AVIATION TECHNICAL BULLETIN

Champion Spark Plug Company
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CHAMPION AA SERIES - P&W IGNITERS
Firing End - Wear Limit Measurement

The purpose of this bulletin is to more clearly define the firing end erosion wear characteristics of the AA72S and similar AA series P&W igniters, and in turn establish what we believe to be satisfactory operation capable physical wear limits, with a more precise practical method of measuring the more predominant ground electrode wear.

This bulletin is intended to supplement P&W's Overhaul Manual instructions on inspection, reconditioning, and testing of igniters by defining better the physical wear limits of the AA series igniters and describes a new tool for measuring the ground electrode erosion wear.

Figure 1 shows the cross-section construction of a new igniter. Of particular note, the firing end insulator lower end is supported in a recessed pocket and seated against a mating coned shoulder machined into the shell end--the shell end, surrounding the firing end opening, being the ground electrode of the igniter.

Figure 2 shows the typical characteristic undercutting erosion that occurs in sparking service wear. Note that with this service wear, the lower seating retention shoulder for supporting the firing end of the insulator is being eroded away. Further, this characteristic undercut wear handicaps visual inspection and accurate wear measurement with standard available tools.

To better measure the ground electrode wear, Champion has developed the special measuring tool (CT-447) illustrated in Figure 3 and shown in use in Figure 4.

For practical and easy reading, the tool provides a 3.5 multiplication of wear to telescoping stem scale indication. Thus .010" wear expands to .035" on the stem scale. You will note the measuring tips are shaped to reach into the undercut--true wear area.

For further simplification to the operator, the scale stem has been graduated to show the percentage of wear: "Green" index 1/3, "Yellow" index 2/3, "Red" index Wear Limit. At the "Red" limit, the shoulder retaining and supporting the insulator tip has been reduced to .024", the minimum considered satisfactory for continued capable operation. These scale and wear limits apply to standard size AA igniter series, such as the AA72S.

(OVER)

AA SERIES - P&W IGNITERS

Fig. 1

NEW

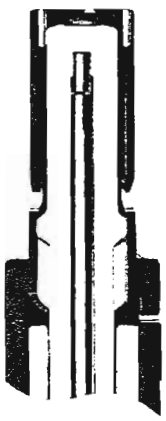

Fig. 2

WORN OUT

(Sectional View)

IGNITER FIRING END

Fig. 3

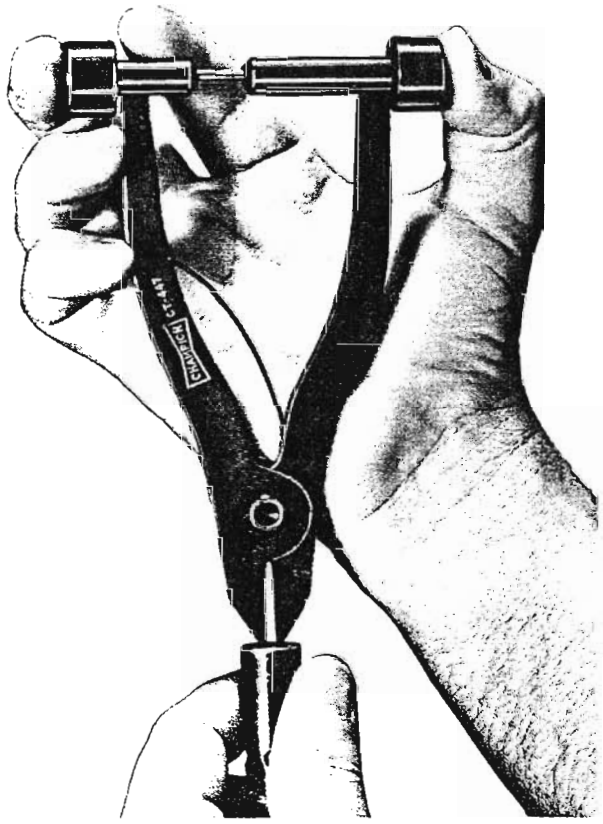

Fig. 4

SERVICE WEAR MEASURING TOOL CT-447