

# Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-10AD1

Issued 12/08/08

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**SUBJECT: Service Information for RSA-10AD1 Fuel Injection Servo  
Parts List 2524175-11**

**PURPOSE:** To provide repair shops with service information for RSA-10AD1 fuel injection servo parts list 2524175.

Revision 1 provides information regarding test specifications 30044-02 and 30045-02 revisions.

- A. **EFFECTIVITY:** This service information letter is applicable to all RSA-10AD1 fuel injection servos, parts list 2524175 issue 1 through 11. These servos are installed on Lycoming IO-720 engines.
- B. **REASON:** After revising the flow schedule of the servo for Textron Lycoming, it was found that the new calibration could better be achieved by replacing the existing idle valve, part number, 2541461, with valve part number 2525239.
- 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 (9/1/94) for parts list 2524175-10 is applicable to parts list 2524175-11 except as follows:

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

| Item Number | Old Part Number | New Part Number | Description          |
|-------------|-----------------|-----------------|----------------------|
| 1C          | 2524175-10      | 2524175-11      | Fuel Injection Servo |
| 110C        | 2524511-N       | 2524511-Y       | Servo, Basic Assy    |

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

| Item Number | Old Part Number | New Part Number | Description |
|-------------|-----------------|-----------------|-------------|
| 160B        | 2541461         | 2525239         | Idle Valve  |

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

| Specification Type | Applicable Figure | Old Test Specification | New Test Specification  |
|--------------------|-------------------|------------------------|-------------------------|
| Calibration        | Figure 1305       | 30044-01               | 30044-02 dated 11/03/08 |
| Service            | Figure 1306       | 30045-01               | 30045-02 dated 11/10/08 |

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

## 4. Reference manual 15-633B, History of Changes

## E. Reference manual 15-633, History of Changes

| <u>Date</u>     | <u>IC Number</u> | <u>Description</u>  |
|-----------------|------------------|---|
| <u>Issue 10</u> |                  |   |
| 7-11-94         | 38               | Calibration Limits T.S. 30044-01 was 11274-01;<br>Service Limits T.S. 30045-01 was 9886-01  |
| <u>Issue 11</u> |                  |   |
| 11-1-94         | 39               | Idle Valve 2525239 replaces 2541461   |
| 11-10-08        | 41               | Calibration Limits T.S. 30044-02 was 30044-01;<br>Service Limits T.S. 30045-02 was 30045-01 |

30044-02  
*Jan-11-2008* 11/03/08

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

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10AD1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2524511 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ OF

|  | 1    | 2   | 3    | 4     |
|--|------|-----|------|-------|
| METERING SUCTION (INCHES OF WATER)                             | 0    | 0   | 3.0  | 16.7  |
| CORRESPONDING AIRFLOW (LBS/HR)                                 | 0    | 0   | 1000 | 2275  |
| 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)                                      | 50.0 | 0   | 84.0 | 198.0 |
| MAXIMUM OBSERVED (LBS/HR)                                      | 65.0 |     | 87.0 | 202.0 |
| <b>BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)</b> |      |     |      |       |
| BURETTE VOLUME (cc)  | 300  |     | 500  | 2000  |
| MINIMUM OBSERVED (SECONDS)                                     | 28.2 |     | 35.1 | 60.4  |
| MAXIMUM OBSERVED (SECONDS)                                     | 36.6 |     | 36.3 | 61.6  |
| <b>METERING HEAD AVG OBSERVED (" STODDARD)</b>                 |      |     |      |       |
|  |      |     | 6.0  | 38.9  |

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 5 -6 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 4 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

30045-02  
*Jim J...* 11/10/08

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

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10AD1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2524511 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ OF

| TEST POINT NUMBER | 1 | 2 | 3 | 4 |
|-------------------|---|---|---|---|
|-------------------|---|---|---|---|

METERING SUCTION (INCHES OF WATER) 0 0 3.0 16.7

CORRESPONDING AIRFLOW (LBS/HR) 0 0 1000 2275

MIXTURE CONTROL POSITION RICH W/O W/O W/O RICH W/O

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

FLOWMETER LIMITS

| MINIMUM           | 0    | 82.0 | 196.0 |
|-------------------|------|------|-------|
| OBSERVED (LBS/HR) | 48.0 |      |       |
| MAXIMUM           | 67.0 | 89.0 | 204.0 |

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

| BURETTE VOLUME (cc) | 300  | 500  | 2000 |
|---------------------|------|------|------|
| MINIMUM             | 27.3 | 34.3 | 59.8 |
| OBSERVED (SECONDS)  |      |      |      |
| MAXIMUM             | 38.1 | 37.2 | 62.3 |

METERING HEAD AVG

|                       |  |  |  |
|-----------------------|--|--|--|
| OBSERVED (" STODDARD) |  |  |  |
|-----------------------|--|--|--|