PRECISION
AIRMOTIVE CORPORATION
SNOHOMISH COUNTY AIRPORT
EVERETT, WASHINGTON 98204

Service Bulletin
Fuel Systems

Bulletin No.: PRS-91
Date: 2-28-89
Revised:

Subject: BENDIX FUEL INJECTOR SYSTEM, MODEL RSA-7AA1, P/L 2524347, TIMING OF THE POWER ENRICHMENT VALVE OPENING.

1. Planning Information:

A. Effectivity:

(1) All Model RSA-7AA1 servo fuel injectors P/L 2524347-8 manufactured from 23 May 1986 to July 1988 (S/N 86140438 through S/N 88122215).

(2) Any Model RSA-7AA1 fuel injector, P/L 2524347 overhauled/repaired after 15 November 1986 and calibrated to servo regulator preset test specification 10324-01, flow bench test specification 11573-01, and/or service flow test specification 11574-01. Reference Figure 105, Figure 1301, and Figure 1302 respectively in Change 1 to RSA-7AA1 Component Maintenance Manual dated 15 November 1986.

(3) Model RSA-7AA1 fuel injectors, P/L 2524347-8, manufactured by Precision Airmotive Corporation that begin with S/N 7000XXX do not require recalibration. Reidentification is required.

B. Reason.

Instructions for setting the timing of the power enrichment valve opening, if applied to test specification 11324-01, 11573-01, or 11547-01 would cause the power enrichment valve to open slightly early. An enrichment valve that opens late, or not at all, can result in an engine operating on lean limit flow curve at power levels in excess of 72 percent rated power.

Test specifications 11893-01, 11894-01, and 11895-01 have replaced test specifications 11324-01, 11573-01, and 11547-01 respectively. The new flow test specifications incorporate an additional test point to ensure that the power enrichment valve opens at the correct time.

1. Planning Information. (cont)

C. Description.

This bulletin provides revised TESTING AND TROUBLESHOOTING instructions and new test specifications 11893-01, 11894-01, and 11895-01 to ensure correct timing of the enrichment valve opening.

D. Compliance.

(1) For new controls built between 23 May 1986 and July 1988 S/N 86140438 through S/N 88122215, recalibration to test specifications 11893-01, 11894-01, and 11895-01 is recommended. See Accomplishment Instructions in paragraph 2. for recalibration procedure. Recalibration shall be accomplished within the next 25 hours of operation, unless previously accomplished.

(2) For controls that have been overhauled/repaired and calibrated per Change 1 to Component Maintenance Manual form number 15-520B dated 15 November 1986, recalibration is recommended within the next 25 hours of operation.

(3) For all other controls, calibration to specifications contained in this bulletin is recommended at the next repair or overhaul.

(4) Controls, manufactured by Precision Airmotive Corporation beginning with S/N 7000XXX and identified as P/L 2524347-8, must be reidentified per following paragraph 2.D.

E. Approval.

Pending.

F. Manpower.

Not affected when accomplished during repair or overhaul.

G. Material.

Not applicable.

H. Tooling.

Not applicable.

I. Weight and Balance.

Not affected.

J. Electrical Load Data.

Not applicable.

1. Planning Information. (cont)

K. Publications Affected.

(1) Bendix Component Maintenance Manual with Illustrated Parts List form number 15-520B dated 15 June 1985 Change 1 dated 15 November 1986.

(2) Bendix Small Reciprocating Engines Service Information Letter No. 18 Revision 1 dated 1 September 1985, Figure 37.

2. Accomplishment Instructions.

A. Recalibrate controls using regulator preset test specification 11893-01 (Figure 1), flow bench test specification 11894-01 (Figure 2), and service flow test specification (Figure 3).

B. Preform calibration per instructions contained in Change 1 to manual 15-520B except change paragraph B. (3) on page 108 to read as follows:

(3) Run test point 1 through 4. Slowly increase metering suction between 15.3 and 17.0 inches of water and observe fuel flow for an increase (jump). This increase indicates that the enrichment valve has opened. The valve should be open prior to reaching 17.0 inches of water metering suction and full open at test point 5.

C. Change the identification plate to read P/L 2524347-9. See following:

(1) Identify issue number(s) not incorporated into the fuel control configuration with less issue number(s). Separate less issue number(s) from the P/L 2524347-9 fuel control configuration by a comma and/or a hyphen.

(2) Fuel control serial number remains the same.

D. Reidentify servo fuel injectors P/L 2524347-8, manufactured by Precision Airmotive Corporation beginning with S/N 7000XXX, by overstamping -8 with -9.

E. Incorporate the following changes into the Components Maintenance Manual.

(1) Replace Figure 105, Figure 1301, and Figure 1302 in the manual with copies of Figure 1, Figure 2, and Figure 3 from this bulletin respectively.

(2) Change paragraph B. (3) of page 108 as noted in paragraph 2.B. of this bulletin.

(3) Annotate the Service Bulletin List in the front of the manual to indicate incorporation of the information contained in this bulletin.

11893-01

PAGE 1 OF 1

BASIC: 2524525 PARTS LISTS: 2524347

SERVO REGULATOR PRE-SET

TEST POINT	1	2	3	4	5	6
MSD IN H20	0.	9.2	15.3	18.5	22.8	0
M.C. POS	R.	R.	R.	R.	R.	R.
THRO POS	W.O.	W.O.	W.O.	W.O.	W.O.	W.O.
FF#/HR MIN	18.0	49.5	60.4	75.4	87.0	HYST 5#/HR MAX FROM
FF#/HR MAX	23.0	53.5	64.5	82.7	93.2	T.P. #1

FUEL INLET PR 25 PSI ± 1 PSI

CONSTANT HEAD SPRING
2523155, 2537779, 25223387

CONSTANT EFFORT SPRING
2523688, 2523247, 2520652

USE A MAX OF 3 SHIMS 341748 UNDER SERVO CUP TO OBTAIN DESIRED "0" SUCTION POINT.

Regulator Preset Test Specification
Figure 1

FLOW BENCH

PARTS LIST 2524525
FUEL INLET PRESSURE: 26 P.S.I. ± 1
NOZZLE PRESSURE: 0 INJECTOR MODEL: RSA-7AA1
LIMITS BASED ON 0.734 SPECIFIC GRAVITY AT 75 DEG F ± 5 DEG F
(NAPHTHA) DATE ISSUED:

ENGINE MFGR: LYCOMING

TEST POINT NO.		1	2	3	4	5	6
METERING SUCTION INCHES OF WATER CORRESPONDING AIR FLOW LBS/HR.		0	0	9.2 700	15.3 900	18.5 1000	22.8 1100
MIXTURE CONTROL LEVER POSITION		R	I.C.O.	R			R
THROTTLE POSITION		W.O.	W.O.	W.O.	W.O.	W.O.	W.O.
BURETTE	VOLUME	100		350	500	500	500
TIME	MIN.	26.3		38.2	45.1	35.2	31.2
LIMITS	MAX.	32.2		41.2	48.1	38.6	33.5
IN SECONDS	OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]
FLOWMETER LIMITS	MIN.	18.0	0	49.5	60.4	75.4	87.0
	MAX.	23.0	5CC	53.5	64.5	82.7	93.2
IN LBS./HR.	OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]
METERING HEAD		AV 7.0					
INCHES OF FUEL	[_____] OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]

PROCEDURE FOR SPLIT HEAD CHECK

1. CLOSE THRO. TO .006" SHIM IN BORE.
2. ADJ. IDLE FUEL FLOW TO 5.0-6.0 #/HR. WHEEL CENTERED, OBS. MET. HEAD. ENERGIZE BOOST PUMP WHICH WILL INCREASE FUEL INLET PRESSURE TO 35-40 P.S.I. AFTER STABILIZING, FUEL FLOW MUST BE WITHIN ± .5 LBS/HR OF VALUE SET AT SPEC. FUEL INLET PRESSURE. TURN BOOST PUMP OFF.
3. REMOVE .006" SHIM.
4. CLOSE THRO. TO 4.0-4.5 #/HR. F.F., MET. HEAD INCREASE FROM (2) 5.0" FUEL MAX.

Flow Bench Test Limits
Figure 2

11895-01

SERVICE FLOW BENCH

BASIC PARTS LIST: 2524525
INSTALLATION PARTS LIST: 2524347
FUEL INLET PRESSURE: 25 P.S.I. ± 1
NOZZLE PRESSURE: 0 INJECTOR MODEL: RSA-7AA1
LIMITS BASED ON NAPHTHA 0.734 SPECIFIC GRAVITY AT 75 DEG F ± 5 DEG F
DATE ISSUED: 08-13-79

ENGINE MFGR: LYCOMING

TEST POINT NO.		1	2	3	4	5	6
METERING SUCTION INCHES OF WATER CORRESPONDING AIR FLOW LBS/HR.		0	0	9.2 700	15.3 900	18.5 1000	22.8 1100
MIXTURE CONTROL LEVER POSITION		R	I.C.O.	R	R	R	R
THROTTLE POSITION		W.O.	W.O.	W.O.	W.O.	W.O.	W.O.
BURETTE	VOLUME	100		500	500	500	500
TIME	MIN.	26.3		53.9	44.0	35.4	30.5
LIMITS	MAX.	32.2		61.0	50.0	39	34.6
IN SECONDS	OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]
FLOWMETER LIMITS	MIN.	18.0	0	48.0	58.6	72.5	84.5
	MAX.	23.0	5CC	54.5	66.6	85.2	96.0
IN LBS./HR.	OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]
METERING HEAD		AV. 7.0					
INCHES OF FUEL	OBS	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]

Service Flow Test Limits
Figure 3

3. Material Information.

Not affected.

Charles H. Hower, Jr.
Manager, RS Product Support