MOBILE RADIO

MAINTENANCE MANUAL
FOR
MASTR REMOTE CONTROL STATIONS WITH SATELLITE RECEIVER
(OPTION 7757)

CONTENTS

DESCRIPTION

Option 7757 adds a Tone/Audio panel to a MASTR remote control station. This modification enables the station receiver to be used as a satellite receiver in a receiver voting system.

In receiver voting systems, the satellite receivers are located so that at least one receiver will receive a good quality signal from a Personal or Mobile two-way radio transmitting from a specified operating area. The satellite receiver output is applied to a centrally located Voting Selector which selects the receiver with the best audio quality to be heard. The satellite receiver output is connected to the Selector by RF link. AC or DC lines, or an E & M pair.

MODIFICATIONS

For receiver voting applications, modifications are required to the Control Shelf and the station Interconnection wiring.

1. Install the 19D413943G3 Tone/Audio Panel as shown in Figure 2.
2. Install the 19A129632G1 Overlay harness and make connection as shown on the Wiring Diagram 19D416962.
3. Spot tie the overlay harness to the existing cabinet harness.

TONE/AUDIO PANEL

The tone/audio panel contains a 1950 Hz tone generator, a tone gate, and a line transformer. When the receiver is squelched, the 1950 Hz tone is applied to the telephone pair. When the receiver is unsquelched, the tone is removed and the receiver audio is applied to the telephone pair. The output of the tone/audio panel is connected to the Voting Selector panel.

DF-9026

Complete instructions for the tone/audio panel are contained in Maintenance Manual LBI-4582.

CONNECTIONS

In receiver voting systems, the output of the Tone/Audio panel must be connected to the Voting Selector by an audio pair. Connect the audio pair from the Selector to TB1-6 and TB1-7 on the Tone/Audio panel.

SATELLITE RECEIVER ADJUSTMENT

After the station has been installed and all connections and preliminary adjustments completed, it is necessary to set the satellite receiver output levels.

There are two methods for adjusting the output levels of the Satellite Receiver. The preferred method requires one man at the Satellite Receiver and one man at the Voting Selector. The alternate method allows one man to set up the system.

NOTE

If the frequency response of the telephone lines is relatively flat, the alternate method provides results identical to the preferred method.

EQUIPMENT REQUIRED

- Wide-band AC VTVM: Similar to Heath IM-38, Simpson 75 or HP400 Series.
- Signal Generator: Similar to Measurements M800.

PREFERRED METHOD

1. At the base station, connect an AC VTVM across TB1-6 and TB1-7 on the Tone/Audio Board.
2. Apply a 1000 microvolt signal modulated by 1000 Hz with +3.0 kHz deviation to the receiver antenna jack J441.
3. Set the Line Level adjust (R1501) on the Line Amplifier as follows:
   a. If the line loss is less than 10 dB, set R1501 for the maximum level allowed by the telephone company, but no greater than 0 dBm.
   b. If the line loss is greater than 10 dB, set R1501 for the maximum level allowed.
4. Remove the signal generator and unsquelch the receiver.
5. At the Voting Selector, connect a wide-band AC-VTVM to J1 on the front of the associated Receiver Module, and to the Ground Jack on the front of the power supply module.
6. With receiver noise on the line, adjust the Input level control (R1) on the front of the Receiver Module for -20 dBm.
7. At the base station, readjust the SQUELCH control on the EP-38-A for the desired setting.
8. Adjust R7 on the Tone/Audio panel for a reading of -20 dBm at J1 on the Voting Selector. Do not adjust R1 at the Receiver Module.

ALTERNATE METHOD

1. Connect an AC-VTVM across TB1-6 and TB1-7 on the Tone/Audio Board.
2. Apply a 1000 microvolt signal modulated by 1000 Hz with a +3.0 kHz deviation to the receiver antenna jack J441.
3. Set the Line Level Adjust (R1501) on the Line Amplifier as follows:
   a. If the line loss is less than 10 dB, set R1501 for the maximum level allowed by the telephone company, but no greater than 0 dBm.
   b. If the line loss is greater than 10 dB, set R1501 for the maximum level allowed.
4. Remove the signal generator and squelch the receiver.

5. When using MASTR receivers, adjust R7 on the Tone/Audio panel for tone output that is 3 dB less than the output signal level in Step 3.

> **NOTE**
>
> When MASTR receivers are not used, the receiver output on a standard signal and on unsquelched noise should be measured with a wide-band VTVM. The difference in these two readings should be used instead of 3 dB in setting up the tone output.

6. Return to the Voting Selector and adjust Input Level control R1 on the front of each Receiver Module for a reading of -20 dBm at J1 on the 1950 Hz tone.

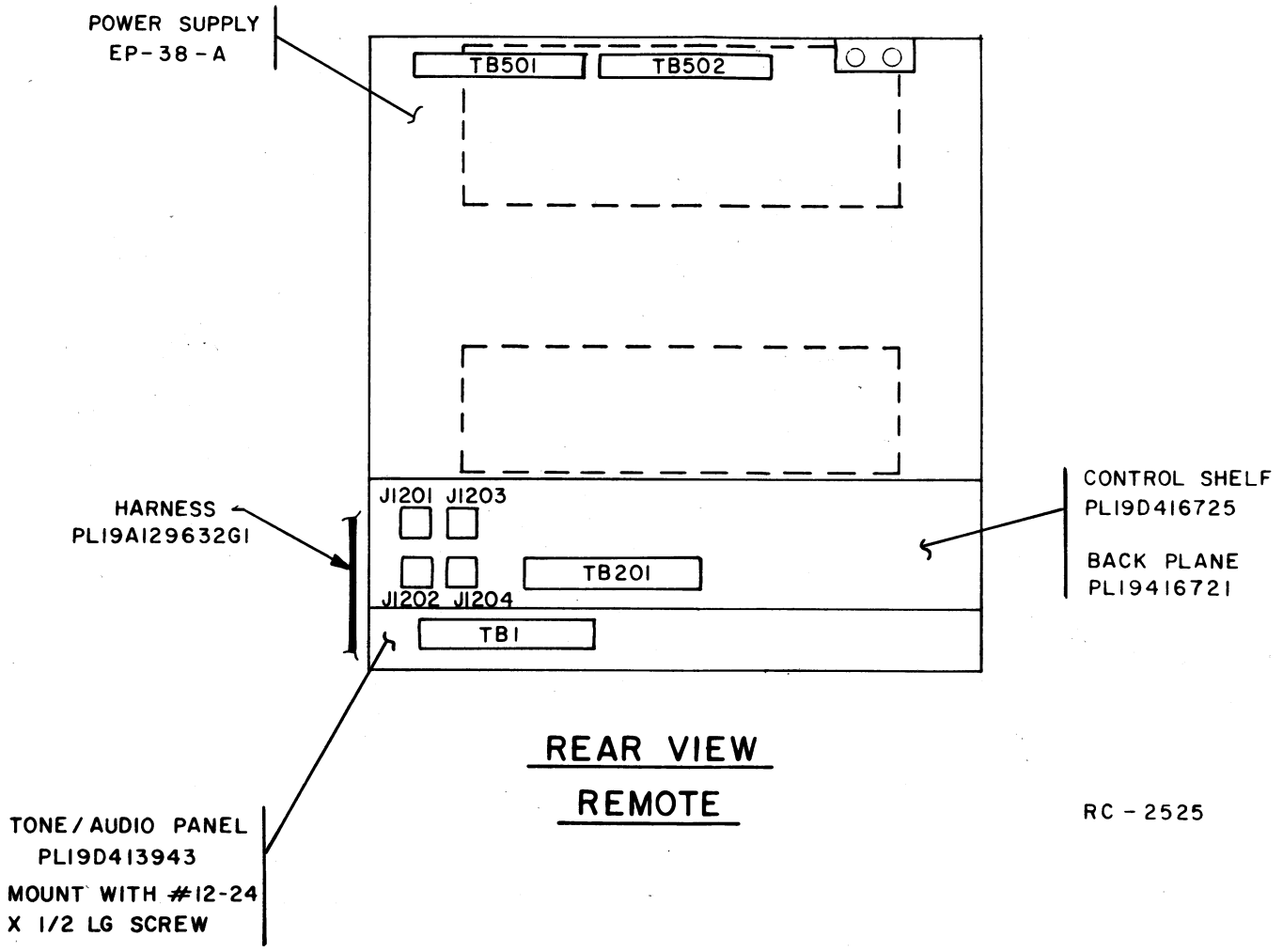

Figure 1 - Installation Diagram

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GENERAL ELECTRIC COMPANY
LYNCHBURG, VIRGINIA 24502

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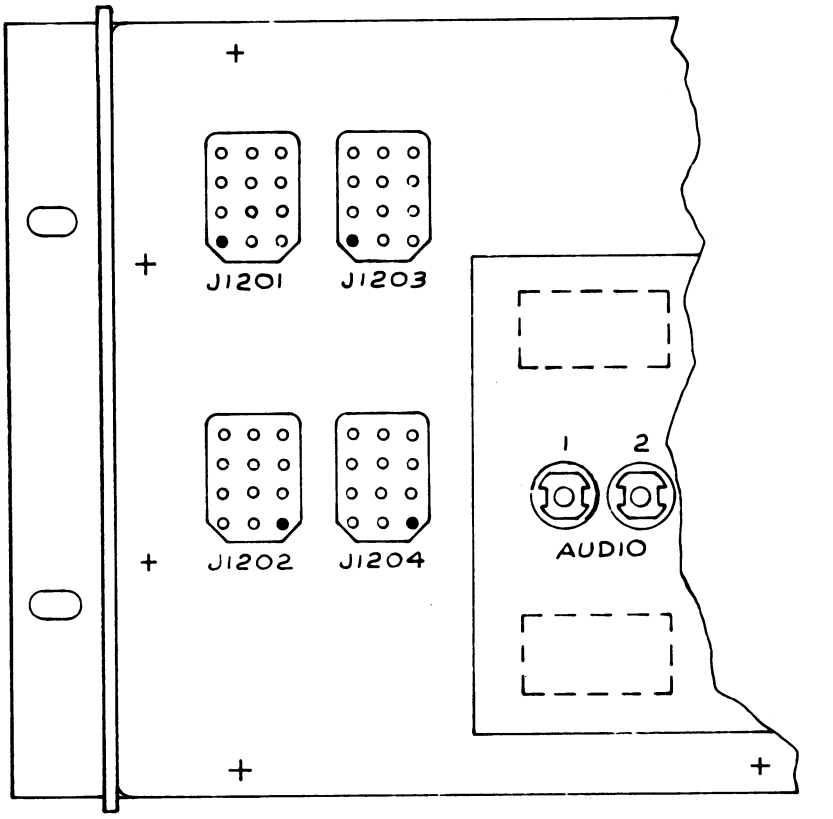


CONTROL SHELF PL19D416725

THESE INSTRUCTIONS COVER THE INSTALLATION OF THE OPTION JACK KIT PL19A129630 ON THE CONTROL SHELF.

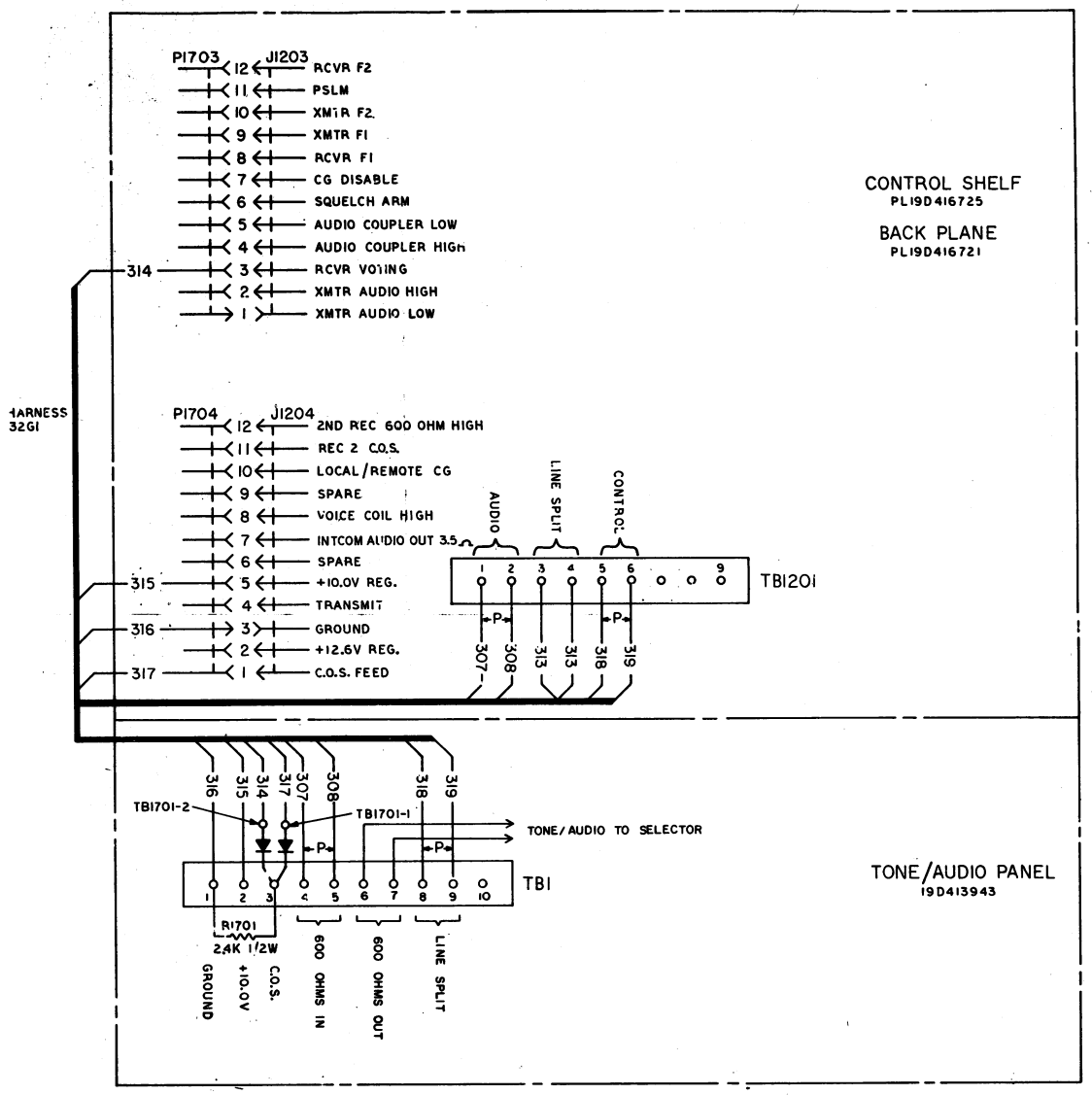
INSTRUCTIONS FOR INSTALLING (PL19A129630) OPTION JACK KIT.

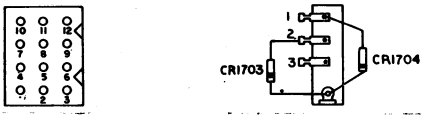
1. INSTALL J1203 ON BACK PLANE BY SOLDERING IN PLACE. TAKE NOTICE OF THE ORIENTATION OF THE JACK AND ALSO THE LOCATION OF THE "KEY" PIN.

2. INSTALL J1204 ON BACK PLANE BY SOLDERING IN PLACE. TAKE NOTICE OF THE ORIENTATION OF THE JACK AND ALSO THE LOCATION OF THE KEY PIN.

MODIFICATION DRAWING (19B219883, Rev. 0)

FOR BACK PLANE OF THE CONTROL SHELF





VIEW OF WIRING END OF P1703 & P1704

MOUNT UNDER TBI-3 ON TONE/AUDIO PANEL PL19D413943

(19D416962, Rev. 2)

INSTRUCTIONS

1. CABLE SHOULD BE CONSTRUCTED IN ACCORDANCE WITH WIRING INSTRUCTION 19A121850.
2. CABLE SHOULD BE CONSTRUCTED IN SUCH A WAY AS TO ALLOW ENOUGH SLACK TO PERMIT MOUNTING A 3.50" OPTION PANEL BETWEEN CONTROL SHELF & TONE/AUDIO PANEL.
3. ALL WIRES ARE SF22 EXCEPT AS FOLLOWS:
   313 & 316 ARE V18AWG
   307 & 308, 318 & 319 ARE 2-22 {O / BR}
4. TERMINATE WIRES AS FOLLOWS:

WIRE	TERMINAL
314, 315 & 317	AT CONTROL SHELF—5496809P17
316	AT CONTROL SHELF—5496809P18
307, 308, 313, 318 & 319	AT CONTROL SHELF—19B209260P103
316	AT TONE/AUDIO PANEL-19B209260P102
307, 308, 315, 318 & 319	AT TONE/AUDIO PANEL—19B209260P103
RI701	19B209260P103

5. MARK WIRES IN CABLE ON BOTH ENDS WITH CORRESPONDING WIRE NUMBER USING MARKER STRIP 19B209090.
6. SOLDER ELECTRICAL CONNECTIONS BETWEEN HARNESS AND TBI701.

INTERCONNECTION DIAGRAM

SATELLITE RECEIVER OVERLAY HARNESS FOR REMOTE CONTROL STATIONS

Issue 2