TEXTRON Lycoming

652 Oliver Street
Williamsport, PA 17701 U.S.A.
717/323-6181

SERVICE INSTRUCTION

DATE: April 25, 1986

Service Instruction No. 1435
Engineering Aspects are
FAA Approved

SUBJECT: PART I: Conversion from Constant Speed to Fixed Pitch Propeller and Vice Versa

PART II: Propeller Governor Oil Line Nut and Elbow

MODELS AFFECTED: Avco Lycoming Direct Drive Engines

TIME OF COMPLIANCE: At next overhaul or earlier at owner's discretion.

PART I: CONVERSION

A change from constant speed to fixed pitch and vice versa dictates a change in model designation. Replacement nameplates are only issued if the original nameplate is lost. Refer to the latest edition of Service Instruction No. 1304. Engines may be changed from constant speed to fixed pitch installations or vice versa if the serial number on the nameplate is stamped with a letter "C" to denote a model conversion and a copy of FAA Form 337 listing all parts used with part numbers included, and a description of the conversion or alteration are accomplished. Also, the proper logbook entry should be made. In some cases, conversion does require changing propeller flange bushings. Refer the latest edition of Service Instruction No. 1098 for appropriate bushing part numbers.

FRONT MOUNTED PROPELLER GOVERNOR

When changing from a fixed pitch to a constant speed propeller, it is necessary to remove the expansion plug from the front of the crankshaft, and install a plug behind the oil return tube. See Figure 1. Some crankshafts for fixed pitch propellers cannot be converted to constant speed models because the inside front of the crankshaft has not been machined. Also, those models with a 4-piece split front main bearing and/or no oil transfer tube cannot be converted.

When changing from a constant speed to a fixed pitch propeller, it is necessary to pierce a 1/8" to 3/16" hole in (or remove) the plug behind the oil return tube, and install an expansion plug in the front of the crankshaft. See Figure 1. As in Figure 2, if the crankshaft incorporates a 1/8" 1102 pipe plug, it must be removed when making this conversion.

REAR MOUNTED PROPELLER GOVERNOR

When changing from a fixed pitch to a constant speed propeller, it is necessary to remove the expansion plug in the front of the crankshaft, and install a plug behind the oil return tube. See Figure 1. A propeller governor, adapter, oil line and fittings must be installed. See Parts Data for application. Some crankshafts for fixed pitch propellers cannot be converted to constant speed models because the inside front of the crankshaft has not been machined.

When changing from a constant speed to a fixed pitch propeller with crankshafts as shown in Figure 1, it is necessary to remove or pierce a 1/8" to 3/16" hole in the plug behind the oil return tube, and install an expansion plug in the front of the crankshaft. If the crankshaft incorporates a 1/8" 1102 pipe plug as shown in Figure 2, it must be removed when making this conversion. The propeller governor, adapter, oil line and fittings are no longer required and should be removed. Install the proper plugs in the accessory housing and crankcase after removal.

CAUTION

WHEN PIERCING THE PLUG BEHIND THE OIL RETURN TUBE, BE CAREFUL NOT TO DAMAGE THIS TUBE.

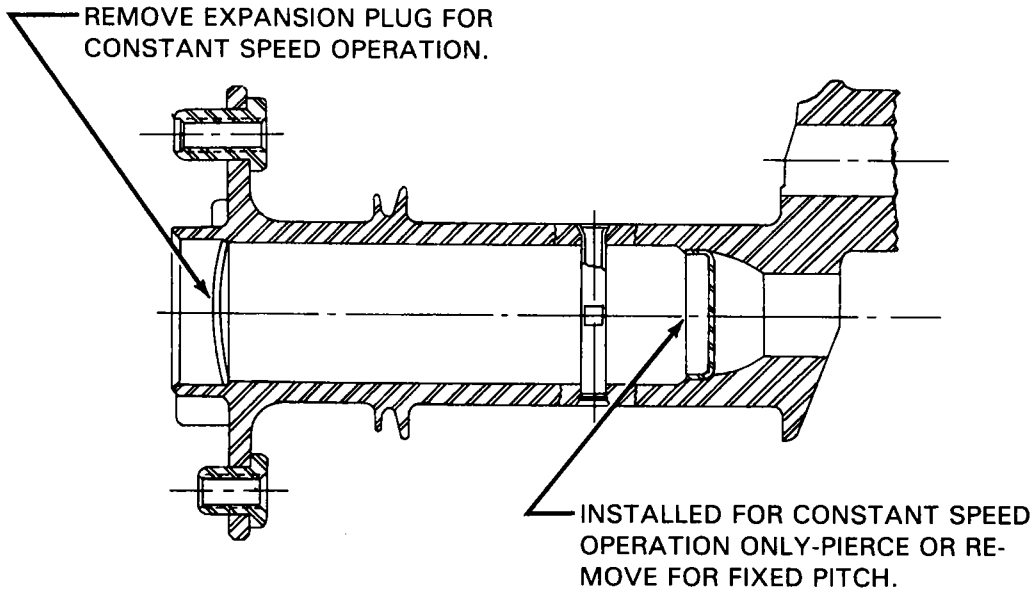

Figure 1. Plug Installations for Propeller Conversion

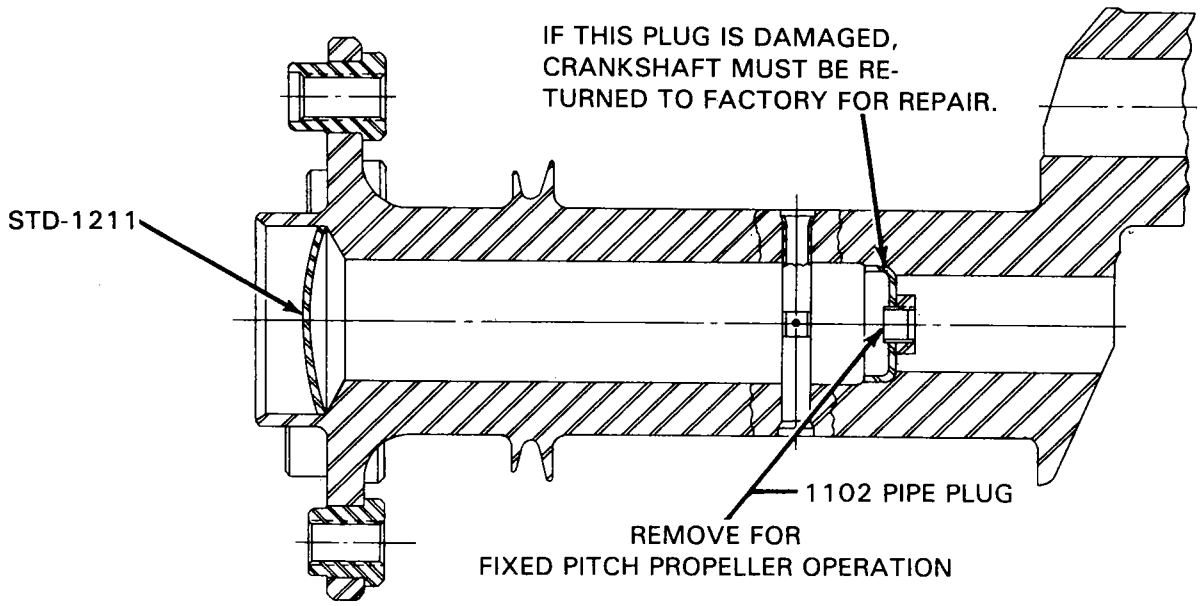

Figure 2. 1/8" Plug for Propeller Conversion

PART II: PROPELLER GOVERNOR OIL LINE NUT AND ELBOW

As a product improvement, the propeller governor oil line now comes equipped with a steel connecting nut P/N AN818-6. This nut is a component of the tube assembly and has been changed from aluminum to steel without changing the tube assembly part number. Therefore, there are two ways to identify which nut you have; (1) aluminum nuts are anodized making them blue in color or (2) the use of a magnet to determine aluminum from steel. Also, the aluminum elbow at the front of the crankcase has been replaced by a steel elbow P/N MS20822-6. See Figure 3 and Parts Data.

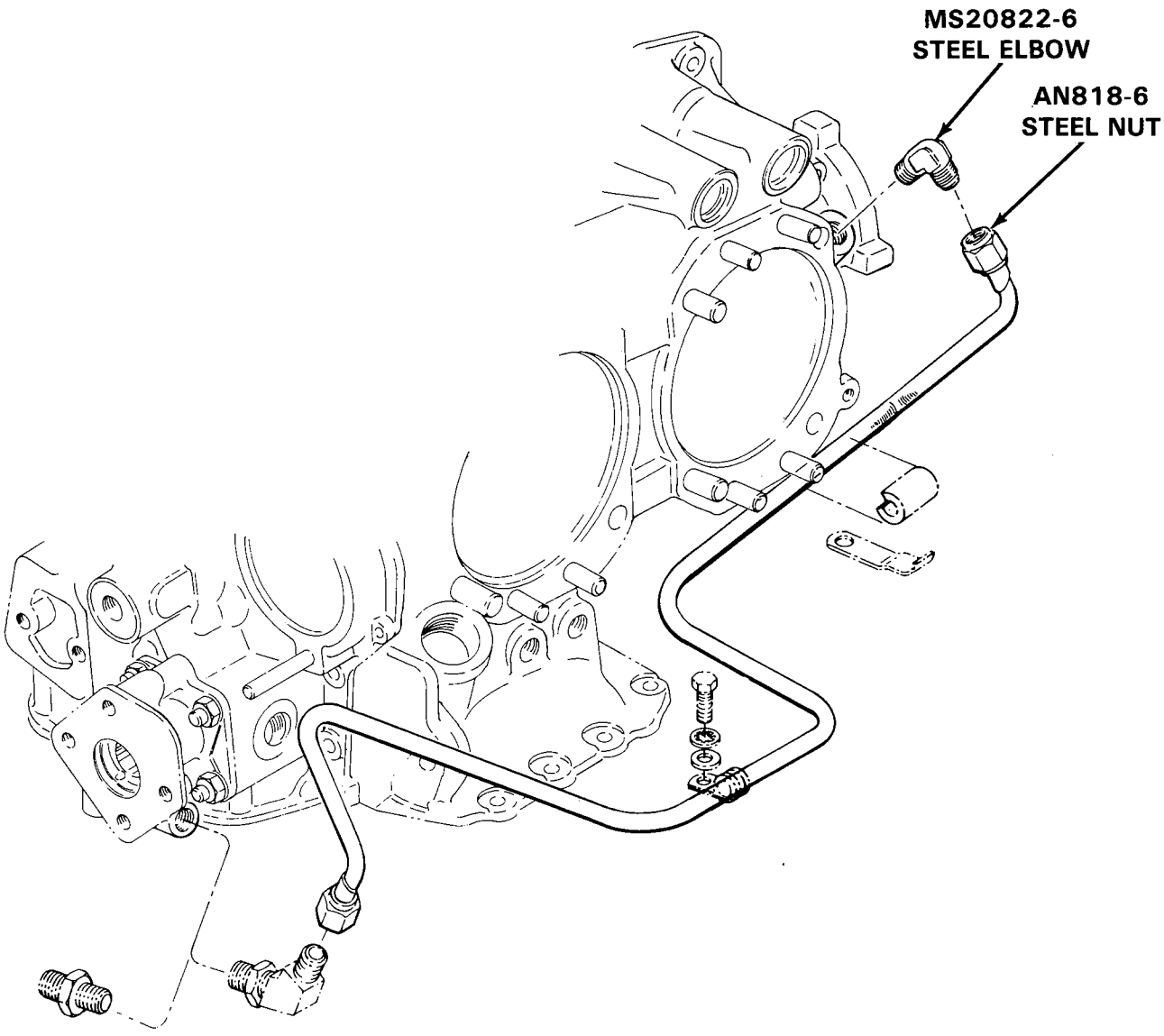

Figure 3. Propeller Governor Oil Line Nut and Elbow

PARTS DATA:

WIDE CYLINDER FLANGE CRANKCASE MODEL ENGINES

Engine Model	Tube Assy.	Engine Model	Tube Assy.	Engine Model	Tube Assy.
O-235-E2A	75167	O-360-A1A	75166*	IO-360-B1B	75166*
O-235-G2A	75167		75166**		75166**
O-235-M1	75167		75167★		75167★
O-235-P2A	75167		75167●		75167●
O-320-A3B	75166*	O-360-A1D	75166*	IO-360-B1BD	LW-12920
	75167●		75166**	IO-360-B1D	75167
	75730●		75167●	IO-360-B1E	75167
O-320-B3B	75166*		75167♦	IO-360-B1F	75167
	75166**	O-360-A1F	75167	IO-360-C1B	75167
	75167★	O-360-A1F6	75167	IO-360-C1C	75167●
	75167●	O-360-A1F6D	LW-12920		LW-10494●
O-320-B3C	75166	O-360-A1G	75167		LW-12213●
O-320-D1A	75166*	O-360-A1G6D	LW-12920	IO-360-C1C6	LW-12213
	75166**	O-360-A1H	75167	IO-360-C1D	75167
	75167●	O-360-A2A	75167	IO-360-C1D6	75167
O-320-D1D	75167	O-360-C1A	75167	IO-360-C1F	75167
O-320-E1A	75167	O-360-C1C	75167	IO-360-F1A	77775
O-320-E1C	75167	O-360-C1E	75167		
		O-360-C1F	75167	AEIO-360-A1A	75730
IO-320-B1A	75167			AEIO-360-A1B	75167
IO-320-B1C	75167	IO-360-A1A	75730	AEIO-360-A1B6	75167
IO-320-B1D	75167	IO-360-A1B	75167●	AEIO-360-A1D	75167●
IO-320-C1A	75167		75730‡		75730‡
IO-320-D1A	75167		LW-10494●	AEIO-360-B1G6	75167
IO-320-E1A	75167	IO-360-A1B6	75167★	AEIO-360-H1A	75166
IO-320-E1B	75167		75167●		
			LW-10494●	LO-360-A1G6D	LW-12920
AEIO-320-E1B	75166**	IO-360-A1B6D	LW-12920		
	75167●	IO-360-A1C	75167●	TIO-360-A1B	77775
			75730■	TIO-360-A3B6	77775
LIO-320-B1A	75167	IO-360-A1D	75167●		
LIO-320-C1A	75167		LW-10494●		
		IO-360-A2A	75167		
		IO-360-A3B6D	LW-12920		

* Used with P/N 75739 straight nipple at governor adapter set-up used with generator.

** Used with P/N 75739 straight nipple at governor adapter set-up used with alternator.

★ Used with P/N 74070 elbow (45°) at governor adapter set-up used with generator.

● Used with P/N 74070 elbow (45°) at governor adapter set-up used with alternator.

‡ Used with P/N 74070 elbow (45°) at governor adapter set-up used with alternator for Mooney.

■ Used with P/N 74070 elbow (45°) at governor adapter set-up used with generator for Mooney.

♦ Used with P/N 74070 elbow (45°) at governor adapter set-up used with generator for Air and Space.

STANDARD CYLINDER FLANGE CRANKCASE MODEL ENGINES

Engine Model	Tube Assy.	Engine Model	Tube Assy.	Engine Model	Tube Assy.
O-320-A1B	68532*	O-320-D1A	68532* 68532**	O-360-A1D (Continued)	71612* 71612** 71622* 75758**
O-320-A2A	68532* 68532**	O-320-E1A	68532**		
O-320-A3A	68532* 71011★	IO-320-B1A	71622**		
O-320-A3B	68532* 68532**	O-360-A1A	68532* 68532** 71011★ 71612* 71622* 71622**	O-360-C1A	68532* 68532**
O-320-A3C	68532* 68532**			O-360-C1C	68532**
O-320-B1A	68532*			IO-360-A1A	68532* 68532**
O-320-B1B	68532*			IO-360-B1A	71622* 74807*
O-320-B3B	68532* 68532**	O-360-A1C	68532*	IO-360-B1B	68532* 71622* 74807*
O-320-B3C	68532**	O-360-A1D	68532* 68532**		

* Used with P/N 75153 adapter assembly; Woodward governor.

** Used with P/N 75545 adapter assembly; "AN" governor.

★ Used with P/N 75722 adapter assembly; Woodward governor, Colonial installations.

21043, 21043A, 21043B - These numbers for Avco Lycoming reference only.

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SERVICE INSTRUCTION

April 24, 1990

Supplement No. 1

For

Service Instruction No. 1435

This supplement for Service Instruction No. 1435 authorizes the use of a flexible hose in place of the existing stainless steel tube assembly for the propeller governor oil line on engines with rear mounted governors.

The following are Textron Lycoming teflon hoses with steel braiding and firesleeving conforming to FAA TSO-C53A — Type "D" specifications which must be used for this installation. It is required that they be ordered by specific lengths.

PART NUMBER	I.D.	LENGTH	FITTING
LW-12799-6S-360	3/8"	36 inches	Straight
LW-12799-6S-380	3/8"	38 inches	Straight
LW-12799-6S-400	3/8"	40 inches	Straight
LW-12799-6S-420	3/8"	42 inches	Straight

Installation is as follows:

a. Determine proper hose length from table above as required for your particular installation.

b. No sharp bends are permissible. Ascertain that no "kinks" exist while routing and clamping hose.

c. Hose must not be routed near a heat source, such as any portion of the exhaust system.

d. Hose is to be clamp supported to the engine (not to an airframe component) at a minimum of two locations.

e. No clamping to cylinder head drain back tubes is allowed.

f. After installation is complete, ensure that hose is not pinched. Make certain that engine motion during start-up and shutdown does not pull or pinch the hose.

NOTE

If -5 (5/16'') fittings have been installed on some standard cylinder flange crankcase model engines, the propeller governor drive fitting and front crankcase fitting must be changed to the appropriate steel fitting to accommodate the new -6 (3/8'') line. When re-installing new stainless steel tube assembly, appropriate -5 steel fittings must be re-installed.

CAUTION

IT IS MANDATORY THAT THIS FLEXIBLE HOSE BE REPLACED AT EACH OVERHAUL.

When this engine modification is accomplished, Textron Lycoming recommends that a copy of the approved FAA Form 337 — plus the proper logbook entry become a permanent part of the aircraft records.

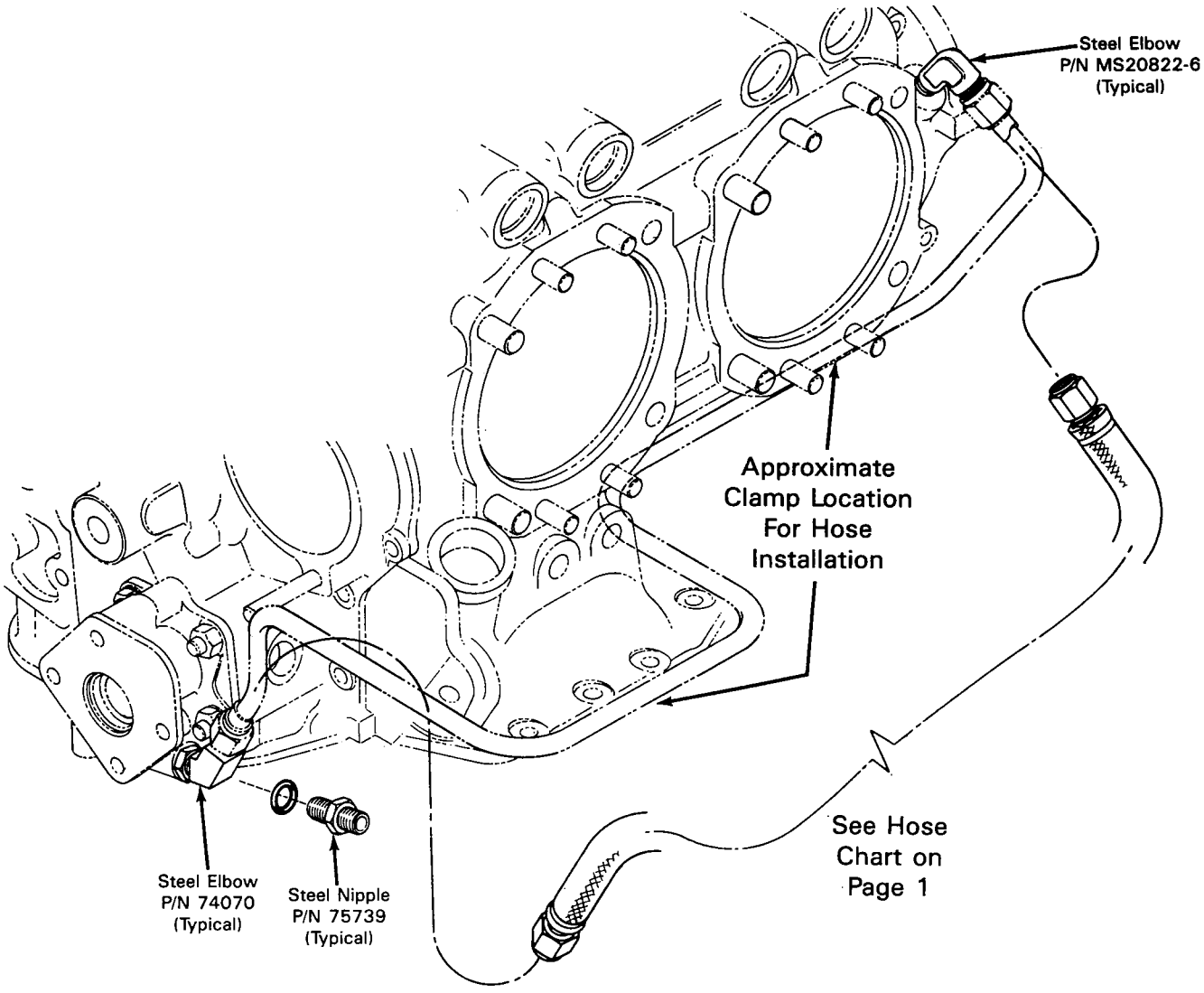

Figure 1. Routing, Fittings and Clamping Detail

23582 — This number for Textron Lycoming reference only.