



AVIATION TECHNICAL BULLETIN

Champion Spark Plug Company

P. O. BOX 910, TOLEDO, OHIO 43601

January 25, 1971

NO. A71-2

ROUTE TO	
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JT9 IGNITER WEAR CHARACTERISTICS

Champion igniters used in Pratt & Whitney JT3, JT4, JT8, and JT9 engines have a firing end as shown in Figure #1. This cross-section view illustrates how the lower insulator assembly is supported in the shell body -- the shell body being the ground electrode of the igniter.

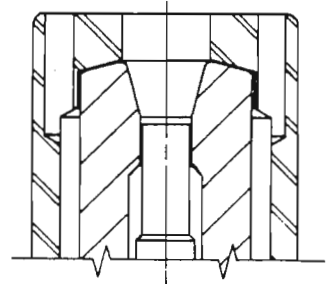


Figure #1 (NEW)

Figure #2 illustrates the wear characteristics of a typical igniter operated in a JT3, JT4, or JT8 engine. Note the ground electrode erosion wear pattern and how the shell end annulus has eroded or opened up. Also, note how the insulator supporting shoulder is reduced to approximately .024", the minimum considered satisfactory for further service.

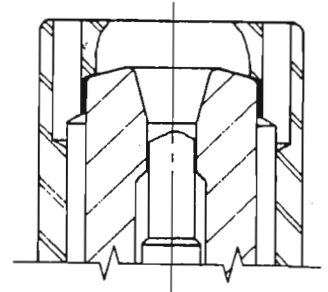


Figure #2 (WORN OUT)

For measuring firing end wear, Champion developed the CT-447 igniter erosion gauge. This can be obtained through any Champion outlet.

Figure #3 illustrates the type of undercutting erosion that occurs on an igniter operated in a JT9 engine. Note the wear pattern at the insulator supporting shoulder is identical to Figure #2, but the shell end annulus has not eroded or opened up. This wear characteristic, we understand, is caused by the JT9 operating at higher combustor pressures. Due to this unusual wear pattern, Champion's CT-447 erosion gauge cannot be used since it will not enter the firing end annulus. Because of this, one may believe the igniter is suitable for further service; but in reality the igniter is considered worn out. We highly recommend that all 747 operators follow the instructions that are spelled out in the P&W Service Bulletin No. 2996 which recommends that both igniter plugs be replaced at each 300-400 hour intervals. SCRAP REMOVED IGNITER PLUGS!

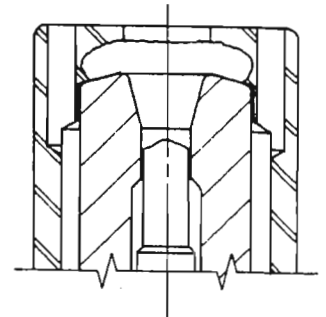


Figure #3 (WORN OUT)

NOTE: Although igniters will continue to fire after 400 hours use, the voltage required to achieve a spark is increased up to a level that can stress other ignition components, particularly the high tension lead.
