

Service Information Letter - Fuel Systems

**SUBJECT: Service Information for RSA-10ED1 Fuel Injection Servo
Parts List 2549038-3.**

PURPOSE: To provide repair shops with flow bench limits and service information for RSA-10ED1 fuel injection servo parts list 2549038-3.

Revision 1 includes updated test specifications

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-10ED1 fuel injection servos, parts list 2549038 issue -1 through -3. These servos are installed on Lycoming TIO-540-AE2A engines in Piper Malibu Mirage (PA46-350P) aircraft.
- B. **REASON:** Piper Aircraft Corporation and Textron Lycoming requested a revision to the fuel flow schedule of the 2549038 servo to reduce the fuel flow in the off-idle range because of reported high RPM drop during the magneto check. Precision Airmotive Corporation accomplished this change by replacing the idle lever assembly, part number 2538396, with a new assembly, part number 2577002. The flow bench limits have also been revised to reflect this new performance schedule.
- 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 15-458G Change 1 (12/15/90) for parts list 2549038-2 is applicable to parts list 2549038-3 except as follows:

1. Reference manual 15-458G Change 1, IPL, Figure 1:

Item Number	Old Part Number	New Part Number	Description
1V	2549038-2	2549038-3	Fuel Injection Servo
115M	2549041-A	2549041-B	Servo, Basic Assembly

2. Reference manual 15-458G Change 1, IPL, Figure 3:

Item Number	Old Part Number	New Part Number	Description
115	2538396	2577002	Idle Lever Assembly
160	2538321	2577001	Idle Valve Stem

3. Reference manual 15-458G Change 1, Calibration and Service Limits:

Applicable Figure	Specification Type	Old Test Specification	New Test Specification *
Figure 1320	Calibration	30002-01	30023-03 dated 8/22/07
Figure 1321	Service	30003-01	30024-02 dated 8/22/07

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

30023-03
Sub 8-22-07

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

INSTALLATION PARTS LIST: _____ MODEL: RSA-10ED1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2549041 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. _____ @ _____ °F

TEST POINT NUMBER	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	2.7	6.7	22.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	700	1100	2000
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O	W/O
FLOWMETER LIMITS					
MINIMUM OBSERVED (LBS/HR)	38.0	0	66.0	110.0	214.0
MAXIMUM	43.5	5 cc/min	73.0	116.0	218.0
BURETTE TIME LIMITS (Using MIL-PRF-7024 Type II STODDARD)					
BURETTE VOLUME (cc)	200		500	850	2000
MINIMUM OBSERVED (SECONDS)	28.1		41.8	44.7	56.0
MAXIMUM	32.1		46.2	47.2	57.0
METERING HEAD AVG OBSERVED (" STODDARD)					
	2.3		5.0	1.5	50

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 9.5 - 10.5 lbs/hr with wheel centered. Observe metering head. Energize boost pump to provide 35 - 40 psi. After stabilizing, fuel flow must be within ± .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.

30024-02
3/13/07 8-22-07

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

INSTALLATION PARTS LIST: _____ MODEL: RSA-10ED1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2549041 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. _____ @ _____ OF _____

	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	2.7	6.7	22.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	700	1100	2000
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O	W/O
FLOWMETER LIMITS					
MINIMUM OBSERVED (LBS/HR)	36.0	0	64.0	108.0	212.0
MAXIMUM OBSERVED (LBS/HR)	45.5	5 cc/min	75.0	118.0	220.0
BURETTE TIME LIMITS (Using MIL-PRF-7024 Type II STODDARD)					
BURETTE VOLUME (cc)	200		500	850	2000
MINIMUM OBSERVED (SECONDS)	26.8		40.7	44.0	55.5
MAXIMUM OBSERVED (SECONDS)	33.9		47.7	48.0	57.6
METERING HEAD AVG					
OBSERVED (" STODDARD)	2.3		5.0	15	50

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.