

TMC SPECIFICATION

NO. S 6 1297

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SHEET

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OF

9

TITLE: **HFTM-10KJ2 TEST PROCEDURE**

TEST PROCEDURE

FOR

HFTM-10KJ2

PART I

TMC SPECIFICATION

NO. S S 1297

REV:

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APPD:

SHEET 2 OF 9

TITLE: PART I HFTM-10KJ2 Test Procedure

TEST EQUIPMENT REQUIRED

- A. TMC PTE SPECTRUM ANALYZER
- B. SIMPSON 260 OHMMETER OR EQUIVALENT
- C. TER 18K 50

TMC SPECIFICATION

NO. 5 1297

REV:

COMPILED:

CHECKED:

APPD:

SHEET 3

OF

5

TITLE: PART I HFTM-10KJ2 Test Procedure

A. MECHANICAL INSPECTION

1. Check all knobs and switches on the frame for proper operation.
2. Carefully check the PA & IPA bandswitches for good mechanical conditions, obvious incorrect wiring and loose connections.
3. Check power supply for loose connections and correct value of circuit components.

B. PRELIMINARY ELECTRICAL INSPECTION

1. With Main Power switch OFF, check for short circuits to ground.
 - a. The 3 power input phases should read not less than 1 megohm.
 - b. The positive side of the high voltage circuit should read approximately 90K ohms with the shorting relay contacts open. With the shorting relay contacts closed this reading should be ZERO.
2. The following units must be checked for proper termination of cables:
 - a. Exciter Drawer
 - b. Driver Drawer
 - c. Exciter Remote Assembly
3. Check complete unit for correct value of fuses.
4. Check to insure that PA output circuit is correctly connected.
5. Turn ON Main Power switches and observe following:
 - a. Check the rotation of the PA & IPA blowers. On the IPA blower looking through the housing the impeller should be turning in a counter clock-wise direction. On the IPA blower directly at the impeller, from the PA compartment, the blower should also turn in a counter clock-wise direction.

TMC SPECIFICATION

NO. S S 1297

REV:

COMPILED:

CHECKED:

APPD:

SHEET 4 OF 9

TITLE: PART I HFTM-10KJ2 Test Procedure

b. The IPA & PA air interlock switches should control the filament relay K-802. When both blowers are running the filament relay will be de-energized allowing the filaments to come on. By manually opening each air interlock the filament relay will energize which will remove the filament voltages.

6. Circuit fusing checks:

- a. With the Main Power switch OFF, remove any two of the three main blower fuses, the main blower must not run when the Main Power switch is closed. Open Main Power switch and replace the two fuses. Close Main Power switch and continue fusing circuit check below.
 - b. Remove the PA filament fuse, the PA filament voltage must be removed
 - c. Remove the IPA blower fuse, the IPA blower must be stopped.
 - d. Remove the Bias fuse, this must remove 1st, 2nd, IPA & PA Bias voltages.
 - e. Remove the 24VDC fuse on the Driver Drawer, this must remove the 24VDC voltages.
 - f. Remove the bandswitch fuse. Both switches, the IPA & PA should not rotate when depressing S-5004 located on the Main Control Panel.
7. Set the 2nd IPA, IPA & PA Bias adjustments located on the Driver front panel, to max bias.
 8. The filament Elapse Time Meter must indicate when the filaments are on.
 9. Check the Time Delay Relay for proper operation time, interval, one minute.
 10. With the alarm switch ON, the alarm must sound.
 11. Turn Exciter switch from standby to ON position. Push to talk switch to Exciter position.

C. PROTECTIVE INTERLOCK SYSTEM

1. The interlock indicator light is connected in such a manner that the light will be on if all interlocks are closed.

TMC SPECIFICATION

NO. S S 1297

REV:

COMPILED:

CHECKED:

APPD:

SHEET 5 OF 9

TITLE: PART I HFTM-10KJ2 Test Procedure

2. With the Main Power switch closed, each interlock must be checked individually by manually opening and observing the following:

- a. The Shorting relay must release (deenergize)
- b. The Indicator light should go out.

D. HIGH VOLTAGE CHECKS

1. Turn on screen circuit breakers CB-3002.
2. Press High Voltage switch. High Voltage indicator light will go on.
3. High Voltage contactor K-801 will energize.
4. Plate Time Meter will start running.

E. IDLING PLATE CURRENT ADJUSTMENTS

1. With High Voltage still ON and no drive applied. **make** the following adjustments:
 - a. Adjust PA Bias control for an indication of .50 -.650 amps on the PA Plate Current Meter.
 - b. Adjust the IPA Bias control for an indication of 210-230 ma on the IPA Plate Meter.
 - c. With the IPA monitor switch held up in the 2nd IPA position, adjust the 2nd IPA Bias on the IPA Plate Current Meter for 220-240 ma.
 - d. ~~With~~ the IPA monitor switch held in the 1st amp position (down), adjust 1st Amp bias control for an indication of 60-70 ma on the IPA Plate Current Meter.

F. CHECK OF PROTECTIVE DEVICES FOR REMOVAL OF HIGH VOLTAGE

1. With the transmitter energized as in Paragraph E above, and with the Alarm switch in the ON position; mechanically trip Protective Devices as listed below in sequence. Each time a Protective Device is mechanically tripped, the device must be reset electrically and the High Voltage must be turned On again, before testing the next Protective Device.

TMC SPECIFICATION

NO. S S 1297

REV:

COMPILED:

CHECKED:

APPD:

SHEET

6

OF

9

TITLE: PART I HFTM-10KJ2 Test Procedure

2. PA plate overload-Adjust red pointer on PA Plate Current Meter to cross over black pointer. At this point, the PA Plate Current Meter will illuminate, the High Voltage will go off, the alarm will sound, and the Plate Elapse Time Meter will stop running. The black pointer will remain next to the red pointer. this is another indication of allowing the operator to know which overload has tripped.
3. To reset, bring red pointer to it's correct overload setting. (Overload settings listed below) Press the High Voltage switch, this will turn the light off of the PA Plate Current Meter, also the black pointer will go back to zero. Then press High Voltage switch again and the High Voltage will come back on.
4. This procedure should be used on:
 - a. PA Plate Overload
 - b. PA Screen Overload
 - c. Reflected Power Overload
 - d. IPA Plate OverloadAll using there respective meters.
5. Overload settings:
 - a. PA Plate Current 3.5amps
 - b. PA Screen Current 80mA
 - c. IPA Plate Current 800mA
 - d. Reflected Power as desired
6. Turn the High Voltage switch on the off position.

G. TRANSMITTER TUNING

1. During initial Manual Tuning of the transmitter RF output power will be increased or decreased with the RF Gain Control.
2. Adjust both the PA Tune & Load capacitors all the way down to there minimum positions. This is done by turning CW to 000 on both Tune and Load.

TMC SPECIFICATION

NO. S 1297

REV:

COMPILED:

CHECKED:

APPD:

SHEET 7 OF 9

TITLE: Part I HFTM-10KJ2 Test Procedure

3. Adjust the RF Gain Control clock-wise slightly to cause an increase in the IPA Plate Current, indication on the plate meter not to exceed 250mA.
4. Adjust tuning control for a noticeable increase in the PA Plate Current Meter.
5. Operate the PA Tune Control CCW rotation as necessary to cause a noticeable resonant dip in the PA Plate Current Meter.
6. Operate PA Load Control CCW as necessary to produce a maximum reading on the PA Output Meter.

NOTE

The correct loading will be the first proper load condition that occurs when tuning toward maximum capacitance.

7. Readjust IPA Tune knob for further increase in PA output.
8. Rotate RF Gain Control clock-wise to increase PA output power level to desired output. Output power will be 10KW PEP.
9. Rotate RF Gain Control counter clock-wise and press High Voltage switch to OFF.
10. The above outline procedure has presented a logical sequence for manually tuning the transmitter on a selected carrier frequency, at the desired or rated average power output level. Modulating techniques will depend upon the exciter that is used.
11. At this point the transmitter is ready to have a tuning chart run. The transmitter will be tuned to all frequencies called out for on the tuning chart.
 - a. Also record the meter readings and the distortion measurements on the tuning chart. The distortion readings should be 35db or better at full output. (10KW PEP) with a two tone test at 10KW PEP the power output meter will be 4.1KW.

TMC SPECIFICATION

NO. S S 1297

REV:

COMPILED:

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APPD:

SHEET 8

OF 9

TITLE: PART I HFTM-10KJ2 Test Procedure

PART I

TEST DATA SHEET

- | | | |
|------------|---|-------|
| 1. (A) | Mechanical Inspection | _____ |
| 2. (B-1) | Short Circuit Checks | _____ |
| 3. (B-2) | Cable Termination Checks | _____ |
| 4. (B-3) | Fuse Checks | _____ |
| 5. (B-4) | PA Output Circuit | _____ |
| 6. (B-5) | Blower & Air Interlock Checks | _____ |
| 7. (B-6) | Circuit Fusing Checks | _____ |
| 8. (B-7) | Bias Voltage Adjustments | _____ |
| 9. (B-8) | Elapse Time Meter | _____ |
| 10. (B-9) | Time Delay Relay | _____ |
| 11. (B-10) | Alarm switch | _____ |
| 12. (B-11) | Exciter Switch | _____ |
| 13. (C) | Protective Interlock System | _____ |
| 14. (C-1) | Indicator Light | _____ |
| 15. (C-2) | Main Power Switch | _____ |
| 16. (D) | High Voltage Checks | _____ |
| 17. (E) | Idling Plate Current Adjustments | _____ |
| 18. (F) | Protective Devices for removal H.V. check | _____ |
| 19. (G) | Transmitter Tuning | _____ |

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REV:

COMPILED:

CHECKED:

APPD:

SHEET 9 OF 9

TITLE: PART I HFTM-10KJ2 T st Proc dur

Freq.	1st Amp IP	2nd Amp IPA	IPA IP	Band	PA Screen Current	PA IP	Power Output	Distortion
2:0				2.0-2.3				
2.3				2.0-2.3				
2.3				2.3-2.6				
2.6				2.3-2.6				
2.6				2.6-3.0				
3.0				2.6-3.0				
3.0				3.0-4.0				
4.0				3.0-4.0				
4.0				4.0-5.0				
5.0				4.0-5.0				
5.0				5.0-8.0				
8.0				5.0-8.0				
8.0				8.0-12.0				
12.0				8.0-12.0				
12.0				12.0-16.0				
16.0				12.0-16.0				
16.0				16.0-24.0				
24.0				16.0-24.0				
24.0				24.0-30.0				
30.0				24.0-30.3				

