



Service Information Letter - Fuel Systems

SIL RS-104

SMALL RECIPROCATING ENGINES

RSA-5AD1

Issued 2-05-2020

Page 1 of 4

**SUBJECT: Service Information for RSA-5AD1 Fuel Injection Servo
Parts List 2576610-1.**

PURPOSE: To provide repair shops with flow bench limits and service information for RSA-5AD1 fuel injection servo parts list 2576610-1.

- A. EFFECTIVITY: This Service Information Letter is applicable to all RSA-5AD1 fuel injection servos, parts list 2576610-1. These servos are installed on Superior SP360 engines.
- B. REASON: This new servo was released for the new Superior SP360 engines.
- C. COMPLIANCE: Information only.
- D. DESCRIPTION: The service information found in manual 15-381H for parts list 2524054-11 is applicable to parts list 2576610-1 except as follows:

1. Reference manual 15-381H, IPL, Figure 1:

| Item Number | 2576610-1 Part Number | Description |
|-------------|--------------------------|-----------------------------|
| 45 | 2522004 | Lever, Mixture |
| 50 | 2576609-A | Basic, Fuel Injection Servo |
| 60 | 132906 | Plug, Hex |
| 105 | 367720 | Nut, Flared Tube |
| 106 | 367719 | Elbow, 90° |

2. Reference manual 15-381H, IPL, Figure 3:

| Item Number | 2576610-1 Part Number | Description |
|-------------|--------------------------|-------------------|
| 180 | 2577197-715 | Valve, Lower Idle |

3. Reference manual 15-381H, Calibration and Service Limits:

| Specification Type | 2576610-1 Test Specification | Applicable Figure |
|--------------------|---------------------------------|----------------------|
| Calibration Limits | 30108 | New |
| Service Limits | 30109 | New |

4. Reference manual 15-381H, History of Changes.

| <u>Date</u> | <u>IC Number</u> | <u>Description</u> |
|----------------|------------------|---|
| <u>Issue 1</u> | | |
| 10-6-04 | 1 | Released to production. |
| 6-16-08 | 2 | Hex plug gasket P/N 2577258 was P/N 365533. |
| 9-28-09 | 3 | Servo stem seal P/N 2577245 was P/N 2539561. Spring P/N 2539560 removed. |
| 12-10-19 | 4 | Idle lever assy. P/N 2523719B replaces P/N 2523719. Mixture control spring P/N 2577315 replaces P/N 2523757. Roller assy. P/N 2577319, Inner spring seat/race P/N 2577322, and Outer spring seat/race P/N 2577323 added. Spring retainer P/N 367694 and Thrust washer P/N 2538330 removed. |

30108-01
6/2/05
RHC

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

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

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576609 FUEL PRESSURE: 19-21 PSI FUEL SP. GRAV. _____ @ _____ °F

| TEST POINT NUMBER | 1 | 2 | 3 | 4 |
|---------------------------------------|------|-----|------|------|
| METERING SUCTION (INCHES OF WATER) | 0 | 0 | 1.9 | 26.2 |
| CORRESPONDING AIRFLOW (LBS/HR) | 0 | 0 | 400 | 1400 |
| MIXTURE CONTROL POSITION | RICH | ICO | RICH | RICH |
| THROTTLE POSITION | W/O | W/O | W/O | W/O |

FLOWMETER LIMITS

| | | | | |
|-------------------|------|----------|------|-------|
| MINIMUM | 22.0 | 0 | 30.0 | 121.0 |
| OBSERVED (LBS/HR) | | | | |
| MAXIMUM | 29.0 | 5 cc/min | 35.5 | 130.0 |

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

| | | | | |
|---------------------|------|-----|------|------|
| BURETTE VOLUME (cc) | 200 | 200 | 200 | 850 |
| MINIMUM | 42.1 | | 34.4 | 39.9 |
| OBSERVED (SECONDS) | | | | |
| MAXIMUM | 55.5 | | 40.7 | 42.9 |

METERING HEAD AVG

| | | | | |
|-----------------------|--|--|--|------|
| OBSERVED (" STODDARD) | | | | 71.0 |
|-----------------------|--|--|--|------|

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 7 - 9 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 6 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

30109-02
① Modified 2-4-2020

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

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

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576609 FUEL PRESSURE: 19-21 PSI FUEL SP. GRAV. _____ @ _____ OF

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

| | | | | |
|---------------------------------------|------|-----|------|------|
| METERING SUCTION (INCHES OF WATER) | 0 | 0 | 1.9 | 26.2 |
| CORRESPONDING AIRFLOW (LBS/HR) | 0 | 0 | 400 | 1400 |
| MIXTURE CONTROL POSITION | RICH | ICO | RICH | RICH |
| THROTTLE POSITION | W/O | W/O | W/O | W/O |

FLOWMETER LIMITS

| | | | | |
|-------------------|------|----------|------|-------|
| MINIMUM | 20.0 | 0 | 28.0 | 119.0 |
| OBSERVED (LBS/HR) | | | | |
| MAXIMUM | 31.0 | 5 cc/min | 37.5 | 132.0 |

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

| | | | | |
|---------------------|------|-----|------|------|
| BURETTE VOLUME (cc) | 200 | 200 | 200 | 850 |
| MINIMUM | 39.4 | | 32.5 | 39.3 |
| OBSERVED (SECONDS) | | | | |
| MAXIMUM | 61.0 | | 43.6 | 43.6 |

METERING HEAD AVG

| | | | | |
|-----------------------|--|--|--|------|
| OBSERVED (" STODDARD) | | | | 71.0 |
|-----------------------|--|--|--|------|

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 7 - 9 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 6 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.