Continental Motors, Inc.

Ignition System Analytical Report

N/R = Not Reported / N/A = Not Applicable

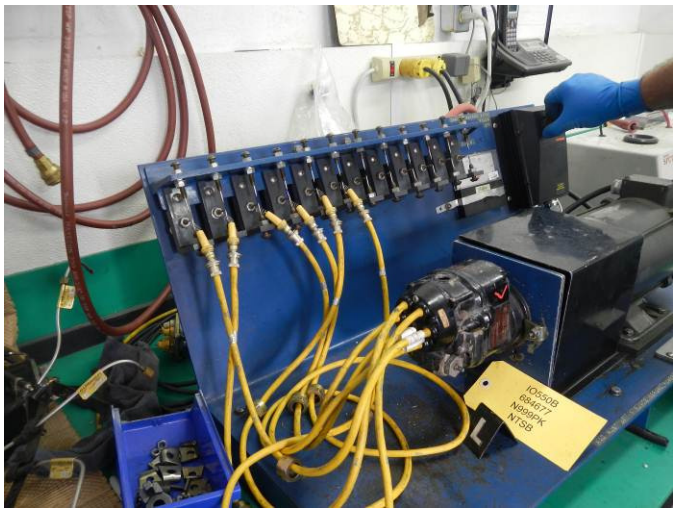
Date Received:	06/05/2013					Analytical Date:	07/16/2013				
Warranty Claim #:	N/A					RGA #:	N/A				
Engine Model:	IO-550-B39					Engine Serial #:	684677				
Aircraft Make/Model:	Raytheon Aircraft Co. A36					Aircraft S/N:	E3380	Reg. #:	N999PK		
Engine Position:	Single:	**X**	Left:		Right:		Front:		Rear:		
Engine Build Date:	11/22/2000		Date in Service:	03/06/2001			Date Removed:	N/A			
Date of Occurrence:	05/28/2013					Magneto Hours:	Approx. 960 hours				
Components Returned:	Left and Right Magneto and Sparkplugs										
Returned By:	Mike Huhn – NTSB investigator-in-charge (IIC)										
Magneto Model/P/N:	Left: Slick 6310					Magneto S/N:	00091583				
Magneto Model/P/N:	Right: Slick 6310					Magneto S/N:	00091606				
Ignition Harnesses:	N/A (destroyed)										
Sparkplug Type:	Champion RHB32S										
Party to the Inspection:	Phillip Grice – CMI										
Party to the Inspection:	Nicole Charnon – CMI										
Party to the Inspection:	Mike Huhn – NTSB										
Party to the Inspection:	Kris Wetherell – Beechcraft										
Reason for Return:	NTSB Accident Investigation – WPR13FA244										
Inspection Performed By:	Phillip Grice					Search Code:	28-11-35, 50-04-32				

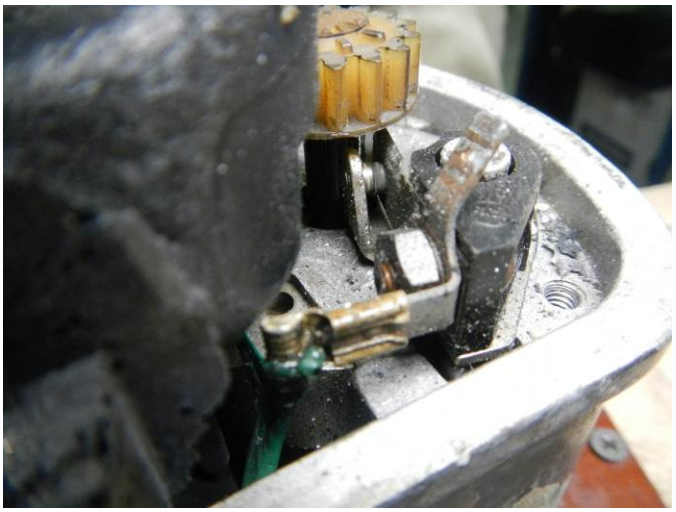
Analytical Report: The magnetos were removed from the shipping package and were photographed. Both magnetos sustained thermal damage. The ignition harnesses sustained significant thermal damage and the ignition leads were cut. Manual rotation of the magneto drive shafts revealed they would turn freely with impulse coupling engagement. Placement of the magnetos on the test bench with a substitute ignition harness revealed that neither magneto would produce a spark across a 7 mm gap. The magnetos were partially disassembled and the capacitor for each magneto was found to be thermally damaged. A replacement capacitor was placed in each magneto and the magnetos were returned to the test bench. With the replacement capacitor, the right magneto produced a blue spark across a 7mm gap. The left magneto was only capable of producing a blue spark across a 7 mm gap irregularly and intermittently. The magnetos were again partially disassembled and examined. Both of the magnetos sustained thermal damage to the distributor block, capacitor, internal wires, and the coil, with the left magneto sustaining more thermal damage than the right. It is likely that the thermal damage to the left magneto's internal components provided an internal electrical short, which only permitted irregular and intermittent current to the distributor block. With the exception of the thermal damage sustained by both magnetos, no other anomalies were noted. Testing of the Champion RHB32S fine-wire sparkplugs in a SPCT-100 Spark Plug Cleaner Tester revealed that all of the sparkplugs were capable of producing a spark, with the exception of the #6 top spark plug. The #6 top spark plug had a fractured ceramic insulator in the barrel.

Left Magneto


L

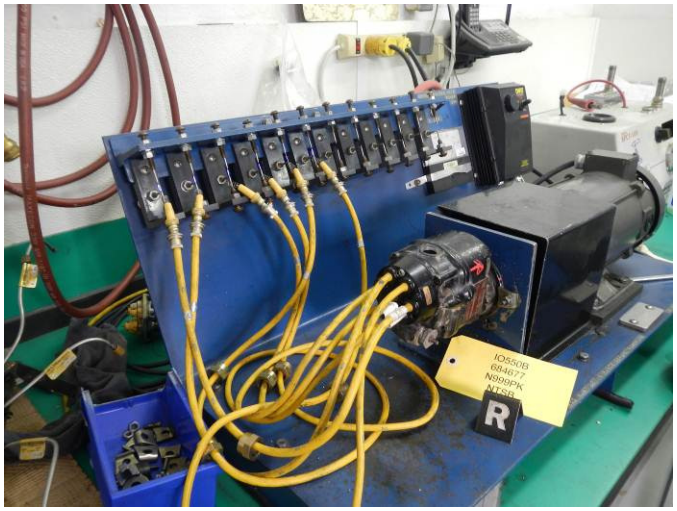

SLICK
M-398
0031
L

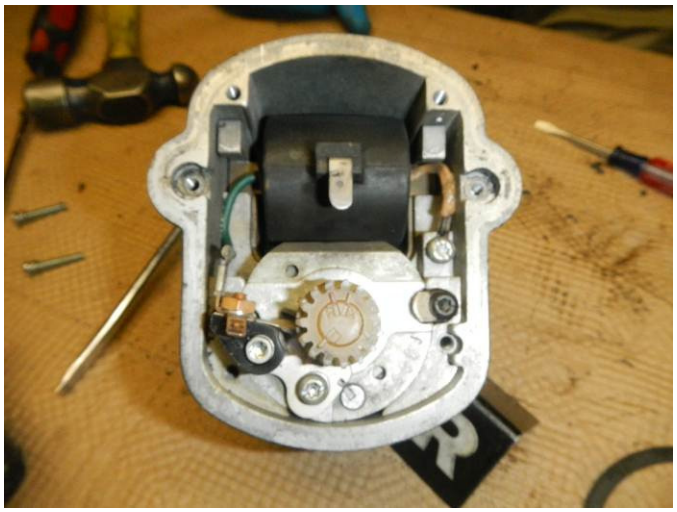

IO-550B
684677
N999PK
NTSB
L

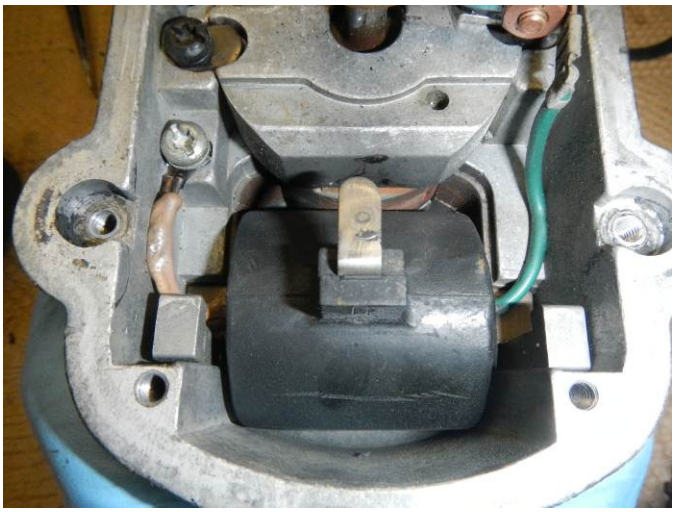


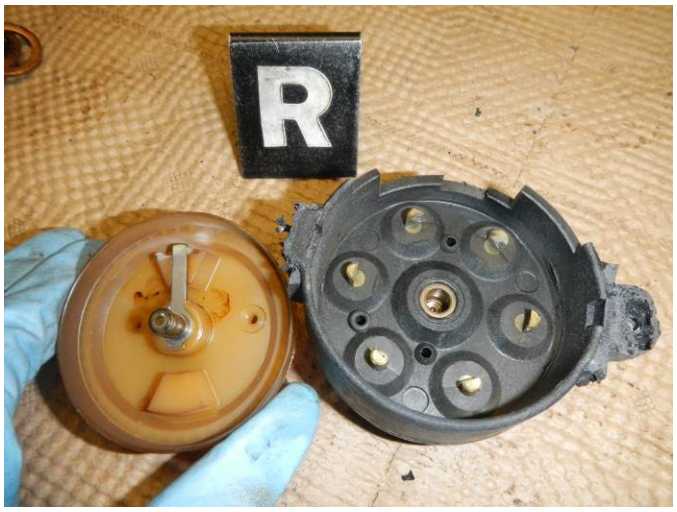

L

Right Magneto


R






R


SLICK
M-3984
0030
R

Magneto Comparison

Sparkplugs

#1 Top

#1 Bottom

#2 Top

#2 Bottom

#3 Top

#3 Bottom

#4 Top

#4 Bottom

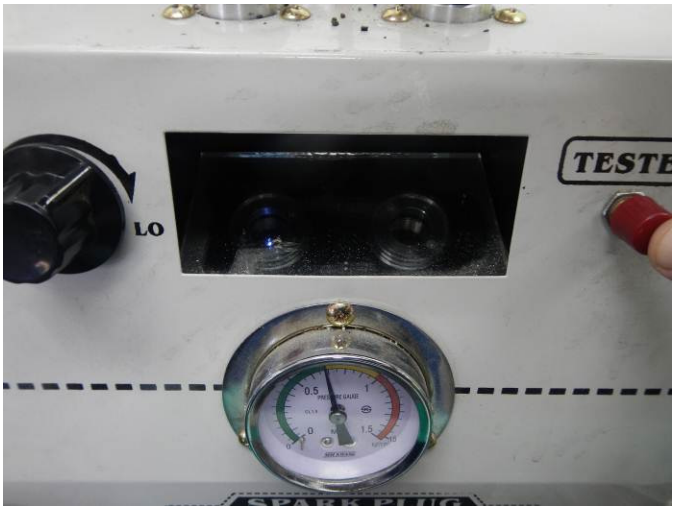
#5 Top

#5 Bottom

#6 Top

Would produce spark in SPCT- 100 tester. Broken ceramic insulator was found in barrel.

#6 Bottom



Component Disposition				
Magnetos				
Return to Salvage Facility:	X	Date/Sign:	07/18/2013	
Salvage Facility:	Air Transport			
Address:	3011 West Buckeye Road			
City:	Phoenix		State:	AZ
Zip Code :	85009	Country:	USA	
Sparkplugs				
Return to NTSB Lab:	X	Date/Sign:	07/18/2013	
Facility:	NTSB Materials Laboratory			
Address:				
City:	Washington		State:	DC
Zip Code:		Country:	USA	