

## Checking And Adjusting Dry Tappet Clearance On Lycoming Engines

Any time work is done on the valve train of an engine, such as grinding valves or seats, replacing valves or valve rockers, or any other component of the valve operating mechanism, the dry tappet clearance should be checked and adjusted to insure that the correct tappet clearance is maintained. Any time tappet clearance is allowed to vary too far from prescribed limits, the engine will not operate properly. For example, if clearances are too small, burned valves or compression loss may result; and if clearances are too great, the engine will become noisy.

In both cases, the engine will become rough and mechanical failure may be the result.

The following is a brief description of procedures to check and adjust the dry tappet clearance. After observing all safety precautions, rotate the engine until the piston is on top dead center (TDC) of the cylinder to be checked. (1) Remove the rocker box cover, and also remove rocker shaft covers on angle head cylinders, valve rockers, thrust washer (angle head only), push rods, and shroud tubes. (2) Then remove hydraulic unit from the tappet body. On TIO-541 and TIGO-541 engines remove the unit with fixture ST-233. On all other engines use special tool Part No. 64941, that can be purchased from Lycoming, or fabricate a puller from a piece of wire. NO MAGNET PLEASE. (3) Disassemble the hydraulic unit and flush out all oil from the unit. Also, remove all oil from the tappet body. (4) Reassemble hydraulic unit and install in the tappet body.

**CAUTION:** Be sure and keep hydraulic units as one assembly because mixing hydraulic unit parts may result in changing the leak down rate of the unit and may cause a rough operating engine.

**CAUTION:** After cleaning the hydraulic unit and tappet body, and unit is installed in the engine, do not turn the prop because this will pump oil into the hydraulic unit and result in an inaccurate dry tappet clearance check. (5) Next, replace the shroud tubes using new seals. (6) Install push rods, valve rockers, and thrust washer on angle head cylinders only. (7) To check dry tappet clearance, depress hydraulic unit by pressing on the push rod end of the rocker, and measuring the clearance between the valve stem and heel of the rockers by using a feeler gage.

On engines using rotators on the valves, the clearance is measured between the rotator and the heel of the rocker. In both cases, the clearance should be .028 to .080 on intake and exhaust valves on all engines except the TIO-541 and TIGO-541 series powerplants; the latter should be .040 to .105. If clearance falls within these limits, no adjustment is necessary. If not, then adjust to within limits in the following manner: If clearance is too great, remove the push rod and install a longer one. If clearance is too small, install a shorter push rod and recheck to be sure clearance is within limits.

To determine a short push rod from a long one, check the part number on the end of the push rod. The lowest number is the shortest rod, and the highest number is the longest rod. On older type push rods, machined grooves will be found on one side of the push rod, three grooves represent the short rod, and no grooves represent the long rods. Consult Lycoming Service Instruction No. 1060, and applicable parts catalog.