



Above, always use a gap gauge in setting spark-plug electrodes. Left, tighten plug to compress the gasket

Spark plugs: It's good economy to replace spark plugs every 10,000 miles. The four photos at the bottom of the page show the usual history of a worn plug and also why plugs should be replaced at regular intervals. Besides going through regular stages of deterioration, which are readily apparent on careful examination, the plugs also are good indicators of the general condition of the engine and the ignition system. For example, the fouled plug indicates to a practiced eye one of two possibilities: Either the cylinder from which the plug was removed is in rather bad mechanical condition, or some defect in the ignition system is causing this particular plug to foul. When a plug misses, it does not burn off the oil vapors which come in contact with it in the normal cylinder. Hard carbon deposits quickly build up to the point where the plug no longer fires, even intermittently. If this condition is neglected, even for a comparatively short time, a scored cylinder will result.

When cleaning and adjusting the plugs, use the simple gap gauge, as shown at upper right. Always install new gaskets when replacing plugs which have been removed from the engine for servicing. Slight gas leakage at the gasket will cause the plug to run hot and may shorten its useful life by as much as half. When replacing the plugs, wrench torque should be just sufficient to compress the gasket.

For cleaning spark plugs, use alcohol, because it evaporates quickly. Gasoline or kerosene leaves a sticky film which adheres to the porcelain. Pour the alcohol

into the inverted plug, let stand for a few minutes, then use a knife to remove the carbon, but do not mar the porcelain by scraping. If the glazed part of the plug is marred, it will retain carbon and will also cause porosity, which causes electrical leaks. If the oil is burned on the porcelain, muriatic acid will remove it. In placing the porcelain back into the shell, be sure that the copper washer is replaced and the bushing screwed tight so as to prevent leaking.

Faulty compression: To a greater extent than car owners generally realize, the loss of engine smoothness and operating efficiency is due to slowly accumulating deposits of hard carbon, gum and crankcase sludge. Short runs in cold weather, long trips at slow speeds and neglect of oil changes and general servicing of the engine contribute to fouling of the crankcase, upper cylinders, pistons and rings. The carbon and gum deposits not only adhere to these vital parts but circulate throughout the lubricating system and cause rapid wear. Regularly changing the oil-filter cartridge may help, but this precaution alone is not sufficient to correct other causes of engine inefficiency which are due to bad driving practices.

Lately the use of solvents has become so important in connection with general engine tune-up, that many mechanics use these chemicals regularly in tune-up jobs on engines which are rated in good mechanical condition. Solvents for sludge and carbon are used in three ways: added in

The general mechanical condition of the engine can be readily diagnosed by the appearance of the spark plugs. A fouled plug is an indication of a bad cylinder or a defect in the ignition causing the plug to misfire



WORN



DIRTY



FOULED



CRACKED AND BROKEN