LYCOMING
A Textron Company

652 Oliver Street
Williamsport, PA 17701 U.S.A.
Tel. 570-323-6181
Fax. 570-327-7101
www.lycoming.textron.com

MANDATORY
SERVICE BULLETIN

DATE: February 23, 2007

Service Bulletin No. 573
Engineering Aspects are
FAA Approved

SUBJECT: Pressurized Magneto Pressure Tests

MODELS AFFECTED: Lycoming new, rebuilt, overhauled or repaired TIO-540-A2C, -J2B, -U2A, -AE2A, -AG1A, -AH1A, -AJ1A, -AK1A, -F2BD, -J2BD with serial numbers listed in Table 3.

TIME OF COMPLIANCE: At the next maintenance event or within 50 hours of engine operation; whichever occurs first.

CAUTION

UNTIL AN APPROPRIATE LOGBOOK ENTRY OF COMPLIANCE WITH THIS SERVICE BULLETIN HAS BEEN MADE, DO **NOT** FLY ABOVE A CEILING HEIGHT OF 14,000 FEET. FLYING ABOVE 14,000 FEET MAY CAUSE CROSS-FIRING WITHIN THE MAGNETOS, WHICH MAY LEAD TO DETONATION AND A LOSS OF POWER.

Lycoming has determined that for the engines described in Table 3, a complete magneto pressurization test may not have been performed.

A relief valve and system check can be performed with either the model 11-10090 Air Flow Tester with the setup shown in Figure 2, or with the alternate setup as shown in Figure 3. See Table 1 for applicability. The parts needed for the setup in Figure 2 are one pressurized regulator and two regulated pressure gauges which will read from one (1) to ten (10) psi. The two gauges must be able to be read in ¼ psi increments. The part needed for the setup in Figure 3 is one regulated pressure gauge which will read from one (1) to ten (10) psi. The gauge must be able to be read in ¼ psi increments.

TABLE 1

ENGINE MODEL	MAGNETO MFG.	RELIEF VALVE & SYSTEM CHECK		
		WITH AIR FLOW TESTER	FIGURE 2 SETUP	FIGURE 3 SETUP
TIO-540-F, -J	*TCM	Yes	Yes	Yes
TIO-540-F, -J	Unison	Yes	Yes	No
TIO-540-A2C	Unison	Yes	Yes	No
TIO-540-U2A	Unison	Yes	Yes	No
TIO-540-J2B	Unison	Yes	Yes	No
TIO-540-J2B	*TCM	Yes	Yes	Yes
TIO-540-AE, AG, AH, AJ, AK	Unison	Yes	Yes	No

*Formerly Bendix

A detailed procedure for the complete test of the magneto pressurization system and relief valve is included with the Air Flow Tester Model 11-10090. This unit is available from Kell-Strom Tool Company, Inc., 214 Church Street, Wethersfield, CT 06109.

Relief Valve Check:

1. Remove the magneto hose (magneto to magneto pressure adapter) from the engine, also remove relief valve P/N LW-13134, LW-13697, LW-14443 or 66N21020 and adapter P/N LW-13227.

2. Model 11-10090: Install adapter with relief valve into end of short hose, P/N 11-10120 furnished with tester. The other end of hose is installed in the regulated output fitting.

   Figure 2 Setup: Connect the compressed air source, the pressurized regulator, the two regulated pressure gauges, the magneto hose, the adapter P/N LW-13227 and relief valve as shown in Figure 2.

3. Model 11-10090: Connect magneto hose between outlet fitting of adapter and adapter input of tester as shown in Figure 1.

4. Model 11-10090: Turn pressure regulator counterclockwise (minimum pressure) and connect the air source to air inlet of tester.

5. Turn the pressure regulator clockwise until the pressure of Column "A" (See Table 2) is indicated on the regulated pressure gauge (G1). The adapter pressure of Column "B" should be seen on the adapter gauge (G2). Readjust the regulator until the regulator pressure gauge (G1) reads the same as Column "C" of Table 2. The adapter gauge (G2) should remain the same as Column "B". If the relief valve does not maintain the adapter pressure (Column "B") throughout the regulated pressure range of Column "A" and "C", the orifice in the relief valve adapter may be restricted with foreign matter or the relief valve setting is in need of adjustment.

System Check:

6. Remove the relief valve adapter from the hose assembly. Check the orifice by inserting a No. 55 drill (.052 inch) consequently cleaning out any foreign matter that may be present.

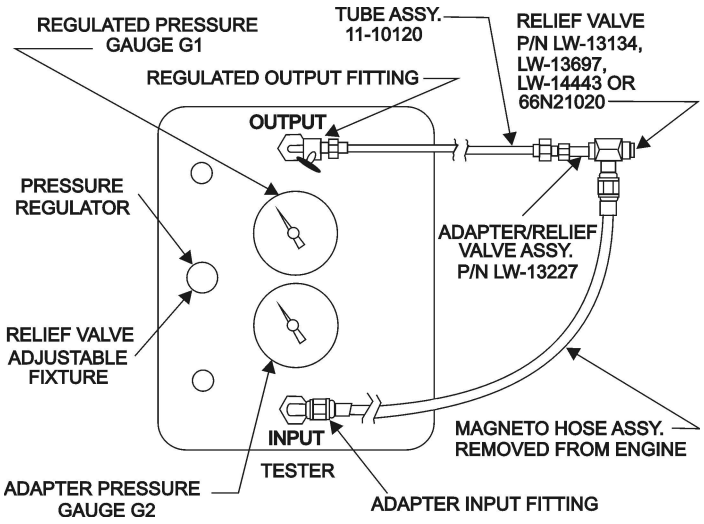

Figure 1. Connections for Relief Valve and System Check

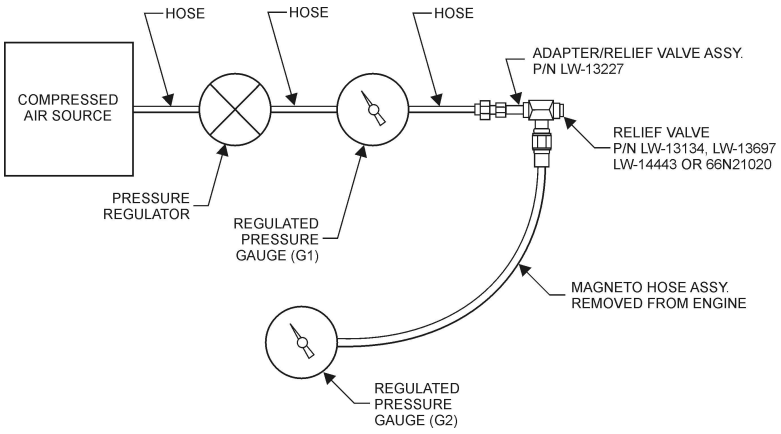

Figure 2. Alternate Connections for Relief Valve and System Check

7. Reset the relief valve by removing it from the adapter and placing the valve into the relief valve adjusting fixture of tester making sure the small nut of the valve engages the socket in the fixture. Using a standard screwdriver, adjust the spring tension. Turning the screw clockwise will increase the pressure, counterclockwise will decrease the pressure.
8. Reassemble the relief valve into the adapter and recheck to the pressure in Column "C". Repeat step 7 until the relief valve will maintain the proper adapter pressure throughout the regulated pressure range.
9. Lockwire the relief valve to the adapter and install in the air inlet housing. Connect magneto hose to adapter.
10. Recheck the magneto system to the adapter pressure in Column "D".
11. After the above checks have been made and are acceptable, remove the tester and return all lines back to the original setup.

TABLE 2

ENGINE MODELS	COLUMN "A" REGULATED PRESSURE	COLUMN "B" REGULATED PRESSURE	COLUMN "C" REGULATED PRESSURE	COLUMN "D" ADAPTER PRESSURE		RELIEF VALVE P/N
				*TCM Magneto	Unison Magneto	
TIO-540-F, -J	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-A2C	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-U2A	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-J2B	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-AE	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-AG	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-AH	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-AJ	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020
TIO-540-AK	6 psi	5 psi ± ¼ psi	10 psi	5 psi ± ½ psi	4 psi ± ½ psi	66N21020

*Formerly Bendix.

Alternate Relief Valve and System Check:

NOTE

This alternate relief valve and system check can only be performed on TIO-540 series engines that use TCM (formerly Bendix) magnetos. (See Table 1.)

An alternate method for checking the operation of the pressurized magneto system without an air flow tester is as follows:

1. Remove the top plug from the magneto.
2. Install a gauge which will read from one (1) to ten (10) psi. Gauge must be able to be read in ¼ psi increments.
3. TIO-540 series engines:
   a. Run engine at 2400 (direct drive) RPM and 37 to 38 inches Hg. manifold pressure.
4. Run engine at 2400 RPM and 37 to 38 inches Hg. manifold pressure.
5. The gauge must read 3 psi ± ¼ psi.

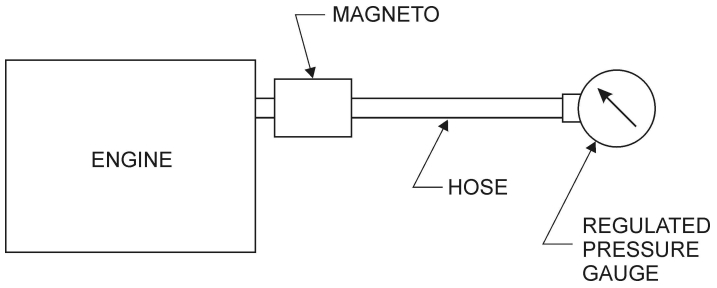

Figure 3. Alternate Relief Valve and System Check for TIO-540 Series Engines

Troubleshooting

The following is a list of the common troubles which may be encountered with the pressurized magneto. Along with the troubles is the probable causes and remedies.

TROUBLE	PROBABLE CAUSE	REMEDY
1. Magneto pressure more than pressure in Column D	Magneto, bleed hole clogged	**Clean bleed hole to .0145 inch (.38mm drill). **See Note 2**.
	Relief valve inoperative	Replace relief valve.
2. Magneto pressure less than pressure in Column D	Orifice in pressure relief valve adapter clogged	Clean orifice with No. 55 drill
	Hoses and fittings loose	Tighten same.
	Leaking pressure at magneto cover or ignition leads	Tighten same, if unable to tighten replace magneto.Replace grommets.
	Relief valve inoperative	Replace relief valve.
	Leaking pressure at magneto shaft bearing	Replace magneto.
	O-ring in the magneto cap is	Replace O-ring.
	The spark plug leads in the magneto cap are not sealed.	Replace seal.

NOTE 1

After each change that is performed, check the operation of the pressurized magneto. Do not try more than one change at a time.

NOTE 2

For TIO-540-AE and –AH series engines installed on Piper aircraft, TIO-540-AF series engines installed on Mooney aircraft, and TIO-540-AG series engines installed on Commander aircraft, clean the bleed hole by using compressed air (30 psi maximum).

Warranty:

If needed, factory replacement of magneto parts in the engines listed in Table 3 will be accomplished at no cost to the owner. Labor for the magneto pressurization test and if needed, parts replacement, will be reimbursed in accordance with the current revision of Removal and Installation Labor Allowance Guidebook, SSP-875, through an authorized Lycoming Distributor, using the standard Warranty Procedure. For Warranty consideration, compliance must be within one year from the date of this Service Bulletin.

TABLE 3

Model	Engine S/N	Model	Engine S/N	Model	Engine S/N
TIO-540-A2C	L-7043-61A	TIO-540-AJ1A	L-12510-61A	TIO-540-J2B	RL-6488-61A
TIO-540-A2C	L-8147-61A	TIO-540-AJ1A	L-12511-61A	TIO-540-J2B	RL-7783-61A
TIO-540-A2C	L-8160-61A	TIO-540-AJ1A	L-12516-61A	TIO-540-J2B	RL-11073-61A
TIO-540-A2C	L-8878-61A	TIO-540-AJ1A	L-12518-61A	LTIO-540-J2B	L-1033-68A
TIO-540-A2C	L-9261-61A	TIO-540-AJ1A	L-12535-61A	LTIO-540-J2B	L-2912-68A
TIO-540-A2C	RL-4517-61A	TIO-540-AJ1A	L-12537-61A	LTIO-540-J2B	L-3005-68A
TIO-540-A2C	RL-7422-61A	TIO-540-AJ1A	L-12539-61A	LTIO-540-J2B	RL-657-68A
TIO-540-A2C	RL-9585-61A	TIO-540-AJ1A	L-12542-61A	TIO-540-F2BD	L-3695-61A
TIO-540-AE2A	L-12300-61A	TIO-540-AJ1A	L-12546-61A	TIO-540-F2BD	L-9357-61A
TIO-540-AE2A	L-12317-61A	TIO-540-AJ1A	RL-2606-61A	TIO-540-F2BD	L-11388-61A
TIO-540-AE2A	L-12501-61A	TIO-540-AJ1A	RL-7237-61A	TIO-540-F2BD	RL-2552-61A
TIO-540-AE2A	L-12508-61A	TIO-540-AK1A	L-12437-61A	TIO-540-F2BD	RL-6356-61A
TIO-540-AE2A	L-12515-61A	TIO-540-AK1A	L-12486-61A	LTIO-540-F2BD	L-2668-68A
TIO-540-AE2A	L-12528-61A	TIO-540-AK1A	L-12490-61A	LTIO-540-F2BD	L-2844-68A
TIO-540-AE2A	L-12538-61A	TIO-540-AK1A	L-12491-61A	LTIO-540-F2BD	RL-114-68A
TIO-540-AE2A	L-12548-61A	TIO-540-AK1A	L-12494-61A	LTIO-540-F2BD	RL-1792-68A
TIO-540-AE2A	L-12570-61A	TIO-540-AK1A	L-12495-61A	TIO-540-J2BD	L-7077-61A
TIO-540-AE2A	L-12571-61A	TIO-540-AK1A	L-12496-61A	TIO-540-J2BD	L-9931-61A
TIO-540-AE2A	L-12576-61A	TIO-540-AK1A	L-12497-61A	TIO-540-J2BD	RL-6009-61A
TIO-540-AE2A	L-12579-61A	TIO-540-AK1A	L-12502-61A	TIO-540-J2BD	RL-11821-61A
TIO-540-AE2A	L-12581-61A	TIO-540-AK1A	L-12506-61A	LTIO-540-J2BD	L-587-68A
TIO-540-AG1A	RL-2284-61A	TIO-540-AK1A	L-12512-61A	LTIO-540-J2BD	L-648-68A
TIO-540-AG1A	RL-7548-61A	TIO-540-AK1A	L-12520-61A	LTIO-540-J2BD	L-701-68A
TIO-540-AH1A	L-12499-61A	TIO-540-AK1A	L-12525-61A	LTIO-540-J2BD	L-1629-68A
TIO-540-AH1A	L-12500-61A	TIO-540-AK1A	L-12526-61A	LTIO-540-J2BD	L-2584-68A
TIO-540-AH1A	L-12509-61A	TIO-540-AK1A	L-12534-61A	LTIO-540-J2BD	L-2731-68A
TIO-540-AH1A	L-12514-61A	TIO-540-AK1A	L-12553-61A	LTIO-540-J2BD	L-2913-68A
TIO-540-AH1A	L-12530-61A	TIO-540-J2B	L-2859-61A	LTIO-540-J2BD	RL-349-68A
TIO-540-AH1A	L-12543-61A	TIO-540-J2B	L-7243-61A	LTIO-540-J2BD	RL-2960-68A
TIO-540-AJ1A	L-12487-61A	TIO-540-J2B	L-7980-61A	TIO-540-U2A	L-6016-61A
TIO-540-AJ1A	L-12492-61A	TIO-540-J2B	L-8850-61A	LTIO-540-U2A	L-2027-68A
TIO-540-AJ1A	L-12505-61A	TIO-540-J2B	L-10670-61A	TIO-540-X186	L-1589-X
		TIO-540-J2B	L-12550-61A		