

# CHAMPION

# TECHNICAL BULLETIN

AVIATION DEPARTMENT  
CHAMPION SPARK PLUG COMPANY  
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## CENTER ELECTRODE COPPER EROSION

Some misunderstanding occasionally arises regarding the differences between center electrode normal copper erosion and copper run-out.

Figure 1 illustrates copper erosion (sometimes called cupping). This is a normal condition and as the spark plug gains service time, erosion decreases to a point whereby it stabilizes and practically ceases. From laboratory analysis and field experience throughout the years, it has been determined that erosion or cupping of the center electrode copper core is not detrimental nor will it effect the operational ability of the spark plug.

Such plugs can be serviced and reused provided the spark plugs are satisfactory in all other respects.

Figure 2 illustrates a typical example of copper run-out. When this type of spark plug condition occurs, it is usually the result of preignition; the causes of preignition are too many and varied to be discussed in this bulletin. Normally, the copper will flow and bridge the electrode gaps, shorting the plug out and reducing the chance of further engine damage. Plugs evidencing this condition should be scrapped. When the foregoing is encountered, other attendant combustion chamber difficulties are often noted. Engine manufacturers recommendations for inspection and service should then be followed.



Normal Erosion



Copper Run-out

CHAMPION SPARK PLUG COMPANY

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