

DATE 6-27-61
SH. 1 OF 7
COMPILED BY

TMC SPECIFICATION NO. S -580

TITLE: TEST PROCEDURE, P.S.-4A

JOB

APPR VED *Ron Kohn*

A. INTRODUCTION

The P.S.-4A is a regulated power supply and control unit for use with the PAL-1KA linear amplifier and SBT-1K transmitter systems. The main purpose of the P.S.-4A is to provide AC, A, C-, and some B voltages to the RFD-1A. In addition, the P.S.-4A provides the primary voltages for the rectifier filaments and high voltage transformers on HIGH VOLTAGES POWER SUPPLY P.S.-5. The P.S.-4A also makes available external connections for interlocks, remote keying, antenna relay voltages, AC power and external ALDC.

B. TEST PROCEDURE

I. Equipment Required

1. Simpson 260 Multimeter,
2. AVO Multimeter, calibrated at 1%
3. P.S.-4 test jig, complete with cables
4. A.C. input cable.

II. Ohmmeter Continuity Checks

1. The following chart may be used to outline ohmmeter checks prior to applying power to the unit.

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FROM	TO	OHMS	ACCEPT	REJECT	INSPECTORS INITIALS
AC INPUT TERMINALS ON J703	GROUND				
TERM 1, E701	TERM 2, E701	.6 (XFMR PRI)			
TERM 9, E701	GROUND	46K			
PIN h, J701	PIN 1, C701	28K			
PIN c, J701	GROUND	26K with R703 Maximum Counterclock- wise			
PIN e, J701	PIN 3 or 6, V703				
PIN e, J701	PIN 3 or 6, V703	100 with K703 closed			
PIN e, J701	GROUND	22K			
PIN A, J701	GROUND	0			
PIN B, J701	GROUND				
PIN U, J702	GROUND	0			
PIN 5, V703	GROUND				
PIN 1, C701	GROUND	30K			
TERM 4, E702	GROUND	27K with R716 Max. Counter- clockwise 50K with R716 Max. Clockwise			

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III. VOLTAGE ADJUSTMENT

1. Set MID-VOLTAGE ADJUST potentiometer R716 maximum COUNTERCLOCKWISE.
2. Connect the AC input cable to J703 of the P.S.-4A.
3. Set the AVO meter to the 1000V D.C. range and connect the red (+) lead to terminal 9 on E701 (EXT. 500V).
4. Connect the black (-) lead to chassis ground.
5. Set MAIN POWER circuit breaker to ON position. The green MAIN POWER lamp should light.
6. Adjust the PA FIL PRI meter for 115VAC as indicated by the thin red line.
7. Using a watch or clock, record the interval between turning on the MAIN POWER and the time when an output voltage appears on the AVO meter. This time delay is important and should be 3 minutes \pm 40 seconds.
8. Allow the unit to warm up for approximately 15 minutes.
9. Adjust the voltage as read on the AVO meter for 500 volts by turning the MID-VOLTAGE ADJ. potentiometer. Output voltage should be variable above and below 500 volts.
10. Turn MAIN POWER off, remove AVO meter.

IV. VOLTAGE CHECKS USING THE P.S. -4 TEST JIG

1. Set FINAL VOLTAGES and MAIN POWER switches to OFF and the TRANSMITTER VOLTAGES switch to STANDBY.
2. Connect an AC input cable to J703 of the P.S.-4A.

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3. Connect the cables supplied with the test jig to J701, J702 and E701 of the P.S.-4A.
4. Connect the COMMON (-) jack of the Simpson meter to J104 on the test jig. (BLACK).
5. Connect the (+) jack of the meter to J103 on the test jig, (RED)
6. Set the Simpson meter's small selector switch to the -D.C. position and the large selector switch to the 250V position.
7. Set the test jig TEST POINT SELECTOR to the BIAS LINE position.
8. Set the MAIN POWER breaker on the P.S.-4A to the ON position. Adjust LINE VOLTAGE to 115V.
9. The following results should be obtained:
 - a. Meter should read 150 volts with the PUSH TO READ METER switch depressed.
 - b. The WHITE lamp marked EXT. 115V A.C. should light.
 - c. The GREEN lamp marked HV RECT. FIL. should light.
 - d. The AMBER lamp marked BLOWER ON should light. Record results on chart on last page.
10. Set the TEST POINT SELECTOR switch to the P.A. BIAS position.
11. By using the P.A. BIAS ADJ. potentiometer located on the P.S.-4A chassis, the voltage on the meter can be varied from 100 to 200 volts \pm 5%. Record results on chart.
12. Set the large selector switch on the multimeter to 1000V position and the small selector switch to the +D.C. position.

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13. Set the TEST POINT SELECTOR switch to the EXTERNAL 600V D.C. position.
14. Depress the PUSH TO READ METER switch. The meter should read 500 volts. Record results on chart.
15. Set the TEST POINT SELECTOR switch to the IPA PLATE VOLTAGE position and set the TRANSMITTER VOLTAGES switch on the P.S.-4A to the ON position. The red indicator lamp on P.S.-4A should light.
16. Depress the PUSH TO READ METER switch. The meter should read 500 volts.
17. Set the TEST POINT SELECTOR switch to the IPA SCREEN and 1st AMPL. VOLTAGES position.
18. Depress the PUSH TO READ METER switch. The meter should read 250 volts.
19. Set the large selector switch on the multimeter to the 10V. position and the small selector switch to the A.C. position.
20. Set the TEST POINT SELECTOR to the P.A. FIL. VOLTAGE position.
21. Depress the PUSH TO READ METER switch. The meter should read NOT LESS THEN 6 VOLTS.
22. Set the TEST POINT SELECTOR switch to the FIL. VOLTAGES position.
23. Depress the PUSH TO READ METER switch. The meter should read 6.3 volts minimum.
24. Set the large selector switch on the meter to the 1000V. position and the small selector to the + D.C. position.
25. Set the TEST POINT SELECTOR to the P.A. SCREEN VOLTAGE position.

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26. Set the FINAL VOLTAGES switch on the P.S.-4A to the ON position.
27. The following results should be obtained:
 - a. The red indicator lamp in the P.S.-4A should light.
 - b. The red indicator lamp in the test jig marked HV XFMR should light.
 - c. The blue lamp marked 115V ANT. RELAY should light.
28. Depress the PUSH TO READ METER switch. The meter should read $500 \pm .5\%$ volts.
29. Set the TRANSMITTER VOLTAGES switch on P.S.-4A to STANDBY position. The red indicator lamps on the P.S.-4A should go out. The red and blue indicators on the test jig should go out.
30. Set the TEST POINT SELECTOR to the OFF position.
31. Depress the REMOTE XMTR PLATE SWITCH; the two red indicators on the P.S.-4A and the red and blue indicators on the test jig should light. Release switch.
32. Disconnect A.C. input cable and interconnecting cables to the P.S.-4A. Be sure the chart is filled out.
33. This completes testing of the P.S.-4A unit.

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P.S.-4A VOLTAGE TEST CHART

ITEM	CIRCUIT	REQUIRED VOLTAGE	ACCEPT	REJECT	INSPECTOR'S INITIALS
1	BIAS LINE	-150			
2	115V AC	WHITE LAMP			
3	HV RECT. FIL.	GREEN LAMP			
4	BLOWER ON	AMBER LAMP			
5	PA BIAS	-100 to -200 \pm 5%			
6	EXTERNAL 500V DC	500			
7	IPA PLATE VOLTAGE	500			
8	IPA SCREEN & 1st AMPL. VOLTAGES	250			
9	P.A. FIL. VOLTAGE	6.0 VAC			
10	FIL. VOLTAGE	MINIMUM 6.3 VAC			
11	HV XFMR	RED LAMP			
12	115V ANT. RELAY	BLUE LAMP			
13	P.A. SCREEN VOLTAGE	500 MIN.			
14	P.S.-4 indicator lamps	-			
15	REMOTE XMTR PLATE KEYING CIRCUIT	- -			
16	TIME DELAY	3 min \pm 40 sec.			