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To: Lynn Spencer, NTSB Investigator In Charge

From: Thomas Justice, Engineering Manager, Champion Aerospace

Date: September 12, 2024

Subject: N539MA Investigation – Magnetos and Spark Plugs

1.0 Scope

The scope of this report is the investigation of the magnetos removed from tail number N539MA. This investigation is a part of the NTSB investigation of an incident involving said aircraft, and Champion was asked to evaluate the magnetos and spark plugs for functionality.

2.0 Background

Aircraft with the subject tail number was involved in an incident and the cause is under investigation. The aircraft was a Piper PA-46R-350T. The magnetos removed were 6360 and 6363 magnetos, serial numbers 22050256 (R) and 23010405 (L). The spark plugs removed were all Champion RHB36S[D], date code 4A23. All of the parts were provided to Champion in a sealed box marked not to be opened until the investigation was in process. The box was opened for the first time at Champion on September 12, 2024 at approximately 1:30pm.

3.0 Magneto Testing

The magnetos were both removed from the box and bubble wrap and set on the work bench for visual examination. Nothing abnormal was noted on either magneto. The harness cap was still installed but the wires had been cut. In order to test the magnetos on the bench test, the harness cap had to be removed and the drive coupling had to be removed as well.

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Figure 1. Magneto SN 22050256 (R) Model# 6360



Figure 2. Magneto SN 23010405 (L) Model# 6363

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Both magnetos were installed on the Champion magneto tester, used for testing all new parts against new part performance requirements before leaving the facility. Both magnetos **passed** this test against new part specifications. No further investigation or testing was performed.

4.0 Spark Plugs

All twelve (12) spark plugs were provided and intact. The spark plugs showed signs of heavy carbon fouling and were not cleaned prior to testing. All but one spark plug had the gasket already attached. They were not labeled for cylinder location, however the NTSB report does have a picture of the spark plugs labeled for their respective installation position.

All twelve spark plugs were tested on a Champion Spark Plug tester. All twelve spark plugs produced a spark using that tester.

As shown in the photos below, the spark plugs were very dirty (note, multiple pictures per spark plug). The substance on the firing ends was “ashy” in nature. Additionally, there was a white substance on some of the electrodes of the spark plugs. The origin and nature of this substance is unknown. The substance did not cause an adverse effect on the ability of the plugs to produce a spark.



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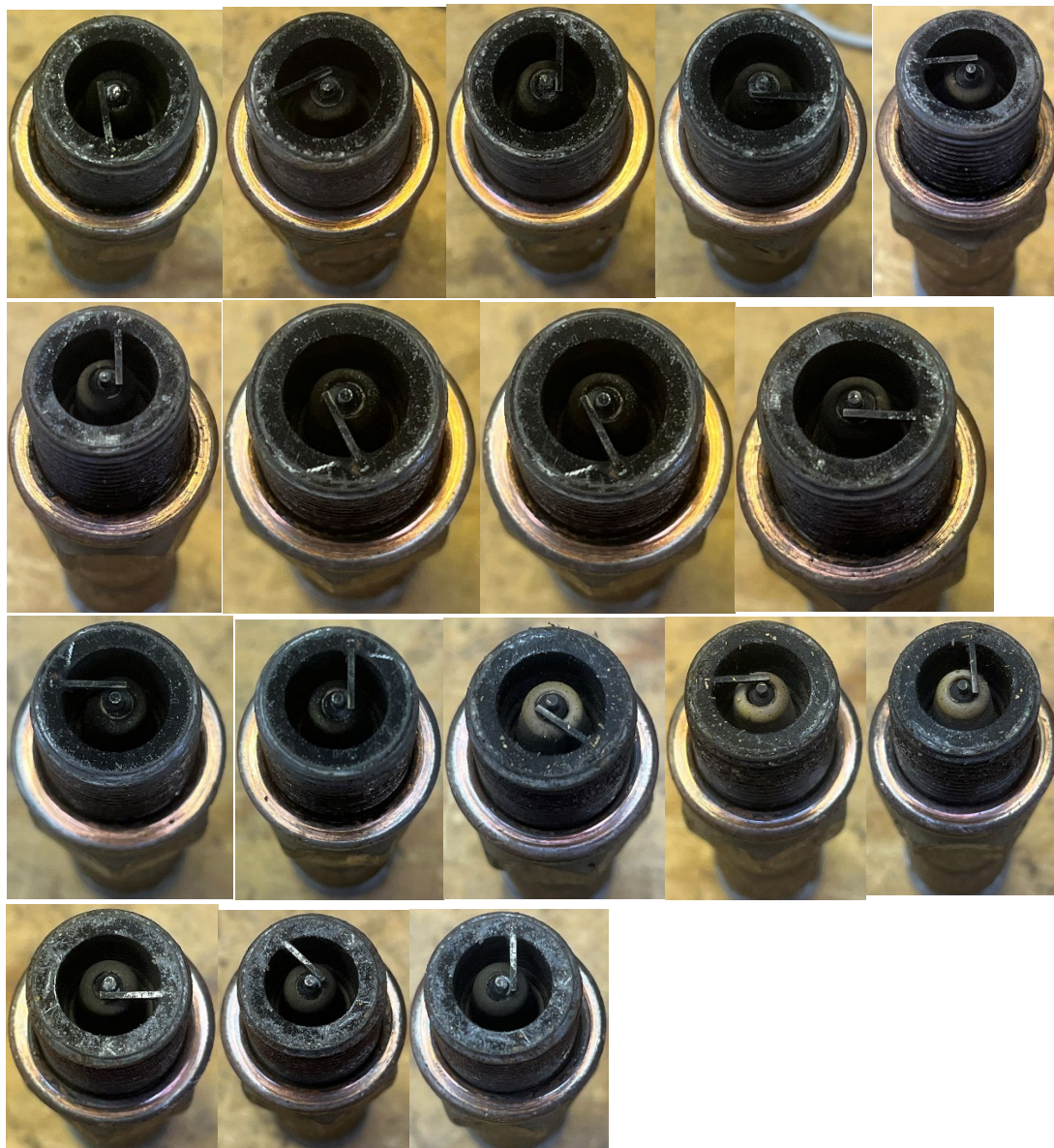


Figure 3. Spark Plugs

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5.0 Conclusion

The magnetos and spark plugs passed the acceptance testing, and no further testing was performed. None of the findings implicated the magnetos or the spark plugs as a cause for engine failure.

Sincerely,



Thomas Justice

Engineering Manager, Piston and Power Products

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