

Replacing Valve Stem Seals

Quite often, a smoking engine can be cured by simply replacing the valve stem seals, or by fitting accessory seals in cases where the OE manufacturer chooses to omit them during the production build. This normally requires the cylinder head to be removed so that a standard valve spring compressor can be used to clear the spring assembly and access the seal. There are however other techniques that can be used with the cylinder head in situ and, providing a degree of care is taken, a considerable saving in time can be realised.

The basic problem that must be solved is how to keep the valve pressed against its seat. Depending upon the configuration of the combustion chamber there are three methods that can be used. In order of preference: -

1. Pressurise the cylinder via the spark plug hole with the shop airline. A simple adapter is easily made from an old spark plug (fig. 1) and a pressure of 7 bar (100 psi) will keep the valve firmly in place. If leakage occurs at too fast a rate, the head should be removed anyway for attention to the valves or cylinder.
2. Start with the piston at bottom dead centre and about to ascend on the compression stroke. Feed into the cylinder a one-metre length of nylon rope. Rotate the engine slowly towards top dead centre until resistance is felt. The rope will have compressed against the cylinder head and formed a resilient pad to hold the valves in place (fig. 2). With squish type combustion chambers a longer length of rope may be necessary.

3. Hold the valves in place with a suitable lever passed through the spark plug hole (fig. 3). Such levers are best developed at the time a separate head is available and then retained for future use. Care must be taken not to damage the screw threads in the spark plug hole and a second person may be required to hold the lever.

With the valves held in place it is then an easy matter to compress the springs by using a lever forked at one end to fit the retainer. A fulcrum is normally obtained with a short length of chain passed over a suitable stud or from the rocker shaft. Alternatively, special screw type spring compressors are available from specialist tool manufacturers. Do not attempt to use screwdrivers and do use a piece of cloth to block any oil drainage passageways in case a collet is dropped.

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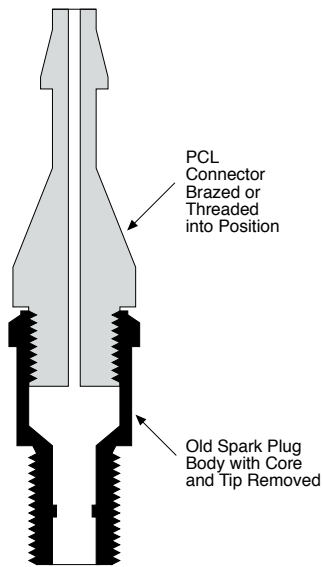


Fig. 1

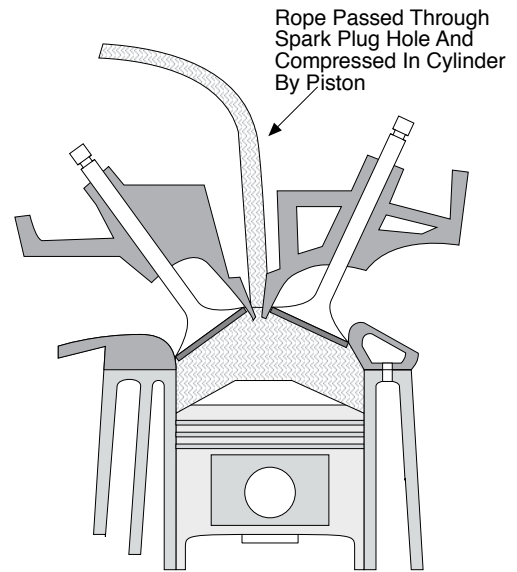


Fig. 2

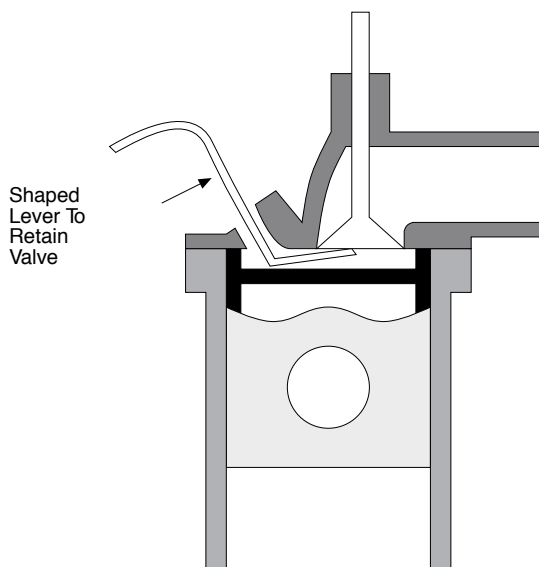


Fig. 3