DATE / 3	9/62	TMC SPECIFICATION NO. S 665	A
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HFP-1 POWER SUPPLY TEST PROCEDURE

DATE 3/9/0 SHEET 2	62 or8	TMC SPECIFICATION NO. S 665	A
R.K.	CHECKED	TITLE: HFP-1 POWER SUPPLY TEST PROCEDURE	
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## I INTRODUCTION

The HFP-1 power supply is designed to supply A, B+, C-, and primary AC voltages for the TMC Model DDR-5 receiver systems. Detailed descriptions of the unit, including theory of operation and trouble shooting data, are contained in TMC Specification S-635. Specification S-635 should be referred to in the event of trouble during testing.

## II EQUIPMENT REQUIRED

1.TMC HFP-1 Test Jig (ref. Engineering Sketch # (8) E-1606).

- 2. 20,000-ohms-per-volt meter, calibrated to 1% accuracy. (AVOMETER MODEL 8, horizontal position only.) or equiv.
- 3. DAVEN VTVM, Model 170 or equiv.
- 4. Metered Variac, type W10MT3W or equiv.
- 5. Line cord, CA-696 or equiv.
- 6. Timing device; watch, clock, etc.

## III PROCEDURE

The HFP-1 should be thoroughly inspected for wiring errors before continuing further. Assembly drawings A-2382 can be used as a reference for such inspection.

- \* The HFP-1 should have the bottom cover and rear section, top cover, secured before any of the following tests are made. CAUTION: Regulated "B" voltages are present at the exposed terminal boards.
- 1. Set the MAIN POWER switch on the HFP-1 to OFF.
- 2. Set S101 on the TEST JIG to STAND-BY.
- 3. Set the AFC switch on the TEST JIG to ON.
- 4. Plug P107 on the TEST JIG into J-8002 on the HFP-1.
- 5. Plug P108 on the TEST JIG into J-8003 on the HFP-1.
- 6. Plug P109 on the TEST JIG into J-8004 on the HFP-1.
- 7. Set LINE switch on the VARIAC to OFF and connect the VARIAC to the AC line. (115V, 60 cps.)
- 8. Connect the line cord from the VARIAC output jack to J-8001 on the HFP-1.
- 9. Set the LINE switch on the VARIAC to ON and adjust the VARIAC output voltage for 115V.
- 10. Set the RANGE selector on the VARIAC to the LOW position.
- 11. Set the MAIN POWER switch on the HFP-1 to STAND-BY. The following results should be obtained:
  - \* a) The green STAND-BY indicator on the HFP-1 should light.
- b) The CSS indicator on the TEST JIG should light. 12.\*Plug P101 on the TEST JIG into J-8005 on the HFP-1. The
- \* RECORD ON TEST DATA SHEET

DATE 3/9/ SHEET 3	/62 _or8	TMC SPECIFICATION NO. S	665
R.K.	CHECKED	TITLE: HFP-1 POWER SUPPLY TEST PROCEDURE	

APPROVED

white OVEN indicator located within the HFA/SBS section of the TEST JIG should light.

- 13. \*Plug P105 on the TEST JIG into J-8009 on the HFP-1. The STEP indicator located within the AFC section of the TEST JIG should light.
- 14. Plug P103 into J-8007.
- 15: Plug Pl02 into J-8006.
- 16. Plug P104 into J-8008. No additional indicators should light as a result of steps 14 thru 16.
- 17. Plug P106 into J-8010. The following results should be obtained on the TEST JIG:
  - \*a) The AGC indicator located within the HFI section should light.
  - \*b) The AC LINE indicator located within the HFR section should light.
- 18.\*Note the position of the "second" hand on the timing device and then set S101 on the TEST JIG to ON. The following results should be obtained immediately:
  - \*a) The DVM indicator on the TEST JIG should light.
  - \*b) The Fans within the TEST JIG should start running.
  - \*c) The green STAND-BY indicator on the HFP-1 should go out and the amber TIME DELAY indicator should light brightly.
  - d) The VARIAC power meter should read 120 WATTS. Set the RANGE switch on the VARIAC to HIGH.
- 19.\*After a period of NOT LESS THAN 30 SECONDS the unit will automatically switch to its normal operating condition. The following results should be obtained on the TEST JIG:
  - \*a) All the B+ indicators should light.
  - \*b) All the C- indicators should light.
  - \*c) All the red FIL. indicators should light.
  - \*d) The green CHAN \*A' & CHAN 'B' indicators located within the HFA/SBS section should light.
  - \*e) The STANDARD B+ indicator located within the HFS section should light.

In addition, the following results should also be obtained:

- \*f) The amber TIME DELAY indicator on the HFP-1 should go out and the red OPERATE indicator should light.
- g) The power meter on the VARIAC should read 600 WATTS.
- 20. Sat the DC voltmeter to read DC volts. (AVOMETER)
- 21.\*Place the AVO meter between the test points marked C-(red) and GND (black). The meter should read -105 +5 volts.
- 22.\*With the meter connected as in (21) above, vary the VARIAC output voltage between 105 and 125 volts. The meter reading should not vary more than +1 volt. Remove meter.
- \* RECORD ON TEST DATA SHEET.

DATE 3/9/6	2 _or_8	TMC SPECIFICATION NO. S	665	A
R.K. COMPILED	CHECKED	TITLE: HFP-1 POWER SUPPLY TEST PROCEDURE		
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The AC voltage should not exceed 5MV. Remove meter.

- 24.\*Place the DC voltmeter between TP-8001 on the HFP-1 and chassis ground. Set the VOLTAGE ADJ. "A" potentiometer for an output voltage of + 200 volts. Vary the potentiometer setting from end to end. The voltage should swing from approximately 160 volts minimum to 230 volts maximum. Readjust the output to 200 volts.
- 25.\*Repeat step (24) using TP-8002 and VOLTAGE ADJ. "B" potentiomenter. Remove meter.
- 26.\*Place the DAVEN VTVM between TP-8001 and chassis ground. The meter should read 50MV maximum.
- 27.\*Repeat step (26) using TP-8002. Remove meter.
- 28. Place the DC voltmeter between TP-8001 and chassis ground; readjust output to + 200 volts if necessary.
- 29.\*Vary the output voltage of the VARIAC from 105 to 125 volts and back to 115. The output voltage as measured on the DC voltmeter between TP-8001 and ground not vary more than + 1 volt.
- 30.\*Repeat steps (28) and (29) with the voltmeter between TP-8002 and chassis ground. Leave meter connected.
- 31. Set the AFC switch located within the HFI section of the TEST JIG to the OFF position. The following results should be obtained:
  - a) The B+ indicator located within the AFC section of the TEST JIG should go out.
  - b) The total power noted on the VARIAC power meter should decrease by approximately 20 watts.

    Reset AFC switch to ON.
- 32. Place the DC voltmeter between TP-8001 and chassis ground. **Bead**just the B+ voltage to 200 volts if necessary.
- 33. Remove the two .375A fuses from the front panel. The following results should be obtained:
  - \*a) The meter should read 200 +1 volts.
    - b) The B+ indicators located within the HFS and HFA/SBS sections of the TEST JIG should go out.
- 34.\*Remove the two .375A fuses from the fuseholder knob and re-insert the knobs into the fuseholder body. The indicator lamps located within the knobs should light.
- 35. Place the DC meter between TP-8002 and chassis ground. Re-adjust the B+ voltage for 200 volts, if necessary.
- 26. Remove all the remaining B+ fuses from the front panel. The following results should be obtained:
  - \*a) The meter should read 200 + 1 volts.
    - b) All the B+ indicators on the TEST JIG should go out. (Not including the STANDARD B+ indicator)
- 37.\*Repeat step (34) using all the remaining fuseholder knobs.
- 38. Depress the OVERLOAD B+ switch. NO change should occur. Remove meter.
- 39. Replace all the B+ fuses.
- \* RECORD ON TEST DATA SHEET.

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DATE 3/9/ SHEET 5	/62 or8	ТМС	SPECIFICATI	ION NO. S	665	A
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- 40. Remove fuse F8007 located behind the Front Panel. The B+ indicators located within the HFS and HFA/SBS sections of the TEST JIG should go out.
- 41.\*Remove the fuse from the fuseholder knob and re-insert the knob. The indicator lamp within the knob should light. Re-insert fuse and knob.
- 42. Remove F8008. The B+ indicators located within the AFC, HFI. HFR and HNF sections of the TEST JIG should go out.
- 43 \* Repeat step (41)
- 44. Remove F-8003. All the indicators on the TEST JIG with the exception of the CSS and AGC indicators should go out. The blowers will stop running.
- 45.\* Repeat step (41). The unit will either return to OPERATE or TIME DELAY. Afterthe unit is in the OPERATE condition, continue on with the test.
- 46.\* Repeat steps (44) & (45) using F8004.
- 47. Remove F8001. All the indicators on the TEST JIG should go out and the fans should stop running.
- 48.\* Repeat step (45)
- 49.\* Repeat steps (47) & (41) using F8002. After step (41) is completed, the unit will either return to OPERATE OR TIME DELAY. After the unit is in the OPERATE condition continue on with the test.
- 50. Remove all the FIL. LINE fuses from the Front panel. All the red FIL. indicators on the TEST JIG should go out.
- 51. Remove the fuses from the fuseholder knobs and re-insert the knobs into the fuseholder body. The following results should be obtained:
  - \*a) All the indicator knobs should glow bright red except the inside indicator on the right side of the front panel. This indicator will glow dimly.
  - b) The red FIL. indicator located within the HFA/SBS section of the TEST JIG will glow dimly and all the other red FIL. indicators should be out.
- 52. Depress the OVERLOAD FIL.switch. The following results should be obtained:
  - a) All red FIL. indicators on the TEST JIG should be out.
    b) All the red indicator knobs on the HFP-1 should light
- brightly.
  53. Re-insert fuses and knobs.
- 54. Set S101 on the TEST JIG to STANDBY.
- 55. Wait approximately 2 minutes and reset S101 to ON.

NOTE: Steps 56 & 57 check the operation of F8005. F8005 controls the fan voltage to the TEST JIG. While performing steps 56 & 57, the unit may automatically switch to the OPERATE condition. It is advised that steps 56 & 57 be performed quickly so as not to operate the TEST JIG under full load without benefit of forced air cooling.

\*RECORD ON TEST DATA SHEET

DATE 3/9/62 SHEET 6 OF 8		TMC SPECIFICATION NO. S	665	A
COMPLED	CHECKED	TITLE: HFP 1 POWER SUPPLY TEST PROCEDURE		<u> </u>
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- 56. Remove F8005. The fans within the TEST JIG should stop running.
- 57. \*Repeat step (41). The fans should start running again.
- 58. After the unit switches automatically to OPERATE, remove F8006. All the C- indicators and the STANDARD B+ indicator on the TEST JIG will go out.
- 59. \*Repeat step (41)
- 60.\* Readjust the B+ voltages at TP8001 and TP-8002 to + 200 volts.
- 61. Set S101 on the TEST JIG to STANDBY.

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- 62. Set the MAIN POWER switch on the HFP-1 to OFF.
- 63. Set VARIAC line switch to OFF
- 64. Disconnect the TEST JIG and all test equipment.
- 65. Replace the front section, top cover, on the HFP-1
- 66. This completes production testing of the HFP-1 unit.

<sup>\*</sup> RECORD ON TEST DATA SHEET

DATE 3/9/62 SHEET 7 OF 8	TMC SPECIFICATION NO. 5	365 A
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	THE TECHNICAL MATERIEL CORPORATION MAMARONECK, N.Y.	
	HFP-1 POWER SUPPLY TEST DATA SHEET #1	
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SERIAL NO.		
MFG. NO		
MECHANICAL	O.K.	
	O.R.	
11. (a) STAND BY I	NDICATORO.K.	
12. HFA/SBS OVEN H	TR. Voltage O.K.	
13. AFC OVEN HIR V	oltage O.K.	
(b) HFR AC Lin	O.K. e O.K.	
18. Control Relay	(K8001) O.K.	1
(a) J8003 DV	AC Line O.K.	4
(b) J8004 🍂 🕻		
(c) STAND BY i	ndicator off, TIME DELAY indicator on	О.К.
19. 30 Second TIME	DELAY RELAY (K8003) and OPERATE RELAY (K800	02) O.K.
$\begin{array}{c} \text{(a) B+ lines f} \end{array}$	or HFA/SBS, Notch Filter, SYNTH, AFC-3, HF1-1	l ,
HFR/HFF-1-		O.K.
	r HFA/SBS, AFC-3, HFI-1, HFR/HFF-1	О.К.
HFI-1, HFR/	oltage on HFA/SBS, NOTCH FILTER, SYNTH, AFC-3	<b>,</b>
	B FIL. HTR Voltage HFA/SBS	0 7
	ine between J8007 & J8010	O.K.
	indicator off, STANDARD B+ indicator on	O.K.
21. C-VOLTAGE, -1	05 +5 Volts	Volts
	ulation + 1 Volt	-Wolts
23. C-HUM LEVEL (	not to exceed .005 Volt)	Volts
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DATE 3/S	/62 or8	TMC SPECIFICATION NO. S 665	A
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## HFP-1 POWER SUPPLY TEST DATA SHEET #2

24. Voltage ADJ. "A" pot for + 200 Volts	О.К.
25. Voltage ADJ. "B" pot for + 200 Volts	O.K.
26. B+ HUM LEVEL at TP 8001 (not to exceed .05 Volt)	Volt
27. B+ HUM LEVEL at TP8002 (not to exceed .05 Volt)	Volt
29. B+ Voltage regulation + 1 Volt at TP 8001	¥olt
30. B+ Voltage regulation + Nolt at TP 8002	Volt
33. (a) No load check at TP \$001, 200 V + 1 volt	Volt
34. Fuseholder indicator check	O.K.
36. (a) No Load check at $TP800\overline{2}$ , $200 \text{ V.+ 1volt}$	Volts
37. B+ Fuseholders indicator check	О.К.
41. F8007 Fuseholder indicator check	О.К.
43. F8008 Fuseholder indicator check	O.K.
45. F8003 Fuseholder indicator check	O.K.
46. F8004 Fuseholder indicator check	O . K .
48. F8001 Fuseholder indicator check	O.K.
49. F8002 Fuseholder indicator check	OSK.
51. (a) FIL Line Fuses Fuseholder indicator check	О.К.
57. F8005 Fuseholder indicator check	O.K.
59. F8006 Fuseholder indicator check	О.К.
60. Readjust B+ at TP8001 & TP8002 to + 187 Volts	О.К.

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