MOBILE RADIO

DESCRIPTION AND MAINTENANCE

MASTR® II TONE REMOTE STATION CONTROL SHELF

USED WITH AUXILIARY RECEIVER OPTIONS 9633-9640

TABLE OF CONTENTS

DESCRIPTION

The General Electric MASTR® II Tone Remote Station Control Shelf is used with a remote control console in remote and local/remote station combinations. The Control Shelf is a 3-rack unit card shelf.

A Mother Board is utilized on the shelf to interconnect the plug-in function boards. This Mother Board provides the function board jacks, the station interconnect jacks and the printed wiring runs between these jacks. External connections are made to terminal board TB1201 located on the rear of the Mother Board.

Remote control functions are performed by applying two or three tones in sequence at the prescribed level to the transmission medium for detection at the Control Shelf.

Tone Control Sequence

When a non-transmit function is selected at the remote control console, the Secur-it tone frequency of 2175 Hz is transmitted for a period of 125 milliseconds at a level equal to normal voice peaks. In the case of a 0 VU line level, the Secur-it tone is transmitted at a level of +10 dBm. At the end of this 125 milliseconds, the tone is changed to that of the function frequency selected. This tone is transmitted for a period of 40 milliseconds at a level of 10 dB below the Secur-it tone burst.

When a transmit function is selected at the remote control console, the Secur-it tone is transmitted as in the sequence described above, followed by a 40 ms burst of the transmit function tone. This is followed by the 2175 Hz tone transmitted at a level 30 dB below its initial Secur-it burst level. The low level 2175 Hz tone remains on in the presence of voice as long as the PTT switch is operated at the remote control console.

Control Frequency and Function

The control frequencies selected at the remote control console for performing

the 4-frequency transmit and receive functions as well as other auxiliary control functions are listed in Table 1.

TABLE 1

TONE CONTROL FREQUENCY AND FUNCTION

FUNCTION	TONE FREQUENCY
RX Channel Guard Disable (Reset by PTT)	2050 Hertz
TX-RX Freq. No. 1	1950 Hertz
TX-RX-Freq. No. 2	1850 Hertz
TX-RX Freq. No. 3	1350 Hertz
TX-RX Freq. No. 4	1250 Hertz
Channel Guard Enable or Minimum Squelch	1550 Hertz
Channel Guard Disable or Maximum Squelch	1450 Hertz

Control Modules

The following chart indicates the plug-in boards required to provide the various control functions.

	REQUIRED PLUG-IN MODULE			
	AUDIO	TX CONT.	RX CONT.	CG FILTER-ATTEN.
3 or 4 Freq. TX-RX	19A129924G3	19D416660G2 19D429082G1	19D429100G1	
3 or 4 Freq. TX-RX Channel Guard Monitor	19A129924G3	19D416660G3 19D429082G1	19D429100G1	19C320627G1

NOTE

The Secur-it Tone Board 19D424051 and 10-Volt Regulator/Control Board 19D417401 are required in all applications.

Four Frequency Transmit with Four Separate Auxiliary Receivers (Options 9633, 9634, 9637, 9638

Each of the receiver oscillators are strapped to ground. The receiver audio may be sent over separate audio pairs or a single audio pair. The F1 thru F4 output leads from the Receiver Control Board are used to control the line audio outputs of the receivers instead of the receiver oscillators.

When a transmit function tone is received at the Control Shelf (1950 Hertz for transmit F1, for example), the transmit oscillator is selected (F1 in the example) and receive F1 output on the Receiver Control Board is latched through the F1 INTERCONNECT lead. Full audio of receive F1 is selected. All other receivers have their audio attenuated by the Audio Attenuator Board by a preset amount of between -6 dB and -30 dB maximum. When the 2175 Hertz hold tone associated with PTT is re-

leased, the transmit F1 oscillator is released but the receive F1 audio output is still latched.

The F1 receiver is located on the radio panel front door of the station and is powered by the station power supply. Auxiliary receivers No. 2 thru No. 4 are powered by the multiple receiver Power Supply 19E501707. Line audio from the station receiver may be monitored locally using the service speaker located in the radio housing. Line audio from the auxiliary receivers may be monitored locally by selecting the desired line with a rotary switch on the multiple receiver power supply which feeds the audio into a speaker/amplifier also located in the multiple receiver power supply.

Four Frequency Transmit with Four Auxiliary Receivers Equipped with Channel Guard

When Channel Guard is used with the system, the transmit and receive oscillators are strapped together on the Control Shelf Mother Board. The Receiver Control Board latches the selected transmit and receive oscillators when a transmit function tone is selected at the remote control console.

This allows the transmit oscillator to remain selected when the 2175 Hertz hold tone is removed by releasing PTT. The remaining frequencies are selected and released when different transmit function tones are decoded at the Control Shelf. The auxiliary receivers equipped with Channel Guard are monitored simultaneoulsy when the CG MONITOR function is selected.

CONNECTIONS

All connections to the Base Station Control Shelf are made at TB1201. Any transmission circuit capable of handling audio frequencies in the 300 to 3000 Hz range can be used for tone control. It is not necessary to observe polarity in wire line connections for tone control applications.

1. Connect the telephone or metallic pair to TB1201-10 and TB1201-11.

2. Connect jumper between TB1201-12 and TB1201-13.

Four-Wire Audio

In remote control two-way radio systems where customer-owned multiplex/microwave systems are utilized, or where leased lines obtained from the local telephone company do not utilize hybrids in the transmission path, 4-wire audio operation may be required. The 4-wire audio system provides separate connections for the receive audio path and the transmit audio path. See Figure 1.

The 4-Wire Audio Kit (Option 9507) consists of a separate transformer mounted to the Mother Board with special connections to be made to TB1201. Refer to the Installation Instructions for Option 9507.

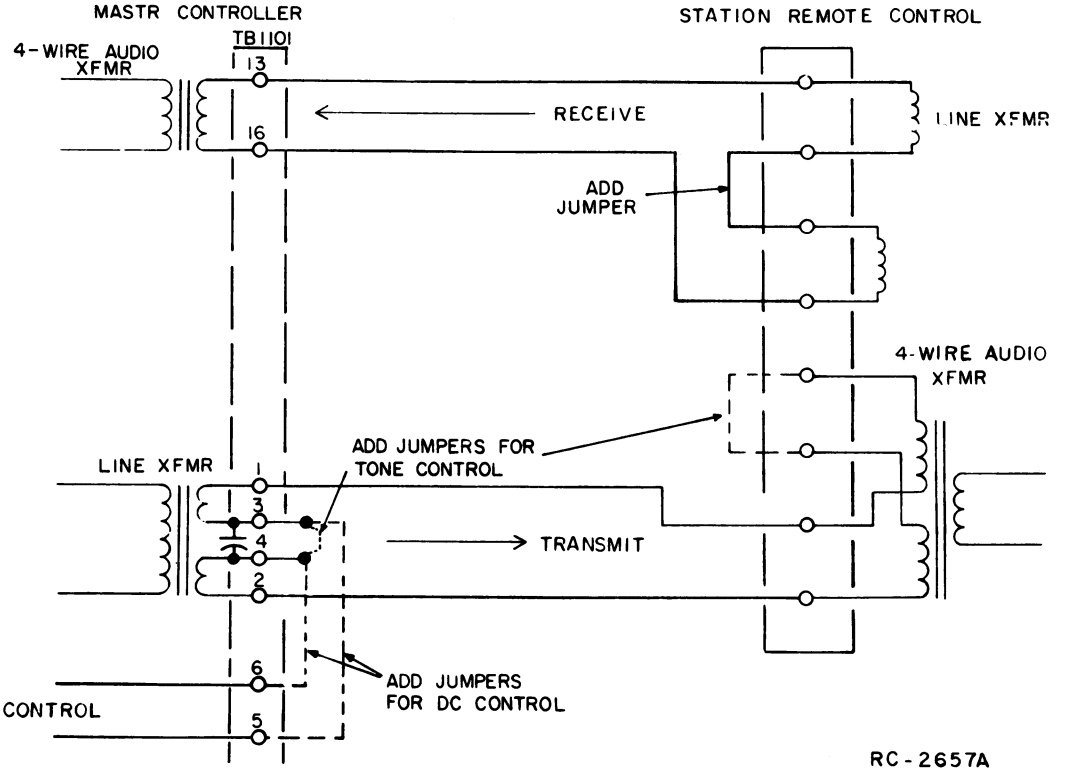

Figure 1 - Typical 4-Wire Audio Installation

ADJUSTMENTS

Before making adjustments on the Base Station Control Shelf, make sure that all power line, phone line and ground connections have been completed at the remote control console and at the Base Station. Also, the remote control console and Base Station should have been properly aligned.

A. TEST EQUIPMENT REQUIRED

1. Audio Oscillator. Hewlett Packard Model 401C or equivalent.

2. VOM. Simpson Model 260 or equivalent.

3. AC VTVM. Heathkit Model IM-38 or equivalent.

B. LINE INPUT

1. Feed a 1000 Hz tone at the required level into the microphone jack of the remote control console having the largest line loss. Adjust the remote control console line output control for 2.7 Volts RMS as measured across the audio pair at the remote control console.

2. Key the Base Station Transmitter from the remote control console* and adjust LINE INPUT control R39 on the Remote Audio Board for threshold of compression as indicated by a 1 dB drop on an AC VTVM connected between the emitter of Q20 and ground.

C. XMIT LEVEL

1. Key the Base Station transmitter from the remote control console.* Adjust the XMIT LEVEL control R50 on the Remote Audio Board for 4.5 kHz system deviation as measured on a deviation meter.

D. LINE OUTPUT

1. Connect a signal generator to the Base Station receiver adjusted to the receiver frequency and modulated at 3.0 kHz deviation by a 1000 Hz signal. Disable Channel Guard if present.

2. Adjust the LINE OUT control R14 on the Remote Audio Board for a reading of 2.7 Volts RMS as measured at the Base Station audio pair.

MAINTENANCE

The Tone Remote Control Shelf is designed for ease of servicing and minimum maintenance. All circuit modules can be easily removed for routine inspection. An Extender Board (19D417458G1, Option 9544) is recommended for servicing any of the modules out of the shelf while maintaining circuit connections. Refer to the Troubleshooting Procedure (see Table of Contents) when maintenance becomes necessary.

* The station may also be adjusted by connecting the audio generator across the audio pair at the station and keying the transmitter by holding the REMOTE PTT switch on the 10-Volt Regulator/Control Board in the REMOTE PTT position.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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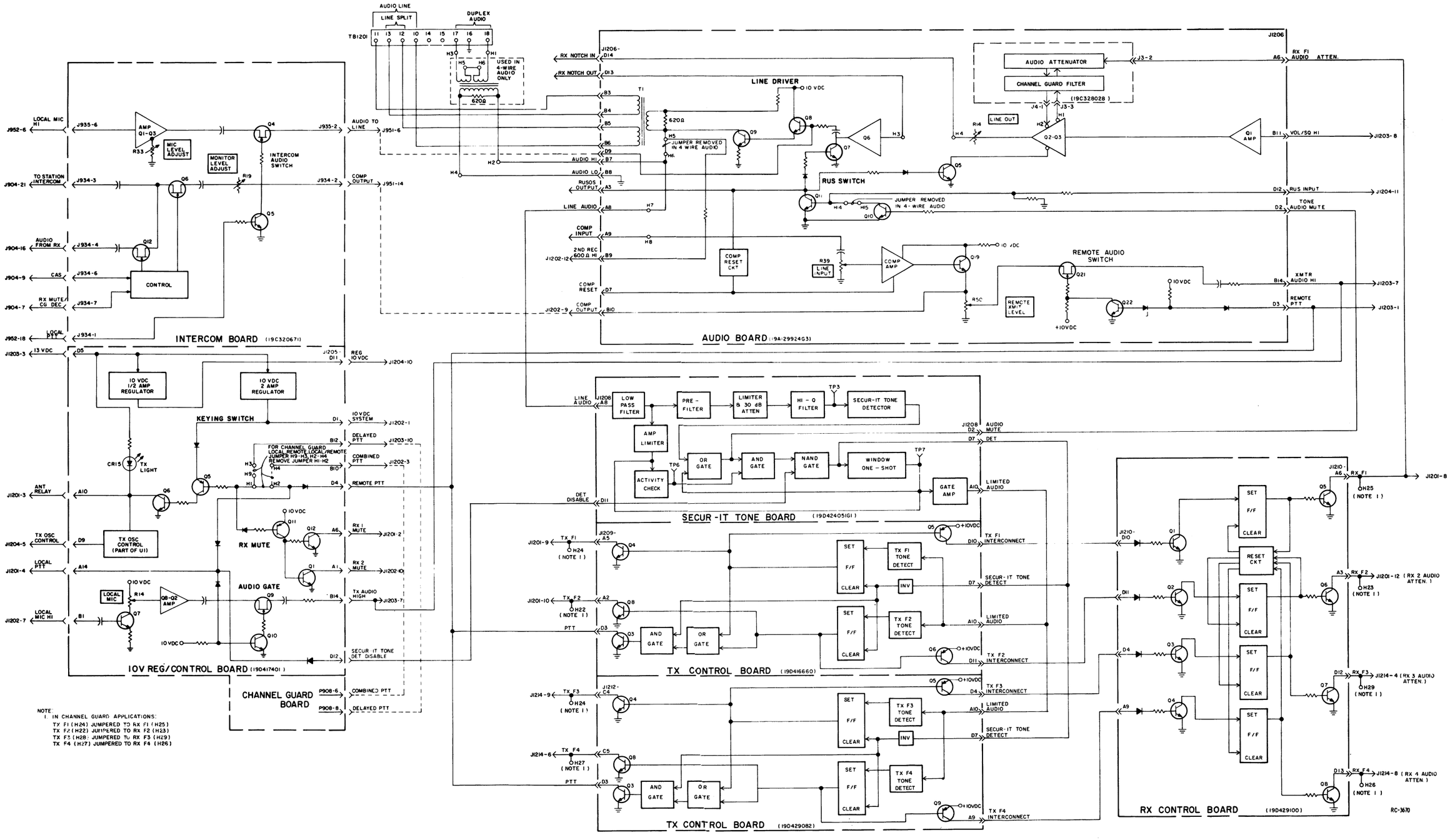
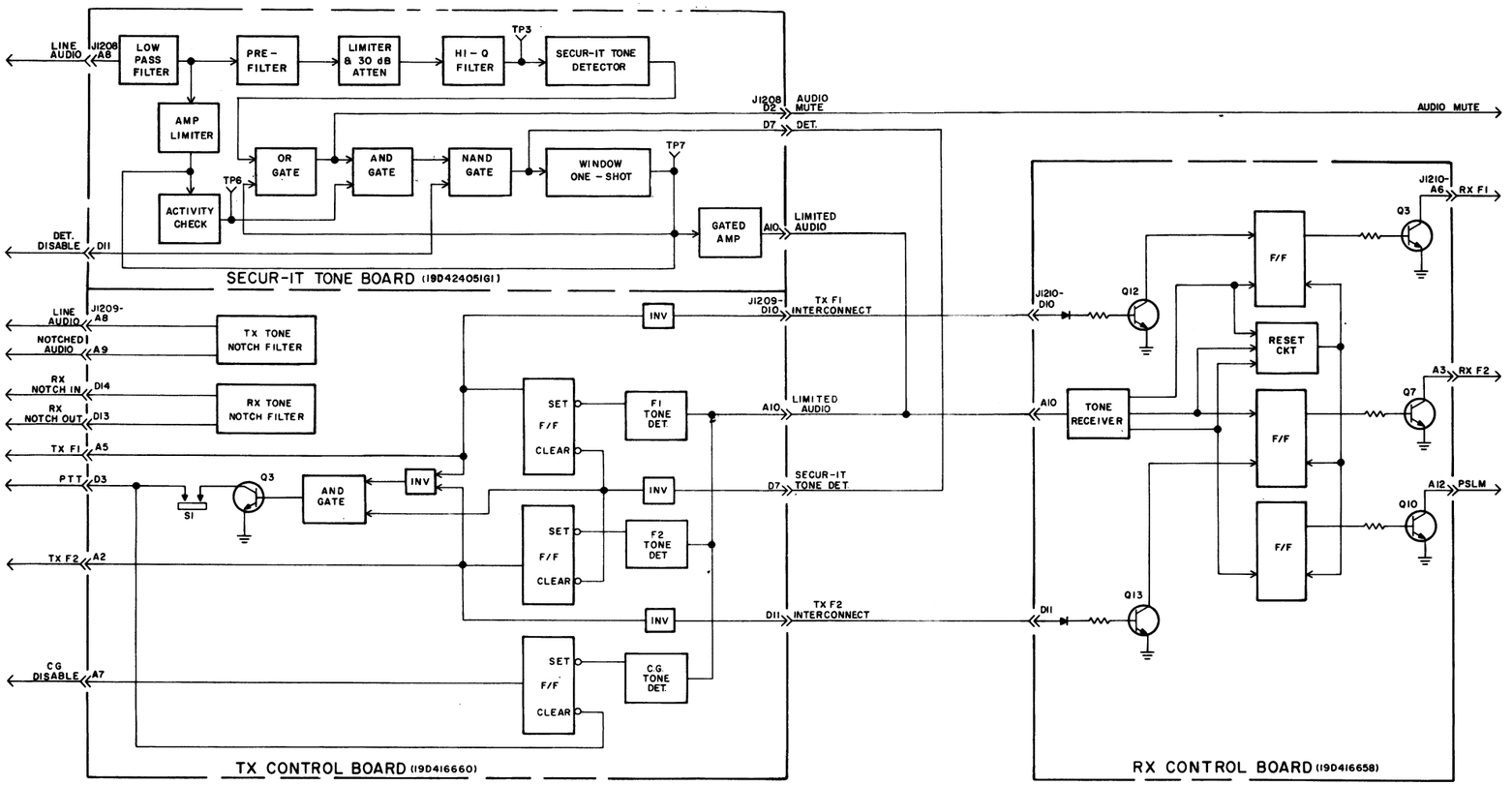


Figure 2 - System Diagram



SECUR-IT TONE WAVEFORM CHART

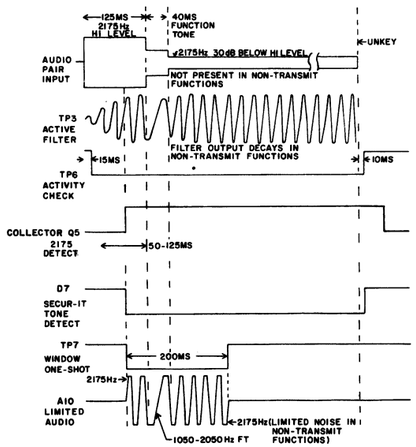


Figure 3 - Tone Control System Troubleshooting

SYMPTOM	PROCEDURE
NO SECUR-IT TONE DETECT	1. CHECK FOR 2175 Hz TONE AT LINE AUDIO TERMINAL J1208-A8 OR TP. 2. CHECK FOR TONE AT OUTPUT OF ACTIVE FILTER (TP3). REFER TO WAVEFORM CHART. 3. CHECK FOR PROPER WAVEFORM AT ACTIVITY CHECK CIRCUIT (TP6). REFER TO WAVEFORM CHART. IF PROPER WAVEFORM IS NOT OBTAINED, CHECK OPERATION OF AR4, Q9 - Q12. 4. CHECK FOR PROPER WAVEFORM AT 2175 DETECT (Q5 COLLECTOR). REFER TO WAVEFORM CHART. IF PROPER WAVEFORM CANNOT BE OBTAINED, CHECK Q2 - Q5.
NO LIMITED AUDIO OUTPUT	1. CHECK WAVEFORM OF WINDOW ONE-SHOT (TP7). 2. CHECK WAVEFORM AT Q7 (A10).
NO AUDIO MUTE FUNCTION	1. CHECK OPERATION OF Q2Q. THIS TRANSISTOR SHOULD BE TURNED OFF DURING SECUR-IT TONE DETECT.

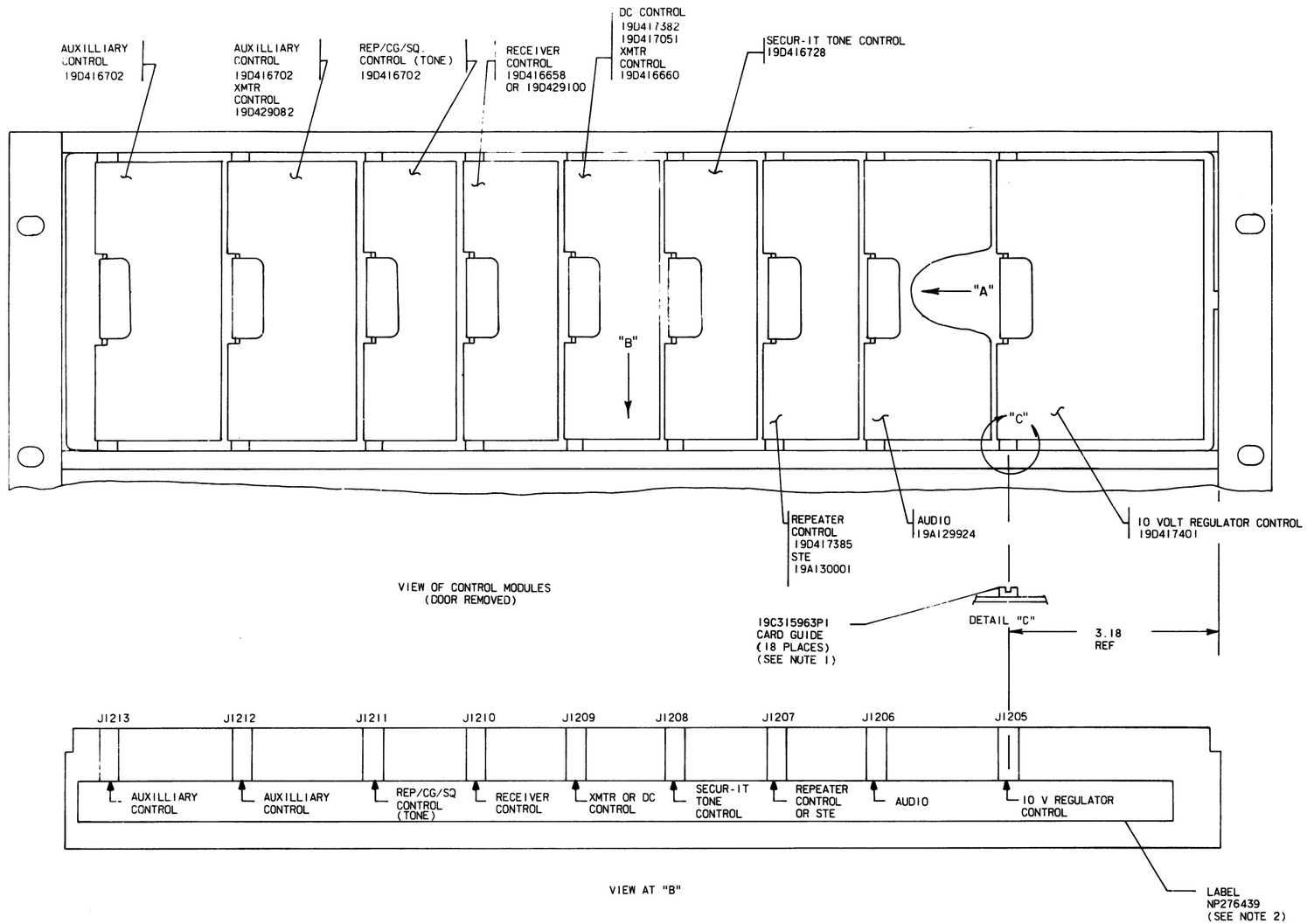
SYMPTOM	PROCEDURE
NO PTT FUNCTION	1. CHECK FOR 2175 Hz TONE AT OUTPUT OF HI-Q FILTER (TP3). 2. CHECK FOR LOW AT PIN 3 OF U1A ON TRANSMITTER CONTROL BOARD. 3. CHECK OPERATION OF Q3 ON TRANSMITTER CONTROL BOARD. (REFER TO SCHEMATIC DIAGRAM FOR CORRECT VOLTAGE READINGS.)
NO TX F1 FUNCTION	1. CHECK FOR 1950 Hz TONE (TX F1) AT LIMITED AUDIO (A10) WHEN THE TX F1 FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U1A ON TRANSMITTER CONTROL BOARD. 3. CHECK FOR OPERATION OF Q3 ON TRANSMITTER CONTROL BOARD.
NO TX F2 FUNCTION	1. CHECK FOR 1850 Hz TONE (TX F2) AT LIMITED AUDIO (A10) WHEN THE TX F2 FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U2A ON TRANSMITTER CONTROL BOARD. 3. CHECK OPERATION OF Q8 AND Q9 ON TRANSMITTER CONTROL BOARD.
NO CG MONITOR FUNCTION	1. CHECK FOR 2050 Hz (CG DISABLE) TONE AT LIMITED AUDIO (A10) WHEN CG MONITOR FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U5A ON TRANSMITTER CONTROL BOARD. 3. CHECK OPERATION OF Q11 ON THE TRANSMITTER CONTROL BOARD.

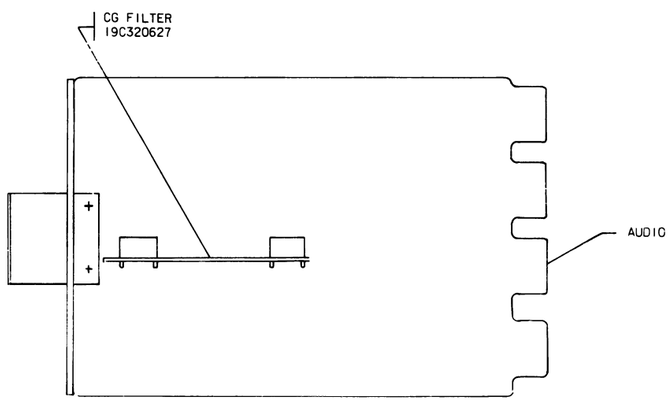
SYMPTOM	PROCEDURE
NO RX F1 FUNCTION	1. CHECK AUDIO MUTE (J1208-D2) FOR GROUND INDICATION. IF NOT PRESENT, CHECK OPERATION OF Q2O ON SECUR-IT TONE BOARD. Q2O SHOULD BE CONDUCTING. 2. CHECK FOR RX F1 TONE (1750 Hz) AT LIMITED AUDIO (A10) WHEN RX F1 FUNCTION IS SELECTED. 3. CHECK FOR LOW AT PIN 3 OF U1A ON RECEIVER CONTROL BOARD. 4. CHECK OPERATION OF Q3 ON RECEIVER CONTROL BOARD.
NO RX F2 FUNCTION	1. CHECK FOR RX F2 TONE (1650 Hz) AT LIMITED AUDIO (A10) WHEN RX F2 FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U1C ON RECEIVER CONTROL BOARD. 3. CHECK OPERATION OF Q7 ON RECEIVER CONTROL BOARD.
NO PSLM (OR SIM MONITOR) CONTROL	1. CHECK FOR 1050 Hz TONE AT LIMITED AUDIO (A10) WHEN FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U5A ON RECEIVER CONTROL BOARD. 3. CHECK OPERATION OF Q10 ON RECEIVER CONTROL BOARD.

RC-3035A

4-FREQ. TONE CONTROL SYSTEM

SYMPTOM	PROCEDURE
NO TX-RX F1 FUNCTION	1. CHECK FOR TX-RX F1 TONE (1950Hz) AT LIMITED AUDIO (A10) WHEN F1 FUNCTION IS SELECTED. 2. FOLLOW SAME PROCEDURE AS OUTLINED FOR TX F1 IN 2-FREQ SYSTEM. 3. CHECK OPERATION OF Q1, Q5 ON RECEIVER CONTROL BOARD. 4. CHECK FOR LOW AT PIN 3 OF U1A ON RECEIVER CONTROL BOARD.
NO TX-RX F2 FUNCTION	1. CHECK FOR TX-RX F2 TONE (1850Hz) AT LIMITED AUDIO (A10) WHEN F2 FUNCTION IS SELECTED. 2. FOLLOW SAME PROCEDURE AS OUTLINED FOR TX F2 IN 2-FREQ SYSTEM. 3. CHECK OPERATION OF Q2, Q6 ON RECEIVER CONTROL BOARD. 4. CHECK FOR LOW AT PIN 8 OF U1C ON RECEIVER CONTROL BOARD.
NO TX-RX F3 FUNCTION	1. CHECK FOR TX-RX F3 TONE (1350Hz) AT LIMITED AUDIO (A10) WHEN F3 FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U1A ON 19D429082 TX CONTROL BOARD. 3. CHECK OPERATION OF Q3, Q4, Q5 ON 19D429082 TX CONTROL BOARD. 4. CHECK OPERATION OF Q3, Q7 ON RECEIVER CONTROL BOARD. 5. CHECK FOR LOW AT PIN 3 OF U2A ON RECEIVER CONTROL BOARD.
NO TX-RX F4 FUNCTION	1. CHECK FOR TX-RX F4 TONE (1250Hz) AT LIMITED AUDIO (A10) WHEN F4 FUNCTION IS SELECTED. 2. CHECK FOR LOW AT PIN 3 OF U2A ON 19D429082 TX CONTROL BOARD. 3. CHECK OPERATION OF Q3, Q8, Q9 ON 19D429082 TX CONTROL BOARD. 4. CHECK OPERATION OF Q4, Q8 ON RECEIVER CONTROL BOARD. 5. CHECK FOR LOW AT PIN 8 OF U2C ON RX CONTROL BOARD.





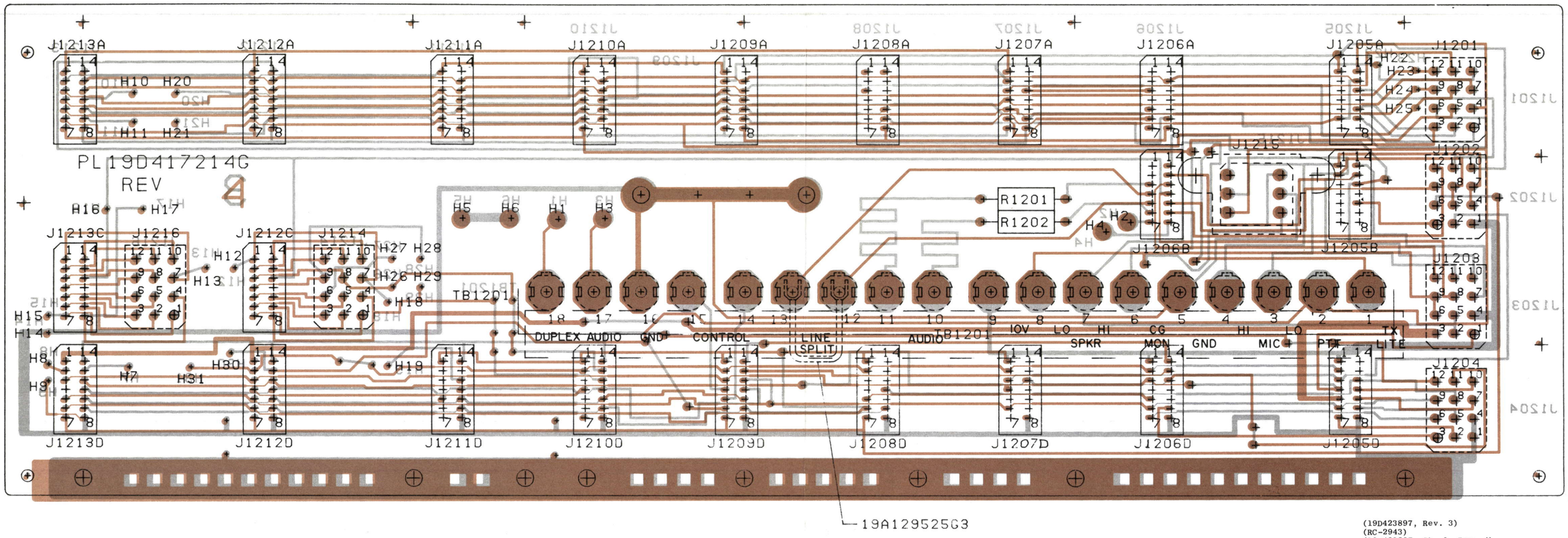
NOTES:
1. PART OF MOTHER BD. HDW. KIT PL19A130031G3
2. ALIGN ARROW WITH CENTER OF FIRST GUIDE WITHIN .06.

RC-3223A

OUTLINE DIAGRAM

CONTROL SHELF

Issue 1



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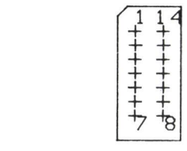
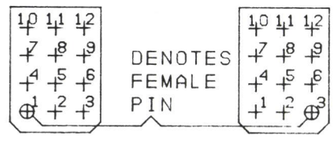
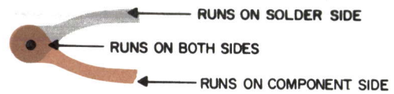


TYP. MOUNTING
FOR J1205-J1213



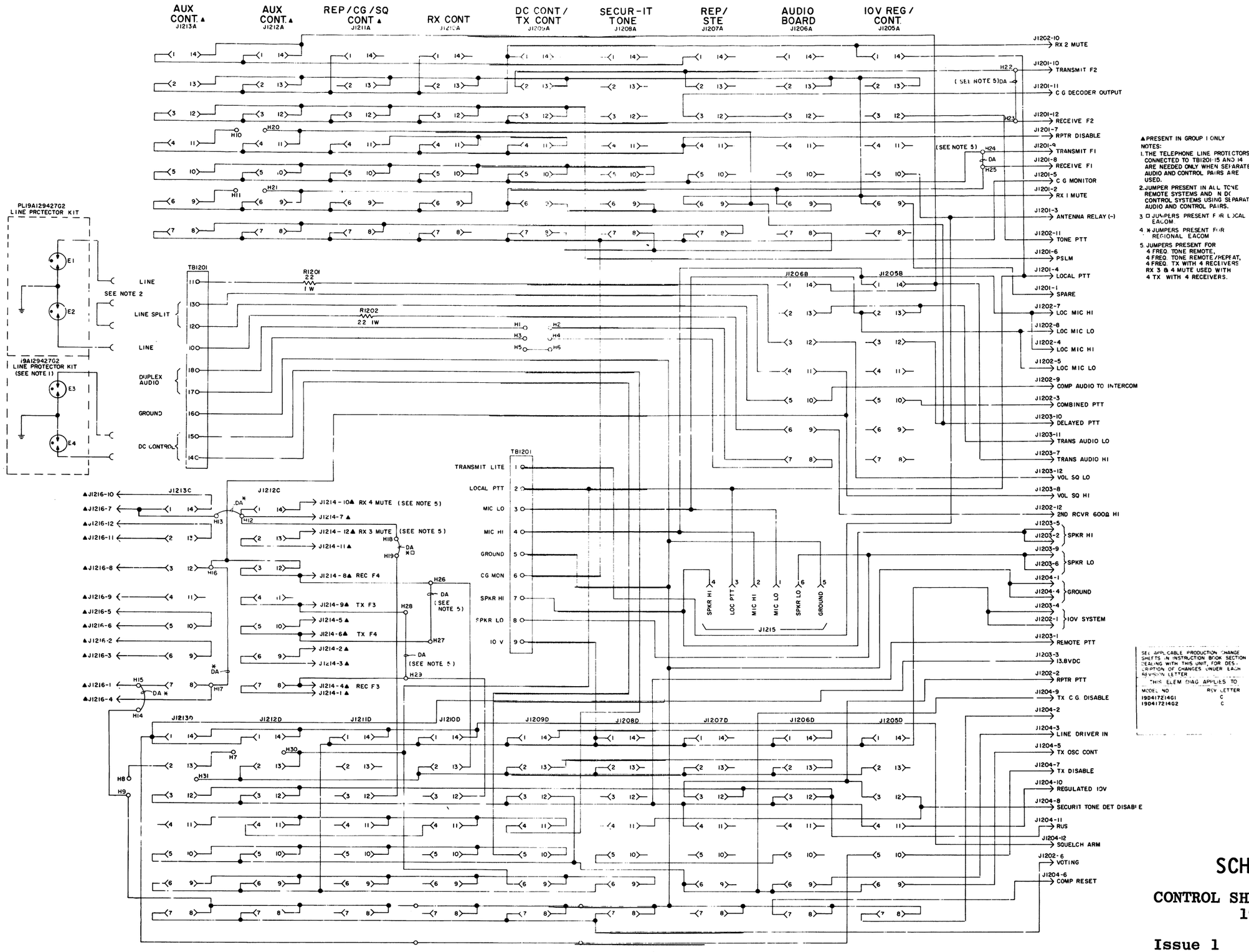
TYP. MOUNTING
FOR J1201, J1203,
J1214, J1216
FARSIDE VIEW

TYP. MOUNTING
FOR J1202&1204
FARSIDE VIEW



OUTLINE DIAGRAM

CONTROL SHELF MOTHER BOARDS
19D417214G1 and G2



▲PRESENT IN GROUP I ONLY

NOTES:
1. THE TELEPHONE LINE PROTECTORS CONNECTED TO TB1201-15 AND 14 ARE NEEDED ONLY WHEN SEPARATE AUDIO AND CONTROL PAIRS ARE USED.
2. JUMPER PRESENT IN ALL TONE REMOTE SYSTEMS AND N DC CONTROL SYSTEMS USING SEPARATE AUDIO AND CONTROL PAIRS.
3. □ JUMPERS PRESENT FOR LOCAL EACOM.
4. * JUMPERS PRESENT FOR REGIONAL EACOM.
5. JUMPERS PRESENT FOR 4 FREQ. TONE REMOTE, 4 FREQ. TONE REMOTE/REPEAT, 4 FREQ. TX WITH 4 RECEIVERS RX 3 & 4 MUTE USED WITH 4 TX WITH 4 RECEIVERS.

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO:

MODEL NO	REV LETTER
19D417214G1	C
19D417214G2	C

SCHEMATIC DIAGRAM

CONTROL SHELF MOTHER BOARDS 19D417214G1 and G2

Issue 1

(19E501157, Rev. 11)

PARTS LIST

LBI-4811A

CONTROL SHELF MOTHER BOARD
19D417214G1, G2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1201	19A116647P4	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5121.
J1202	19A116647P6	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5927.
J1203	19A116647P4	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5121.
J1204	19A116647P6	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5927.
J1205A	19A116446P5	Connector, printed wiring: 14 contacts.
J1205B	19A116446P5	Connector, printed wiring: 14 contacts.
J1205D	19A116446P5	Connector, printed wiring: 14 contacts.
J1206A	19A116446P5	Connector, printed wiring: 14 contacts.
J1206B	19A116446P5	Connector, printed wiring: 14 contacts.
J1206D	19A116446P5	Connector, printed wiring: 14 contacts.
J1207A	19A116446P5	Connector, printed wiring: 14 contacts.
J1207D	19A116446P5	Connector, printed wiring: 14 contacts.
J1208A	19A116446P5	Connector, printed wiring: 14 contacts.
J1208D	19A116446P5	Connector, printed wiring: 14 contacts.
J1209A	19A116446P5	Connector, printed wiring: 14 contacts.
J1209D	19A116446P5	Connector, printed wiring: 14 contacts.
J1210A	19A116446P5	Connector, printed wiring: 14 contacts.
J1210D	19A116446P5	Connector, printed wiring: 14 contacts.
J1211A	19A116446P5	Connector, printed wiring: 14 contacts.
J1211D	19A116446P5	Connector, printed wiring: 14 contacts.
J1212A	19A116446P5	Connector, printed wiring: 14 contacts.
J1212C	19A116446P5	Connector, printed wiring: 14 contacts.
J1212D	19A116446P5	Connector, printed wiring: 14 contacts.
J1213A	19A116446P5	Connector, printed wiring: 14 contacts.
J1213C	19A116446P5	Connector, printed wiring: 14 contacts.
J1213D	19A116446P5	Connector, printed wiring: 14 contacts.
J1214	19A116647P4	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5121.
J1215	19B219627G1	Connector: 6 contacts.
J1216	19A116647P4	Connector, printed wiring: 12 terminals, sim to Molex 09-18-5121.
		- - - - - - - - - - RESISTORS - - - - - - - - -
R1201* and R1202*	3R78P220J	Composition: 22 ohms ±5%, 1 w. Added by REV A.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1201	19A116667P3	Plate nut. (Quantity 18).
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A129525G3	Cable: approx 3 inches long.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - To provide line surge protection and change polarity of DC control leads. Added R1201 and R1202. Reversed connections to J1209-4 and J1209-5.

REV. B - Changed printed board to provide outputs for EACOM Systems.

REV. C - Changed board for use in 4-frequency remote systems.

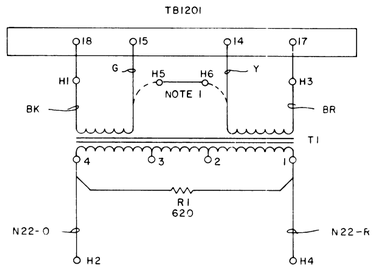
PARTS LIST

LBI-4567

4 WIRE AUDIO KIT
19A129508G1

SYMBOL	GE PART NO.	DESCRIPTION
	19B209260P103	Terminal, solderless. (Used with T1).
	N80P13005C6	Screw: No. 6-32 x 5/16.
	7141225P3	Hex nut: No. 6-32.
	N404P13C6	Lockwasher, internal tooth: No. 6.
		TRANSFORMER ASSEMBLY 19A129500G1
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	3R77P621J	Composition: 620 ohms ±5%, 1/2 w.
		- - - - - - - - - - TRANSFORMERS - - - - - - - - - -
T1	19A115731P1	Audio freq: 300 to 6000 Hz. Pri (1-4): 22 ohms ±15% DC res. Pri (2-3): 12.5 ohms ±15% DC res. Sec 1: 13 ohms ±15%. Sec 2: 13 ohms ±15%.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



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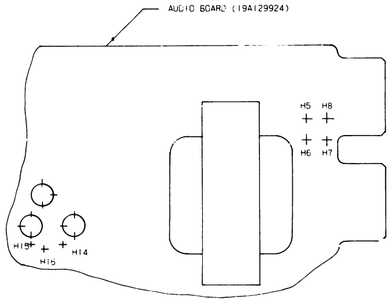
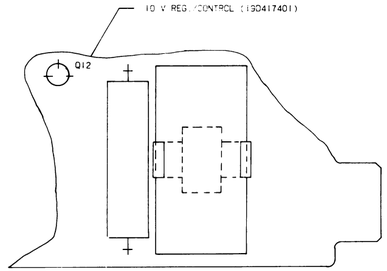
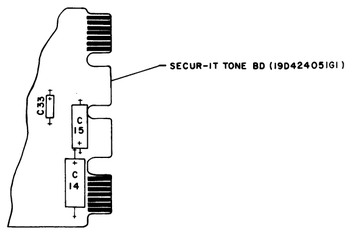
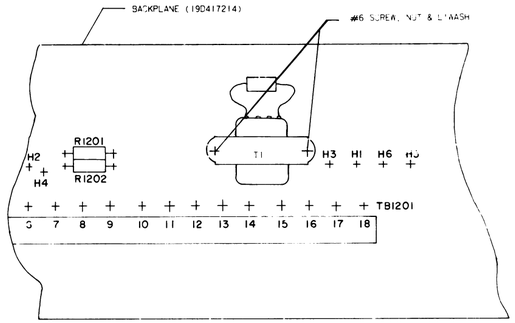
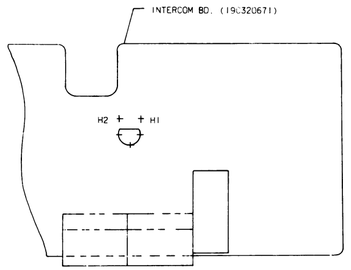










(19D417439, Rev. 6)

THESE INSTRUCTIONS COVER THE INSTALLATION OF THE 4 WIRE AUDIO KIT PL19A129508.

(1) INSTRUCTIONS FOR INSTALLATION ON 19D417214G1 BACK PLANE FOR D.C. REMOTE SYSTEM.

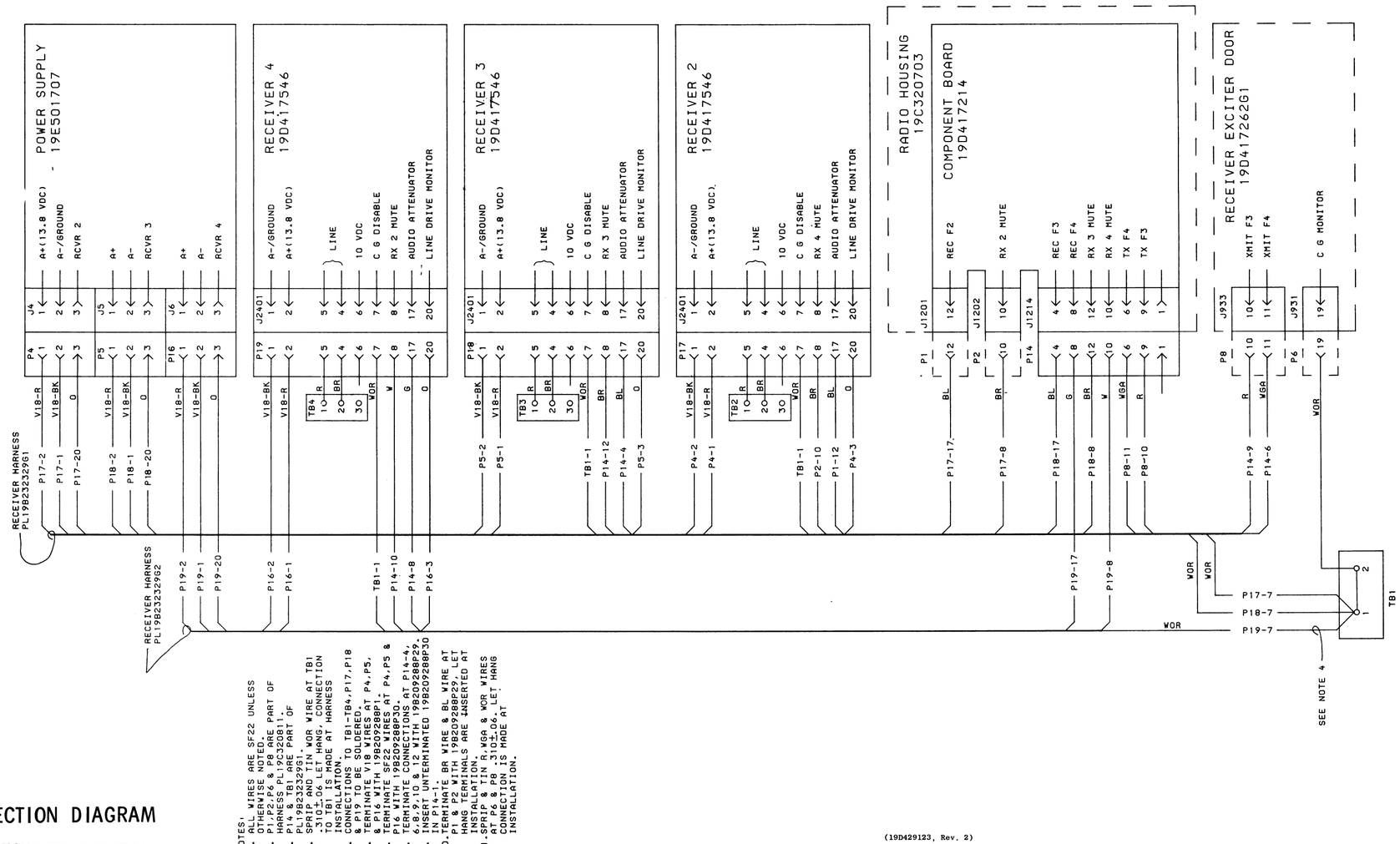
1. MOUNT T1 TO BACK PLANE AS SHOWN.
2. SOLDER BLACK LEAD IN HOLE 1.
3. SOLDER BROWN LEAD IN HOLE 3.
4. SOLDER ORANGE LEAD IN HOLE 2.
5. SOLDER RED LEAD IN HOLE 4.
6. CONNECT GREEN LEAD TO TB1201-15.
7. CONNECT YELLOW LEAD TO TB1201-14.
8. REMOVE JUMPER BETWEEN HOLES 5 & 6 ON AUDIO BOARD 19A129924.
9. MOVE JUMPER FROM HOLE 14 TO HOLE 16 ON AUDIO BD 19A129924.
10. REMOVE Q12 ON 10V REG/CONTROL BD. (19D417401) IF THE XII LETTER OF STATION COMBINATION IS D OR L.
11. IF INTERCOM BD. (19C320671) IS PRESENT, ADD A JUMPER (D.A. WIRE) FROM H1 TO H2.
12. TEST PER 19A129945.

(2) INSTRUCTIONS FOR INSTALLATION ON 19D417214G1 BACK PLANE FOR TONE CONTROL SYSTEM.

1. MOUNT T1 TO BACK PLANE AS SHOWN.
2. SOLDER BLACK LEAD IN HOLE 1.
3. SOLDER BROWN LEAD IN HOLE 3.
4. SOLDER ORANGE LEAD IN HOLE 2.
5. SOLDER RED LEAD IN HOLE 4.
6. CLIP TERMINAL OFF OF GREEN LEAD & SOLDER LEAD IN HOLE 5.
7. CLIP TERMINAL OFF OF YELLOW LEAD & SOLDER LEAD IN HOLE 6.
8. REMOVE JUMPER BETWEEN HOLES 5 & 6 ON AUDIO, BOARD 19A129924.
9. MOVE JUMPER FROM HOLE 14 TO HOLE 16.
10. REMOVE Q12 ON 10V REG/CONTROL BD. (19D417401) IF THE XII LETTER OF STATION COMBINATION IS D OR L.
11. IF INTERCOM BD. (19C320671) IS PRESENT ADD A JUMPER (D.A. WIRE) FROM H1 TO H2.
12. REMOVE C33 ON SECUR-IT TONE BD. 19D424051G1.
13. TEST PER 19A129945.

SERVICE SHEET

4-WIRE AUDIO KIT 19A129508 (OPTION 9507)



NOTES:
1. ALL WIRES ARE SF22 UNLESS OTHERWISE NOTED.
2. P17, P18 & P19 ARE PART OF HARNESS PL19C320811.
3. P14 & TB1 ARE PART OF PL19B232961.
4. SPLIP AND TIN WOR WIRE AT TB1 CONNECTION. LET HANG FROM TB1 IF MADE AT HARNESS INSTALLATION.
5. CONNECTIONS TO TB1-TB4, P17, P18 & P19 TO BE SOLDERED.
6. TERMINATE V18 WIRES AT P4, P5, & P14 WITH 19B209288P1.
7. TERMINATE SF22 WIRES AT P4, P5 & P16 WITH 19B209288P30.
8. TERMINATE CONNECTIONS AT P14-4, 6, 8, 9, 10 & 12 WITH 19B209288P29.
9. INSERT UNTERMINATED 19B209288P30 IN P16-4.
10. TERMINATE BR WIRE & BL WIRE AT P1 & P2 WITH 19B209288P29. LET HANG TERMINALS ARE UNSERTED AT INSTALLATION.
11. SPLIP & TIN R, WGA & WOR WIRES AT P8, P14 & P19. LET HANG CONNECTION IS MADE AT INSTALLATION.

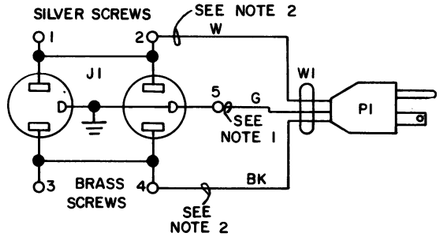
INTERCONNECTION DIAGRAM

AUXILIARY RECEIVER HARNESS 19B232329G1 and G2

AUXILIARY RECEIVER OVERLAY HARNESS
19B232329G1 2 AUXILIARY RECEIVERS
19B232329G2 THIRD AUXILIARY RECEIVER

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
P4		Connector. Includes:
	19B209288P1	Contact, electrical. Wire range: 14-20 AWG sim to Molex 1189T. (P4-1, P4-2).
	19B209288P30	Contact, electrical. Wire range: 22-30 AWG sim to Molex 1434. (P4-3).
P5		Connector. Includes:
	19B209288P1	Contact, electrical. Wire range: 14-20 AWG sim to Molex 1189T. (P5-1, P5-2).
	19B209288P30	Contact, electrical. Wire range: 22-30 AWG sim to Molex 1434. (P5-3).
P14		Connector. Includes:
	19B209288P29	Contact, electrical. Wire range: 22-30 AWG sim to Molex 1433. (P14-4, 6, 8, 9, 10, 12).
	19B209288P30	Contact, electrical. Wire range: 22-30 AWG sim to Molex 1434. (P14-1).
P16		Connector. Includes:
	19B209288P1	Contact, electrical. Wire range: 14-20 AWG sim to Molex 1189T. (P16-1, P16-2).
	19B209288P30	Contact, electrical. Wire range: 22-30 AWG sim to Molex 1434. (P16-3).
P17 thru P19	19C303506P1	Connector, Phen: 20 conts.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	7775500P45	Phen: 1 insulated, 1 grounded terminal.
TB2 thru TB4	19C301086P1	Feed-thru, phen: 3 terminals; sim to GE CR151D.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	4029851P14	Clip, loop: 1/4 inch. (Used with TB2-TB4).
	4029851P13	Clip, loop: 3/16 inch.
	19B201074P306	Tap screw, Phillips POZIDRIV® No. 6-32 x 3/8. (Secures 4029851P13 clip loops).
	N80P13012C6	Machine screw, Phillips head. No. 6-32 x 3/4. (Secures clip loops at TB2-TB4).
	N402P7C6	Flatwasher, No. 6. (Secures clip loops at TB2-TB4).
	7141225P3	Hex nut, No. 6-32. (Secures clip loops at TB2-TB4).
	N80P13004C6	Machine screw, Phillips head. No. 6-32 x 1/4. (Used at terminals of TB2-TB4).

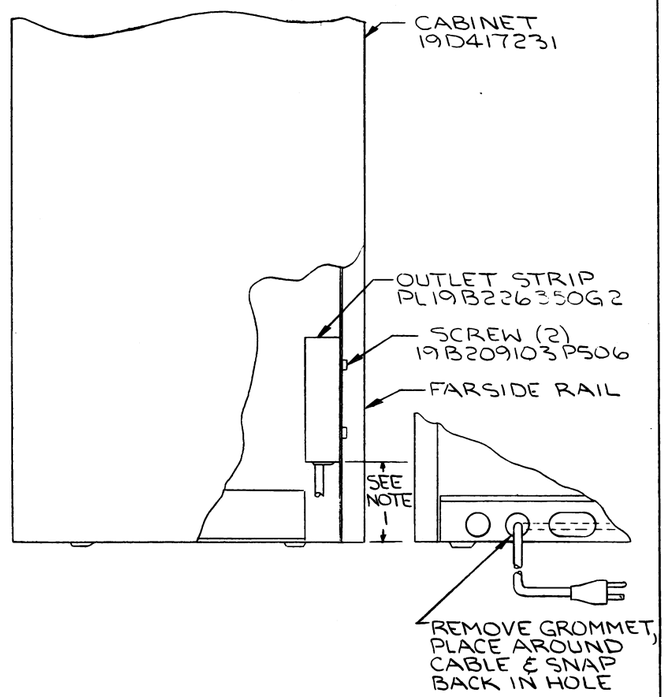
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTES:
1. TERMINATE WITH 19B209260P101
2. TERMINATE WITH 19B209268P4

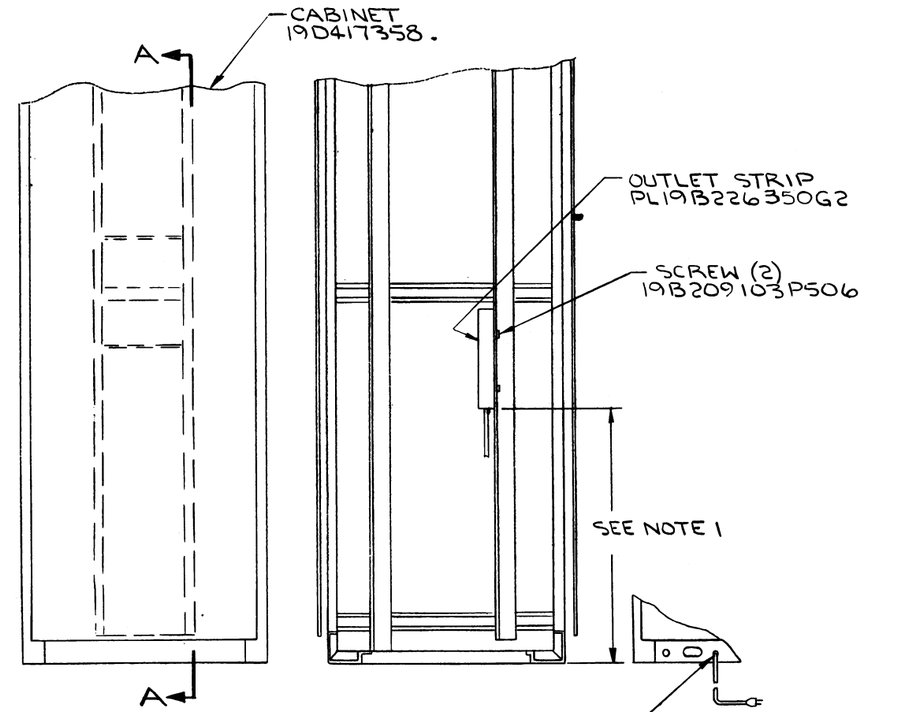
(19A137400, Rev. 0)

DESK MATE CABINET



THESE INSTRUCTIONS COVER INSTALLATION OF OUTLET STRIP PL19B226350G2 INTO DESK MATE CABINETS.

VERTICAL MOUNT CABINET



THESE INSTRUCTIONS COVER INSTALLATION OF OUTLET STRIP PL19B226350G2 INTO VERTICAL MOUNT CABINET.

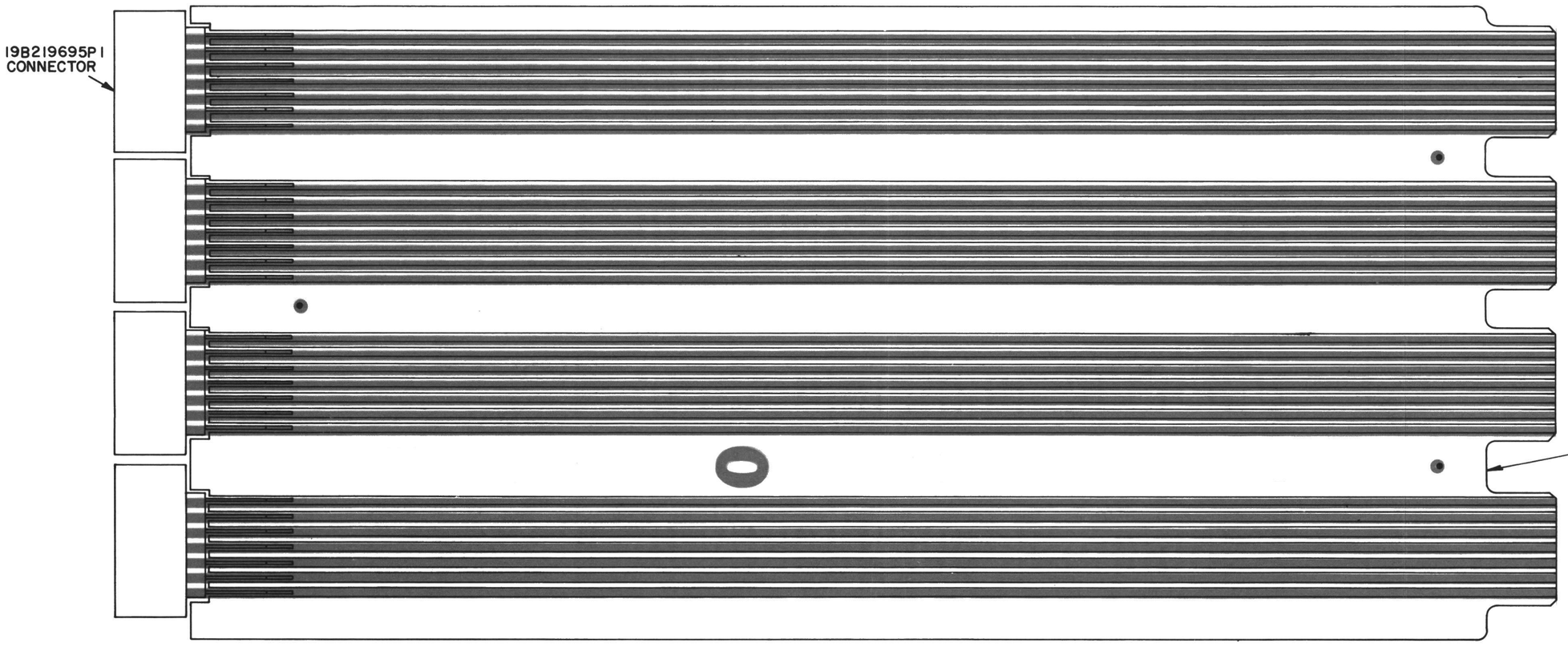
(1)

NOTES:
1. MOUNT OUTLET STRIP ON SIDE OF CABINET SHOWN AT ANY CONVENIENT HEIGHT.

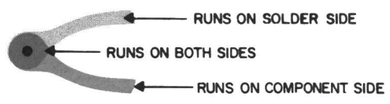
(19C328189, Rev. 1)

INSTALLATION INSTRUCTIONS

AC OUTLET STRIP 19B226350G2

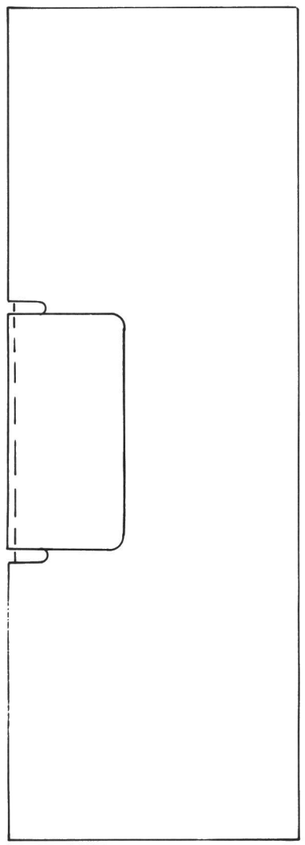


(19D423102, Rev. 0)
(19D417215, Sh. 2, Rev. 0)
(19D417215, Sh. 3, Rev. 0)



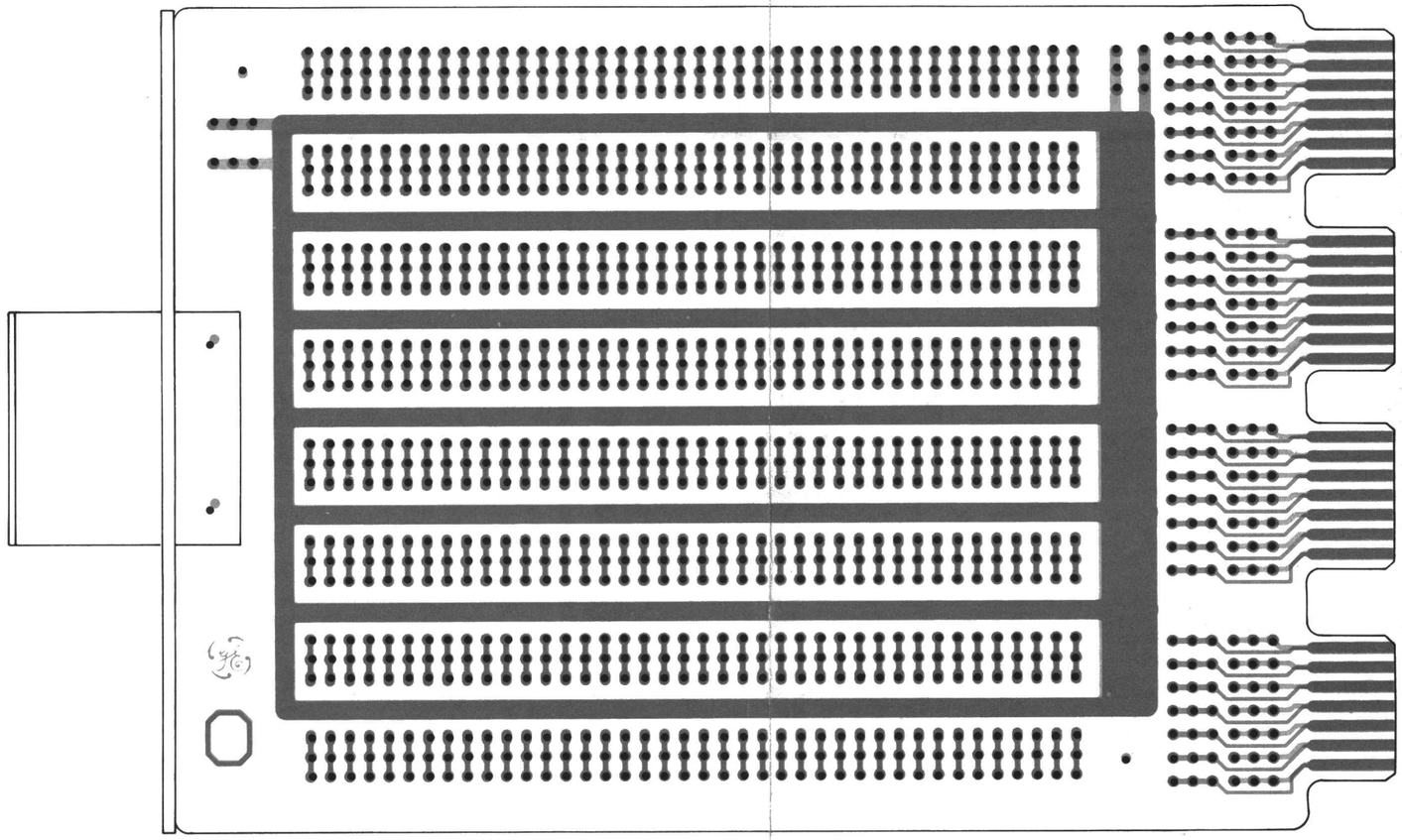
OUTLINE DIAGRAM

EXTENDER BOARD
19D417458G1

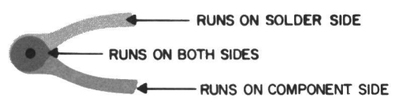


FRONT PANEL: 19D417384P5
HANDLE: 19B219690G1

COMPONENT BOARD 19C320912P1



(19C321422, Rev. 0)
(19B226243, Sh. 1, Rev. 0)
(19B226246, Sh. 2, Rev. 0)



OUTLINE DIAGRAM

FIELD APPLICATION MODULE
19D417941