

By working in the following order all clearances can be checked in two complete revolutions of the crankshaft.

Valve	Cam
No. 1 Cyl. Exhaust valve	No. 2
No. 2 ,, Inlet valve	No. 3
No. 3 ,, Exhaust valve	No. 6
No. 1 ,, Inlet valve	No. 1
No. 4 ,, Exhaust valve	No. 8
No. 3 ,, Inlet valve	No. 5
No. 2 ,, Exhaust valve	No. 4
No. 4 ,, Inlet valve	No. 7

The engine may be rotated by using a suitable spanner on the crankshaft pulley bolt head, or by using a spanner to turn the water pump pulley nut while applying slight pressure on the inside of the lower longest run of the generator belt with a piece of blunt wood.

If the camshaft driving chain is disconnected the camshaft only is turned by temporarily replacing its driving sprocket. **WHEN THIS IS DONE WITH THE CYLINDER HEAD IN POSITION, THE ENGINE MUST BE TURNED SO THAT THE PISTONS ARE HALFWAY DOWN THE CYLINDER BORES, TO PREVENT THE VALVES FROM HITTING THE PISTON CROWNS.**

Valve clearances are given in General Data under "Valves".

Valve clearances—how to adjust

Thick ground steel tappet shims of suitable thickness are fitted between each valve stem and the inside face of each tappet. Tappet shims vary in thickness from .075 in. (1.90 mm) to .111 in. (2.82 mm). The thickness of each shim is etched in inch dimension on one of its ground faces and the use of suitable thickness shims enables correct valve clearances to be obtained.

Any valve or valves having incorrect clearances will have to have their tappet shims changed.

Example—taken for a valve clearance of .004 in.—.006 in.

Valve clearance too close.—A valve clearance of .002 in. is found. This clearance is .003 in. below the mean clearance of .004 in.—.006 in. and would require replacing the existing shim with one .003 in. thinner. For example if the existing shim were .095 in. thickness it would be replaced by a shim of .092 in. thickness.

Valve clearance too great.—A valve clearance of .011 in. is found. This is .006 in. above the mean clearance and would require replacing the existing shim with another .006 in. thicker.

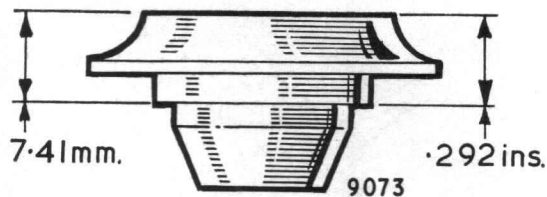


Fig. 39A. Valve cap—minimum distance from top rim

Valve clearances—special procedures

Any one or more of the following procedures will apply, if, after refacing a valve, or valve seat, correct clearance cannot be obtained with the thinnest available shim.

1. Check tappet thickness between its cam face and tappet shim face. This dimension should be .203–.207 in. (5.16–5.26 mm). Any tappet above this dimension should be renewed, because it can prevent clearance being obtained with the thinnest shims.
2. Up to .015 in. (.38 mm) can be ground off of the end of the valve stem. This figure must not be exceeded.
3. After grinding the valve stem end, check that the selected shim stands not less than .006 in. (.15 mm) above the top rim of the spring collar. If needed the collar top rim can be ground off so that its dimension from the inner valve spring face is reduced to, BUT NOT BELOW, the dimension shown in Fig. 39A.
4. After refitting the tappet block to the cylinder head, check that the inside upper face of the tappet does not foul the valve spring cap, by coating the inside top face of the tappet with red lead, or blue marking, and rotating the tappet with the REQUIRED SHIM IN POSITION. If marking is seen on the valve collar, a small amount can be ground off the collar top rim, taking care NOT TO COME BELOW the dimension shown in Fig. 39A.
5. When a new valve is fitted the depth of the valve stem end, inside the valve collar, must be checked with a suitable depth gauge, with the collar held firmly in position so that the cotters are positioned correctly. This dimension must not be less than .050 in. (1.27 mm). If necessary try another collar and then, if needed, grind the minimum amount; not exceeding .015 in. (.38 mm) off of the valve stem end to give the required depth needed by the shim.

Explanation

The depth of shim inside the valve collar retains the shim in position in the event of valve bounce, caused by over-speeding of the engine. Damage to a shim can occur under this condition, due to the inclined position of the valves.