



Service Information Letter - Fuel Systems

**SUBJECT: Service Information for RSA-5AD1 Fuel Injection Servo
Parts List 2576592-2.**

PURPOSE: To provide repair shops with flow bench limits and service information for RSA-5AD1 fuel injection servo parts list 2576592-2.

Revision 1 adds information for the -2 configuration.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-5AD1 fuel injection servos, parts list 2576592-2. These servos are installed on Lycoming TIO-540-AK1A engines.
- B. **DESCRIPTION:** This document supercedes SIL RS-65. The service information found in manual 15-381G Revision 1, for parts list 2524054-11 is applicable to parts list 2576592-2 except as follows:

1. Reference manual 15-381G Revision 1, IPL, Figure 1:

| Item Number | 2576592-2 Part Number | Description |
|-------------|--------------------------|------------------------|
| 1 | 2576592-2 | Fuel Injection Servo |
| 45 | 2522004 | Lever, Mixture Control |
| 50 | 2576591-B | Servo, Basic Assembly |

2. Reference manual 15-381G Revision 1, IPL, Figure 2:

| Item Number | 2576592-2 Part Number | Description |
|-------------|--------------------------|-------------|
| 5 | 2663787-004 | Plug |
| 10 | 557-S-4 | Packing |

3. Reference manual 15-381G Revision 1, IPL, Figure 5:

| Item Number | 2576592-2 Part Number | Description |
|-------------|--------------------------|-------------------|
| 180 | 2577197-787 | Valve, Lower Idle |

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

| Specification Type | 2576592-2 Test Specification | Applicable Figure |
|--------------------|---------------------------------|----------------------|
| Calibration Limits | 30093-01 | New |
| Service Limits | 30094-01 | New |

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

5. Reference manual 15-381G, History of Changes:

| <u>Date</u> | <u>IC Number</u> | <u>Description</u> |
|----------------|------------------|--|
| <u>Issue 1</u> | | |
| 12-14-00 | 1 | Released to production |
| <u>Issue 2</u> | | |
| 8-06-04 | 2 | Lower Idle Valve 2577198-787 was 2577115. Basic Assembly 2576591-B was 2576591-A. |

30093-01
5/8/01

**TEST SPECIFICATION
CALIBRATION LIMITS**

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: _____ MODEL: RSA-5AD1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576591 FUEL PRESSURE: 19-21 PSI FUEL SP. GRAV. _____ @ _____ °F

| TEST POINT NUMBER | 1 | 2 | 3 | 4 | 5 |
|--|------|----------|------|------|-------|
| METERING SUCTION (INCHES OF WATER) | 0 | 0 | 3.1 | 8.2 | 26.2 |
| CORRESPONDING AIRFLOW (LBS/HR) | 0 | 0 | 500 | 800 | 1400 |
| MIXTURE CONTROL POSITION | RICH | ICO | RICH | RICH | RICH |
| THROTTLE POSITION | W/O | W/O | W/O | W/O | W/O |
| <u>FLOWMETER LIMITS</u> | | | | | |
| MINIMUM OBSERVED (LBS/HR) | 30.0 | 0 | 44.0 | 74.5 | 137.0 |
| MAXIMUM OBSERVED (LBS/HR) | 35.0 | 5 cc/min | 47.0 | 77.5 | 141.0 |
| <u>BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)</u> | | | | | |
| BURETTE VOLUME (cc) | 200 | | 300 | 500 | 850 |
| MINIMUM OBSERVED (SECONDS) | 34.9 | | 39.0 | 39.4 | 36.8 |
| MAXIMUM OBSERVED (SECONDS) | 40.7 | | 41.6 | 41.0 | 37.9 |
| <u>METERING HEAD AVG OBSERVED (" STODDARD)</u> | 2.3 | | 6.1 | 19.0 | 68.0 |

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.

30094-01
5/8/01

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

INSTALLATION PARTS LIST: _____ MODEL: RSA-5AD1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576591 FUEL PRESSURE: 19+21 PSI FUEL SP. GRAV. _____ @ _____ OF

| TEST POINT NUMBER | 1 | 2 | 3 | 4 | 5 |
|-------------------|---|---|---|---|---|
|-------------------|---|---|---|---|---|

METERING SUCTION (INCHES OF WATER) 0 0 3.1 8.2 26.2
 CORRESPONDING AIRFLOW (LBS/HR) 0 0 500 800 1400

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

FLOWMETER LIMITS
 MINIMUM 28.0 0 42.0 72.5 135.0
 OBSERVED (LBS/HR) [] [] [] [] []
 MAXIMUM 37.0 49.0 79.5 143.0

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

BURETTE VOLUME (cc) 200
 MINIMUM 33.0 37.4 500 850
 OBSERVED (SECONDS) [] [] [] []
 MAXIMUM 43.6 42.1 38.4 36.3

METERING HEAD AVG 2.3 6.1 19.0 79.0
 OBSERVED (" STODDARD) [] [] [] []