

**MANDATORY  
SERVICE BULLETIN**

DATE: March 10, 1978 Service Bulletin No. 412B  
(Supersedes Service Bulletin No. 412A)  
Engineering Aspects are  
FAA (DER) Approved

SUBJECT: Intake and Exhaust Valve Rocker Arm Retaining Stud

MODELS AFFECTED: O-320-H series serial numbers L-101-76 to L-2182-76 inclusive.

TIME OF COMPLIANCE: During next 100 hour inspection or earlier at owner's discretion.

To insure security of the valve rocker arm retaining studs and proper valve train operation, the following procedures concerning valve rocker stud replacement are recommended.

1. Remove all rocker box covers, rocker arms, fulcrums, spacer washers and push rods noting their original locations.

**CAUTION**

Physically separate and identify by cylinder and valve location, the rocker arm retaining nuts, rocker arm fulcrums, spacer washers, rocker arms and push rods as they are disassembled, so that each part may be reinstalled in exactly the same location from which it was removed. During reassembly push rods, spacer washers, rocker arms and fulcrums must be replaced in their original location. Also give special attention during reassembly to alignment of rocker arms, spacers and rocker arm fulcrums with the rocker arm retaining stud. All parts must be in proper alignment to assure correct dry tappet clearance. Misalignment could result in engine damage.

2. Inspect the fulcrum seating surface in the rocker arm. See figure 1. The surface will show a polish or burnishing which occurs during break-in of the engine. This is normal and not a cause for replacement. However, a developed wear step of more than .003 inch is considered excessive wear and would require replacement of the rocker arm. Do not interpret varnish build-up lines on the seating surface of the rocker arm as wear.

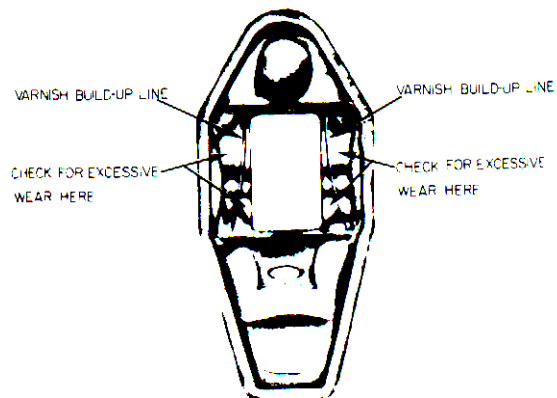


Figure 1. View Showing Interior of Rocker Arm

3. Remove all rocker arm retaining studs from cylinder heads. Select new oversize studs P/N 31-16 P03, P05, P07 or P12 as necessary to obtain a driving torque between 125 inch pounds and 325 inch pounds. In most cases a P03 stud will meet the required torque. In the event the 325 inch pound limit is exceeded the P03 stud must be removed and the holes retapped with a 5/16-18 GL2 tap and a new P03 stud installed. Clean the studs and stud holes with Loctite Primer N and blow dry. Apply Loctite No. 40 to the end of 3 threads of the studs. Install studs to a driven height of 1.20 to 1.24 inches making sure the required torque value is reached during installation.

4. After studs have been replaced, remove push rods, shroud tubes and tappet assemblies. Disassemble tappets and clean as per Avco Lycoming Service Instruction No. 1352. (Use any acceptable methods for tappet disassembly as long as parts are not scratched or damaged). If caution paragraph was followed dry tappet clearance of .028 to .080 inch should not have been disturbed. To set dry tappet clearance refer to 76 Series Overhaul Manual, Section 5-90.

5. To identify this change, metal stamp the cylinder heads with the letter T in the milled channel half way between the two rocker arm retaining studs. Current production engines and replacement cylinders which are already in compliance with this bulletin are identified in the same location by the letters L and LO and are not subject to the requirements of this bulletin.

6. Reassemble push rods, spacer washers, rocker arm and fulcrum in their original locations as outlined in the caution note. See figure 2. Torque rocker arm retaining nut to 150 inch pounds. Prior to installing rocker box covers, rotate crankshaft and observe for proper functioning of valve gear.

An entry showing compliance with the Service Bulletin should be made in the aircraft records.

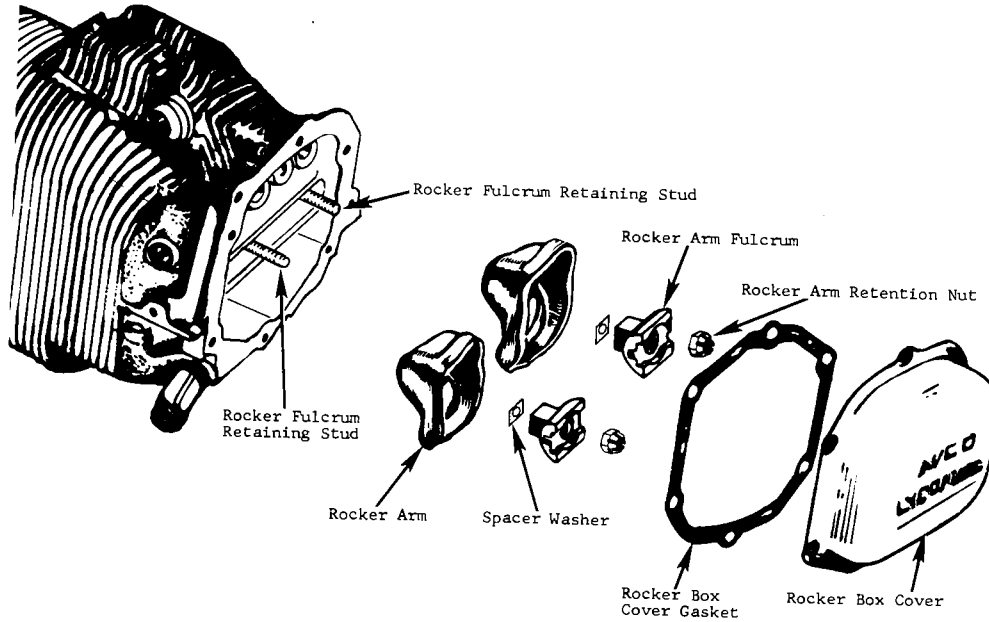


Figure 2. Cylinder Showing Valve Rocker Assembly

PARTS DATA:

Qty.	Part No.	Name
As required	Loctite #40 Loctite Primer N	Loctite: Obtain from Loctite Corporation North Mountain Avenue Newington, Connecticut 06111
As required	31-16-P03	Stud
As required	31-16-P05	Stud
As required	31-16-P07	Stud
As required	31-16-P12	Stud

NOTE:

Revision "B" specifies requirements for hydraulic tappet removal and cleaning; adds P12 stud to Parts Data.

19983 - This number for Avco Lycoming reference only.