

# Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-5AD1

Issued 11/17/09

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**SUBJECT: Service information letter for RSA-5AD1 Fuel Injection  
Servos Parts Lists 2524145-12, 2524242-10, 2524328-10,  
2524307-10 and 2524335-10.**

**PURPOSE:** To provide repair shops with flow bench limits and service information for RSA-5AD1 fuel injection servos using basic assembly numbers 2524472 and 2524474.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-5AD1 fuel injection servos, parts list 2524145-12, 2524242-10, 2524307-10, 2524328-10, and 2524335-10. These servos are installed on various Lycoming L/IO-320 series engines.
- B. **REASON:** The lower idle valve was changed to facilitate calibration.
- C. **COMPLIANCE:** This change is non-mandatory and may be accomplished at overhaul or at the owner's discretion.
- D. **DESCRIPTION:** The service information found in manual 15-381G Change 1 for parts list 2524145-12, 2524242-10, 2524328-10, 2524307-10 and 2524335-10 is applicable except as follows:

1. Reference manual 15-381G Change 1, IPL, Figure 5:

Item Number	Old Part Number	New Part Number	Description
180B	2521974	2577197-545	Valve, Idle

2. Reference manual 15-381G Change 1, Calibration and Service Limits:

Specification Type	Applicable Figure	Old Test Specification	New Test Specification
Calibration Limits	1303	11264-01	11264-03
Service Limits	1304	9872-01	9872-03

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

## 3. Reference manual 15-381G Change 1, History of Changes:

Date	IC Number	Description
<b>P/L 2524145-12</b>		
Issue 12		
1-19-99	39	Idle valve 2577102 was 2521974
10-16-02	40	Added optional Main Body 2577186 Added optional Regulator Cover 2577194
4-10-08	41	Hex Plug gasket 2577258 was 365533
1-29-09	42	Idle Valve 2577197-545 was 2577102
3-20-09	42	Calibration Limits T.S. 11264-03 was T.S 11264-01, Service Limits T.S. 9872-03 was T.S. 9872-01
<b>P/L 2524242-10 and P/L 2524307-10</b>		
Issue 10		
1-19-99	39	Idle valve 2577102 was 2521974
10-16-02	40	Added optional Main Body 2577186 Added optional Regulator Cover 2577194
4-10-08	41	Hex Plug gasket 2577258 was 365533
1-29-09	42	Idle Valve 2577197-545 was 2577102
3-20-09	42	Calibration Limits T.S. 11264-03 was T.S 11264-01, Service Limits T.S. 9872-03 was T.S. 9872-01
<b>P/L 2524328-10 and P/L 2524335-10</b>		
Issue 10		
1-19-99	40	Idle valve 2577102 was 2521974
10-16-02	41	Added optional Main Body 2577186 Added optional Regulator Cover 2577194
4-10-08	42	Hex Plug gasket 2577258 was 365533
1-29-09	43	Idle Valve 2577197-545 was 2577102
3-20-09	43	Calibration Limits T.S. 11264-03 was T.S 11264-01, Service Limits T.S. 9872-03 was T.S. 9872-01

11264-03  
*Jim Yates* 3/20/09

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

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-5AD1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2524472 FUEL PRESSURE: 19-21 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ °F  
 2524474

TEST POINT NUMBER	1	2	3	4
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METERING SUCTION (INCHES OF WATER) 0 0 8.6 14.3  
 CORRESPONDING AIRFLOW (LBS/HR) 0 0 700 900  
 MIXTURE CONTROL POSITION RICH ICO RICH RICH  
 THROTTLE POSITION W/O W/O W/O W/O

FLOWMETER LIMITS  
 MINIMUM 22.0 0 58.6 74.4  
 OBSERVED (LBS/HR) [ ] [ ] [ ] [ ]  
 MAXIMUM 32.0 5 cc/min 60.5 77.5

BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)  
 BURETTE VOLUME (cc) 200 300 500  
 MINIMUM 38.1 30.3 39.4  
 OBSERVED (SECONDS) [ ] [ ] [ ]  
 MAXIMUM 55.5 31.2 41.0

METERING HEAD AVG  
 OBSERVED (" STODDARD) 24.0 40.2 [ ]

- PROCEDURE FOR SPLIT HEAD CHECK
1. Close throttle to .006" shim in bore.
  2. Adjust idle fuel flow to 7 - 9 lbs/hr with wheel centered. Observe metering head. Energize boost pump to provide 35 - 40 psi. After stabilizing, fuel flow must be within  $\pm .5$  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.

9872-03  
*Jim Hester* 3/20/09

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

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-5AD1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2524472 FUEL PRESSURE: 19-21 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ °F  
 2524474

TEST POINT NUMBER	1	2	3	4
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METERING SUCTION (INCHES OF WATER)	0	0	8.6	14.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	700	900
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O

**FLOWMETER LIMITS**

MINIMUM OBSERVED (LBS/HR)	20.0	0	56.6	72.4
MAXIMUM OBSERVED (LBS/HR)	34.0	5 cc/min	62.5	79.5

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

MINIMUM OBSERVED (SECONDS)	200	300	500
MAXIMUM OBSERVED (SECONDS)	35.9	29.3	38.4
AVERAGE OBSERVED (SECONDS)	61.0	32.3	42.1

**METERING HEAD AVG**

MINIMUM OBSERVED (" STODDARD)	_____	_____	_____
MAXIMUM OBSERVED (" STODDARD)	_____	_____	_____

**PROCEDURE FOR SPLIT HEAD CHECK**

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 7.0 - 9.0 lbs/hr with wheel centered. Observe metering head. Energize boost pump to provide 35 - 40 psi. After stabilizing, fuel flow must be within  $\pm .5$  lbs/hr of value observed at specified fuel inlet pressure. Turn boost pump off.
3. Remove .006" shim.
4. Close throttle to 6.0 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.