

# Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-10DB1

Issued 5-05-97

Page 1 of 3

**SUBJECT: Service Information for RSA-10DB1 Fuel Injection Servo  
Parts List 2524275-16.**

**PURPOSE:** To provide repair shops with flow bench limits and service information for RSA-10DB1 fuel injection servo parts list 2524275-16.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-10DB1 fuel injection servos, parts list 2524275-16. These servos are installed on Lycoming TIO-541-E engines.
- B. **REASON:** Textron Lycoming requested a revision to the fuel flow schedule of the 2524275 servo to meet engine fuel flow requirements. Precision Airmotive Corporation accomplished this change by replacing the existing idle valve, part number 2537796, with valve part number 2525215 and adjusting the calibration limits accordingly.
- 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 15-471E, Revision 1 (8/31/90) for parts list 2524275-15 is applicable to parts list 2524275-16 except as follows:

1. Reference manual 15-471E, IPL, Figure 1:

Item Number	Old Part Number	New Part Number	Description
1	2524275-15	2524275-16	Fuel Injection Servo
115	2524505-T	2524505-U	Servo, Basic Assembly

2. Reference manual 15-471E, IPL, Figure 3:

Item Number	Old Part Number	New Part Number	Description
180	2537796	2525215	Idle Valve

3. Reference manual 15-471E, Calibration and Service Limits:

Applicable Figure	Specification Type	Old Test Specification	New Test Specification *
Figure 1301	Calibration	11269-01	30063-01 dated 9/25/95
Figure 1302	Service	10170-01	30064-01 dated 9/25/95

\* These Specifications are included with this service information letter; see pages 2 & 3.

30063-01  
#319/29/95

TEST SPECIFICATION  
CALIBRATION LIMITS

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - EVERETT, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10DB1 SERIAL NUMBER: \_\_\_\_\_

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

BASIC PARTS LISTS: 2524505 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ OF

TEST POINT NUMBER	1	2	3	4
METERING SUCTION (INCHES OF WATER)	0	0	2.7	24.5
CORRESPONDING AIRFLOW (LBS/HR)	0	0	800	2400
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O
<u>FLOWMETER LIMITS</u>				
MINIMUM OBSERVED (LBS/HR)	54.5	0	74.2	266.0
MAXIMUM	60.0	5 cc/min	79.3	276.0
<u>BURETTE TIME LIMITS (Using MIL-C-7024 Type II)</u>				
BURETTE VOLUME (cc)	300		500	2500
MINIMUM OBSERVED (SECONDS)	30.5		38.5	55.3
MAXIMUM	33.6		41.1	57.3
<u>METERING HEAD AVG</u>				
OBSERVED (" NAPHTHA)	3.0		6.7	59.5

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.

Calibration Test Specification  
Figure 1301

30064-01  
Rev 9/29/95

TEST SPECIFICATION  
SERVICE LIMITS  
PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - EVERETT, WASHINGTON

INSTALLATION PARTS LIST: \_\_\_\_\_ MODEL: RSA-10DB1 SERIAL NUMBER: \_\_\_\_\_  
OPERATOR: \_\_\_\_\_ DATE: \_\_\_\_\_

BASIC PARTS LISTS: 2524505 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ of \_\_\_\_\_

TEST POINT NUMBER	1	2	3	4
METERING SUCTION (INCHES OF WATER)	0	0	2.7	24.5
CORRESPONDING AIRFLOW (LBS/HR)	0	0	800	2400
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O

FLOWMETER LIMITS

MINIMUM	54.5	0	72.0	260.0
OBSERVED (LBS/HR)				
MAXIMUM	60.0	5 cc/min	81.5	282.0

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

BURETTE VOLUME (cc)	300	500	2500
MINIMUM	30.5	37.4	54.1
OBSERVED (SECONDS)			
MAXIMUM	33.6	42.4	58.7
METERING HEAD AVG	3.0	6.7	59.5
OBSERVED (" NAPTHA)			

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" slim 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" slim.
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.

Service Test Specification  
Figure 1302