

INCIDENT INVESTIGATION REPORT

Component Inspection and Flow Check - RSA Fuel Injection

PAM Work Order Number: _____
Aircraft Type: Cessna 177 RG
Engine Model Number: 10-360
Incident Location: La Verne, CA

Investigation Date: 11-6-18
Aircraft Registration #: 46321
Incident Date: 9-30-18
PAM File Number: _____

Component Type: Servo
Model: RSA-5401

Parts List Number: 2524054-11
Serial Number: 70766801

— on black PAC debris bag, also "12-40"

Location: PAC

Attendees: Dan Vanover & Fabien Selezar - NTSB

I) External Condition:

1) Throttle Rotation?

OK

2) Mixture Control Rotation?

OK

3) Fittings/Levers:

OK

4) Throttle Body/Regulator Body:

Very dirty, abrasion on brass reg plug & cover

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5) Letters on Coiloc Seal:

"PAM"

6) Additional Observations:

II) Flow Test Results:

see flow sheet

III) Tear down Results:

1) Fuel Inlet Screen:

Clear, OK

2) Manual mixture control valve/plate/lever assy:

plate has minor scratch, all else OK

3) Idle Plug/Main Metering Orifice:

OK

4) Idle valve plate/lever assy:

OK

5) Fuel Section O-rings:

OK

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6) Regulator Adjustments:

A) Position of outer regulator nut (# of turns out from inner nut):

2 1/4 + out

B) Constant Head Spring/Shims:

No shim, Red spring

C) Position of inner regulator nut (# of turns out from bottom):

1 1/2 + ab

D) Constant Effort Spring:

GREEN

7) Regulator Components

A) Brass Plug:

abraded, but OK

B) Regulator Nuts:

OK

C) Air Diaphragm:

PN 2538295, code "4114", dark oil on suction side

D) Center Body Bellows/Seal:

OK, "M138" & "S-168"

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E) Fuel Diaphragm:

P/N 2541801, code "4080", "12", old style stem seal

F) Servo Seat:

OK, .054" shims, did not remove

8) Venturi

OK, large amount of dark oil behind suction

A) O-rings (If Applicable)

Slots

OK

9) AMC (If Applicable)

NA

A) Flow Test

B) Bellows

C) Needle

D) Seat/sleeve

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10) Other Observations:

*lightly re-assembled to
protect components*

RAK

Acc In N 46521

TEST SPECIFICATION - AIR BOX LIMITS

PRECISION AIRMOTIVE LLC - ARLINGTON, WASHINGTON

11717-15
D Modulation 1-18-18

ENGINEERING SPECIFICATION: PES-4500 MODEL: RSA-5AD1 SERIAL NUMBER: 70216801
OPERATOR: Nickson DATE: 11-6-18 INSTALLATION PARTS LIST: 2524054-11
BASIC PARTS LISTS: 2524469 INTERNAL CHANGE: 43 CUSTOMER: TEXTRON LYCOMING CUSTOMER TEST SPEC: 12906-F
2524904 INTERNAL CHANGE: 10
2576500 INTERNAL CHANGE: 3 RELATIVE HUMIDITY 87% (REFERENCE ONLY)
2576543 INTERNAL CHANGE: 46
2576607 INTERNAL CHANGE: 3

AIRFLOW: STANDARD (29.92"Hg @ 59°F) FUEL: PES-2010 or PES-2150

AIR BOX NUMBER: 4084 FUEL TEMP 68.1 °F BAROMETRIC PRESSURE 14.85 PSI @ 69.3 OF

TEST POINT NUMBER	1	2	3	4	5	6	7	8	9	10	11	12
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AIRFLOW (LBS/HR)	0	0	0	A/R*	100	400	600	OBS	OBS	1400	1400	0
CARB LOSS ("Hg)	W/O	W/O	W/O	A/R*	15.6	12.3	W/O	W/O	W/O	W/O	W/O	W/O
FUEL INLET PRESS	20 ± 1	20 ± 1	20 ± 1	20 ± 1	45 ± 5	20 ± 1	20 ± 1	20 ± 1	20 ± 1	20 ± 1	20 ± 1	20 ± 1
MIXTURE CONTROL FLOWMETER LIMITS	RICH	ICO	RICH	RICH	RICH	RICH	RICH	RICH	RICH	RICH	RICH	RICH
MINIMUM	22.0	0.0	*CLOSE	9.5	± 0.5	OBS	50.0	OBS	OBS	120.0	85.0	± 5.0
OBSERVED (LBS/HR)	33.0	10.4	10.4	10.4	10.4	38.4	54.4	86.0	103.1	123.0	93.0	30.8
MAXIMUM	31.0	0.5	10.5	10.5	54.5	54.5	54.5	54.5	54.5	125.2	103.0	MAX CHANGE FROM TP 1

METERING SUCTION

AVERAGE VALUE

OBSERVED ("H₂O)

METERING HEAD

AVERAGE VALUE

OBSERVED ("STODDARD)

REGULATOR SETTINGS

PREFLOW (LBS/HR) 8 MIN / 18 MAX

NULL (TURNS OUT)

EFFORT SPRING COLOR

INNER NUT TURNS OUT

HEAD SPRING COLOR

OUTER NUT TURNS OUT

HEAD SPRING SHIMS (NUMBER)

EXTERNAL LEAKAGE NONE PERMITTED