

# Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-7DA1

Issued 11/12/04

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## SUBJECT: Service Information for RSA-7DA1 Fuel Injection Servo Parts List 2524624-7.

**PURPOSE:** To provide repair shops with flow bench limits and service information for RSA-7DA1 fuel injection servo, parts list 2524624-7

- A. **EFFECTIVITY:** This service Information Letter is applicable to RSA-7DA1 fuel injection servos, identified with parts list 2524624-7. These servos are installed on Continental TSIO-520-WB engines.
- B. **REASON:** Teledyne Continental Motors (TCM) has revised the fuel flow requirements for the TSIO-520-WB engine.
- C. **COMPLIANCE:** This change is non-mandatory and may be accomplished at overhaul or at the owner's discretion.
- D. **DESCRIPTION:** This change decreases the fuel flow over the entire operational range. The service information found in manual 15-633B (4/15/89) for parts list 2524624-6 is applicable to parts list 2524624-7 except as follows:

1. Reference manual 15-633B, IPL, Figure 1:

Item Number	Old Part Number	New Part Number	Description
1	2524624-6	2524624-7	Fuel Injection Servo
110	2540175	2540391	Screw, Fillister Head
140	2524633-L	2524633-M	Servo, Basic Assembly

2. Reference manual 15-633B, IPL, Figure 4:

Item Number	Old Part Number	New Part Number	Description
170	MS171533	2541786	Pin

## 3. Reference manual 15-633B, Calibration and Service Limits:

Specification Type	Applicable Figure	Old Test Specification	New Test Specification
Calibration	Figure 1301	11900-01	30033-02 dated 7/25/96
Service	Figure 1302	11899-01	30034-02 dated 7/25/96

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

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

<u>Date</u>	<u>IC Number</u>	<u>Description</u>
<u>Issue 1-6</u>		
Reference manual 15-633, History of Changes		
11-1-94	54	Spring Pin 2541786 was MS171533
<u>Issue 7</u>		
7-21-1995	55	Calibration Limits T.S. 30033-01 was 11900-01, Service Limits T.S. 30034-01 was 11899-01.
7-25-1996	56	Calibration Limits T.S. 30033-02 was 30033-01, Service Limits T.S. 30034-02 was 30034-01.

**TEST SPECIFICATION  
CALIBRATION LIMITS**

**30033-02**  
RS4 7-25-96

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - EVERETT, WASHINGTON

MODEL: RSA-7DA1      PARTS LIST: \_\_\_\_\_      SERIAL NUMBER: \_\_\_\_\_  
 DATE: \_\_\_\_\_      OPERATOR: \_\_\_\_\_

BASIC PARTS LIST: 2524633      FUEL PRESSURE: 25-27 PSI      FUEL SP. GRAV. \_\_\_\_\_ @ \_\_\_\_\_ °F

TEST POINT NUMBER	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	2.0	10.0	36.5
CORRESPONDING AIRFLOW (LBS/HR)	0	0	450	1000	1850
MIXTURE CONTROL POSITION	RICH	ICO	ICO	RICH	RICH
THROTTLE POSITION	W.O.	W.O.	W.O.	W.O.	W.O.

**FLOWMETER LIMITS**

MINIMUM	OBSERVED (LBS/HR)	MAXIMUM
32.0	<input type="text"/>	40.0
0	<input type="text"/>	5 cc/min

NOTE 1

<input type="text"/>	94.0	<input type="text"/>	189.0
<input type="text"/>	108.0	<input type="text"/>	192.0

**BURETTE TIME LIMITS**

BURETTE VOLUME (cc)	MINIMUM	OBSERVED (SECONDS)	MAXIMUM
200	<input type="text"/>	<input type="text"/>	<input type="text"/>
29.0	<input type="text"/>	<input type="text"/>	<input type="text"/>
36.3	<input type="text"/>	<input type="text"/>	<input type="text"/>

**METERING HEAD**

AVG.	OBSERVED (" NAPTHA)
<input type="text"/>	<input type="text"/>
48.0	<input type="text"/>
55.2	<input type="text"/>
31.8	<input type="text"/>
32.3	<input type="text"/>

NOTE 1: FLOW MUST INCREASE A MINIMUM OF 5 LBS/HR ABOVE THE VALUE RECORDED IN TEST POINT 1.

**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.

**30034-02**  
 RS# 7-25-96

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

MODEL: RSA-7DA1      PARTS LIST: \_\_\_\_\_      SERIAL NUMBER: \_\_\_\_\_

DATE: \_\_\_\_\_      OPERATOR: \_\_\_\_\_  
 BASIC PARTS LIST: 2524633      FUEL PRESSURE: 25-27 PSI      ENGINE MFG: TELEDYNE CONTINENTAL MOTORS

LIMITS BASED ON TEST FLUID WITH .734 SPECIFIC GRAVITY AT 75°F ± 5°F (NAPHTHA)

TEST POINT NUMBER	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	2.0	10.0	36.5
CORRESPONDING AIRFLOW (LBS/HR)	0	0	450	1000	1850
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH	RICH
THROTTLE POSITION	W.O.	W.O.	W.O.	W.O.	W.O.

FLOWMETER LIMITS

MINIMUM	1	2	3	4	5
OBSERVED (LBS/HR)	30.0	0	NOTE 1	91.0	184.0
MAXIMUM	42.0	5 cc/min		111.0	198.0

BURETTE TIME LIMITS

BURETTE VOLUME (cc)	1	2	3	4	5
MINIMUM	200			850	1000
OBSERVED (SECONDS)	27.7			46.7	30.8
MAXIMUM	38.8			57.0	33.2

METERING HEAD      AVG.

OBSERVED (" NAPHTHA)	1	2	3	4	5
				48.0	

NOTE 1: FLOW MUST INCREASE A MINIMUM OF 3 LBS/HR ABOVE THE VALUE RECORDED IN TEST POINT 1.