

**TD-3 MICROWAVE RADIO
TRANSMITTER-RECEIVER BAY
COMMON EQUIPMENT TESTS
J68387B MICROWAVE GENERATOR**

This section contains the procedures necessary either to align a spare generator or to realign a generator which has been in service but which fails to meet the requirements of Section 411-404-501 or 411-406-501.

This section is reissued to provide additional information and more reliable test procedures.

Note 1: The procedures given in this section apply to the J68387B microwave generator (Fig. 1), which may be one of the following configurations.

- (a) J68387B, L1 has 26.5-dBm output with a potentiometer for output level adjustment.
- (b) J68387B, L1, L20 has 25-dBm output with potentiometer for output level adjustment.
- (c) J68387B, L1, L21 has 26.5-dBm output with capacitor for output level adjustment.
- (d) J68387B, L1, L20, L21 has 25-dBm output with capacitor for output level adjustment.

When reference is made in this section to a J68387B microwave generator, only the combination of list numbers will be used to indicate configurations.

Note 2: If a spare generator is being aligned, both the generator and the test set should be allowed to warm up for at least 30 minutes. The warmup period enables the temperature-sensitive components to reach a stable point before the tests and adjustments are made.

Note 3: If realigning a generator which has failed because its output power has dropped by less than 4 dB, proceed directly to Chart 5. Otherwise, perform Charts 1 through 4.

Note 4: Frequencies for the L1, L20, and L21 generators are shown as L2 through L19 in Table A.

Caution 1: *Before performing these tests, check that the microwave generator is not in service.*

Caution 2: *If the multiplier circuits following the isolators are not properly tuned, a large amount of power will be reflected. This power will be dissipated in the terminations on the isolators and may cause damage to the terminations. Therefore, it is recommended that an untuned generator not be energized unless it is being adjusted to the desired frequency or undergoing initial warmup (Note 2).*

SECTION 411-402-501

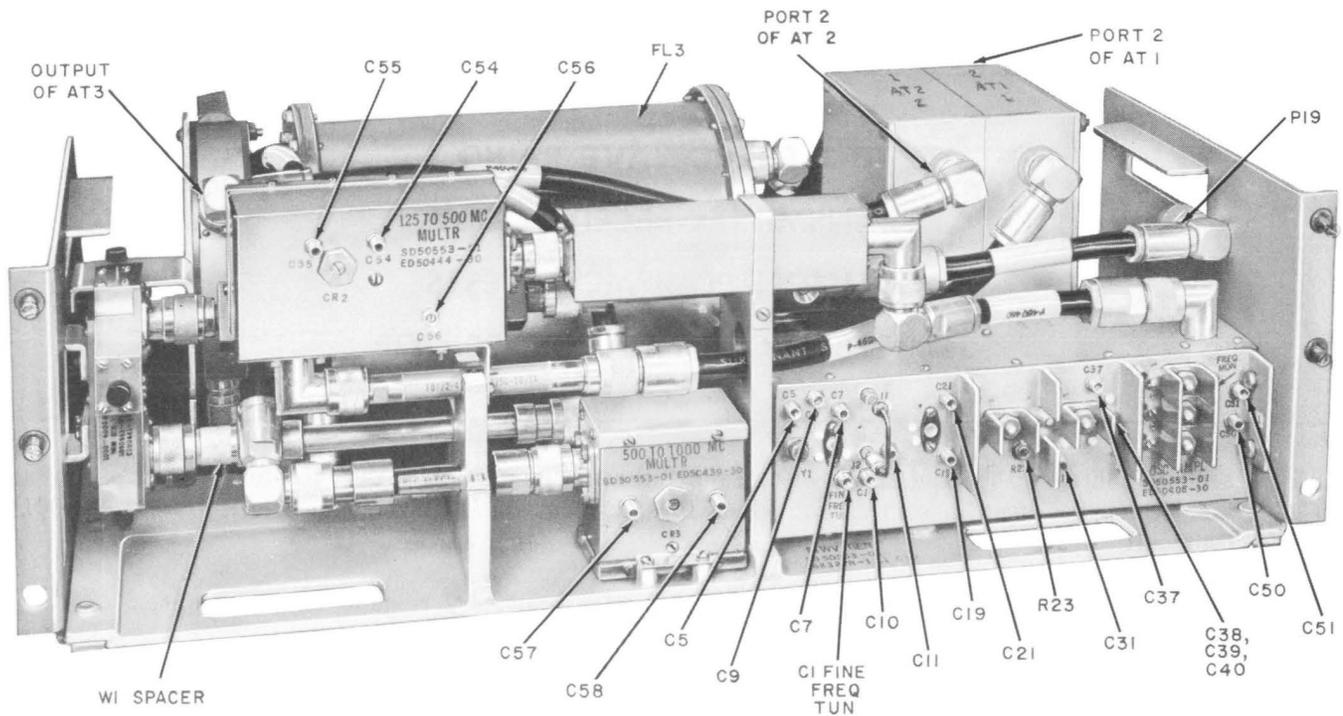


Fig. 1—Microwave Generator

Caution 3: Do not apply power to any of the microwave generator circuits without the proper termination for that circuit (i.e., fixed resistance pad or the following stage as a load).

The following drawings and sections are related to this section:

- | | |
|-------------|--|
| SD-50564-01 | TD-3 Radio, Application Schematic, Transmitter-Receiver Test Set |
| SD-50553-01 | TD-3 Radio, Microwave Generator |
| SD-50544-01 | TD-3 Radio, Application Schematic, Transmitter-Receiver Bay |
| 411-100-500 | General Test Information |

CHART

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TABLE A
FREQUENCY VERSUS LIST NUMBER OF MICROWAVE GENERATOR

LIST NO.	GENERATOR FREQUENCY (MHZ)	W1 SPACER ED-50442	CRYSTAL FREQUENCY (MHZ)
2	3780	G1	118.1250
3	3800	G1	118.7500
4	3820	G1	119.3750
5	3840	G1	120.0000
6	3860	G1	120.6250
7	3880	G2	121.2500
8	3900	G2	121.8750
9	3920	G2	122.5000
10	3940	G2	123.1250
11	3960	G2	123.7500
12	3980	G2	124.3750
13	4000	G2	125.0000
14	4020	G2	125.6250
15	4040	G2 or G3 (see note)	126.2500
16	4060	G3	126.8750
17	4080	G3	127.5000
18	4100	G3	128.1250
19	4120	G3	128.7500

Note: Either G2 or G3 spacer may be used on L15 generator to meet output power requirements.

CHART 1
PRELIMINARY OSCILLATOR TUNING
(ALL CONFIGURATIONS)

APPARATUS:

- 1—J68392A Transmitter-Receiver Test Set
- 1—P49Q684 Cable Assembly
- 1—P48N180 Cable Assembly

STEP	PROCEDURE
1	Remove the microwave generator from the bay and place it (or a spare generator, if a spare is to be substituted) on a stool in front of the radio bay.
2	Connect the generator to the radio bay, using the P49Q684 extender cable.

CHART 1 (Cont)

STEP	PROCEDURE
3	If a spare generator is being tested, either insert a spare crystal of the required frequency into the crystal socket or remove and use the crystal from the bay microwave generator. Install an appropriate W1 spacer between FL6 and J9. The crystal frequency and the W1 spacer to be used are shown in Table A.
4	Remove the coaxial jumper from jacks J1 and J2 on the oscillator and amplifier circuit, being careful not to damage the jumper.
5	Make connections in accordance with Fig. 2, and adjust the oscillator-amplifier C1 FINE FREQ TUN control to midrange.
6	Observe the power meter indication.
Requirement: -0.2 dBm or greater	
If the requirement of Step 6 is not met, adjust capacitors C1 FINE FREQ TUN, C5, C7, and C9 for maximum power as indicated on the power meter.	
Note 1: A 0.2-dB loss has been allowed for the test cable. This requirement corresponds to a +10 dBm minimum at J1.	
Note 2: The frequency check will be performed in Charts 3 and 4 of this section.	

PREPARATION FOR TEST

- CONNECT THE AC POWER CORD BETWEEN EITHER P55 OR P56 AT THE TOP OR BOTTOM REAR OF THE TEST SET AND A CONVENIENT 117-VOLT AC POWER SOURCE.
 - OBSERVE THE PILOT LAMP AT THE TOP RIGHT FRONT OF THE TEST SET. IF THE LAMP IS NOT LIGHTED, OPERATE THE TOGGLE SWITCH ONCE TO THE OPPOSITE POSITION AND THE LAMP WILL LIGHT.
 - OBSERVE THAT NO FUSE ALARM LAMPS ARE LIGHTED.
 - ENERGIZE THE ELECTRONIC COUNTER AND THE POWER METER.
 - ALLOW THE EQUIPMENT TO WARM UP FOR AT LEAST 30 MINUTES.
 - SET THE INPUT CHANNEL SWITCH ON THE POWER METER TO RF. DETERMINE THAT NO INPUT IS CONNECTED; THEN ZERO THE POWER METER BY SETTING THE POWER RANGE DBM SWITCH TO -25 AND BY ADJUSTING THE METER ZERO CONTROL FOR AN INDICATION OF ZERO ON THE METER.
 - SET THE FUNCTION SWITCH ON THE COUNTER TO TEST. PRESS THE RESET BUTTON, AND DETERMINE THAT THE COUNTER INDICATES 10 MHz ± 1 COUNT; THEN SET THE FUNCTION SWITCH TO THE FREQ POSITION. THE TEST SET IS NOW READY FOR OPERATION.
- CAUTION: NEVER APPLY MORE THAN +10 DBM TO THE POWER METER.

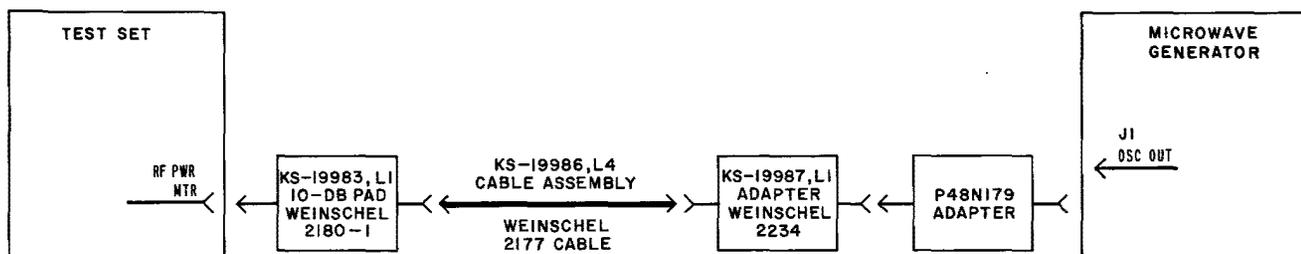


Fig. 2—Test Setup for Microwave Generator—Oscillator Tuning

CHART 2

AMPLIFIER INPUT RETURN-LOSS TEST
(ALL CONFIGURATIONS)

APPARATUS:

- 1—J68392A Transmitter-Receiver Test Set
- 1—NARDA 3060-20 Directional Coupler
- 1—P49Q684 Cable Assembly
- 1—P48N181 Cable Assembly
- 2—P48N179 Cable Assemblies
- 1—Weinschel 2288 16-Watt 40-dB Pad

STEP	PROCEDURE
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- | | |
|---|---|
| 1 | Make connections in accordance with Fig. 3, option (A). |
|---|---|

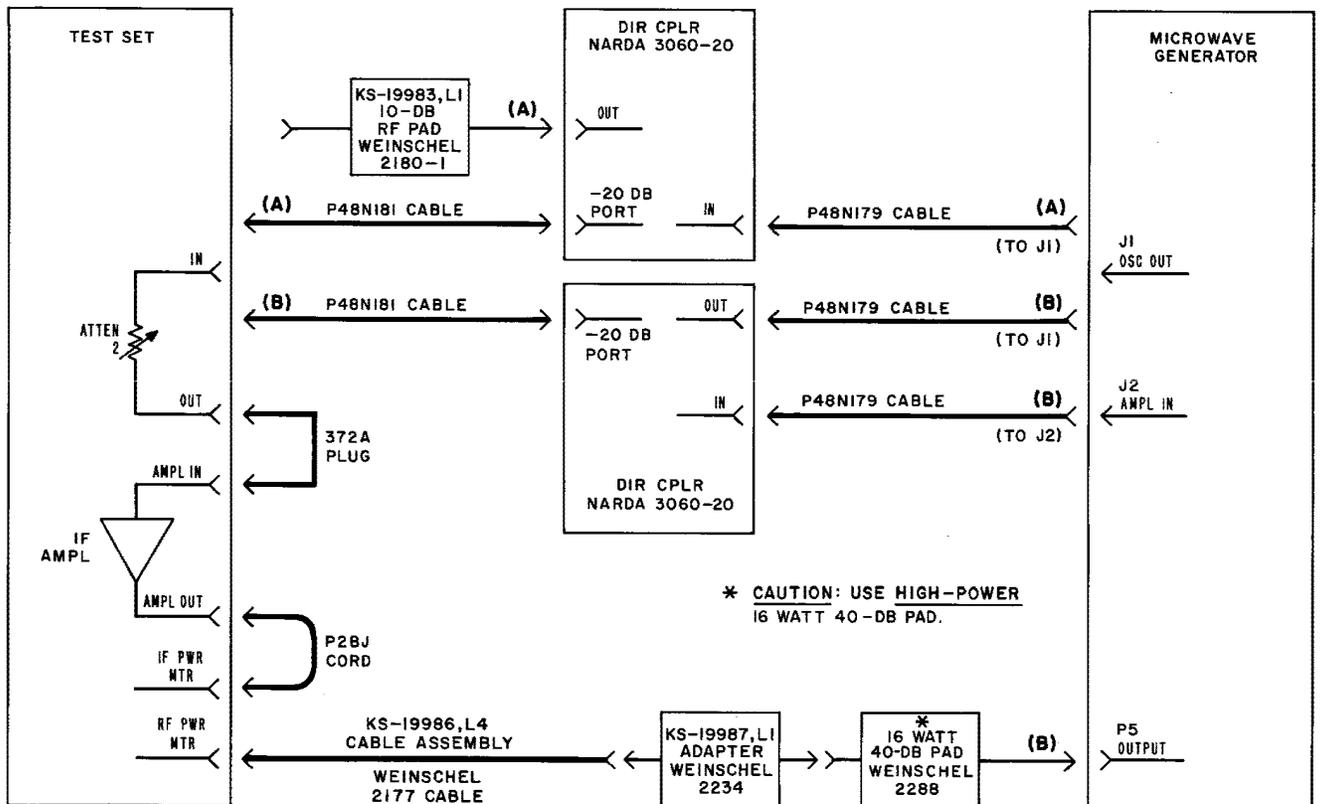


Fig. 3—Test Setup for Microwave Generator—Return-Loss Tests

CHART 2 (Cont)

STEP	PROCEDURE
2	Set the ATTEN 2 control on the test set to 30 dB.
3	Set the RANGE switch on the power meter to 0 dBm.
4	Adjust the AMP GAIN control on the test set for a 0-dBm indication on the power meter.
5	Set up the test connections in accordance with Fig. 3, option (B).
6	<p>Adjust capacitors C10 and C11 for minimum power on the power meter (IF PWR MTR position), and adjust capacitors C19, C21, C31, C37, C38, C39, C40, C50, C51, and resistor R23 for L1 and L1, L20 generators (C30 instead of R23 for the L1, L21 and L1, L20, L21 generators) for maximum power meter indication (RF PWR MTR position).</p> <p>Note: Resistor R23 has been replaced by a variable capacitor, C30, in the L21 microwave generator. See SD-50553-01 for details of option (R).</p> <p>Requirement 1: (IF PWR MTR position) Less than 0 dBm</p> <p>Requirement 2: (RF PWR MTR position) At least:</p> <p>(a) For the L1 or L1, L21 generator: +39.8 - (125-MHz calibrated loss of 40-dB pad) dBm</p> <p>(b) For the L1, L20 or L1, L20, L21 generator: +37.8 - (125-MHz calibrated loss of 40-dB pad) dBm.</p> <p>Note: In Requirement 2, 0.2-dB loss has been allowed for the test cable. The requirements correspond to a +40 dBm minimum for the L1 or L1, L21 generator and a +38 dBm minimum for the L1, L20 or L1, L20, L21 generator at P5.</p>
7	Disconnect the test connections and reconnect the coaxial jumper cable between jacks J1 and J2.

CHART 3

FREQUENCY AND POWER OUTPUT TESTS
(L1 AND L1, L20)

APPARATUS:

- 1—J68392A Transmitter-Receiver Test Set
- 1—Weinschel 2288 16-Watt, 40-dB pad
- 1—P48N180 Cable Assembly
- 1—P49Q684 Cable Assembly
- 1—Weinschel 2180-3, 30-dB pad

STEP

PROCEDURE

Note: This chart is to be used for the J68387B, L1 and L1, L20 (L2 through L19) microwave generators. The L1, L21 and L1, L20, L21 (L2 through L19) generators are covered in Chart 4.

- 1 Set up the test connections in accordance with Fig. 4.

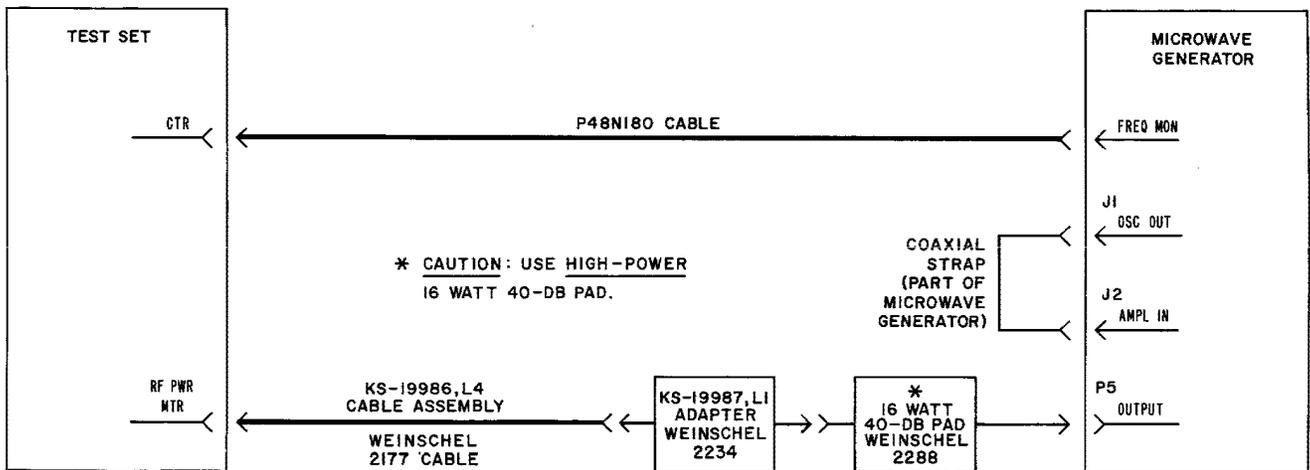


Fig. 4—Test Setup for Microwave Generator—Frequency Test

- 2 Adjust the FINE FREQ TUN control on the oscillator-amplifier to set the oscillator frequency.
Requirement: The frequency shall be within ± 10 Hz of the crystal frequency.
- 3 Peak the output by adjusting capacitors C19, C21, C31, C37, C50, and C51.

CHART 3 (Cont)

STEP	PROCEDURE
4	Adjust capacitors C38, C39, and C40 to balance the currents (to within 5 divisions) indicated by the control panel meter for the MWV GEN 5, MWV GEN 6, and MWV GEN 7 positions.
5	<p>Adjust resistor R23 to set the required output power. Observe the power meter indication.</p> <p>Requirement:</p> <p>(a) For the L1 generator: $+38.3 - (125\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$</p> <p>(b) For the L1, L20 generator: $+36.3 - (125\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$.</p> <p>Note: The requirements correspond to $+38.5 \text{ dBm}$ for the L1 generator and $+36.5 \text{ dBm}$ for the L1, L20 generator at P5.</p>
6	Remove the test connections and reconnect the coaxial cable normally connected to P5. Set up the test connections in accordance with Fig. 5 and connect the 40-dB pad to port 2 of AT1. (See Fig. 1.)
7	<p>On the 125- to 500-MHz multiplier circuit, adjust capacitors C54, C55, and C56, using the first maximum or peak obtained as capacitor C56 is adjusted from its maximum clockwise position, for maximum power output. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: $+33.6 - (500\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$</p> <p>(b) For the L1, L20 generator: $+32.1 - (500\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$.</p> <p>Note 1: A 0.4-dB loss has been allowed for the test cable. The requirements correspond to $+34.0 \text{ dBm}$ minimum for the L1 generator and $+32.5 \text{ dBm}$ minimum for the L1, L20 generator at port 2 of AT1.</p> <p>Note 2: The typical loss of the 125- to 500-MHz multiplier circuit is 4.4 dB for the L1 generator and 4.0 dB for the L1, L20 generator.</p> <p>Note 3: Disregard tuning combinations that give a maximum power lower than $+30 \text{ dBm}$ for the L1 generator or $+28.5 \text{ dBm}$ for the L1, L20 generator.</p>
8	<p>Readjust resistor R23 on the oscillator-amplifier to set the required output power at port 2 of AT1. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: $+34.1 - (500\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$</p> <p>(b) For the L1, L20 generator: $+32.6 - (500\text{-MHz calibrated loss of } 40\text{-dB pad}) \text{ dBm}$.</p>

CHART 3 (Cont)	
STEP	PROCEDURE
	<p>Note: These requirements correspond to +34.5 dBm for the L1 generator and +33.0 dBm for the L1, L20 generator at port 2 of AT1.</p>
9	Remove the test connections and reconnect the coaxial cable normally connected to port 2 of AT1. Move the 40-dB pad to port 2 of AT2.
10	<p>On filter FL3 (734A), set the fine frequency tuning control (screwdriver adjustment) to midrange. Loosen the locknut and adjust the coarse control (black knob) for maximum power output; then tighten the locknut to prevent accidental movement. Trim-adjust with the fine frequency tuning control (screwdriver adjustment). Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For L1 generator: +31.6 - (500-MHz calibrated loss of 40-dB pad) dBm</p> <p>(b) For the L1, L20 generator: +30.1 - (500-MHz calibrated loss of 40-dB pad) dBm.</p> <p>Note 1: These requirements correspond to +32.0 dBm minimum for the L1 generator and +30.5 dBm for the L1, L20 generator at port 2 of AT2.</p> <p>Note 2: The typical loss for FL3 and AT2 is 2.4 dB.</p>
11	<p>Readjust resistor R23 on the oscillator-amplifier to set the required output power at port 2 of AT2. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: +31.9 - (500-MHz calibrated loss of 40-dB pad) dBm</p> <p>(b) For the L1, L20 generator: +30.4 - (500-MHz calibrated loss of 40-dB pad) dBm.</p> <p>Note: These requirements correspond to +32.0 dBm for the L1 generator and +30.5 dBm for the L1, L20 generator at port 2 of AT2.</p>
12	<p>Remove the test connection and reconnect the coaxial cable normally connected to port 2 of AT2. Move the 40-dB pad to the OUTPUT port of AT3, and adjust capacitors C57 and C58 on the 500- to 1000-MHz multiplier circuit for maximum power output. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: +29.7 - (1-GHz calibrated loss of 40-dB pad) dBm</p> <p>(b) For the L1, L20 generator: +28.2 - (1-GHz calibrated loss of 40-dB pad) dBm.</p>

CHART 3 (Cont)

STEP	PROCEDURE
13	<p>Note 1: A 0.6-dB loss has been allowed for the test cable. The requirements correspond to +30.3 dBm minimum for the L1 generator and +28.8 dBm minimum for the L1, L20 generator at the OUTPUT port of AT3.</p> <p>Note 2: The typical loss of the 500- to 1000-MHz multiplier is 2.0 dB.</p> <p>Readjust resistor R23 to set the required output power of the OUTPUT port of AT3. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: +29.9 - (1-GHz calibrated loss of 40-dB pad) dBm</p> <p>(b) For the L1, L20 generator: +28.4 - (1-GHz calibrated loss of 40-dB pad) dBm.</p> <p>Note 1: The requirements correspond to +30.5 dBm for the L1 generator and +29.0 dBm for the L1, L20 generator at the OUTPUT port of AT3.</p> <p>Note 2: Disregard tuning combinations where the output is less than +27 dBm.</p>
14	<p>Remove the test connections and reconnect the coaxial cable normally connected to the OUTPUT port of AT3. Make the connections in accordance with Fig. 6.</p>
15	<p>Adjust the three controls on the 1000- to 4000-MHz multiplier unit for maximum power output at P19. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For the L1 generator: +24.5 dBm minus the 4-GHz calibrated loss of the 30-dB pad</p> <p>(b) For the L1, L20 generator: +23 dBm minus 4-GHz calibrated loss of the 30-dB pad</p> <p>Note 1: A 1.5-dB loss has been allowed for the test cable. The requirements correspond to +26.0 dBm minimum for the L1 generator and +24.5 dBm minimum for the L1, L20 generator at P19.</p> <p>Note 2: The typical loss of the 1000- to 4000-MHz multiplier is 4.5 dB.</p> <p>Note 3: Disregard tuning combinations where the output is less than +25 dBm for the L1 generator, or less than +23.5 dBm for the L1, L20 generator.</p>
16	<p>Readjust resistor R23 on the oscillator-amplifier unit to set the required output power at P19. Observe the power meter indication.</p>

CHART 3 (Cont)

STEP	PROCEDURE
	<p>Requirement: At least:</p> <p>(a) For the L1 generator: +25 dBm minus the 4-GHz calibrated loss of the 30-dB pad</p> <p>(b) For the L1, L20 generator: +23.5 dBm minus the 4-GHz calibrated loss of the 30-dB pad</p> <p>Note: A 1.5-dB loss has been allowed for the test cable. The requirements correspond to +26.5 dBm for the L1 generator and +25.0 dBm for the L1, L20 generator at P19.</p>
17	Repeat adjustments in Steps 3 through 16 for maximum output while maintaining the frequency within ± 10 Hz of the crystal frequency (C1 FINE FREQ TUN) and power output (R23) at the required level of Step 16. Repeat these adjustments until interaction between adjustments is eliminated.
18	Remove all test connections including the extender cable; install the microwave generator in the bay; and connect P19.
19	Record the control panel meter indication for the MWV GEN 1 through 7 and the LF LEV pushbuttons.
20	Refer to Sections 411-404-501 and 411-406-501 for procedures to set the output level and alarm trip points for the microwave generator.

CHART 4

**FREQUENCY AND POWER OUTPUT TESTS
(L1, L20, AND L21; L1, L21)**

Microwave generator J68387B, L1, L20, L21 or L1, L21 (L2 through L19) has option (R) installed. This option removes resistor R23 (level adjust) from the L1 and L1, L20 generators and replaces it with variable capacitor C30. Capacitor C31 is used to adjust the output level of the amplifier.

When performing the power output adjustments of the amplifier, it may be difficult to obtain the minimum level of +40 dBm. (See Step 3.) If this condition exists, adjust to the lowest value obtainable and use this level as the base or reference level.

APPARATUS:

- 1—J68392A Transmitter-Receiver Test Set
- 1—Weinschel 2288 16-Watt, 40-dB Pad

CHART 4 (Cont)

APPARATUS (Cont):

- 1—P48N180 Cable Assembly
- 1—P49Q684 Cable Assembly
- 1—Weinschel 2180-3, 30-dB Pad

STEP	PROCEDURE
1	Set up test connections in accordance with Fig. 4.
2	Adjust the FINE FREQ TUN control on the oscillator-amplifier to set the oscillator frequency. <i>Requirement 1:</i> The frequency as indicated on the counter shall be within ± 10 Hz of the crystal frequency. <i>Requirement 2:</i> The power level at the OUT jack shall be +40 dBm or more.
3	Reduce the output to +40 dBm by turning capacitor C31 clockwise. Retune capacitors C19, C21, C30, C37, C50, and C51 to repeak the amplifier; and reduce the output power again, if necessary. <i>Note:</i> The minimum power output may be more than the +40 dBm. If so, use the minimum value obtained.
4	Adjust capacitors C38, C39, and C40 to balance the currents (± 5 divisions) indicated by the control panel meter for the MWV GEN 5, MWV GEN 6, and MWV GEN 7 positions.
5	Remove the test connections and reconnect the coaxial cable normally connected to P5. Set up test connections in accordance with Fig. 5 and connect the 40-dB pad to port 2 of AT1. (See Fig. 1.)

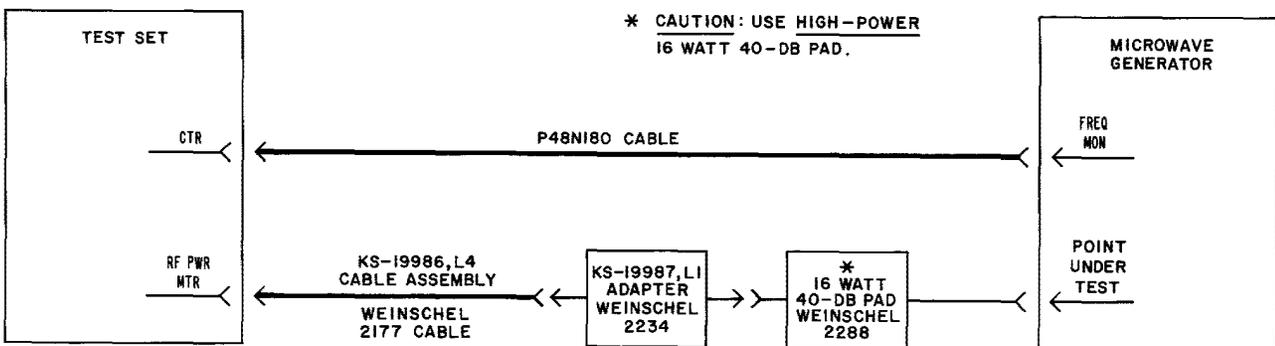


Fig. 5—Test Setup for Microwave Generator—Power Output Test

CHART 4 (Cont)	
STEP	PROCEDURE
6	<p>On the 125- to 500-MHz multiplier circuit, adjust capacitors C54, C55, and C56 to obtain maximum power at terminal 2 of AT1.</p> <p>Note 1: Disregard tuning combinations that give a maximum power lower than +30 dBm for the L1, L21 generator, or +28.5 dBm for the L1, L20, L21 generator.</p> <p>Note 2: Use the first maximum indication when tuning capacitor C56 from the maximum clockwise position.</p> <p>Note 3: The normal loss of the 125- to 500-MHz multiplier circuit is 4.4 dB.</p>
7	<p>Remove the test connections and reconnect the coaxial cable normally connected to port 2 of AT1. Move the 40-dB pad to port 2 of AT2.</p>
8	<p>On filter FL3 (734A), set the fine frequency tuning control (screwdriver adjustment) to midrange.</p>
9	<p>Loosen the locknut on the coarse control (black knob) and adjust for maximum power output. Tighten the locknut to prevent accidental movement after adjustment. Trim-adjust with the fine frequency tuning (right-angle drive) control.</p> <p>Note: The normal loss for FL3 and AT2 is 2.4 dB.</p>
10	<p>Remove the test connections and reconnect the coaxial cable normally connected to port 2 of AT2. Move the 40-dB pad to the OUTPUT port of AT3.</p>
11	<p>On the 500- to 1000-MHz multiplier circuit, adjust capacitors C57 and C58 for maximum power output.</p> <p>Note 1: Disregard tuning combinations where the output is less than +27 dBm.</p> <p>Note 2: The normal loss of the 500- to 1000-MHz circuit is 2.2 dB.</p>
12	<p>Remove the test connections and reconnect the coaxial cable normally connected to the OUTPUT port of AT3. Make connections in accordance with Fig. 6.</p>
13	<p>If not already installed, insert the appropriate W1 spacer (Table A) between FL6 and J9.</p>
14	<p>Adjust the three controls of this multiplier circuit for maximum power output at P19.</p> <p>Note 1: Disregard tuning combinations where the output is less than +25 dBm for the L1, L21 generator, or less than +23.5 dBm for the L1, L20, L21 generator.</p> <p>Note 2: The normal loss for the 1000- to 4000-MHz multiplier circuit is 4.5 dB.</p>

CHART 4 (Cont)

STEP	PROCEDURE
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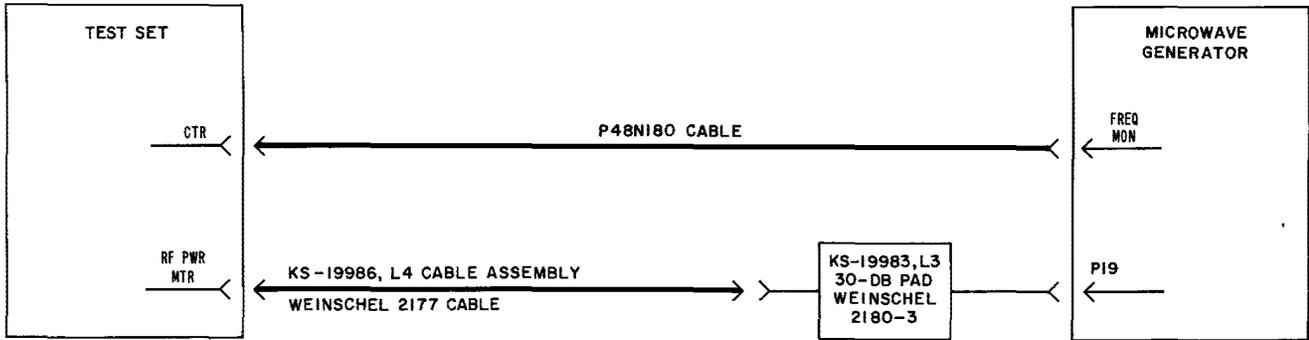


Fig. 6—Test Setup for Microwave Generator—Frequency and Power Output Test

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|----|--|
| 15 | Adjust the C1 FINE FREQ TUN control for a frequency within ± 10 Hz of the crystal frequency. |
| 16 | Adjust all controls except C31 for maximum output as indicated on the power meter (Steps 3 through 15) until there is no further interaction between adjustments. |
| 17 | For the L1, L21 (L2 through L19) generator, adjust the output power of the generator to a minimum level, but not less than +26.5 dBm, by adjusting C31 in the <i>clockwise</i> direction. For the L1, L20, L21 (L2 through L19) generator, adjust the output power of the generator to a minimum level, but not less than +25.0 dBm, by adjusting C31 in the <i>clockwise</i> direction. |
| 18 | Repeat Steps 15, 16, and 17 until all interaction between adjustments has been eliminated.

<i>Note:</i> If the microwave generator does not meet all requirements, it should be considered defective and must be replaced. |
| 19 | Remove all test connections including the extender cable; install the microwave generator in the bay; and connect P19. |
| 20 | Record the control panel meter indication for the MWV GEN 1 through 7 and the LF LEV pushbuttons in the space provided. |
| 21 | Refer to Sections 411-404-501 and 411-406-501 for procedures to set the output level and alarm trip points for the microwave generator. |

CHART 5

TUNE-UP FOR FREQUENCY AND POWER OUTPUT (ALL CONFIGURATIONS)

APPARATUS:

- 1—J68392A Transmitter-Receiver Test Set
- 1—Weinschel 2180-3, 30-dB Pad
- 1—P48N180 Cable Assembly
- 1—P49Q684 Cable Assembly

STEP	PROCEDURE
	<p>Note: This chart is to be used only when realigning a generator which has failed in service because its output power has dropped by less than 4 dB.</p> <p>1 Remove the microwave generator from the bay and place it on a stool in front of the radio bay.</p> <p>2 Connect the generator to the radio bay, using the P49Q684 extender cable.</p> <p>3 Set up the test connections shown in Fig. 6.</p> <p>4 Adjust all controls on the microwave generator for maximum output power. Start at the oscillator and work toward the 1000- to 4000-MHz multiplier circuit. Observe the power meter indication.</p> <p>Requirement: At least:</p> <p>(a) For L1, or L1, L21 generators: +25 dBm minus the 4-GHz calibrated loss of the 30-dB pad</p> <p>Note: A 1.5 dB loss has been allowed for the test cable. The requirement corresponds to +26.5 dBm at the output of the generator.</p> <p>(b) For the L1, or L1, L20, L21 generators: +23.5 dBm minus the 4-GHz calibrated loss of the 30 dB pad.</p> <p>Note: A 1.5 dB loss has been allowed for the test cable. The requirement corresponds to +25 dBm at the output of the generator.</p> <p>5 If the requirement cannot be met, perform tests in Charts 1 through 4. If the requirement is met, proceed with Step 6 for the L1, or L1, L20 generators; or to Step 10 for the L1, L21, or L1, L20, L21 generators.</p>

CHART 5 (Cont)

STEP	PROCEDURE
6	<p>Readjust resistor R23 on the oscillator-amplifier unit to set the required output power at P19. Observe the power meter indication.</p> <p>Requirement:</p> <p>(a) For the L1 generator: +25 dBm minus the 4-GHz calibrated loss of the 30-dB pad</p> <p>(b) For the L1, L20 generator: +23.5 dBm minus the 4-GHz calibrated loss of the 30-dB pad.</p> <p>Note: A 1.5-dB loss has been allowed for the test cable. The requirements correspond to +26.5 dBm for the L1 generator and +25.0 dBm for the L1, L20 generator at P19.</p>
7	<p>Except for R23, repeat the adjustments in Step 4 until interaction between adjustments is eliminated.</p>
8	<p>Readjust R23 to provide same output power as read in Step 6 and readjust C1 FINE FREQ TUN control for an output frequency within ± 10 Hz of the crystal frequency.</p>
9	<p>Proceed with Step 14.</p>
10	<p>For the L1, L21 (L2 through L19) generator, adjust the output power of the generator to a minimum level, but not less than +26.5 dBm, by adjusting C31 in the clockwise direction. For L1, L20, L21 (L2 through L19) generator, adjust the output power of the generator to a minimum level, but not less than +25.0 dBm, by adjusting C31 in the clockwise direction.</p>
11	<p>Readjust all controls except C31 for maximum output as indicated on the power meter.</p>
12	<p>Adjust the C1 FINE FREQ TUN control for a frequency within ± 10 Hz of the crystal frequency.</p>
13	<p>Repeat Steps 10, 11, and 12 until all interaction between adjustments has been eliminated.</p>
14	<p>Remove all test connections and the extender cable. Install the microwave generator in the bay, and connect P19.</p>
15	<p>In the space provided, record the control panel meter indication for the MWV GEN 1 through 7 and the LF LEV pushbuttons.</p>
16	<p>Refer to Sections 411-404-501 and 411-406-501 for procedures to set the output level and alarm trip points for the microwave generator.</p>