SCHWEIZER 269 SERIES

SCHWEIZER SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

SUBJECT: BENDIX FUEL INJECTOR SYSTEM MODEL RSA-7AA1, P/L 2524347 (LYCOMING P/N 77885) AND PRECISION AIRMOTIVE CORPORATION SERVICE BULLETIN PRS-94 AND PRS-94 SUPP. 1

MODELS AFFECTED: All Model 269C Helicopters

TIME OF COMPLIANCE:
- Within next 50 hours of operation, unless previously accomplished
- Whenever operating conditions indicate problems or malfunctions, as defined in first paragraph under PREFACE

REFERENCES:
- Precision Airmotive Corporation Service Bulletin PRS-94, dated 9-21-89
- Precision Airmotive Corporation Service Bulletin PRS-94, Supp. 1, Revised 6-25-90
- Precision Component Maintenance Manual with Illustrated Parts List, parts list number 2524347 Change Two, dated 21 Nov 1990
- 269C Pilot's Flight Manual CSP-C-1 (Reissued: 21 September 1988)
- BHMI - 269 Series Basic HMI (Reissued: 15 Mar 1982; Revision 1: 24 Aug 1990)
- HMICSC - 269 Series HMI, Configuration Supplement C (Reissued: 15 Sept 1982; Revised: 15 Mar 1989)
- Service Information Notice N-202, dated 23 Feb 1987 (Subject: Improved Methods for Checking Idle Mixture and Idle Speed. Operational Check of Fuel System)

* Supersedes N-230, dated 06 Oct 1989

PREFACE:

- There are persistent reports of low power and high engine temperatures (cylinder head, oil and EGT) on new aircraft, and on overhauled engine/servo combinations. It appears that incorrect timing of the enrichment valve opening in the fuel injector servo may have a significant effect on performance and engine life. Certain combinations of power and late opening of the valve allow the engine to run at unacceptably lean conditions, which may cause excessive cylinder head and exhaust gas temperatures. Although most aircraft may not be at this extreme, there is reason to believe less severe and less noticeable, but unacceptable, conditions may exist on a number of aircraft. For this reason, Schweizer considers it mandatory that all aircraft equipped with servos described in the Precision Service Bulletin PRS-94 effectivity list be bench checked and brought into compliance with this Service Bulletin. Failure to comply with this Service Bulletin could result in engine failure, which may lead to loss of control of the helicopter and subsequent injury or death.

- Anytime above conditions are observed (regardless of servo P/N), it is advisable to perform fuel system maintenance in accordance with BHMI, Section 5, and applicable Textron Lycoming Publications. Any suspect servo should be removed and flow tested/adjusted in accordance with Precision Service Bulletin PRS-94 and PRS-94, Supp. 1.

- Subsequent to the issue of N-230, Precision Service Bulletin PRS-94 and PRS-94, Supp. 1 were issued to provide revised flow schedule data. Precision Airmotive Corporation has advised that the overhaul manual has been updated to include the information in this bulletin, and recommends that maintenance personnel (who work on RSA-7AA1 injectors) verify that they have the latest manual revision.

PROCEDURE:

a. Remove servo control in accordance with BHMI, Section 5, Paragraph 5-58.

b. Bench check servo control in accordance with Precision Service Bulletin PRS-94 and PRS 94, Supp. 1.

c. Install servo control in accordance with BHMI, Section 5, Paragraph 5-59.

d. Check/adjust idle mixture and idle speed in accordance with Service Information Notice N-202.

WEIGHT AND BALANCE

Weight and balance are not affected.

* Supersedes N-230, dated 06 Oct 1989

PRECISION
AIRMOTIVE CORPORATION
SNOHOMISH COUNTY AIRPORT
EVERETT, WASHINGTON 98204

Service Bulletin
Fuel Systems

Bulletin No.: PRS-94
DATE: 9-21-89
Revised:

Subject: BENDIX FUEL INJECTION SYSTEM, MODEL RSA-7AA1 P/L 2524347-9 MODIFICATION TO ISSUE -10

1. Planning Information:

A. Effectivity:

Model No.	Basic P/L No.	Installation P/L No.
RSA-7AA1	2524525	2524347-1 thru -9

B. Reason:

To meet revised engine requirements by incorporation of a revised flow schedule.

C. Description:

To provide modification instructions for the subject control.

D. Compliance:

Operational Activities: At owner's discretion.

Overhaul Activities: Comply at present O/H.

E. Approval:

None.

F. Manpower:

Not applicable.

1. Planning Information. (cont)

G. Material Availability

Not applicable.

H. Tooling:

Not Applicable.

I. References:

Lycoming request.

J. Weight and Balance:

Not applicable.

K. Publications Affected:

RSA-7AA1 Series O/H and IPB, Form No. 15-520B

2. Accomplishment Instructions:

A. Proceed with normal O/H procedures as specified in O/H manual.

(1) Remove the 390188-53 jet and drill out to .061 dia.

B. Calibrate the fuel injector in accordance with Figures 1, 2 and 3.

C. Identification.

(1) All modified RSA-7AA1 Fuel Injectors must be reidentified.

(2) If the identification plate is reused, it is permissible to overstrike the issue number, less any changes not incorporated during this and/or previous overhauls. If new plate is used, reidentify as follows:

(a) Transfer the exact model number from the old identification plate.

(b) Reidentify the unit with new applicable parts list number, less any changes not incorporated during this and/or previous overhauls.

2. Accomplishment Instructions (cont)

(c) Reidentify the unit with new applicable basic parts list number.

(d) I.C. this block should be left blank.

(e) Transfer the exact serial number from the old identification plate.

Model No.	Old Parts List No.	New Parts List No.
RSA-7AA1	2524347-9	2524347-10

D. Incorporate the following changes into the Components Maintenance Manual:

(1) Replace flow sheets 11893-01, 11894-01 and 11895-01 in the manual with copies of Figure 1, Figure 2, and Figure 3 from this bulletin respectively.

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

Randy P Jenson
Manager, Product Support

TEST SPECIFICATION DATE: OCTOBER 18, 1989

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROL DIVISION, EVERETT, WASHINGTON, U.S.A.

MODEL: RSA-7AA1 SERIAL NO._____

OPERATOR_____ PARTS LIST_____ DATE_____

PAGE CODE: 30012-01
RELEASED:_____
PAGE 1 OF 1

BASIC: 2524525 PARTS LIST: 2524347

SERVO REGULATOR PRE-SET

TEST POINT	1	2	3	4	5	6
MSD IN H2O	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	67.0	82.0	93.0	HYST 5#/HR
FF #/HR MAX.	23.0	53.5	70.0	88.0	98.0	MAX FROM
						T.P. #1

FUEL INLET PR 25 PSI ± 1 PSI

CONSTANT HEAD SPRING

2523155, 2537779, 2523387

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

PRS-94

3B

TEST SPECIFICATION DATE: OCTOBER 18, 1989

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROL DIVISION, EVERETT, WASHINGTON, U.S.A.

MODEL: RSA-7AA1 SERIAL NO._____
OPERATOR_____ PARTS LIST_____ DATE_____ PAGE CODE: 30010-01
RELEASED:_____

FLOW BENCH

PARTS LIST: 2524347 BASIC PARTS LIST: 2524525
FUEL INLET PRESSURE: 20 P.S.I. ± 1
ENGINE MFGR: LYCOMING NOZZLE PRESURE: 0
LIMITS BASED ON 0.734 SPECIFIC GRAVITY AT 75 DEG. F ± 5 DEG. F (NAPHTHA)
DATE ISSUED: _____

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 CC		350	500	500	500
TIME LIMIT IN SECONDS MIN.	26.3		38.2	41.6	33.2	29.7
MAX.	32.2		41.2	43.5	35.6	31.3
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
FLOWMETER LIMITS IN LBS./HR. MIN.	18.0	0	49.5	67.0	82.0	93.0
MAX.	23.0	5 CC	53.5	70.0	88.0	98.0
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
METERING HEAD INCHES OF (_____) FUEL OBS.	6.6 AV (_____)	(_____)	44.4 AV. (_____)	72.8 AV. (_____)	(_____)	(_____)

Flow Bench Test Limits
Figure 2

PROCEDURE FOR SPLIT HEAD CHECK

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

TEST SPECIFICATION DATE: OCTOBER 18, 1989

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROL DIVISION, EVERETT, WASHINGTON, U.S.A.

INJECTOR MODEL: RSA-7AA1 SERIAL NO._____
OPERATOR_____ PARTS LIST: _____ DATE_____

PAGE CODE: 30011-01
RELEASED:_____
PAGE 1 of 1

SERVICE FLOW LIMITS

PARTS LIST: 2524347 BASIC PARTS LIST: 2524525
FUEL INLET PRESSURE: 25 P.S.I. ± 1
ENGINE MFGR: LYCOMING NOZZLE PRESSURE: 0

LIMITS BASED ON 0.734 SPECIFIC GRAVITY AT 75 DEG. F ± 5 DEG. F (NAPHTHA)

DATE ISSUED:_____

TEST POINT NO.	1	2	3	4	5	6
METERING SUCTION INCHES OF WATER	0	0	9.2	15.3	18.5	22.8
CORRESPONDING AIR FLOW LBS./HR.	0	0	700	900	1000	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 CC		500	500	500	500
TIME LIMIT IN SECONDS MIN.	26.3		53.9	40.4	32.3	28.9
MAX.	32.2		61.0	44.8	36.0	32.3
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
FLOWMETER LIMITS IN LBS./HR. MIN.	18.0	0	48.0	65.0	80.9	90.3
MAX.	23.0	5 CC	54.5	72.2	90.1	100.8
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
METERING HEAD INCHES OF FUEL OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
AV	6.6					

Service Flow Test Limits
Figure 3

PRS-94

PRECISION
AIRMOTIVE CORPORATION

Service Bulletin

Fuel Systems

Bulletin No.: PRS-94
Supp. 1
Date: 9-21-89
Revised: 6-25-90

Subject: BENDIX FUEL INJECTION SYSTEM, MODEL RSA-7AA1
P/L 2524347-9 MODIFICATION TO ISSUE -10

NOTE: Supplement 1 changes the compliance requirement given in Section 1 - PLANNING INFORMATION and corrects inlet pressure setting on flow sheet 30010-01 in Section 2 - ACCOMPLISHMENT INSTRUCTIONS.

1. PLANNING INFORMATION

D. COMPLIANCE:

(1) Operating Activities: Must conform to the provisions of this bulletin within the next 50 hours of flight service. Compliance must be completed on or before November 30, 1990.

(2) Overhaul Activities: Comply at present O/H. All units in for overhaul or repair must be reflowed to the -10 flow schedule prior to return to the customer.

NOTE: An exception to the above requirement will be made for those servo units which have recently been overhauled or reworked per PRS-91 and documentation is available which shows that the unit flows within the limits established on the -10 flow schedule.

2. ACCOMPLISHMENT INSTRUCTIONS:

D. Incorporate the following change into the Components Maintenance Manual:

(1) Replace flow bench test sheet 30010-01, dated April 26, 1989, with flow sheet 30010-01A, dated June 25, 1990.

NOTE: The revised flow sheet corrects the inlet pressure setting from 20 PSI to 25 PSI. This change should have no effect on the servo's flow characteristics and it is not necessary to reflow servos which were flowed at 20 PSI inlet pressure.

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

R. P. Jenson
Manager, Product Support

3220 100th St. S.W. #E • Everett, WA 98204 • FAA Repair Station # HJ6R589N • Tel. (206) 353-8181

TEST SPECIFICATION DATE: JUNE 25,1990

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROL DIVISION, EVERETT, WASHINGTON, U.S.A.

MODEL: RSA-7AA1 SERIAL NO._____
OPERATOR_____ PARTS LIST_____ DATE_____ PAGE CODE: 30010-01A
RELEASED:_____

FLOW BENCH

PARTS LIST: 2524347 BASIC PARTS LIST: 2524525
FUEL INLET PRESSURE: 25 P.S.I. ± 1
ENGINE MFGR: LYCOMING NOZZLE PRESURE: 0
LIMITS BASED ON 0.734 SPECIFIC GRAVITY AT 75 DEG. F ± 5 DEG. F (NAPHTHA)
DATE ISSUED: _____

Flow Bench Test Limits

TEST POINT NO.	1	2	3	4	5	6
METERING SUCTION INCHES OF WATER CORRESPONDING	0	0	9.2	15.3	18.5	22.8
AIR FLOW LBS./HR.	0	0	700	900	1000	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 CC		350	500	500	500
TIME LIMIT IN SECONDS MIN.	26.3		38.2	41.6	33.2	29.7
MAX.	32.2		41.2	43.5	35.6	31.3
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
FLOWMETER LIMITS IN LBS./HR.						
MIN.	18.0	0	49.5	67.0	82.0	93.0
MAX.	23.0	5 CC	53.5	70.0	88.0	98.0
OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)
METERING HEAD INCHES OF (_____)	6.6 AV		44.4 AV.	72.8 AV.		
FUEL OBS.	(_____)	(_____)	(_____)	(_____)	(_____)	(_____)

PRS-94
SUPP. 1

PROCEDURE FOR SPLIT HEAD CHECK

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