

RADIO TEST EQUIPMENT
MICROWAVE TEST SETS
J68392A TRANSMITTER-RECEIVER TEST SET
MAINTENANCE
RF FREQUENCY METER

This section describes the calibration procedure for the KS-19979, List 1 frequency meter. The frequency meter is part of all models of the J68392A transmitter-receiver test set prior to Issue 8B of SD-50564-01.

A working TD-3 bay is used as a frequency standard. This test will in no way affect the normal operation of the transmitter, and it need not be removed from service.

APPARATUS:

- 1—Working (In-Service) TD-3 Transmitter Bay
- 1—J68392A Transmitter-Receiver Test Set
- 1—KS-14510, List 1 Volt-Ohm-Milliammeter (VOM)

STEP	PROCEDURE
1	Energize the test set frequency counter. Allow a warmup time of at least 30 minutes.
2	Remove the right side cover from the test set.
3	Disconnect the cable going to the RF IN jack on the rear of the RF frequency meter. See Fig. 3.
4	Connect one end of the KS-19986, List 4 cable assembly to this jack.
5	On the TD-3 radio bay, remove the 61A detector located on the DC-1 or DC-2 directional coupler. The coupler is accessible by swinging out the control unit door.
	Note: The DC-1 designation pertains to main station bays (Fig. 1), and the DC-2 designation pertains to repeater station bays (Fig. 2).

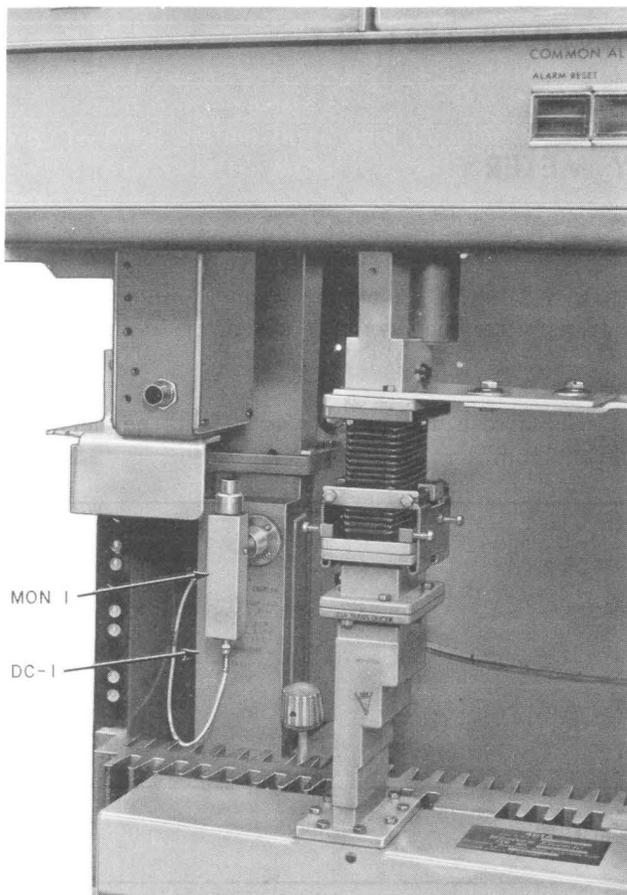


Fig. 1—Main Station Directional Coupler DC-1 and 61A Detector MON 1

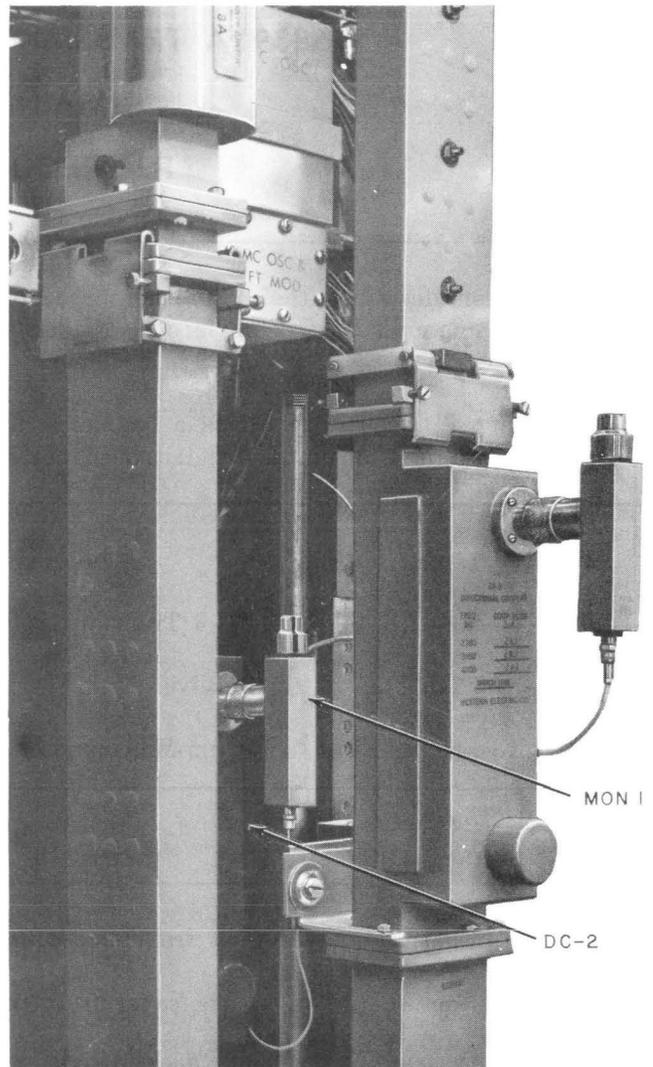
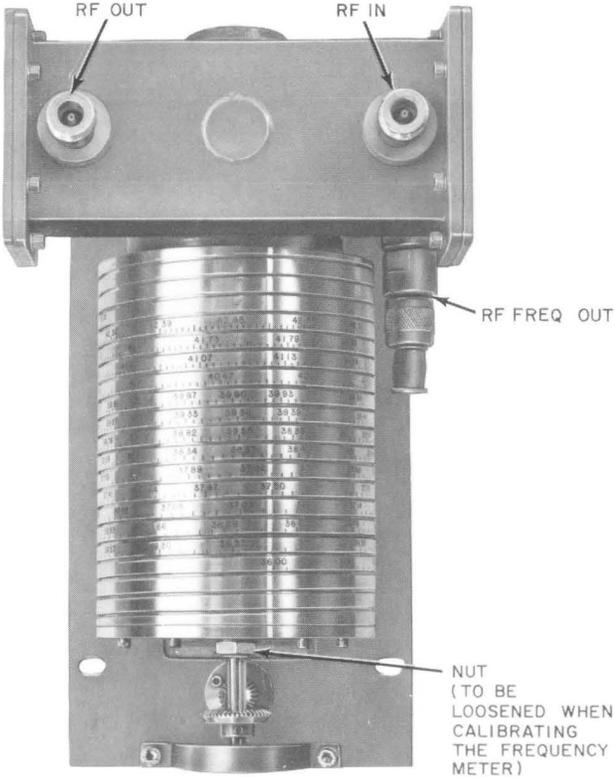


Fig. 2—Repeater Station Directional Coupler DC-2 and 61A Detector MON 1

STEP	PROCEDURE
6	<p>Connect the other end of the KS-19986, List 4 cable assembly to the directional coupler.</p> <p>Note: The TD-3 transmitter must be energized and may be part of an in-service channel.</p>
7	<p>Disconnect the cable to the detector located on the RF FREQ OUT jack on the RF frequency meter. The RF FREQ OUT jack is located directly behind and below the RF IN jack. (See Fig. 3.)</p>
8	<p>Set the VOM to the 12 VOLTS DC scale and connect it to the RF FREQ OUT jack (-lead to the center conductor of the jack).</p>
9	<p>Tune the frequency meter for a peak indication on the VOM. If no indication is obtained on the VOM, check the detector in the frequency meter. If it is found to be defective, replace it, and retune for a peak indication on the VOM.</p>
10	<p>Note the setting on the frequency dial.</p>
11	<p>Check the backlash by approaching the frequency in the opposite direction.</p> <p>Requirement: The frequency dial position shall be within ± 0.5 MHz when approached from each direction.</p>
12	<p>Set the CTR switch on the test set control panel to EXT.</p>
13	<p>Using the P48N180 cable assembly, connect the 125-MHz monitor jack on the microwave generator to the CTR jack on the test set jack panel.</p> <p>Note: On the main station bays which contain two microwave generators, use the top generator.</p>
14	<p>On the frequency counter, set the GATE TIME switch to indicate MHz on the counter display.</p>
15	<p>Note the frequency indication on the counter to the nearest hundredth of a MHz.</p>
16	<p>Multiply the frequency indication on the counter by 32.</p> <p>Requirement: The difference between this number and the dial setting noted in Step 10 shall be no greater than ± 1.40 MHz.</p> <p>Note: Several TD-3 radio bays at a station should be checked to obtain a spread of frequencies.</p>
17	<p>If the accuracy requirement cannot be met, the frequency meter should be recalibrated using the procedure in Steps 18 through 20.</p>
18	<p>Hold the frequency meter drum and loosen the nut located directly below the frequency meter drum (see Fig. 3) to allow the drum itself to rotate freely.</p>

STEP	PROCEDURE
	 <p>The diagram shows a cylindrical RF Frequency Meter. At the top, there are two ports labeled 'RF OUT' and 'RF IN'. On the right side, there is a port labeled 'RF FREQ OUT'. The main body of the meter is a drum with a scale of numbers. At the bottom, there is a nut that is noted to be loosened during calibration.</p> <p>Fig. 3—RF Frequency Meter</p> <p>19 While holding the meter knob on the front panel stationary, rotate the drum until it indicates the number obtained in Step 16.</p> <p>20 Retighten the nut.</p>