Std. 4c trunked mods.
pg 13-23

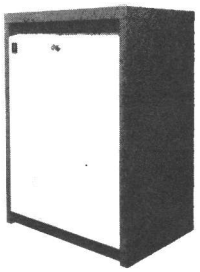
MOBILE RADIO

MASTR® II

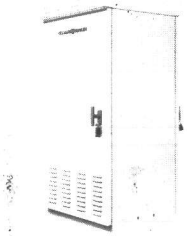
806—870 MHz, 90 WATT SOLID STATE
STATION COMBINATION

MAINTENANCE MANUAL LB130965

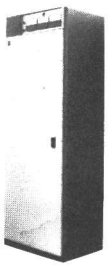
DATAFILE FOLDER - DF9033



DESK MATE
STATION



POLE MOUNT
STATION



FLOOR MOUNT
STATION

GENERAL ELECTRIC

TABLE OF CONTENTS

ILLUSTRATIONS

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage; or to connect any external apparatus to the units while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS.

High-level RF energy in the transmitter Power Amplifier assembly can cause RF burns. KEEP AWAY FROM THESE CIRCUITS WHEN THE TRANSMITTER IS ENERGIZED!

SPECIFICATIONS*

DIMENSIONS (HXWXD)	
Desk Mate	44-1/4" x 21-1/2" x 15"
Pole Mount	45" x 21-1/2" x 21"
Floor Mount	69" x 23" x 21"
WEIGHT	
Desk Mate	280 lbs.
Pole Mount	325 lbs.
Floor Mount	388 lbs.
INPUT VOLTAGE	121/242 VAC, 60 Hertz only (50 Hertz Optional)
AC INPUT POWER	550 Watts
TEMPERATURE RANGE	-30°C to +60°C (-22°F to +140°F)

* These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th & 9th Digits	10th Digit	11th Digit
Mechanical Package	Duty Cycle	RF Power Output Range	Channel Spacing	Control	Number of Freq.	Options	Frequency Range MHz	Oscillator Stability	PA Type
S Desk Mate Cabinet	**C** Continuous Duty	**7** 81—128 Watts	**5** 25 kHz	**E** Local	**A** 1 Tx 1 Rx	**D** Duplex	**96** 851-870 Tx 806-825 Rx	**E** ±1 PPM	**S** Solid-State
P Pole Mount				**J** Local/ Tone Remote		**L** CG/Duplexer			
V Floor Mount				**K** Local/ DC Remote		**S** Standard			
				N Local/ Repeat		**U** CG			
				R DC Remote					
				T Tone Remote					
				U DC Remote Repeat					
				V Tone Remote/ Repeat					
				Y Repeat					

Transmitter FCC Filing No.	Power Output
KT-189-A	90 Watts

DESCRIPTION

The General Electric MASTR® II 806-870 MHz 90 Watt Station is a complete two-way radio station designed for receiving in the 806-825 MHz band and transmitting in the 851-870 MHz band. The station is a continuous duty combination capable of being operated locally or with DC or tone remote control. The station may also be operated as a repeater, receiving and retransmitting signals simultaneously. The station transmitter exciter is located in a shielded compartment in the radio housing front door. See Figures 1 and 2.

The station receiver is also mounted in a shielded compartment in the radio housing front door, along with a system board which accommodates the Channel Guard board. Jacks are provided on the system board for plug-in interface with options and control functions.

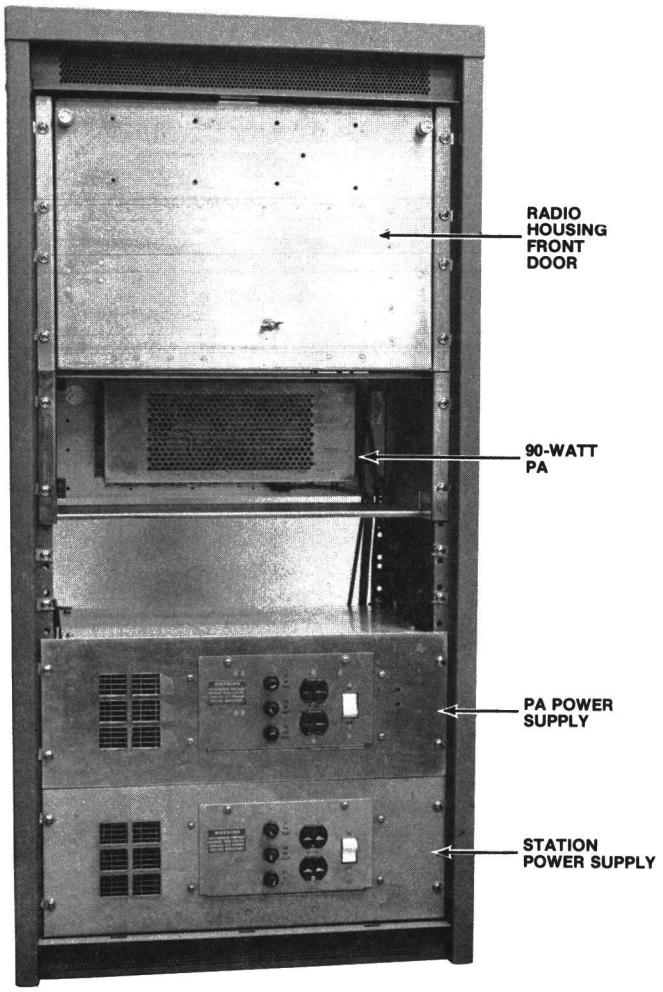


Figure 1 - Base Station, Front View

The station 90-Watt transmitter is a crystal controlled, phase modulated solid state transmitter designed for single frequency operation. The transmitter utilizes both integrated circuits and discrete components and consists of the following modules:

- Exciter Board; with audio, modulator, amplifier and multiplier stages.
- Driver amplifier with power control and low pass filter assembly.
- Power amplifier with low pass filter assembly, with or without antenna relay.

The PA assembly uses four RF power transistors in parallel to provide the rated power output. The output power is adjustable over a range of 30 to 90 Watts.

The PA driver hinges from the bottom rear of the radio housing. The driver consists of a frame mounted to a heat sink. A cover snaps into the frame to form an RF tight enclosure for the driver board assembly.

Directly above the driver assembly is the station control shelf. A mother board is mounted to this shelf which accommodates the 10 Volt Regulator, Audio Control, Repeater Control and DC or Tone Remote Control modules. External connections from the remote control console are made to TB1201, located on the back of the mother board. Local control connections are made by means of a 24 conductor cable from the MASTR® Local Controller.

The station power supply is located at the bottom of the station cabinet. A power switch, primary and secondary fuses and two AC outlets are located on the front panel. A high current fuse is located on the back panel of the power supply. The PA power supply is mounted directly above the station power supply.

INITIAL ADJUSTMENT

After the Station has been installed, the transmitter and receiver must be adjusted by an electronic technician who holds a First or Second Class FCC Radiotelephone or Radiotelegraph license before the station can be placed in operation.

Make sure that a RADIO TRANSMITTER IDENTIFICATION Form (FCC FORM 452-C or General Electric Form NP270303) has been filled out and attached to the transmitter.

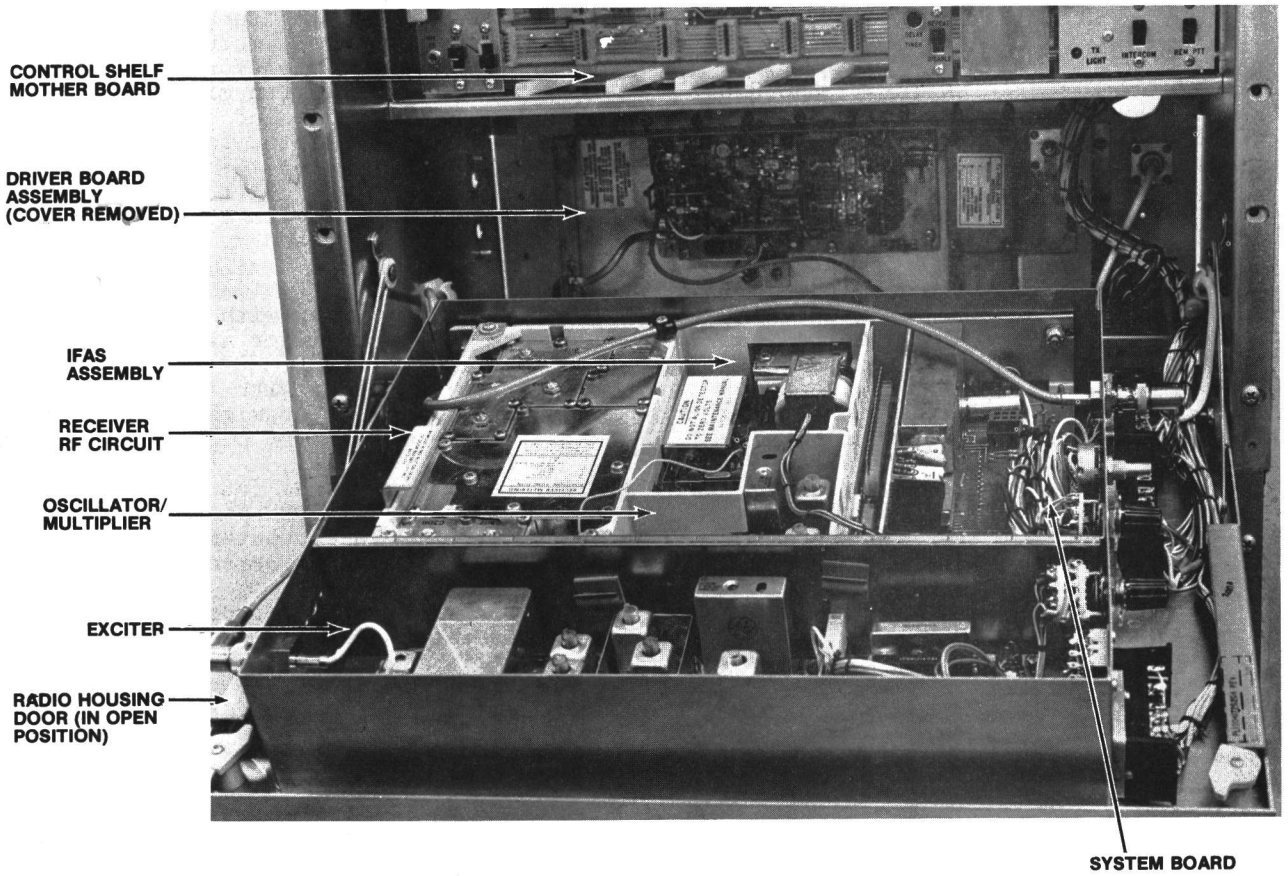


Figure 2 - Radio Housing and Control Shelf

TRANSMITTER ADJUSTMENT

The adjustment for the transmitter includes measuring the forward and reflected power and adjusting the antenna length for optimum ratio, then setting the transmitter to rated power output (or to the specific power output which may be required by the FCC station authorization). Next, measuring the frequency and modulation and entering these measurements on the FCC-required station records.

For complete transmitter adjustments, refer to the ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the transmitter.

RECEIVER ADJUSTMENT

The initial adjustment for the receiver includes tuning the input circuit to match the antenna. Refer to the FRONT END ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the receiver.

To set the station VOLUME control (R3 on the System Board) use the following procedure:

1. Apply a 1000 microvolt on-frequency test signal modulated by 1,000 Hertz with ±3 kHz deviation to the receiver antenna jack J937.
2. Connect an 8.2 ohm, 1 Watt resistor across METERING jack J905 terminals 1 and 2 on the System Board.
3. Connect an AC VTVM across the 8.2 ohm resistor and adjust R3 for a reading of 2.7 Volts RMS on the meter.

CAUTION

Adjustment of VOLUME control to settings higher than instructed in the INITIAL ADJUSTMENT may result in damage to the station service speaker or Local Controller speaker.

4. Disconnect the 8.2 ohm resistor.

To set the station SQUELCH control (R901 on the Receiver/Exciter door) use the following procedure:

1. Turn the SQUELCH control clockwise (to the right) as far as possible.

2. Adjust the VOLUME control on the service speaker (or the VOLUME control on the MASTR® Local Controller in local control installations) until the noise is easily heard in the speaker but is not annoyingly loud.

3. Turn the SQUELCH control counter-clockwise (to the left) until the noise just disappears, then advance control another 20 degrees.

REMOTE/REPEAT ADJUSTMENTS

The transmitter modulation gain, the remote audio input and line output, the drop-out delay timing and the 3-minute limit timing must be adjusted before placing the station in operation. Refer to the MASTR II Repeater Station CONTROL Shelf MAINTENANCE MANUAL (LBI4794) for the Repeater adjustments. Refer to the MASTR II DC Remote Control MAINTENANCE MANUAL (LBI4792) or the Tone Remote Control MAINTENANCE MANUAL (LBI4793) for the remote adjustments.

LOCAL MICROPHONE ADJUSTMENTS

In local control and local/remote or local/repeat applications, the local MIC GAIN control (R14) on the 10 Volt Regulator Board should be adjusted. While talking in a normal voice at four to six inches from the station microphone, adjust MIC GAIN control R14 for a deviation of ±3 kHz as measured on the deviation monitor.

MAINTENANCE

To insure high operating efficiency and to prevent mechanical and electrical failures from interrupting system operations, routine checks should be made of all mechanical and electrical parts at regular intervals. This preventive maintenance should include the checks as listed in the table of Maintenance Checks.

Test and Troubleshooting Procedures

The individual Maintenance Manual for the transmitter and receiver describe standard test procedures which the serviceman can use to compare the actual performance of the transmitter or receiver against the specifications of the unit when shipped from the factory. In addition, specific troubleshooting procedures are available to assist the serviceman in troubleshooting the transmitter and receiver.

REMOVING IC's (and all other soldered-in components) can be easily accomplished by using a de-soldering tool such as a SOLDA-PULLT® or equivalent. To remove an IC, heat each lead separately on the solder

MAINTENANCE CHECK	INTERVAL BETWEEN CHECKS	
	Every 6 Months	As Required
Transmitter Alignment - Compare meter readings at transmitter multiplier metering jacks with voltages read during initial tune up. Touch up multiplier tuning. Check power output. (See Alignment Procedure for Transmitter).		X
Receiver - While receiving an unmodulated signal on the station frequency(s), adjust OSC-1 trimmer for a zero discriminator reading. (See the Receiver Alignment Procedure MAINTENANCE Section).		X
Transmission Line - Check for positive indication of pressure on transmission line pressure gauge (if pressurized line is used).	X	
Antenna - Check antenna & mast for mechanical stability.	X	
Mechanical Inspection - Visually check cables, plugs, sockets, terminal boards & components for good electrical connections. Check for tightness of nuts, bolts & screws to make sure that nothing is working loose from its mounting.	X	
Cleaning - Use a vacuum cleaner to remove dust which has accumulated inside the cabinet.	X	
Frequency Check - Check transmitter frequency & deviation as required by FCC.		X

side and remove the old solder with the de-soldering tool.

An alternate method is to use a special soldering tip that heats all of the pins simultaneously.

SYSTEM DESCRIPTION

Receiver

The station receiver consists of an Oscillator/Multiplier Assembly (OSC/MULT), RF Assembly, IF Detector and an IF-Audio and Squelch Assembly (IFAS). Refer to the Receiver MAINTENANCE MANUAL for a complete description of the station receiver.

Transmitter

The station transmitter consists of an exciter board assembly, a power amplifier driver and a power amplifier output tube assembly. Refer to the Transmitter MAINTENANCE MANUAL for a complete description of the station transmitter.

System Board A901

The station System Board is located on the radio panel front door and the receiver modules plug directly into the board. Along the edge of the System Board are two connectors which interconnect to the Control and Audio modules and to the power supply.

Plug-in Channel Guard and other option jacks are provided. A metering jack is provided for accommodating the General Electric 4EX3A11 Test Set. VOLUME control R3 is located on the System Board. SQUELCH control R901 is located on the receiver/exciter door.

VOLUME/SQUELCH HI from the receiver Audio Pre-Amp is connected via J904-12 to the VOLUME (R3) and SQUELCH (R901) controls. The VOLUME control arm is returned to the receiver IFAS board where the audio is amplified by the receiver Aduio Power Amplifier circuit. The audio output of the PA is then connected to the speaker leads at P904-18 and -19.

DC Remote Control

In DC Remote Control systems, the control modules on the control shelf utilize DC currents selectively applied to a telephone pair at a remote control console. These DC currents activate circuits in the control modules to perform the desired functions. Refer to the MASTR II DC Remote Station Control Shelf MAINTENANCE MANUAL (LBI4792) for a complete description of this system.

Tone Remote Control

A maximum of twelve different functions can be performed in the Tone Remote Control system. This is accomplished by applying two or three tones in sequence at the prescribed level to the transmission medium at a remote control console for detection at the control module on the control shelf. Refer to the MASTR II Tone Remote Station Control Shelf MAINTENANCE MANUAL (LBI4793) for a complete description of this system.

10 Volt Regulator/Control Board 19D417401G1

This board consists of a 10 Volt, 1/2 Ampere regulator; a 10 Volt, 2 Ampere regulator; a 20 dB preamplifier for providing the proper audio level for the transmitter exciter when using a local desk microphone; a keying switch for sequencing the antenna relay; a receiver muting circuit.

The 13.8 Volts DC from the station power supply low current filter is applied to terminal D5 of the regulator. This current is filtered by choke L1 and applied to the 10 Volt, 1/2 Amp hybrid regulator consisting of A1-Q1 and integrated circuit U1. This regulator feeds the receiver and transmitter oscillators, providing the close tolerance (±1%) required by these modules.

The 13.8 VDC input is also applied to the 10 Volt, 2 Amp regulator consisting of A3-Q1, Q3, Q4 and zener diode VR1. When the output of the regulator starts to increase, Q4 conducts harder. Q3 conducts less, causing A3-Q1 to conduct less. This increases the voltage drop across A3-Q1, keeping the output voltage constant. Potentiometer R4 is used to set the base voltage of Q4 for the desired 10 Volt output. This regulator supplies the station exciter, the receiver control circuits and the station accessories.

Diodes CR2-CR5 form a PTT OR gate. Applying a ground to any one of the PTT inputs forward biases the diode connected to that input, turning on Q5. Conduction of Q5 operates Q6, applying ground to the antenna relay lead A10. This ground is also applied to the cathode of the Light Emitting Diode (LED) CR15 (TX LIGHT) turning the light on. Pin 8 on the regulator hybrid U1 is also grounded. Capacitor C1 starts to charge. In 15 milliseconds C1 is charged to a voltage high enough to allow the time delay switch in U1 to turn on.

Operation of the time delay switch causes the transmitter oscillator control switch in U1 to turn on. +10 Volts is applied via pin 14 of U1 to the transmitter ICOM(s), keying the transmitter. The 15 millisecond delay in the transmitter oscillator keying circuit allows the antenna relay to energize before RF is applied to the relay. When the PTT is released, CR6 delays

the antenna relay from de-energizing until the RF is removed from the contacts.

When one of the PTT input leads is grounded, CR8 is also forward biased, turning on Q11. Conduction of Q11 operates Q1 and Q12, applying ground to the RX 1 MUTE and RX 2 MUTE leads. If REPEATER PTT (D3) is grounded, CR9 is forward biased, preventing Q12 from conducting to allow the normal repeater system to function.

When a local desk microphone is used with the station, the microphone audio is connected via B1 to the input of the MIC PRE AMP, consisting of Q2, Q7, Q8 and Q9. The audio is amplified by Q7 and the amplified audio level is adjusted by MIC GAIN control R14. The audio is further amplified by Q2 and Q8 and applied to the source lead of FET Q9. Q10 is normally conducting, keeping the gate of Q9 grounded and preventing the audio from passing. When the LOCAL PTT switch is operated, CR7 is forward biased, turning off Q10. FET Q9 is now allowed to conduct, passing the local audio to the transmitter modulator.

Service switches provided on the Regulator include the TX DISABLE/INTERCOM switch S1 which grounds the TX DISABLE path to permit the serviceman to use the intercom without keying the transmitter; the REMOTE PTT switch S2 which allows the adjustment of remote line levels by keying the remote PTT path in remote control systems.

Channel Guard

In Local/Remote Stations equipped with Channel Guard, the 19D417261G1 Channel Guard Board is plugged into the System Board at P908 and P909. The MASTR II receiver is equipped with a tone reject filter to prevent the CG tone from being heard in the station speaker. In addition, the transmitter has a Channel Guard modulation control to adjust for proper deviation.

Channel Guard is a continuous-tone controlled squelch system that provides commuications control in accordance with EIA standard RS-220. The system utilizes standard tone frequencies from 71.9 to 203.5 Hertz with both the encoder and decoder operating on the same frequency. The STE circuit (Squelch Tail Eliminator) employs a phase shift of approximately 180° in the encode function to eliminate undersirable noise bursts after each transmission.

The CG encoder operates in conjunction with the station receiver to inhibit all calls that are not tone coded with the proper Channel Guard tone frequency. The VOLUME/SQUELCH output of the receiver is applied to the Channel Guard decoder at P908-1. As long as no signal is received properly coded, a ground is supplied through P908-5 to mute the receiver. When a properly coded signal is received, the receiver is unsquelched and the desired signal is heard.

In duplex combinations, a separate encoder is used in the exciter and a separate decoder is used in the receiver. The Encoder (19C321162G1) is located in the transmitter exciter compartment and the CG Decode Board (19D417261G6) is plugged into the System Board at P908 and P909.

A Channel Guard Filter is added to the Audio Board which attenuates frequencies below 203.5 Hertz to prevent the Channel Guard tone from being applied to the transmitter modulator input or the remote audio line.

A Repeater will not key in Channel Guard systems unless the received signal is coded with the proper Channel Guard tone. The CG MON function, when selected at the Local Controller, will not allow the Repeater to key on an uncoded input signal but will allow the Remote Control operator to hear all channel activity.

Intercom Board 19C320671G2

The Intercom Board, when used, plugs into J934 on the A901 System Board. This board allows monitoring of the remote audio line and intercommunication between the base station and the remote control dispatcher. If the station receiver unsquelches, the received audio will be switched to the station speaker and the receiver audio will override the line audio.

When monitoring the line, both the INTERCOM switch S1 on the 10 Volt Regulator/Control Board and LOCAL CONTROLLER are in the OFF (UP) position. The line audio is coupled to the Intercom Board from the compressor amplifier on the Remote Audio Board. FET switch Q6 is normally conducting and the audio is passed to the station receiver audio amplifier through MONITOR LEVEL ADJUST control R15. The amplified audio from the receiver PA is then coupled to the station speaker.

To communicate with the dispatcher from the station, the INTERCOM switch on the MASTR Local Controller is depressed or, when using the station service microphone, it is necessary to depress the INTERCOM switch on the 10 Volt Regulator and key the service microphone. Depressing the INTERCOM switch on the 10 Volt Regulator disables the station transmitter.

Depressing the LOCAL PTT switch applies a ground to J934-1 on the Intercom Board. CR1 is forward biased, turning off normally-conducting Q5. This allows FET Q4 to conduct. Audio from the local microphone is coupled by means of C1 to pre-amplifier Q1. The MIC LEVEL ADJUST Control R33 is in the collector circuit of Q1. The adjusted audio is connected to amplifier Q2-Q3. The INTERCOM AUDIO SWITCH Q4 passes the local microphone audio to the line. The ground from the LPTT lead turns off LOCAL MUTE transistor Q9 to allow Q10 to conduct, grounding

the gate of Q6 and disabling the line monitor.

Built-in Metering (Options 9726, 9727, 9728

Option 9726 provides a TRANSMITTER tuning meter and a RECEIVER tuning meter on vertical mount cabinets. Option 9727 provides TRANSMITTER and RECEIVER tuning meters as well as an AC LINE meter on the vertical mount cabinet. Refer to LBI4845 for detailed installation instructions for this option.

Option 9728 provides an internal Card Edge Metering Kit. The Card Edge Meter plugs into the Station Control Shelf. A switch assembly is also provided to allow metering the transmitter and receiver test points. LBI4848 provides detailed installation instructions for this option.

Heatsink Blower Kit

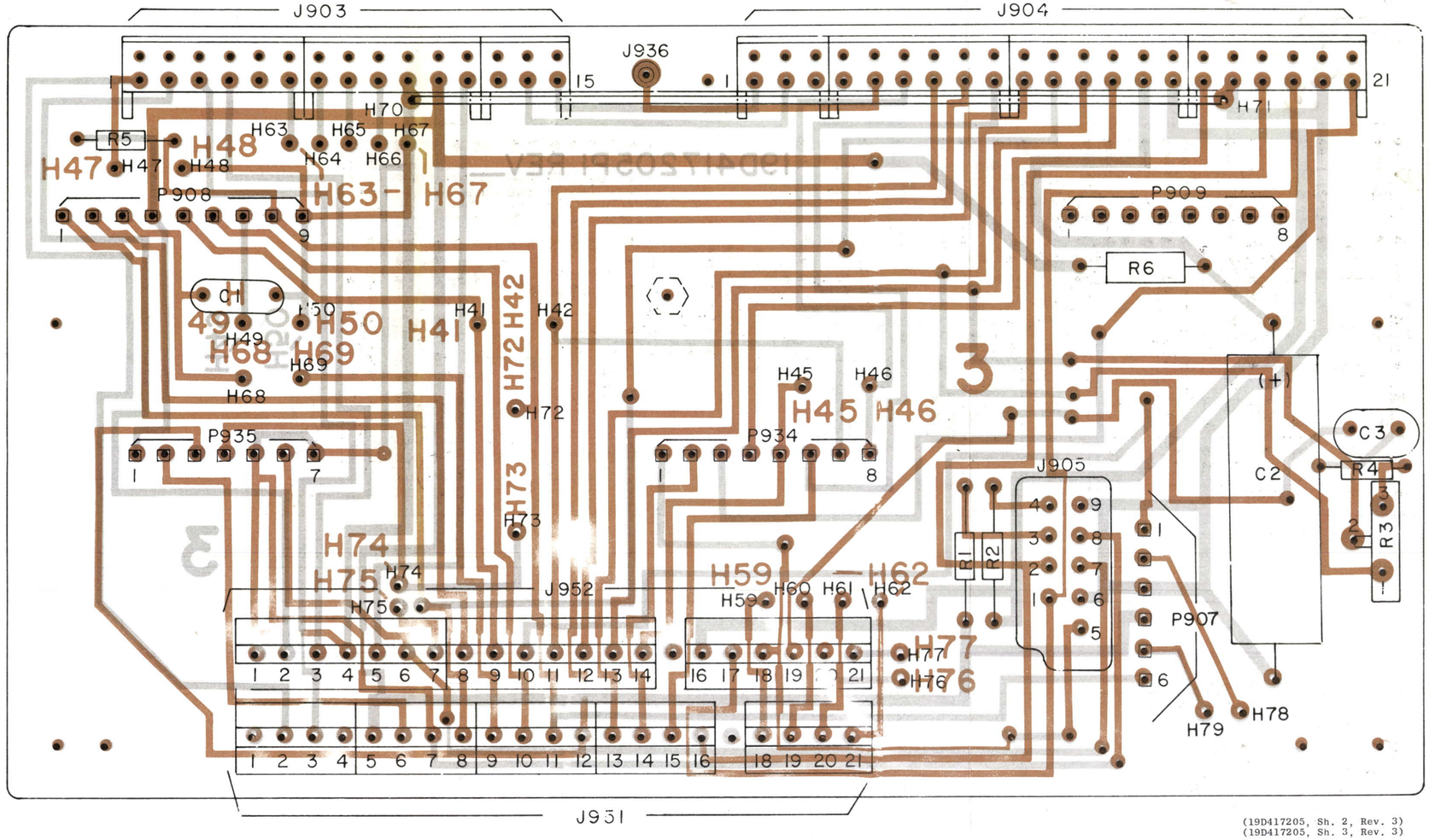
A Heatsink Blower Kit is available when the station is mounted in a Pole Mount Cabinet. The blower kit is available as an option when the station is mounted in a Vertical Mount or Desk Mate cabinet or when the station is operated from a 240 VAC source. Refer to the Table of Contents for installation instructions of these options.

Isoplexer (Option 9736)

If duplex operation of the station from a single antenna is required, Option 9736 provides a 19B233661P1 Isoplexer and two 19A136932 coax cables for this application. Refer to the Table of Contents for Installation Instructions of this option.

GENERAL ELECTRIC COMPANY • MOBILE COMMUNICATIONS DIVISION
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

GENERAL ELECTRIC*
U.S.A.



(19D417205, Sh. 2, Rev. 3)
(19D417205, Sh. 3, Rev. 3)

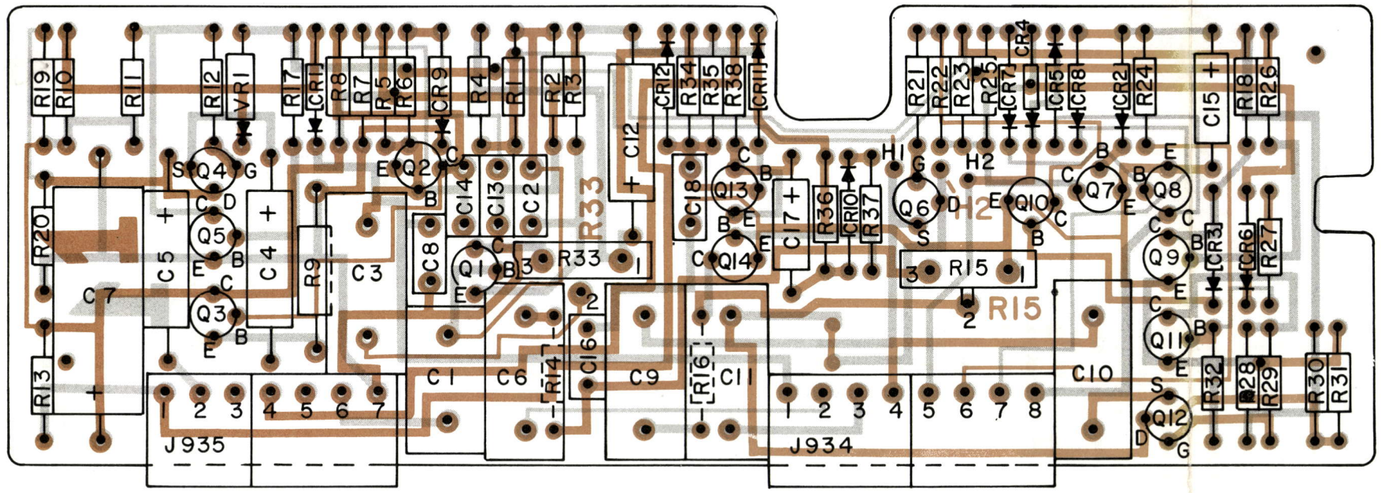
REFER TO WIRING DIAGRAM FOR THE FOLLING CONNECTIONS	
FROM	TO
H41	H42
H50	H77
H45	H46
H47	H48
H68	H69
H49	H76

(19D423147, Rev. 1)

RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE

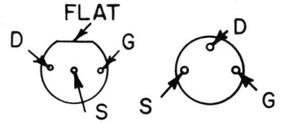
OUTLINE DIAGRAM

SYSTEM BOARD A901



(19C321454, Rev. 3)
(19C320669, Sh. 2, Rev. 1)
(19C320669, Sh. 3, Rev. 1)

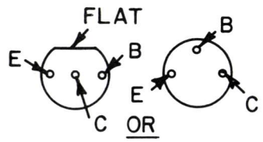
LEAD IDENTIFICATION
FOR Q4, Q6 & Q12



IN-LINE OR TRIANGULAR
VIEW FROM LEAD END

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

LEAD IDENTIFICATION
FOR Q1-Q3, Q5, Q7-Q11 Q13 & Q14

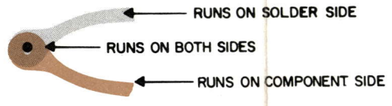


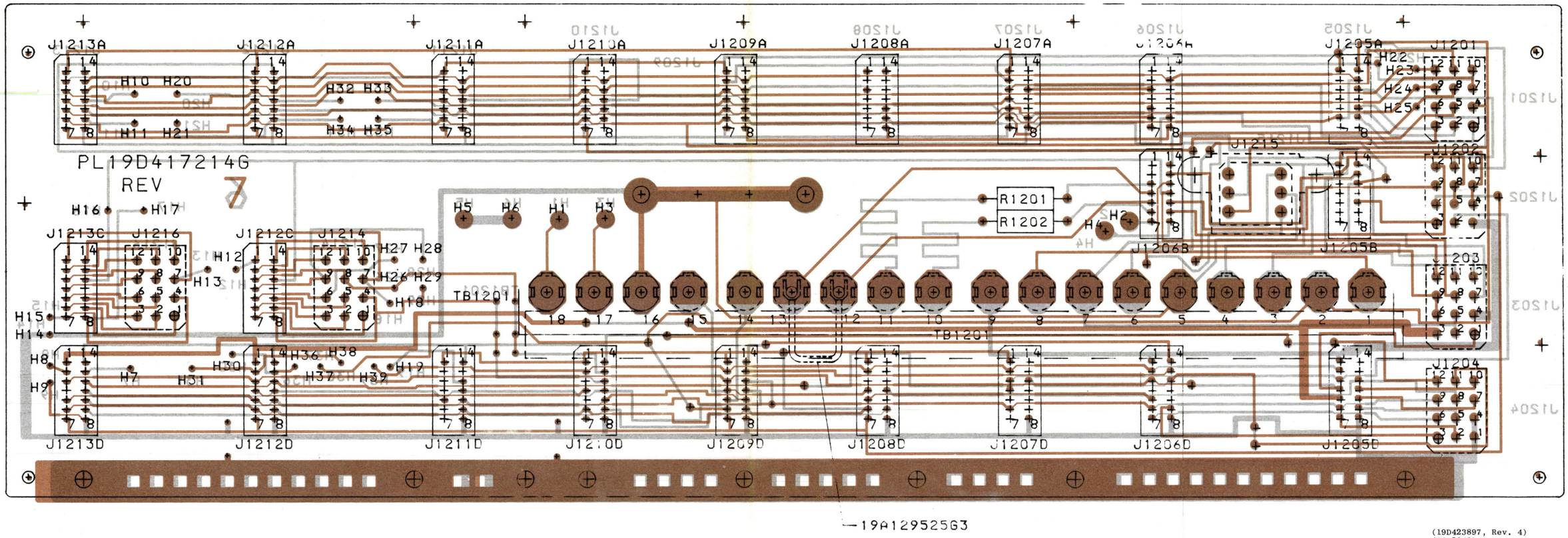
IN-LINE TRIAGULAR
VIEW FROM LEAD END

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

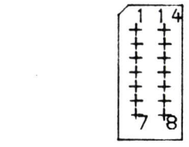
OUTLINE DIAGRAM

INTERCOM BOARD 19C320671G2

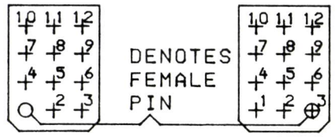




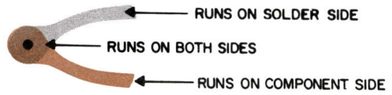
(19D423897, Rev. 4)
(RC-2943)
(19D423597, Sh. 1, Rev. 7)
(19D423597, Sh. 2, Rev. 6)



TYP. MOUNTING
FOR J1205-J1213

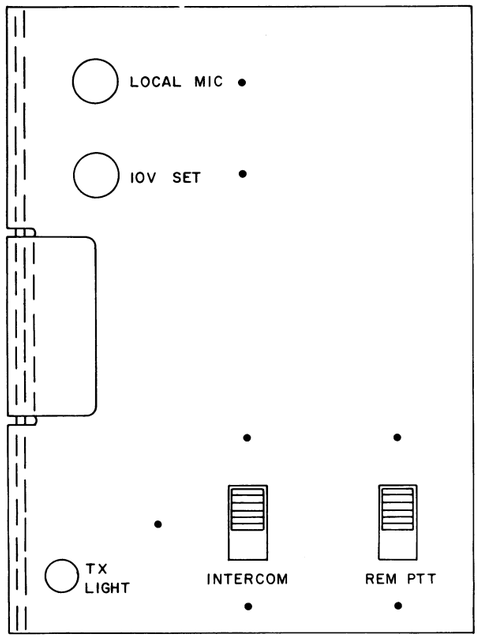


TYP. MOUNTING
FOR J1202&1204
FARSIDE VIEW

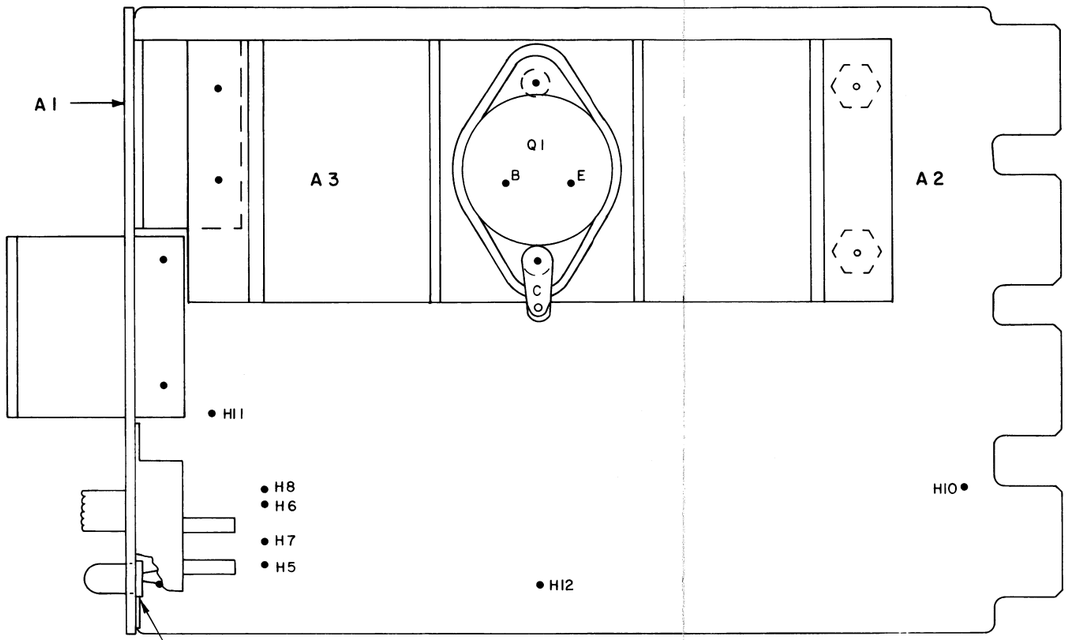


OUTLINE DIAGRAM

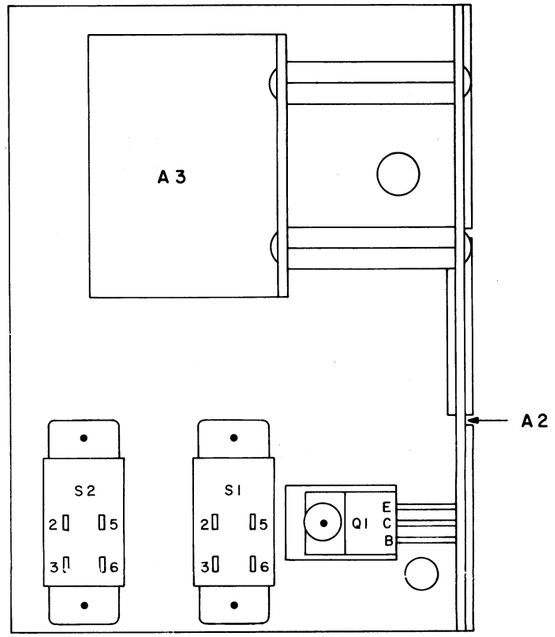
CONTROL SHELF MOTHER BOARDS
19D417214



FRONT PANEL (A1)



FLANGE OF DIODE MUST BE MOUNTED FLUSH AGAINST PANEL.



FRONT PANEL (A1)
REAR VIEW

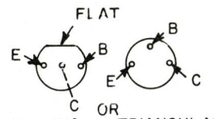
REFER TO WIRING DIAGRAM FOR THE FOLLOWING CONNECTIONS.	
FROM	TO
A3-Q1-B	A2-H11
A3-Q1-C	A2-H10
A3-Q1-E	A2-H12
A1-S1-3	A2-H5
A1-S1-2	A2-H6
A1-S2-3	A2-H7
A1-S2-2	A2-H8

(19D423128, Rev. 0)

OUTLINE DIAGRAM

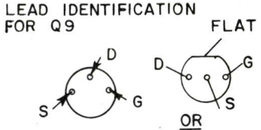
10 VOLT REGULATOR/CONTROL BOARD
19D417401G1

LEAD IDENTIFICATION
FOR Q3, Q5-Q8, Q11



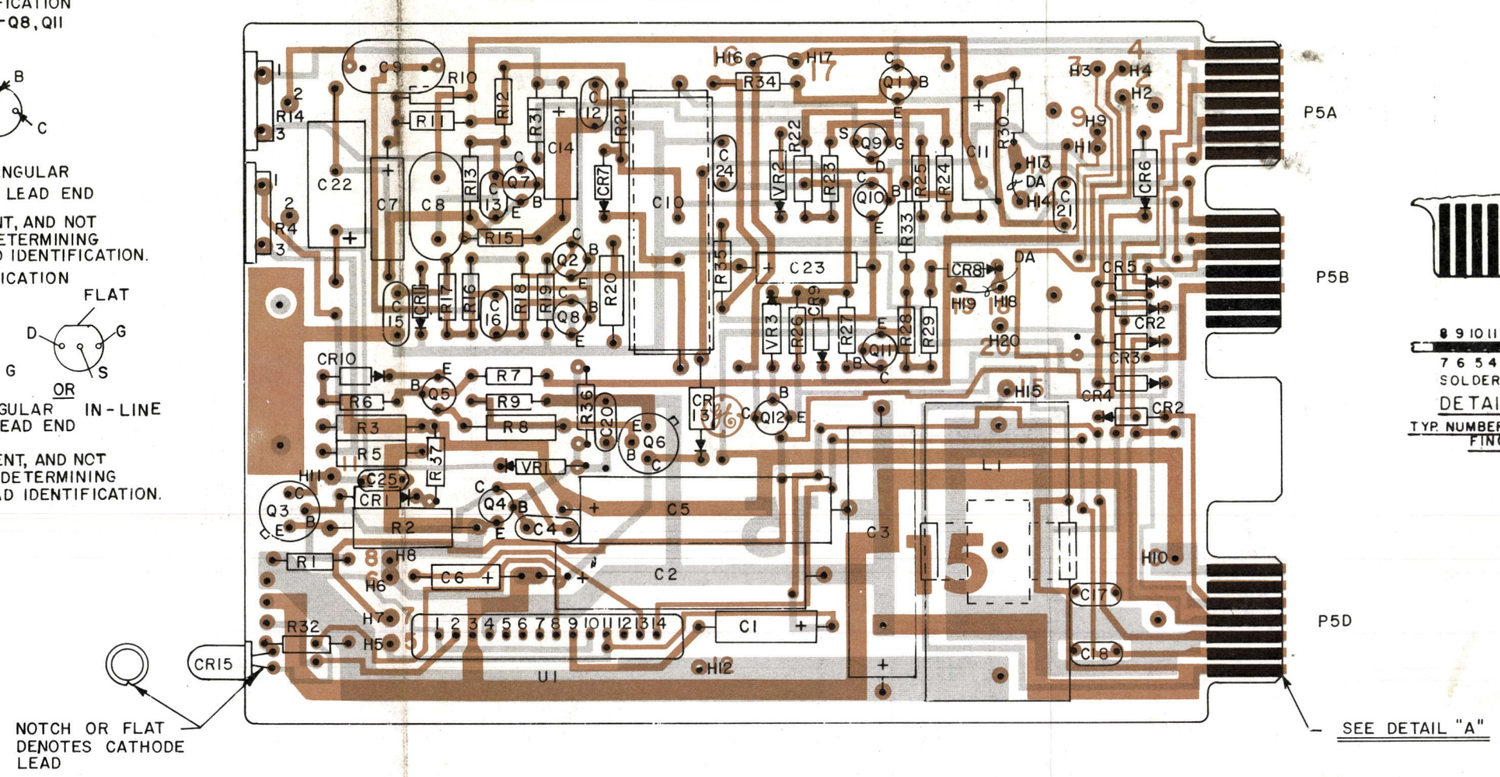
NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

LEAD IDENTIFICATION
FOR Q9



NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

COMPONENT BOARD A2

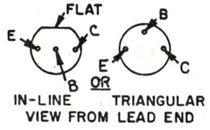


8 9 10 11 12 13 14
7 6 5 4 3 2 1
SOLDER SIDE

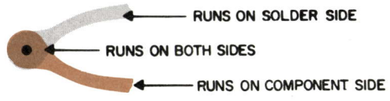
DETAIL "A"
TYP. NUMBERING OF CONT. FINGERS

REFER TO WIRING DIAGRAM FOR THE FOLLOWING CONNECTIONS.	
FROM	TO
H2	H1
H3	H9

LEAD IDENTIFICATION
FOR Q1-Q2, Q4, Q10, Q12



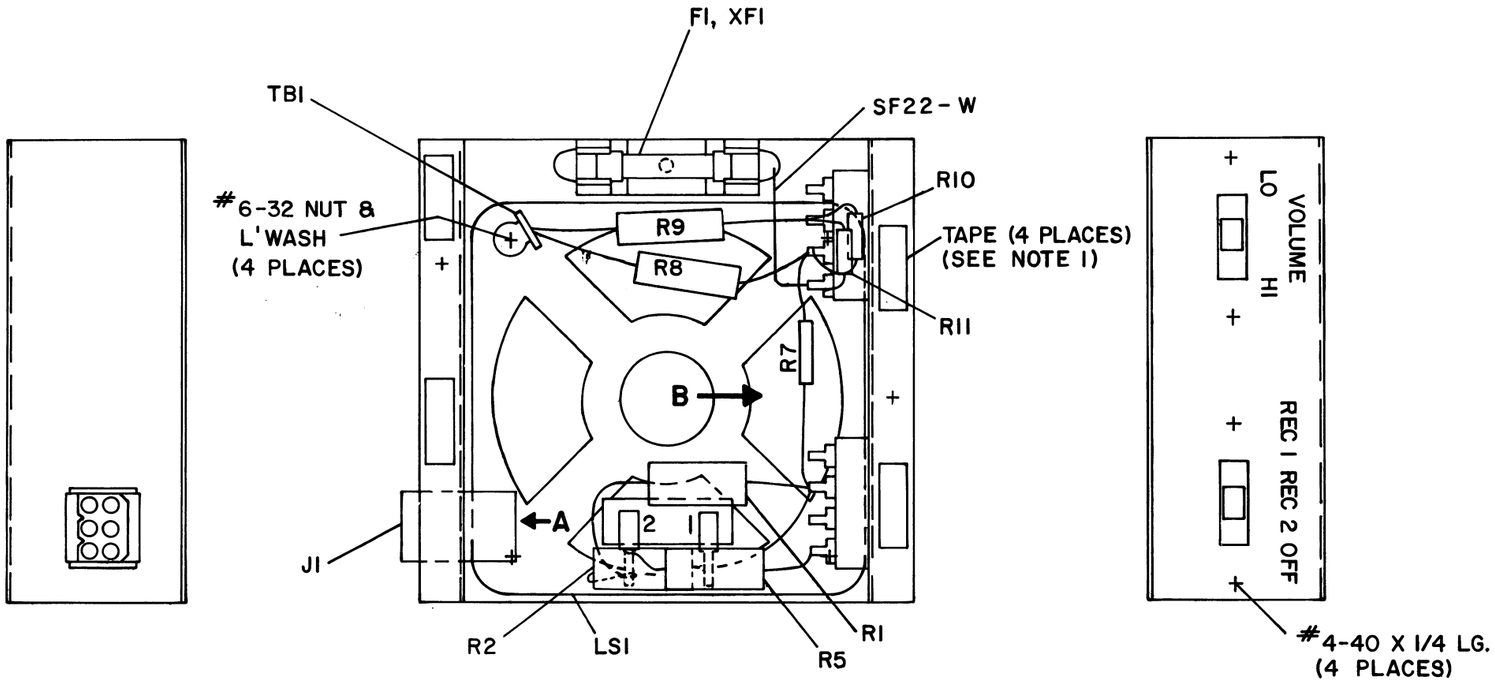
NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.



(19D423132, Rev. 13)
(19D417241, Sh. 2, Rev. 15)
(19D417241, Sh. 3, Rev. 15)

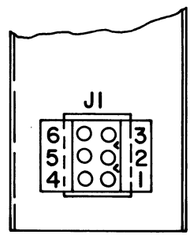
OUTLINE DIAGRAM

10 VOLT REGULATOR/CONTROL
COMPONENT BOARD A2

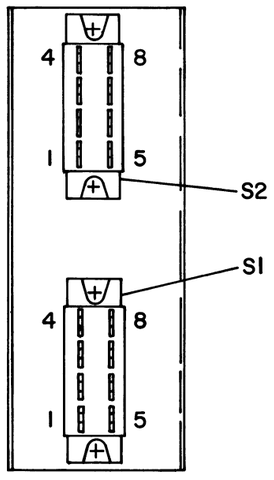


NOTES:

1. INSTALL TAPE ALONG FLANGE, ONE ON EACH SIDE OF MOUNTING HOLES.



VIEW A



VIEW B

OUTLINE DIAGRAM

SERVICE SPEAKER 19C320728G2 (19C328482, Rev. 3)

12 Issue 1

P8 (outside plug)

P7 (middle plug)

P6 (inside plug)

Moded G/W From J932-5 to J932-19 (comes from P952-19)

J938 ● W902 ▲ W906 → P101-TO TX EXCITER J101

EXCITER J933

CG LO	2	SHIELD
CG HI	3	N22SJ-G
A-	4	BK
TRANS AUDIO LO	5	BR
TRANS AUDIO HI	6	DA (SEE NOTE 3) R
10V REG	7	G
TRANSMIT F1	8	BL
TRANSMIT F2	9	W-BK-O
TRANSMIT F3	10	W-BL-O
TRANSMIT F4	11	W-G-O
TX OSC CONTROL	12	W-R-BK

W904

P901 / P902 **TX EXCITER**

DA	2	SPARE
	3	CG HI
	4	CG LO
	5	A-
	6	TRANS AUDIO LO
	7	TRANS AUDIO HI
	8	10V REG
	9	TX F1
	10	TX F2
	11	TX F3
	12	TX F4
	13	TX OSC CONTROL

SQUELCH R901 10K — TO J932-17

1	W	
2	W-V	J932-2
	W-V	P952-12
3	W-R	J932-4
	W-R	P951-13

RX SYSTEM J932

METER	1	
SQ ARM	2	W-V R901-2
VOL SQ HI	3	G-W P952-19
VOL SQ LO	4	W-R R901-3
SPARE	5	W-BK-O P951-18
SPARE	6	W-BL-O P951-19
CG DEC OUT	7	W-R-BK P952-9
TX CG DISABLE	8	DA W-O-BL P952-8
CG HI	9	N22SJ G P952-20
CG LO	10	SHIELD
SPKR HI	11	#18-R P952-17
SPKR LO	12	#18-BR P951-16
SPARE	13	
VOTING	14	G-BK-O P952-7
TX DISABLE	15	W-G-O P952-10
PSLM A	16	P951-8
PSLM B	17	W R901-1
CAS	18	G-R P951-15
SPARE	19	→ P952-19
METER +	20	

RX SYSTEM J931

A-/GND	1	#18-BK P952-4
RECEIVE F1	2	W-R-BL P951-2
RECEIVE F2	3	W-BL-R P952-2
RECEIVE F3	4	W-BL-G P951-3
RECEIVE F4	5	G-BK-R P952-3
	6	
COMBINED PTT	7	BR-G P951-10
DELAYED PTT	8	BR-O P951-11
10V SYSTEM	9	G-W-O P951-5
RX OSC CONTROL	10	G-W-R P952-5
LOCAL MIC LO	11	BR-R P951-7
LOCAL MIC HI	12	W-GA P952-6
COMP AUDIO	13	W-O-R P951-14
LOCAL PTT	14	BL P952-18
AUDIO TO LINE	15	G P951-6
SQ DISABLE	16	R P952-14
RX MUTE	17	BR P952-11
RUS	18	BK P951-12
CG MONITOR	19	O P951-9
A+	20	#18-O P952-16

W903

P908 CHANNEL GUARD — VOL/SQ HI — TX C G DISABLE — C G DISABLE — 10V SYS — RX MUTE/C G OUT — COMBINED PTT — C G HI — DELAYED PTT — A-/C G LO — P909 CHANNEL GUARD

TO J932-9 — N22SJ G P952-20 J952-20 H76 — N22SJ-G H49
SH P952-21 J952-21 H77 — SHIELD H50
J932-8 W-O-BL P952-8 J952-8
J932-7 W-R-BK P952-9 J952-9
J931-19 O P951-9 J951-9 — DA H69 / H68 SEE NOTE 4
J931-2 W-R-BL P951-2 J951-2
J931-3 W-BL-R P952-2 J952-2
J931-4 W-BL-G P951-3 J951-3
J931-5 G-BK-R P952-3 J952-3
P952-1 J952-1
J931-7 BR-G P951-10 J951-10
J931-8 BR-O P951-11 J951-11
J931-1 #18-BK P952-4 J952-4
J931-9 G-W-O P951-5 J951-5
J931-10 G-W-R P952-5 J952-5
J932-5 W-BK-O P951-18 J951-18 — H59
J932-6 W-BL-O P951-19 J951-19 — H60
P951-20 J951-20 — H61
P951-21 J951-21 — H62
J931-11 BR-R P951-7 J951-7
J931-12 W-GA P952-6 J952-6
J931-13 W-O-R P951-14 J951-14
J931-14 BL P952-18 J952-18
J931-15 G P951-6 J951-6
J932-14 G-BK-O P952-7 J952-7
P951-4 J951-4
P951-1 J951-1
J931-16 R P952-14 J952-14
J931-17 BR P952-11 J952-11
J931-18 BK P951-12 J951-12
J932-18 G-R P951-15 J951-15
R901-2 W-V P952-12 J952-12
P932-16 W P951-8 J951-8
R901-3 W-R P951-13 J951-13
P952-13 J952-13
J931-20 #18-O P952-16 J952-16
J932-3 G-W P952-19 J952-19
J932-12 #18-BR P951-16 J951-16
J932-11 #18-R P952-17 J952-17
J932-15 W-G-O P952-10 J952-10

C1 0.1UF (H41) — SEE NOTE 4 — DA H42
R5 3.3K — H67
H47 DA SEE NOTE 2 H48 — H70
SEE NOTE 5 H45 DA H46
H72 SEE NOTE DA H73 H75 H74
RX LEVEL R3 10K — R4 22K — C3 .068UF
R6 3.3 1/2W — C2 400UF — H71
H78 — H79

190417213G1

A901 SYSTEM BOARD

J903 / P903 **RX OSC/MULT**

	1	RX F1
	2	RX F2
	3	RX F3
	4	RX F4
	5	
H63	6	RX F5
H64	7	RX F6
H65	8	RX F7
H66	9	RX F8
	10	A-
	11	10V SYS
	12	RX OSC CONTROL
	13	SPARE
	14	MULT 1
	15	MULT 2

198219761P3

J936 BLKR DISABLE

J904 / P904 **RX IFAS**

	1	MULT 2
	2	MULT 1
	3	
	4	
	5	BLKR DISABLE
	6	SQ DISABLE
	7	RX MUTE
	8	RUS
	9	CAS
	10	SQ ARM
	11	VOL SQ HI
	12	VOL SQ LO
	13	VOL ARM
	14	10V SYSTEM
	15	A+
	16	RX PA
	17	A-
	18	SPKR LO
	19	SPKR HI
	20	PA-
	21	STATION INTERCOM

J905 METERING: SPKR HI, SPKR LO, 10V SYSTEM, A+, LOCAL PTT, A-, LOCAL MIC HI, LOCAL MIC LO, A-

P935 INTERCOM/RECEIVER VOTING: 10V SYS, AUD TO LINE, RUS, VOTING, A-, LOCAL MIC HI, LOCAL MIC LO

P934 INTERCOM: LOCAL PTT, COMP AUDIO, STATION INTERCOM, AUDIO FROM RX PA, SQ DISABLE "A", CAS, RX MUTE, SQ DISABLE "B"

P907 CARRIER CONTROL TIMER: TX DISABLE, SQ DISABLE, A-, 10V SYSTEM, VOL/SQ HI, DELAYED PTT

J937 2 — ● W901 ▲ W905 → P301-TO RX ANT J301

NOTES:
1. ALL WIRE 5F22 UNLESS NOTED.
2. JUMPER FROM A901-H47 TO A901-H48 PRESENT IN SINGLE FREQUENCY RECEIVE STATIONS.
3. DA FROM J933 PIN 4 TO PIN 6 PRESENT IN SINGLE FREQ TRANSMIT STATIONS.
4. JUMPER FROM A901 H41 TO A901-H42 AND A901-H69 TO A901-H68 PRESENT IN ALL STATIONS EXCEPT CHANNEL GUARD REPEATER; OR CHANNEL GUARD REMOTE/REPEAT STATION.
5. JUMPER FROM A901-H45 TO A901-H46 NOT PRESENT WITH INTERCOM.
6. CARRIER CONTROL TIMER MAY NOT BE USED IN T-1 REPEATER OR C G REMOTE/REPEAT STATIONS.
7. IN 2 WIRE DC CONTROL SYSTEMS WITH VOTING TONE BOARD, JUMPER FROM A901-H74 TO A901-H75 IS NOT PRESENT. JUMPER FROM A901-H72 TO A901-H73 IS PRESENT.
   IN 4 WIRE STATIONS WITH VOTING TONE BOARD, JUMPERS H74 - H75, H72 - H73 ARE NOT PRESENT.
8. ▲ 800 MHz
   ● LB HB & 450 MHz

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

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
PLI9D417213G1	A
PLI9D417262G1	
PLI9D417262G4	

(19E501154, Rev. 13)

SCHEMATIC DIAGRAM

RADIO HOUSING FRONT DOOR 19D417262G4

Issue 1

PARTS LIST

LBI-30566

MASTR II 800 MHz STATION RADIO PANEL
FRONT DOOR ASSEMBLY
19D417262G4

SYMBOL	GE PART NO.	DESCRIPTION
		DOOR ASSEMBLY 19D417262G4
A901		COMPONENT BOARD 19D417213G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116080P7	Polyester: 0.1 µf ±20%, 50 VDCW.
C2	19A115680P24	Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C3	19A116080P106	Polyester: 0.068 µf ±10%, 50 VDCW.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J903		Connector. Includes:
	19A116659P1	Connector: 3 contacts; sim to Molex 09-52-32. (Quantity 1).
	19A116659P4	Connector: 6 contacts; sim to Molex 09-52-3062. (Quantity 2).
J904		Connector. Includes:
	19A116659P1	Connector: 3 contacts; sim to Molex 09-52-3032. (Quantity 1).
	19A116659P4	Connector: 6 contacts; sim to Molex 09-52-3062. (Quantity 3).
J905	19B219374G2	Connector: 9 contacts.
J936	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J951		Connector. Includes:
	19A116659P13	Connector: 4 contacts; sim to Molex 09-64-1041. (Quantity 5).
J952		Connector. Includes:
	19A116659P11	Connector: 7 contacts; sim to Molex 09-64-1071. (Quantity 2).
	19A116659P12	Connector: 6 contacts; sim to Molex 09-64-1061. (Quantity 1).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P907	19A116779P1	Contact, electrical: sim to Molex 08-50-0404. (Quantity 6).
P908	19A116779P1	Contact, electrical: sim to Molex 08-50-0404. (Quantity 9).
P909	19A116779P1	Contact, electrical: sim to Molex 08-50-0404. (Quantity 8).
P934	19A116779P1	Contact, electrical: sim to Molex 08-50-0404. (Quantity 8).
P935	19A116779P1	Contact, electrical: sim to Molex 08-50-0404. (Quantity 7).
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19C314256P22803	Metal film: 280K ohms ±1%, 1/4 w.
R3	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R4	3R152P222J	Composition: 2.2K ohms ±5%, 1/4 w.
R5	3R152P332J	Composition: 3.3K ohms ±5%, 1/4 w.
R6	7147161P15	Composition: 3.3 ohms ±5%, 1/2 w.
		- - - - - - - - - - CABLES - - - - - - - - - -
W903		CABLE ASSEMBLY 19D417262G2
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J931 and J932	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P951 and P952		Connector. Includes:
	19A116659P25	Shell.
	19A116781P5	Contact, electrical: wire No. 16-20 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire No. 22-26 AWG; sim to Molex 08-50-0108.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms ±20%; sim to Mallory LC(10K).
W904		EXCITER CABLE 19D417262G3
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J933	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P901		Connector. Includes:
	19A116659P25	Shell.
	19A116781P5	Contact, electrical: wire No. 16-20 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire No. 22-26 AWG; sim to Molex 08-50-0108.
W905		CABLE ASSEMBLY 19A136930G2
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J937	19A115938P12	Connector, receptacle: (BNC Series); sim to Amphenol 31-342.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P301	19A134357P8	Cable, RF: approx 21 inches long.
W906		CABLE ASSEMBLY 19A136930G1
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J938	19A115938P1	Connector, receptacle: (BNC Series); sim to Amphenol 31-318.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101	19A134357P6	Cable, RF: approx 6 inches long.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19C320679G1	Door.
	19B218178P1	Pawl. (Part of door latch).
	19C318151P1	Knob. (Part of door latch).
	N193P1208C6	Tap screw: No. 6 x 1/2. (Part of door latch).
	5493361P8	Washer, spring tension. (Part of door latch).
	19A121676P1	Guide pin. (Used with J931-J933).
	19B209519P1	Polarizing tab. (Used with P901, P951, P952).
	7115130P9	Lockwasher: sim to Shakeproof 1220-2. (Used with R901 mounting).
	7165075P2	Hex nut, brass: No. 3/8-32. (Used with R901 mounting).
	19A115874P1	Catch, friction. (Latches A901).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

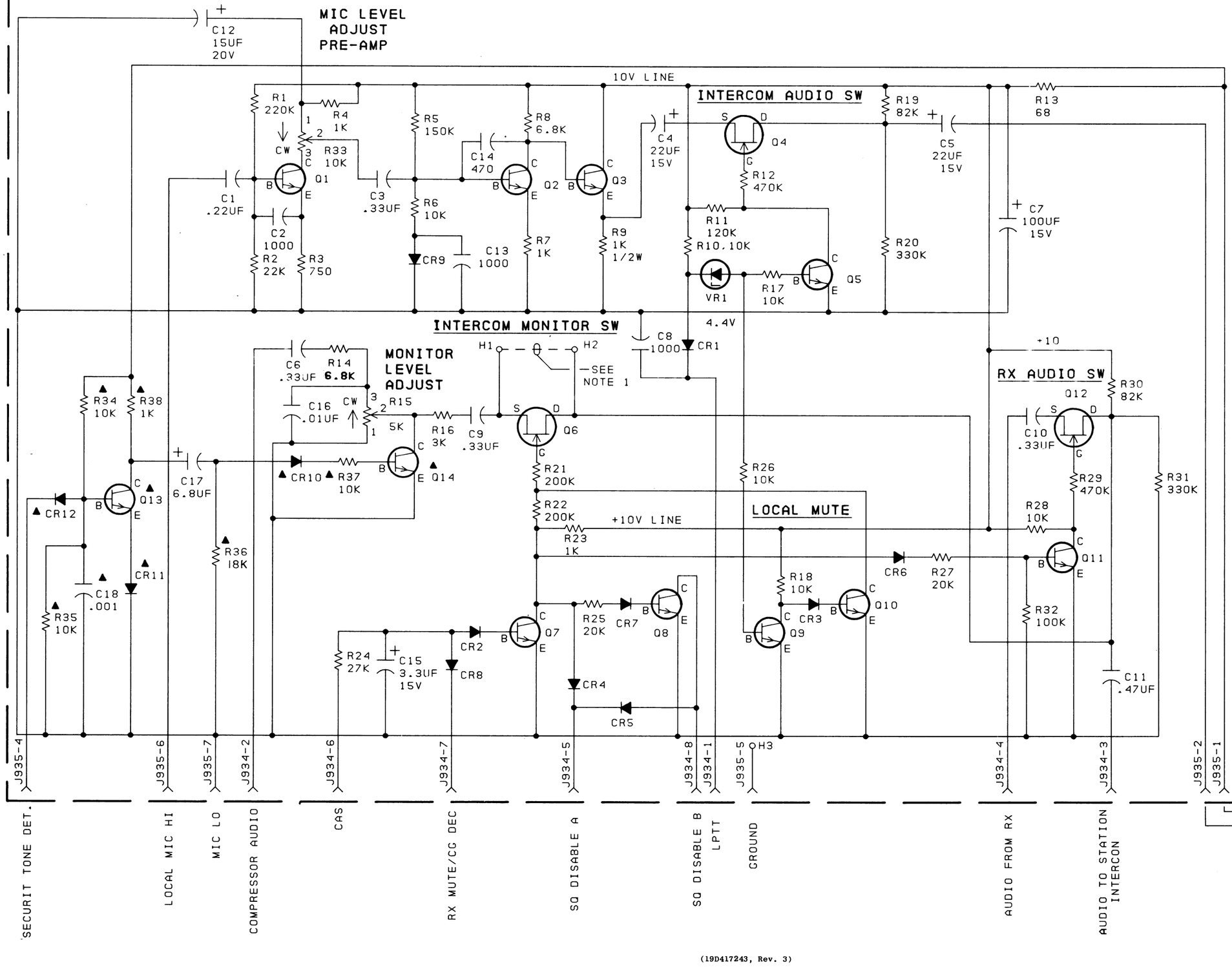
PRODUCTION CHANGES

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.

19D417213G1

REV. A - To provide alarm tone capability. Added H78 and H79.

PRINTED WIRING BOARD



NOTES:

1. D.A. WIRE FROM H1 TO H2 IS PRESENT IN 4 WIRE AUDIO APPLICATION.
2. ▲ PRESENT IN G2 ONLY.

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
PL19C320671G1	
PL19C320671G2	A

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS.

SCHEMATIC DIAGRAM

INTERCOM BOARD 19C320671G2

Issue 1

(19D417243, Rev. 3)

PARTS LIST

LBI4814C

INTERCOM BOARD
19C320671G1, G2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116080P9	Polyester: 0.22 µf ±20%, 50 VDCW.
C2	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C3	19A116080P10	Polyester: 0.33 µf ±20%, 50 VDCW.
C4 and C5	5496267P10	Tantalum: 22 µf ±20%, 15 VDCW; sim to Sprague Type 150D.
C6	19A116080P10	Polyester: 0.33 µf ±20%, 50 VDCW.
C7	19A115680P7	Electrolytic: 100 µf +150% -10%, 15 VDCW; sim to Mallory Type TT.
C8	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C9 and C10	19A116080P10	Polyester: 0.33 µf ±20%, 50 VDCW.
C11	19A116080P111	Polyester: 0.47 µf ±10%, 50 VDCW.
C12	5496267P14	Tantalum: 15 µf ±20%, 20 VDCW; sim to Sprague Type 150D.
C13	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C14	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C15	5496267P9	Tantalum: 3.3 µf ±20%, 15 VDCW; sim to Sprague Type 150D.
C16	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
C17	5496267P1	Tantalum: 6.8 µf ±20%, 6 VDCW; sim to Sprague Type 150D.
C18	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1 thru CR12	19A115250P1	Silicon.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J934	19A116659P7	Connector: 4 contacts; sim to Molex 09-52-3041. (Quantity 2).
J935		Connector. Include:
	19A116659P7	Connector: 4 contacts; sim to Molex 09-52-3041.
	19A116659P5	Connector: 3 contacts; sim to Molex 09-52-3031.
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1 thru Q3	19A115889P1	Silicon, NPN.
Q4	19A134137P1	N Type, field effect; sim to Type 2N4416.
Q5	19A115889P1	Silicon, NPN.
Q6	19A134137P1	N Type, field effect; sim to Type 2N4416.
Q7 thru Q11	19A115889P1	Silicon, NPN.
Q12	19A134137P1	N Type, field effect; sim to Type 2N4416.
Q13 and Q14	19A115889P1	Silicon, NPN.

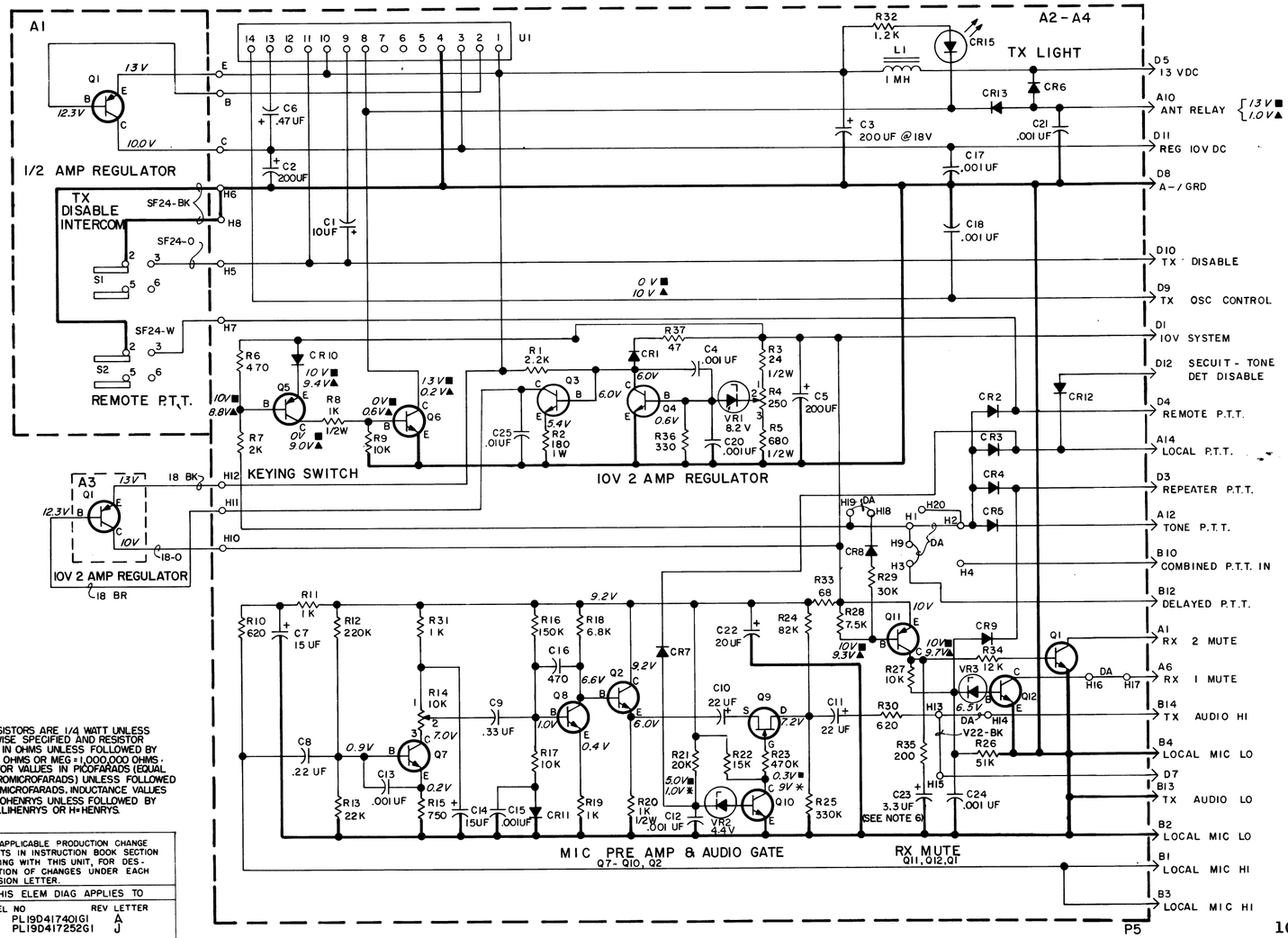
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - RESISTORS - - - - - - - - -
R1	19A700019P65	Deposited carbon: 0.22 megohm ±5%, 1/4 w.
R2	19A700019P53	Deposited carbon: 22K ohms ±5%, 1/4 w.
R3	19A143400P35	Deposited carbon: 750 ohms ±5%, 1/4 w.
R4	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R5	19A700019P63	Deposited carbon: 150K ohms ±5%, 1/4 w.
R6	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R7	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R8	19A700019P47	Deposited carbon: 6.8K ohms ±5%, 1/4 w.
R9	19A700113P63	Composition: 1K ohms ±5%, 1/2 w.
R10	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R11	19A700019P62	Deposited carbon: 120K ohms ±5%, 1/4 w.
R12	19A700019P69	Deposited carbon: 470K ohms ±5%, 1/4 w.
R13	19A143400P23	Deposited carbon: 75 ohms ±5%, 1/4 w.
R14	19A700019P47	Deposited carbon: 6.8K ohms ±5%, 1/4 w.
R15	19B209358P105	Variable, carbon film: approx 200 to 5K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R16	19A143400P42	Deposited carbon: 3K ohms ±5%, 1/4 w.
R17 and R18	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R19	19A700019P60	Deposited carbon: 82K ohms ±5%, 1/4 w.
R20	19A700019P67	Deposited carbon: 330K ohms ±5%, 1/4 w.
R21 and R22	19A143400P64	Deposited carbon: 200K ohms ±5%, 1/4 w.
R23	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R24	19A700019P54	Deposited carbon: 27K ohms ±5%, 1/4 w.
R25	19A143400P52	Deposited carbon: 20K ohms ±5%, 1/4 w.
R26	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R27	19A143400P52	Deposited carbon: 20K ohms ±5%, 1/4 w.
R28	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R29	19A700019P69	Deposited carbon: 470K ohms ±5%, 1/4 w.
R30	19A700019P60	Deposited carbon: 82K ohms ±5%, 1/4 w.
R31	19A700019P67	Deposited carbon: 330K ohms ±5%, 1/4 w.
R32	19A700019P61	Deposited carbon: 100K ohms ±5%, 1/4 w.
R33	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R34 and R35	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R36*	19A700019P52	Deposited carbon: 18K ohms ±5%, 1/4 w.
		In G2 earlier than REV A:
	3R152P273J	Composition: 27K ohms ±5%, 1/4 w.
R37	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R38	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
		- - - - - - - VOLTAGE REGULATORS - - - - - - -
VR1	4036887P4	Zener: 500 mW, 4.4 v. nominal.

*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 - 19C320671G2
To recenter timing circuit. Changed R36.



ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

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
PLI9D417401G1	A
PLI9D417252G1	J

(19D417270, Rev. 15)

10 V REG / CONTROL BD

NOTES:

1. FOR CARRIER SQUELCH (NON-CHANNEL GUARD) STATIONS, JUMPER H1-H2 & H3-H9 ARE PRESENT.
2. FOR CHANNEL GUARD LOCAL, REMOTE OR LOCAL/REMOTE STATIONS JUMPER H9-H3 & H2-H4 ARE PRESENT.
3. FOR CHANNEL GUARD REPEATERS USING DECODE ONLY (NO ENCODE), JUMPER H1-H2 IS PRESENT.
   FOR CHANNEL GUARD REPEATERS USING BOTH ENCODE AND DECODE, JUMPER H2-H4 AND H3-H9 ARE PRESENT.
5. WHEN SECOND RECEIVER MUTE ON TRANSMIT IS NOT DESIRED CUT OUT Q1.
6. IN REPEAT, REMOTE/REPEAT AND LOCAL/REPEAT STATIONS, C23 IS NOT PRESENT.
7. WHEN OPTIONS 9555, 9556, AND 9589 (BACK TO BACK REPEATERS) ARE APPLIED, JUMPER FROM H13 TO H14 IS REMOVED AND A JUMPER FROM H13 TO H15 IS ADDED.
8. IN DUPLEX, DUPLEX WITH CHANNEL GUARD AND REPEATERS WITH CHANNEL GUARD, THE JUMPER FROM H16 TO H17 IS REMOVED.

VOLTAGE READINGS

ALL READINGS MADE WITH 20,000 OHMS-PER-VOLT METER. ALL READINGS TYPICAL.

- ▲ TRANSMITTER KEYED
- ■ TRANSMITTER UNKEYED
- ✱ LPTT KEYED

SCHEMATIC DIAGRAM

10 VOLT REGULATOR/CONTROL BOARD 19D417401G1

PARTS LIST

LBI4802K

10-VOLT REGULATOR/CONTROL
19D417401G1

SYMBOL	GE PART NO.	DESCRIPTION
A1		PANEL 19C320809G1
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1	19A116375P1	Silicon, PNP.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1 and S2	19B209261P11	Slide: (DPST, N.O., SR), 2 poles, 2 positions, 0.5 amp VDC or 3 amps VAC at 125 v; sim to Switchcraft 46204MR.
A2		REGULATOR BOARD 19D417252G1
		- - - - - - - - - CAPACITORS - - - - - - - - -
C1	19B200240P10	Tantalum: 10 µf ±5%, 15 VDCW.
C2 and C3	19A115680P10	Electrolytic: 200 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C4	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C5	19A115680P10	Electrolytic: 200 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C6	5496267P28	Tantalum: 0.47 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C7	5496267P14	Tantalum: 15 µf ±20%, 20 VDCW; sim to Sprague Type 150D.
C8	19A116080P9	Polyester: 0.22 µf ±20%, 50 VDCW.
C9	19A116080P10	Polyester: 0.33 µf ±20%, 50 VDCW.
C10	19B209233P1	Electrolytic, non-polarized: 25 µf ±20%, 25 VDCW; sim to Sprague 41D.
C11	5496267P10	Tantalum: 22 µf ±20%, 15 VDCW; sim to Sprague Type 150D.
C12 and C13	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C14	5496267P14	Tantalum: 15 µf ±20%, 20 VDCW; sim to Sprague Type 150D.
C15	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C16	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C17 and C18	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C19*	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. Deleted by REV D.
C20 and C21	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C22	19A115680P3	Electrolytic: 20 µf +150% -10%, 25 VDCW; sim to Mallory Type TTX.
C23	5496267P209	Tantalum: 3.3 µf ±10%, 15 VDCW; sim to Sprague Type 150D.
C24	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C25*	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW. Added by REV H.
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1*	19A115775P1	Silicon, fast recovery, 225 mA, 50 PIV.
		In REV H & earlier:
	4037822P1	Silicon, 1000 mA, 400 PIV.
CR2 thru CR5	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR6	4037822P1	Silicon, 1000 mA, 400 PIV.
CR7 thru CR12	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR13	4037822P1	Silicon, 1000 mA, 400 PIV.
CR15	19A134354P6	Diode, optoelectronic: red; sim to Hew. Packard 5082-4655.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A115894P1	Audio freq: 1.0 mh ind., 0.35 ohms DC res.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P5		(Part of printed board 19D417241P1).
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1 and Q2	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q3	19A115300P2	Silicon, NPN; sim to Type 2N3053.
Q4	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q5	19A115768P1	Silicon, PNP; sim to Type 2N3702.
Q6	19A115300P2	Silicon, NPN; sim to Type 2N3053.
Q7 and Q8	19A116774P1	Silicon, NPN; sim to Type 2N5210.
Q9	19A134137P4	N Type, field effect.
Q10	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q11	19A115768P1	Silicon, PNP; sim to Type 2N3702.
Q12	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A700019P41	Deposited carbon: 2.2K ohms ±5%, 1/4 w.
R2*	19A700112P45	Composition: 180 ohms ±5%, 1 w.
		In REV A & earlier:
	3R77P301J	Composition: 300 ohms ±5%, 1/2 w.
R3*	3R77P240J	Composition: 24 ohms ±5%, 1/2 w.
		Earlier than REV A:
	3R77P101K	Composition: 100 ohms ±10%, 1/2 w.
R4	19B209358P101	Variable, carbon film: approx 25 to 250 ohms ±10%, 0.2 w; sim to CTS Type X-201.
R5	19A700113P59	Composition: 680 ohms ±5%, 1/2 w.
R6	19A700019P33	Deposited carbon: 470 ohms ±5%, 1/4 w.
R7	19A143400P40	Deposited carbon: 2K ohms ±5%, 1/4 w.
R8	3R77P102K	Composition: 1K ohms ±10%, 1/2 w.
R9	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R10	19A143400P34	Deposited carbon: 620 ohms ±5%, 1/4 w.
R11	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R12	19A700019P65	Deposited carbon: 220K ohms ±5%, 1/4 w.
R13	19A700019P53	Deposited carbon: 22K ohms ±5%, 1/4 w.
R14	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R15	19A143400P35	Deposited carbon: 750 ohms ±5%, 1/4 w.
R16	19A700019P63	Deposited carbon: 150K ohms ±5%, 1/4 w.
R17	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R18	19A700019P47	Deposited carbon: 6.8K ohms ±5%, 1/4 w.
R19	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R20	3R77P102K	Composition: 1K ohms ±10%, 1/2 w.
R21	19A143400P52	Deposited carbon: 20K ohms ±5%, 1/4 w.
R22	19A700019P51	Deposited carbon: 15K ohms ±5%, 1/4 w.
R23	19A700019P69	Deposited carbon: 470K ohms ±5%, 1/4 w.
R24	19A700019P60	Deposited carbon: 82K ohms ±5%, 1/4 w.
R25	19A700019P67	Deposited carbon: 330K ohms ±5%, 1/4 w.
R26	19A143400P57	Deposited carbon: 51K ohms ±5%, 1/4 w.
R27	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R28	19A143400P47	Deposited carbon: 7.5K ohms ±5%, 1/4 w.
R29	19A143400P54	Deposited carbon: 30K ohms ±5%, 1/4 w.
R30	19A143400P34	Deposited carbon: 620 ohms ±5%, 1/4 w.
R31	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R32	19A700019P38	Deposited carbon: 1.2K ohms ±5%, 1/4 w.
R33	19A700019P23	Deposited carbon: 68 ohms ±5%, 1/4 w.
R34	19A700019P50	Deposited carbon: 12K ohms ±5%, 1/4 w.
R35	19A143400P28	Deposited carbon: 200 ohms ±5%, 1/4 w.
R36*	19A700019P31	Deposited carbon: 330 ohms ±5%, 1/4 w. Added by REV A.
R37*	19A700019P21	Deposited carbon: 47 ohms ±5%, 1/4 w. Added by REV J.
		- - - - - - - INTEGRATED CIRCUITS - - - - - -
U1*	19D416564G4	10-Volt Regulator.
		In REV D & earlier:
	19D416564G3	10-Volt Regulator.
		- - - - - - - - VOLTAGE REGULATORS - - - - - - -
VR1	4036887P40	Zener: 500 mW, 8.2 v. nominal.
VR2	4036887P4	Zener: 500 mW, 4.4 v. nominal.
VR3	4036887P6	Zener: 500 mW, 6.5 v. nominal.
A3		HEAT SINK ASSEMBLY 19B226114G2
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1	19A116758P2	Silicon, PNP; sim to Type 2N4399.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B219690G1	Handle assembly.
	19A116023P1	Insulator, plate. (Used with Q1 on A1).
	19A134016P1	Insulator, bushing. (Used with Q1 on A1).
	4036555P1	Insulator, washer: nylon. (Used with Q3 & Q6 on A2).
	7118719P10	Clip, spring tension; sim to Prestole E-50019-003. (Used with L1 on A2).
	4029974P1	Insulator, plate. (Used with Q1 on A3).
	19A121882P1	Washer, shield. (Used with Q1 on A3).
	4036994P1	Terminal, solderless. (Used with Q1 on A3).
	19B226013G1	Heat sink. (Used with Q1 on A3).
	19A121175P11	Insulator. (Used with C10 on A2).
	5491541P307	Spacer, threaded. (Supports A3).
	N405P5C	Lockwasher: No. 4. (Secures S1 & S2 on A1).
	N80P9004C6	Machine screw: No. 4-40 x 1/4. (Secures S1 & S2 on A1).
	N80P9006C6	Machine screw: No. 4-40 x 3/8. (Secures Q1 on A1).

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.

19D417252G1

REV. A—C - Incorporated in original shipment.

REV. D - Deleted C19. To prevent a 150 MHz oscillation. Changed U1.

REV. E - To prevent regulator from sending transmit signal during switch-off delay period.

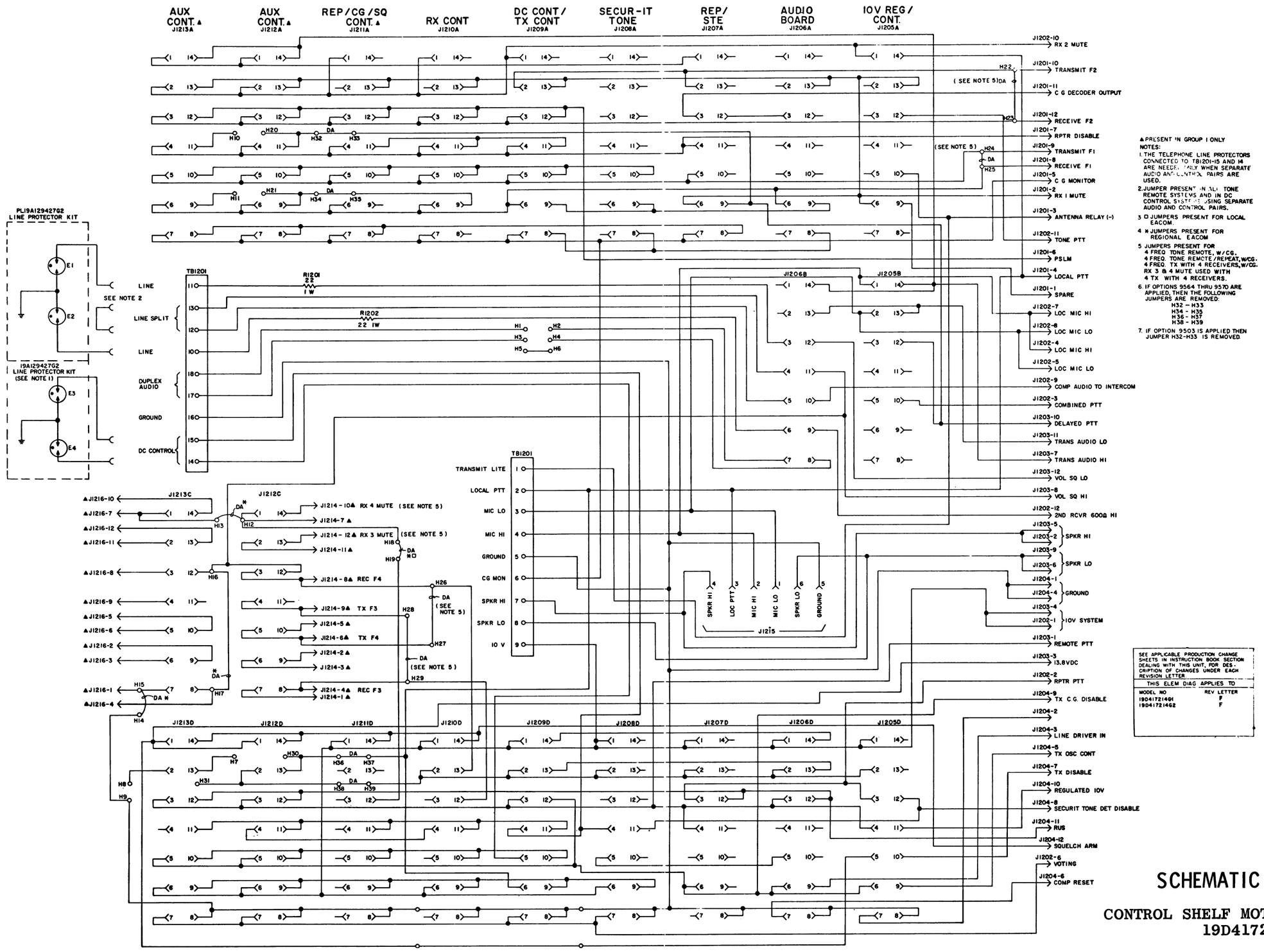
REV. F - To provide receiver muting. Added H16 and H17.

REV. G - To correct repeater muting. Added H18 and H19.

REV. H - To stop oscillation on the 10 Volt line. Added C25.

REV. J - 19D417252G1
REV. A - 19D417401G1
To improve operation of 10 Volt Regulator. Changed CR1 and Q1; Added R37.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



▲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 IN 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, W/CG. 4 FREQ. TONE REMOTE/REPEAT, W/CG. 4 FREQ. TX WITH 4 RECEIVERS, W/CG. RX 3 & 4 MUTE USED WITH 4 TX WITH 4 RECEIVERS.
6. IF OPTIONS 9564 THRU 9570 ARE APPLIED, THEN THE FOLLOWING JUMPERS ARE REMOVED:
   H32 – H33
   H34 – H35
   H36 – H37
   H38 – H39
7. IF OPTION 9503 IS APPLIED THEN JUMPER H32–H33 IS REMOVED.

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	F
19D417214G2	F

SCHEMATIC DIAGRAM

CONTROL SHELF MOTHER BOARD 19D417214G1 & G2

Issue 1

(19E501157, Rev. 14)

PARTS LIST

LBI4811B

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*	19A700112P23	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.

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 - Incorporated in initial shipment.

REV. B - Added holes and pads to provide outputs in EACOM systems.

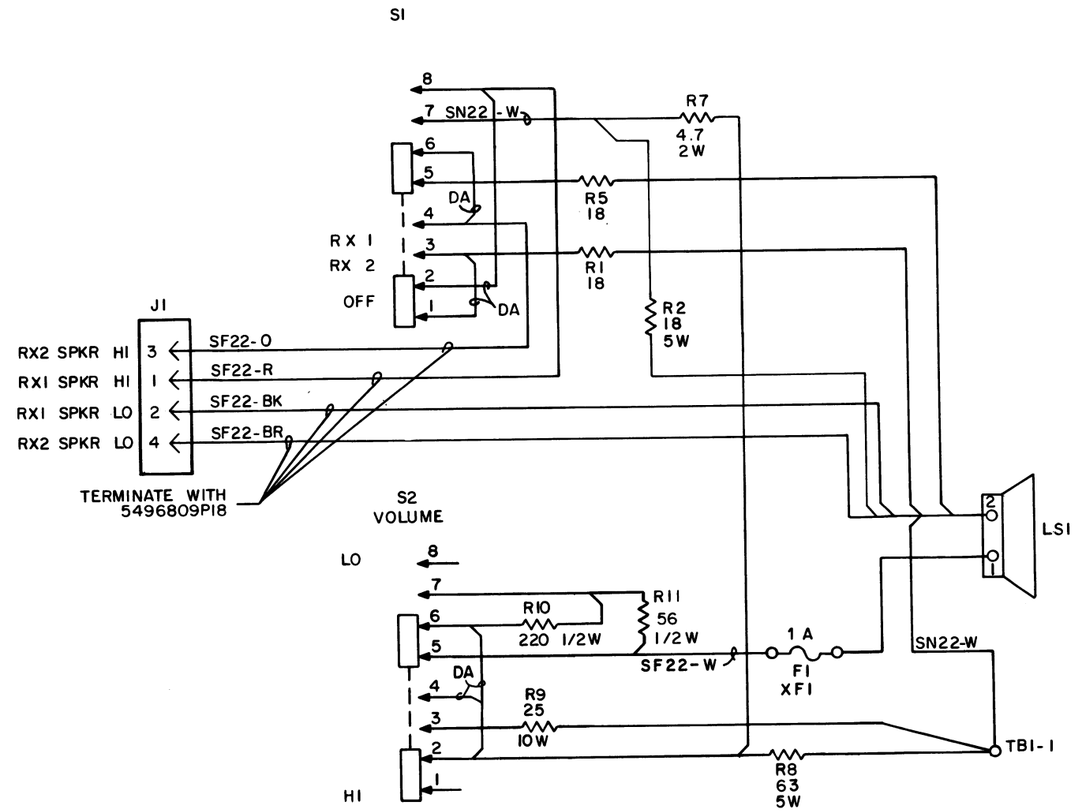
REV. C - Changed printed board to provide 4-frequency remote functions.

REV. D - To reduce possibility of falsing on noise. Added a jumper from J1209-D4 to J1208-D4.

REV. E - To make both auxiliary positions functional. Added H32 thru H39.

REV. F - To supply 10 Volts to the 19D417214G1 & G2 boards. Changed printed pattern.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



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
PL19C320728G2	G

ALL RESISTORS ARE 5 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

(19C320731, Rev. 9)

SCHEMATIC DIAGRAM

SERVICE SPEAKER 19C320728G2

PARTS LIST

LBI4816D

SERVICE SPEAKER
19C320728G2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F1*	1R16P3	Quick blowing: 1 amp at 250 v; sim to Littelfuse 312001 or Bussmann AGC-1.
		In REV E & earlier:
	1R16P1	Quick blowing: 1/2 amp at 250 v; sim to Littelfuse 312.500 or Bussmann AGC-1/2.
		In REV D:
	1R16P14	Quick blowing: 3/8 amp 250 v; sim to Littelfuse 312.375 or Bussmann AGC-3/8. Added by REV D.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J1		Connector. Includes:
	19B209288P22	Shell.
	5496809P18	Contact, electrical: male; sim to Molex 1380-T.
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS1	19A115964P1	Permanent magnet: 3.5 inch, 18 ohms ±10% imp, 15 to 19 ohms ±20% DC res, resonant frequency 290 Hz; sim to Oaktron S-6847.
		- - - - - - - - - RESISTORS - - - - - - - - - -
R1	5493035P53	Wirewound: 18 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
R2*	5493035P3	Wirewound: 2 ohms ±5%, 5 w; sim to Hamilton Hall Type HR. Added by REV F.
	5493035P53	Wirewound: 18 ohms ±5%, 5 w; sim to Hamilton Hall Type HR. Deleted by REV D.
R3*	19B209490P1	Variable, wirewound: 35 ohms ±20%, 2.25 w; sim to CTS Type 118. Deleted by REV D.
R4*	5493035P52	Wirewound: 8.2 ohms ±10%, 5 w; sim to Hamilton Hall Type HR. Deleted by REV C.
R5	5493035P53	Wirewound: 18 ohms ±5%, 5 w; sim to Hamilton Hall Type HR. Added by REV B.
R6*	5493035P27	Wirewound: 10 ohms ±5%, 5 w; sim to Hamilton Hall Type HR. Added by REV C. Deleted by REV D.
R7*	19A700050P21	Wirewound: 4.7 ohms ±10%, 2 w. Added by REV D.
R8*	5493035P17	Wirewound: 63 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
		In REV D:
	3R78P620J	Composition: 62 ohms ±5%, 1 w. Added by REV D.
R9*	5493035P44	Wirewound: 25 ohms ±5%, 10 w; sim to Hamilton Hall Type HR.
		In REV D:
	19B209022P48	Wirewound: 24 ohms ±5%, 2 w; sim to IRC Type BWH. Added by REV D.
R10*	19A700113P47	Composition: 220 ohms ±5%, 1/2 w. Added by REV D.
R11*	19A700113P33	Composition: 56 ohms ±5%, 1/2 w. Added by REV D.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B209261P5	Slide: DPTT, 2 poles, 3 positions, 0.5 amp VDC or 3 amps VAC at 125 v; sim to Switchcraft 11D1033B.
S2*	19B209261P5	Slide: DPTT, 2 poles, 3 positions, 0.5 amp VDC or 3 amps VAC at 125 v; sim to Switchcraft 11D1033B. Added by REV D.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	7775500P44	Phen: 1 insulated, 1 grounded terminal. Added by REV D.
		- - - - - - - - - - SOCKETS - - - - - - - - - - -
XF1*	7141008P1	Fuseholder: 30 amps at 125 v; sim to Bussman 2863. Added by REV D.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	4032480P1	Nut, sheet spring: sim to Vector Electronic Co. No. 440. (Secures S1, S2).
	19B201074P204	Tap screw, Phillips POZIDRIV®: No. 4-40 x 1/4. (Secures S1, S2).
	N80P13005C6	Machine, screw: No. 6-32 x 5/16. (Secures Service Speaker).
	7141225P3	Hex nut: 6-32. (Secures Service Speaker).
	N404P13C6	Lockwasher, internal tooth: No. 6. (Secures Service Speaker).

*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 eliminate factory wiring errors caused by duplication of wire colors. Changed wire colors of J1-1 from Orange to Red and J1-2 from Brown to Black.

REV. B - To provide load for receiver when service speaker switch is in "OFF" position. Added R5 and DA Jumper between S1-1 and S1-3.

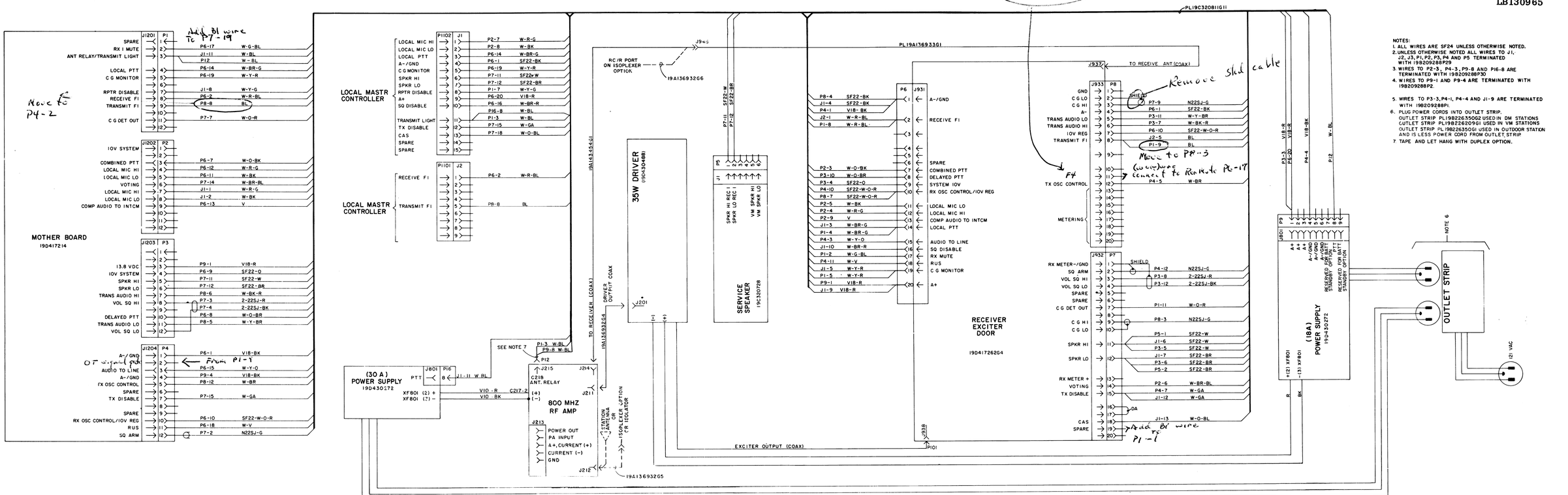
REV. C - To prevent oscillation and to protect R3 from overload. Deleted R4 and added R6.

REV. D - To prevent component damage due to excessive voltage. Deleted R2, R3 and R6. Added F1, XF1, R7-11, S2 and TB1.

REV. E - To protect speaker from excessive drive. Changed F1, R8 and R9.

REV. F - To prevent mechanical oscillation of speaker when excessive drive occurs. Changed F1 and added R12.

REV. G - To stop audio oscillation. Relocated R2 in the circuit.



NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1, J2, J3, P1, P2, P3, P4 AND P5 TERMINATED WITH 19B209288P29
3. WIRES TO P2-3, P4-3, P9-8 AND P16-8 ARE TERMINATED WITH 19B209288P30
4. WIRES TO P9-1 AND P9-4 ARE TERMINATED WITH 19B209288P2.
5. WIRES TO P3-3, P4-1, P4-4 AND J1-9 ARE TERMINATED WITH 19B209288P1.
6. PLUG POWER CORDS INTO OUTLET STRIP.
   OUTLET STRIP PL19B226350G2 USED IN DM STATIONS
   OUTLET STRIP PL19B226209G1 USED IN VM STATIONS
   OUTLET STRIP PL19B226350G1 USED IN OUTDOOR STATION AND IS LESS POWER CORD FROM OUTLET STRIP.
7. TAPE AND LET HANG WITH DUPLEX OPTION.

(19R622472, Rev. 0)

INTERCONNECTION DIAGRAM

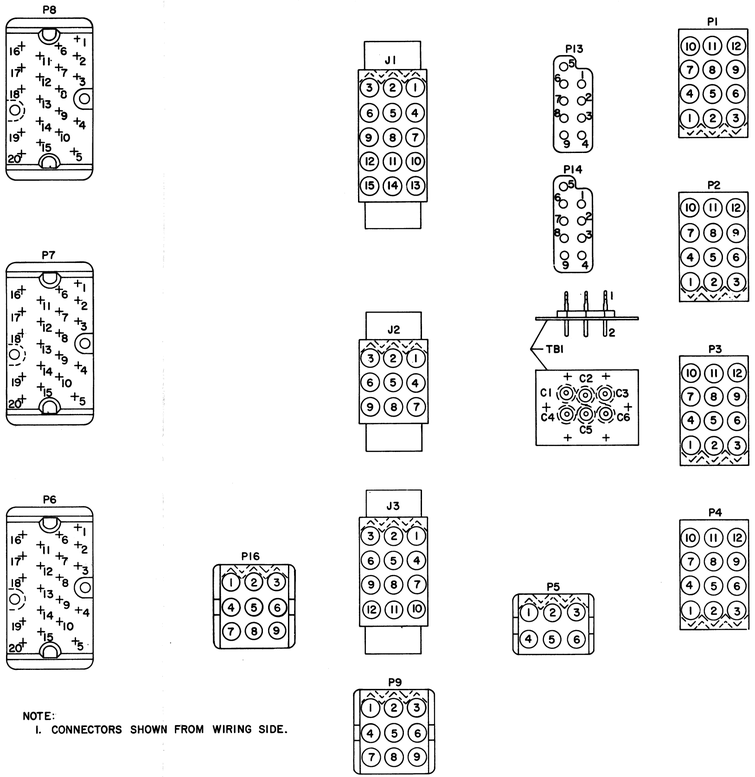
806—870 MHz, 90 WATT STATION HARNESS
WITHOUT METERING 19C320811G11

PARTS LIST

806-870 MHz, 90 WATT SOLID STATE
STATION HARNESS
19C320811G11
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - JACKS AND RECEPTACLES - - - - - -
J1		Connector. Includes:
	19B209288P5	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 12).
	19B209288P1	Receptacle, female; sim to Molex 0209-1101. (Quantity 2).
J2		Connector. Includes:
	19B209288P3	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 2).
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P1		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 8).
P2		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 6)
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).
P3		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 8).
	19B209288P1	Receptacle, female: sim to Molex 02-09-1101. (Quantity 1).
P4		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 5).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).
	19A209288P1	Receptacle, female; sim to Molex 02-09-1101. (Quantity 2).
P5		Connector. Includes:
	19B209288P23	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (Quantity 2).
P6 thru P8	19A143191G1	Connector, phen: 20 contacts.
P9		Connector. Includes:
	19B209288P4	Shell.
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).
	19B209288P2	Contact, electrical: sim to Molex Poducts 1190-T. (Quantity 2).
P12	19A115793P1	Contact, electrical: sim to Malco 2700.
P16		Connector. Includes:
	19B209288P4	Shell.
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

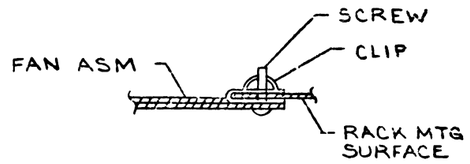


NOTE:
1. CONNECTORS SHOWN FROM WIRING SIDE.

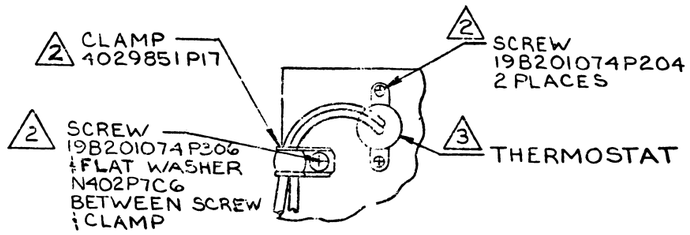
OUTLINE DIAGRAM

HARNESS 19C320811

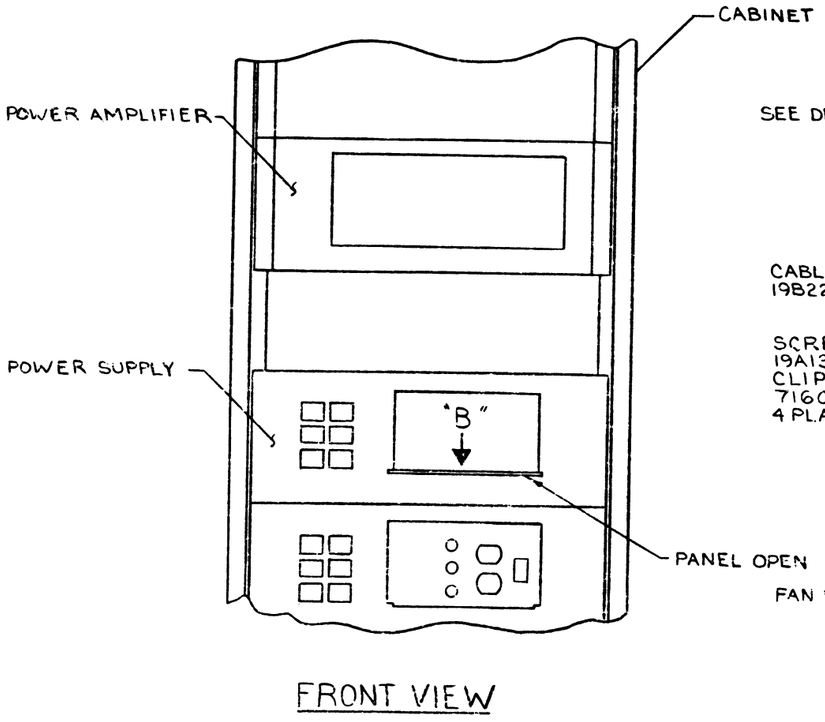
(19C328112, Rev. 1)



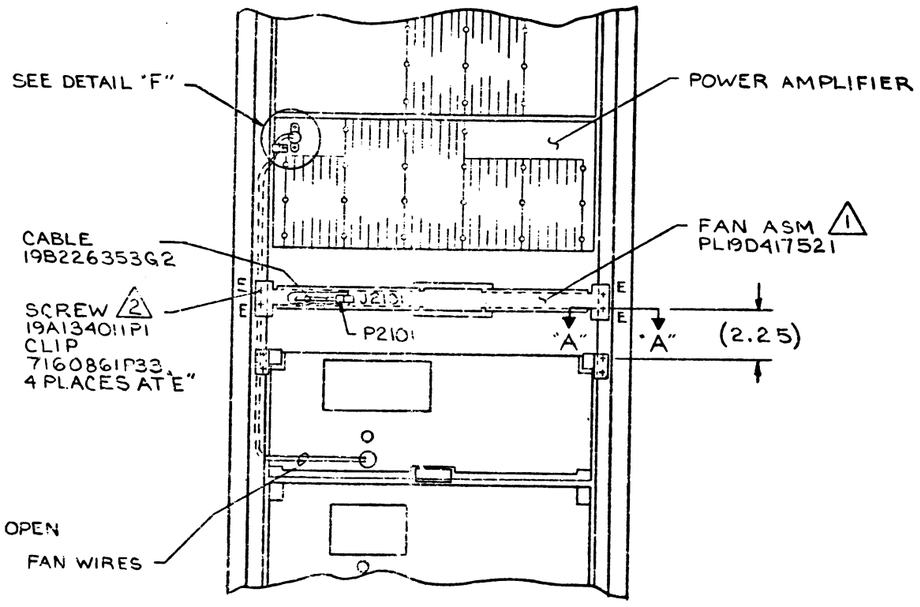
SECTION "A"-"A"



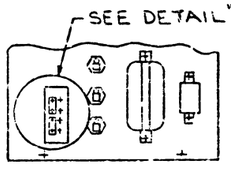
DETAIL "F"



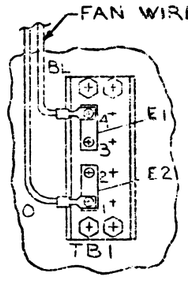
FRONT VIEW



REAR VIEW



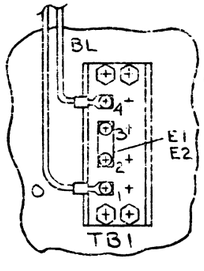
VIEW AT "B"



INSTALLATION SHOWN IS PL19D417521G1 FAN CONNECTED TO 121V POWER SUPPLY 19D430272

NOTE JUMPERS E1 & E2. OTHER CONNECTIONS TO TERMINAL BLOCK ARE NOT SHOWN.

DETAIL "C"



INSTALLATION SHOWN IS PL19D417521G2 FAN CONNECTED TO 242V POWER SUPPLY 19D430272

NOTE JUMPERS E1 & E2. OTHER CONNECTIONS TO TERMINAL BLOCK ARE NOT SHOWN

DETAIL "D"

(19D432369, Rev. 0)

THESE INSTRUCTIONS COVER THE INSTALLATION OF THE 19D417751 FAN AND THE 19B226353G2 CABLE IN THE 90W MASTR II 800 MHz SOLID STATE STATION.

INSTRUCTIONS:

1. DISCONNECT ALL POWER SOURCES TO THE CABINET.
2. INSTALL FAN ASSEMBLY AS SHOWN IN REAR VIEW USING SCREWS AND CLIPS SUPPLIED WITH FAN ASSEMBLY.
3. MOUNT THERMOSTAT TO POWER AMPLIFIER HEAT DISSIPATOR PLATE USING TWO (19B201074P204) THD. FORMING SCREWS SUPPLIED WITH FAN.
4. DRESS BLUE AND ORANGE WIRES THRU 4029851P17 CLAMP AS SHOWN IN DETAIL "F". SECURE CLAMP WITH 19B201074P306 SCREW USING N402P7C6 FLAT WASHER BETWEEN SCREW HEAD AND CLAMP. HARDWARE IS SUPPLIED WITH FAN.
5. DRESS BLUE AND ORANGE WIRES AS SHOWN AND CONNECT P2101 TO J2101. SPOT TIE TO CABINET RAIL AS NECESSARY.
6. OPEN FRONT PANEL OF UPPER POWER SUPPLY, SAVING HARDWARE.
7. FEED BLUE & ORANGE WIRES WITH TERMINALS THROUGH HOLE IN REAR COVER OF POWER SUPPLY AND THRU TO FRONT PANEL AS SHOWN.
8. CONNECT TERMINALS FOR 104-126 VAC OPERATION AS SHOWN IN DETAIL "C".
9. SECURE POWER SUPPLY FRONT PANEL USING HARDWARE SAVED IN STEP 6.
10. COIL ANY EXCESS BLUE AND ORANGE WIRES, SPOT TIE AND SECURE TO RAIL IN REAR OF CABINET.

INSTRUCTIONS:

SAME AS PART I EXCEPT SUBSTITUTE INSTRUCTION 8 AS FOLLOWS:

8. CONNECT TERMINALS FOR 297-253 VAC OPERATION AS SHOWN IN DETAIL "D".

NOTES:

1. THE FAN OPTION SHOULD BE INSTALLED ONLY WITH VOLTAGE RANGES SHOWN BELOW.

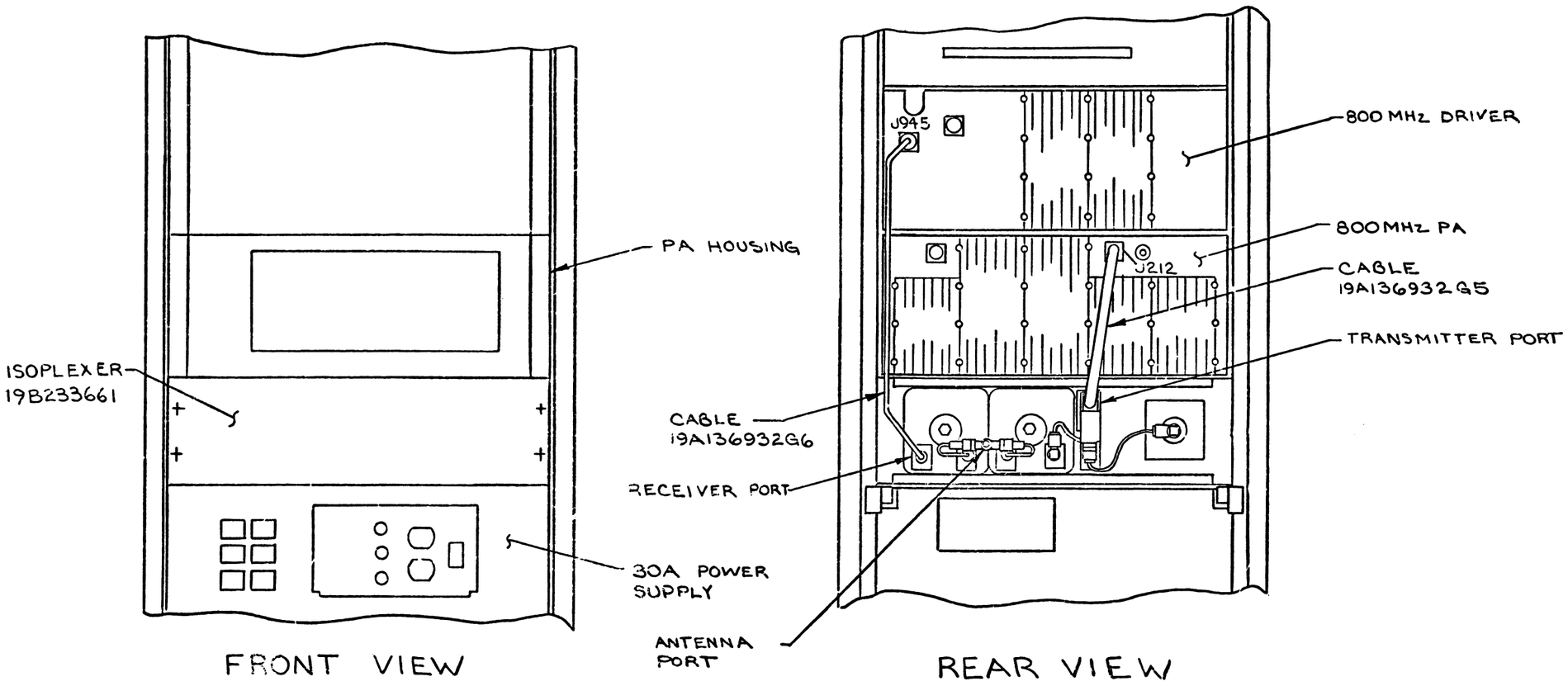
FAN ASSEMBLY	POWER SUPPLY INPUT VOLTAGE
PL19D417521G1	104 TO 126 VAC, 50/60 Hz
PL19D417521G2	207 TO 253 VAC, 50/50 Hz

2. SUPPLIED PACKAGED WITH FAN.
3. SUPPLIED AS PART OF 19B226353G2 CABLE ASM.

INSTALLATION INSTRUCTIONS

HEATSINK BLOWER OPTIONS 9738, 9739 AND 9740

THESE INSTRUCTIONS COVER THE INSTALLATION OF THE 19B233661 ISOPLEXER AND 19A13078562 INSTALLATION HARDWARE KIT IN 800 MHz 90W SOLID STATE STATIONS



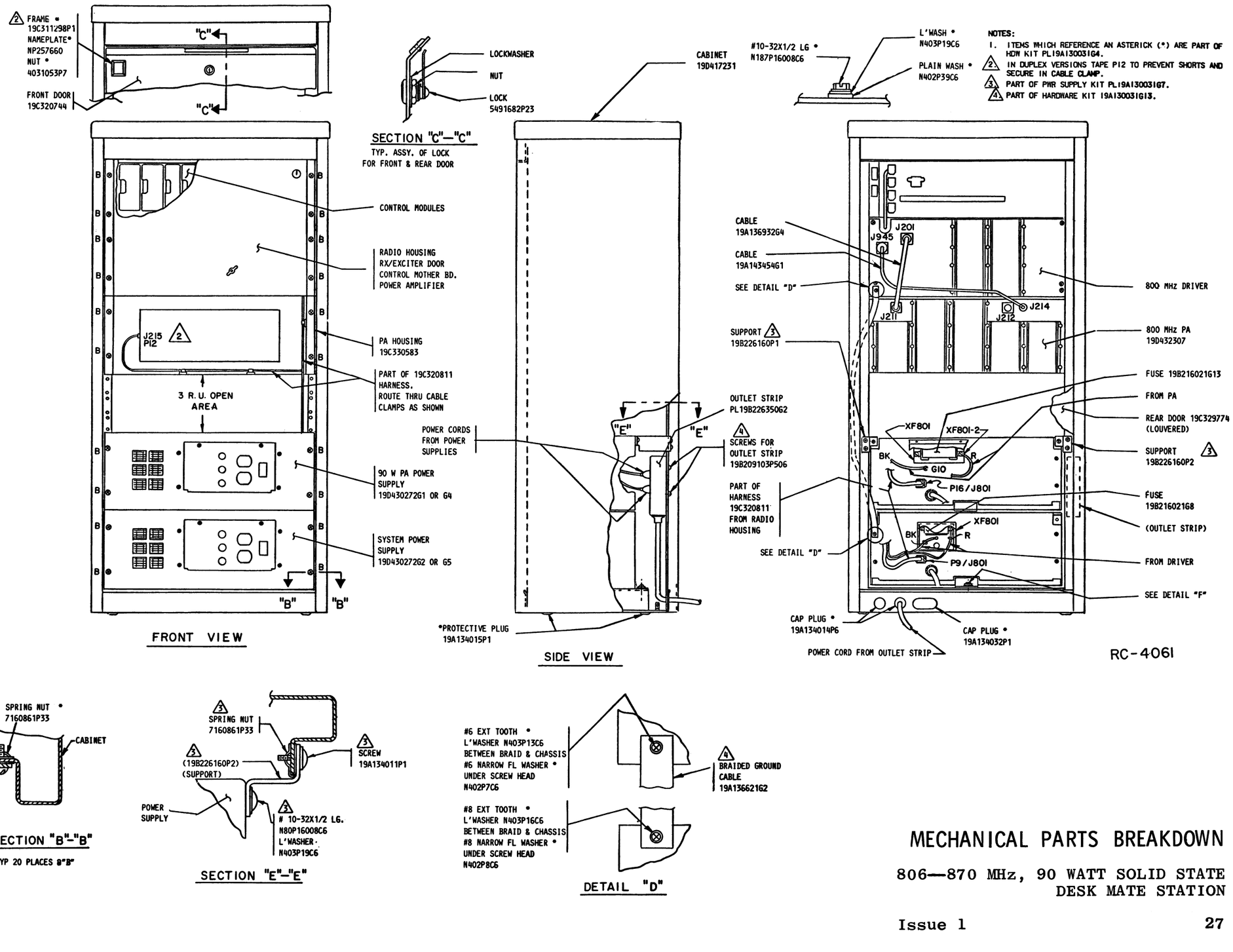
INSTRUCTIONS:

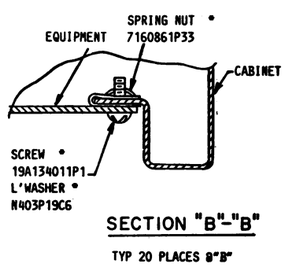
1. USING HARDWARE SUPPLIED IN INSTALLATION KIT, MOUNT ISOPLEXER FROM FRONT OF CABINET BETWEEN PA HOUSING AND 30A POWER SUPPLY. USE SPRING NUTS ON RAILS AND PLACE PLAIN WASHER AGAINST FRONT OF ISOPLEXER PANEL. USE LOCK WASHER BETWEEN PLAIN WASHER AND SCREW.
2. CONNECT 19A136932G6 CABLE BETWEEN RECEIVER PORT ON ISOPLEXER AND J945 ON 800 MHz DRIVER CHASSIS.
3. CONNECT 19A136932G5 CABLE BETWEEN TRANSMITTER PORT ON ISOPLEXER AN J212 ON 800 MHz PA CHASSIS.

INSTALLATION DIAGRAM

(19C330920, Rev. 0)

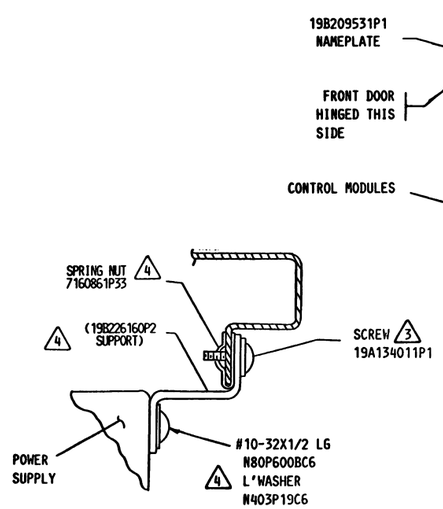
ISOPLEXER OPTION 9736



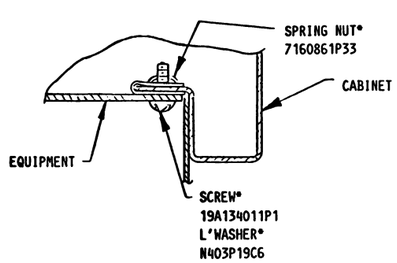


MECHANICAL PARTS BREAKDOWN

806—870 MHz, 90 WATT SOLID STATE DESK MATE STATION

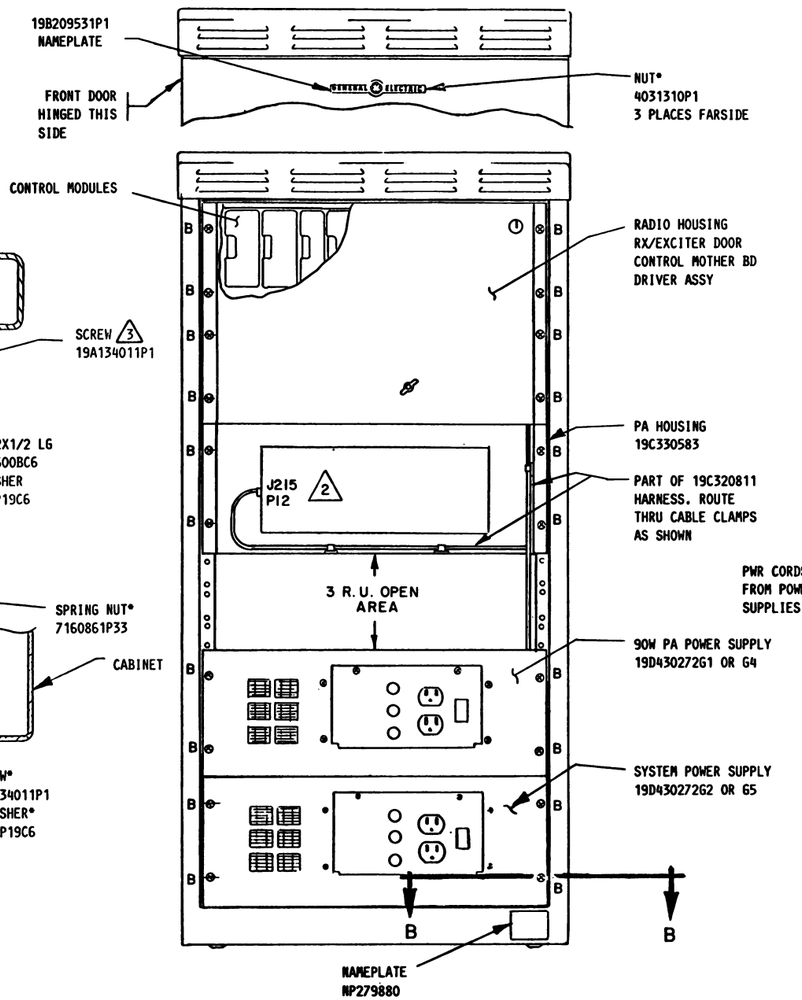


SECTION "A"-"A"

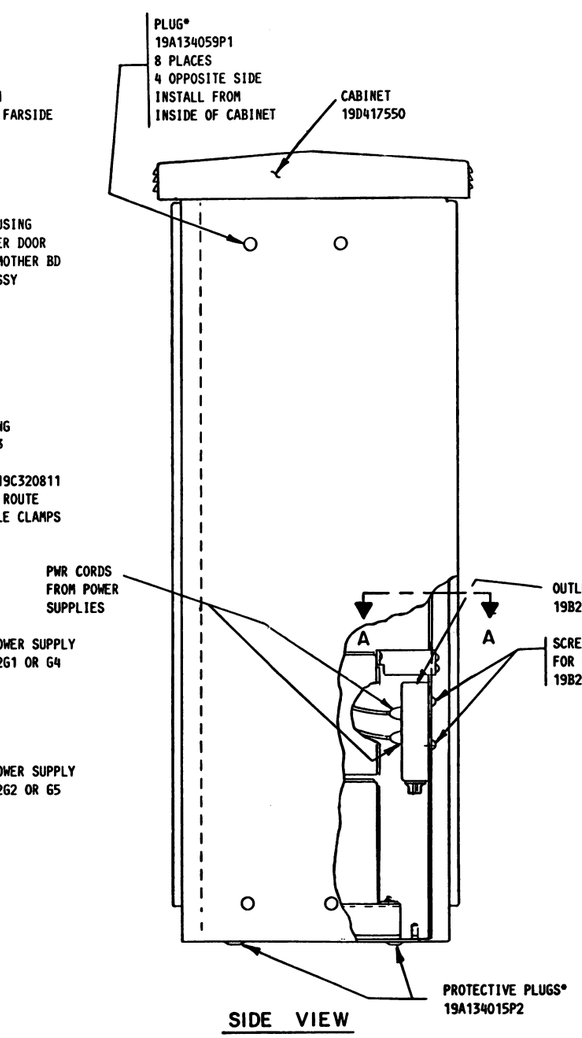


SECTION "B"-"B"

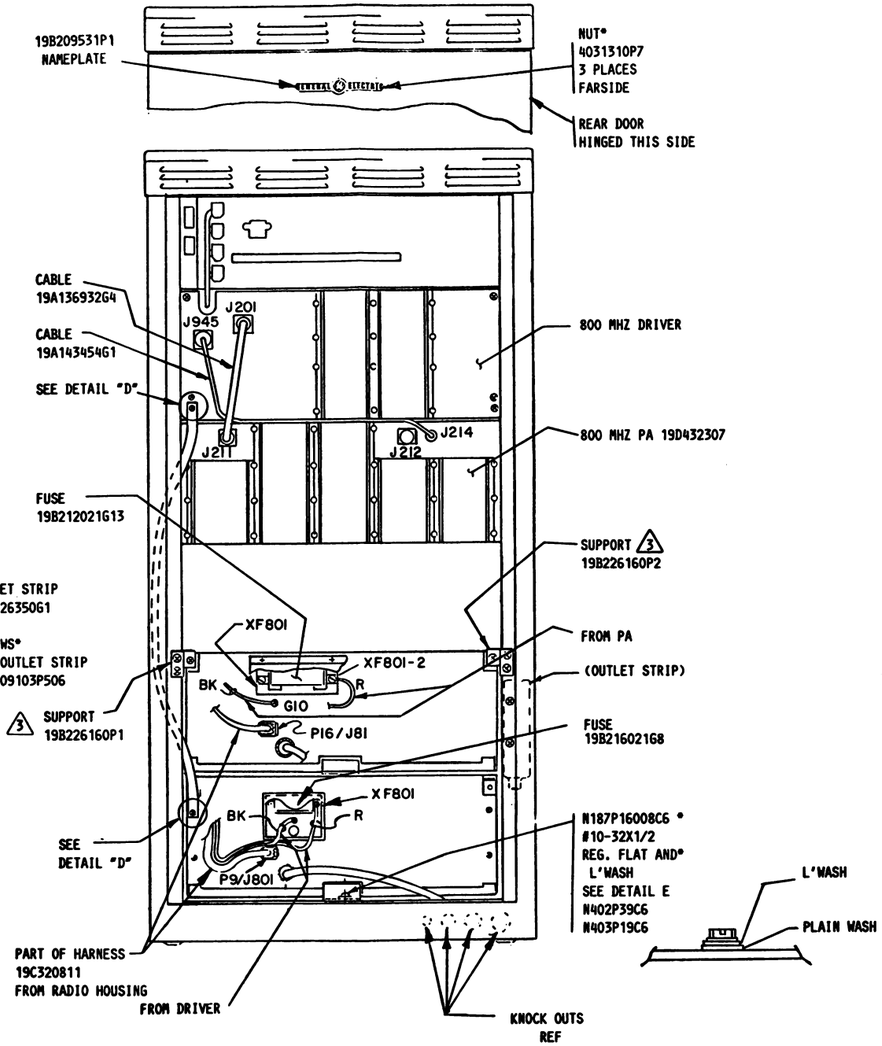
TYP. PLACES
AT "B" DESIGNATIONS



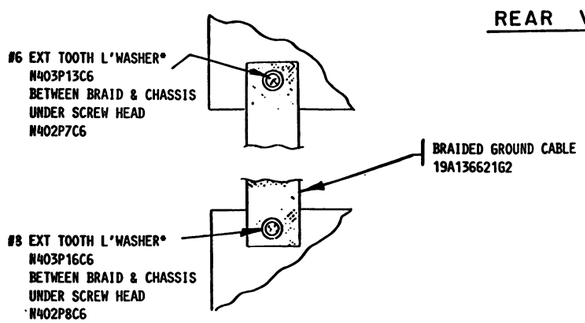
FRONT VIEW



SIDE VIEW



REAR VIEW



DETAIL "D"

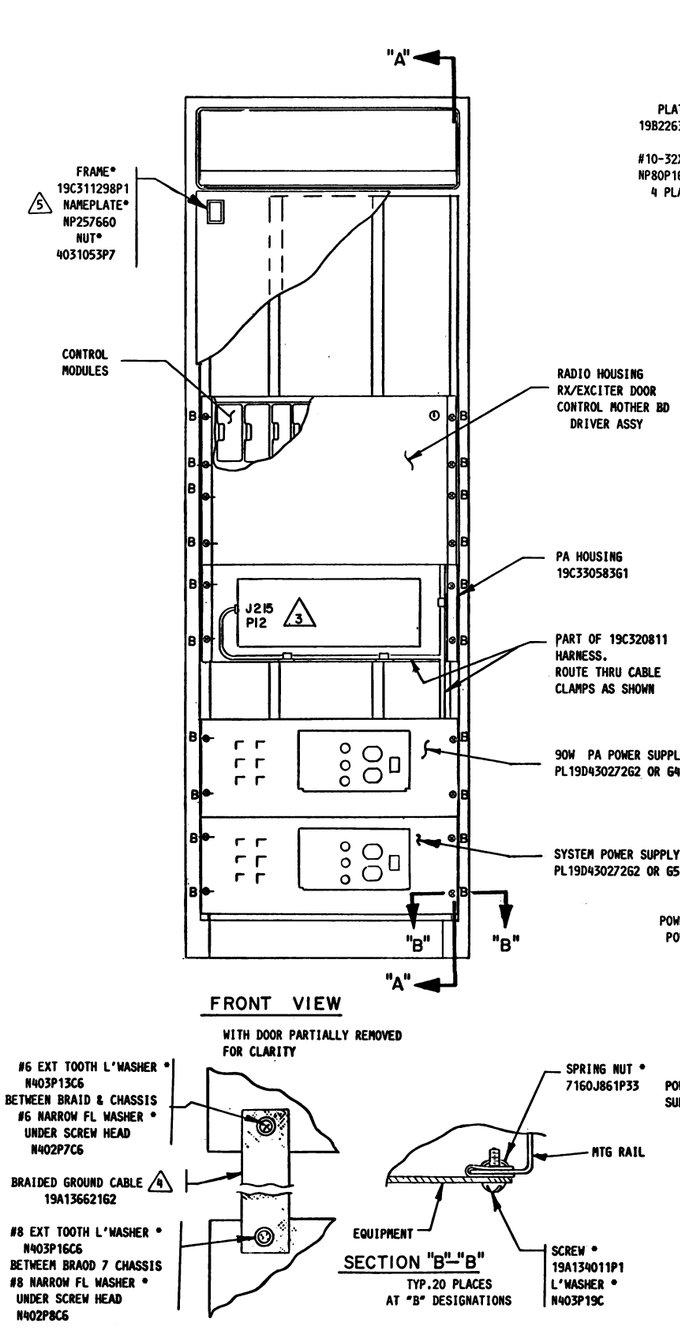
NOTES:

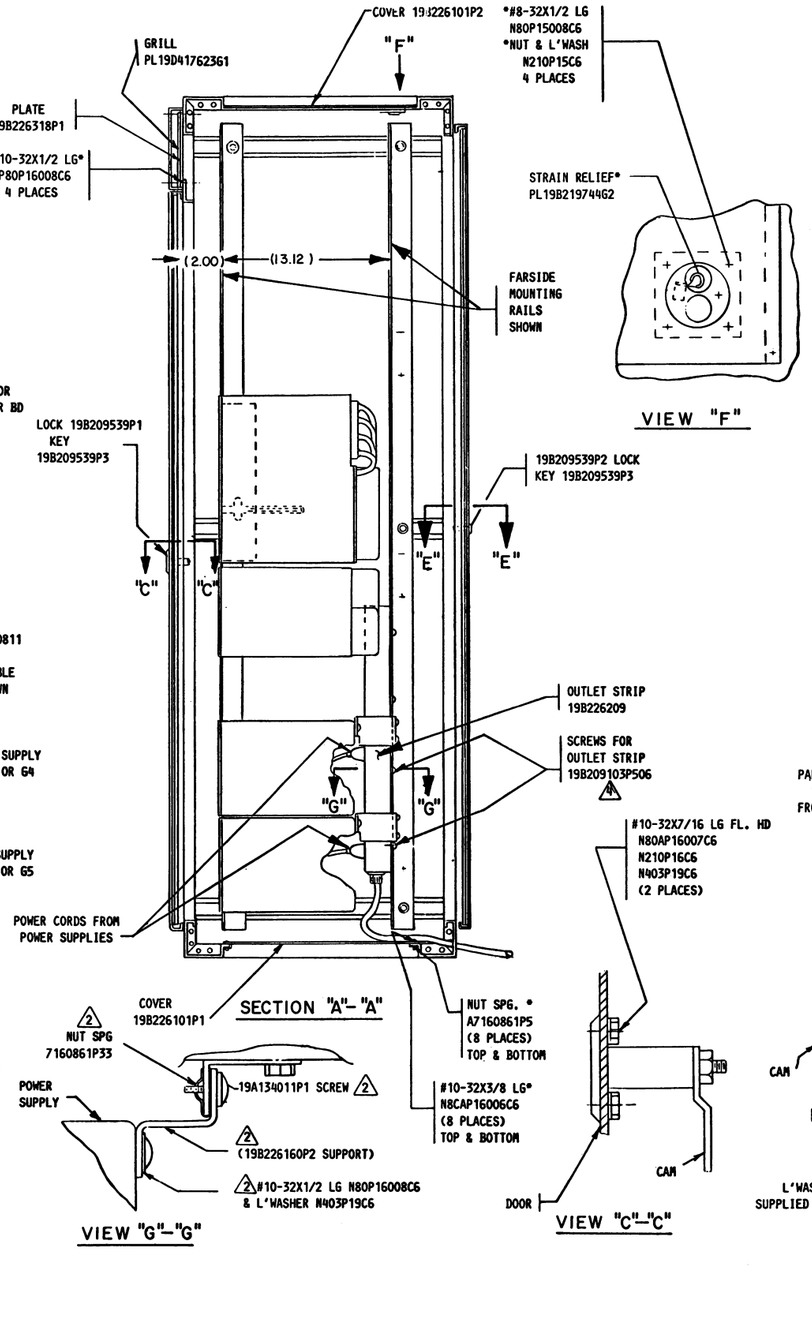
1. ITEM WHICH REFERENCE AN ASTERICK (*) ARE PART OF HDW KIT PL19AD13003168.
2. IN DUPLEX VERSIONS TAPE P12 TO PREVENT SHORTS & SECURE IN CABLE CLAMP.
3. PART OF PWR SUPPLY KIT PL19A13003167.
4. PART OF HDW KIT PL19A130031613.

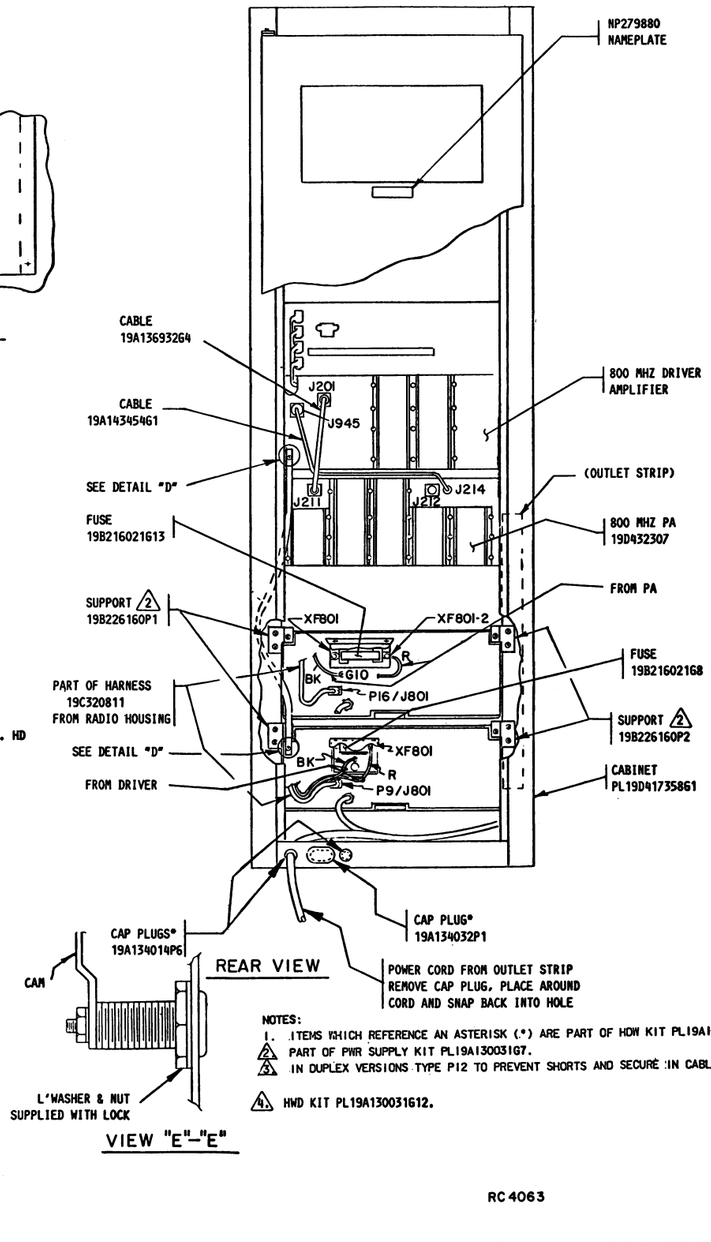
RC4062

MECHANICAL PARTS BREAKDOWN

806—870 MHz, 90 WATT SOLID STATE
POLE MOUNT STATION





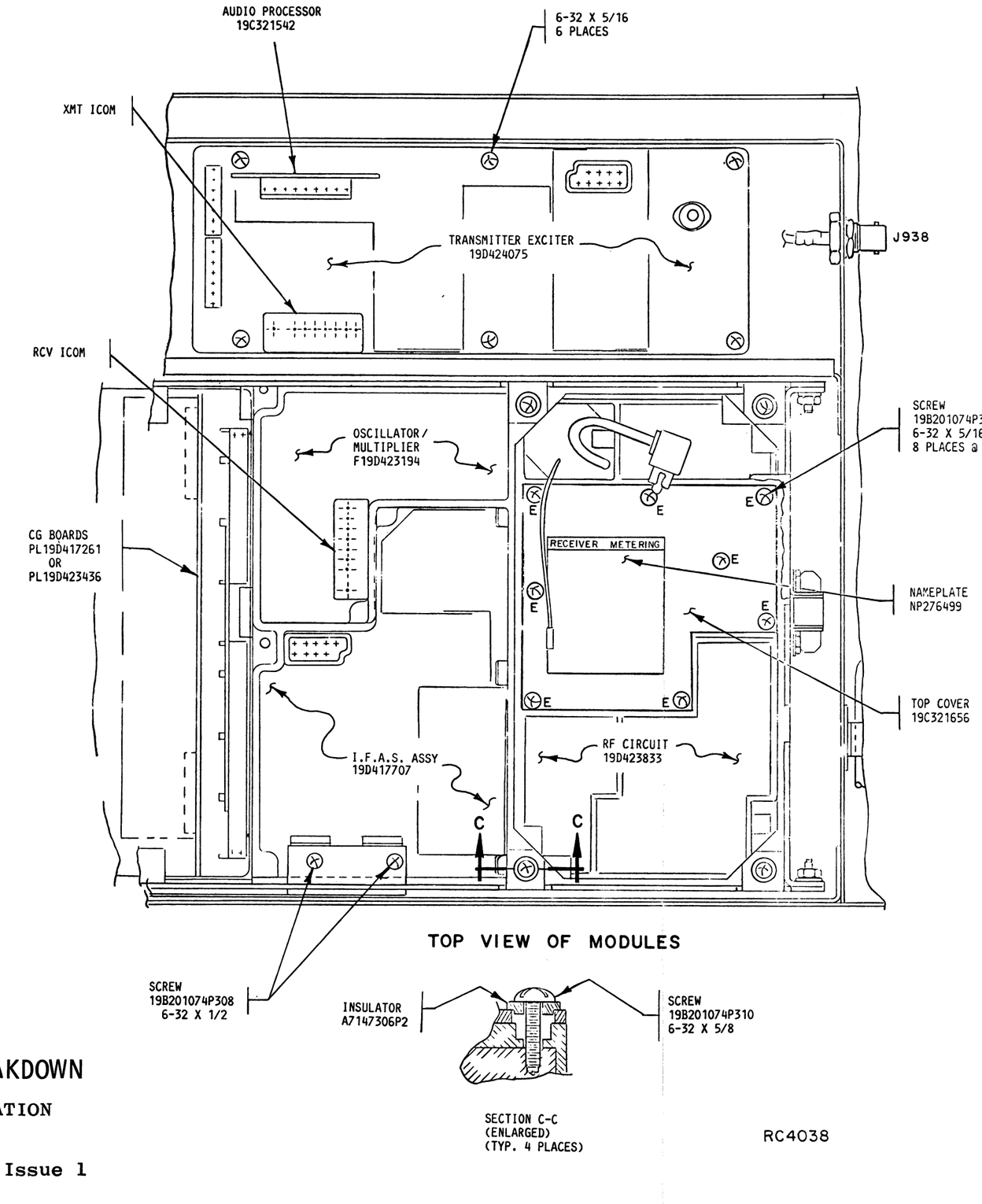


NOTES:
1. ITEMS WHICH REFERENCE AN ASTERISK (*) ARE PART OF HDW KIT PL19A130031G6.
2. PART OF PWR SUPPLY KIT PL19A130031G7.
3. IN DUPLEX VERSIONS TYPE P12 TO PREVENT SHORTS AND SECURE IN CABLE CLAMP.
4. HWD KIT PL19A130031612.

RC4063

MECHANICAL PARTS BREAKDOWN

806—870 MHz, 90 WATT SOLID STATE FLOOR MOUNT STATION



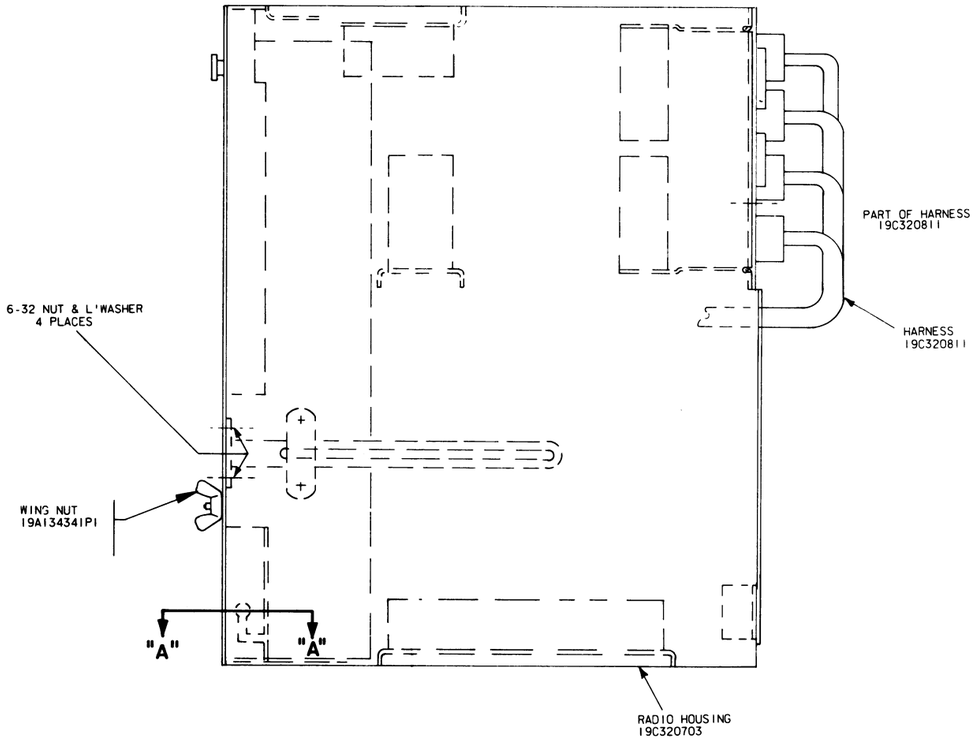
TOP VIEW OF MODULES

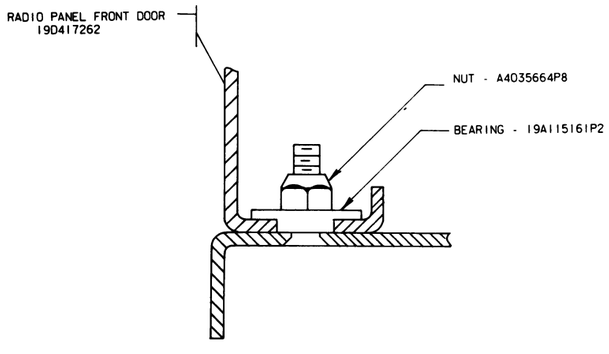
SECTION C-C
(ENLARGED)
(TYP. 4 PLACES)

RC4038

MECHANICAL PARTS BREAKDOWN

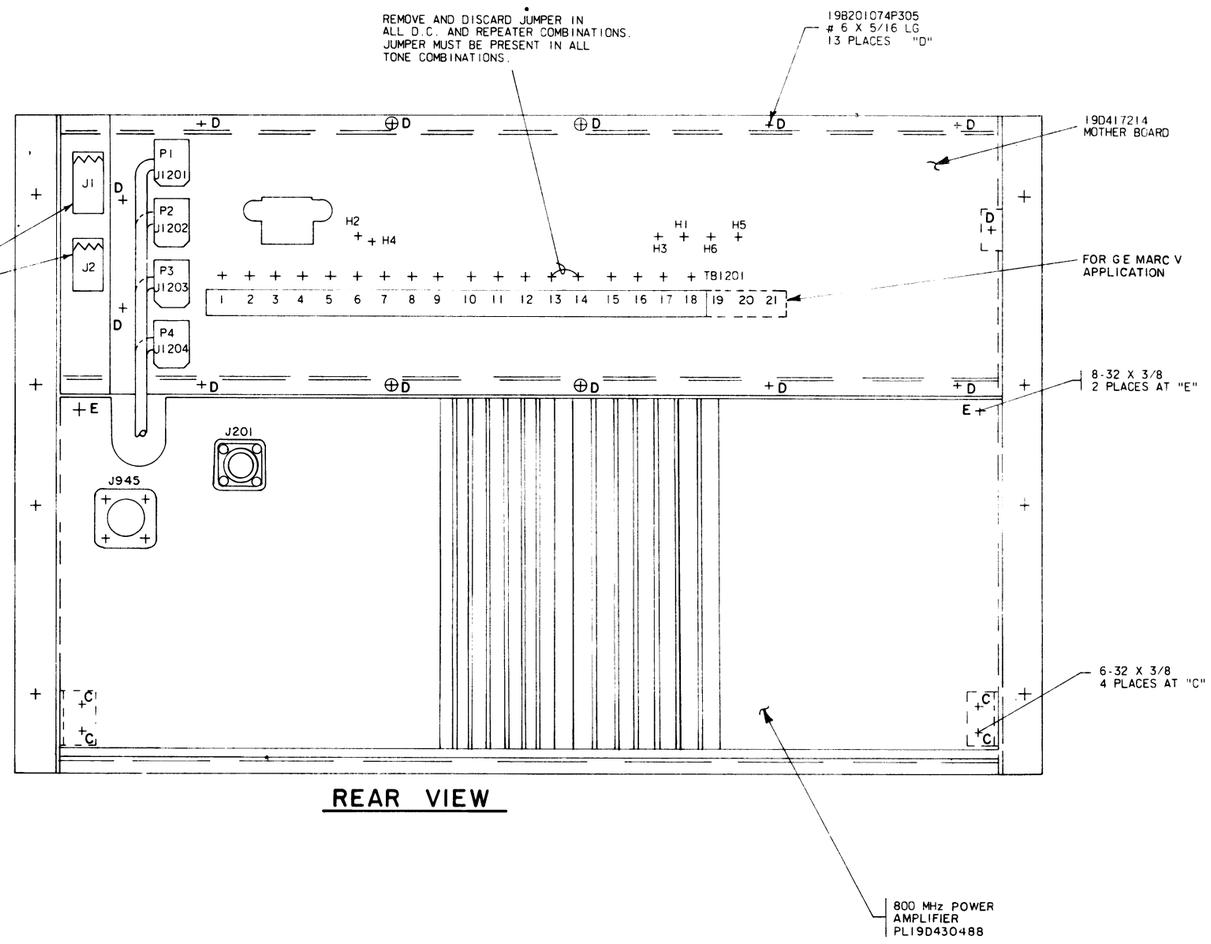
806—870 MHz, 90 WATT STATION
RADIO HOUSING FRONT DOOR





ENLARGED SECTION "A" - "A" (PARTIAL)

TYPICAL OPPOSITE SIDE

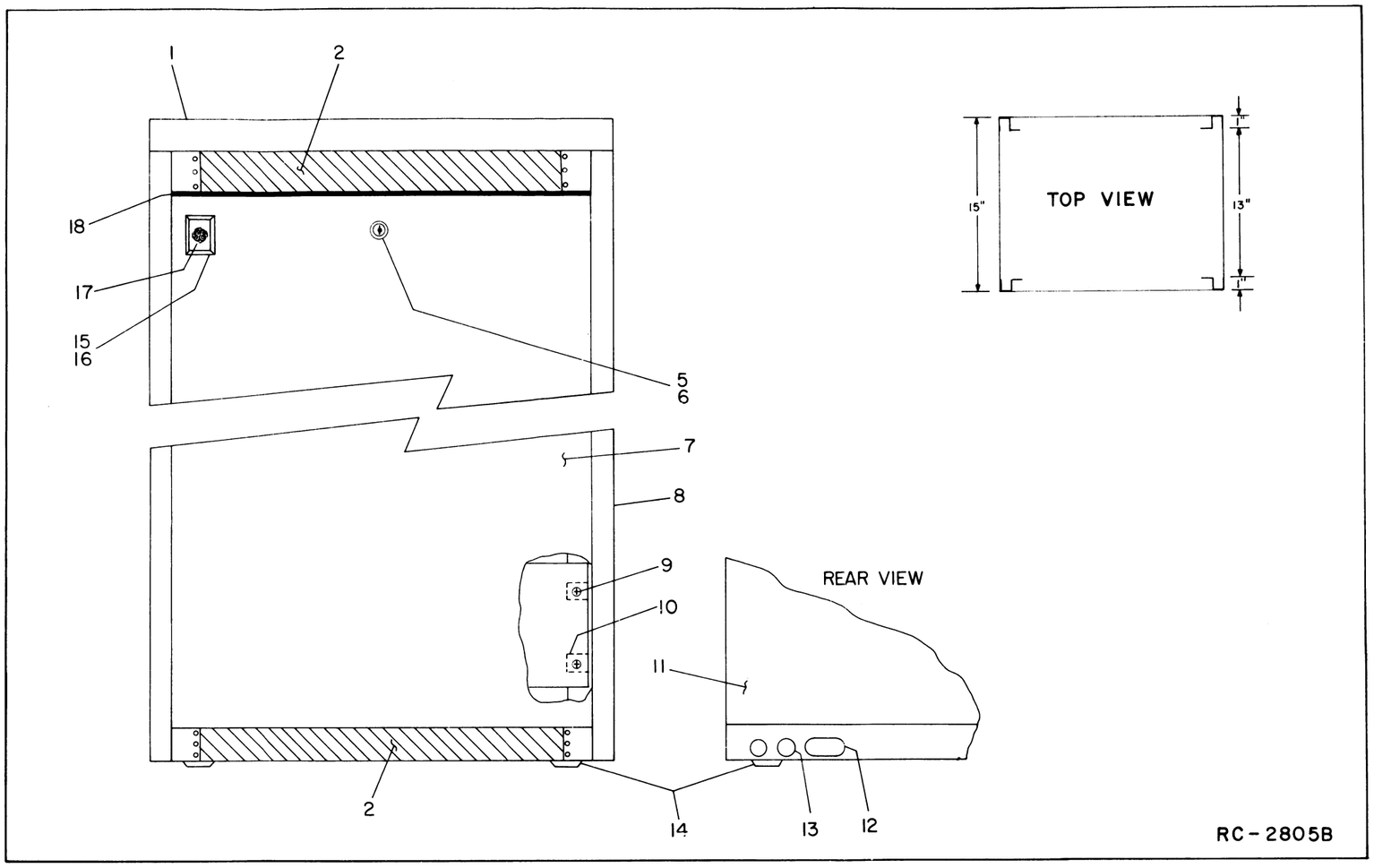


REAR VIEW

RC - 3891

MECHANICAL PARTS BREAKDOWN

806—870 MHz, 90 WATT STATION
MOTHER BOARD & DRIVER ASSEMBLIES



PARTS LIST

LBI-4975C

DESK MATE STATION CABINET
CONTINUOUS AND INTERMITTANT DUTY
(SEE RC-2805)

SYMBOL	GE PART NO.	DESCRIPTION
		30 INCH CABINET
1	19C320655P1	Top.
2	19C320654P1	Screen.
3		(Not Used).
4		(Not Used).
5	5491682P23	Lock. Yale and Towne F6557DX1.
6	5491682P4	Key. Yale and Towne BF-10A.
7	19C320744G7	Front door.
8	19D417231G3	Cabinet. (LESS DOORS). (Includes items 1 and 2).
9	19A134011P1	Tap screw: No. 10-16 x 3/4. (Quantity 52).
10	7160861P32	Nut, sheet spring; sim to Tinnerman C1794-10Z-24. (Quantity 52).
11	19C320744G8	Rear door.
12	19A134032P1	Protective plug. (Quantity 1).
13	19A134014P6	Bushing, strain relief: sim to Heyco UB-1093.
14	19A134015P1	Protective plug: sim to Caplug BPF-1/2. (Quantity 4).
15	19C311298P1	Frame. (Used with monogram).
16	4031053P7	Nut, sheet spring; sim to Tinnerman C12046-012-67. (Quantity 1).
17	NP257660	Nameplate.
18	NP276429	Nameplate. (GFNERAL ELECTRIC).
		44 INCH CABINET
1	19C320655P1	Top.
2	19C320654P1	Screen.
3		(Not Used).
4		(Not Used).
5	5491682P23	Lock. Yale and Towne F6557DX1.
6	5491682P4	Key. Yale and Towne BF-10A.
7	19C320744G9	Front door.
8	19D417231G4	Cabinet. (LESS DOORS). (Includes items 1 and 2).
9	19A134011P1	Tap screw: No. 10-16 x 3/4. (Quantity 52).
10	7160861P33	Nut, sheet spring; sim to Tinnerman C19640-10AB-3B. (Quantity 52).
11	19C320744G10	Rear door.
12	19A134032P1	Protective plug. (Quantity 1).
13	19A134014P6	Bushing, strain relief: sim to Heyco UB-1093.
14	19A134015P1	Protective plug: sim to Caplug BPF-1/2. (Quantity 4).
15	19C311298P1	Frame. (Used with monogram).
16	4031053P7	Nut, sheet spring; sim to Tinnerman C12046-012-67. (Quantity 1).
17	NP257660	Nameplate.
18	NP276429	Nameplate. (GENERAL ELECTRIC).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

MECHANICAL PARTS BREAKDOWN

DESK MATE CABINET

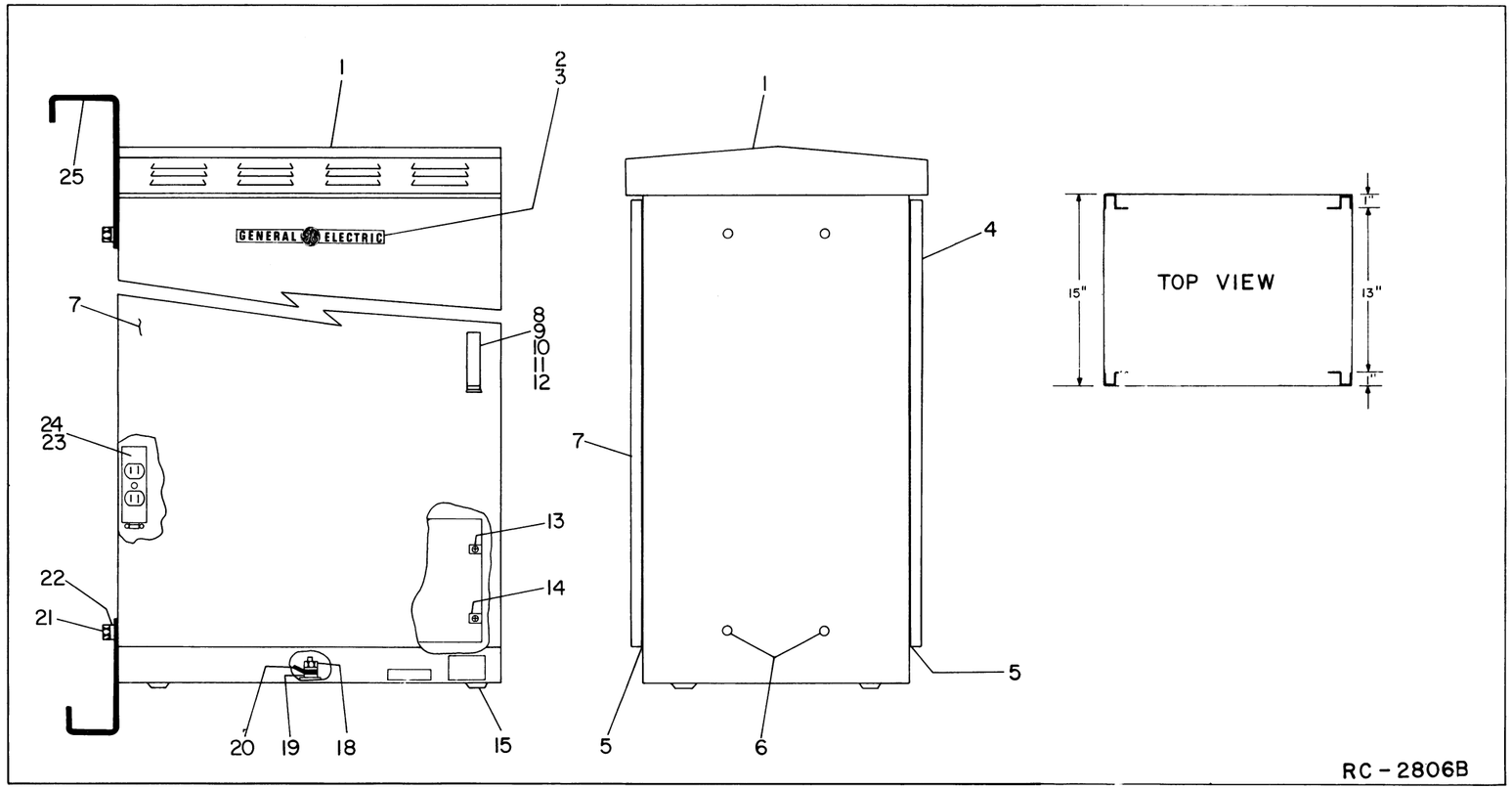
PARTS LIST

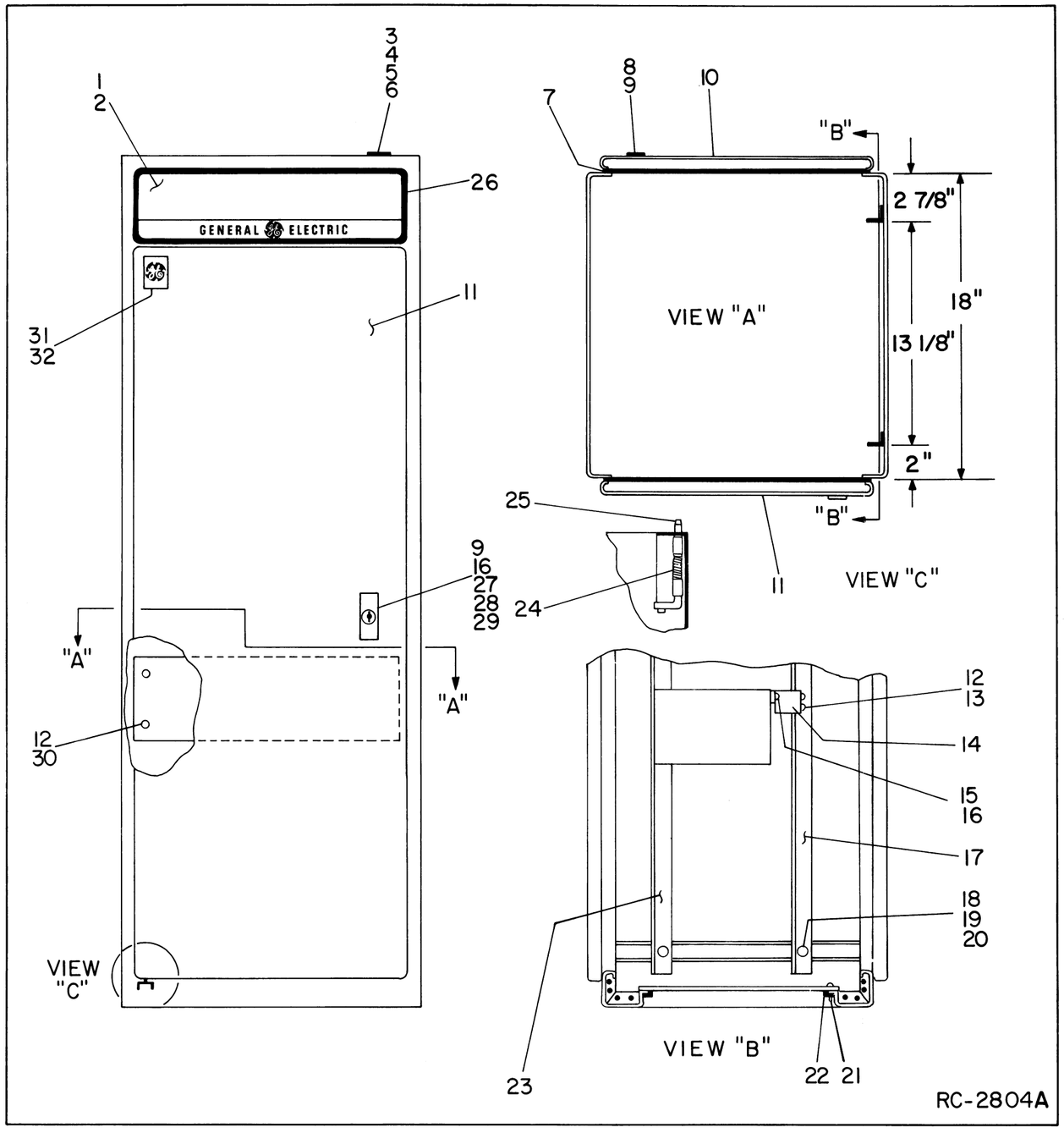
LBI4976D

POLE MOUNT STATION CABINET
CONTINUOUS AND INTERMITTANT DUTY
19D417550G1
(SEE RC2806)

SYMBOL	GE PART NO.	DESCRIPTION
1	19D417550G1	Cabinet.
2	19B209531P1	Nameplate. (GENERAL ELECTRIC).
3	4031310P7	Nut, push on: sim to Tinnerman C610-012-24.
4	19D417543G2	Door, left hand.
5	19A134128P1	Door seal. (Front and rear).
6	19A134059P1	Protective plug.
7	19D417543G1	Door, right hand.
8	19A134049P3	Door handle.
9	7150752P1	Strike catch.
10	N84P15008C6	Machine screw: No. 8-32 x 1/2.
11	N403P16C6	Lockwasher, external tooth: No. 8.
12	N210P15C6	Hex nut: No. 8-32.
13	19A134011P1	Tap screw: No. 10-16 x 3/4. (Quantity 52).
14	7160861P33	Nut, sheet spring; sim to Tinnerman C19640-10AB-3B. (Quantity 52).
15	19A134015P2	Protective plug.
16	NP270697	Nameplate.
17	NP196405	Nameplate.
18	N210P21C6	Hex nut: No. 1/4-20.
19	N403P25C6	Lockwasher, external tooth: 1/4 inch.
20	19A115141P2	Solderless terminal: sim to ILSCO SLU70.
21	N22P25016C6	Cap screw: No. 3/8-16 x 1.
22	N405P43C6	Lockwasher, spring type: 3/8 inch.
23	19B226350G1	Outlet strip.
24	19B209103P506	Tap screw: No. 10-32 x 3/8. (Secures outlet strip).
25	19C320942P1	Mounting bracket.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES





PARTS LIST

LBI4977C

FLOOR MOUNT STATION CABINET
CONTINUOUS AND INTERMITTANT DUTY
19D417358G1
(SEE RC2804)

SYMBOL	GE PART NO.	DESCRIPTION
1	19D417623G1	Grille.
2	19B226318P1	Grille plate. (Located under grille).
3	19B219744G2	Strain relief.
4	N80P15008C6	Machine screw: No. 8-32 x 1/2.
5	N210P15C6	Hex nut: No. 8-32.
6	N403P16C6	Lockwasher, external tooth: No. 8.
7	19A126220P1	Gasket, door.
8	19B209539P2	Lock, rear door: sim to Chicago Lock Co. 1703-6T.
9	19B209539P3	Key. Sim to Chicago Lock Co. 1000 GE.
10	19C320756G2	Door, rear. 64 inch.
11	19C320756G1	Door, front. 59 inch.
12	19A134011P1	Tap screw: No. 10-16 x 3/4. (Quantity 52).
13	7160861P33	Nut, sheet spring; sim to Tinnerman C19640-10AB-3B. (Quantity 16).
14	19B226160P2	Support.
15	N80P16008C6	Machine screw: No. 10-32 x 1/2.
16	N403P19C6	Lockwasher, external tooth: No. 10.
17	19B226094P2	Support.
18	N80P21012C6	Machine screw: No. 1/4-20 x 3/4.
19	N403P25C6	Lockwasher, external tooth: 1/4 inch.
20	N402P41C6	Flatwasher: No. 1/4.
21	N80AP16006C6	Machine screw, panhead: No. 8-32 x 3/8.
22	7160861P5	Nut, sheet spring; sim to Tinnerman C1505-1032-157.
23	19B226094P1	Support.
24	19A129902P1	Spring.
25	19B226088P1	Pin hinge.
26	19B226092G1	Frame.
27	19B209539P1	Lock, front. Sim to Chicago Lock Co. 4260-1.
28	N80P16007C6	Machine screw: No. 10-32 x 7/16.
29	N210P16C6	Hexnut: No. 10-32.
30	7160861P33	Nut, sheet spring; sim to Tinnerman C19640-10AB-3B.
31	NP257660	Nameplate. (GE).
32	4031053P7	Nut, sheet spring; sim to Tinnerman C12046-012-67.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

MECHANICAL PARTS BREAKDOWN

FLOOR MOUNT STATION CABINET