

# TECH TIPS

## DRESSING VALVE SEATS AND CLEANING VALVES

The following tips are provided by Jack Weaver.

When after many kilometres, it is necessary to do up the head of your Tractor or other OHV motor, pitting and poor sealing may be found at the valve seats and valve faces.

Sometimes matters can be rectified by lapping with valve grinding paste alone, though this can be labourous if there is significant pitting present. The alternative is to use valve seat cutters or grinding stones to true the seats up, and, depending on their condition, sometimes the seating faces of the valves also. Both jobs can be done professionally or for the seats, hired seat dressers can be used by the do-it-yourselfer. Refacing valves is a bit trickier, but is worthwhile if the valves show "stepping" on the face. After long use, the valve heads may be slightly oval too.

In attempting to save a few shekels, you may opt for the D-I-Y job on the seats, but find as I have that the hired cutters won't bite into the seats (cutters too dull or the seats hardened or glazed). Jack's suggestion then is to use the valves themselves as a "grinder" to shape up the seats.

Preferably, take the valves to professional for a light truing up first (45° usually on the face). Then cut some circles just larger than the diameter of the valve heads from good quality 100 grit emery cloth (not paper), preferably with a wad-cutter. Cut a hole of about 10 mm diameter or a cross in the centre of the circles to accept the valve stems. Lightly coat the underside of the valve head with a quick setting adhesive (belt dressing or contact cement), and stick the disc, abrasive side out, centrally under the valve head, pressing the cloth to follow the head contour.

Clean the valve and valve guide and lightly oil the valve stem. Drop the valve into the valve guide and grip the protruding end of the valve stem in the chuck of your electric hand drill (a short length of rubber or plastic tubing may

assist to get a grip on the stem). Now pull down on the drill and apply a series of short "bursts" of spinning to the valve, lifting and checking frequently to observe progress of cleaning and truing the seat. Don't overdo the operation or the seat will become "pocketed". The emery cloth will tend to form a slightly convex seating surface.

Remove the emery cloth when the seat is satisfactory and clean the valve, apply a little valve grinding paste to the seating surfaces, and lap the valves in lightly in the normal manner, checking the uniformity of contact finally with a smear of bearing blue. The lapping should produce a "flat" contact surface about 2 mm wide on the slight convex, simulating reasonably well and very effectively the proper shaping being sought when graded cutters (20, 45, 70° or similar) are used on the seat.

Valves should be identified or put in numbered holes on a heavy card or board on removal and returned to their original spots in the head. If they have been professionally faced as above however, this is less important and they can be returned to any position (exhaust to exhaust of course!). Once lapped however, each valve should be fitted to its own mating seating.

On removal from the head, valves may have a hard-to-remove coating of gum, carbon and scale (especially the exhausts). The quickest way to remove these deposits is to mount up the electric drill on the bench to leave your hands free (in a stand or carefully in a vice), and grip the valve stem securely in the chuck. Spin up the drill, lock in the "trigger", and carefully apply coarse emery tape or cloth to the spinning head and upper stem only. The rate of removal of "crud" is miraculous compared with other ways, and you will soon have a gleaming valve which looks brand new and is ready for dressing up and seating in as above.

W.G.

