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**J68386A AND J68386B TRANSMITTER-RECEIVER BAYS**  
**IN-SERVICE CHECKS**  
**TD-3 MICROWAVE RADIO**

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This section contains the procedures to be used for making in-service checks of the J68386A and J68386B transmitter-receiver bays of the TD-3 Microwave Radio System. These checks should be performed at the intervals specified in the Equipment Test List (ETL), Section 411-001-011. If the meter indications for any of the checks in this section are out of limits, perform the applicable routine maintenance procedures. Refer to Section 411-404-501, Receiver Tests; Section 411-406-501, Transmitter Tests; or Section 411-402-500, Preliminary Checks.

This section is reissued to change the limits of CRS 70 MC LEV and CRS 61-63 MC LEV and to add requirements for the 660E and F integrated circuit (amplifier) [660( ) IC] to Tables B and D. Shading in Tables B and D is used to emphasize the more significant changes.

This reissue does not affect the Equipment Test List.

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**CHART 1**

**IN-SERVICE CHECKS**

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STEP	PROCEDURE
1	Press the pushbuttons, one at a time, on the transmitter and receiver control panels and compare the meter indications with the requirement given for each function in the following tables. Perform this check in the sequence indicated by the tables. Use Tables A and B for bays

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**NOTICE**

Not for use or disclosure outside the  
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**CHART 1 (Contd)**


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**STEP****PROCEDURE**

equipped with the J68387B microwave generator and Tables C and D for bays equipped with the J68387R microwave generator.

**Note 1:** In each table, column **B** lists, for some pushbutton positions, a maximum permissible change from the recorded indication that is considered acceptable. However, in all cases, the indication must fall within the range shown in column **A**.

**Note 2:** New indications are recorded in the space provided on the control panels only when routine maintenance (out-of-service) tests are performed or when trouble conditions necessitate changing a unit which, in turn, affects previously recorded indications. Recorded indications which meet the requirements of this section should not be changed when these in-service checks are performed.

2 The meters on the rectifier and helix regulator unit should have the following indications:

CATHODE CURRENT: 40  $\pm$ 2 mA

HELIX CURRENT: No requirement

ANODE-TO-CATHODE VOLTAGE: No requirement.

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**CHART 2****IN-SERVICE FREQUENCY CHECK ON THE J68387B AND J68387R MICROWAVE GENERATORS****APPARATUS:**

J68392A Transmitter-Receiver Test Set

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**STEP****PROCEDURE**

**Caution:** Because of the effect that frequency adjustment might have on the power output, under no circumstance should the frequency of the J68387B microwave generator be adjusted while the bay is in service.

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**CHART 2 (Contd)**


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STEP	PROCEDURE
1	For bays equipped with the J68387B microwave generator, refer to Section 411-402-500, Common Equipment Test—Preliminary Checks. Perform Microwave Generator Checks in that section for the J68387B microwave generator.
2	For bays equipped with the J68387R microwave generator, refer to Section 411-402-500, Common Equipment Test—Preliminary Checks. Perform Microwave Generator Checks in that section for the J68387R generator. The frequency of the J68387R microwave generator may be adjusted while the bay is in service. The frequency requirements are given in Tables A, B, and C in that section.

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**CHART 3**
**IN-SERVICE FREQUENCY CHECK ON THE J68387D 40-MHz OSCILLATOR**


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**APPARATUS:**

J68392A Transmitter-Receiver Test Set

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STEP	PROCEDURE
<b>Caution:</b> <i>Because of the effect that frequency adjustment might have on the power output, under no circumstance should the frequency of the J68387D 40-MHz oscillator be adjusted while the bay is in service.</i>	
1	Remove the 368A plug from the OSC MON jack on the 40-MHz oscillator—shift modulator unit in the bay.
2	Connect the P-49Q680 cord from the OSC MON jack on the 40-MHz oscillator to the CTR jack on the test set.
3	Set the CTR switch to the EXT position.
4	The frequency indication on the counter should meet the following requirement.

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CHART 3 (Contd)

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STEP

PROCEDURE

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**Requirement:** 40 MHz  $\pm$ 400 Hz (limits: 39,999,600 to 40,000,400 Hz)

If the requirement is not met, do not attempt an in-service frequency adjustment at this time. A frequency adjustment may affect the power output from the unit. For the frequency adjustment, remove the bay from service and perform Section 411-404-501 (J68386A and J68386B Transmitter-Receiver Bay, Receiver Tests, Transmission, and 40-MHz Oscillator and Shift Modulator Checks.

- 5 Replace the 368A plug in the OSC MON jack.
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**TABLE A**  
**RECEIVER CONTROL PANEL**  
**(For Bays Equipped With the J68387B Microwave Generator)**

PUSHBUTTON	A NOMINAL VALUE OR PERMISSIBLE RANGE OF METER INDICATION	B PERMISSIBLE CHANGE FROM RECORDED INDICATION	C IN-SERVICE ADJUSTMENT TO BE MADE TO OBTAIN METER INDICATION OF COLUMN A
-19V CHECK	70 (red line)	±2	Adjust ADJ VOLTS control on the -19 volt regulator
MWV GEN OUT	Recorded indication	None	Adjust AT1
SHIFT MOD 1* SHIFT MOD 2* SHIFT OSC*	60-100 60-100 50	±8 ±8 ±5	None
(For J68387C) RCVR MOD 1 RCVR MOD 2	34-50 Average of two indications = 42	None	Adjust AT2 (Repeater) or AT3 (Main)
(For J68387P) RCVR MOD 1 (Bays equipped with shift modulators)†	Recorded indication	±0.5	Adjust AT2 (Repeater) or AT3 (Main) for -5.5 dBm at DC6 (Repeater) or DC5 (Main); then adjust the DIODE BIAS control
MWV GEN 1 MWV GEN 2 MWV GEN 3 MWV GEN 4	20-100 20-100 20-100 20-100	±10 ±10 ±10 ±10	None
MWV GEN 5 MWV GEN 6 MWV GEN 7	20-100 and difference between any two shall be less than 5	±10 ±10 ±10	None
MWV GEN LF LEV	20-100	±10	None
AGC REF RCVD SIG LEV	Varies with received signal level		None

\* Applicable only to bays equipped with a shift modulator.

† For main station bays without shift modulators, adjust the DIODE BIAS control only.

**TABLE B**  
**TRANSMITTER CONTROL PANEL**  
 (For Bays Equipped With the J68387B Microwave Generator)

PUSHBUTTON	A NOMINAL VALUE OR PERMISSIBLE RANGE OF METER INDICATION	B PERMISSIBLE CHANGE FROM RECORDED INDICATION	C IN-SERVICE ADJUSTMENT TO BE MADE TO OBTAIN METER INDICATION OF COLUMN A
-19V CHECK*	70 (red line)	±2	Adjust ADJ VOLTS control on the -19 volt regulator
MWV GEN OUT*	Recorded indication	None	Adjust AT5
CRS 70 MC LEV CRS 61-63 MC LEV CRS SWV TRMTR MOD 1 TRMTR MOD 2	45-75 45-75 45-75 2-35 2-35	±6 ±6 ±6 ±2 ±2	None
MWV GEN 1* MWV GEN 2* MWV GEN 3* MWV GEN 4*	20-100 20-100 20-100 20-100	±10 ±10 ±10 ±10	None
MWV GEN 5* MWV GEN 6* MWV GEN 7*	20-100 and difference between any two shall be less than 5	±10 ±10 ±10	None
MWV GEN LF LEV*	20-100	±10	—
TRMTR OUT (Bays with TWT)	Recorded indication	None	Adjust AT3 (Repeater) or AT4 (Main)
TRMTR OUT (Bays with 660( ))	Recorded indication	None	Adjust AT3 (Repeater) or AT4 (Main)

\* Applicable to main station bays only.

**TABLE C**  
**RECEIVER CONTROL PANEL**  
 (For Bays Equipped With the J68387R Microwave Generator)

PUSHBUTTON	A NOMINAL VALUE OR PERMISSIBLE RANGE OF METER INDICATION	B PERMISSIBLE CHANGE FROM RECORDED INDICATION	C IN-SERVICE ADJUSTMENT TO BE MADE TO OBTAIN METER INDICATION OF COLUMN A
-19V CHECK	70 (red line)	±2	Adjust ADJ VOLTS control on the -19 volt regulator
MWV GEN OUT	Recorded indication	None	Adjust AT1
MWV GEN 1	Recorded indication	No requirement	Used for alignment only
MWV GEN 2	Recorded indication	No requirement	Used for alignment only
MWV GEN 3	Recorded indication	Not to exceed value stamped on 500- MHz unit	None (Refer to Section 411-402-504)
MWV CURR MON	Recorded indication	Not to exceed 55	None (Refer to Section 411-402-504)
SHIFT MOD 1* SHIFT MOD 2* SHIFT OSC*	60-100 60-100 50	±8 ±8 ±5	None
RCVR MOD 1	Recorded indication	±0.5	For repeater station bays, adjust AT2 for -55 dBm at DC6; then adjust the DIODE BIAS control. For main station bays, adjust the DIODE BIAS control only.
AGC REF RCVD SIG LEV	Varies with received signal level		None

\* Applicable only to repeater station bays.

**TABLE D**  
**TRANSMITTER CONTROL PANEL**  
 (For Bays Equipped With the J68387R Microwave Generator)

PUSHBUTTON	A NOMINAL VALUE OR PERMISSIBLE RANGE OF METER INDICATION	B PERMISSIBLE CHANGE FROM RECORDED INDICATION	C IN-SERVICE ADJUSTMENT TO BE MADE TO OBTAIN METER INDICATION OF COLUMN A
-19V CHECK*	70 (red line)	±2	Adjust ADJ VOLTS control on the -19 volt regulator
MWV GEN OUT*	Recorded indication	None	Adjust AT5
MWV GEN 1*	Recorded indication	No requirement	Used for alignment only
MWV GEN 2*	Recorded indication	No requirement	Used for alignment only
MWV GEN 3*	Recorded indication	Not to exceed value stamped on 500- MHz unit	None (Refer to Section 411-402-504)
MWV CURR MON*	Recorded indication	Not to exceed 55	None (Refer to Section 411-402-504)
CRS 70 MC LEV CRS 61-63 MC LEV CRS SWV TRMTR MOD 1 TRMTR MOD 2	45-75 45-75 45-75 2-35 2-35	±6 ±6 ±6 ±2 ±2	None
TRMTR OUT (Bays with TWT)	Recorded indication	None	Adjust AT3 (Repeater) or AT4 (Main)
TRMTR OUT [Bays with 660( )]	Recorded indication	None	Adjust AT3 (Repeater) or AT4 (Main)

\* Applicable to main station bays only.