



Service Information Letter - Fuel Systems

**SUBJECT: Service Information for RSA-10AD1 Fuel Injection Servo
Parts List 2524163-15.**

PURPOSE: To provide repair shops with flow bench limits and service information for RSA-10AD1 fuel injection servo parts list 2524163-15.

Revision 1: Changes stem seal, idle valve, calibration limits, service limits, along with idle and mixture lever components.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-10AD1 fuel injection servos, parts list 2524163-15. These servos are installed on Lycoming TIO-540-A series engines.
- B. **REASON:** Product improvement and to meet Textron Lycoming requirements.
- 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 15-433D for parts list 2524163-15 is applicable except as follows:

1. Reference manual 15-433D, IPL, Figure 3:

Item Number	Old Part Number	New Part Number	Description
20	2537737	2537737B	Lever Assy (ref. SB PRS-110)
115	2523757	2577315	Spring
120	367694 (holder)	2577322 (inner) 2577323 (outer)	Spring Seat
125	2538330 (washer)	2577319	Roller Assy
160	2537735	2577296-399-992	Valve, Idle

2. Reference manual 15-433D, IPL, Figure 4:

Item Number	Old Part Number	New Part Number	Description
95	2539561 & 2539560 (Spring, no longer used)	2577275	Seal, Servo stem

3. Reference manual 15-433D, Calibration and Service Limits:

Specification Type	Applicable Figure	Old Test Specification	New Test Specification
Calibration Limits	1303	30041-03	30041-05
Service Limits	1304	30042-02	30042-04

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

4. Reference manual 15-433D, History of Changes:

<u>Date</u>	<u>IC Number</u>	<u>Description</u>
<u>Issue 12</u>		
2-21-03	45	Idle valve 2577210 replaces 2537735
4-21-08	46	Gasket 2577258 replaces 365533
2-3-09	46	Calibration Limits T.S. 30041-04 was T.S. 30041-03 Service Limits T.S. 30042-03 was T.S. 30024-02
<u>Issue 15</u>		
10-19-09	47	Stem seal 2577275 was 2539561 and 2539560
3-5-15	48	Idle valve 2577296-399-992 replaces 2577210
3-5-15	48	Calibration Limits T.S. 30041-05 was T.S. 30041-04 Service Limits T.S. 30042-04 was T.S. 30024-03
1-7-20	49	Idle lever assembly 2537737B was 2537737 Spring 2577315 was 2523757 Spring seats 2577322 and 2577323 was 367694 Roller assy. 2577319 was 2538330

30041-05

D Middleton 10-03-16

**TEST SPECIFICATION
CALIBRATION LIMITS**

PRECISION AIRMOTIVE LLC - FUEL CONTROLS - ARLINGTON, WASHINGTON

INSTALLATION PARTS LIST: _____ MODEL: RSA-10AD1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2524510 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	4.1	18.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	900	1900
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O

FLOWMETER LIMITS

MINIMUM OBSERVED (LBS/HR)	60.5	0	90.0	203.0
MAXIMUM OBSERVED (LBS/HR)	66.5	5 cc/min	99.0	205.5

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

BURETTE VOLUME (cc)	300	500	2000
MINIMUM OBSERVED (SECONDS)	27.5	30.8	59.4
MAXIMUM OBSERVED (SECONDS)	30.3	33.9	60.1

METERING HEAD AVG

OBSERVED (" STODDARD)			
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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 $\pm .5$ 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.

30042-04
D Modification 10-03-16

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

INSTALLATION PARTS LIST: _____ MODEL: RSA-10AD1 SERIAL NUMBER: _____
 OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2524510 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. _____ @ _____ OF

TEST POINT NUMBER	1	2	3	4
METERING SUCTION (INCHES OF WATER)	0	0	4.1	18.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	900	1900
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O
FLOWMETER LIMITS				
MINIMUM OBSERVED (LBS/HR)	58.5	0	89.0	201.0
MAXIMUM OBSERVED (LBS/HR)	68.5	5 cc/min	101.0	207.5
BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)				
MINIMUM BURETTE VOLUME (cc)	300		500	2000
MAXIMUM OBSERVED (SECONDS)	26.7		30.2	58.8
MINIMUM OBSERVED (SECONDS)	31.3		34.3	60.7
METERING HEAD AVG				
MINIMUM OBSERVED (" STODDARD)			9.0	44.0

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 $\pm .5$ 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. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.