



# Service Information Letter - Fuel Systems

**SIL RS-86**  
SMALL RECIPROCATING ENGINES  
RSA-10ED1  
Issued 1/17/08  
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**SUBJECT: Service Information for RSA-10ED1 Fuel Injection Servo  
Parts List 2576562-4.**

**PURPOSE:** To provide repair shops with flow bench limits and service information for RSA-10ED1 fuel injection servo parts list 2576562-4.

Product improvement, compliance is not mandatory however recommended at overhaul.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-10ED1 fuel injection servos, parts list 2576562. These servos are installed on Lycoming TIO-540-AJ1A engines.
- B. **DESCRIPTION:** The service information found in manual 15-458G Revision 1, for parts list 2524273-12 is applicable to parts list 2576562-4 except as follows:

1. Reference manual 15-458G Revision 1, IPL, Figure 1:

Item Number	2576562-4 Part Number	Description
1	2576562-4	Fuel Injection Servo
30	2537846	Adapter, Pressure Gauge
36	392522	Plug, Pipe
45	2520672	Lever, Mixture Control
50	2522710	Fitting, Outlet
55	951789	Packing, Preformed
80	2542856	Lever, Throttle
115	2576561-C	Servo, Basic

2. Reference manual 15-458G Revision 1, IPL, Figure 3:

Item Number	2576562-4 Part Number	Description
40	2541326	Plate, Mixture control
115	2577097	Lever Assembly, Idle valve
160	2577096	Stem, Idle valve
180	2577201-1640	Valve, Lower Idle

## 3. Reference manual 15-458G Revision 1, IPL, Figure 4:

Item Number	2576562-4 Part Number	Description
70	2577125	Diaphragm Assembly, Air
100	2577245	Seal, Servo stem
105	Not used	Spring
160	2523966	Body Assembly, Main

## 4. Reference manual 15-458G Revision 1, Calibration and Service Limits:

Specification Type	2576562-4 Test Specification	Applicable Figure
Calibration Limits	30081-03	New
Service Limits	30082-02	New

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

## 5. Reference manual 15-458G Revision 1, History of Changes:

<u>Date</u>	<u>IC Number</u>	<u>Description</u>
<u>Issue 1</u>		
9-23-98	1	Released to production
5-24-99	4	Inlet Fitting 2523903 was 2529453 & 2575904, Alternate Inlet Plug 2538890 was 2537846, Mixture Lever 2520672 was 2523899, Added Outlet Fitting 2522710 and Alternate Outlet Plug 133176 Outlet Fitting was 2577109.
11-21-00	5	Idle Valve 2577140 was 2577101.
<u>Issue 2</u>		
2-14-02	5	Alternate Inlet Plug 2537846 was 2538890, Added 392522 Plug.
<u>Issue 3</u>		
8-10-04	6	Lower Idle Valve 2577201-1595 was 2577140. Basic Assembly 2576561-B was 2576561-A.
<u>Issue 4</u>		
12-20-07	7	Lower Idle Valve 2577201-1640 was 2577201-1595, Air Diaphragm 2577125 was 2538420, Mixture Plate 2541326 was 2521757, Center Body Seal 2577245 was 2539561, Seal Spring 2539560 removed, Basic Assembly 2576561-C was 2576561-B. Flow Bench T.S. 30081-03 was 30081-02, Flow Bench T.S. 30082-02 was 30082-01.

30081-03

TEST SPECIFICATION  
CALIBRATION LIMITS

PRECISION AIRMOTIVE LLC - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10ED1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2576561 FUEL PRESSURE: 26 ± 1 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ OF

TEST POINT NUMBER	1	2	3	4	5
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METERING SUCTION (INCHES OF WATER) 0 0 1.6 3.4 16.0

CORRESPONDING AIRFLOW (LBS/HR) 0 0 550 800 1700

MIXTURE CONTROL POSITION RICH ICO RICH RICH RICH

THROTTLE POSITION W/O W/O W/O W/O W/O

FLOWMETER LIMITS

MINIMUM OBSERVED (LBS/HR)	MINIMUM OBSERVED (LBS/HR)	MINIMUM OBSERVED (LBS/HR)	MINIMUM OBSERVED (LBS/HR)	MINIMUM OBSERVED (LBS/HR)
36.0	42.0	52.0	78.0	194.0
		57.0	84.0	204.0

cc/min

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

BURETTE VOLUME (cc)	300	300	500	2000
MINIMUM OBSERVED (SECONDS)	43.6	32.1	36.3	59.8
MAXIMUM OBSERVED (SECONDS)	50.9	35.2	39.1	62.9
METERING HEAD AVG OBSERVED (" STODDARD)	0.9	2.0	5.9	35.6

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 8- 9 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 so that fuel is less than 6 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

30082-02

TEST SPECIFICATION  
SERVICE LIMITS

PRECISION AIRMOTIVE LLC - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10ED1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2576561 FUEL PRESSURE: 26 ± 1 PSI FUEL SP. GRAV. @ \_\_\_\_\_ °F

TEST POINT NUMBER	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	1.6	3.4	16.0
CORRESPONDING AIRFLOW (LBS/HR)	0	0	550	800	1700
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O	W/O
<b>FLOWMETER LIMITS</b>					
MINIMUM OBSERVED (LBS/HR)	34.0	0	50.0	76.0	192.0
MAXIMUM	44.0	5	59.0	86.0	206.0
cc/min					
<b>BURETTE TIME LIMITS (Using MIL-C-7024 Type II)</b>					
BURETTE VOLUME (cc)	300		300	850	2000
MINIMUM OBSERVED (SECONDS)	41.6		31.0	35.5	59.2
MAXIMUM	53.9		36.6	40.1	63.6
METERING HEAD AVG OBSERVED (" NAPTHA)	0.9		2.0	5.9	35.6

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 8 - 9 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 so that fuel is less than 6 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.