MOBILE RADIO

DESCRIPTION AND MAINTENANCE
MASTR II HIGH POWER STATION COMBINATIONS

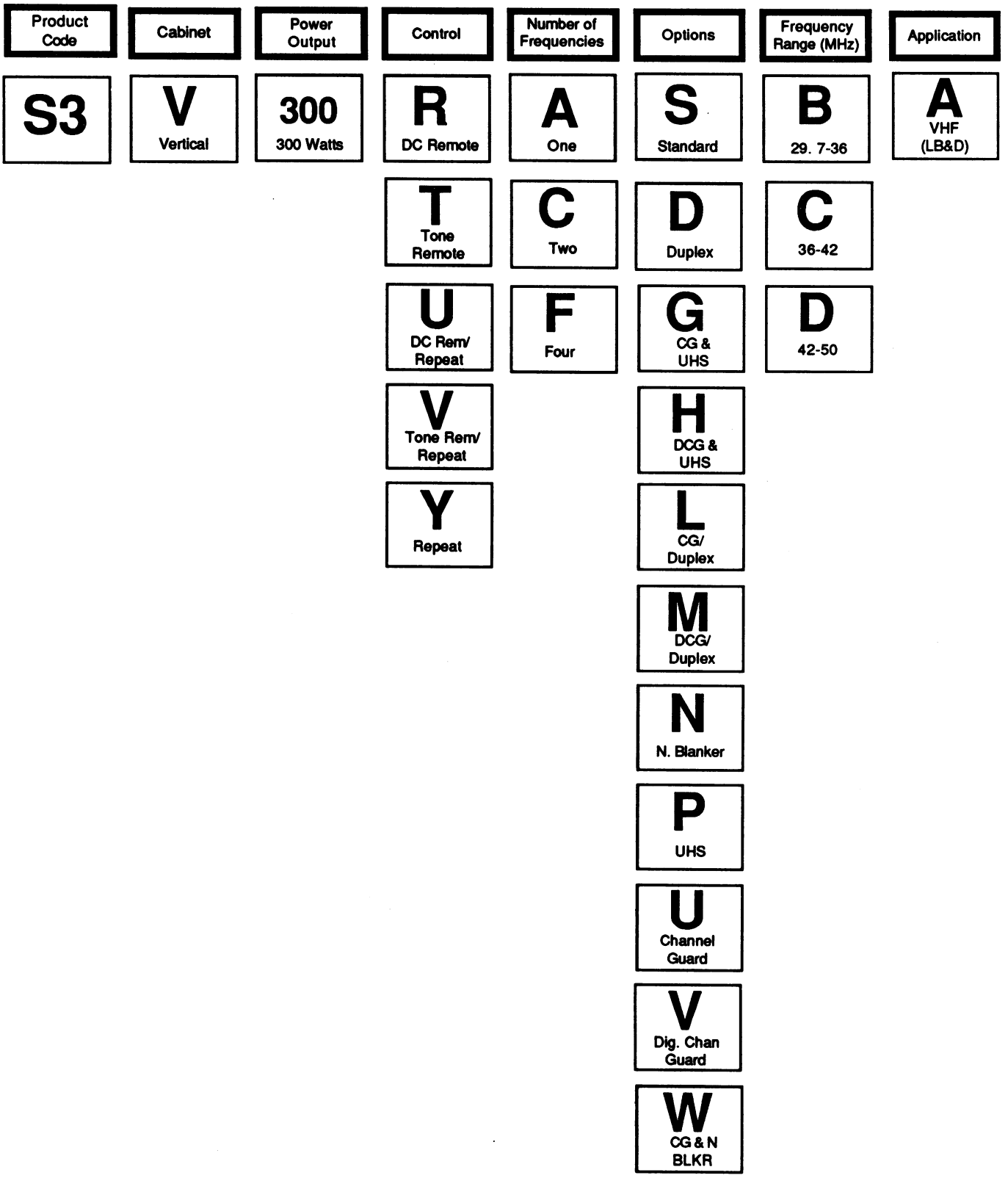
TABLE OF CONTENTS

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 KEYED.


Product Code
S3
Cabinet
V
Vertical
Power Output
300
300 Watts
Control
R
DC Remote
T
Tone Remote
U
DC Rem/ Repeat
V
Tone Rem/ Repeat
Y
Repeat
Number of Frequencies
A
One
C
Two
F
Four
Options
S
Standard
D
Duplex
G
CG & UHS
H
DCG & UHS
L
CG/ Duplex
M
DCG/ Duplex
N
N. Blanker
P
UHS
U
Channel Guard
V
Dig. Chan Guard
W
CG & N BLKR
Frequency Range (MHz)
B
29. 7-36
C
36-42
D
42-50
Application
A
VHF (LB&D)

SPECIFICATIONS

FCC FILING NUMBER:	
Transmitter	KT-39-A
Receiver	ER-63-A
FREQUENCY RANGE	29.7 MHz - 50 MHz
RF OUTPUT POWER	300 Watts
INPUT VOLTAGE	121/242 VAC, 60 Hz Only (50 Hz Optional); 220 VAC with optional step-down transformer.
AC INPUT POWER	
Transmit	960 Watts
Receive	200 Watts
Standby	176 watts
EIA DIMENSIONS (H X W X D)	
FLOOR MOUNT	69" X 23" X 25.5"
WEIGHT	
FLOOR MOUNT	403 lbs
TEMPERATURE RANGE	30° to +60° C (-22° to +140° F)
	A cabinet blower is required for operation above 40° C ambient.

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

DESCRIPTION

General Electric MASTR II High Power Radio Combinations are designed for either DC or Tone Remote Control or Repeater operation. Figures 1 and 2 show a typical rack up of the high power station assembly. The station receiver is mounted in a shielded enclosure on the radio panel front door, along with a receiver system board which accommodates Channel Guard and other option boards. Jacks are provided on the system board for plug-in interface with the options and control functions. The transmitter exciter is located in a separate shielded compartment on the radio panel front door. See Figure 3.

The transmitter driver power amplifier hinges from the bottom of the radio housing. The Driver P/A assembly consists of a frame mounted to a heat sink. A cover snaps over the frame to form an RF-tight enclosure for the Driver PA board assembly.

The RF High Power Amplifier mounts at the top of the rack under the meter panel. A blower is used to cool the PA tubes in the Power Amplifier and is mounted on the front of the PA Power Supply.

Directly above the Driver PA assembly is the station control shelf. This shelf houses the Control Panel and the Mini Backplane shelf. The option cards used with the Control Shelf plug into the Mini-backplane. These options include: Auxiliary Control, Auxiliary Receiver (DC or Tone), and Scan.

Two front panels are used with the Control Panel: one for all station applications and one for the repeater. The Front Panels are shown in Figures 4 and 5. Front Panel controls include the transmit (TF1-TF4) and receive (RF1-RF4) frequency select, REM PTT, Speaker, Auxiliary receiver, ICOM (Intercom) and TEST switches, and the VOLUME Control. Indicators include the TX (transmit), RPTR Disable, and Frequency Select (F1-F4). Figure 6 shows a typical layout of a MASTR II Station Assembly with Control Panel.

Interconnections to the Control Shelf are made through TB1201 located on the back of the Shelf.

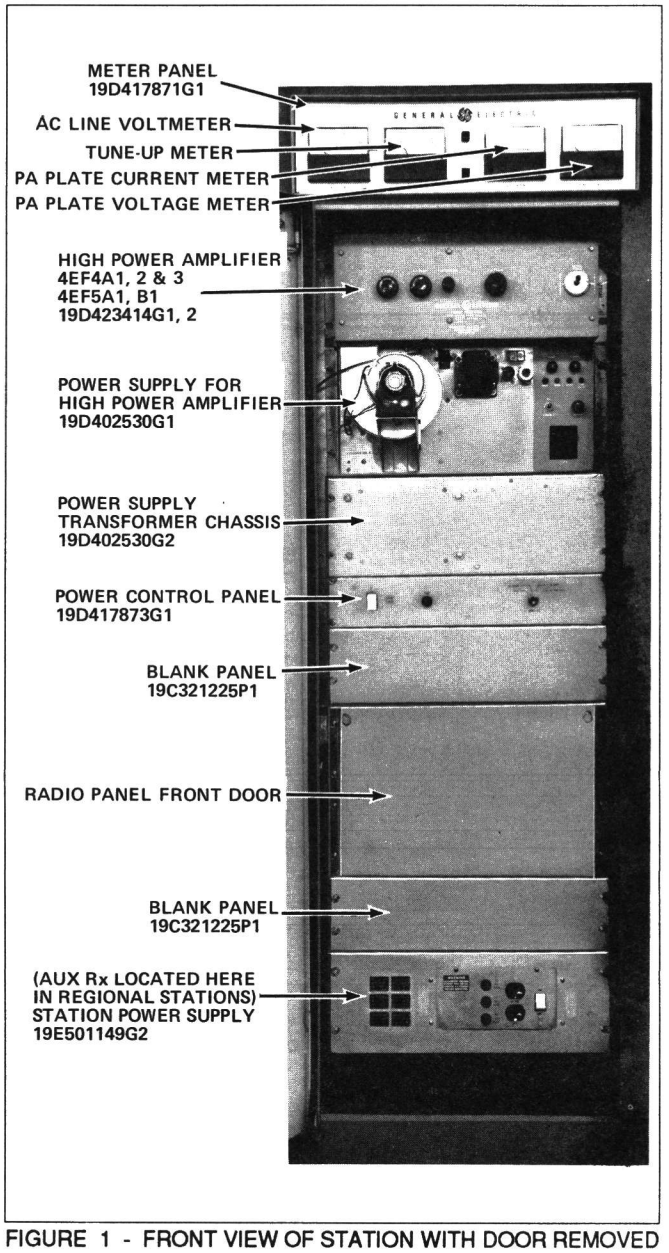


FIGURE 1 - FRONT VIEW OF STATION WITH DOOR REMOVED

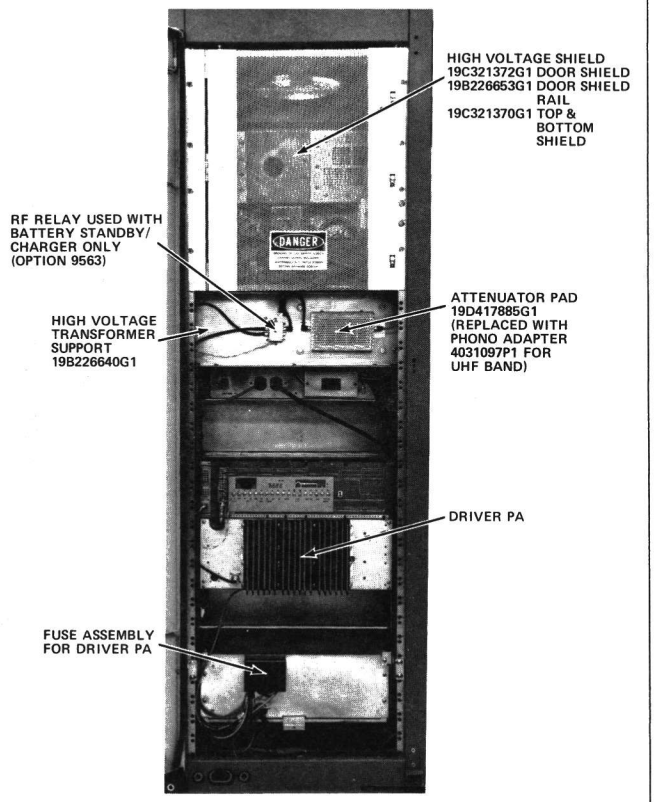


FIGURE 2 - REAR VIEW OF STATION WITH DOOR REMOVED

For ease of servicing, the station contains centralized metering. A meter panel at the top of the station operates in conjunction with the Meter Function switch on the Power Panel and the transmit and Receive switches inside the Radio Panel Front Door. The meter panel contains a voltmeter and two current meters.

The station power supply and the PA power supply are connected through the Power Panel to a 121 VAC power source. The station power supply contains a power switch, primary and secondary fuses, and two AC outlets located on the front panel. A high current fuse is located on the back panel of the Driver PA. The station power supply provides input voltage for the station Receiver, Control, Exciter, and PA Driver.

The PA power supply provides voltage to the filament, grid, antenna relay, and also High Voltage for the RF Power Amplifiers. The power supply consists of a main chassis and a transformer chassis mounted separately in the station cabinet.

NOTE

Converting the high power station from 121 VAC power input to 220 VAC input requires a special step-down transformer (Option 9578). This transformer has taps for 205 and 235 VAC operation. The modification for 220 VAC operation outlined in the low Power Supply Maintenance manual **should not be performed** in High-Power station applications.

SYSTEM DESCRIPTION

RECEIVER

The station receiver consists of an oscillator/multiplier assembly (OSC/MULT), RF Assembly, Mixer/IF Assembly (MIF) and IF-Audio Squelch Assembly (IFAS). In receivers with noise blankers, the noise blanker circuit replaces the standard MIF board. Refer to the Receiver Maintenance Manual for a complete description of the station receiver.

TRANSMITTER

The station transmitter consists of three separate assemblies: an exciter board, the PA Driver, and the high power PA. The transmitter exciter is located in the radio panel front door. The driver PA assembly is located at the rear of the cabinet behind the radio panel front door. The high power PA assembly is located at the top of the cabinet, just below the meter panel. Refer to the high power PA and the PA driver Maintenance Manuals for a complete description of the station transmitters.

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 with the Remote Control Shelf and Power Supply. Plug-in Channel Guard and Carrier Control Timer option jacks are provided. A metering jack is provided to accommodate the General Electric Model 4EX3A11 Test Set. VOLUME Control R3 is located on the System Board. SQUELCH Control R901 is located on the Radio Panel Front Door.

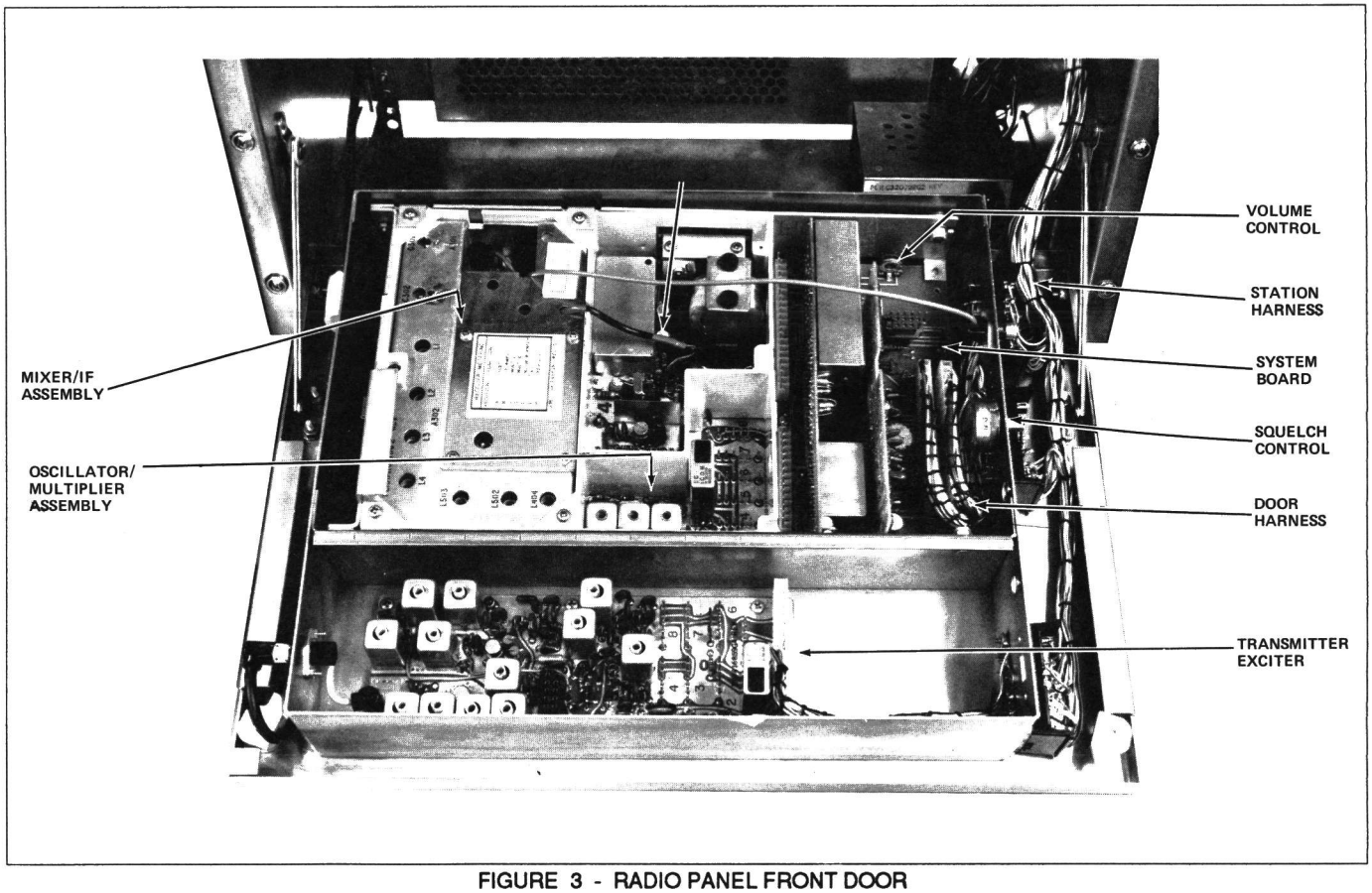
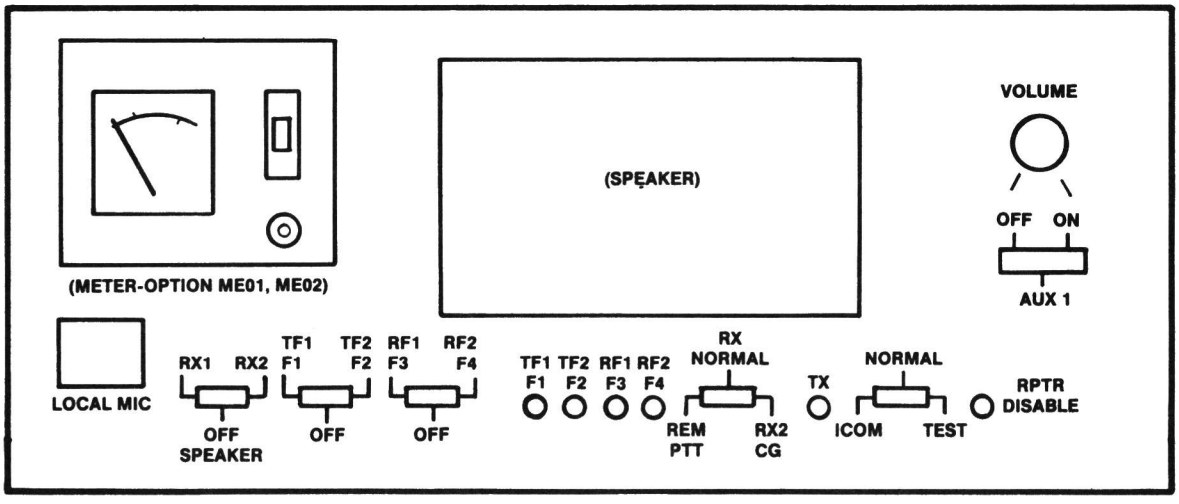


FIGURE 3 - RADIO PANEL FRONT DOOR



FRONT PANEL MARKING FOR PARTS 21-73

FIGURE 4 - STATION CONTROL PANEL

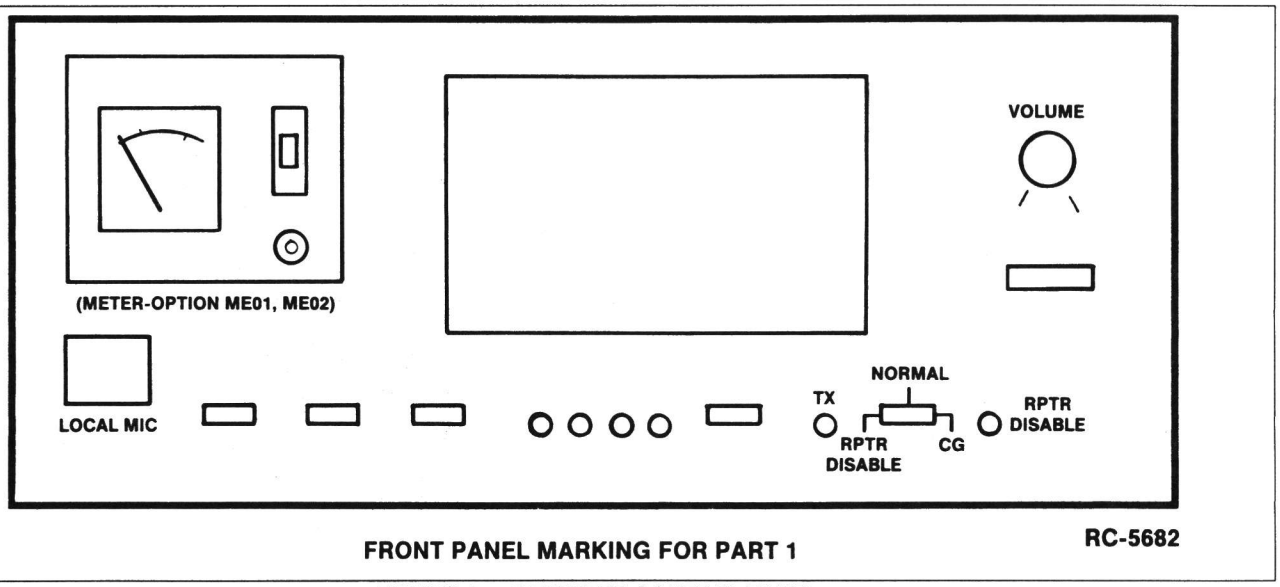


FIGURE 5 - REPEATER CONTROL PANEL

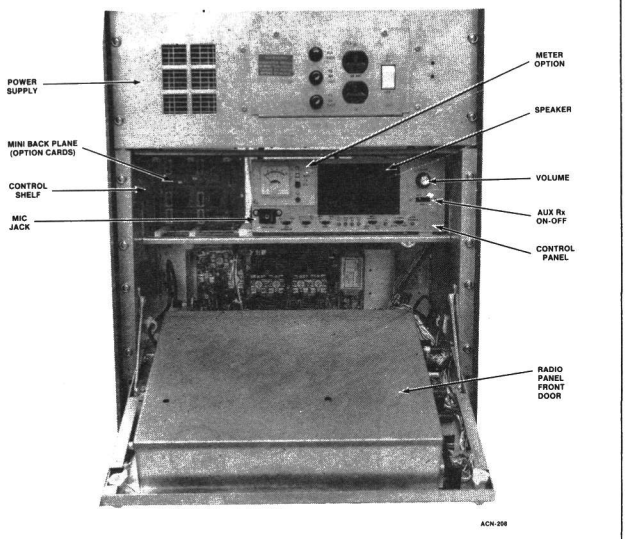


FIGURE 6 - TYPICAL STATION ASSEMBLY

A jumper is normally present between J933-4 and J933-8 in single-frequency transmit stations. A jumper is also present between H47 and H48 on A901 in single frequency receive stations. In multiple frequency receive stations, selecting a particular receive frequency at the remote control unit applies a ground to the particular pin at J931 corresponding to the frequency selected. The ground is then connected via the System Board printed wiring to the receiver OSC/MULT to select the desired oscillator.

VOLUME/SQUELCH from the receiver Audio Pre-Amp is connected via J904-12 to the station VOLUME control R3 and SQUELCH control R901. The volume arm is returned to the receiver IFAS Board where the signal is amplified by the receiver audio power amplifier circuit. The audio output of the PA is then connected to the speaker leads at J904-18 & 19. The station VOLUME control is normally adjusted for 1-watt output and the station speaker level is controlled by the service speaker VOLUME control.

DC REMOTE CONTROL

In DC Remote Control Systems, DC currents are selectively applied to a telephone pair at a remote control console to set the system operating characteristics. Items that are controlled by the DC Remote Control system include selecting the number of channels, scan option, Channel Guard Disable, Repeater Disable, and Auxiliary Receiver. In some cases combinations of the above may be selected. Refer to the Control Panel Maintenance Manual for a complete description.

TONE REMOTE CONTROL

Up to 13 functions may be controlled in the Tone Remote Control system. This is accomplished by applying the specified tone frequency at the prescribed level to the transmission medium at a remote control console for detection by the Tone Remote Control system on the

Control Shelf. The controlled functions include transmitter/receiver selection, Rx Channel Guard Disable, Channel Guard or Repeater Enable/Disable, Auxiliary function on/off, repeater enable, scan or sim. monitor or repeater disable, and Tx hold. Refer to the Control Shelf Maintenance Manual for a complete system description.

CHANNEL GUARD

In stations equipped with Channel Guard, the Channel Guard Board is plugged into the System Board at P908 and P909. Each MASTR II receiver is equipped with a tone reject filter to prevent the CG tone from being heard in the speaker. In addition, all transmitters are provided with a Channel Guard Modulation control to set deviation.

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

The decoder operates in conjunction with the 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. When the received signal is not properly coded with the CG tone, a ground is supplied through P908-5 to mute the receiver. When a properly coded signal is received, the receiver unsquelches 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.

A Channel Guard Filter is used in the remote audio board to attenuate frequencies below 203.5 Hertz to prevent the Channel Guard tone from being applied to the remote audio pair.

In duplex combinations, a separate Channel Guard Encoder board is located in the exciter compartment. This permits simultaneous encode and decode functions.

A repeater will not key in Channel Guard systems unless the received signal is coded with the proper Channel Guard tone. The CG MONITOR function when selected will not allow the repeater to key on an encoded signal but will allow the operator to hear all channel activity.

METER PANEL

The Meter Panel is mounted at the top of the cabinet. It contains four meters and two indicator lamps. The function of the four meters are: AC Line Voltmeter, Tune-up meter, PA Plate Current Meter, and PA plate Voltage Meter. The meter panel is operated in conjunction with the Tune-up meter switch on the Power Panel to meter all the necessary tune-up functions of the station. The green indicator lamp glows when the station is turned on. The red indicator lamp glows when the station transmitter is keyed.

POWER CONTROL PANEL

The Power Control Panel mounts above the Radio Panel Front Door and contains two switches, a fuse, and an AC outlet. S1 is the cabinet power switch that supplies power to AC outlet J1 through the main 15 ampere fuse, F1. The power cords for the station Power Supply and the High Power PA Power Supply plug into J1. S2 is the Tune-up Function switch for the Meter Panel.

ATTENUATOR PAD

The attenuator pad mounts on the back of the transformer chassis and provides 3.5 dB attenuation between the Driver PA and the High Power PA.

INITIAL ADJUSTMENT

After the MASTR II High Power Station has been installed as described in the Installation Manual, the following adjustments should be made by an authorized electronics technician before the station is placed in service.

TEST EQUIPMENT REQUIRED

1. Deviation Monitor
2. Wattmeter, 50 ohms, rated power
3. RF Generator, (Station RF Frequencies)
4. AC Voltmeter
5. 30 dB Coupler

TRANSMITTER ADJUSTMENT

Transmitter adjustment includes measuring the forward and reflected power and adjusting the antenna length for optimum ratio, then setting the transmitter to the rated power output. Next measure and record the frequency and modulation for future reference. For complete transmitter adjustment procedures, refer to the Alignment Procedure in the applicable radio Maintenance Manual.

RECEIVER ADJUSTMENT

Initial adjustment of the receiver includes tuning the input circuit to match the antenna, adjusting the station volume control, and setting the station squelch control. Refer to the Front End Alignment and Adjustment Procedures in the Maintenance Manual.

STATION VOLUME (R3 on System Board)

1. Apply a 1000 microvolt on-frequency test signal modulated by 1000 Hz with + 3 kHz deviation to the receiver antenna jack J937.
2. Turn service speaker switch (S1) to desired RCVR position.
3. Connect an AC Voltmeter across J905-1 and 2 and adjust R3 for a reading of 6.3 Volts RMS on the meter.

CAUTION

Adjusting the VOLUME control for levels higher than specified may cause damage to the speaker.

4. Set VOLUME switch S2 on the service speaker to the desired listening level.

STATION SQUELCH (R901 on Receiver Exciter Door)

1. Turn the SQUELCH control clockwise as far as possible.
2. Turn the SQUELCH control counterclockwise until the noise just disappears, then advance the control (clockwise) another 20 degrees.

LOCAL CONTROL MODULATION ADJUSTMENT

1. Apply a 1000 Hz, 1 VRMS signal across P3-2 (MIC HI) and P3-1 (low). Connect a 0.5 microfarad (or larger) DC blocking capacitor in series with the MIC HI lead, P3-2.
2. Set MOD ADJUST control R127 on the exciter for 4.5 kHz deviation as indicated on a frequency modulation monitor.
3. While talking in a normal voice, at the station microphone, adjust LOCAL TX MOD LEVEL R222 (Tone Panel) or R46 (DC Panel) on the Control Panel for a deviation of 3 TO 4 kHz as measured on the deviation monitor.

REMOTE CONTROL ADJUSTMENTS

The transmitter modulation gain, the remote audio input and line output must be adjusted before placing the station in operation. Refer to the DC Remote Control or the Tone Remote Control Maintenance Manual for these adjustments.

REPEATER CONTROL ADJUSTMENT

The repeater drop-out delay timing and 3-minute limit timing must be adjusted before placing the station in operation. Refer to the Maintenance Manual for the Repeater Control Panel for these adjustments.

REPEATER CONTROL MODULATION ADJUSTMENT

1. Apply a 1000 Hz, on frequency signal modulated with 1000 Hz tone at + 3 kHz deviation to the station receiver.

2. Adjust TX MOD control R60 on the Control Panel for a 3.0 kHz deviation as indicated on the deviation monitor.

MAINTENANCE

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

MAINTENANCE CHECKS

	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 each operating frequency for a zero discriminator reading. (See the Receiver Alignment Procedure).		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 may have accumulated inside the cabinet.	X	
Frequency Check: Check transmitter frequency & deviation.		X

TEST AND TROUBLESHOOTING PROCEDURES

The individual Maintenance Manuals for the transmitter and receiver describe standard test procedures which the technician 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 technician when servicing the transmitter and receiver.

Removing IC's and other soldered-in components can be easily accomplished by using a vacuum de-soldering tool. To remove an IC, heat each lead separately on the solder 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.

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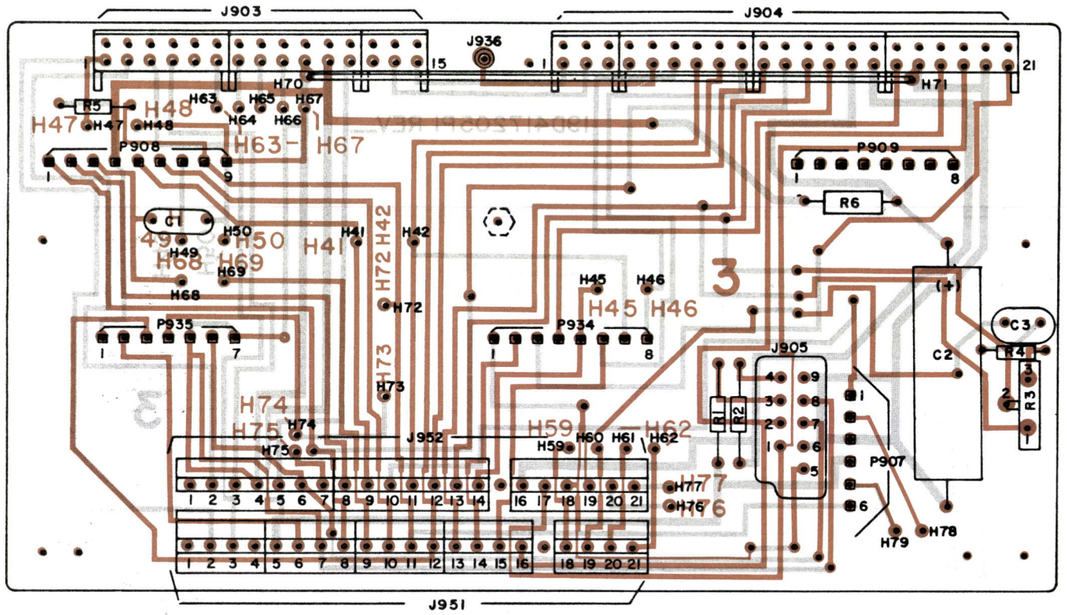
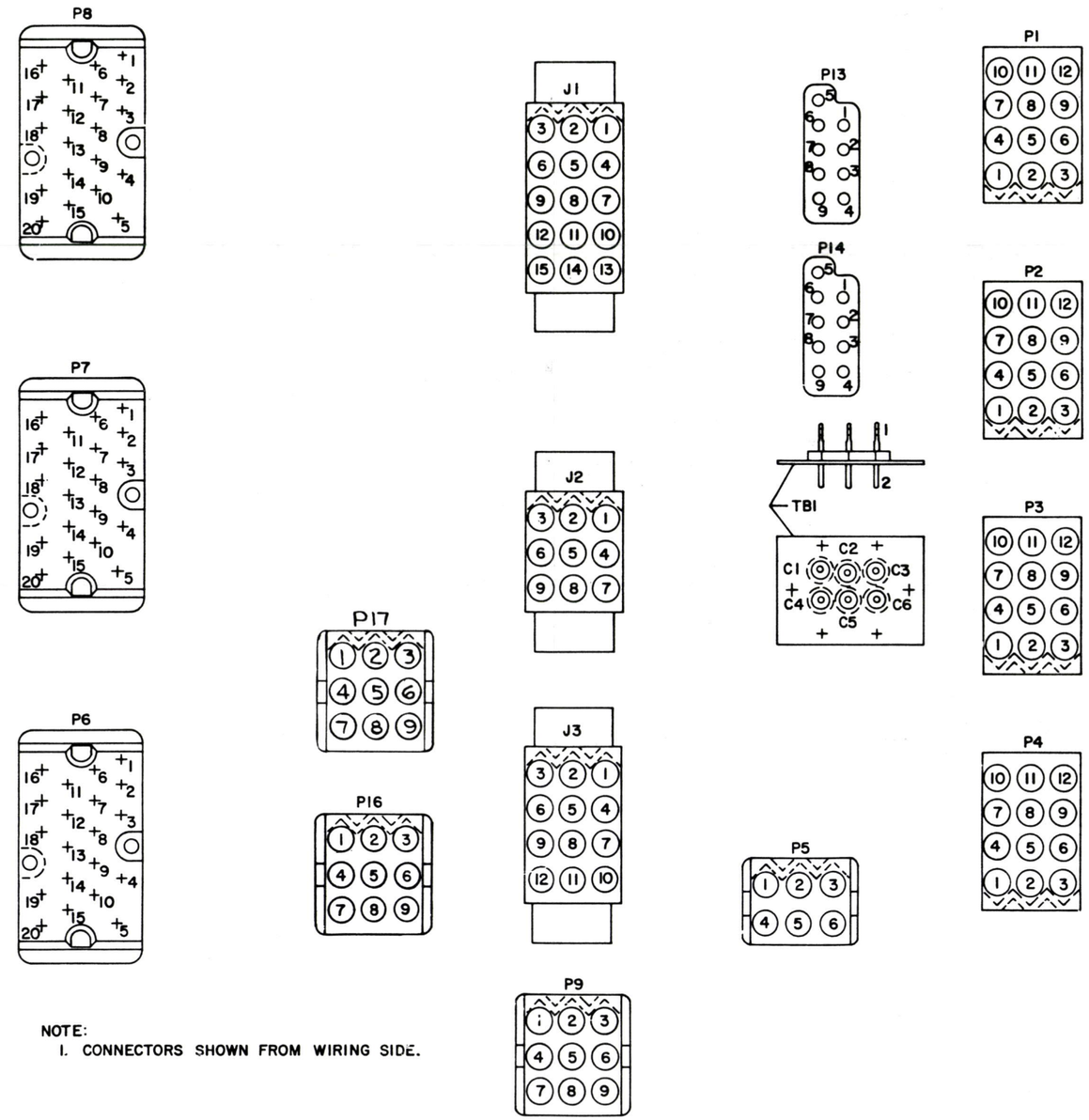


REFER TO WIRING DIAGRAM FOR THE FOLLOWING CONNECTIONS	
FROM	TO
H41	H42
H50	H77
H45	H46
H47	H48
H68	H69
H49	H76

(19D423147, Rev. 2)
(19D417205, Sh. 3, Rev. 3)
(19D417205, Sh. 2, Rev. 3)

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

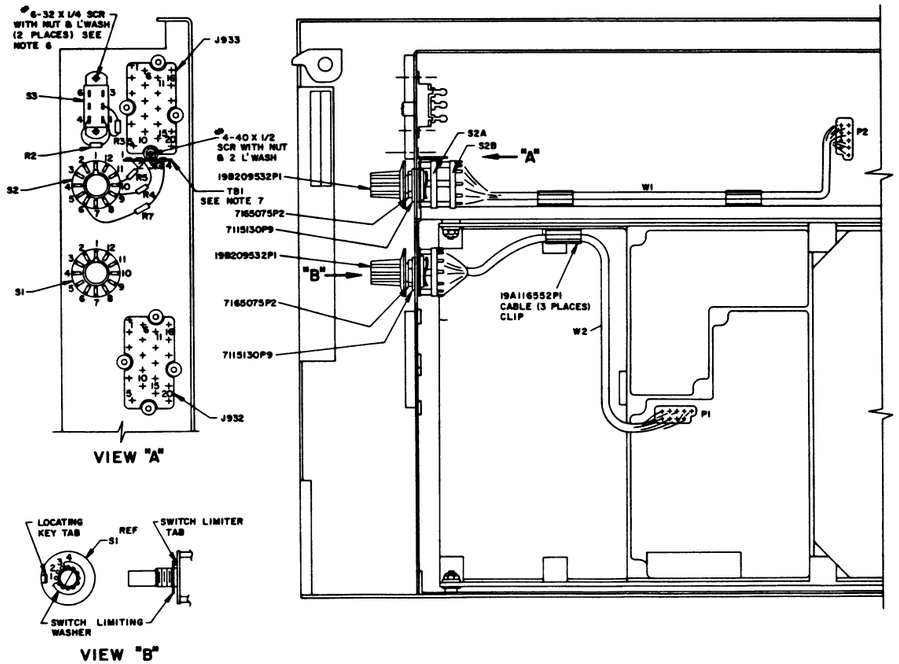


NOTE:
1. CONNECTORS SHOWN FROM WIRING SIDE.

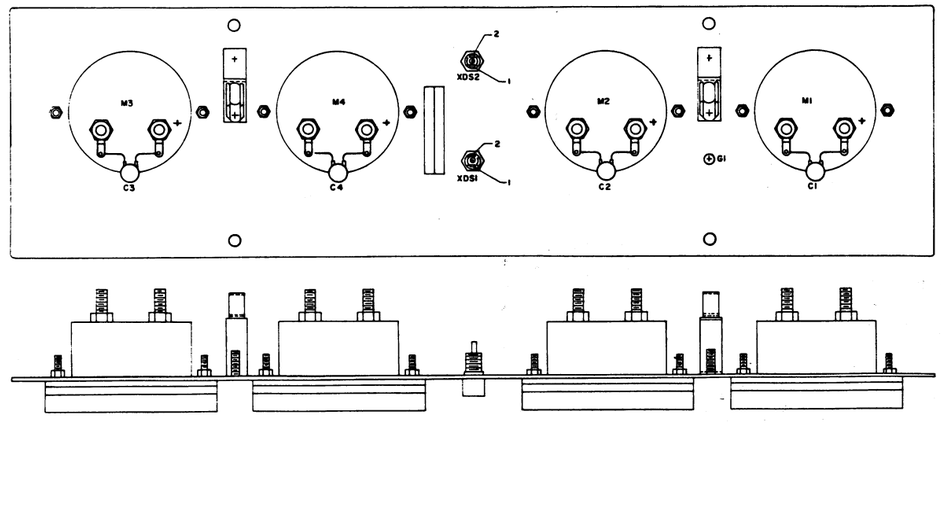
(19C328112, Rev. 2)

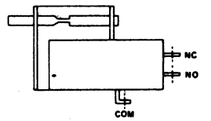
SYSTEM BOARD A901

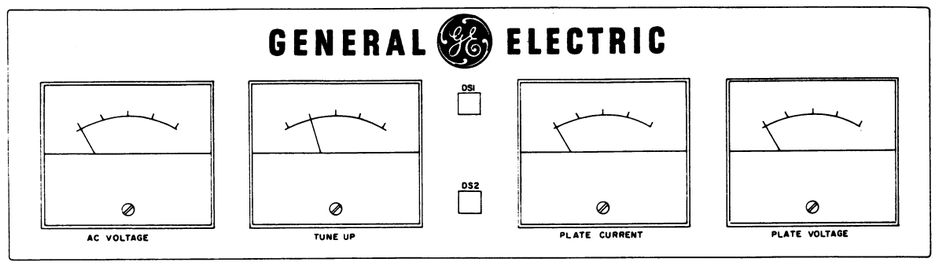
HARNESS 19C320811



RC-2813

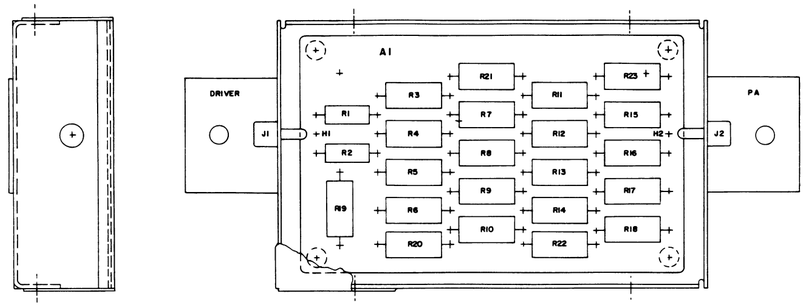






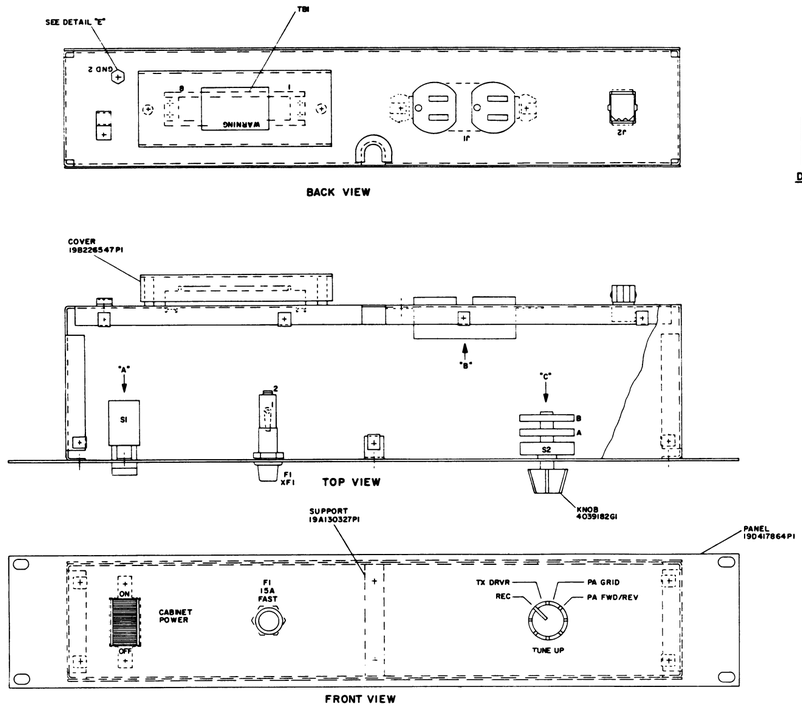
(19D423567, Rev. 0)

METER PANEL & METER SWITCHING KIT



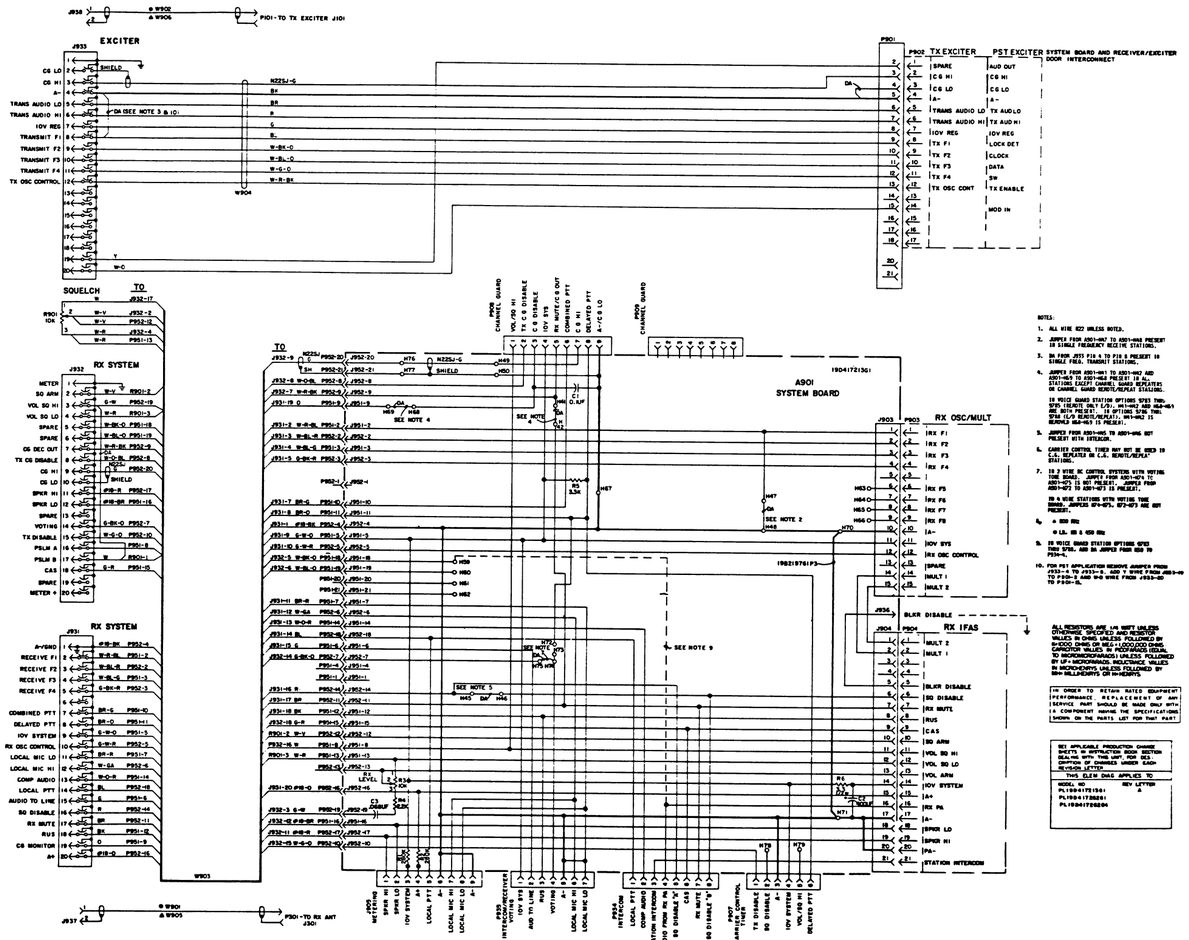
CONNECTION CHART		
FROM	TO	WIRE
A1-H1	J1	DB
A1-H2	J2	DB

(19D423572, Rev. 0)



(19D423573, Rev. 0)

POWER CONTROL PANEL AND ATTENUATOR PAD



RADIO PANEL FRONT DOOR 19D417262G1 (19E501154, Rev. 16)

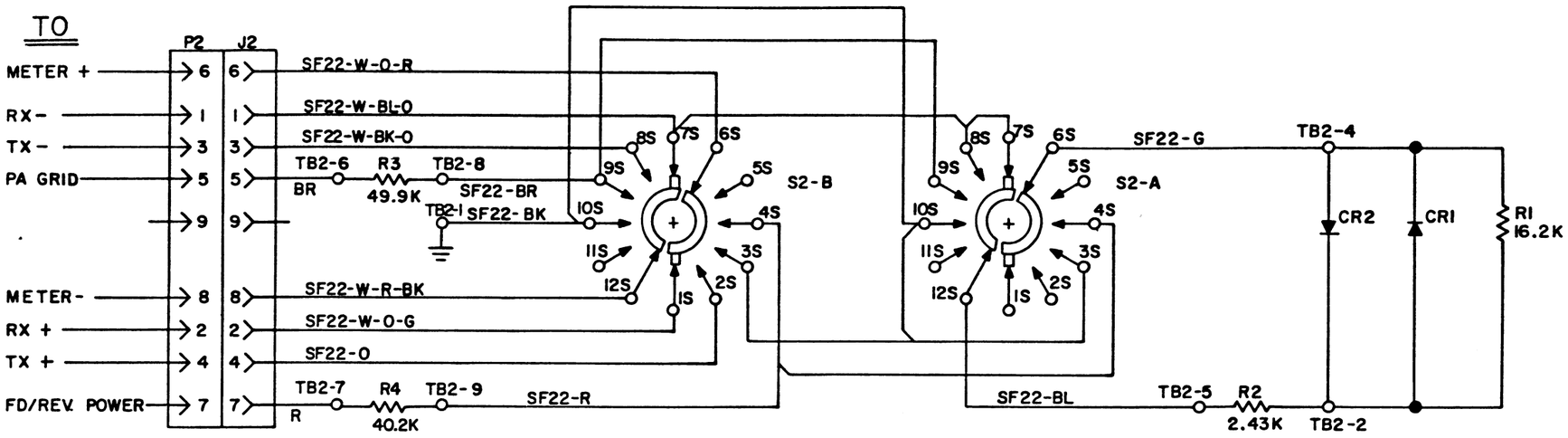
PARTS LIST

LBI-4801D

MASTR II STATION RADIO PANEL
FRONT DOOR ASSEMBLY
19D417262G1

SYMBOL	GE PART NO.	DESCRIPTION
		DOOR ASSEMBLY 19D417262G1
A901		COMPONENT BOARD 19D417213G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C2	19A115680P24	Electrolytic: 400 uF +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C3	19A116080P106	Polyester: 0.068 uF ±10%, 50 VDCW.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J903		Connnector. Includes:
	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032. (Quantity 1).
	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-52-3062. (Quantity 2).
J904		Connector. Includes:
	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032. (Quantity 1).
	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; 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, printed wiring: 4 contacts rated at 5 amps; sim to Molex 09-64-1041. (Quantity 5).
J952		Connector. Includes:
	19A116659P11	Connector, printed wiring: 7 contacts rated at 5 amps; sim to Molex 09-64-1071. (Quantity 2).
	19A116659P12	Connector, printed wiring: 6 contacts rated @ 5 amps; sim to Molex 09-64-1061. (Quantity 1).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P901	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	19A701250P444	Metal film: 280K ohms ±1%, 1/4 w.
R3	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 1/4 w; sim to CTS Type X-201.
R4	19A700106P71	Composition: 2.2K ohms ±5%, 1/4 w.
R5	19A700106P75	Composition: 3.3K ohms ±5%, 1/4 w.
R6	19A700113P3	Composition: 3.3 ohms ±5%, 1/2 w.
		- - - - - - - - - - CABLES - - - - - - - - - -
W901	19B233742G1	Cable, RF: approx 14 inches long, 350 VRMS, 500 VDC operating voltage. Includes J937, P301.
W902	5491689P104	Cable, RF: approx 4 inches long, 350 VRMS, 500 VDC operating voltage. Includes J938, P101.
W903		CABLE ASSEMBLY 19D417262G2
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J931 and J932	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P951 and P952		Connector. Includes:
	19A116659P25	Shell.
	19A116781P3	Contact, electrical: wire range No. 16-20 AWG; sim to Molex 08-50-0105.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0107.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms ±20%, sim to Mallory LC(25K).
W904		EXCITER CABLE 19D417262G3
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J933	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P901		Connector. Includes:
	19A116659P25	Shell.
	19A116781P3	Contact, electrical: wire range No. 16-20 AWG; sim to Molex 08-50-0105.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0107.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C320679G1	Door.
	19B234589P1	Pawl. (Part of door latch).
	19C336435P1	Knob. (Part of door latch).
	N193P1208B6	Tap screw, phillips head: No. 6-20 x 1/2. (Part of door latch).
	5493361P8	Washer, spring tension. (Part of door latch).
	19A121676P1	Guide pin. (Used with J931-J933).
	19B209519P1	Polarity tab. (Used with P901, P951, P952).
	7115130P9	Lockwasher, interal tooth: No. 3/8. (Used with R901 mounting).
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with R901 mounting).
	19A115874P1	Catch, friction. (Latches A901).
	4035664P8	Nut, self locking. (Used on hinge).
	19B201074P204	Tap screw, phillips POZIDRIV: No. 4-40 x 1/4. (Used with P101).
	19A701785P1	Contact, electrical; sim to Molex 08-50-0404. (Used with P907, P908, P909).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTES:

1. TERMINATE WIRES AT TB1 WITH 19B209268P101.
2. TERMINATE WIRES AT J1 WITH 19B209268P106.
3. TERMINATE WIRES AT S1 WITH 4029484P2.

(19C321241, Rev. 3)

POWER CONTROL PANEL

ALL RESISTORS ARE 1/2 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.

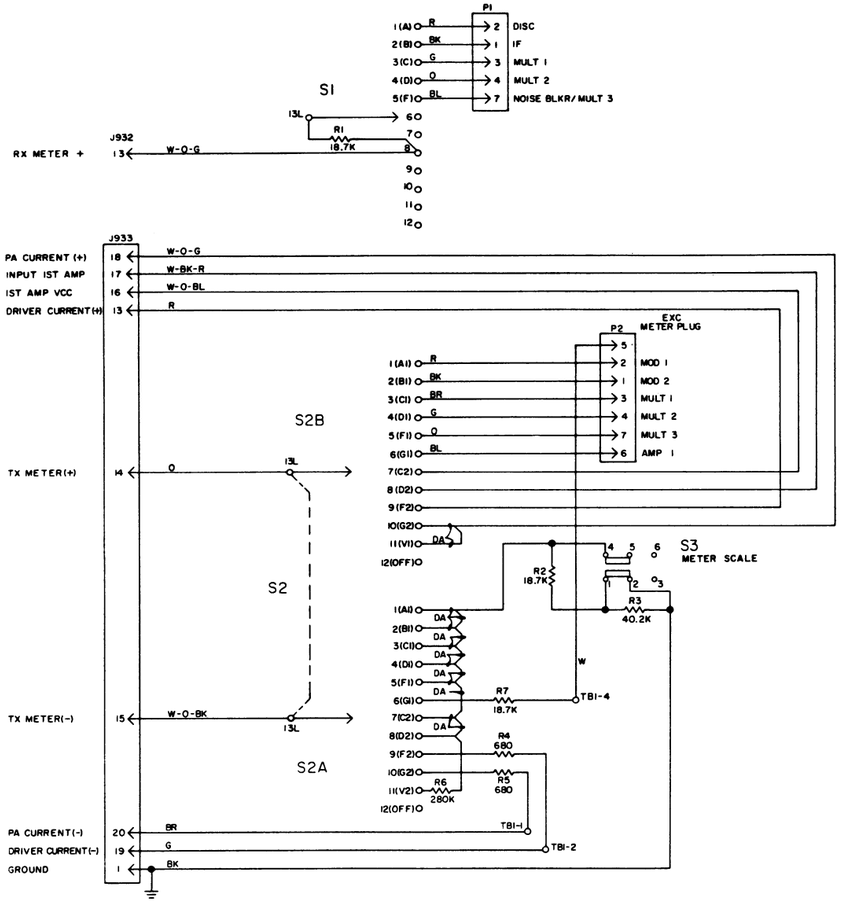
PARTS LIST

LBI4905B

POWER PANEL
19D417873G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1 and CR2	5494922P1	Silicon; sim to Hughes 1N456.
		- - - - - - - - - - - - FUSES - - - - - - - - - - - -
F1	7484390P3	Cartridge, quick blow: 15 amp at 250 v; sim to Bussmann ABC15.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1	19B209395P1	Receptacle, power: 3 wire grounding 15 amps at 125 v; sim to Circle F Mfg. 1517 or GE 5242-1.
J2		Connector. Includes:
	19B209288P3	Shell.
	5496809P17	Contact, pin: female, brass; sim to Molex Products 1381-T.
		- - - - - - - - - - - RESISTORS - - - - - - - - - - -
R1	19C314256P31622	Metal film: 16.2K ohms ±1%, 1/2 w.
R2	19C314256P32431	Metal film: 2430 ohms ±1%, 1/2 w.
R3	19C314256P34992	Metal film: 49.9K ohms ±1%, 1/2 w.
R4	19C314256P34022	Metal film: 40.2K ohms ±1%, 1/2 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B209498P1	Push: DPST, 20 amps at 220 VRMS; sim. to McGill 0811-0188.
S2	5495227P30	Rotary: 2 sections, 4 poles, 2 to 5 adj stop positions, non-shorting contacts, 2 amps at 28 VDC or 1 amp at 110 VAC; sim to Oak Type "P".
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	19C301087P4	Phen: 8 terminals; sim to GE CR151D.
TB2	7775500P20	Phen: 10 terminals.
		- - - - - - - - - - - SOCKETS - - - - - - - - - - -
XF1	4037402P2	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342001.
		HARNESS ASSEMBLY 19D417873G2 (Includes J2)
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C321228P1	Cover. (Power Panel).
	19B226547P1	Cover. (Located over TB1).
	5491480P4	Clip loop; sim to Adel Precision Products Type 754.
	4039182G1	Knob; sim to Eastman Chemical 32599 (modified). (S2).
	7160508P2	Nut, sheet spring: sim to Tinnerman C1356-632-24.
	7160861P11	Nut, sheet spring: sim to Tinnerman C880-632-157 (J1 and frame).
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with S2).
	7115130P9	Lockwasher, interal tooth: No. 3/8. (USed with S2).
	19B209268P106	Terminal, solderless: sim to AMP 41184. (Used with TB2).
	19B226664G1	Power cord.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

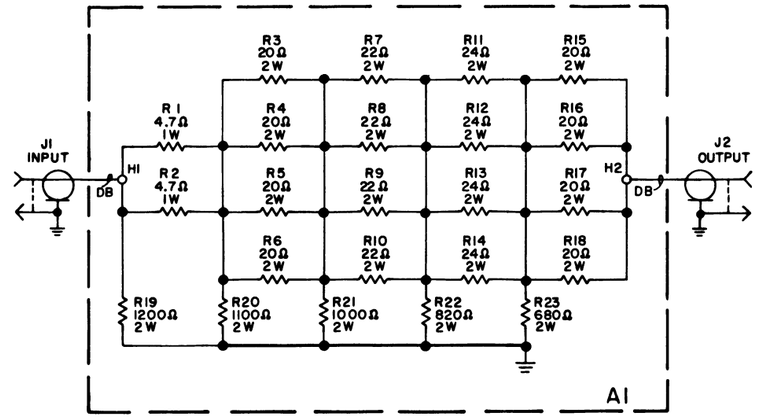


(19D417597, Rev. 4)

NOTES:
1- ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.

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 1/2 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
PL19D417885G1	

(19B226573, Rev. 1)

ATTENUATOR PAD AND METER SWITCHING KIT

PARTS LIST

LB14904A

ATTENUATOR PAD
19D417885G1

SYMBOL	GE PART NO.	DESCRIPTION
A1		COMPONENT BOARD 19C321246G1
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19A700112P5	Composition: 3.9 ohms ±5%, 1 w.
R3 thru R6	3R79P200J	Composition: 20 ohms ±5%, 2 w.
R7 thru R10	19A700111P23	Composition: 22 ohms ±5%, 2 w.
R11 thru R14	3R79P240J	Composition: 24 ohms ±5%, 2 w.
R15 thru R18	3R79P200J	Composition: 20 ohms ±5%, 2 w.
R19	19A700111P65	Composition: 1.2K ohms ±5%, 2 w.
R20	3R79P112J	Composition: 1100 ohms ±5%, 2 w.
R21	19A700111P63	Composition: 1K ohms ±5%, 2 w.
R22	19A700111P61	Composition: 820 ohms ±5%, 2 w.
R23	19A700111P59	Composition: 680 ohms ±5%, 2 w.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J1 and J2	7104941P16	Jack, phono: coaxial.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19B201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

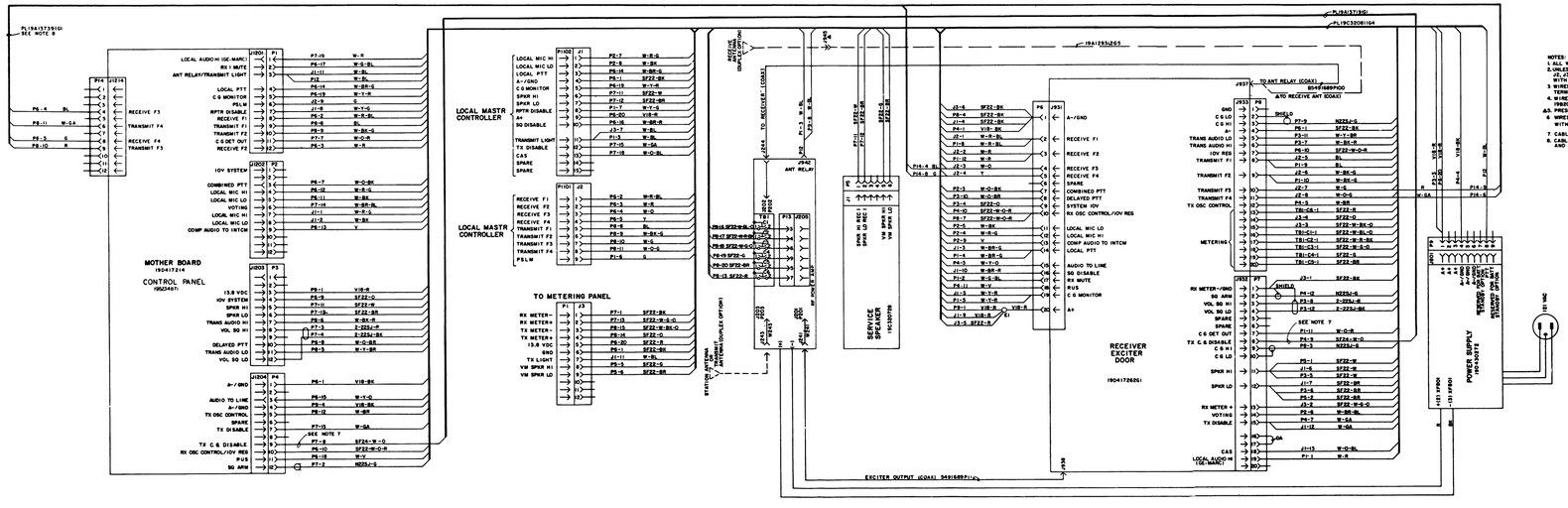
PARTS LIST

LB14846A

METERING KIT
19B226293G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1 and P2	19B219534P1	Connector, plug: 9 male contacts.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19C314256P31872	Metal film: 18.7K ohms ±1%, 1/2 w.
R3	19C314256P34022	Metal film: 40.2K ohms ±1%, 1/2 w.
R4 and R5	19A700106P59	Composition: 680 ohms ±5%, 1/4 w.
R6	19A701250P444	Metal film: 280K ohms ±1%, 1/4 w.
R7	19C314256P31872	Metal film: 18.7K ohms ±1%, 1/2 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	5495454P39	Rotary: 1 section, 1 pole, 2-12 pos with adjustable stop positions, non-shorting contacts, 2 amps at 25 VDC or 1 amp at 110 VAC; sim to Oak Type "A" or Centralab Series 100.
S2	5495454P38	Rotary: 2 sections, 2 poles, 2-12 pos with adjustable stop positions, non-shorting contacts, 2 amps at 25 VDC or 1 amp at 110 VAC; sim to Oak Type "A" or Centralab Series 100.
S3	19B209261P8	Slide: DPDT, 2 poles, 2 positions, .5 amp VDC or 3 amps VAC at 125 v; sim. to Switchcraft 46206L.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	7487424P18	Miniature: 3 contacts.
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W1		HARNESS ASSEMBLY 19B226293G2 (Includes P1, R1, S1)
W2		HARNESS ASSEMBLY 19B226293G3 (Includes P2, R6, S2)
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with S1 and S2).
	7115130P9	Lockwasher, interal tooth: No. 3/8. (Used with S1 and S2).
	19B209532P1	Knob, screw on. (Used with S1 and S2).
	19A116552P1	Cable clip.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTES:
1. ALL WIRES ARE #24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1, J2, J3, P1, P2, P3, P4 AND P5 TERMINATED WITH 19B209288P29.
3. THREE WIRES FROM P4-5 ARE TERMINATED WITH 19B209288P20
4. WIRES TO P5-1 AND P5-4 ARE TERMINATED WITH 19B209288P5.
5. PRESENT WITH DUPLEX OPTION ONLY.
6. WIRES TO P3-3, P4-1, P4-4 AND J1-9 ARE TERMINATED WITH 19B209288P1.
7. CABLE P/N19A137595 USED ON "EACOM" APPLICATIONS ONLY.
8. CABLE P/N19A137591 USED ON 4-FREQ TONE REMOTE AND 4-FREQ TONE REMOTE/REPEAT.

(19R622055, Rev. 13)

PARTS LIST

LBI4799A

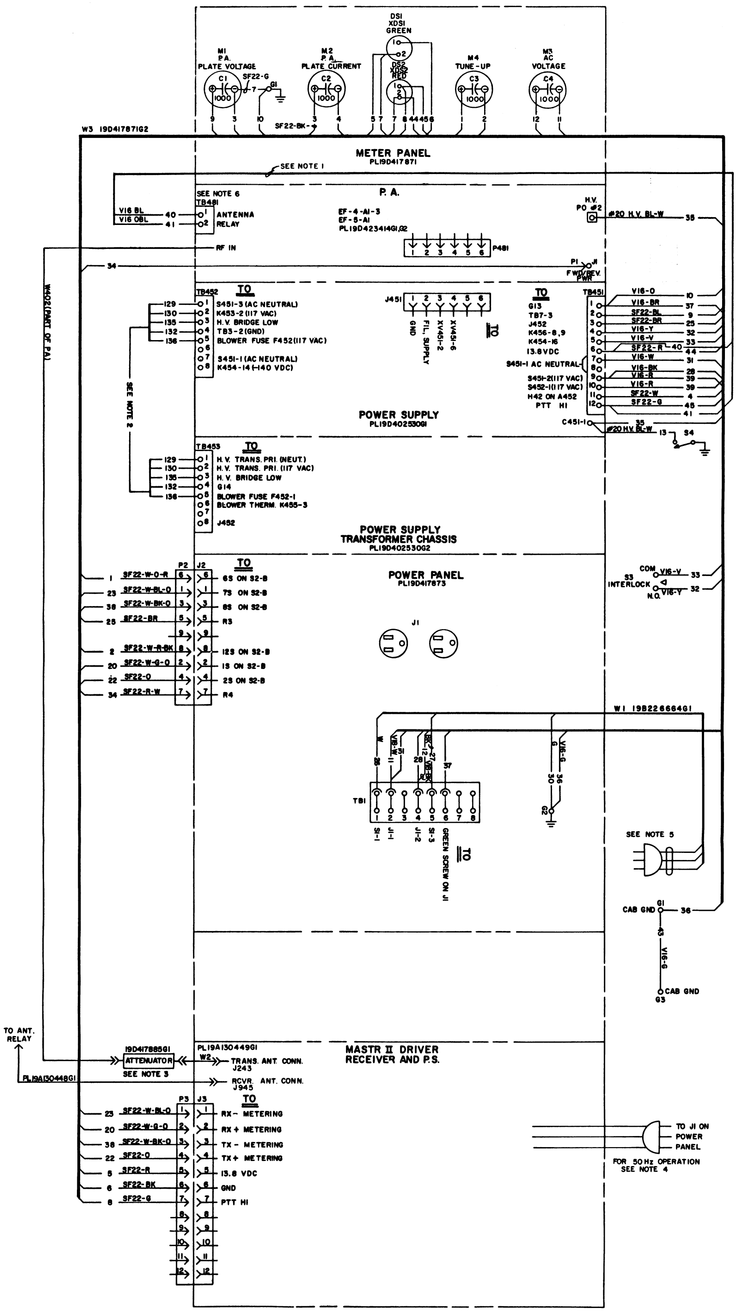
MASTR II CONTINUOUS DUTY
STATION HARNESS WITH METERING
19C320811G4

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J1		Connector. Includes:
	19B209288P5	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 13).
J2		Connector. Includes:
	19B209288P3	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 9).
J3		Connector. Includes:
	19B209288P5	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 9).
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 11).
P2		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; 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: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 9).
P4		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 7).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).
P5		Connector. Includes:
	19B209288P23	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (Quantity 4).
P6 thru P8	19A143191G1	Connector includes 19C320686P1 - SHELL and 19A115793P1 - CONTACTS
P9		Connector. Includes:
	19B209288P4	Shell.
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (Quantity 1).
	19B209288P2	Contact, electrical: sim to Molex 02-09-2101. (Quantity 1).
P12	19A115793P1	Contact, electrical: sim to Malco 2700.
P13	19B219534P1	Connector, plug: 9 male contacts.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	19A130051G1	Plate.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

STATION HARNESS WITH CARD EDGE METERING

HIGH POWER OVERLAY HARNESS



INSTRUCTIONS:

1. WIRE #3 SHOULD BE CONSTRUCTED IN ACCORDANCE WITH WIRE INSTRUCTION 19A121850.
2. WIRE #13 IS PART OF S4.
3. WIRE #3 SHOULD BE CONSTRUCTED IN SUCH A WAY AS TO ALLOW ENOUGH SLACK TO PERMIT MOUNTING A 3 RACK-UNIT BLANK PANEL.
4. TERMINATE WIRES AS FOLLOWS:

   ALL WIRES AT P3 WITH TERMINAL 19B209268P110
   ALL WIRES AT P2 WITH TERMINAL 5495809P18
   ALL WIRES AT J2 & J3 & TB481 WITH TERMINAL 19B209268P101
   WIRE #36 AT G2 WITH TERMINAL 7491823P7
   WIRE #38 AT CABINET GND WITH TERMINAL 7491823P8
   WIRE #35 AT C451-1 WITH TERMINAL 19B209250P26
   WIRE #39 AT PO #2 WITH TERMINAL 19B209268P106
   WIRES 7 & 10 AT G1 IN ONE TERMINAL 19B209260P11.
   WIRE #43 AT BOTH ENDS WITH 7491823P9

   CONNECTIONS TO THE FOLLOWING COMPONENTS ARE SOLDER CONNECTIONS: M1, M2, M3, M4, XDS1 & XDS2

NOTES:

1. WIRES #40 AND #41 ARE PART OF EF-4, EF-5, OR ANTENNA RELAY KIT (UHF).
2. WIRES #129-132, 135 & 136 ARE PART OF EP-6 RUNNING LIST.
3. IN UHF APPLICATIONS SUBSTITUTE IN LINE PHONO CONNECTOR (4030197P1) FOR ATTENUATOR (19041788501).
4. IN COMBINATIONS DESIGNED FOR USE ON 50 Hz MAINS (POWER SUPPLY 19C501149G3) THE POWER CABLE IS TERMINATED WITH RING TERMINALS INSTEAD OF A PLUG. THE TERMINALS ARE CONNECTED TO TB1 ON THE PL19041787J POWER PANEL AS FOLLOWS:

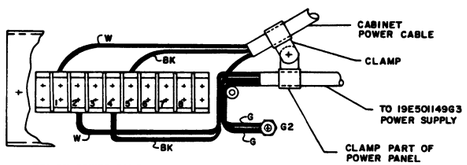
   WHITE LEAD TO TB1-2
   BLACK LEAD TO TB1-4
   GREEN LEAD TO G2

5. IN 50 Hz UNITS, R1(19B226664G1) HAS NO PLUG AND MUST BE PROPERLY TERMINATED AT THE TIME OF INSTALLATION.
6. TB481-15 NOT PRESENT ON 19D425146G1-G2 POWER AMPLIFIERS.

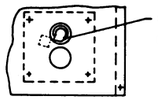
CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

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
PL19041787G1	
PL19041787G2	

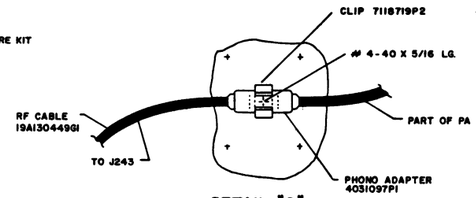
VM CABINET
HIGH POWER



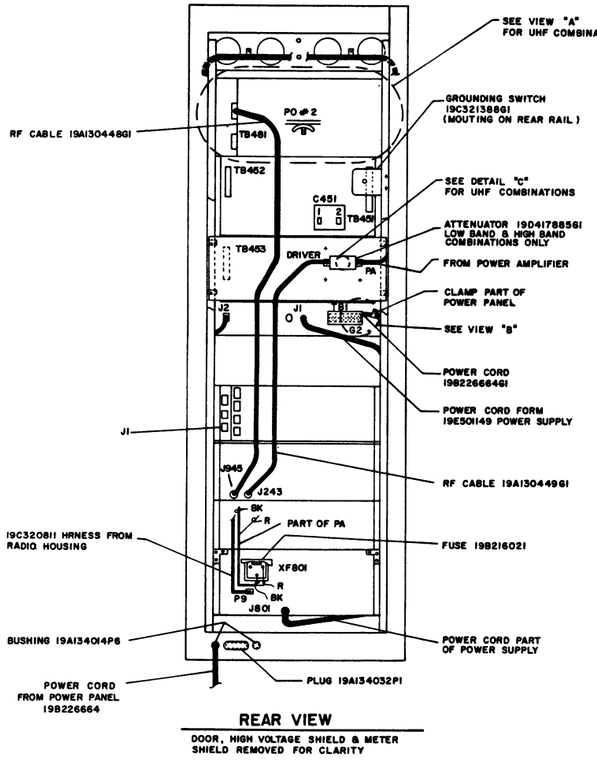
VIEW "B"



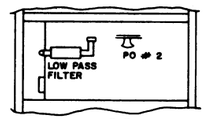
VEIW "D"



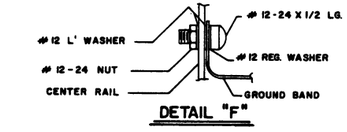
DETAIL "C"
UHF COMBINATIONS ONLY



REAR VIEW
DOOR, HIGH VOLTAGE SHIELD & METER SHIELD REMOVED FOR CLARITY



VIEW "A"



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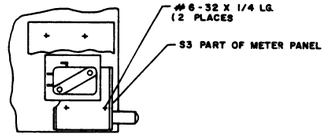
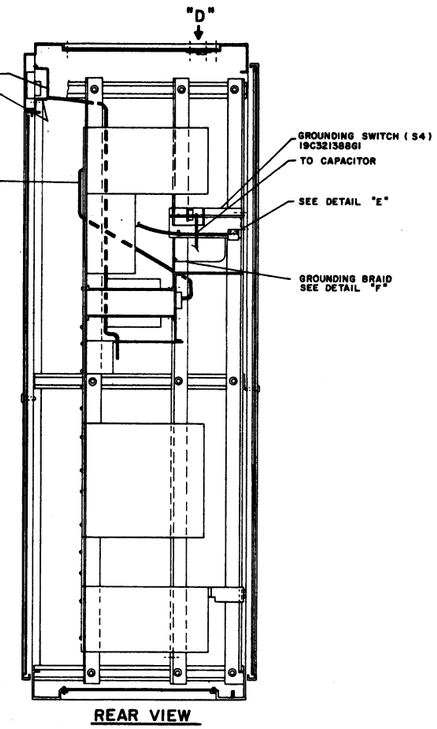


DETAIL "E"



REAR VIEW
DOOR REMOVED

RC-2807

RF CABLING DIAGRAM

PARTS LIST

LBI4970

MASTR II HIGH POWER STATION
(SEE RC-2819)

SYMBOL	GE PART NO.	DESCRIPTION
1	NP275660	Nameplate. (GF monogram).
2	19C311298P1	Frame. (Used with monogram).
3	4031053P7	Nut, sheet spring; sim to Tinnerman C12046-012-67.
4	19B226092G1	Frame.
5	19A130126G1	Card holder. (FCC license).
6	N80P16006C6	Screw, phillips: No. 10-32 x 3/8.
7	7160861P5	Nut, sheet spring; sim to Tinnerman C1505-1032-157.
8	19B226559P2	Top cover.
9	19A129903P1	Door support.
10	19A129903P2	Door support.
11	7118719P2	Clip, spring tension; sim to Prestole E-50001-041.
12	N80P9005C6	Screw, phillips: No. 4-40 x 5/16.
13	5491480P4	Clamp; sim to Adel Precision Products Corp. Type 754E. (Cabinet Power Cable).
14	19B209539P2	Lock, rim; sim to Chicago Lock Co. No. 1703-6T.
15	19B209539P3	Key: No. 1000 GE.
16	19C320756G2	Rear door.
17	19B226094P2	Mounting bar.
18	N80P21012PC6	Screw, phillips: No. 1/4-20 x 3/4.
19	N402P41C6	Flatwasher: 1/4 inch.
20	N403P25C6	Lockwasher, external tooth: 1/4 inch.
21	19B226559P1	Bottom cover.
22	19B226094P1	Mounting bar.
23	19A116496P1	Cable clamp.
24	19B209539P1	Lock; sim to Chicago Lock Co. No. 4260-1.
25	N80P16007C6	Screw, phillips: No. 10-32 x 7/16.
26	N210P16C6	Hex nut: No. 10-32.
27	N403P19C6	Lockwasher, external tooth: No. 10.
28	19C320756G1	Front door.
29	19B226572G2	Door support.
30	19B226572G1	Door support.
31	19A129902P1	Spring.
32	4035237P1	Washer.
33	19B226088P1	Hinge pin.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

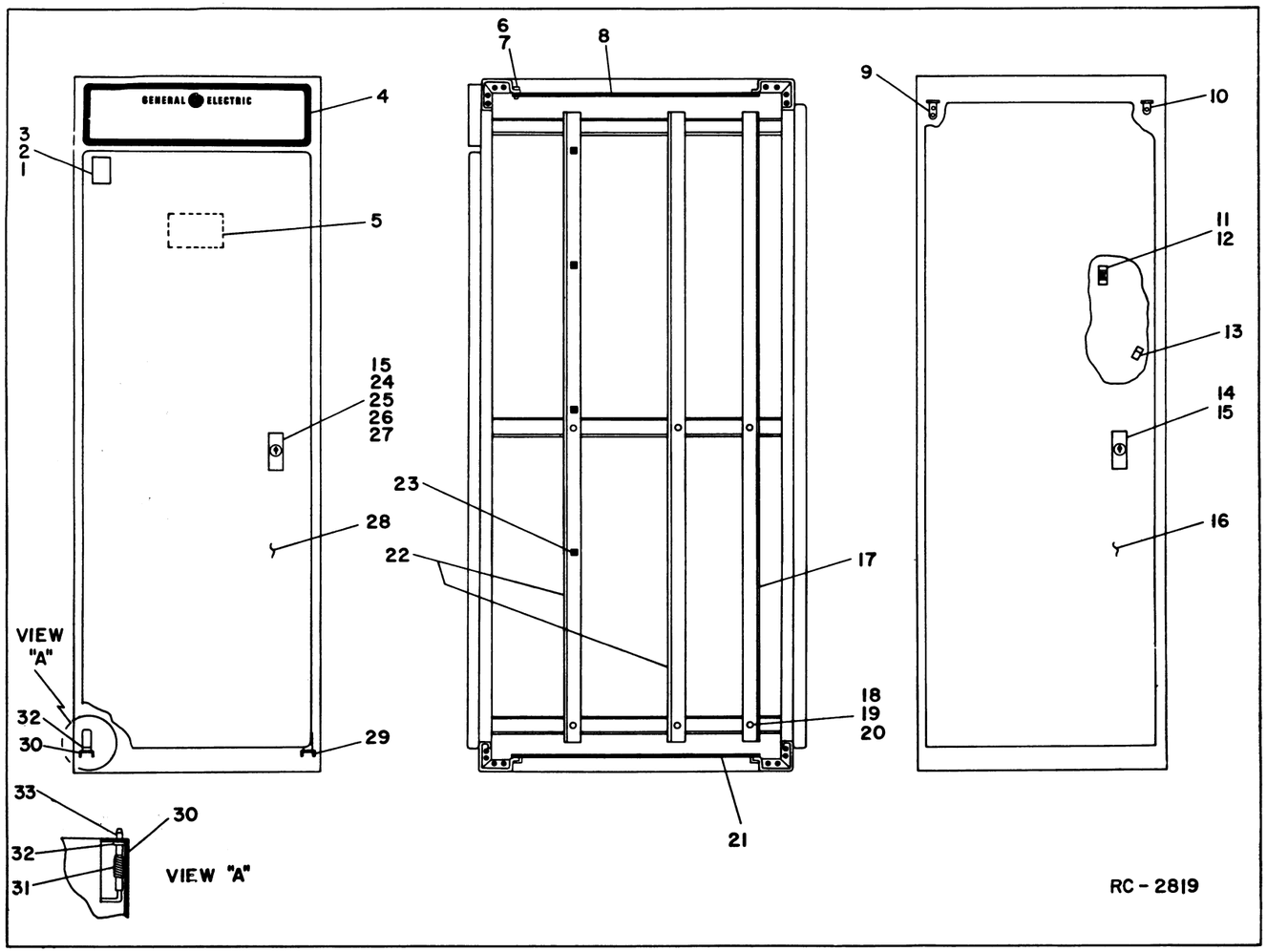
PARTS LIST

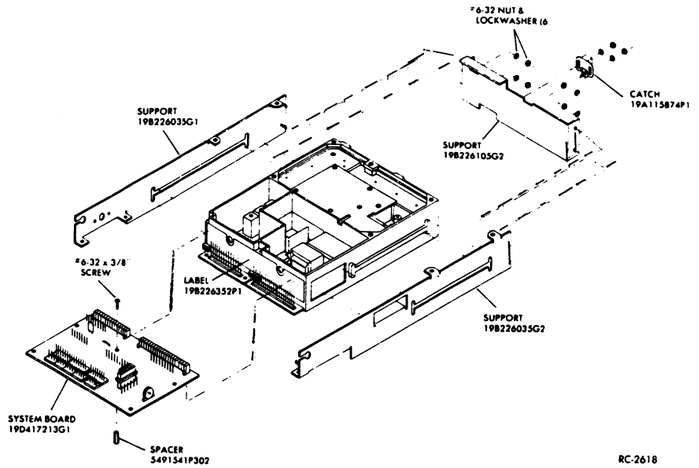
LBI4971A

METER PANEL
19D417871G1

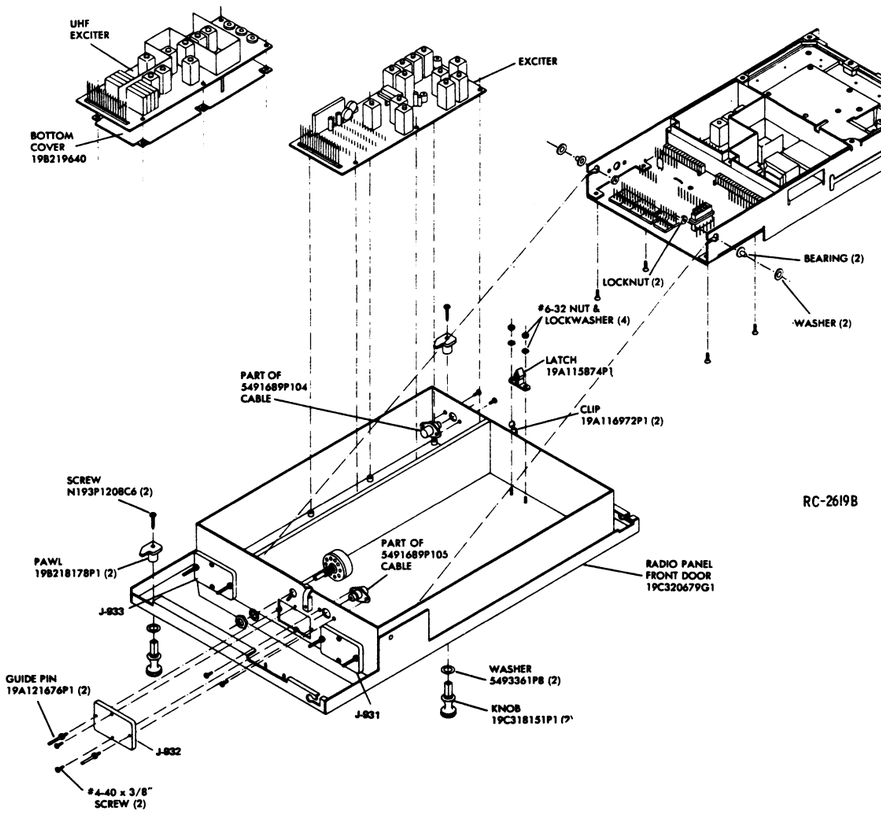
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1 thru C4	5494481P11	Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
		- - - - - - - - - INDICATING DEVICES - - - - - - - - -
DS1 and DS2	19C307037P35	Lamp, incandescent: 14.00 v; sim to GE 382.
		- - - - - - - - - - METERS - - - - - - - - - -
M1	19A134035P4	Meter, panel: 1.0 MADC movement; sim to GE 50251300FAFA1JBM.
M2	19A134035P3	Meter, panel: 500 MADC movement; sim to GE 50251300KMKM1JBL.
M3	19A134035P2	Meter, panel: 1000 ohm/volt mechanism, AC movement; sim to GE 50251344PZPZ1JAD.
M4	19A134035P1	Meter, panel: -10/0/50 ua DC movement; sim to GE 50251300CMCM1JAA.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1	7165458P2	Tip plug, solderless: red; sim to E.F. Johnson 105-302.
P2		Connector. Includes:
	19B209288P4	Shell.
	5496809P18	Connector: male contact: sim to Molex Products 1380-T.
P3		Connector. Includes:
	19B209288P24	Shell.
	5496809P18	Connector: male contact: sim to Molex Products 1380-T.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S3	5490346P1	Push, door interlock: SPDT, 10 amps at 125 or 240 VAC, 0.5 amp at 125 VDC or 0.25 amp at 250 VDC; sim to Micro Switch Type 2AC5.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XDS1 and XDS2	19B209509P1	Lampholder: sim to Dialco 183-9730-14-602.
		HARNESS ASSEMBLY 19D417871G2 (Includes P1-P3, and S3)
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	NP279836	Nameplate.
	19B209509P2	Lens, red. (Used with DS2).
	19B209509P3	Lens, green. (Used with DS1).
	19A701863P7	Clip loop.
	19A130289P1	Support. (Used with clip loop).
	4033714P2	Terminal. (Used on terminals of M1-M4).
	19B209268P106	Terminal. (PO No. 2).
	19B209268P110	Terminal. (Used with S3).
	19B209268P101	Terminal. (Used with TB1 and TB451).
	19B209260P26	Terminal, solderless. (Located at C451-1).
	7491823P7	Terminal, solderless: wire size No. 16-14 AWG. (Located on wires 7 and 10 at cabinet ground).
	7491823P8	Terminal, solderless: wire size No. 16-14 AWG. (Located on wire 36 ground, and both ends of wire 43).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

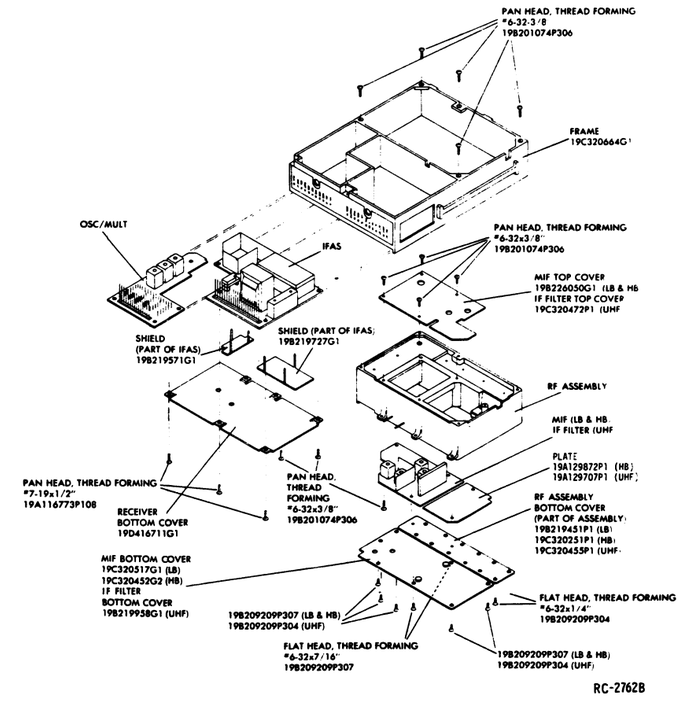




RC-2618

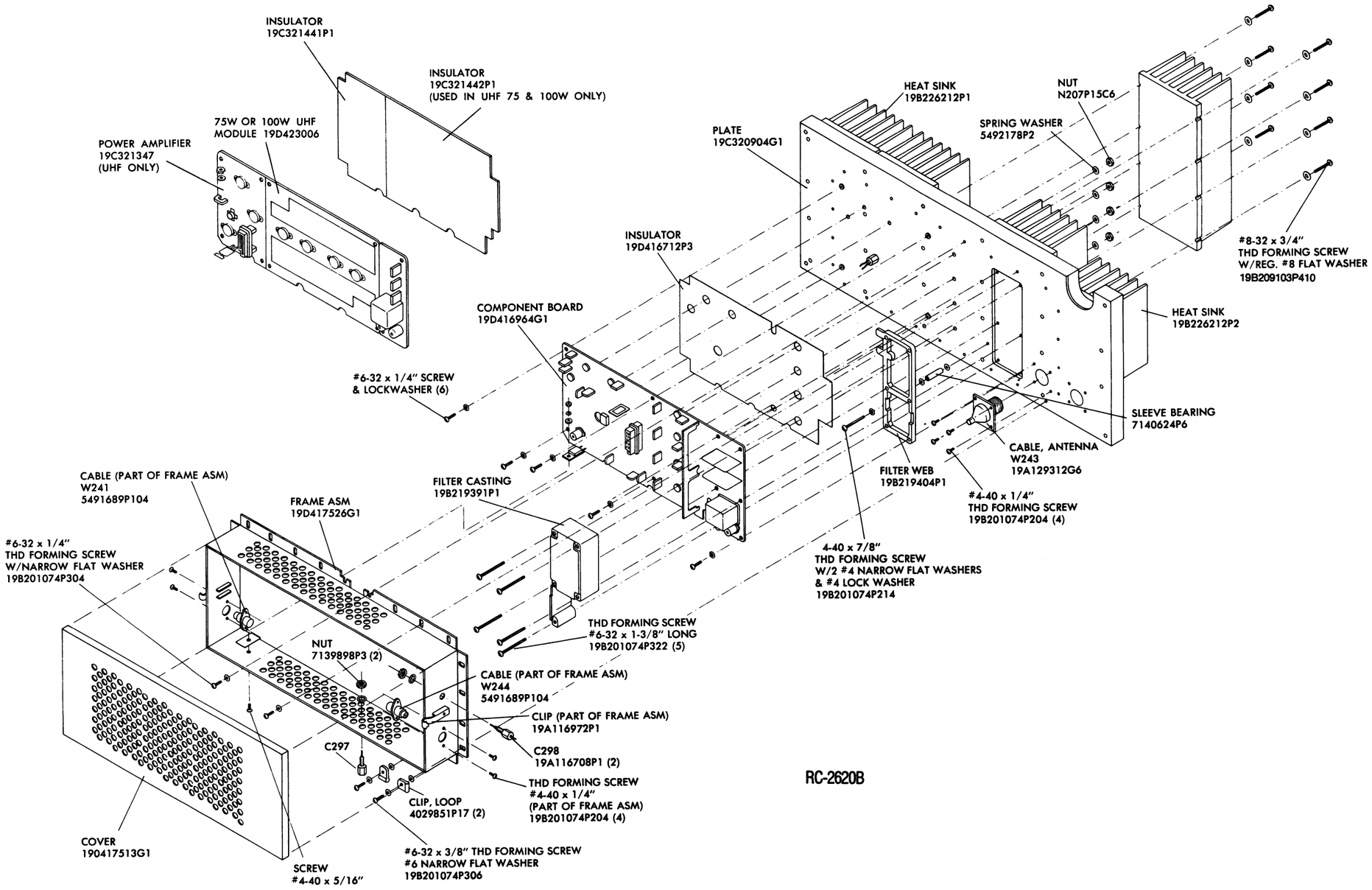


RC-2619B



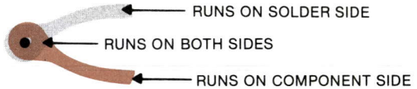
RC-2762B

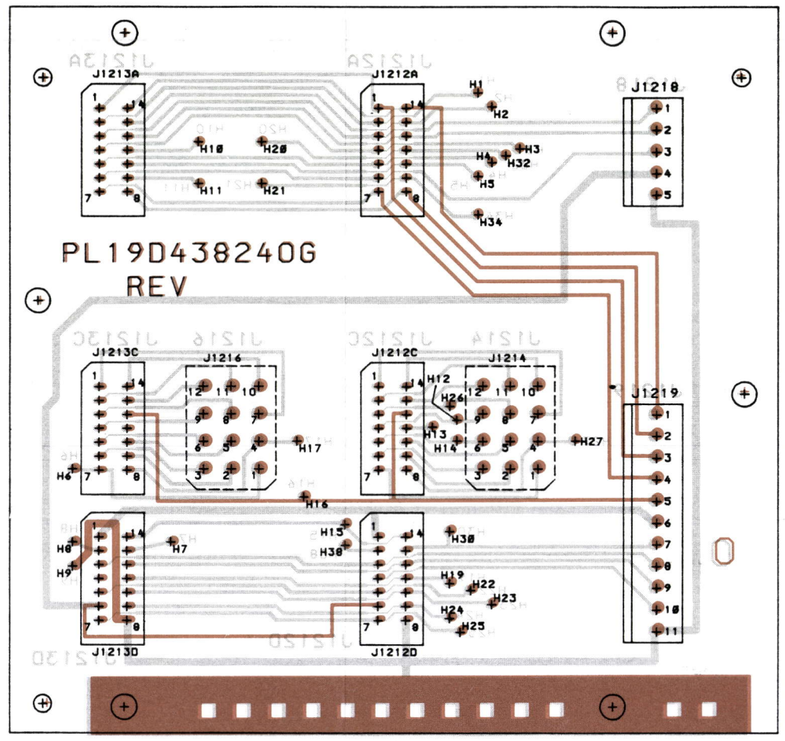
RADIO PANEL FRONT DOOR



RC-2620B

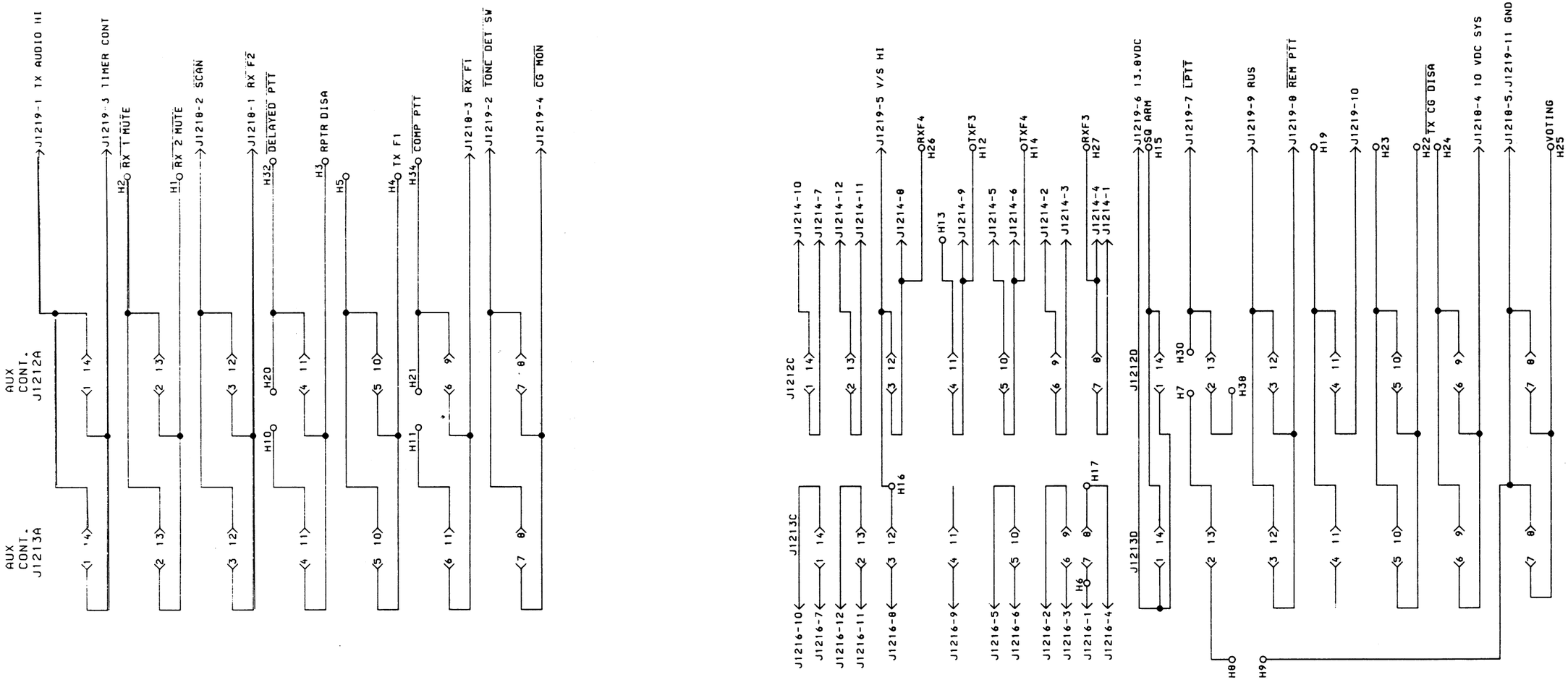
TRANSMITTER DRIVER POWER AMPLIFIER





(19D438242, Sh. 1, Rev. 0)
(19A149200, Sh. 1, Rev. 0)
(19A149200, Sh. 2, Rev. 0)

MINI BACKPLANE 19D438240G1



MINI BACKPLANE BOARD 19D438240G1

(19D438305, Sh. 1, Rev. 0)

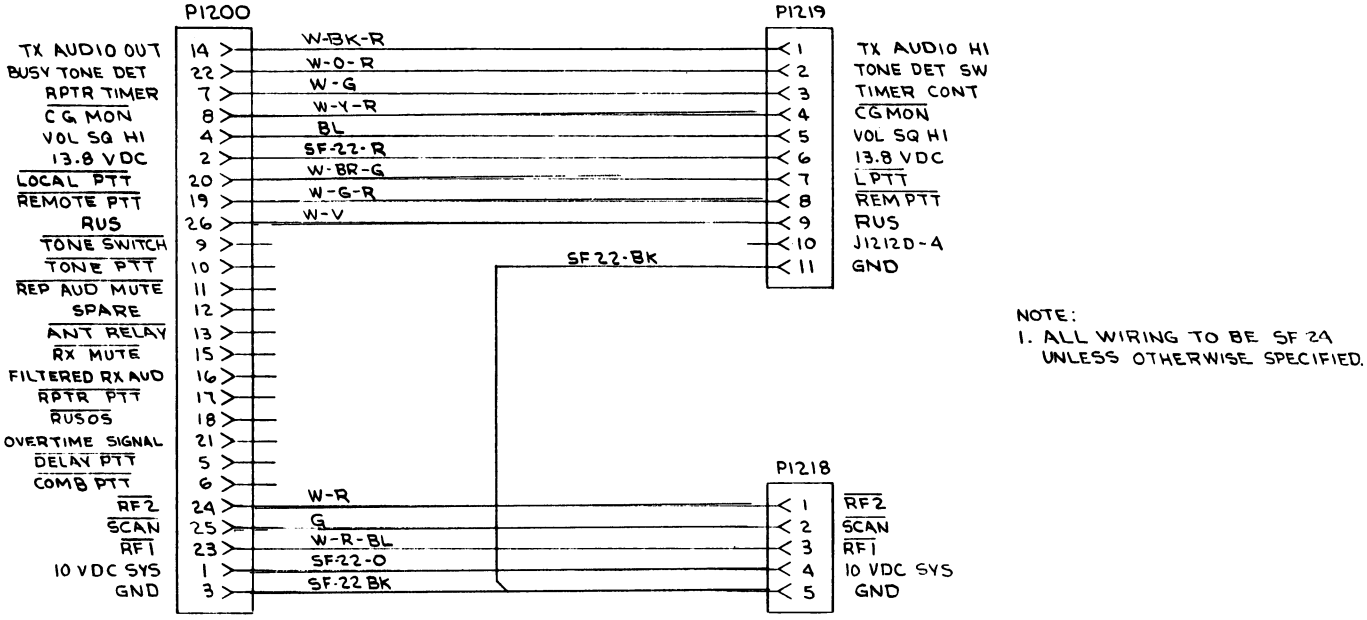
PARTS LIST

CONTROL SHELF BACKPLANE
19D438240G1

ISSUE 1

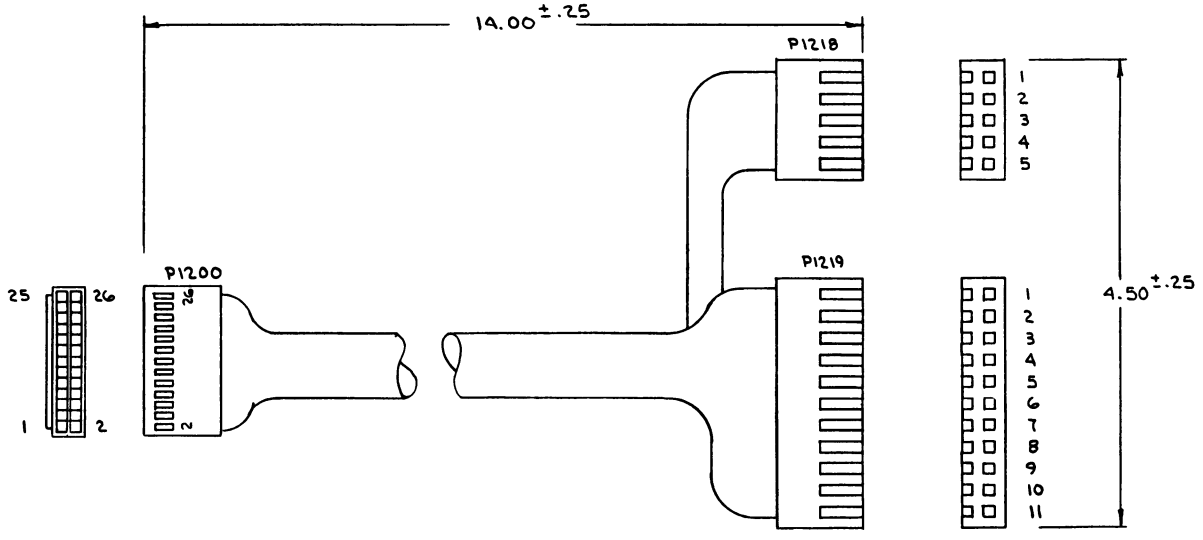
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CONNECTORS - - - - - - - - - -
J1212A	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1212C	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1212D	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1213A	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1213C	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1213D	19A116446P5	Connector, printed wiring: 14 contacts rated at 3 amps.
J1214	19A116647P4	Connector, printed wiring: 12 terminals; sim to Molex 09-18-5121.
J1216	19A116647P4	Connector, printed wiring: 12 terminals; sim to Molex 09-18-5121.
J1218	19A116659P56	Printed wire, 5 contacts rated @ 5 amps; sim to Molex 09-65-1051.
J1219		Connector. Includes:
	19A116659P52	Connector, printed wiring: 8 contacts rated at 5 amps; sim to Molex 09-65-1081.
	19A116659P55	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-65-1031.
		HARDWARE KIT 19A149326G2
	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16.
	19C315963P1	Card guide.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTE:
1. ALL WIRING TO BE SF 24 UNLESS OTHERWISE SPECIFIED.

(19B234956, Sh. 1, Rev. 0)



(1) NOTES:
1. TERMINATE WIRES: AT P1200 WITH ITEM 2; AT P1218 AND P1219 WITH ITEM 3. AT P1218-5 WITH ITEM 6.
2. SPOT TIE CABLE WITH ITEM 4.
3. ON P1200 MARK PINS 1, 25 ON ONE SIDE AND PINS 2, 26 ON OTHER SIDE, (LOCATION TYPICAL AS SHOWN PINS 2, 26); MARK PER 19A115740P1.

(19B234949, Sh. 1, Rev. 1)

OPTION CABLE
(MINI BACKPLANE INTERCONNECT CABLE)