TEXTRON Lycoming

Reciprocating Engine Division/
Subsidiary of Textron Inc.
652 Oliver Street
Williamsport, PA 17701 U.S.A.

MANDATORY

SERVICE BULLETIN

DATE: February 16, 1987

Service Bulletin No. 477A
(Supersedes Service Bulletin No. 477)
Engineering Aspects are
FAA Approved

SUBJECT: Inspection and Rework of P/N LW-18790 Rocker Arm Assembly

MODELS AFFECTED: All new and remanufactured engines shipped from the Avco Lycoming Textron Williamsport Division Factory, and all overhauled engines shipped from the Avco Lycoming Textron Service Center at Montoursville, Pa. after October 8, 1986, are in compliance with this Bulletin.

NEW ENGINES:

O-320-A & E Series engines with serial numbers L-50154-27A thru L-50175-27A, L-50177-27A thru L-50188-27A.

O-320-B & D Series engines with serial numbers L-13971-39A, L-13972-39A, L-13975-39A, L-13976-39A, L-13980-39A, L-13983-39A thru L-14045-39A, L-14048-39A thru L-14053-39A, L-14055-39A thru L-14057-39A, L-14060-39A thru L-14067-39A, L-14069-39A thru L-14235-39A, L-14242-39A, L-14243-39A, L-14249-39A thru L-14415-39A, L-14421-39A, L-14428-39A.

IO-320 Series engines with serial numbers L-5890-55A thru L-5897-55A.

O-360 Series engines with serial numbers L-31144-36A thru L-31146-36A, L-31150-36A thru L-31184-36A, L-31194-36A, L-31195-36A, L-31198-36A thru L-31357-36A, L-31363-36A thru L-31507-36A.

IO-360-B Series engines with serial numbers L-24152-51A, L-24163-51A, L-24170-51A, L-24248-51A, L-24352-51A.

AEIO-360-B Series engines with serial numbers L-24168-51A, L-24195-51A, L-24337-51A thru L-24344-51A, L-24357-51A.

NOTE

The O-540 serial numbers that follow may or may not have the letter "A" as part of the suffix of the serial number.

O-540 Series engines with serial numbers L-23946-40A, L-23949-40A thru L-24059-40A, L-24061-40A.

MODELS AFFECTED:
(Continued)

IO-540-C4B5 engines with serial numbers L-22974-48A, L-22975-48A, L-23010-48A thru L-23016-48A, L-23038-48A, L-23039-48A, L-23050-48A thru L-23052-48A, L-23118-48A, L-23138-48A, L-23193-48A, L-23195-48A, L-23196-48A, L-23328-48A, L-23331-48A, L-23348-48A, L-23349-48A, L-23352-48A, L-23353-48A, L-23372-48A, L-23375-48A, L-23376-48A.

IO-540-C4D5D engines with serial numbers L-22920-48A thru L-22924-48A, L-22958-48A thru L-22963-48A, L-23022-48A thru L-23027-48A, L-23079-48A thru L-23082-48A, L-23088-48A, L-23095-48A thru L-23099-48A, L-23148-48A thru L-23153-48A, L-23165-48A thru L-23180-48A, L-23237-48A thru L-23239-48A, L-23264-48A thru L-23273-48A, L-23307-48A thru L-23316-48A, L-23358-48A, L-23359-48A.

IO-540-D4A5 engine with serial number L-23089-48.

IO-540-V4A5D engines with serial numbers L-22943-48A thru L-22945-48A, L-22953-48A thru L-22957-48A, L-23061-48A thru L-23063-48A.

IO-540-W1A5D engines with serial numbers L-22964-48A, L-22965-48A, L-22976-48A thru L-22979-48A, L-23020-48A, L-23021-48A, L-23034-48A, L-23036-48A, L-23040-48A thru L-23042-48A, L-23056-48A, L-23057-48A, L-23067-48A, L-23074-48A, L-23090-48A thru L-23094-48A, L-23139-48A, L-23154-48A, L-23181-48A, L-23192-48A, L-23197-48A thru L-23199-48A, L-23223-48A, L-23326-48A, L-23327-48A, L-23346-48A, L-23347-48A.

IO-540-W3A5D engines with serial numbers L-22918-48A, L-22966-48A, L-22967-48A, L-23350-48A, L-23351-48A.

AEIO-540-D Series engines with serial numbers L-22927-48A, L-22994-48A, L-22995-48A, L-23035-48A, L-23037-48A, L-23043-48A, L-23044-48A, L-23065-48A, L-23066-48A, L-23075-48A thru L-23077-48A, L-23100-48A, L-23101-48A, L-23108-48A thru L-23110-48A, L-23114-48A, L-23127-48A, L-23135-48A, L-23143-48A thru L-23147-48A, L-23159-48 thru L-23164-48A, L-23189-48A thru L-23191-48A, L-23200-48A, L-23201-48A, L-23232-48A, L-23233-48A, L-23245-48A, L-23259-48A, L-23260-48A, L-23274-48A thru L-23294-48A, L-23329-48A, L-23330-48A, L-23343-48A, L-23344-48A, L-23368-48A, L-23369-48A, L-23373-48A.

TIO-540-AA1AD engines with serial numbers L-8753-61A, L-8782-61A, L-8783-61A, L-8837-61A, L-8845-61A.

TIO-540-AB1AD engines with serial numbers L-8751-61A, L-8752-61A, L-8758-61A, L-8763-61A thru L-8765-61A, L-8777-61A thru L-8779-61A, L-8784-61A, L-8785-61A, L-8788-61A thru L-8790-61A, L-8798-61A thru L-8800-61A, L-8803-61A thru L-8806-61A, L-8813-61A thru L-8816-61A, L-8821-61A thru L-8824-61A, L-8833-61A thru L-8836-61A.

Any of the following parallel valve-type engines that were remanufactured or overhauled between July 1, 1985 and October 8, 1986 inclusive. Any applicable engine that has had a P/N LW-18790 rocker

MODELS AFFECTED: (Continued)

arm assembly installed which was received from Avco Lycoming Textron Williamsport Division during this same time period.

ENGINE MODELS: O-320 Series except O-320-H; IO-320 Series; AIO-320 Series; AEIO-320 Series; LIO-320 Series; O-340 Series; O-360 Series except O-360-E; IO-360-B, -E, -F Series; AEIO-360-B, -H Series; HO-360 Series; HIO-360-B Series; VO-360 Series; IVO-360 Series; O-540 Series; IO-540-C, -D, -J, -N, -R, -T, -V, -W Series; AEIO-540-D Series; TIO-540-C, -E, -G, -H, -K, -AA, -AB Series, LTIO-540-K.

TIME OF COMPLIANCE:

Applicable New, Remanufactured and Overhauled engines and any spare P/N LW-18790 Rocker Arm Assemblies that were installed from stock received during the time period set forth in the "MODELS AFFECTED" section must be inspected within the next 10 hours of engine operation.

Recent reports of rocker arm failure have been received by the Avco Lycoming Textron Williamsport Division. These failures all involve the P/N LW-18790 Rocker Arm Assembly, which supersedes the P/N 74636 Rocker Arm Assembly in the exhaust position and the P/N 69444 Rocker Arm Assembly in the intake position on all parallel valve-type engines except O-235 Series and O-290 Series.

To eliminate the possibility of this failure of the P/N LW-18790 Rocker Arms in the future, the valve trains of all affected engines must be disassembled, inspected and reworked as explained in the following steps. Also, any stock of the P/N LW-18790 Rocker Arm Assembly that is held by Avco Lycoming Textron Distributors or any maintenance facilities must be inspected and reworked or replaced, as stated in steps 3, 4, 5 and 6 of this Bulletin, or may be returned to the Williamsport plant for inspection through an authorized distributor.

1. Remove all rocker box covers (insure that the magnetos are grounded and the fuel mixture control is in the idle cut-off position).

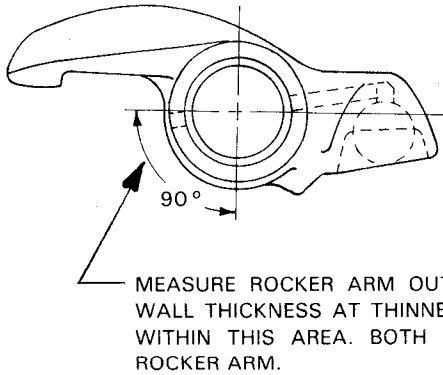


Figure 1. P/N LW-18790 Rocker Arm Assembly Showing Area for Measuring Wall Thickness

1. Remove all rocker box covers (insure that the magnetos are grounded and the fuel mixture control is in the idle cut-off position).

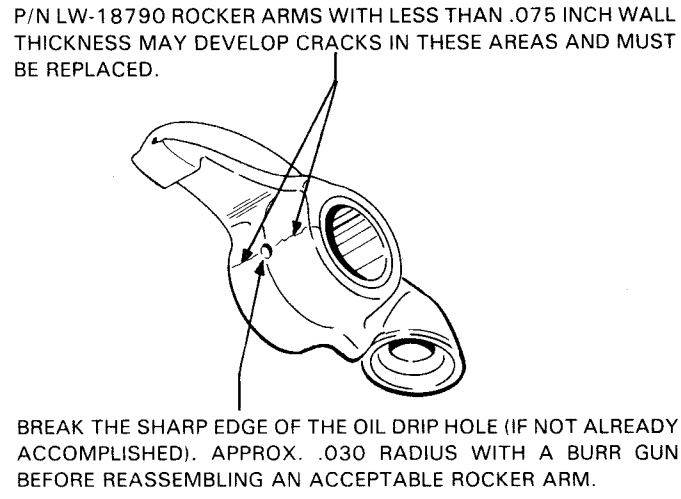


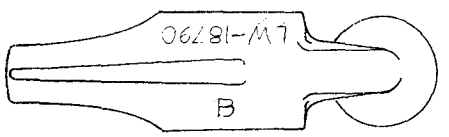
Figure 2. P/N LW-18790 Rocker Arm Assembly Showing Oil Drip Hole and Area of Cracking

2. In any sequence, remove the valve rocker arm shaft from each cylinder by rotating the crankshaft and putting the valve action of the applicable cylinder in the relaxed position. Arrange each valve train component so that it can be reinstalled in the same position from which it was removed.

3. Measure the wall thickness of the outer edge of the bushing bore boss in the area shown in Figure 1. If a ball-type micrometer or similar method is used to measure the combined thickness of the rocker arm wall and bushing, subtract .062 inch from the total measurement (.062 inch equals the bushing wall thickness).

4. Replace any P/N LW-18790 rocker arm that does not have at least a .075 inch wall thickness at the thinnest point within the 90° area, on both sides, as shown in Figure 1.

5. Examine the outer edge of the oil drip hole shown in Figure 2. The edge will be either burred to an approximate .030 radius or it will be sharp. This edge must be burred to the approximate .030 radius on all P/N LW-18790 rocker arms prior to reassembly. See Figure 2.



VIBROPEEN LETTER "B" TOP SIDE OF ROCKER ARM – OPPOSITE PART NUMBER.

Figure 3. P/N LW-18790 Rocker Arm Assembly Showing Identification of an Acceptable Part

6. Vibropeen the letter "B" on the rocker arm as shown in Figure 3.

7. Reinstall the rocker arm in its original position.

8. **A dry tappet clearance check must be performed on any valve action that receives a new rocker arm.** Check the dry tappet clearance as described in the following steps a. thru d.

a. Remove the push rod, shroud tube and hydraulic tappet from the engine. Bleed the hydraulic tappet as described in the applicable overhaul manual.

b. Install the hydraulic tappet, shroud tube and push rod using new seals as required.

c. Install the rocker arm shaft and rocker arms.

d. Check the dry tappet clearance as described in the applicable overhaul manual.

9. Install the rocker box covers using new gaskets. Torque the cover attaching screws as required.

Material and labor costs can be recovered by submitting a warranty application through any authorized Avco Lycoming Textron Distributor. A labor allowance of 1/2 hour at normal shop rates will be paid for each cylinder inspected.

After completion of this work, make a logbook entry stating that the engine has been inspected and reworked as specified in Avco Lycoming Textron Service Bulletin No. 477.

NOTE: Revision "A" adds additional serial numbers to applicable models, changes compliance date and changes "AEIO-540-D4A5" to "AEIO-540-D Series".

22701 — This number for Avco Lycoming Textron reference only.