

TMC SPECIFICATION

NO. S 584

REV:

COMPILED:

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APPD:

SHEET

1

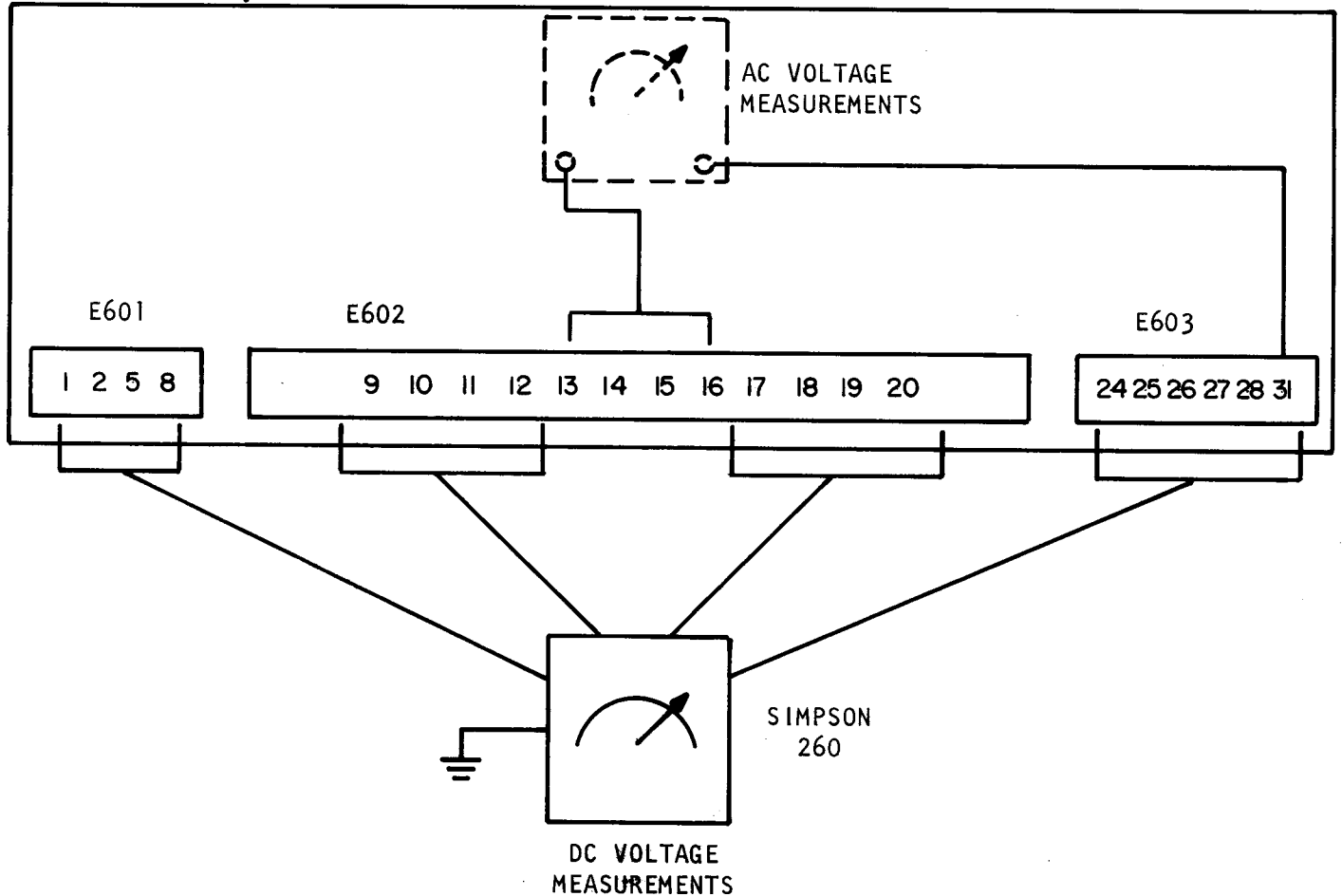
OF

4

TITLE: Appendix to GPT-750(F)2 Test Procedure

TEST SET-UP DIAGRAM FIGURE 1

RTP-2 (POWER SUPPLY) P/O GPT-750(F)2



PART II VOLTAGE MEASUREMENTS

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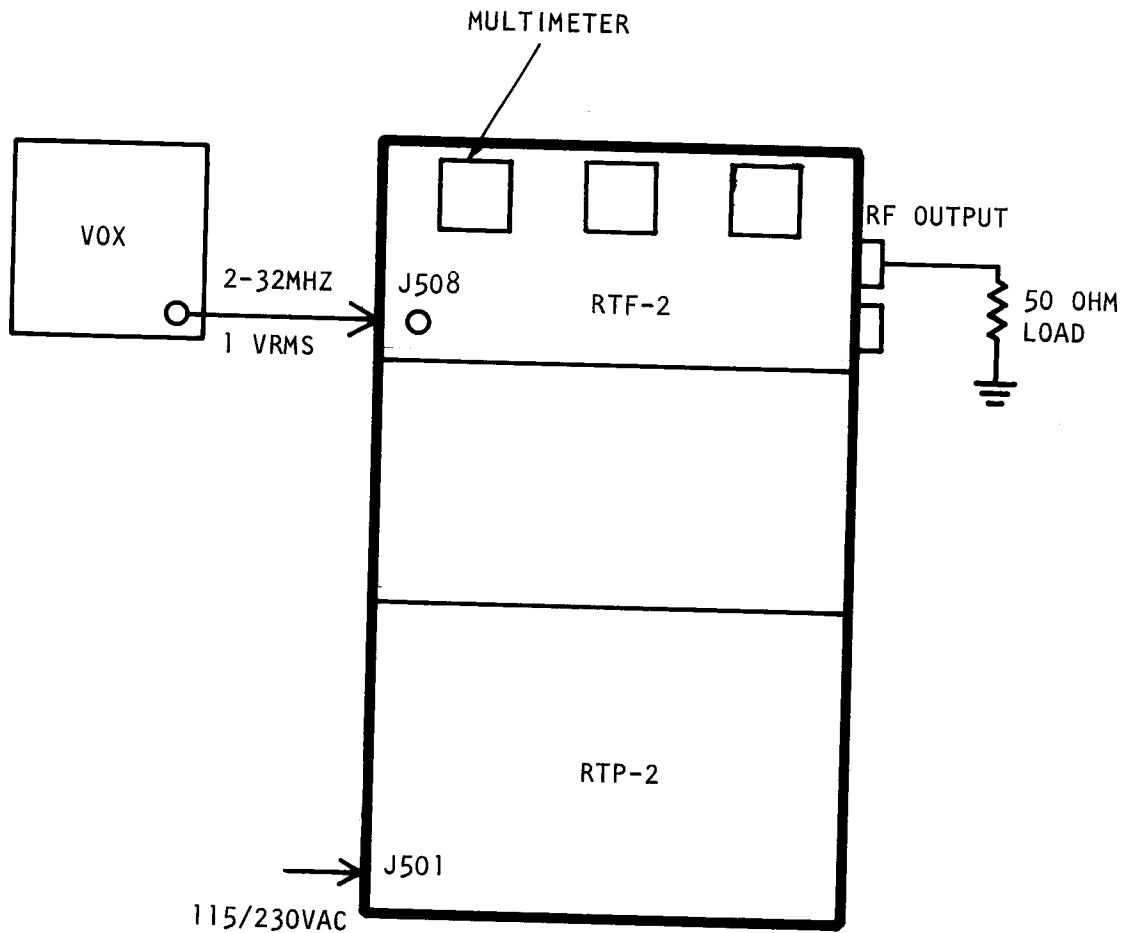
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OF

4

TITLE: Appendix to GPT-750(F)2 Test Procedure

TEST SET-UP DIAGRAM FIGURE 2



GPT-750(F)2

PART III MULTIPLIER ALIGNMENT

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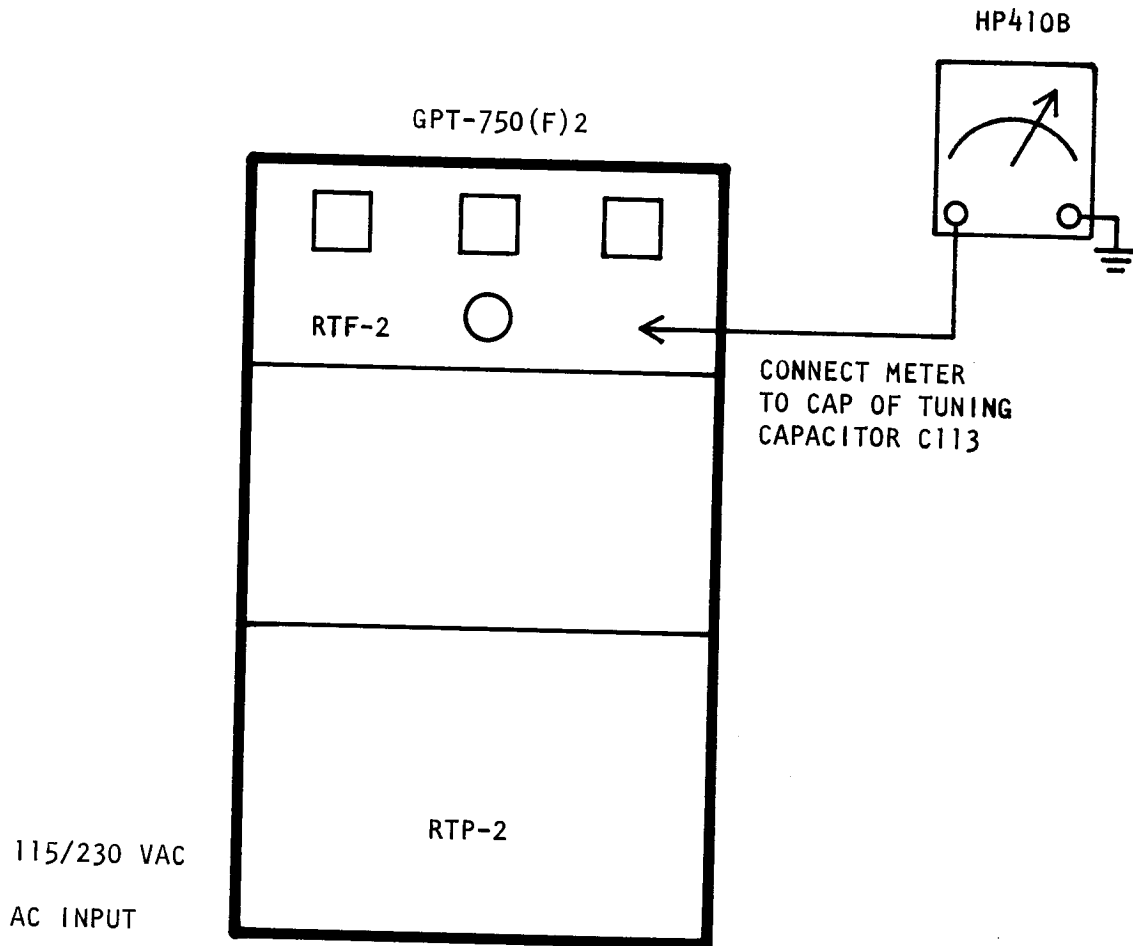
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TITLE: Appendix to GPT-750(F)2 Test Procedure

TEST SET-UP DIAGRAM FIGURE 3



PARTS V & VI NEUTRALIZING & PARASITIC CHECK

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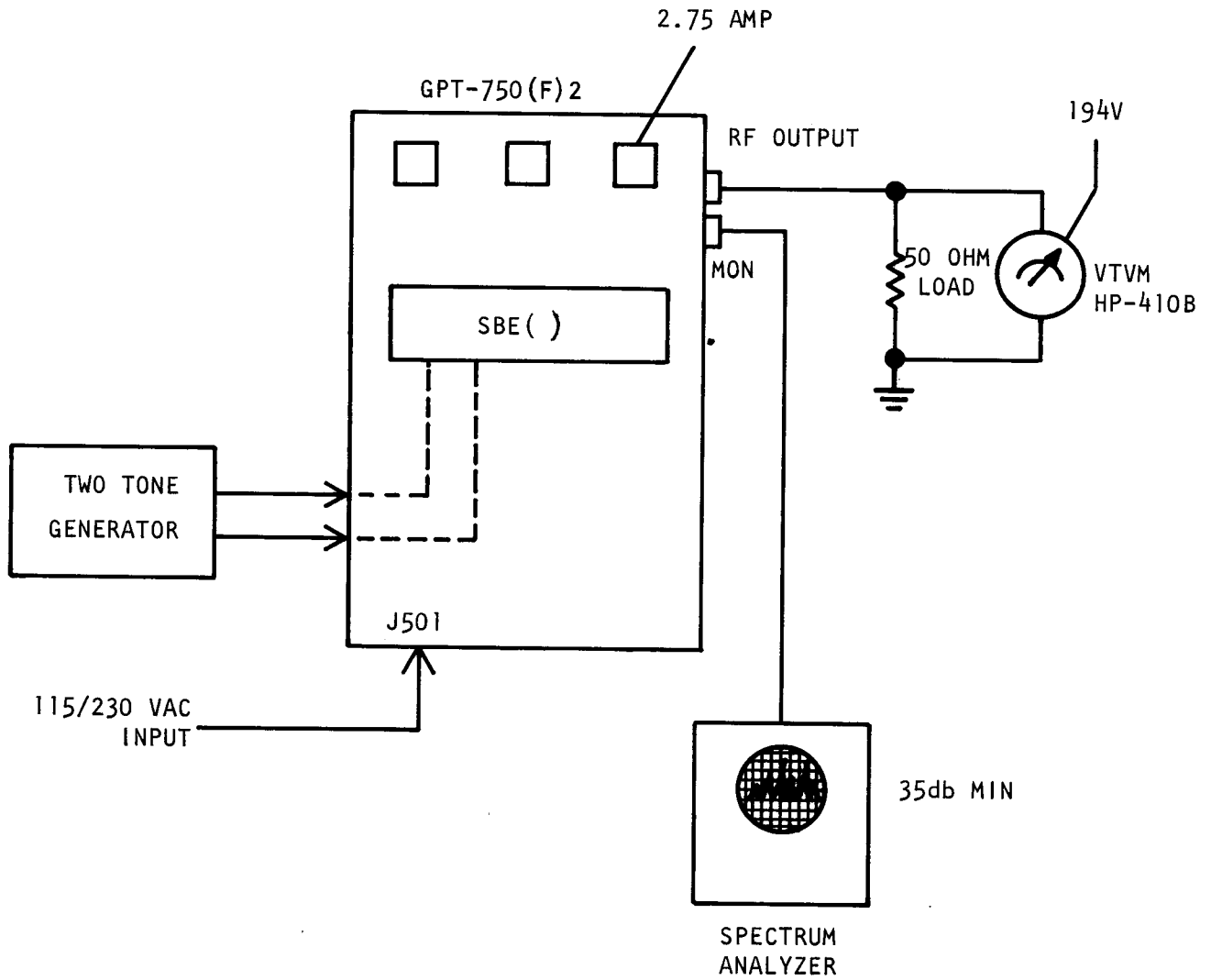
SHEET

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TITLE: Appendix to GPT-750(F)2 Test Procedure

TEST SET-UP DIAGRAM FIGURE 4



PART XII INTERMODULATION DISTORTION TEST

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TMC

SPECIFICATION NO. S-584 H

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L. Liles

TITLE: TEST PROCEDURE FOR GPT-750 (A,B,C,D,E,F,G,H)2

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PART I

GENERAL INSTRUCTIONS:

Use parts I through IX for all models of the GPT-750 () 2.
 Part X refers to the GPT-750 (B) 2.
 Part XI refers to the GPT-750 (C) 2.
 Part XII refers to the GPT-750 (D) 2.
 Part XIII refers to the GPT-750 (E) 2, (F)2, (G)2, (H)2.
 Part XIV contains the test data sheets not covered in the list of test equipment required.

TEST EQUIPMENT REQUIRED:

- A. Simpson Model 260
- B. Hewlett-Packard Model 410B
- C. CR-27/U 2 mc
- D. CR-27/U 4 mc, CR-27/U 3 MC
- E. VOX
- F. 50 ohm load (1000 watts or equivalent)
- G. Deleted.
- H. IN-1081 test data sheet
- I. Hewlett-Packard Model 200 CD (GPT-750 (B) 2 only)
- J. Tektronix Model 415A (GPT-750 (B) 2 only)
- K. IN-1082 test data sheet (GPT-750 (B) 2 only)
- L. PTE. (GPT-750 (C,D & E) 2 only)
- M. IN-1083 test data sheet (GPT-750 (C) 2 only)
- N. IN-1080 test data sheet (GPT-750 (D) 2 only)
- O. IN-1155 test data sheet (GPT-750 (E) 2 only)

PART II

- A. Connect the unit to a 115 VAC, or 230 VAC power source. Set main power switch on. Set the filament adjust switch for a meter reading 115 VAC./ or 230 vac.
- B. Check that all blowers are operating properly.
- C. Set the controls on the RTP-2 and RTF-2 as follows:
 Transmitter plates switch to operate
 Mode switch to CW-FS
 Oscillator switch to X-1
 Excitation switch to CW/Phone
 SSB/Normal switch to Normal
 Final Overload (S.G. & PLATE) switch to On
 Drive control fully clockwise
 Measure and record the following voltages to ground:

E-601 TERMINAL #	E-602 TERMINAL #	E-603 TERMINAL #
1. +300DC	9. +600DC	24. -105DC
2. -95 to -125DC	10. +600DC	25. +350DC
5. -210DC	11. 0	26. -105DC
8. + 600DC	12. 0	27. -210DC
	17. +350DC	28. 6.3AC
	18. +350DC	
	19. 0	
	20. -105DC	

All the above voltages $\pm 10\%$ - Unless otherwise noted.

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TITLE: TEST PROCEDURE FOR GPT-750 (A,B,C,D,E,F,G,H)2

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D. Measure and record the following voltages from E-603 Terminal 31 to E-602. Voltage Range as follows:

TERMINAL #

- 13. 110 - 120 VAC or 220 VAC-240 VAC
- 14. 110 - 120 VAC or 220 VAC-240 VAC
- 15. 110 - 120 VAC or 220 VAC-240 VAC
- 16. 110 - 120 VAC or 220 VAC-240 VAC

E. Set mode switch to SSB and final plate switch to on. Set multi-meter switch to Ebb. Adjust R-605 until PA Ip is 130 - 140 ma. Multimeter should indicate approximately 3 KV. Measure and record from E-601 terminals 6 and 7 to ground +600v. $\pm 10\%$

F. Set mode switch to CW-FS. Measure and record the following voltages to ground. Voltage Tolerance $\pm 10\%$

E-601	E-603
TERMINALS	TERMINALS
3. +580DC	29. +600DC
4. +1000DC	32. -2DC
6.&7. +600DC	

G. Set mode switch to Tune. Measure and record from E-601 terminals 6 & 7 to ground +300v. $\pm 10\%$. PA Ip should be 0 ma. Set Transmitter Plates switch to STANDBY/REMOTE. Set Final Plate switch to OFF.

PART III

With Drive fully counter clockwise (CCW)

Insert the CR-27/U 2 mc in X1 socket.

Insert the CR-27/U 4 mc in X2 socket.

Insert the CR-27/U 3 mc in X3 socket.

Set the controls on the RTP-2 and RTF-2 as follows:

SSB/Normal switch to SSB.

Excitation switch to SSB-L.O. OFF

Mode switch to SSB

Multimeter switch to DRIVER Ip MA

Transmitter Plate switch to ON

A. Driver Ip MA should be 30 MA (MIN)

B. Connect the VOX- output to J-508, and inject a signal of one (1) volt at the frequencies indicated below. Align the multiplier stages and record the multimeter readings on the test data sheet.

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TITLE: TEST PROCEDURE FOR GPT-750 (A,B,C,D,E,F,G,H)2

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	INJECTION FREQ. (MC)	DRIVER BAND	DRIVER TUNING	ADJUST FOR PEAK	MULTIMETER SWITCH POS.	(Minimum) MULTIMETER READINGS ±10%
a.	2	2-4	2.0	L-203	DRIVER Ip MA	40
b.	2	2-4	2.0	L-211	PA Eg RF VOLTS	70
c.	4	2-4	4.0	C-210	DRIVER Ip MA	38
d.	4	2-4	4.0	C-237	PA Eg RF VOLTS	95
e.	4	4-8	2.0	L-204	DRIVER Ip MA	35
f.	4	4-8	2.0	L-212	PA Eg RF VOLTS	80
g.	8	4-8	4.0	C-218	DRIVER Ip MA	35
h.	8	4-8	4.0	C-238	PA Eg RF VOLTS	80
i.	8	8-16	2.0	L-207	DRIVER Ip MA	35
j.	8	8-16	2.0	L-213	PA Eg RF VOLTS	65
k.	16	8-16	4.0	C-231	DRIVER Ip MA	34
l.	16	8-16	4.0	C-239	PA Eg RF VOLTS	65
m.	16	16-32	2.0	L-208	DRIVER Ip MA	32
n.	16	16-32	2.0	L-214	PA Eg RF VOLTS	35
o.	32	16-32	4.0	C-232	DRIVER Ip MA	32
p.	32	16-32	4.0		PA Eg RF VOLTS	35

Set Transmitter Plates switch to OFF.
 Disconnect the VOX from the Transmitter.

PART IV Set controls on RTP-2 and RTF-2 as follows:

- SSB/Normal switch to normal
- Excitation switch to CW-Phone
- Mode switch to CW-FS
- Oscillator switch to X-2.
- Driver Band switch to 16-32
- Multimeter switch to PA Ig MA
- Transmitter Plate switch to ON
- Driver Tuning Control to 4.0
- Key Transmitter

- A. Adjust C-212 for peak reading on multimeter. Pa IG MA should be 30 to 32 MA. With Oscillator Switch in X-3 position, tune Driver to 3 mc, check to see that crystal oscillator operates at 3 mc.
- B. Set oscillator switch to X-1. Set driver tuning to 2.0 Adjust L-205 for peak reading on multimeter. PA Ig MA should be 30 to 35 MA.
- C. Set controls as shown below and record multimeter readings on test data sheet. Adjust driver tuning for peak reading on PA Ig MA or PA Eg RF VOLTS.

	OSCILLATOR SWITCH	DRIVER BAND	DRIVER TUNING	(MINIMUM) MULTIMETER SWITCH AND READINGS ±10%		
				DRIVER Ip MA	PA Ig MA	PA Eg RF VOLTS
a.	X-1	2-4	2.0	80	55	120
b.	X-2	2-4	4.0	85	70	140
c.	X-1	4-8	2.0	75	55	140
d.	X-2	4-8	4.0	55	35	120
e.	X-1	8-16	2.0	80	55	140
f.	X-2	8-16	4.0	65	55	130
g.	X-1	16-32	2.0	85	30	107
h.	X-2	16-32	4.0	70	30	90

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TITLE: TEST PROCEDURE FOR GPT-750 (A,B,C,D,E,F,G,H)2

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- PART V Set controls as shown below:
Final Plate switch to OFF
Oscillator switch to X-2.
Driver Band switch to 8-16
PA Band switch to 12-16
Multimeter switch to PA Eg RF VOLTS
Adjust driver tuning control for a peak indication on multimeter.
Set multimeter switch to Driver Ip MA
Adjust Drive control for indication of 20 MA Driver Ip MA.
Connect a Hewlett-Packard Model 410 B to cap of C-113.
Adjust PA tuning control for peak RF voltage at C-113
Adjust neutralizing capacitor (C-104) for minimum RF voltage at C-113 (7-8 V).
Repeat the above steps with the Driver Band switch at 16-32 and the PA Band switch at 24-32. If the PA Tuning control does not cause a peak in RF voltage at C-113, rotate the antenna loading control clockwise.
- PART VI Set controls as shown below:
Oscillator switch to X-1
Mode switch to SSB
Transmitter Plate switch to ON
Final Plate switch to ON
Drive Control fully counter-clockwise
Adjust Driver Tuning, PA Tuning, Driver Band switch, and PA Band switch through their complete ranges. The PA Ip should remain constant at about 140 MA. If variations are noted in the PA Ip, parasitic oscillations are present. Check neutralization.
- PART VII Connect 50 ohm load to transmitter output jack.
Set controls as shown below:
Final Plate switch to OFF
Transmitter Plate switch to ON
Oscillator switch to X-1
Excitation switch to CW/Phone
SSB/Normal switch to Normal
Mode switch to CW-FS
Driver Band switch to 2-4
PA Band switch to 2-2.5
Aux. loading switch to PLUS
Multimeter switch to PA Eg RF VOLTS
Drive Control to midrange
Antenna loading to fully counter-clockwise
Adjust Driver Tuning for a peak indication on multimeter (Driver Tuning approx. 2.0).
Turn drive control fully counter-clockwise.
Set Final Plate switch to ON
Adjust Drive control for PA Ip of 580 MA (PA stage must be de-tuned).
Adjust R-609 until PA Plate overload switch trips. Decrease Drive and reset PA Plate overload switch. Set multimeter switch to PA Isg.
Increase Drive until PA Ip is 150 MA. Adjust PA Tuning for a dip in PA Ip. Increase Drive until PA Isg is 100 MA. Adjust R-603 until PA screen overload switch trips.

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- PART VIII A. Set oscillator switch to cal. Set MO dial to 2000kc. Adjust calibrate control for zero beat (can be seen or heard with ear phones).
- B. Set MO dial to 4000kc. Adjust trimmer through hole near calibrate dial for zero beat (use receiver or counter to ascertain that frequency is 4000kc).
- C. Repeat steps A and B until 2000 kc and 4000 kc points on dial are exactly on frequency.
- D. Record amount of error at every 100 kc point on the dial between 2000 kc and 4000 kc. This error should not exceed 300 cps between any two adjacent check points.

PART IX GPT750(A)2

Tune Transmitter on all test frequencies and record results on test data sheet IN-1081. The following limitations must be met:

- PA Ip 550 MA max.
- PA Isg 75 to 95 MA
- PA Ig 2-15 MA
- Antenna Current 4.45 ARF min.

PART X GPT-750 (B) 2

- Install RTM-2 in CAB-7.
- Set SSB/Normal switch to normal
- Set Excitation switch to CW-Phone
- Set Mode switch to Phone
- Adjust R-708 until K-701 operates without chatter or backlash when the Mode switch is turned from TUNE to PHONE. Connect Hewlett-Packard Model 200 CD audio generator to terminals 1 and 3 or E-501.
- Adjust output of generator to 1000 cps, .08 V.
1. Tune Transmitter to 2 MC, 750 watts (194 V. with HP410B across 50 ohm load) Output and 100% modulation. Check modulation with Tektronic scope Model 514A connected to J506 on transmitter. 100% modulation envelope should be reached with no more than 300 MA modulator and 300 MA PA plate current.
 2. Increase loading and modulator gain until PA plate current and modulator plate current are both 310 MA. Adjust PA plate overload to trip at this point.
 3. Tune transmitter on all test frequencies as per paragraph 1 above and record results on test data sheet IN-1082.

The following limitations must be met:

- PA Ip 300 MA max.
- Modulator current 300 MA
- PA Isg 75 to 95 MA
- PA Ig 2-10 MA
- Antenna Current 3.9 ARF min.

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PART XI GPT-750 (C) 2

Install RTX-2 and XFK in CAB-7.

Connect monitor output J-506 of Transmitter to signal input of PTE. Attach a jumper to E-502 terminal 16 so that it may be connected to E-502 terminal 18 easily. Tune Transmitter to all test frequencies. 850 cps shift in frequency should be observed as terminal 16 and 18 of E-502 are connected or disconnected. Record test results on test data sheet IN-1083.

The following limitations must be met:

PA Ip 550 MA max.

PA Isg 75 to 95 MA

PA Ig 2-15 MA

Antenna Current 4.45 ARF min.

PART XII GPT-750 (D) 2

Install the RTS-2 and SBE- in the CAB-7.

In the RTF-2 and RTP-2, set the controls as follows:

Main Power switch to ON

SSB/Normal switch to SSB

Excitation switch to SSB-L.O. ON

Mode switch to SSB

Transmitter Plate switch to STAND BY/REMOTE

Final Plate switch to OFF

Set the SBE- controls as follows:

Power switch to ON

Exciter switch to STANDBY

Transmitter switch to OFF

USB switch to CH-1

LSB switch to OFF

Multimeter switch to USB

Carrier insertion control fully counter-clockwise

Squelch gain control fully counter-clockwise

VOX gain control fully counter-clockwise

Connect the PTE- audio output to E-501 terminals 1 and 3. Adjust the USB gain control for half scale reading on the multimeter. Increase the VOX gain. The "EXCITER ON" light and the Transmitter voltages light should come ON. Turning the transmitter switch and exciter switch to ON should give the same results. Connect the PTE-1 signal input to the transmitter monitor jack J-506. Tune the SBE-2 and transmitter to all test frequencies. Record test results on the test data sheet IN-1080.

The following limitations must be met:

(1) PA Ip 400 MA max.

(2) PA Ig zero MA

(3) Carrier suppression 55 db.

(4) Signal to Distortion at 750 Watts PEP, 35 db below two tone test level. 750 Watts in 50 ohm load obtained with 2.75 amps RF or 194 V across the load.

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PART XIII GPT-750 (E) 2

Requirements same as GPT-750(D)2 except use Test Data Sheet IN1155 in place of IN1080.

GPT-750 (F) 2

Requirements same as GPT-750(D)2 except use Test Data Sheet IN1155 in place of IN1080.

GPT-750 (G) 2

Requirements same as GPT-750(D)2 except use Test Data Sheet IN1155 in place of IN1080.

GPT-750 (H) 2

Requirements same as GPT-750(D)2 except use Test Data Sheet IN1155 in place of IN1080.

1. Apply 115 VAC or 230 VAC to J-502 in rear of XMTR. The applied voltage must appear at Utility Output Jack on front of XMTR.
2. M.O. By/Pass normal switch operates to apply oven voltage to ovens with or without the main power switch in the ON position. The By-Pass position applies oven voltage with the main power switch OFF. In the normal position the main power switch must be on to apply voltage to the ovens. This must be checked.
3. Check Voltage and Continuity of E-501 & E-502 terminals 1 thru 28 (Refer to schematic diagram of CAB-7).
4. Check reading of XMTR output thermocoupler, accuracy should be within 10% at 6 MC.
5. Interlock Check
 Opening of any of the following interlocks must cause the transmitter plate to go out.
 - a. PA- BANDSWITCH
 - b. RTF- DRAWER
 - c. EXCITER DRAWER
 - d. RTP- DRAWER
 - e. REAR COVER INTERLOCK
 - f. EXTERNAL INTERLOCK

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TITLE: TEST PROCEDURE FOR GPT-750 (A. B. C. D. E. F. G. H) 2

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PART XIV TEST DATA SHEET GPT-750 () 2

PART II

A. FILAMENT ADJUST OK _____

B. BLOWER OPERATION OK _____

C. E-601 E-602 E-603
TERMINAL # TERMINAL # TERMINAL #

1. _____ 9. _____ 24. _____

2. _____ 10. _____ 25. _____

5. _____ 11. _____ 26. _____

8. _____ 12. _____ 27. _____

17. _____ 28. _____

18. _____

19. _____

20. _____

D. E-602
TERMINAL #

13. _____

14. _____

15. _____

16. _____

E. PA Ip _____

Ebb _____

E-601
TERMINALS #

6 & 7 _____

F. E-601
TERMINALS #

3. _____

4. _____

6 & 7. _____

E-603
TERMINALS #

29. _____

32. _____

PA Ip _____

G. E-601
TERMINALS #

6 & 7. _____

PA Ip _____

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TEST DATA SHEET CONTINUED

PART III

- A. DRIVER I_p MA _____
- B. DRIVER I_p MA _____ PA E_g RF VOLTS
 - a. _____ b. _____
 - c. _____ d. _____
 - e. _____ f. _____
 - g. _____ h. _____
 - i. _____ j. _____
 - k. _____ l. _____
 - m. _____ n. _____
 - o. _____ p. _____

PART IV

- A. PA I_g MA _____
- B. PA I_g MA _____
- C. DRIVER I_p MA PA I_g MA PA E_g RF VOLTS
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
 - g. _____
 - h. _____

PART V

NEUTRALIZATION OK _____

PART VI

PARASITIC OSCILLATION CHECK OK _____

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TEST DATA SHEET CONTINUED

PART VII

PLATE OVERLOAD OK _____

SCREEN OVERLOAD OK _____

PART VIII

FILL OUT IN-1081 TEST DATA SHEET

PART IX

FREQ. ERROR	FREQ. ERROR	FREQ. ERROR
2000 _____	2700 _____	3400 _____
2100 _____	2800 _____	3500 _____
2200 _____	2900 _____	3600 _____
2300 _____	3000 _____	3700 _____
2400 _____	3100 _____	3800 _____
2500 _____	3200 _____	3900 _____
2600 _____	3300 _____	4000 _____

PART X

GPT-750 (B) 2 ONLY

A. MODULATION CHECK OK _____

B. OVERLOAD CHECK OK _____

C. FILL OUT IN-1082 TEST DATA SHEET

PART XI

GPT-750 (C) 2 ONLY

FILL OUT IN-1083 TEST DATA SHEET

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TEST DATA SHEET CONTINUED

GPT-750 (D) 2 ONLY

A. TRANSMITTER ON/OFF FUNCTION OK _____

B. FILL OUT IN-1080 TEST DATA SHEET

PART XIII

GPT-750 (E) 2 ONLY

A. TRANSMITTER ON/OFF FUNCTION OK _____

B. FILL OUT IN-1155 TEST DATA SHEET

MFG. NO. _____

SERIAL NO. _____

DATE _____

TESTED BY _____

REVISION SHEET

**THE TECHNICAL MATERIAL CORP.
MAMARONECK NEW YORK**

S-584

LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
5/27/63	A	2	9153	Revised per EMN	LB
6/1/64	B	5	11445	Revised and retyped part X page 5. per EMN	LB
4/6/65	C	6	13849	Revised hst. 6 per EMN	LB
8/10/65	D	----	14626	Revised shts 1,2,3,4,5,6 per EMN	MUL
11/30/65	E	/ 5,6	15276	Revised per EMN	[Handwritten Signature]
9/15/66	F	all	16854	Revised per EMN	[Handwritten Signature]
10/25/67	G	all	18562	Revised per EMN	[Handwritten Signature]
6/16/71	H	3,5	20401	Revised as per EMN	S.B.