



SERVICE LETTER

Customer
Support

**SUBJECT: IGNITION - DISTRIBUTION - SERVICEABILITY LIMITS FOR IAE
V2500 ENGINES**

ATA SYSTEM: 74-21

CHAMPION IGNITER CH31964

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SL No. CH31964-74-21-001



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1. INTRODUCTION

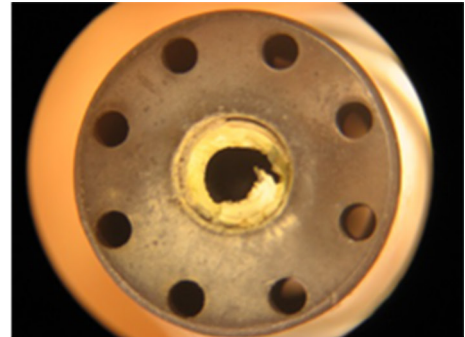
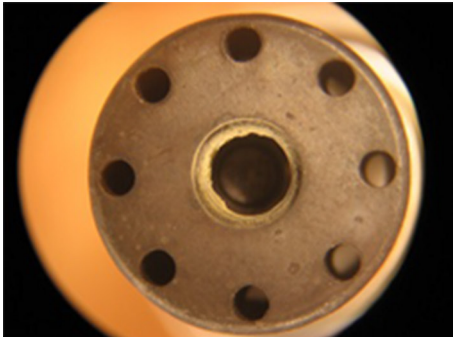
(1) The CH31964 igniter is a recessed gap igniter designed for aircraft that have all variants of the International Aero V2500 engines installed. The igniter consists of a tungsten input terminal contact, a two-piece aluminum oxide insulator, center seal, and spark gap with a tungsten center electrode tip. Champion Aerospace is issuing this service letter to address operator feedback and provide clarification for the inspection of CH31964 igniter's that exhibit tungsten oxidation of the igniter tip ground electrode. This service letter also provides information on the operation and reliability of the CH31964 igniter in addition to sparking performance as determined through extensive factory testing. Those findings and results are provided in Returned Material Analysis (RMA's) Reports.

2. INSPECTION/CHECK

A. Examine Igniter Firing Tip for Tungsten Oxidation (Figure 1).

NOTE: Per the CMM, the presence of minor oxidation of the igniter tip ground electrode is a normal condition, Ref: CH31964 Igniter CMM 74-21-45.

(1) The original ignition lead can potentially be a contributing factor and cause engine no starts. Tungsten oxidation buildup of the igniter tip ground electrode will have a yellowish appearance and may need to be removed in order to accomplish the measurement of the erosion wear limits of the tip opening (0.315 in. /8.001mm). Reference CMM 74-21-45; Paragraph 6, Inspection and Check, Figure 2.



Tungsten Oxidation Build-Up of Igniter Tip.

Figure 1

NOTE: The presence of oxide deposits on the firing end of ignition plugs with tungsten electrodes is a normal condition and typically will not affect the igniter's function. Care should be taken to not damage the ignition plug shell or tungsten electrode parent material when removing those deposits.

NOTE: Refer to Champion Igniter CMM CH31964 (74-21-45) for additional detailed instructions on the inspection and cleaning of the igniter.

3. FINDINGS AND RESULTS

A. Igniter Field Returns/RMA Results and Findings.

(1) Champion Aerospace, LLC has requested the return of removed CH31964 igniters that exhibit tungsten oxidation of the igniter tip ground electrode in order to evaluate the effect on the sparking performance characteristics, and to determine the serviceability and remaining life of the igniter for continued operation.

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At time of issuance of this Technical Bulletin, (20) CH31964 igniters with tungsten oxidation were sent to Champion from four different V2500 operators. All (20) igniters passed the Acceptance Test Procedure (ATP), CH215.I.ATP.01. Sixteen (16) of the twenty (20) igniters had operating times up to 787 flight hours and up to 320 flight cycles while four (4) igniters had no reported hours or cycles data. Two (2) of those four (4) igniters with no data were found worn beyond the allowable center electrode recession limits per inspection criterion in the CH31964 CMM. Early or premature center electrode wear is generally associated with high or abnormal use of continuous ignition. Center electrode wear is not related or associated with tungsten oxidation. Results of all tests are documented in individual RMA reports and have been provided to the respective airline. Test data and findings are available to other V2500 operators upon written request.

B. Effect of Ignition Lead Condition and Contributing Factors.

- (1) The original ignition lead can potentially be a contributing factor and cause engine no starts and failed engine light-offs. High ignition lead-to-igniter connection temperatures have been a problem in the past as result of hot air leakage through the original non-Champion igniter into the terminal well area. The Champion igniter design incorporates a proprietary hot lock manufacturing process that eliminates internal hot air leakage into the terminal well area. If the leads exhibit heat and arcing damage as seen in photos below, the probability is increased that intermittent dielectric failure of the ignition lead will occur internally. This condition with the leads can be masked when a new igniter is installed during ignition system trouble shooting.



Original V2500 Ignition Lead Termination Design - (Non-Champion Parts)
Figure 2

4. RECOMMENDATIONS

Champion recommends that V2500 operators who remove a CH31964 igniter for any reason and believed to be caused by tungsten oxidation of the igniter tip ground electrode, be inspected in accordance with CMM 74-21-45 and instructions provided in this service bulletin. The appearance of tungsten oxidation on the igniter tip ground electrode is normal for this design and typically does not affect igniter function. Champion also recommends that the ignition leads be examined for conditions shown in pictures above and be replaced immediately or at earliest opportunity.

5. QUESTIONS/CONTACTS:

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