Electrode Conditions

Normal erosion of spark plug electrodes can be expected because of the constant blasting effect of the high-voltage current jumping the gaps and corrosive gases and high temperatures in the combustion chamber. However, <u>excessive</u> center electrode erosion is not normal, and should you observe such erosion, check carefully to determine if proper heat-rated plugs are being used. Also check whether engine timing and operating procedures conform to manufacturer's recommendations.

Electrode Wear Patterns

Fine Wire Electrode Massive Electrode Normal Electrode Condition. Insulator tip gray, tan or light brown. Few combustion deposits. Electrodes not burned or eroded. Proper type and heat range plug for engine and service. Spark plug should be cleaned, regapped and tested before reinstallation. Normal Worn-Out Condition. Electrodes eroded by high-voltage sparking and by corrosive gases formed during combustion to less than $1/_2$ original thickness. • More voltage needed to fire spark plugs - often more than ignition system can produce. Replace with new Champion aviation spark plugs. Severe Worn-Out Condition. Excessively eroded center and ground electrodes plus extensive necking of fine wire ground electrodes indicate abnormal engine power or plugs long overdue for replacement. Check fuel metering and magneto timing. Discard spark plugs and check heat range before installing new ones. Replace with new Champion aviation spark plugs in appropriate heat range.

Other conditions that cause excessive electrode erosion are constant magneto-polarity firing and capacitance after-firing.

Electrode Wear Patterns

Constant polarity occurs with even-numbered cylinder magnetos. One plug fires with positive polarity, causing excessive ground-electrode wear, while the next plug fires negatively, causing excessive center-electrode wear. Capacitance afterfiring wear is caused by the stored energy in the ignition-shielded lead unloading after normal-timed ignition. Spark Plug Fired Positive Adverse Ground-Electrode Wear



Spark Plug Fired Negative Adverse Center-Electrode Wear



To equalize this wear, keep spark plugs in engine sets, placing them in trays identified by cylinder locations. After servicing the plugs, rotate as indicated in the following illustrations.