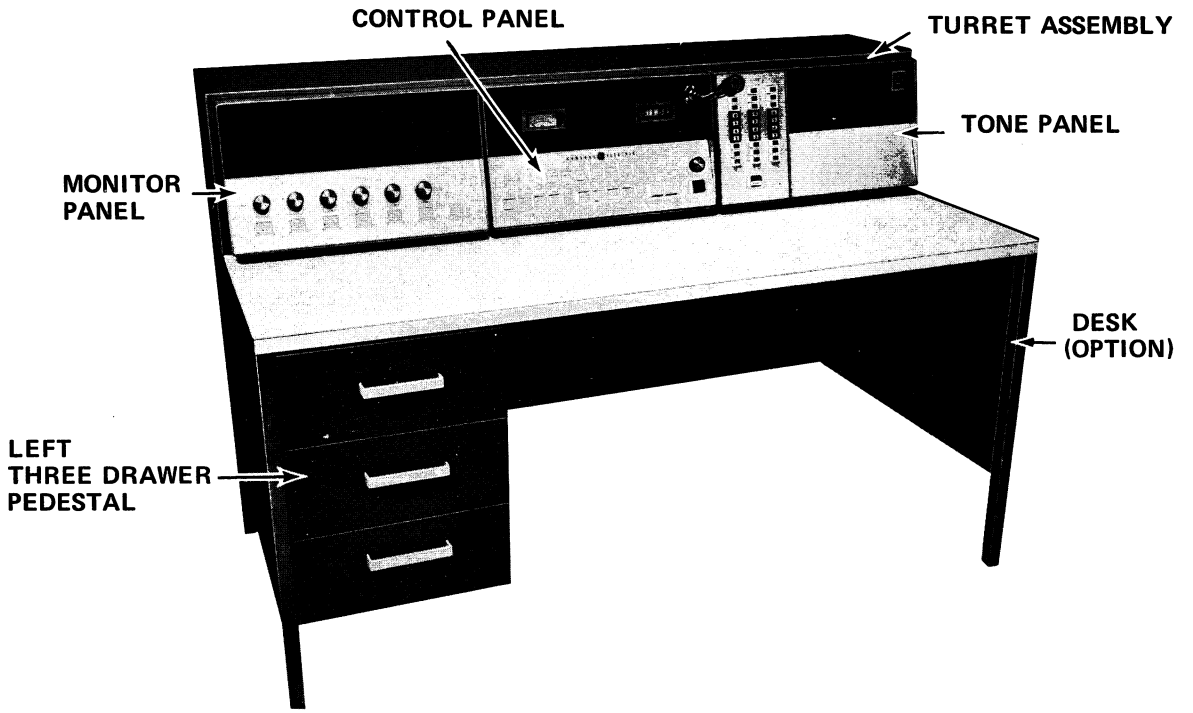
MOBILE RADIO

INSTALLATION OF
COMMAND CONTROL CENTER
Multi-Station Control Console

LB1-4159D



TYPICAL CONTROL CENTER CONSOLE

The General Electric Command Control Center is designed to serve the communication requirements of todays busy two-way radio systems. It offers flexibility in styling and control applications to serve individual communication requirements.

The attractively styled console blends with the decor of modern office surroundings. All controls and indicating devices are located on the console turret assembly for maximum convenience to the operator.

PLANNING SPECIFICATIONS

Dimensions	42" H x 60" W x 32" D (Includes Desk & Turret)
Temperature Range	–30°C to +60°C (–22°F to +140°F)
Maximum Power Requirements	250 watts, 117 VAC, 50/60 Hz (Six-Station Control)

GENERAL ELECTRIC

ADDENDUM TO LBI-4159

CONTENTS

The Desk options 6801, 6802, 6803, 6873, 6874 and 6875 have been replaced with options 6800-11, 6800-12, 6800-13, 6800-14, 6800-15 and 6800-16 respectively. With this Desk change the Distribution Block, Terminal Boards TB1 thru TB4, and the Interconnecting wires to the Monitor Panel for the telephone line termination have been removed.

The telephone line connections should now be routed through a plastic cable conduit through H1 (Refer to Figure 2 in LBI-4159) and terminated at TB861, TB862 and TB863 on the back of the MONITOR PANEL instead of TB1 thru TB4 on the back of the COMMAND CONTROL CENTER CONSOLE.

NOTE

Dress the incoming telephone lines so that they will not interfere with the opening and closing of the desk drawers.

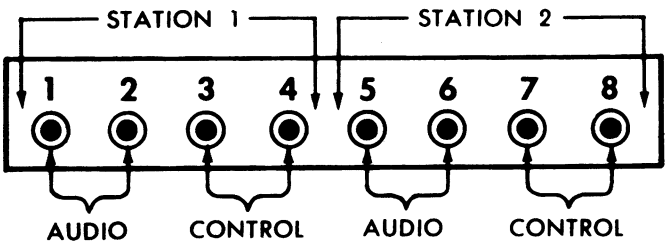
The Telephone Line and Footswitch connections were changed as follows:

Telephone lines are to be connected to TB861, TB862 and TB863 on the back of the MONITOR PANEL. All lines must be connected using the same control method.

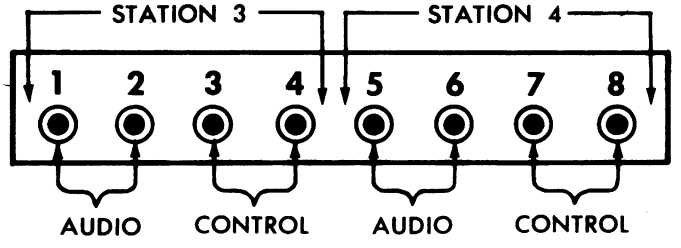
1. After the control method has been selected, connect telephone lines and make jumper connections as described in this section.

NOTE

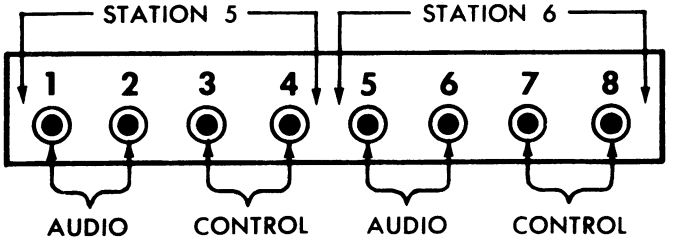
Before connecting the telephone pair, it is necessary to identify each end of the wires that will carry the control voltage. Temporarily connect one of the wires at the remote control panel to a good earth ground, and measure the resistance of each of the wires to ground at the control console. The ungrounded wire will appear as an open circuit. The grounded wire will show a resistance. Identify the wires at both ends. Then observe line polarity as indicated in the following procedure.



TB861



TB862

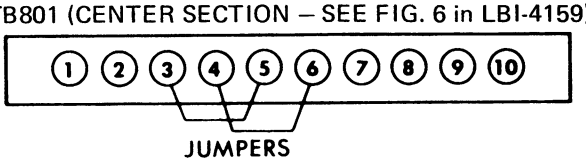


TB863

Figure 1. Telephone Line Connections to MONITOR PANEL

Method 1 – Single Telephone Pair (Control Voltage Simplexed Line to Line)

a. Connect a jumper between TB801-3 and TB801-5.
b. Connect a jumper between TB801-4 and TB801-6.
c. Connect telephone pair(s) to audio terminals of TB861, TB862 and TB863 as shown in Figure 1. Observe the following line polarities:
   Stations 1, 3, and 5 – Terminal 1 connects to TB701-1 at the station.
   Stations 2, 4, and 6 – Terminal 5 connects to TB701-1 at the station.



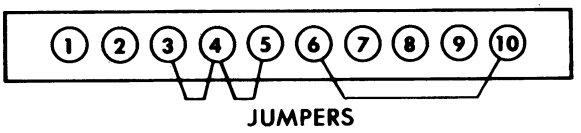
Method 2 – Single Telephone Pair (Control Voltage Simplexed Line to Ground)

a. Connect a jumper between TB801-3 and TB801-4.
b. Connect a jumper between TB801-4 and TB801-5.
c. Connect a jumper between TB801-6 and TB801-10.
d. Connect telephone pair(s) to audio terminals of TB861, TB862 and TB863 as shown in Figure 1. Observe the following line polarities:
   Stations 1, 3 and 5 – Terminal 1 connects to TB701-1 at the station.
   Stations 2, 4 and 6 – Terminal 5 connects to TB701-1 at the station.

e. Make connections to earth ground for each station as follows:

Station 1 – TB861-4	Station 4 – TB862-8
Station 2 – TB861-8	Station 5 – TB863-4
Station 3 – TB862-4	Station 6 – TB863-8

TB801 (CENTER SECTION – SEE FIG. 6 in LBI-4159)



Method 3 – Separate Control and Audio Pairs

a. Connect a jumper between TB801-3 and TB801-4.

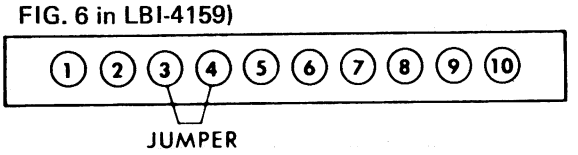
b. Connect audio pairs to audio terminals of TB861, TB862 and TB863 as shown in Figure 1.

c. Connect control pairs to terminals of TB861, TB862 and TB863 as shown in Figure 1. Observe the following line polarities:

Stations 1, 3 and 5 – Terminal 3 connects to TB701-5 at the station.

Stations 2, 4 and 6 – Terminal 7 connects to TB701-5 at the station.

TB801 AND TB851 (CENTER SECTION – SEE FIG. 6 in LBI-4159)



2. Connect terminal 8 of TB851 to a good earth ground such as a cold water pipe or an electrical conduit. This is required as a safety measure for the operator, regardless of the control method used.

3. After the telephone line connections have been completed, a few adjustments may be required before placing the unit in service. Before applying power to the console, make sure that the station installation and adjustment has been completed, and that all telephone lines have been connected to the remote control panel. Then connect the power cable to a 117-volt, 50/60 Hz AC source, and turn the console power switches S1 (on the power Junction box) and S801 (on the center section) to the ON position.

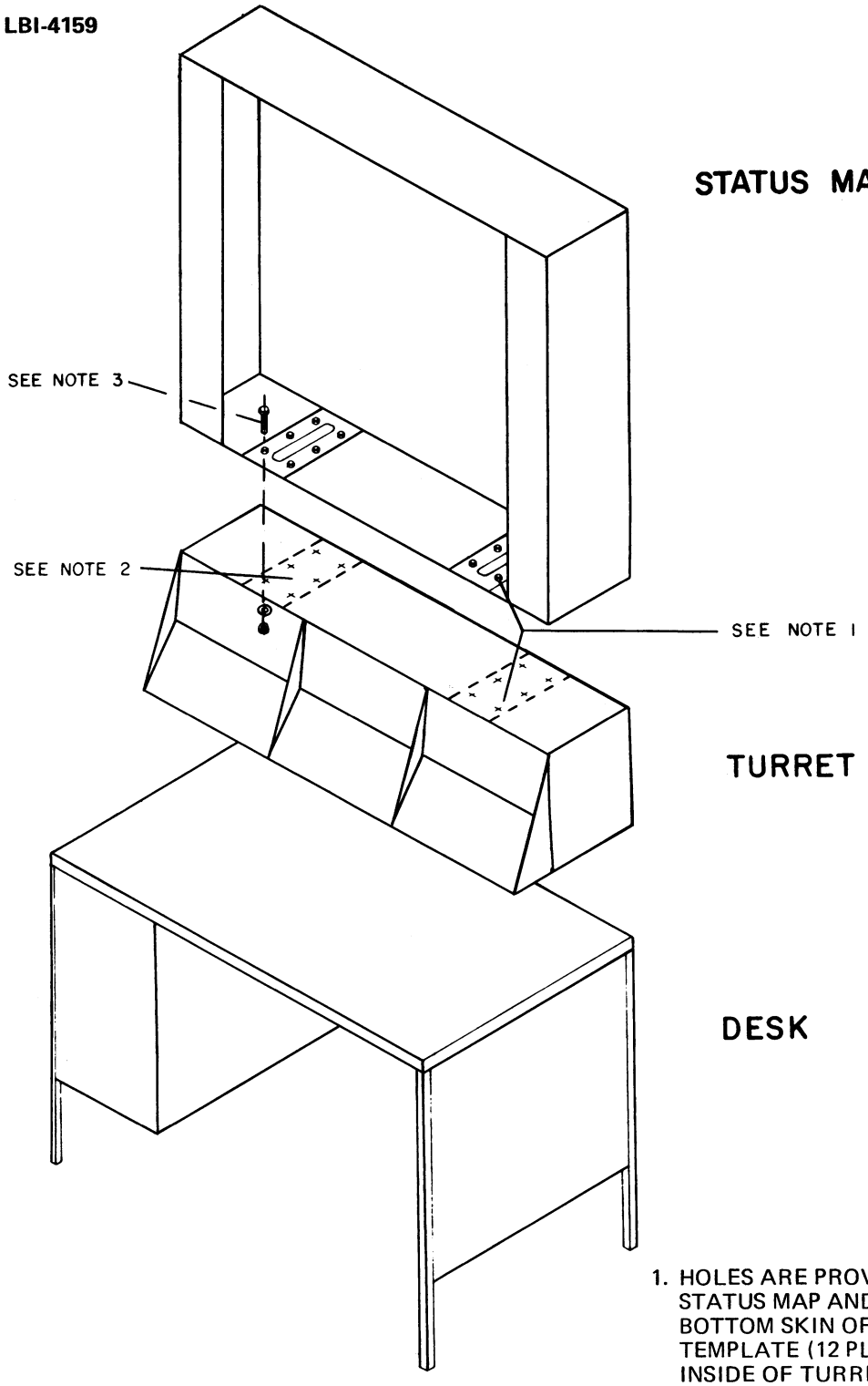
4. Make the necessary adjustments as shown in the ADJUSTMENT PROCEDURE that follows. Before starting adjustment, make sure that the LINE LEVEL ADJUST (R1501 on the EP-38-A) has been set for no more than 2.7 volts RMS at the audio pair with maximum system deviation.

If footswitch 19B201488P4 is used, connect the leads to terminals TB851-7 and TB851-8 on the rear of the CONTROL PANEL.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY
LYNCHBURG, VIRGINIA 24502

Printed in U.S.A.

LBI-4159



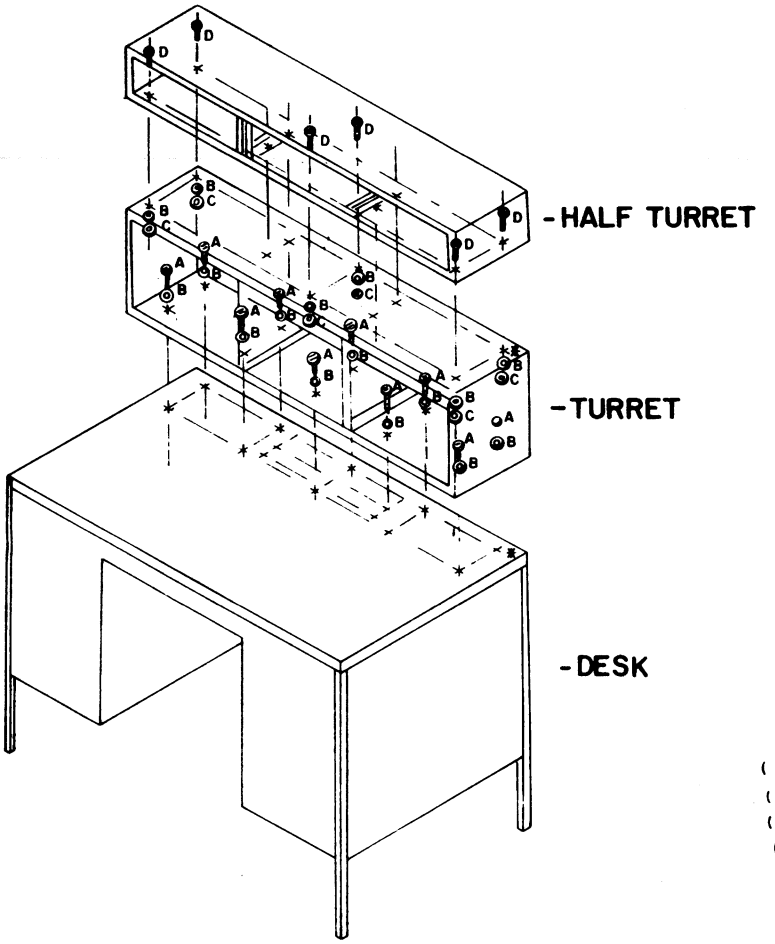
1. HOLES ARE PROVIDED IN REINFORCING PLATES IN STATUS MAP AND TURRETS. DRILL 3/8 HOLE THRU BOTTOM SKIN OF MAP USING HOLES IN PLATE AS TEMPLATE (12 PLACES). DRILL 3/8 HOLE FROM INSIDE OF TURRET THRU SKIN ON TOP OF TURRET USING HOLES IN REINFORCING PLATE FOR TEMPLATE.

2. USE GREENLEE PUNCH TO CUT HOLES IN OUTER SKIN OF MAP AND TURRET FOR CABLES (RECOMMEND REMOVING SHARP EDGES AND BURRS TO PREVENT NICKING OF CABLES)

3. ASSEMBLE BOLTS, WASHERS AND NUTS AS SHOWN AND AS PROVIDED WITH STATUS MAP.

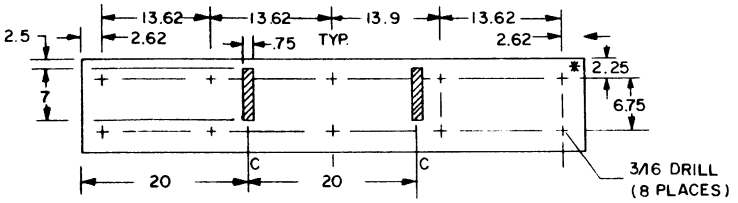
RC-2727

INSTALLATION INSTRUCTIONS
for Status Map
Command Control Center
Issue 1



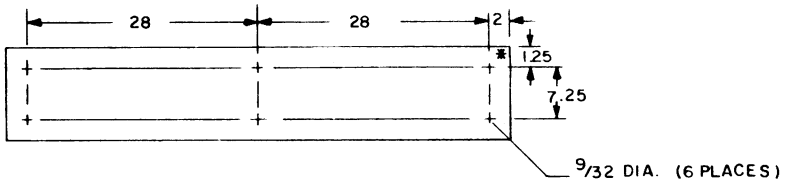
(A) 1/4-20 HEX-HD. TH'D FORMING SCR
(B) 1/4 I.D PLAIN WASHER
(C) 1/4-20 HEX NUTS
(D) 1/4-20 MACHINE SCR. SLOTTED HEX HD.

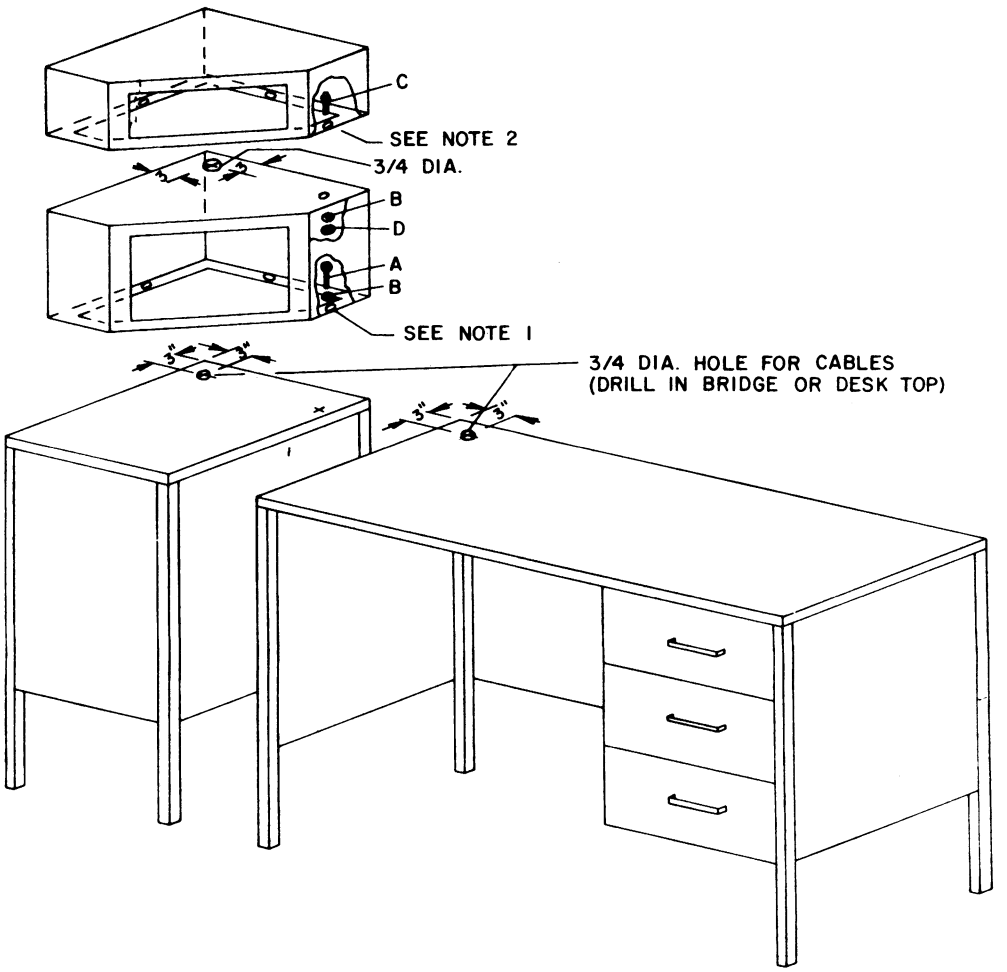
DRILL PLAN FOR DESK TOP TO MOUNT FULL TURRET TO DESK TOP



(DRILL CABLE HOLES TO SUIT IN SHADED AREAS INDICATED IN TOP OF DESK AND TOP OF FULL SIZE TURRET IF HALF TURRET IS INSTALLED.)

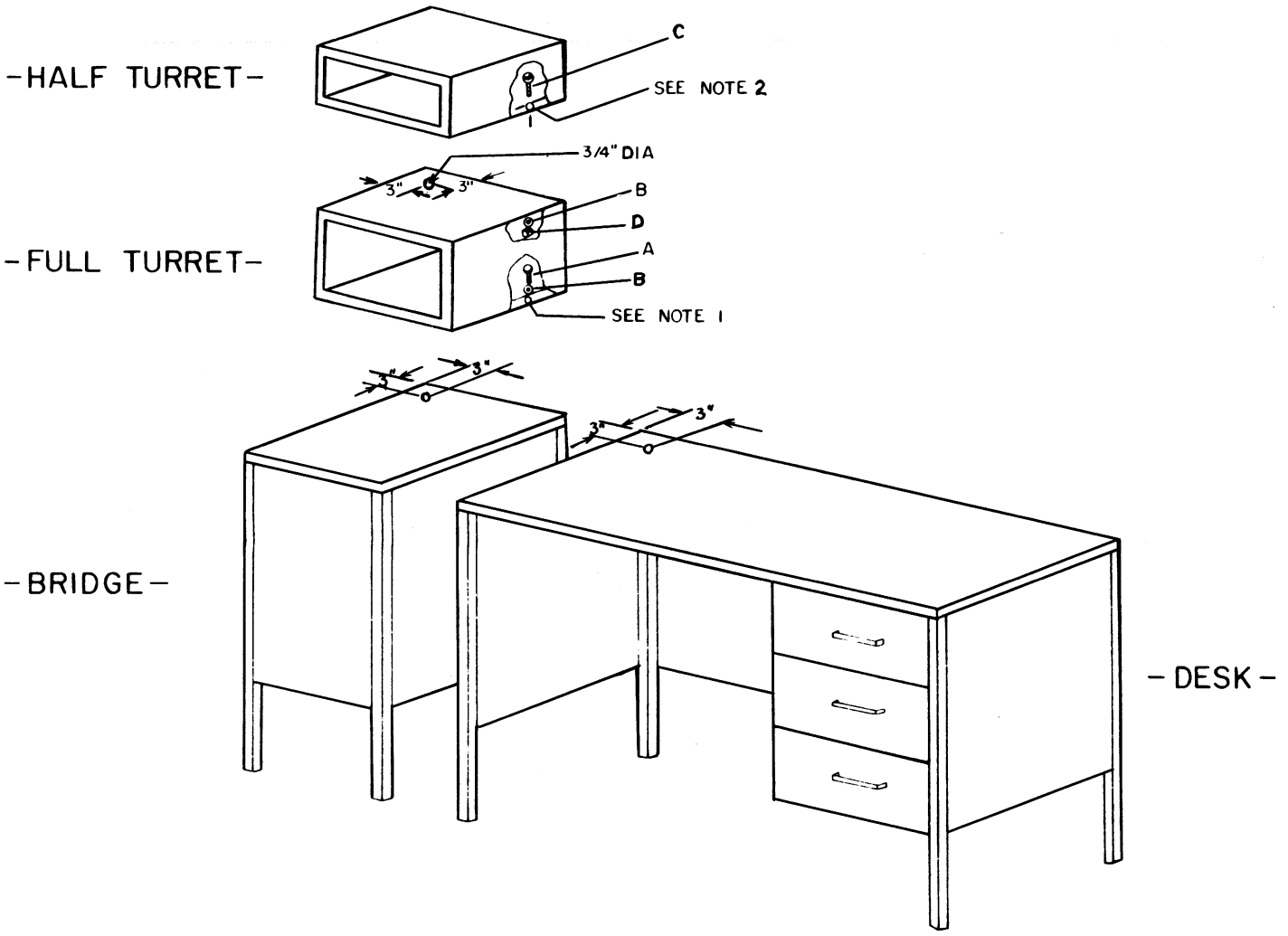
DRILL PLAN FOR TURRET TOP AND HALF TURRET BOTTOM





1. DRILL 4-3/16 HOLES IN BRIDGE OR DESK TOP USING EXISTING HOLES IN BOTTOM AS TEMPLET.
2. POSITION 90° CORNER HALF TURRET OVER 90° CORNER FULL TURRET AND USE EXISTING FOUR HOLES IN BOTTOM FOR TEMPLET AND DRILL 4 HOLES 9/32 DIA. THRU TOP OF 90° CORNER FULL TURRET.

A. 1/4 X 1 HEX HEAD THD FORM SCR.
B. 1/4 I.D. PLAIN WASHER
C. 1/4 X 1 MACHINE SCR., SLOTTED HEX HD.
D. 1/4-20 HEX NUT



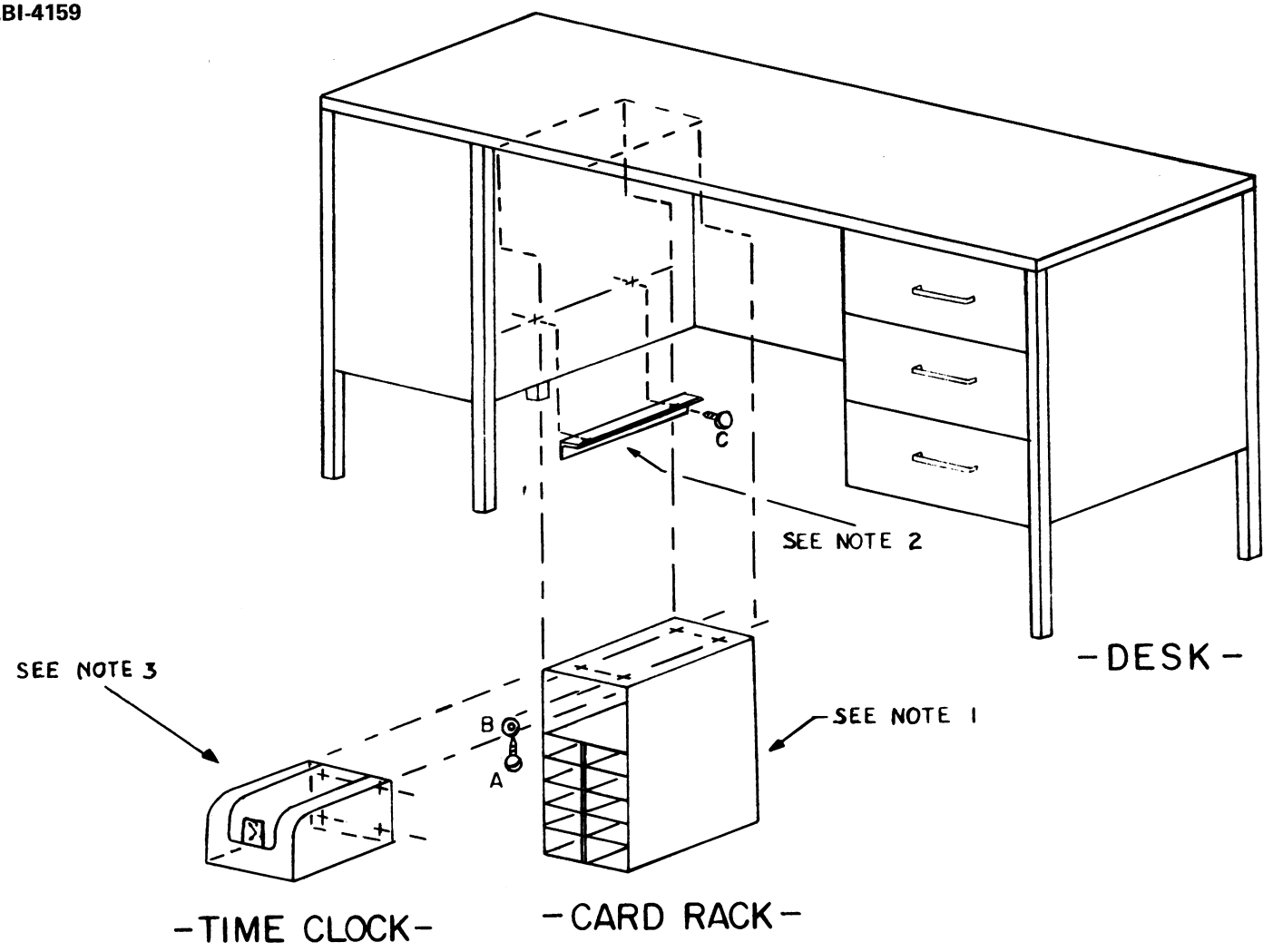
1. DRILL 4 - 3/16 HOLES IN BRIDGE OR DESK TOP USING EXISTING HOLES IN BOTTOM AS TEMPLET

2. POSITION HALF TURRET OVER FULL TURRET AND USE EXISTING FOUR HOLES IN BOTTOM FOR TEMPLET AND DRILL.
   4 HOLES 9/32 DIA. THRU TOP OF FULL TURRET.

A. 1/4 X 1 HEX HEAD THD FORM SCR
B. 1/4 X I.D. PLAIN WASHER
C. 1/4 X 1 MACHINE SCR. SLOTTED HEX HD.
D. 1/4 - 20 HEX NUT

INSTALLATION INSTRUCTIONS
For Full and Half Height One Section Turret
Command Control Center
Issue 1

RC-2730



NOTES:

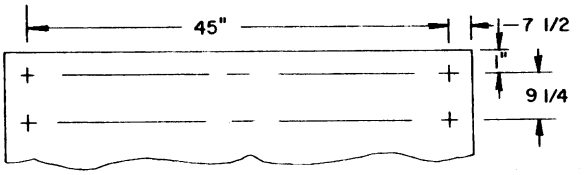
1. USE TIME CARD RACK FOR TEMPLATE AND DRILL 4 - 3/16 DIA. X 3/4 DEEP HOLES UNDER TOP OF DESK AS SHOWN.
2. PLACE RIGHT ANGLE BRACKET UNDER TIME CARD RACK AND USE HOLES IN BRACKET FOR TEMPLATE TO DRILL 2 - 3/16 DIA. HOLES THRU METAL OF DESK. INSTALL WITH 2 - 1/4 DIA. X 1/2 LG. THD. FORMING SCRS.
3. INSERT TIME CLOCK INTO CARD RACK AND SECURE WITH 4 SCREWS PACKAGED WITH CLOCK.

HARDWARE -

A. 1/4 DIA. X 3/4 LG. HEX. HD. THD. FORMING SCRS. (N130P2412C) QTY. 4
B. 1/4 I.D. PLAIN WASH (N402P41C) QTY. 4
C. 1/4 DIA. X 1/2 LG. HEX HD. TH FORMING SCRS. (N130P2408C) QTY. 2

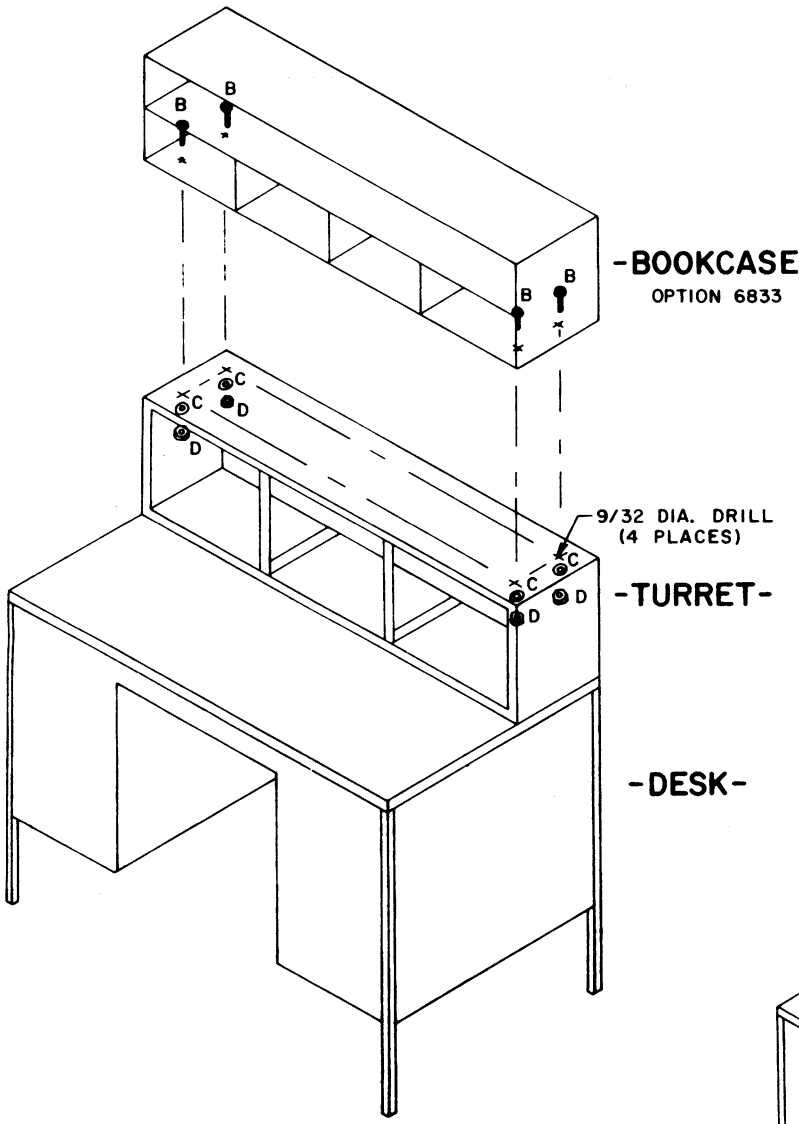
RC-2731

INSTALLATION INSTRUCTIONS
For Card Rack and Time Clock
Command Control Center
Issue 1



DRILLING DETAIL

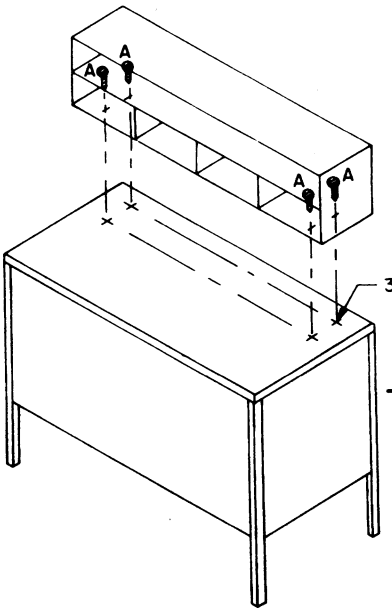
(FOR BOOKCASE OPTION 6833)



-BOOKCASE-
OPTION 6833

-TURRET-

-DESK-



-BOOKCASE-
OPTION 6833

-FURNITURE
(NON-METALLIC TOP)

A. 1/4" X 1" HEX-HD, THD. FORMING SCR
B. 1/4-20 X 1" LG. MACHINE SCR (SLOTTED HEX HEAD)
C. 1/4 I.D. PLAIN WASHER
D. 1/4-20 HEX NUT

RC-2732

INSTALLATION INSTRUCTIONS
For Bookcase
Command Control Center
Issue 1

Planning Your Installation

The Desk and Turret sections of the Command Control Center Console are shipped separately. This manual provides assembly, installation and adjustment instructions necessary to place the control center in operation. Study the Manual carefully before starting, for a well planned installation insures neatness, ease of servicing and convenience for the operator.

CONTROL CENTER LOCATION

The control center should be located in an area that is convenient to the primary power connections and the telephone line inputs. Select a location that offers maximum convenience for the operator and provides adequate space for future maintenance and servicing operations.

POWER REQUIREMENTS

The console requires 117 VAC, 50/60 Hz for its primary voltage. An optional 220/117 VAC step down transformer kit is available for locations where the primary power source is 220 VAC. The console power input from the building power distribution system should be made by a circuit protected by its own fuse or circuit breaker.

TELEPHONE LINE REQUIREMENTS

Three types of telephone line connections are commonly used in remote control applications. Before choosing one of these methods, consider both the cost and performance of each, as one method may be available at a considerably lower rate. In addition, some local telephone companies offer no choice, but will provide an audio pair and a control pair. The following chart contains information to assist in selecting the Control Method and type of telephone line to be leased.

Method	Description	Advantages or Disadvantages
1	One metallic pair: for both audio and control voltages with control voltage simplexed from line to line.	Economical; dependable where earth currents may be large, or where a good earth ground cannot be obtained; keying clicks will be heard in paralleled control consoles.
2	One metallic pair: for both audio and control voltages with control voltage simplexed from line to ground.	Economical; earth ground currents (encountered near power company sub-stations) may interfere with control functions; keying clicks minimized.
3	Two telephone pairs: one for audio voltage and one for control voltage (metallic pair).	Provides best performance; keying clicks will not be heard; least susceptible to earth ground currents which may interfere with control functions.

The console installation consists of:

Mounting the turret assembly on the desk

Installing terminal board(s) and harness

Installing the Power Junction Box and Switch Assembly

Making power and control (telephone line) connections

MOUNTING TURRET ASSEMBLY ON DESK

To install the turret assembly, ten mounting holes and three cable access holes must be drilled in the desk top. The desk top has a wood core with a laminated plastic cover so a small electric drill (with wood drill bit) or brace and auger bit may be used to drill the holes.

1. Drill three 2-inch diameter cable access holes (H1, H2 and H3) in the desk top as shown in Figure 1.
2. Place the turret assembly on the desk top.
3. Remove the rear cover from the turret (Remove all screws except those holding the bottom of the cover, then loosen the bottom screws and lift out cover).
4. Remove the two shipping brackets at the rear of each drawer assembly (brackets are located on the bottom turret brace at each corner of the drawer assembly).
5. Remove the turret drawer assemblies. (Pull the drawer assembly forward to the stop. Lift and remove the assembly from the turret).
6. Align the turret cabinet with the side and back edges of the desk top.
7. Using the turret cabinet as a template, mark *all* ten mounting hole positions. The holes are located on the bottom braces of the turret.

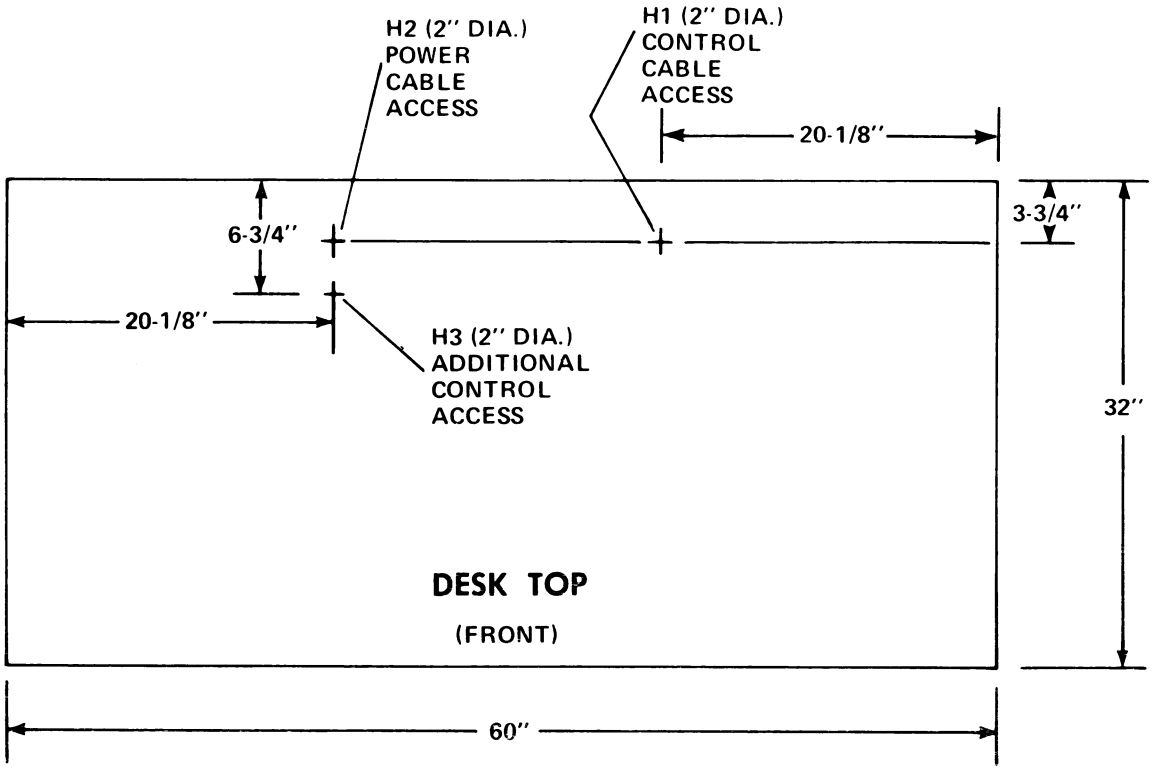


Figure 1
Drill Plan for
Cable Access
Holes

8. Drill ten mounting holes to a minimum depth of 3/4 inch using a No. 22 (.157 inch dia.) drill or a 5/32 inch drill.
9. Cut a necessary length of 3-wire, rubber covered, power cable and attach one end to either J851, J852 or J853 on the turret (BK to BK, W to W, G to G). See Figure 4.
10. Return turret to mounting location. Insert 3-wire, rubber covered, power cable (attached to turret) through the grommeted hole in the turret, then through hole 2 (H2) in the desk top. Secure the turret to the desk with *all* ten 12 x 3/4" thread forming screws and flat washers provided.
11. Replace the drawer assemblies with the drawers forward against the stops and resting on the desk top.
12. Route control cable from turret through hole 1 (H1) in the desk top.

NOTE

All AC Power Cables should be separated from any control cables and routed through a different hole.

13. Replace turret rear cover.

TERMINAL BOARD INSTALLATION

The Terminal Board(s) for making telephone line connections should be installed on the distribution block in back of the console desk (see Figure 2 for mounting configuration).

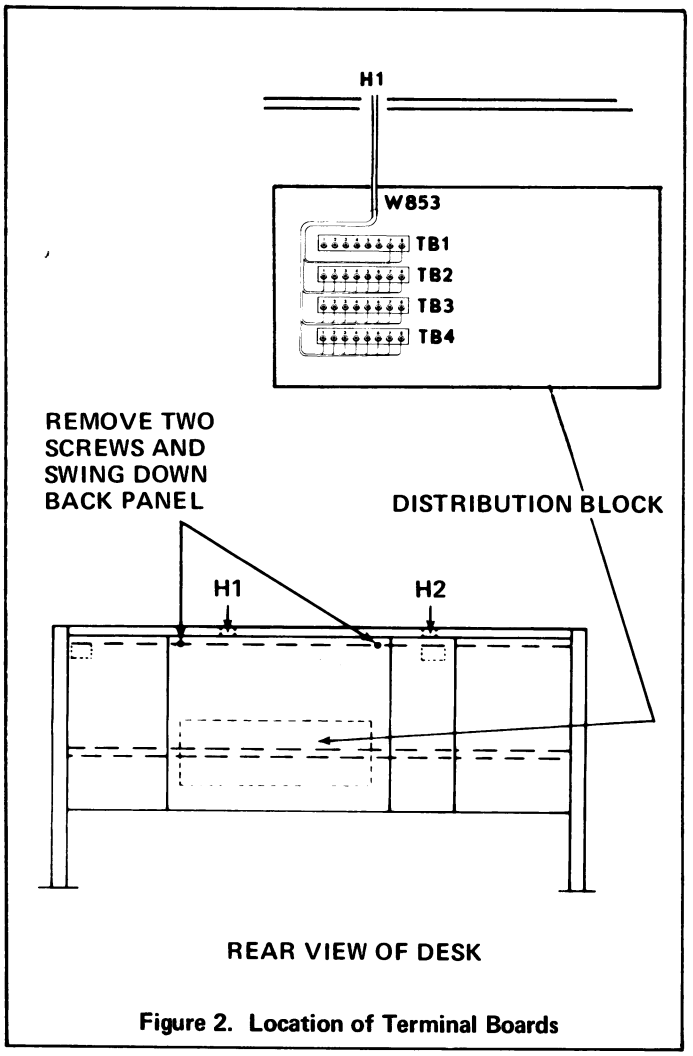


Figure 2. Location of Terminal Boards

1. Swing down the panel at the rear of the desk to gain access to the distribution block. The distribution block is removable. However, the following installations can be made with the block in the desk if desired.
2. Mount four 8-point terminal boards on the distribution block using the No. 6 x 5/8" thread-forming screws provided. Position the identification labels provided beside the boards (TB1, TB2, TB3 and TB4).

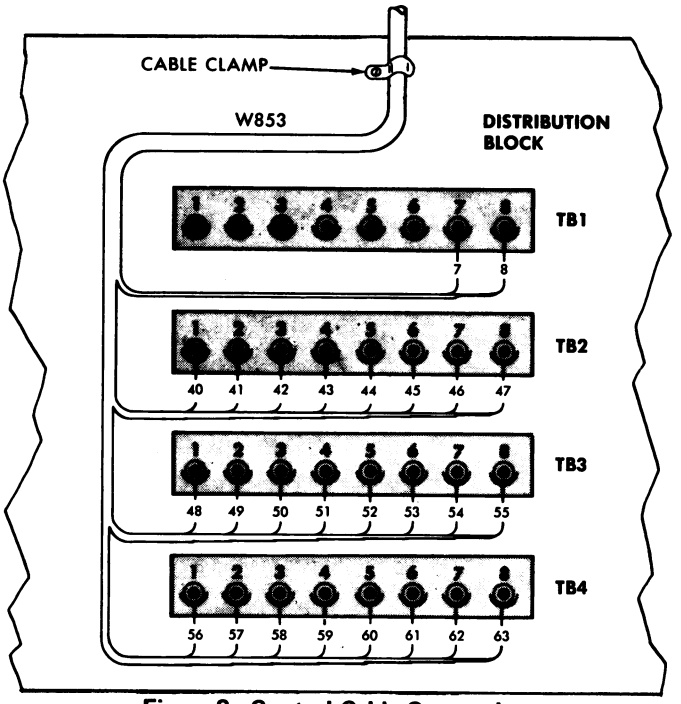


Figure 3. Control Cable Connections

3. Connect the control cable (routed from the turret through H1 in the desk top) to the terminal boards as shown in Figure 3. Mount cable clamp as shown using the No. 6 x 5/8" thread-forming screw provided.

POWER JUNCTION BOX INSTALLATION

Install the power junction box to the side of the desk and at the back of the kneehole space as shown in Figure 4, and described in the following instructions.

1. Use the power junction box as a template and drill two 9/64-inch mounting holes in the metal wall with a No. 29 drill.

2. Remove an end "knockout" on the power junction box. Then orient the box so that the hole is up, and mount the box to the side of the desk and at the back of the kneehole using two No. 10 x 3/4" thread-forming screws (see Figure 4).

3. Install the cable clamp in the hole at the top of the junction box. Connect three-wire power cable (routed from the console turret through H2 in the desk) to the power junction box as shown in Figure 4.

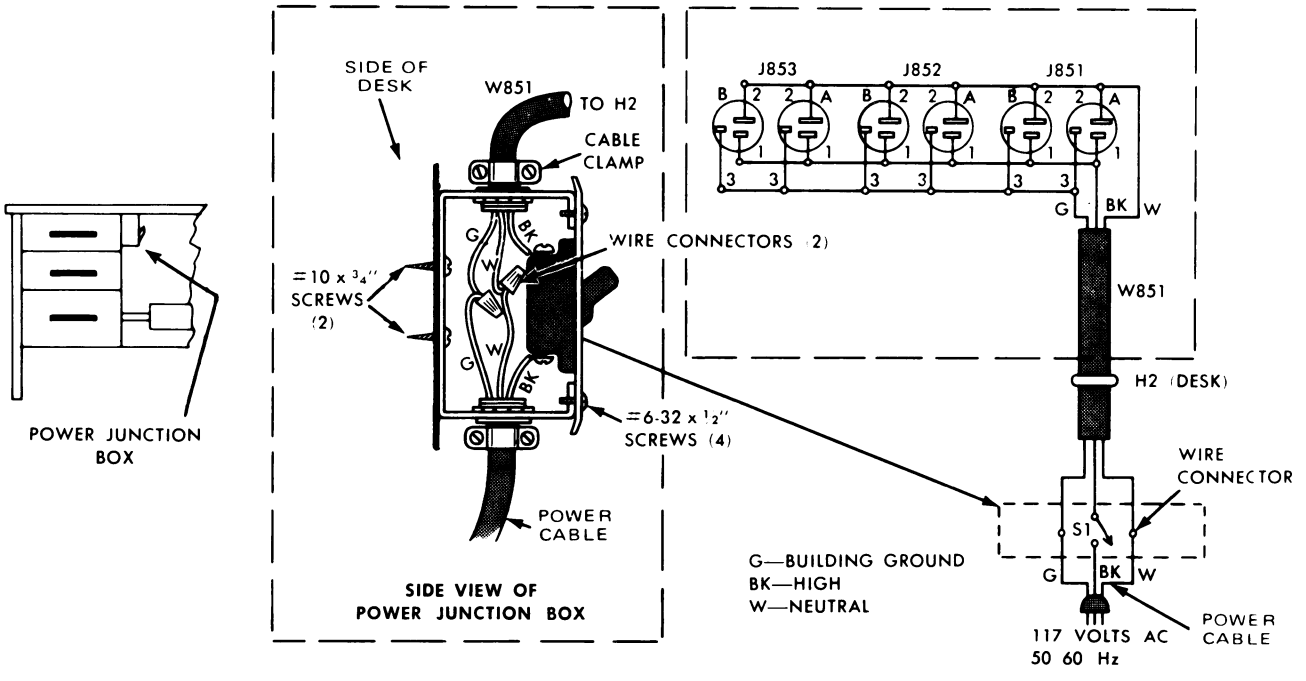


Figure 4. Power Cable and Junction Box Installation

4. Connect the power input cable to the power junction box. This installation may consist of conduit, flexible armored cable, or a "pigtail" cable as desired. Do not connect the other end of the cable to 117 VAC power at this time.

IMPORTANT

Check your electrical code to be sure that you comply with all local ordinances.

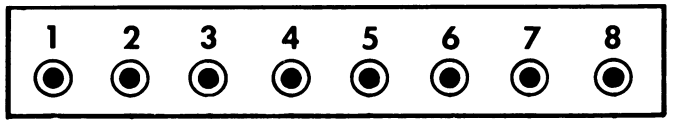
TELEPHONE LINE CONNECTIONS

Telephone lines are to be connected to TB2, TB3 and TB4 on the distribution block (see Figure 5). All lines must be connected using the same control method.

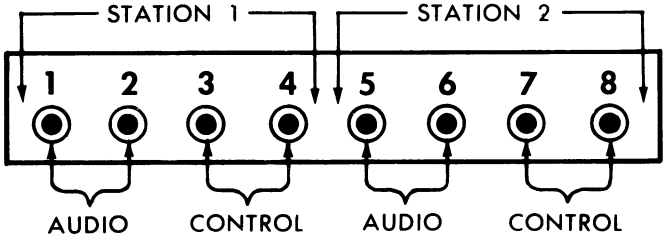
1. After the control method has been selected, connect telephone lines and make jumper connections as described in this section.

NOTE

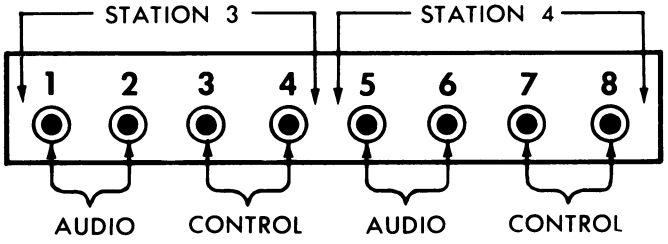
Before connecting the telephone pair, it is necessary to identify each end of the wires that will carry the control voltage. Temporarily connect one of the wires at the remote control panel to a good earth ground, and measure the resistance of each of the wires to ground at the control console. The ungrounded wire will appear as an open circuit. The grounded wire will show a resistance. Identify the wires at both ends. Then observe line polarity as indicated in the following procedure.



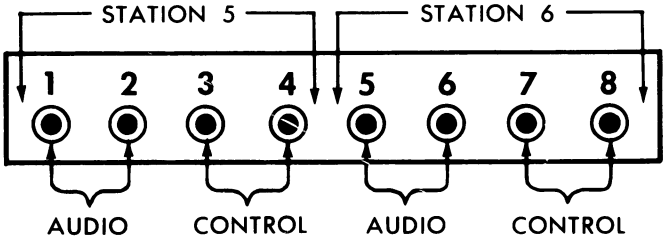
TB1



TB2



TB3

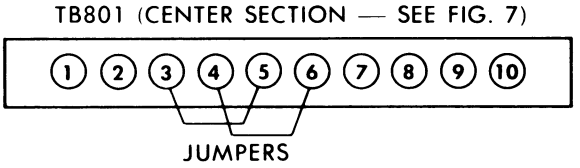


TB4

Figure 5. Telephone Line Connections

Method 1 — Single Telephone Pair (Control Voltage Simplexed Line to Line)

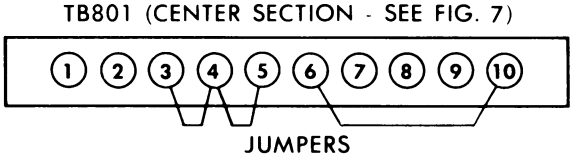
a. Connect a jumper between TB801-3 and TB801-5.
b. Connect a jumper between TB801-4 and TB801-6.
c. Connect telephone pair(s) to audio terminals of TB2, TB3, and TB4 as shown in Figure 5. Observe the following line polarities:
   Stations 1, 3, and 5 — Terminal 1 connects to TB701-1 at the station.
   Stations 2, 4, and 6 — Terminal 5 connects to TB701-1 at the station.



Method 2 — Single Telephone Pair (Control Voltage Simplexed Line to Ground)

a. Connect a jumper between TB801-3 and TB801-4.
b. Connect a jumper between TB801-4 and TB801-5.
c. Connect a jumper between TB801-6 and TB801-10.
d. Connect telephone pair(s) to audio terminals of TB2, TB3 and TB4 as shown in Figure 5. Observe the following line polarities:
   Stations 1, 3 and 5 — Terminal 1 connects to TB701-1 at the station.
   Stations 2, 4 and 6 — Terminal 5 connects to TB701-1 at the station.
e. Make connections to earth ground for each station as follows:

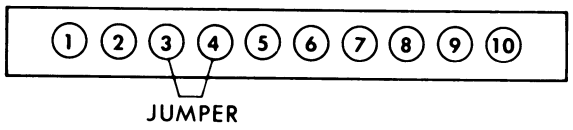
Station 1 — TB2-4	Station 4 — TB3-8
Station 2 — TB2-8	Station 5 — TB4-4
Station 3 — TB3-4	Station 6 — TB4-8



Method 3 — Separate Control and Audio Pairs

a. Connect a jumper between TB801-3 and TB801-4.
b. Connect audio pairs to audio terminals of TB2, TB3 and TB4 as shown in Figure 5.
c. Connect control pairs to terminals of TB2, TB3 and TB4 as shown in Figure 6. Observe the following line polarities:
   Stations 1, 3 and 5 — Terminal 3 connects to TB701-5 at the station.
   Stations 2, 4 and 6 — Terminal 7 connects to TB701-5 at the station.

TB801 AND TB851 (CENTER SECTION - SEE FIG. 6)



2. Connect terminal 8 of TB1 to a good earth ground such as a cold water pipe or an electrical conduit. This is required as a safety measure for the operator, regardless of the control method used.

3. After the telephone line connections have been completed, a few adjustments may be required before placing the unit in service. Before applying power to the console, make sure that the station installation and adjustment has been completed, and that all telephone lines have been connected to the remote control panel. Then connect the power cable to a 117-volt, 50/60 Hz AC source, and turn the console power switches S1 (on the power Junction box) and S801 (on the center section) to the ON position.

4. Make the necessary adjustments as shown in the ADJUSTMENT PROCEDURE that follows. Before starting adjustment, make sure that the LINE LEVEL ADJUST (R1501 on the EP-38-A) has been set for no more than 2.7 volts RMS at the audio pair with maximum system deviation.

Adjustment Procedure

CENTER SECTION

The following adjustments are made to controls on the center drawer assembly of the console turret. To gain access to the inside of this assembly, grasp the drawer frame and pull the drawer forward allowing it to rest on the desk top. Figure 6 shows the adjustable components involved in the adjustment as well as the jacks and terminal boards required for meter connections.

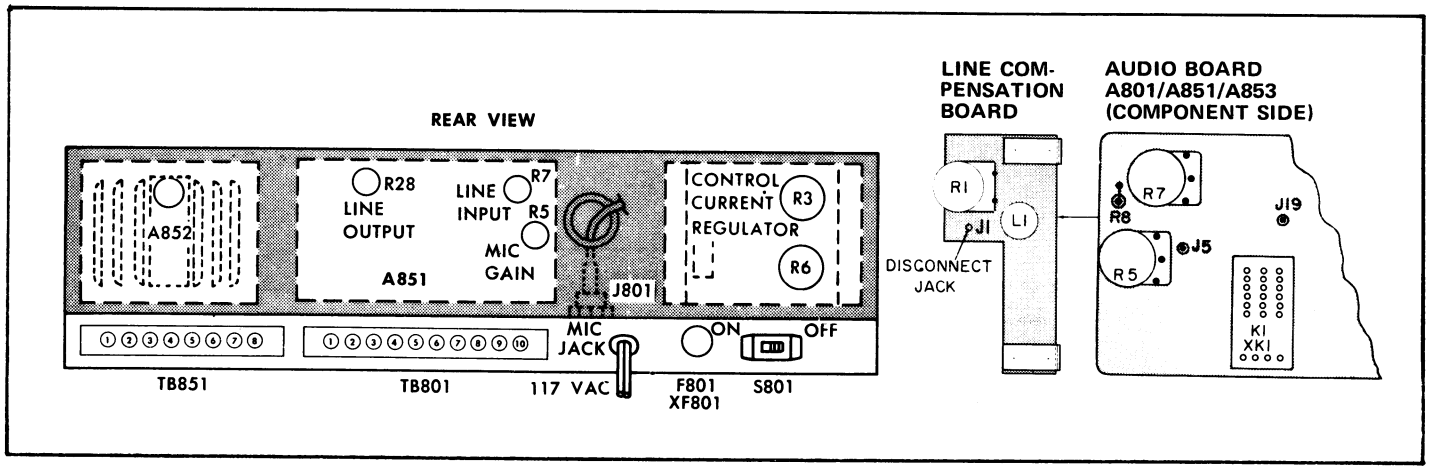


Figure 6. Center Section of Control Console

LINE INPUT

The LINE INPUT control has been adjusted at the factory for an input at TB801-1 & 2 of 180 millivolts RMS (−12 dBm) for threshold of compression. The control may be adjusted for an input as low as −20 dBm for threshold of compression. Use of excessive compression will accent background and line noise during pauses in transmission and should be avoided.

PROCEDURE:

1. Feed a 1000-Hz signal onto the audio pair from the source with the largest line loss (this may be the base station or another console). Adjust the audio generator output to the maximum allowable amplitude (up to +16 dBm).
2. Press the Station Select Switch on the center section for the line being used.
3. Adjust LINE INPUT control R7 on A851 for a reading of 0.4 volt DC on a 20,000 ohm-per-volt meter connected from A851-J19 to ground.

MIC GAIN

The MIC GAIN Control (R5) has been adjusted at the factory according to the type microphone ordered with the console. Setting this control for excessive gain will accent background noise during pauses in transmission.

PROCEDURE:

1. Apply a 1000 Hz signal to pins 1 (GRD) and 2 of J801 at the level indicated in the following chart.

For Microphone Type:	Set Input Level For:
EM-35-A (Goose-Neck Mike)	10 Millivolts
EM-28-A (Desk Mike)	12 Millivolts
EM-25-A (Military Mike)	60 Millivolts
EM-26-C (Handset)	60 Millivolts
EM-13-A (Boom Mike)	6 Millivolts

2. Key the PTT switch and adjust MIC GAIN control R5 on A851 for threshold of compression as indicated by a reading of 0.4 volt DC on a 20,000 ohm-per-volt meter connected from A851-J19 to ground.

LINE OUTPUT

The control console has been set at the factory for a 600-ohm line output of 2.7 volts RMS (+11 dBm). The line output may be reduced when required by local telephone company regulations or whenever line losses and noise pickup permit an adequate signal-to-noise ratio.

PROCEDURE:

1. Select the line with the greatest loss by pressing the appropriate Station Select Switch on the front of the center section.
2. Feed a 1000 Hz, 30-millivolt signal onto pins 1 and 2 of microphone jack J801.
3. Connect a AC-VTVM across the audio pair selected. Use a 0.5-mfd capacitor in series with the meter if DC is being simplexed line-to-line.
4. Adjust LINE OUTPUT control R28 for the maximum allowable level (up to +16 dBm).

NOTE

If the selected station has parallel control consoles, adjust the LINE LEVEL to maximum (up to +16 dBm) at the control point that is farthest from the station. When no compressor is used at the station, adjust all other parallel control consoles to produce the same level at the station as the first console. When a compressor is used at the station, it is still desirable to adjust each console to produce the same level at the station. However, if line losses do not allow this, adjust the line level at each console to just produce threshold of compression at the farthest control point from the console being adjusted.

CONTROL VOLTAGES

Two-Frequency Transmit

1. Select the control pair with the greatest line loss by pressing the associated Station Select Switch on the center section.
2. Connect a DC milliammeter in series with the control line (positive lead of meter to TB801-5).
3. Select XMIT 1. Key the transmitter and set CONTROL CURRENT regulator R14 for 6 milliamps.

Two Separate Receivers or Receiver with Search-Lock Monitor

1. Select the control pair with the greatest line loss by pressing the associated Station Select Switch on the center section.
2. Connect a DC milliammeter in series with the control line (negative lead of meter to TB801-5).
3. Push in RECEIVER 1 push button and set R14 for 6 milliamps.

Channel Guard

1. Select the control pair with the greatest line loss by pressing the associated Station Select Switch on the center section.
2. Connect a DC milliammeter in series with the control line (positive lead of the meter to TB801-5).
3. Push in the CHANNEL GUARD MONITOR switch on the center section and adjust the CONTROL CURRENT regulator R14 for 6 milliamps.

SPEAKER AMPLIFIER BIAS CONTROL

BIAS ADJ control R5 on A852 is pre-set at the factory and should not require further adjustment. However, if adjustment is necessary, use the following procedure.

1. Disconnect the wire from J3 and insert a milliammeter in series with J3 and the wire.
2. With no signal input, adjust BIAS ADJ control for 20 milliamps.

CLOCK SETTING

To set the clock, pull out the console center panel and turn the power OFF. Then turn the indicator wheels in either direction until the correct time shows in the window.

LEFT SECTION (MONITOR PANEL)

The following adjustments are made to controls on the left drawer assembly of the console turret. To gain access to the inside of this assembly, grasp the drawer frame and pull the drawer forward allowing it to rest on the desk top. Figure 7 shows the adjustable components involved in the procedures.

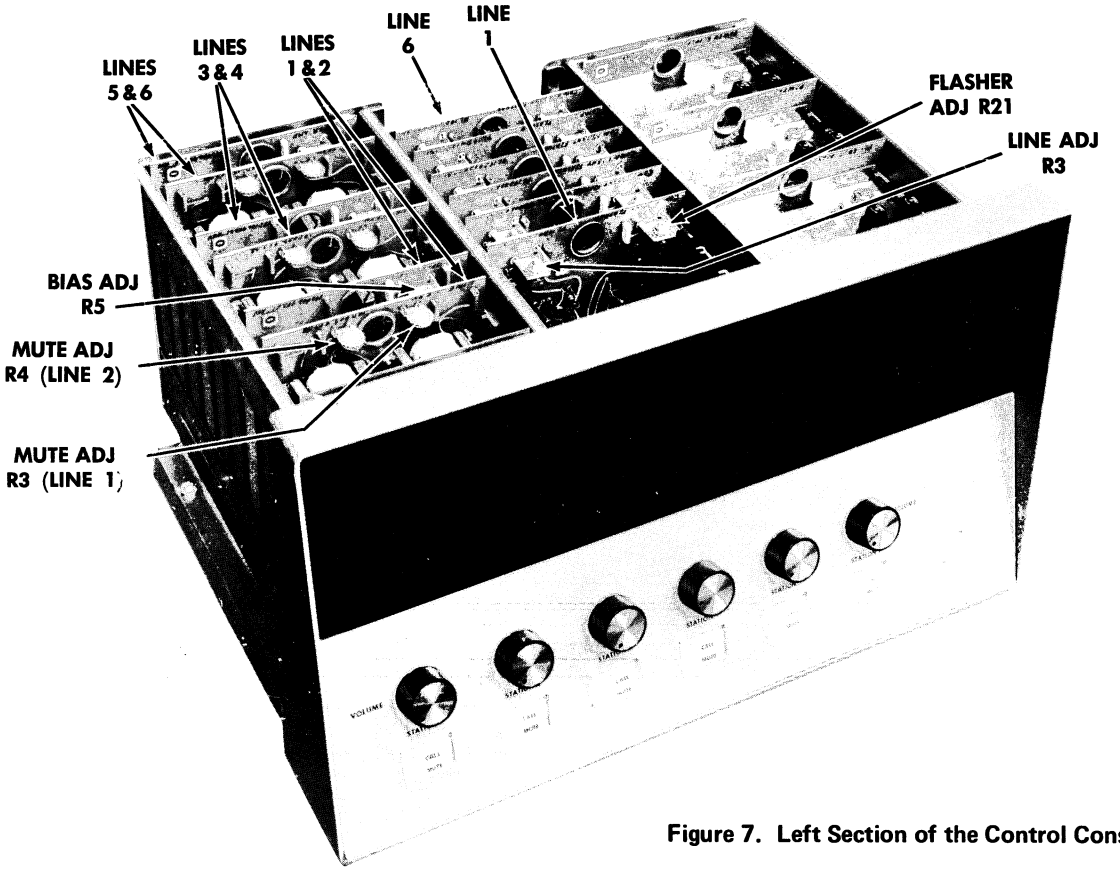


Figure 7. Left Section of the Control Console

LINE INPUT AND LIGHT FLASHER

The line input (or threshold of compression) and light flasher must be set for each line input to the Monitor Panel. Start with any line for the order of adjustment is not important. Do not select the line (or station) from the center section while making the adjustment.

PROCEDURE:

1. Apply a 1 kHz, –20 dBm signal from a 600 ohm source to Line 1 on TB2. If TB2 is not used, apply signal source to Line 1 on TB861 of the monitor panel.
2. Set the LINE ADJ control R3 on the COMP/ LIGHT FLASHER module for an output of 0.8 VDC measured from J1 (green jack) to chassis ground.
3. Measure the level across the speaker associated with Line 1.
4. Increase level of input tone to +10 dBm. Level as measured across speaker should not increase more than 3 dB from that level previously measured with a –20 dBm input signal at the line input.
5. Adjust Flasher Control R21 until the CALL lamp for Line 1 just starts to flash. (If later flasher fails to operate with voice input, readjust R21 using voice input).
6. Repeat Steps 1 thru 5 for each line.

MUTE CONTROL

Mute controls R3 (Stations 1, 3, 5) and R4 (Stations 2, 4, 6) on the Line Termination board have been set at the factory for 40-dB muting. They may be readjusted for any desired muting level between 0 and 40-dB in the following manner.

PROCEDURE:

1. Select the mute function for the desired station with the CALL/MUTE switch on the front of the Monitor Panel.
2. Apply a 300 millivolts RMS (–8.2 dBm) signal at 1000 Hz to the audio pair for the selected station (see Figure 6 for audio pair connections).
3. Adjust the MUTE control (R3 or R4) for the desired mute level.

SPEAKER AMPLIFIER BIAS CONTROL

The Bias control (R5) on each Speaker Amplifier board is pre-set at the factory and should not require further adjustment. However, if adjustment is necessary, use the following procedure.

PROCEDURE:

1. Remove the Speaker Amplifier from its position in the card bay, and install the Extender Board in its place.
2. Install the Speaker Amplifier in the connector provided on the extender.
3. Remove jumpers between J2 & J3 and J4 & J5 on the extender.
4. Connect a DC milliammeter between J2 and J3.
5. With no signal input, adjust BIAS ADJ control R5 for a meter reading of 20 ma.
6. Remove the extender and reinstall the Speaker Amplifier board in the card bay.

Accessory Installation

DESK MICROPHONE MODEL 4EM28A10 or 4EM28B10

If a desk microphone is used, install as follows:

1. Run cable through slot in the bottom of the center drawer frame, and secure with clamp and screw provided.
2. Plug cable connector into J801.
3. For 4EM28B10 only: Remove black wire between J801-4 and TB806-2.

FOOTSWITCH 19B201488P4

If footswitch 19B201488P4 is used, connect the leads to terminals TB1-7 and TB1-8 on the distribution block at the rear of the desk.

LINE COMPENSATION

The Line Compression kit is shipped from the factory disconnected to prevent interference with normal adjustment of the Console (the White wire connected to Disconnect Jack J1 on the Line Compensation board). After all adjustments to the Console have been completed, activate the kit by disconnecting the White wire from J1 on the Line Compensation board and connecting it to J5 on the Audio Board.

PROCEDURE:

1. Apply a 3000 Hz signal to the audio pair from the base station. Adjust the audio generator to produce the highest permissible line level.
2. Adjust LINE INPUT control R7 for threshold of compression as indicated by a reading of 0.4 volt DC as measured from J19 on the Audio Board to ground.
3. Remove the 3000 Hz signal and apply a 600 Hz signal to the audio pair from the base station at the same level as the 3000 Hz signal was applied.
4. Adjust R1 on the Line Compensation board for threshold of compression as indicated by a reading of 0.4 volt DC as measured from J19 to ground.

   NOTE — If a reading of 0.4 volt DC cannot be obtained by adjusting R1, re-adjust R7 on the Audio Board for a reading of 0.4 volt DC as measured from J19 to ground.

VU METER

The VU Meter was set at the factory to indicate 0 VU at a +11 dBm line output. If the line output is set for other than +11 dBm, it will be necessary to readjust R9 on the VU meter to obtain 0 VU readings.

1. Connect an AC-VTVM across the audio pair (TB801-1 and -2). Use a 0.5 mfd capacitor in series with the meter if a DC voltage is simplexed line-to-line.
2. Apply a 1000 Hz signal to pins 1 (GRD) and 2 of J801 at the level indicated in the following chart.

For Microphone Type:	Set Input Level For:
EM-35-A (Goose-Neck Mike)	10 Millivolts
EM-28-A (Desk Mike)	12 Millivolts
EM-25-A (Military Mike)	60 Millivolts
EM-26-A (Handset)	60 Millivolts
EM-13-A (Boom Mike)	6 Millivolts

3. Reduce the signal being applied to J801-1 and -2 until the line level is reduced by 10 dB.
4. Set R9 on the VU Meter for 0 VU. The VU Meter should indicate frequent peaks in the −1 to +3 VU range when talking into the microphone in a normal tone or voice.
5. If the meter is connected to indicate 0 VU readings in the receive mode (Green-White lead connected to J8 on the Audio Board instead of −J17), apply a 1000 Hz signal as directed in Step 2. Measure the voltage level at J8 with an AC-VTVM. Then, reduce the input signal until the voltage at J8 is reduced 10 dB, and set R9 on the VU meter for 0 VU.

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