

Air Parts of Lock Haven

November 15, 2017

Hi Elliott Simpson

I have performed the testing on the tachometer per Mooney's drawing which I have included a copy of in this report. I have concluded this Tachometer is a Mooney part number 660011-501 per the drawing note # 6. It is also made by Stewart Warner see the part number at the top of the dial Plate (#821120). Also someone added a red line from 2000 to 2100 that is not covered by this note but doesn't change anything as to how it operates.

The test was conducted with a 1790 Ideal Aerosmith Tachometer tester Calibrated on 06 Dec 2017 and due 06 Dec 2017 and Monarch Timer PLT200 Calibrated 18 Nov 2016 and due on 18 Nov 2017.

In note 11 of this drawing it states Hour recorder to register one (1) hour for each 75000 revolutions of shaft (2500 rpm) . I have conducted 2 test at which the tachometer was put at 2500 rpm for 1 hour and confirmed this is a 2500 rpm recorder tachometer. (RT-11)

Here is the test results: 1st test time started was 12:35 pm Eastern standard time zone on 07 Nov 2017. The tachometer time of 1532.64 and ended 1 hour later (timed with PLT200) at 1533.65. The tachometer was set at 2500 rpm and 1790 Aerosmith tester read 2521 rpm at start of test and end of testing.

2nd test time started at 1:45 pm Eastern standard time zone on 07 Nov 2017. The tachometer time was 1533.67 and ended 1 hour later 1534.68 (Timed with PLT200). The tachometer was set at 2500 rpm and 1790 Aerosmith tester read 2531 at start and end of test.

Note: The difference in time between ending of test 1 and starting of test 2 is time to get tachometer to 2500 Rpm to run test.

3rd test I conducted at 3:30 pm Eastern Standard time on 07 Nov 2017. The tachometer time was 1534.72 and ended 1 hour 1535.74 (timed with PLT200). The 1790 Aerosmith tester was set at 2500 rpm and gauge read 2546 at start and end of test.

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Test number 4 was checking the calibration of the tachometer see below for the scale

Tachometer	1790 Tester	Different
RPM	RPM	RPM
500	489	+11
1000	1012	-12
1500	1525	-25
2000	2022	-22
2500	2546	-46
2700	2743	-43
3000	3006	-6
3500	3474	+26

Final thing done was to open tachometer up and inspect the inside of the unit. found tachometer to be in good shape.

My opinion is this tachometer is a good working tachometer and the hour meter is working correctly. I can find no major fault with this unit.

George F. McKinney C.I.

Air Parts of Lock Haven, Inc.

1084 East Water street

Lock Haven PA 17745

FAA Repair Station QK1R429K

VENDOR DESIGN CHG APPROVAL BLOCK			
Item #	Part #	Approved	Chg. Ltr.
1	SSI-WJ	F	
1	M.I. 300-10		
1	BA70-1		
2	SSI-WK	E	
3	SSI-WL		
3	M.I. 300-11		
3	BA70-501		
4	SSI-ARK		
4	BA70-503		
5	SSI-ASN		
5	BA70-505		
5	SS20-15		
1	SS20-25		
2	SS20-26		
3	SS20-27		
4	SS20-28		

15. MFG ADDRESS: STEWART-WARNER, INDIANAPOLIS, IND.
BELAIRE INSTRUMENTS, WICHITA, KANSAS
ROCHESTER GAGES, DALLAS, TX

16. DELETED

16. INDICES MAY BE LOCATED INSIDE OR OUTSIDE OF NUMBERS.

16. DELETED

17. RADIAL RED LINE (RATED) 2700 RPM.

17. GREEN ARC - WIDE (RECOMMENDED OPERATING RANGE) 1950-2700 RPM

17. YELLOW ARC - WIDE (CAUTION) 1500-1950 RPM.

11. HOUR RECORDER TO REGISTER ONE (1) HOUR FOR EACH 75000 REVOLUTIONS OF SHAFT (3500 RPM)

17. TACHOMETER DIAL MARKINGS FOR -503 INSTRUMENT:

A) , B) C) SAME AS -3 INSTRUMENT

D) YELLOW ARC - WIDE (CAUTION) 1600-1950 RPM

9. CALIBRATE WITH TACHOMETER IN VERTICAL POSITION. TACHOMETER MUST NOT REGISTER MORE THAN 10 REVOLUTIONS OUTSIDE OF TOLERANCE WHEN MOUNTED 45° AND OR SHAKED 45° TO THE RIGHT OR LEFT. CALIBRATE 211

TACHOMETER			
MASTER	TEMP	TEMP	TEMP
500	1000 ± 50	NO CHECK	
1000	2000 ± 50	2500 ± 50	
1500	3000 ± 50	NO CHECK	

17. (ZONE 1A) (ITEM 1) SPARE PARTS FOR M20 A & M20 B ACFT. EQUIPPED WITH HARTZELL PROP NO. NC-52YK-1/2646-2 FOR MODERN SERVICE LETTER NO. 50-16A

17. (ZONE 1A) (ITEM 3) USE -501 TACHOMETER FOR SPARE PARTS FOR M20 E & M20 B.

6. TACHOMETER DIAL MARKINGS FOR -501 INSTRUMENT:

A) RADIAL RED LINE (RATED) 2700 RPM.

B) GREEN ARC - NARROW (RATED OPERATING RANGE) 2000-2700 RPM.

C) GREEN ARC - WIDE (RECOMMENDED OPERATING RANGE) 2550-2500 RPM

D) RED ARC - WIDE (NO OPERATING IN THIS RANGE) 2100-2550 RPM.

5. TACHOMETER AC FT. NO. 641210 MAY BE USED AS SPARE PARTS

4. TACHOMETER DIAL MARKINGS FOR -3 INSTRUMENT:

A) RADIAL RED LINE (RATED) 2700 RPM.

B) GREEN ARC - NARROW (RATED OPERATING RANGE) 2000-2700 RPM.

C) GREEN ARC - WIDE (RECOMMENDED OPERATING RANGE) 2500-2500 RPM.

D) RED ARC - NARROW (NO OPERATING IN THIS RANGE) 2100 TO 2500 RPM.

17. INSTRUMENT FACE - DULL BLACK WITH MATT WHITE MARKINGS.

17. DELETED

17. TACHOMETER DIAL MARKINGS FOR -4 INSTRUMENT:

A) RADIAL RED LINE (RATED) 2700 R.P.M.

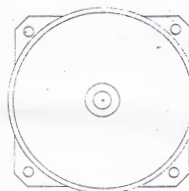
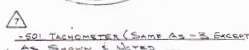
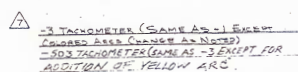
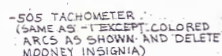
B) GREEN ARC - NARROW (RATED OPERATING RANGE) 2000 TO 2700 R.P.M.

C) GREEN ARC - WIDE (RECOMMENDED OPERATING RANGE) 2500 TO 2500 R.P.M.

D) RED ARC - NARROW (NO OPERATING IN THIS RANGE) 2100 TO 2500 R.P.M.

NOTES:

MANUFACTURER	-1	-3	-501	-503	-505
STEWART-WARNER	SSI-WJ	SSI-WK	SSI-WL	SSI-ARK	SSI-ASN
STEWART-WARNER	M.I. 300-10		M.I. 300-11		
BELAIRE INSTR.	BA70-1		BA70-501	BA70-503	BA70-505
ROCHESTER GAGES					SS20-15
DAFFLEBERRY	J320-25	J320-26	J320-27	J320-28	J320-15



DASH NO.	MODEL	EFFECTIVITY
	M20A	A
	M20B	A
-1	M20C	1852, 1940 & ON
	M20D	1, 101 & ON
	M20E	680001 & ON
-3	M20D	(OPT) 260 & ON
	M20E	101 THRU 822
-501	M20E	883 & ON
	M20F	540001 & ON
-503	M20J	24-0001, THRU 24-0377 (EXCEPT 24-0388)
-505	M20J	24-0084, 24-0378 & ON

[illegible]

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