

# Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-10DB1

Issued 4-6-2012

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**SUBJECT: Service Information for RSA-10DB1 Fuel Injection Servo  
Parts List 2576542-1.**

**PURPOSE:** To provide repair shops with flow bench limits and service information for RSA-10DB1 fuel injection servo, parts list 2576542-1.

Revision 1: Updated difference information between servo and manual 15-471E.

Revision 2: Test Spec 30060 name "Calibration Limits" was "Service Limits"

- A. **EFFECTIVITY:** This service Information Letter is applicable to RSA-10DB1 fuel injection servos, identified with parts list 2576542-1.
- B. **DESCRIPTION:** The service information found in manual 15-471E (8/31/90) for parts list 2524275-15 is applicable to parts list 2576542-1 except as follows:

1. Reference manual 15-471E, IPL, Figure 1:

Item Number	2524275-15 Part Number	2576542-1 Part Number	Description
1	2524275-15	2576542-1	Servo Fuel Injection
55	367988	2521287	Lever
90	365954	2521196	Lever
95	2538890	2541094	Adapter
115	2524505-T	2576541-A	Fuel Injector Assembly

2. Reference manual 15-471E, IPL, Figure 3:

Item Number	2524275-15 Part Number	2576542-1 Part Number	Description
40	2541326	2521757	Plate, Mixture Control
70	2539691	2538420	Diaphragm Assembly Air
115	2538322	2540953	Lever Assembly
170	2541563	2541562	Valve, Mixture Control
180	2537796	2540624	Valve, Lower Idle

## 3. Reference manual 15-471E, IPL, Figure 4:

Item Number	2524275-15 Part Number	2576542-1 Part Number	Description
10	365533	2577258	Gasket
30	2525035	2525035 or 2577230	Cover, Regulator (Cast) Cover, Regulator (Billet)
100	2539561	2577245	Seal, Servo Stem
105	2539560	Not Used	Spring, Helicoil
160	2523966	2525000 or 2577255	Body Assy, Main (Cast) Body Assy, Main (Billet)

## 4. Reference manual 15-471E, IPL, Figure 5:

Item Number	2524275-15 Part Number	2576542-1 Part Number	Description
75	2523969	2523969 or 2542034	Housing

## 5. Reference manual 15-471E, Calibration and Service Limits:

Specification Type	Test Specification
Calibration	30060-04
Service	30061-03

These Specifications are included with this service information letter; see pages 3 and 4

## 6. Reference manual 15-471E, History of Changes

<u>Date</u>	<u>IC Number</u>	<u>Description</u>
<u>Issue 1</u>		
09-15-95	1	Released to Production
01-26-96	1	Calibration Limits T.S. 30060-02 was 30060-01 Service Limits T.S. 30061-02 was 30061-01
03-13-98	2	Venturi 2542034 was 2523969 (use as is change)
07-21-04	2	Regulator cover is 2525035 or 2577230
06-26-08	3	Gasket 2577258 replaces 365533
01-20-10	4	Stem Seal 2577245 replaces both spring 2539560 and seal 2539561
02-04-11	5	Body assembly is 2525000 or 2577255
02-23-12	5	Calibration Limits T.S. 30060-03 were 30060-02 Service Limits T.S. 30061-03 were 30061-02
03-26-12	5	Calibration Limits T.S. 30060-04 were 30060-03

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**30060-04**  
*L. Hardy* 03-26-12

TEST SPECIFICATION  
**CALIBRATION LIMITS**  
 PRECISION AIRMOTIVE LLC - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10DB1 SERIAL NUMBER: \_\_\_\_\_

OPERATOR: \_\_\_\_\_ DATE: \_\_\_\_\_

BASIC PARTS LISTS: 2576541 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ °F

TEST POINT NUMBER	1	2	3	4
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METERING SUCTION (INCHES OF WATER)	0	0	2.7	17.6
CORRESPONDING AIRFLOW (LBS/HR)	0	0	800	2000
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O

**FLOWMETER LIMITS**

MINIMUM OBSERVED (LBS/HR)	56.0	0	94.0	235.0
MAXIMUM OBSERVED (LBS/HR)	80.0	5 cc/min	98.0	240.0

**BURETTE TIME LIMITS (Using MIL-C-7024 Type II)**

BURETTE VOLUME (cc)	500	500	500	2000
MINIMUM OBSERVED (SECONDS)	38.1		31.1	50.9
MAXIMUM OBSERVED (SECONDS)	54.5		32.4	51.9

**METERING HEAD AVG**

MINIMUM OBSERVED (Using MIL-C-7024 Type II)	3.1		7.0	44.9
MAXIMUM OBSERVED (Using MIL-C-7024 Type II)				

**PROCEDURE FOR SPLIT HEAD CHECK**

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 9.0 - 11.0 lbs/hr with wheel centered. Observe metering head. Energize boost pump to provide 35 - 40 psi. After stabilizing, fuel flow must be within ± .5 lbs/hr of value observed at specified fuel inlet pressure. Turn boost pump off.
3. Remove .006 shim
4. Close throttle to 7.0 - 8.0 lbs/hr fuel flow. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

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TEST SPECIFICATION  
SERVICE LIMITS

**30061-03**  
*of Study* 02-23-12

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10DB1 SERIAL NUMBER: \_\_\_\_\_

OPERATOR: \_\_\_\_\_ DATE: \_\_\_\_\_

BASIC PARTS LISTS: 2576541 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAY. \_\_\_\_\_ @ \_\_\_\_\_ OF

TEST POINT NUMBER	1	2	3	4
METERING SUCTION (INCHES OF WATER)	0	0	2.7	17.6
CORRESPONDING AIRFLOW (LBS/HR)	0	0	800	2000
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O
<b>FLOWMETER LIMITS</b>				
MINIMUM OBSERVED (LBS/HR)	54.0	0	90.0	231.0
MAXIMUM OBSERVED (LBS/HR)	82.0	5 cc/min	102.0	244.0
<b>BURETTE TIME LIMITS (Using MIL-C-7024 Type II)</b>				
MINIMUM BURETTE VOLUME (cc)	500		500	2000
MAXIMUM OBSERVED (SECONDS)	37.2		29.9	50.0
MINIMUM OBSERVED (SECONDS)	56.5		33.9	52.8
MAXIMUM OBSERVED (" NAPTHA)	3.1		7.0	44.9

**PROCEDURE FOR SPLIT HEAD CHECK**

1. Close throttle to .006" shim in bore.
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3. Remove .006 shim
4. Close throttle to 7.0 - 8.0 lbs/hr fuel flow. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.