

TMC SPECIFICATION

NO. S 1238

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OF

TITLE:

8/13/68 jb/

PRESENTATION PROCEDURE

FOR

BCT-10KA TRANSMITTER

TMC SPECIFICATION

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TITLE: PRESENTATION PROCEDURE FOR BCT-10K TRANSMITTER

INTRODUCTION:

The TMC Model BCT-10K is a specially modified transmitter capable of producing 10KW carrier power, plus 5 kW audio in the AM mode, and 15 kW average in the other modes (see modes of operation on specification list.) In addition a remote feature has been added for Remote H.V. ON/OFF and Remote transmitter drive.

TEST EQUIPMENT REQUIRED:

1. TER-25K-50U dummy load or equivalent
2. Remote Unit

EXTERNAL CONNECTIONS:

1. Connect TER-25K-50U to transmitter output.
2. Connect audio tones from Tone Generator to audio input on transmitter.

OPERATIONAL CHECK-OUT:

1. Place Main power switch to ON position.
2. Place AC power switch LFE exciter drawer to ON position.

The following must be observed:

- a. AC light on transmitter must light.
- b. Operate light on transmitter must light.
- c. LFE power light must light.

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INTERLOCK CHECK:

With the above mentioned breakers and switches in their ON position, except the High Voltage Breaker, check each interlock for the following:

1. Each interlock must correspond to the proper position on the interlock indicator switch. (Open interlock will cause corresponding light to go out on the interlock indicator switch).
2. Removal of High Voltage when an interlock is open.

IDLE CURRENT ADJUSTMENTS:

Once all interlocks are closed and all interlock indicators are ON, press overload reset button and place H.V. Breaker to ON position. The following must be observed:

- a. High Voltage Indicator must light.
- b. PA Voltage Meter should read 10 kV.
- c. Adjust PA Plate Current for a reading of 1.5 AMPS as read on PA Plate Current meter.
- d. Turn H.V. Breaker OFF.

The Transmitter is now ready for tuning on any carrier frequency between 500-2000 kHz. (450-500 kHz reduced power.)

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TRANSMITTER TUNING IN GENERAL:

1. Adjust LFE exciter for any carrier frequency between 450-1.99999 kHz.
2. Reduce exciter output to zero.
3. Select the proper Load and Bandswitch position.
4. Turn H.V. Breaker to ON position, and adjust to BCT-10K tuning control for a resonant dip in PA Plate Current as indicated on PA Plate Current meter.
5. Advance exciter RF Gain Control for 10 kW as read on transmitter output meter.
6. Reduce exciter RF Gain to zero and place H.V. Breaker to OFF position.

The Transmitter is now ready for test tones or intelligence.

REMOTE TEST:

1. Remove jumpers from terminals TB-1000 and TB-1001.
2. Connect Remote Test Jig # _____ J-1001.
3. Test Jig controls as follows: All switches in OFF position. Gain control, full clockwise.
4. External Interlock Indicator should indicate OPEN.
5. Place Interlock switch on TEST Jig in ON position. External Interlock Indicator should indicate CLOSED.
6. Place transmitter High Voltage switch in ON position. Now place Test Jig High Voltage switch in ON position. The following should take place: Transmitter High Voltage should energize, red lamp on Test Jig should light.

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7. Turn OFF high Voltage by placing Test Jig High Voltage switch in OFF position.
8. Tune transmitter to any frequency at full power.
9. Turn Test Jig Gain Control CCW. Transmitter output should go to zero.
10. Turn OFF high Voltage.
11. Remove Test Jig from J-1001.
12. Reconnect Jumper to TB-1000 and TB-1001.

SPECIFICATION REQUIREMENTS:

FREQUENCY RANGE: 450 to 1.99999

MODES OF OPERATION: CW, AM

POWER OUTPUT: 10,000 watt carrier power plus 5000 watts audio in AM mode, 15 kW average power in other Modes.

OUTPUT IMPEDANCE: 50 ohms unbalanced. Designed to match any antenna with a VSWR of less than 2.1.

FREQUENCY STABILITY: Synthesized control with a stability at least 1 part in 10^6 per day.

TUNING SYSTEM. Continuous tuning across the band with all power tuning and band-switching controls on the front panel.

VSWR PROTECTION: Automatic protection against mis-match exceeding 2 to 1 is provided. A higher VSWR can be tolerated with reduced power output.

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SPECIFICATION REQUIREMENTS (continued):

SPURIOUS SIGNALS: Spurious signals greater than 100 Hz removed from the carrier are at least 65 below carrier output.

NOISE LEVEL: Noise level is at least 60 db down from either tone of a two tone test.

HARMONIC SUPPRESSION: Second harmonics are at least 50 db below the full carrier output.

AUDIO RESPONSE: 100 Hz to 10 kHz within ± 2 db.
100 Hz to 5 kHz from ± 1 db.

AUDIO INPUT: 600 ohm balanced or unbalanced.
-20 dbm input to +10 dbm.
-20 dbm input will provide full RF output.

CW INPUT: Dry contact keying. Closure to ground provides full CW output.

HUM LEVEL: At least 50 db below full PEP output.

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TRANSMITTER OVERLOAD INDICATOR TEST

TRANSMITTER OVERLOAD INDICATOR TEST

1. With transmitter set-up as per paragraph "G" above, relinquish exciter output to zero, adjust IPA Voltage slowly until Voltage Overload trips. NA
2. High Voltage must go OFF when IPA Voltage Overload Trips. ()
3. IPA Voltage Overload indicator must light. ()
4. Depress reset button and overload must reset. ()
5. Reset IPA Voltage Adjust back to normal. ()

PA PLATE OVERLOAD

1. Set PA bias adjust for a reading of 5 amperes on the PA Plate Current meter. NA
2. Adjust the PA Plate overload to trip at this point. ()
3. PA Plate overload indicator must ignite when overload trips. ()
4. High Voltage must go OFF when the PA Plate overload trips. ()
5. Depress Reset button and overload must reset. ()
6. Return PA Plate Current back to normal. NA

IPA PLATE "A"

1. Set IPA Plate "A" current to read 200 ma (50) on IPA Current meter. NA
2. Adjust IPA-"A" overload to trip at this point. ()
3. IPA Plate "A" overload indicator must light. ()
4. High Voltage must go OFF when High Voltage trips. ()
5. Depress Reset Button and overload must reset. ()
6. Restore IPA Plate Current back to normal. NA

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TRANSMITTER OVERLOAD INDICATOR TEST

IPA PLATE "B"

Repeat Paragraph "K" from 1 to 6 procedure for IPA PLATE "B" Overload.

()

PA SCREEN OVERLOAD

1. Adjust transmitter at a frequency of 1.9 MHZ to draw 80 ma of Screen Current as read on the PA Screen. Current meter.

NA

2. Set PA Screen Overload adjust to trip at this point.

()

3. High Voltage must go OFF when overload trips.

()

4. PA Screen overload indicator must light when overload trips.

()

5. Reduce exciter output to minimum, depress reset button and High Voltage must come ON.

()

DRIVER PLATE OVERLOAD

1. Set driver bias adjust until Driver Plate Current reads 30 on multimeter.

NA

2. Adjust driver overload to trip at this point.

()

3. High Voltage must go OFF when overload trips.

()

4. Driver Plate overload must light when Driver overload trips.

()

5. Return Driver bias back to normal, depress Reset Button and High Voltage must come ON.

()

SWR OVERLOAD

1. Turn High Voltage and Main Power Breaker OFF.

()

2. Rotate the Reflected Power diode element to the forward Power position. (arrow facing UP)

NA

3. Turn Main Power and High Voltage Breaker ON.

()

4. Adjust transmitter for rated output, Place "Reflected Power Monitor Meter Switch" in the monitor position.

()

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TRANSMITTER OVERLOAD INDICATOR TEST

SWR OVERLOAD (continued)

5. The SWR Overload should trip at approximately 3.01 ()
6. High Voltage must go OFF when SWR overload trips. ()
7. When overload trips SWR indicator must light. ()
8. Reduce exciter output to minimum, depress Reset Button and High Voltage must come ON. ()
9. Turn Both Main Power and High Voltage breakers OFF. ()
10. Restore Reflected Power diode back to Normal. (arrow facing DOWN).

