

SPARK PLUGS

Part 3 - Maintenance

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For those readers who came of age in 1950s and before, spark plug maintenance was a regular routine and they are probably familiar with the information provided here. However, for those new to the hobby or were not forced to learn about spark plug maintenance out of necessity, the following information will help you care for your collector car.

Spark plug maintenance was recommended every 5000 miles or at least once each year when 6-volt systems provided power for the ignition. Once 12-volt systems became the norm, manufacturers increased the duration between spark plug maintenance events to 10,000 to 12,000 miles. Maintenance of spark plugs was no longer recommended after high energy ignition systems were introduced in the 1970s. Then, manufacturers recommended replacement of spark plugs after 22,500 to 30,000 depending upon the engine and use. Today, spark plug maintenance is a 100,000 mile maintenance. However, the recommended maintenance in for your car when new remain appropriate today, e.g. 6-volt systems every 5,000 miles or once each year.

Spark plug maintenance requires a few basic tools (See Figure 1) including a spark plug socket of appropriate size (these specialty sockets include a liner to prevent cracking the porcelain of the plug), a ratchet wrench with appropriate

extensions, u-joints, etc., a spark plug file, a *round* spark plug gauge, an electrode bending tool, and a spark plug cleaner.

Figure 1



Figure 1, (left to right) socket, point file, round gap gauge with integral electrode bender, and spark plug tap. A flex handle ratchet (shown) is particularly helpful.

Plug Removal

Disconnect the spark plug wires. If the plug wires have boots, use a boot removal tool; don't pull on the wires or you can damage the connection. And, if a possibility exists that the wires could be mistakenly installed later, mark them before removal to ensure that the wires are correctly re-installed.

Loosen the plugs a couple of turns. Then, using compressed air, blow out any accumulated dirt in the spark plug recess. If compressed air is not available, use a soda straw and blow the area around the plugs.

Remove the plugs and mark them according to the cylinder from which they came

Examine the Plug Condition

First look at the gaskets, if so equipped. The folded type gaskets should be compressed to about one-half their normal thickness and should be bright all around where they were seated to the head if properly installed. If these conditions are not indicated, the plug may not be seated properly. On tapered seat plugs, there should be a bright ring all around the base where they contacted the head.

Examine each plug in turn. Part II of this series provided the four general conditions that will be found and what these conditions indicate. This examination can tell you a lot about your engine. Also examine the electrodes. If the electrodes are severely worn, it is time for a new set of plugs. If not, proceed with maintenance. Also, check for any cracks in the plug insulator. If the insulator is cracked, discard the plug.

Plug Maintenance

First, use a solvent to remove any traces of oil on the part of the plug inside the head. Also, clean the metal base and the porcelain insulator.

Abrasive blast the plugs in a spark plug cleaner for about 3 seconds or so. Figure 2 shows a simple spark plug cleaner. More sophisticated machines included the capability to test the plug's firing under compression. Wobble the plug around while cleaning. If the plug nose and electrodes are not clean repeat the media blasting until they are. Then, blow

out the area around the nose to remove all traces of blasting media.

Figure 2



Figure 2, Basic spark plug cleaner; lever on side permits shifting from media to plain air.

Clean the threads on the plug base with a wire brush. Do not wire brush the electrodes. If the threads in the head are dirty clean them with a spark plug tap. Apply a little grease in the tap flutes to trap any particles removed from the thread in the head.

File the electrodes with the spark plug file so that the electrodes are clean, bright, and *parallel* to aid spark propagation. For best results, hold the plug in a vise for this operation.

Then set the plug gap to the manufacturer's recommendations by bending the side electrode (the one welded to the base). Check the gap with a round gauge; not a flat feeler gauge. Be careful not to damage the insulator nose and make sure that the sparking surfaces are parallel.

Install the Plugs

If the spark plugs use the folded metal type of gasket, use a new gasket each time the plugs are installed. A light

coating of anti-seize on the plug threads will make removal easier the next time.

Thread the spark plugs into the head. If the threads in the head and on the plug base are clean, one should be able to turn the plugs into their seat by hand. Then, use a torque wrench to complete the installation. The torque values are provided by the manufacturer and vary depending upon the size of the plug and the type of head material.

Install the plug wires to the correct plugs. If the plug wires have boots, apply a little silicone grease inside each boot. The grease will make removal of the boot easier and help insure that the plug wire connector is fully seated.

Summary

Spark plug maintenance takes a little time. However, keeping the plugs in their best condition will help ensure a properly performing engine and your enjoyment of your collector car.