secured to the distributor housing and the support bar was in-place but broken ([Figure 5](#)). Examination of the distributor gear revealed no missing teeth and the electrode remained tightly secured with no abnormal wear noted ([Figure 6](#)). The carbon brush remained installed but was fractured. The distributor block electrodes were satisfactory, and check of the distributor block and support bar for carbon tracing using a high tension tester was negative. The points were tightly installed and were misaligned. Slight pitting and normal wear of the point surfaces was noted. The capacitor was electrically tested and found to read 0.369 microfarads (MFD); specification is 0.35 MFD plus or 10 percent when tested at 400 volts DC ([Figure 7](#)).

Right Magneto Information:

Slick Electro, Inc.
Serial Number 1011091R
Model 4201

The magneto was placed on a bench as received for examination ([Figure 8](#)). Impact damage precluded operational testing of the magneto assembly. Examination revealed the mount flange of the frame was broken in 3 areas. An impulse coupling was installed and felt stiff initially during hand rotation of the rotor, but felt satisfactory after continued rotation of the rotor. The spring of the impulse coupling was removed and the spring was not broken ([Figure 9](#)). The distributor housing was fractured into 3 pieces and the capacitor/condenser was separated from the distributor housing. The rotor gear remained tightly installed to the rotor shaft but the rotor gear exhibited impact damage; no teeth of the rotor gear were missing ([Figure 10](#)). The coil remained installed in the frame by the 2 coil wedges, but the coil tab which exhibited normal wear was bent ([Figure 11](#)). The black colored wire of the coil remained securely attached to the frame, while the green colored wire remained attached to the contact points; the tab exhibited normal wear. The primary and secondary resistance of the coil measured 0.7 and 16,000 Ohms, respectively (Primary specification is 0.50 to 1.2 Ohms and Secondary specification is 13,000 to 20,500 Ohms). The distributor block was missing/not located, and the distributor gear was impact damaged ([Figure 12](#)). Examination of the separated distributor gear revealed it was impact damaged but there were no missing teeth; several of the teeth exhibited impact damage. The electrode remained tightly secured with no abnormal wear noted ([Figure 13](#)). The carbon brush remained installed but was fractured; the spring was not fractured ([Figure 14](#)). The contact points were broken and pitting was noted on the contact of the moveable side of the contact points. Normal wear of the contact points was noted. The capacitor was electrically tested and tested 0.344 microfarads (MFD); specification is 0.35 MFD plus or 10 percent when tested at 400 volts DC ([Figure 15](#)). The coil and housing were retained for additional testing at temperature at the manufacturer's facility.

PARTS DISTRIBUTION

At the completion of the inspection, the magneto components were retained by the NTSB IIC and secured pending return to the insurance adjuster.



Figure 1: Left Magneto As First Viewed



Figure 2: Left Magneto Impulse Coupling Spring

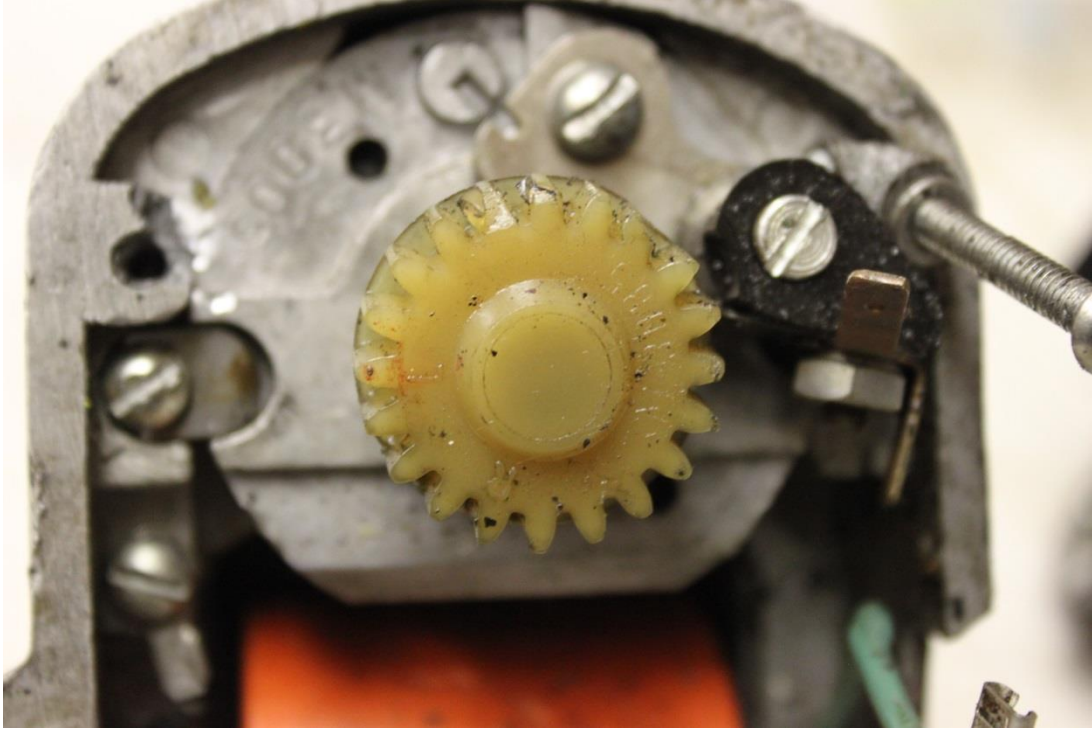


Figure 3: Left Magneto Rotor Gear

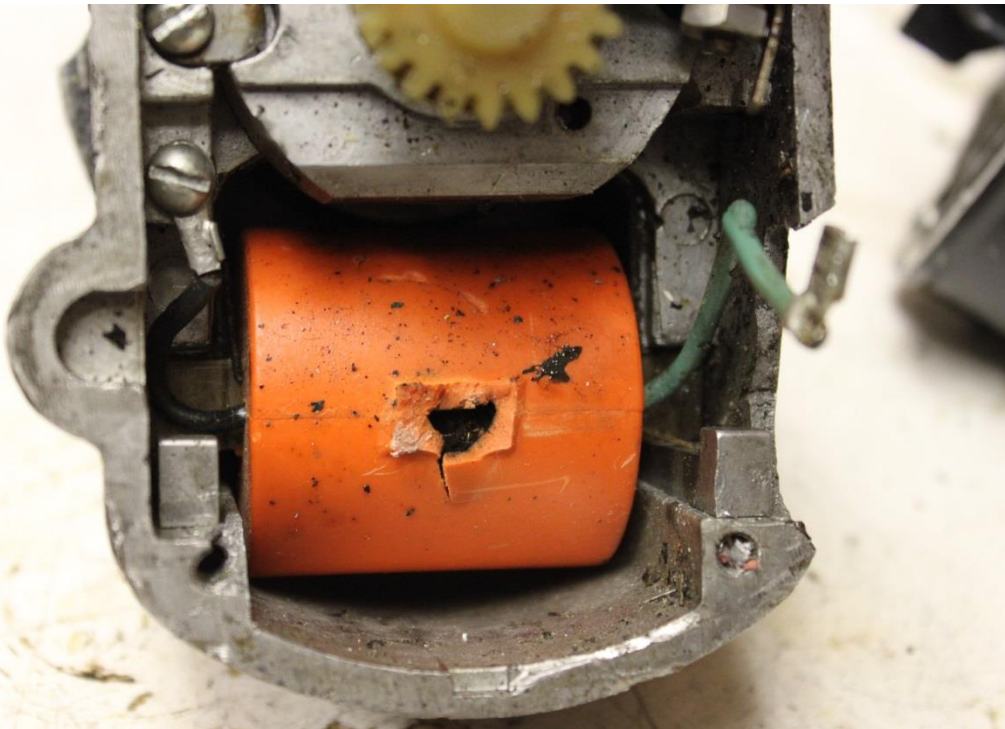


Figure 4: Left Magneto Coil

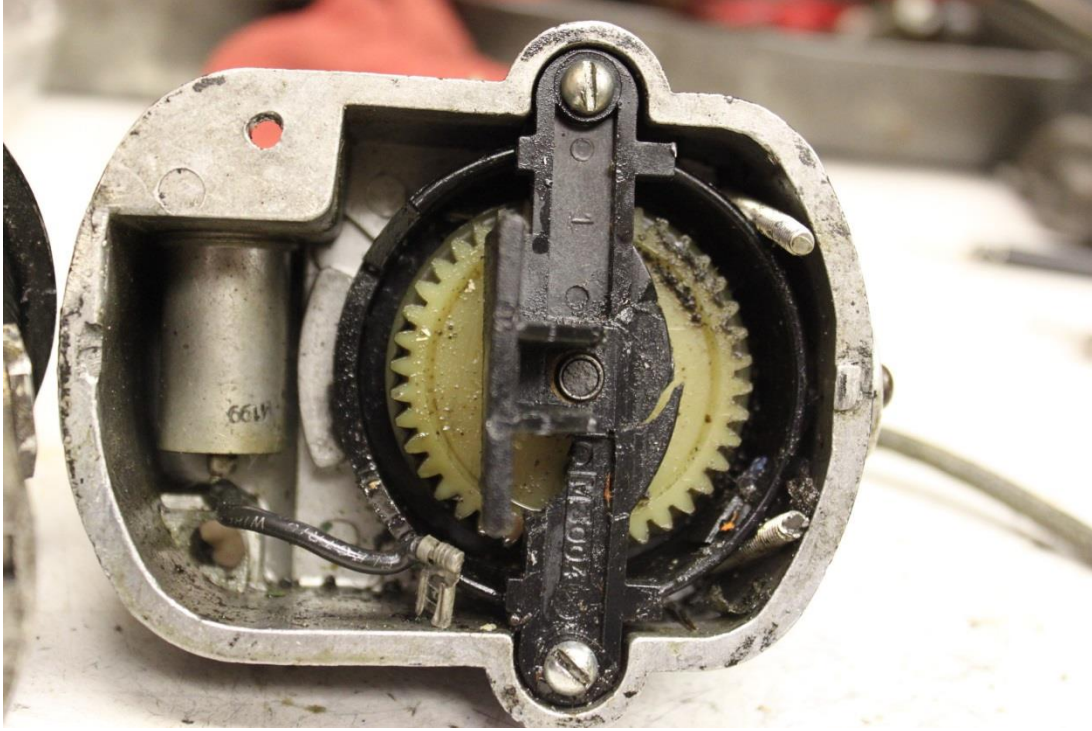


Figure 5: Left Magneto Distributor Housing

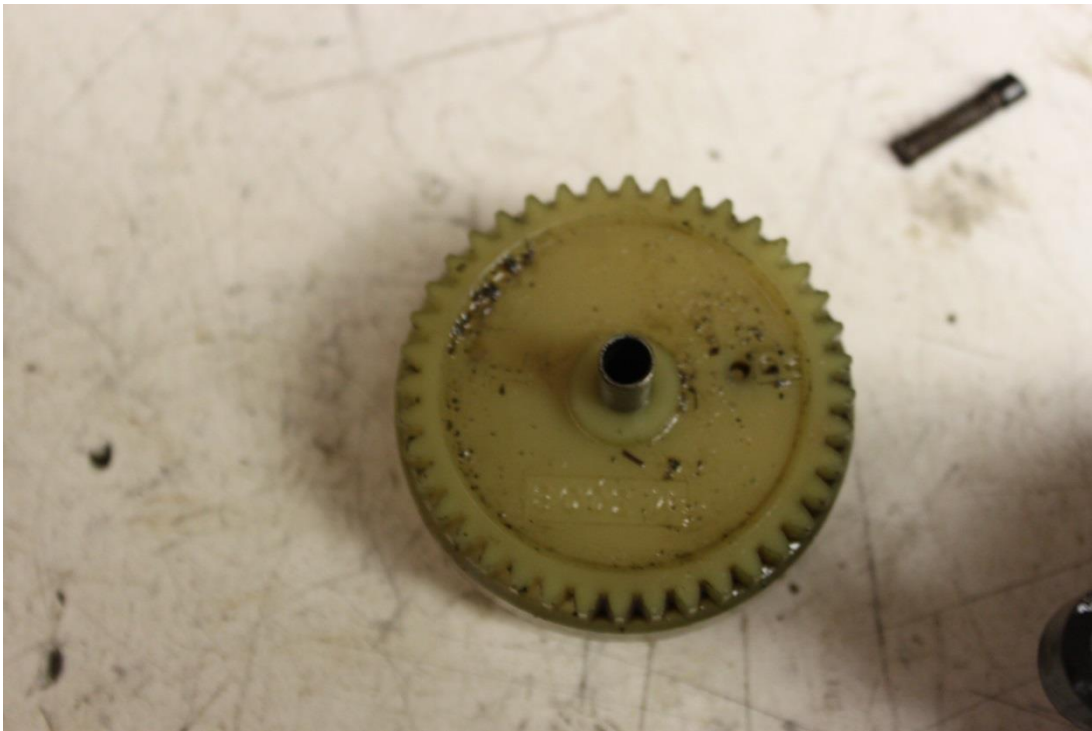


Figure 6: Left Magneto Distributor Gear

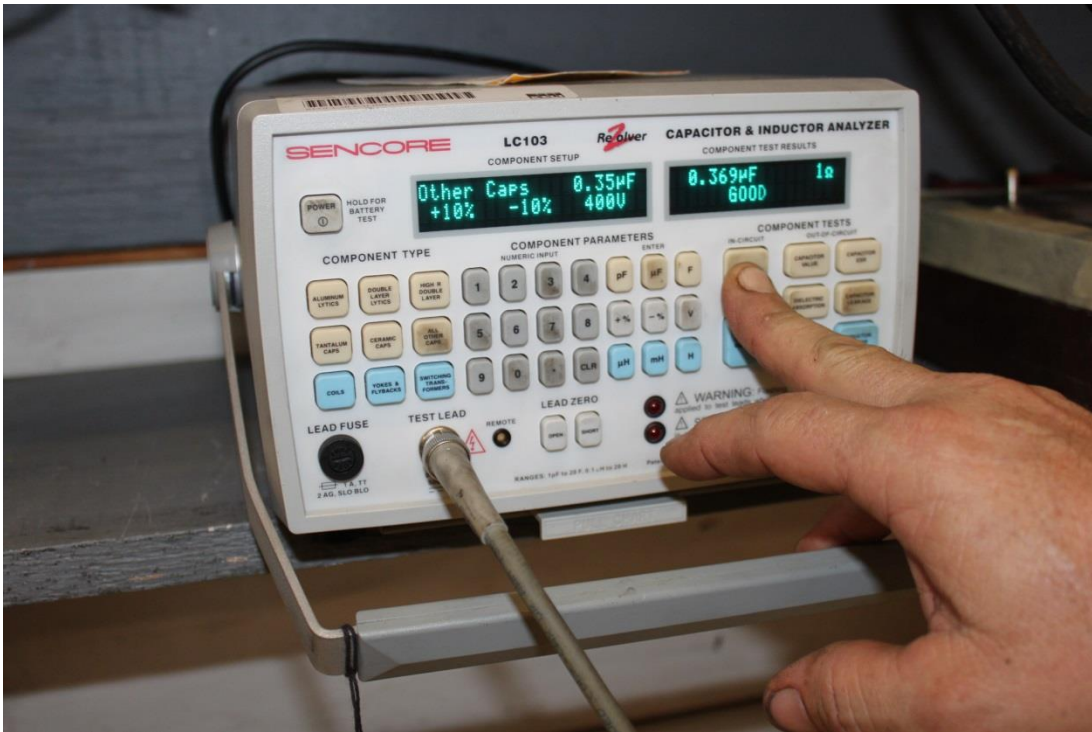


Figure 7: Test Results of Left Capacitor



Figure 8: Right Magneto as First Viewed



Figure 9: Right Magneto Impulse Coupling Spring

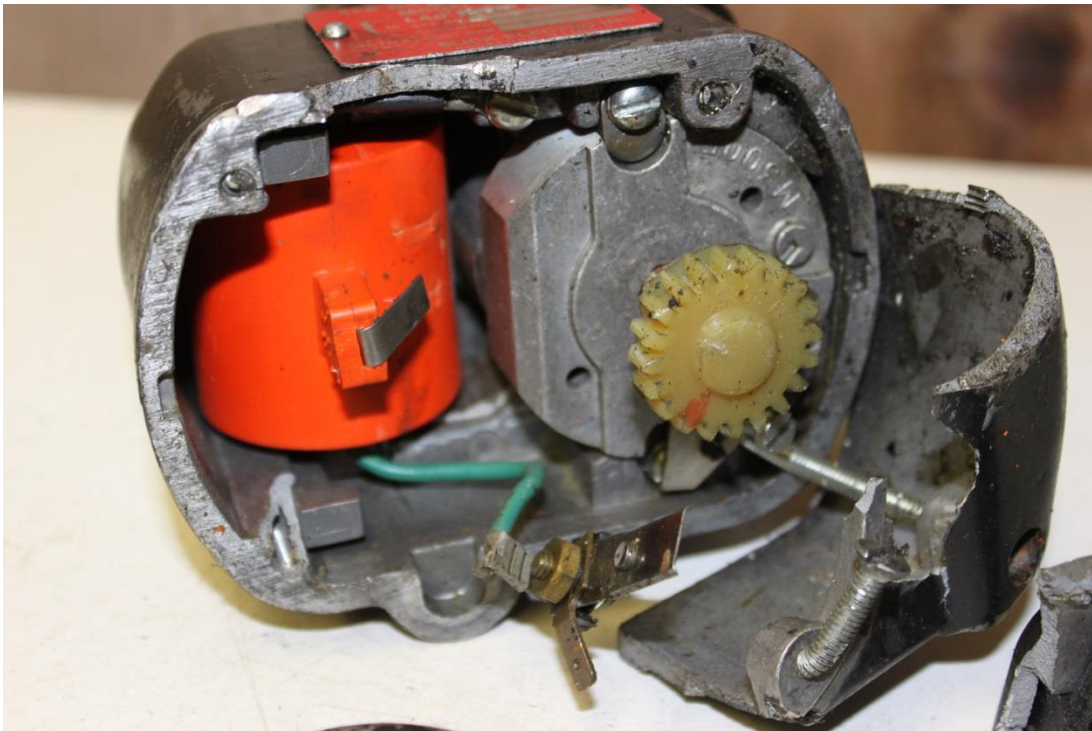


Figure 10: Right Magneto Coil, Housing, and Rotor Gear

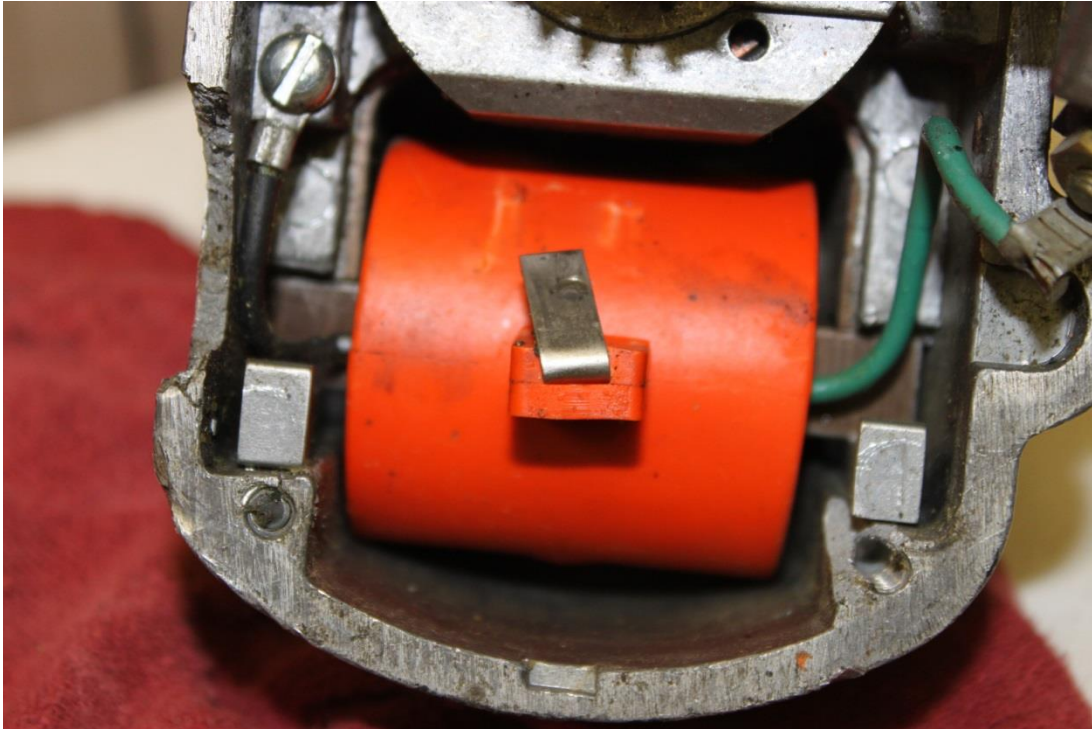


Figure 11: Right Magneto Coil Tab



Figure 12: Right Magneto Distributor Gear



Figure 13: Right Magneto Distributor Gear and Electrode



Figure 14: Right Magneto Carbon Brush and Spring



Figure 15: Test Results of Right Capacitor