



VSP-75

August 14, 1987

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VENDOR SERVICE PUBLICATION

TO: All Piper Distributors, Factory Direct Dealers and Piper  
Field Service Facilities

SUBJECT: Avco Lycoming Service Letter No. L218 and Service Instruction  
No. 1059C, No. 1110C and No. 1257E

PURPOSE: To distribute Avco Lycoming Service Letter No. L218 and  
Service Instruction No. 1059C, No. 1110C and No. 1257E to all Piper  
Distributors, Factory Direct Dealers and Piper Field Service Facilities.

The attached Avco Lycoming Service Publications may affect Avco Lycoming  
equipment installed in Piper Airplanes. Refer to the publications for  
specific equipment affected and detailed information regarding compliance.

**Avco Lycoming** **TEXTRON**

**Williamsport Division**

Avco Lycoming/Subsidiary of Textron Inc.  
652 Oliver Street  
Williamsport, PA 17701  
U.S.A.  
5/30/86

# SERVICE LETTER

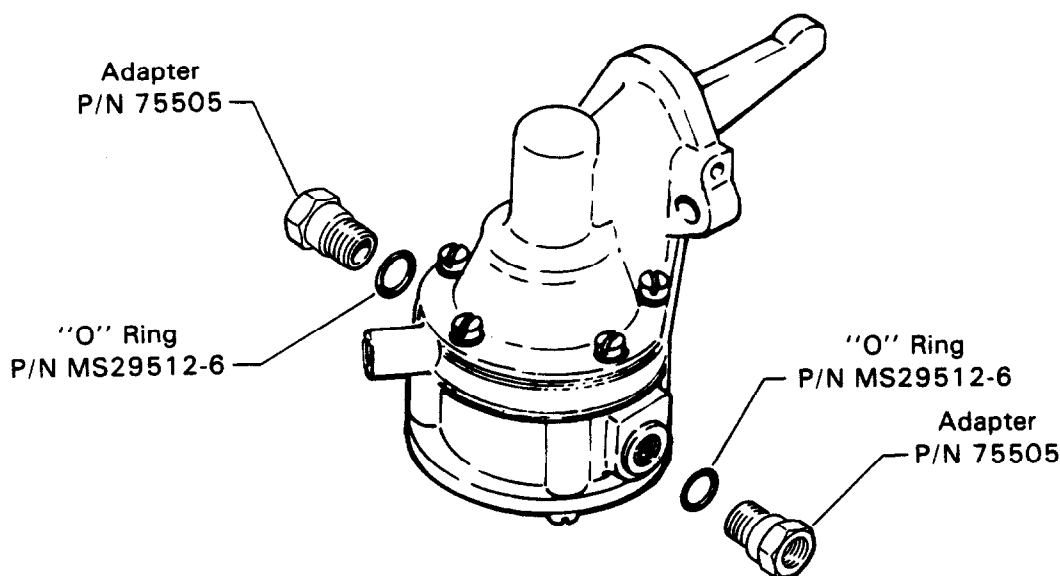
Service Letter No. L218  
April 10, 1987

**TO:** All Owners and Operators of Avco Lycoming Piston Engines Utilizing AC Diaphragm Type Fuel Pumps.

**SUBJECT:** Fuel Pump Adapters.

When replacing certain older AC diaphragm type fuel pumps, AC P/N 40174 or P/N 56999 (tapered pipe thread inlet and outlet ports) with a new pump incorporating straight thread ports, an adapter P/N 75505 is available to adapt the pipe thread fittings to the new pump. All newer types of fuel pumps incorporate straight thread ports.

When the older model fuel pumps are replaced with new models, 2 Adapters P/N 75505 and 2 "O" Rings P/N MS29512-6 (one for each adapter) must be ordered separately for proper installation.



**Typical Adapter Installation**

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# SERVICE INSTRUCTION

May 19, 1987

Service Instruction No. 1059C  
(Supersedes Service Instruction No. 1059B)  
Engineering Aspects are  
FAA Approved

**SUBJECT:** Pre-Lubrication of Parts Prior to Assembly

**MODELS AFFECTED:** All Avco Lycoming opposed series aircraft engines.

**TIME OF COMPLIANCE:** At engine assembly.

Many premature parts failures have been traced directly to improper pre-lubrication at engine assembly. The purpose of this Service Instruction is to set forth recommended procedures and approved products for pre-lubricating of parts prior to engine assembly.

If parts are not properly lubricated, or if an inferior lubricant is used, many of the engine parts will become scored before the engine oil goes through its first cycle and has had a chance to lubricate the engine. This, of course, will lead to premature parts failure and in some cases, lead to engine failure before normal service hours have been accumulated.

It is of the utmost importance, therefore, that the following recommendations be adhered to at engine assembly. Coat the following parts with undiluted lubricant:

1. Camshaft Lobes
2. Face of Tappet Body
3. Valve Stems
4. Valve Guides

5. Supercharger Bearing (where applicable)
6. Piston Pin Plugs
7. Connecting Rod Bearing\*
8. Crankshaft Thrust Bearing Surface

All other parts should be coated with a mixture of 15% pre-lubricant and 85% SAE No. 50 mineral base aviation grade lubricating oil.

### NOTE

The factory has had success with the following lubricants for coating the parts prior to assembly. This is not to imply that these are the only lubricants that will satisfactorily "do the job", but is merely a listing of lubricants which have been factory tested and used successfully.

1. Texaco Thuban 140
2. Kendall Refining Co., Kendor 155 Compound
3. Atlantic Richfield Co. Modoc 165
4. Lubri-bond (A) - Fulfills MIL-L-23398 Spec.
5. Texaco Moly-Tex Grease EPO

\* - High-crush bearings (LW-13212) require Fel-Pro C5-A or Cop-Graf as a pre-lubricant between the bearing and the rod; all other bearings may be pre-lubricated with engine oil. Fel-Pro C5-A or Cop-Graf is procurable locally.

NOTE: Revision "C" changes Texaco Molytex "O" to Texaco Molytex EPO.

17911-A, 18250 - These numbers for Avco Lycoming reference only.

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# SERVICE INSTRUCTION

**DATE:** April 10, 1987  
**Service Instruction No. 1110C**  
(Supersedes Service Instruction No. 1110B)  
**Engineering Aspects are**  
**FAA Approved**

**SUBJECT:** Replacement AC Fuel Pumps

**MODELS AFFECTED:** O-235, O-320, O-360 series engines (except with rear mounted horizontal carburetors). O-320-D1D, O-360-A1G6D, -A2G, -A4G, -A4J, -A4K; LO-A1G6D engines (with rear mounted horizontal carburetors). O-540 series engines.

**TIME OF COMPLIANCE:** During overhaul or anytime fuel pump is replaced.

Fuel pumps P/N LW-16335 or LW-15472, as shown in the following Table 3 replace P/N 75246 AC fuel pump installed in applicable Avco Lycoming engines.

Fuel pump P/N LW-16775 also shown in Table 3 is applicable to the O-360-F1A6 model engine only.

Because of the increased size of the new AC fuel pumps, certain engine models using P/N LW-16335 fuel pump with rear mounted carburetors must have the carburetor reworked to remove the back suction economizer boss. (If not already accomplished or prior to installation of new P/N LW-16335 fuel pump.) See Table 1. Using suitable equipment machine this boss as shown in Figure 1. Also, because of the increased size of the new fuel pump, certain dual magneto engine models must have the accessory housing reworked. See Table 2. Again, using suitable equipment, machine the boss on the accessory housing as shown in Figure 2.

**TABLE 1.**

Carburetor P/N's to be Reworked	Installed in Engine Models
LW-15957	O-360-A2G, -A4K, -A4G, -A4J
LW-15958	O-320-D1D
LW-15959	O-360-A1G6; LO-360-A1G6D

**TABLE 2.**

Dual Magneto Accessory Housing P/N's to be Reworked	Installed in Engine Models
LW-10886	O-360-A1G6D
LW-10894	LO-360-A1G6D

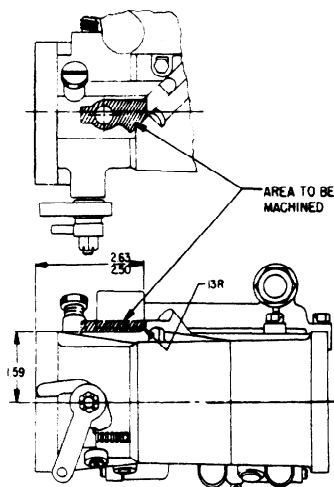
**NOTE**

Service repair kits are not available for reconditioning AC fuel pumps. It is recommended that new fuel pumps be installed at engine major overhaul.

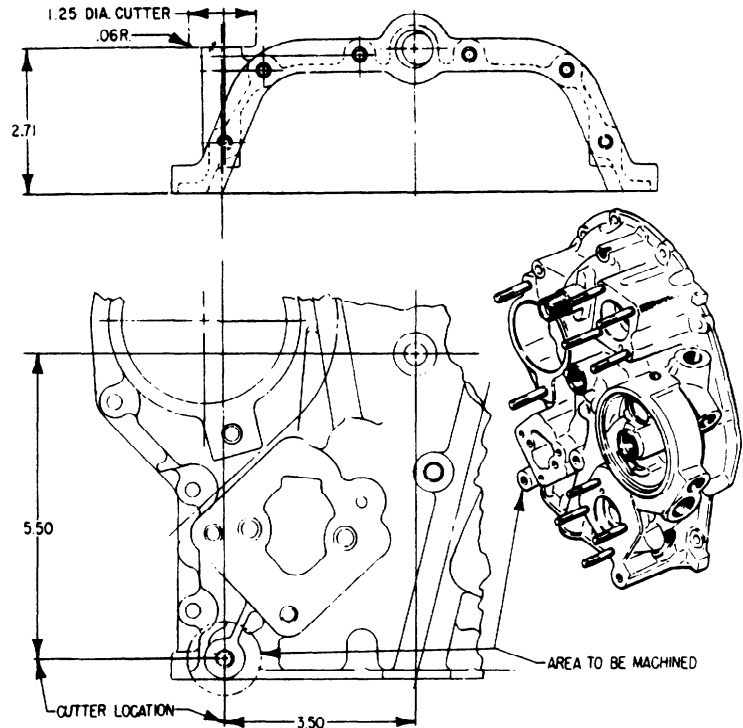
**TABLE 3**

NEW PUMPS	REPLACED PUMPS	ENGINE MODEL	SERIAL NUMBERS
LW-15472 (AC6441271)  Except 4 cylinder engines equipped with horizontal carburetors.	75246 (AC6440295)	O-235 Series O-320 Series O-360 Series O-540 Series	L-17872-15 and up L-48551-27A and up L-25898-36A and up L-20805-40A and up
<b>4 Cylinder Engines with Horizontal Carburetors</b>			
LW-16335 (AC6441452)	75246 (AC6440295)	O-320-D1D O-360-A1G6D O-360-A2G O-360-A4G O-360-A4J O-360-A4K LO-360-A1G6D	L-8900-39A and up L-26238-36A and up L-25170-36A and up L-20807-36A and up L-25300-36A and up L-26263-36A and up L-274-71A and up
LW-15472 (AC6441271) LW-16775 (AC6441617)*	75246 (AC6440295) LW-15472 (AC6441271)	O-360-F1A6 O-360-F1A6	L-25898-36A to L-29508-36A incl. L-29547-36A and up

\* Incorporates reversed inlet and outlet ports.



**Figure 1.**  
**Carburetor Showing Area to be Machined**



**Figure 2.**  
**Accessory Housing Showing Area to be Machined**

NOTE: Revision "C" revises text; adds new fuel pump and new engine models.  
20263-B, 20263-C, 20263-F — These numbers for Avco Lycoming Textron reference only.

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# SERVICE INSTRUCTION

**DATE:**

April 10, 1987

Service Instruction No. 1257E  
(Supersedes Service Instruction No. 1257D)  
Engineering Aspects are  
FAA Approved

**SUBJECT:**

Horsepower, Manifold Pressure and RPM Values

**MODELS AFFECTED:**

Avco Lycoming supercharged and turbocharged aircraft engines.

**TIME OF COMPLIANCE:**

During engine maintenance.

To assist maintenance personnel and pilots, the manifold pressure and RPM at which the supercharged Avco Lycoming engines attain their rated horsepower are listed below.

It is important to note that all Avco Lycoming Supercharged (GSO and IGSO) engines attain take-off power at less than full throttle, while some turbocharged engines attain take-off power only at full throttle and others at part throttle. It is the operator's responsibility to know the type being operated.

**MECHANICAL SUPERCHARGER - (Take-Off Rating)**

ENGINE MODEL	H.P.	M.P.	RPM
GSO-480-B Series	340	48"	3400
IGSO-480-A Series	340	48"	3400
IGSO-540-A, -B Series	380	47"	3400

**TURBOCHARGED ENGINES**

**CAUTION:** These instructions only apply to Avco Lycoming engines that are turbocharger equipped as an integral part of the engine at the factory. The model designation, appearing on the engine nameplate, includes the letter "T" as part of the engine model designation.

AIRCRAFT MODEL	NOTES	ENGINE MODEL	H.P.	M.P.	RPM
Mooney Mustang	1	TIO-541-A1A	310	37"	2575
Beech Baron	1	TIO-541-E1B4,-E1D4	380	41"	2900
Beech Duke	1	TIO-541-E1A4,-E1C4	380	41"	2900
Piper Navajo (PA-31-P)	1	TIGO-541-E1A	425	45"	*2133
Piper Navajo (PA-31)	2	TIO-540-A1A,-A2A,-A1B,-A2B	310	38.6"	2575
Piper Navajo (PA-31-B)	2	TIO-540-A1C,-A2C	310	40"	2575
Piper Aztec (PA-23-250T)	2	TIO-540-C1A	250	33"	2575
Piper T-1020	2	LTIO & TIO-540-J2B	350	43"	2575

\* Propeller RPM as indicated on tachometer. Actual engine RPM is 3200.

## TURBOCHARGED ENGINES (Continued)

AIRCRAFT MODEL	NOTES	ENGINE MODEL	H.P.	M.P.	RPM
Piper Navajo (PA-31-II)	2	LTIO & TIO-540-J2BD	350	43"	2575
Piper Navajo (PA-31-II)	2	LTIO & TIO-540-F2BD	325	43.5"	2575
Rockwell Commander 112TC	3	TO-360-C1A6D	210	42"	2575
Partenavia P68-TC	3	TO-360-C1A6D	210	42"	2575
Partenavia P68-TC	3	TIO-360-C1A6D	210	44"	2575
Rockwell Commander 700	1	TIO-540-R2AD	340	44"	2500
Piper Turbo Lance (PA-32-RT)	3	TIO-540-S1AD	300	36"	2700
Piper Aerostar 700	1	LTIO & TIO-540-U2A	350	42"	2500
Piper Mojave (PA-31P-350)	1,4	LTIO & TIO-540-V2AD	350	42"	2600
Lake Aircraft Model 250	2	TIO-540-AA1AD	250	32.5"	2575
Socata Trinidad TC (TB-21)	2	TIO-540-AB1AD	250	32.5"	2575

NOTE 1 - These engines are equipped with an adjustable variable-pressure controller, which should be set in accordance with latest revision of Service Instruction No. 1211 or No. 1431 and with the airframe manufacturer's recommendations.

NOTE 2 - These engines are equipped with an adjustable density controller, which should be set in accordance with latest revision of Service Instruction No. 1187.

NOTE 3 - These engines are equipped with a turbo waste-gate control interconnected with the throttle. The interconnect linkage should be adjusted in accordance with the latest revision of Service Instruction No. 1431. Normal takeoffs are not at full throttle. The operator controls manifold pressure with the throttle and must avoid exceeding red-line manifold pressure.

NOTE 4 - Horsepower listed is delivered to propeller; 10 additional horsepower is available for accessories.

In Notes 1 and 2, the pilot should not routinely control take-off manifold pressure overboost by use of part throttle. Instead, the cause for high manifold pressure should be corrected.

For information on overboost and overspeed, see latest Avco Lycoming Service Bulletin No. 369.

The operator must become familiar with the manifold pressure versus altitude curves that appear in the engine and airframe manuals covering turbocharged engines. Failure to comply with restrictions shown could result in engine damage.

NOTE: Revision "E" revises Notes and deletes paragraph following Note 4 on page 2 and adds TIO-540-AA1AD, -AB1AD engine models.