



SIL RS-91

Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-10AD1

Issued 03/02/09

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**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.

- 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:** 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 15-433D for parts list 2524163-15 is applicable except as follows:

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

Item Number	Old Part Number	New Part Number	Description
160	2537735	2577210	Valve, Idle

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

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

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

3. 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

30041-04
Jim Yates 2/3/09

TEST SPECIFICATION
CALIBRATION LIMITS
 PRECISION AIRMOTIVE LLC - FUEL CONTROLS - MARYSVILLE, 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
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METERING SUCTION (INCHES OF WATER)	0	0	3.7	18.4
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	101.0	210.0
MAXIMUM OBSERVED (LBS/HR)	66.5	5 cc/min	107.0	214.0

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

BURETTE VOLUME (cc)	300	500	2000
MINIMUM OBSERVED (SECONDS)	27.5	28.5	57.0
MAXIMUM OBSERVED (SECONDS)	30.3	30.2	58.1
METERING HEAD AVG OBSERVED (" STODDARD)		10.9	48.0

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 fuel flow. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

30042-03
Jim Hagan 2/3/09

TEST SPECIFICATION
SERVICE LIMITS
 PRECISION AIRMOTIVE LLC - FUEL CONTROLS - MARYSVILLE, 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	3.7	18.4
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	99.0	208.0
MAXIMUM	68.5	5 cc/min	109.0	216.0

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

BURETTE VOLUME (cc)	300	500	2000
MINIMUM OBSERVED (SECONDS)	26.7	28.0	56.5
MAXIMUM	31.3	30.8	58.7
METERING HEAD AVG OBSERVED (" STODDARD)		10.9	48.0

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.