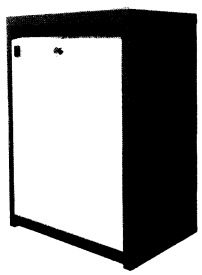
MOBILE RADIO

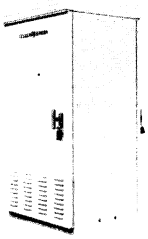
GE-MARC V TRUNKED MOBILE RADIO REPEATER STATION COMBINATIONS

35 watt
&
90 watt

MAINTENANCE MANUAL LB130966A



DESK MATE STATION



POLE MOUNT STATION

851-870 MHz TRANSMIT
806-825 MHz RECEIVE
90 WATT SOLID STATE

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 (H x W x D)	
Desk Mate (44 inch)	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	195 lbs.
Pole Mount	240 lbs.
Floor Mount	305 lbs.
INPUT VOLTAGE	121/242 VAC, 60 Hertz only (50 Hertz Optional)
AC INPUT POWER	550 Watts (90 Watt Station)
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 44 Inch Desk Mate Cabinet	**C** Continuous Duty	**7** 81—128 Watts	**5** 25 kHz	**Y** Repeat	**A** 1 Tx 1 Rx	**M** GE-MARC V 3051.9 Hz Busy Tone	**96** 851-870 TRANSMIT 806-825 RECEIVE	**E** ±1 PPM	**S** Solid-State
P Pole Mount						**N** GE-MARC V 2918.7 Hz Busy Tone			
V Floor Mount									

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

DESCRIPTION

The GE-MARC V Trunked Mobile Radio Repeater is housed in a desk mate, pole mount or floor mount cabinet. The repeater is a continuous duty combination, receiving and retransmitting signals simultaneously. The repeater transmitter exciter is located in a shielded compartment in the radio housing front door. The repeater receiver is also mounted in the radio housing front door along with a system board, tone encoder and tone decoder boards. See Figures 1 and 2.

90 Watt Transmitter

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
- Driver Amplifier
- Power Amplifier

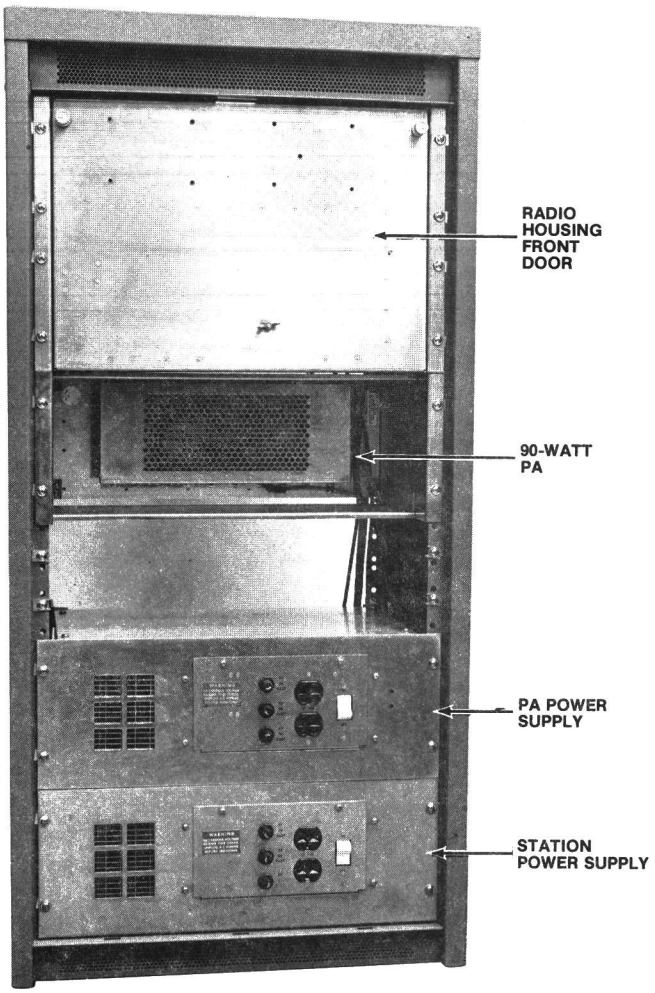


Figure 1 - Base Station, Front View

The PA assembly uses four RF power transistors in parallel to provide the rated power output.

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. See Figure 3.

Repeater Control

Directly above the 90 Watt driver is the station control shelf. A motherboard is mounted to this shelf which accommodates the 10 Volt Regulator/Control module, Audio module and Repeater Control module. See Figure 3.

Station Power Supply

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 GE-MARC V Repeater Station has been installed, the transmitter and receiver must be adjusted by an electronics technician who holds a First or Second Class Radiotelephone FCC 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.

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

RECEIVER ADJUSTMENT

The initial adjustment for the receiver includes tuning the circuit to match the antenna. Refer to the FRONT

In the following procedure the transmitter must be keyed with the REMOTE PTT switch on the front panel of the 10 Volt Regulator/Control Board.

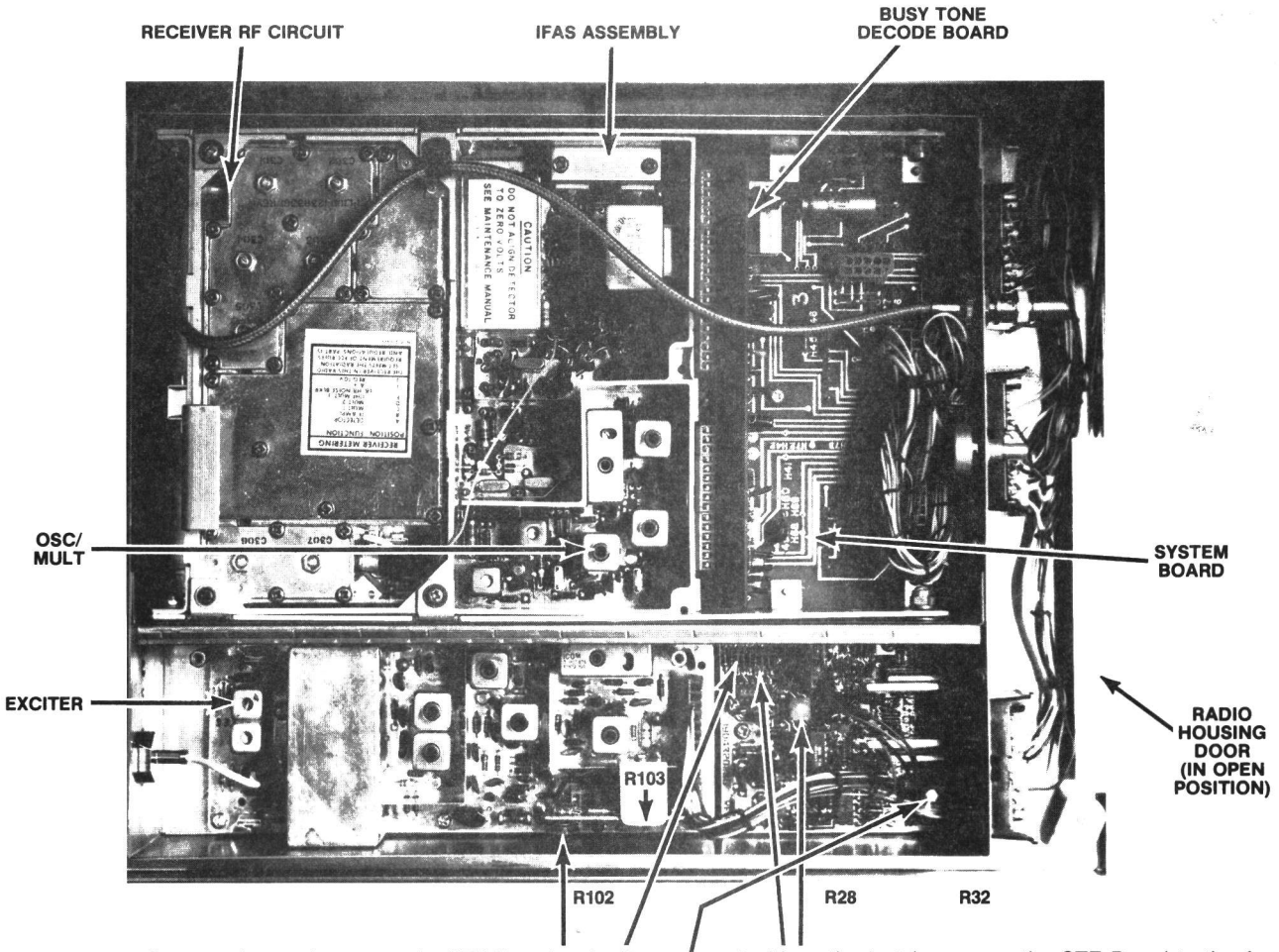
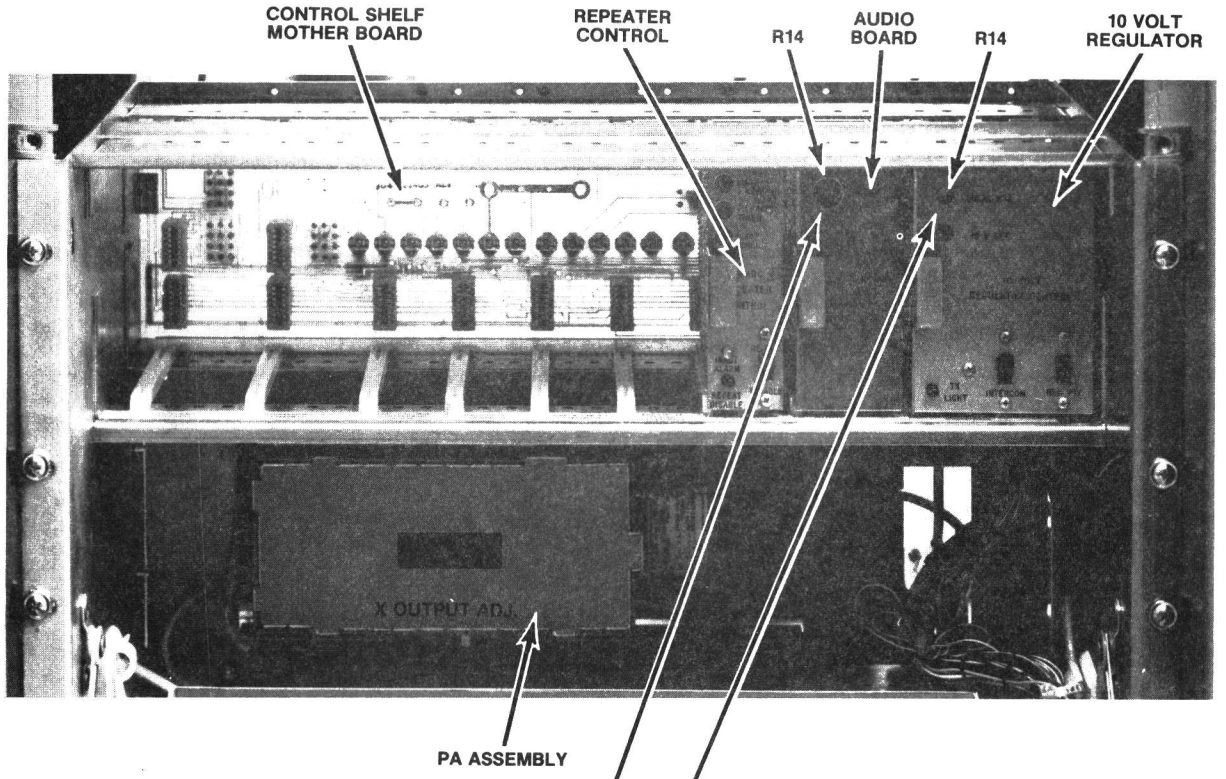


Figure 2 - Radio Housing Front Door

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 1000 Hertz with ±3 kHz deviation to the receiver antenna jack J937.
2. Turn service speaker switch (S1) to desired RCVR position.
3. Connect an AC VTVM across J905 terminals 1 and 2 and adjust R3 for a reading of 6.3 Volts RMS on the meter.



1. Remove the Busy Tone Decoder Board from the System Board and unplug P453 from the Repeater Tone Encode Board.
2. Apply a 1000 microvolt on-frequency signal modulated with 1000 Hz tone at ±3 kHz deviation to the station receiver.
3. Adjust Tx MOD control R14 on the Repeater Audio Board to its maximum clockwise position.
4. Set the MOD ADJUST control R103 on the transmitter exciter for a 3.5 kHz deviation as indicated on a frequency modulation monitor.
5. Adjust Tx MOD control R14 on the Repeater Audio Board for a 3.0 kHz deviation. Reconnect P453 to the Repeater Tone Encode Board and replace the Busy Tone Decode Board on the System Board.

Local (Test) Microphone Gain

1. Unplug P453 from the Repeater Tone Encode Board.
2. Apply a 1000 Hz, 100 mV RMS signal across B1 and B2 on the 10 Volt Regulator/Control Board.
3. Key the transmitter with the REMOTE PTT switch on the front panel of the 10 Volt Regulator/Control Board. Adjust MIC GAIN control R14 for a deviation of 3.0 kHz.
4. Reconnect P453 to the Repeater Tone Encode Board.

Figure 3 - Driver and Control Shelf

CAUTION

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

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

The station SQUELCH control must be precision set to 12 dB SINAD using an RF generator modulated by 1000 Hz at 3 kHz deviation and a distortion analyzer.

Refer to the 12 dB SINAD sensitivity check in the receiver MAINTENANCE MANUAL and set the SQUELCH control (R901 on the Radio Panel Front Door) until the squelch just opens.

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 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

The repeater operates in one of three modes: idle, busy or timeout. In the idle mode, the transmitter is not keyed and the receiver is waiting for busy tone. The repeater switches from idle to busy when a busy tone is received from a mobile or control station.

BUSY TONE is the first tone sent in the mobile or control station call origination sequence. Upon receiving BUSY TONE, the transmitter is keyed and ACQUISITION TONE is sent to the calling mobile or station. The COLLECTION TONE and GROUP TONE are then repeated.

The repeater requires BUSY TONE to keep it active. However, there is a period of time between one user releasing his PTT switch and another user (in the same conversation) operating his PTT switch when no BUSY TONE is sent. This period is called the "repeater hold-up time". A repeater in the busy mode will remain active for 3-10 seconds (adjustable) without receiving BUSY TONE from the mobile or control station.

A repeater in the busy mode always transmits BUSY TONE, even during the hold-up time and along with the repeated audio. This tone is a signal to other user groups that the channel is busy. The repeater incorporates a filter which removes the BUSY TONE from the received signal. The repeater generates its own BUSY TONE for transmission with repeated signals.

If no BUSY TONE is received by the repeater within the hold-up period, it will shut down and revert back to the idle mode after a one-second hold-down delay. During this one-second hold-down delay period, the repeater will not respond to signals from the mobiles or control stations. The hold-down period ensures that all mobiles and stations on the channel time out and clear the channel before a new conversation can begin. After the hold-down period has elapsed, the repeater is ready to be signalled again.

The time-out mode occurs only when all the repeaters in the system are busy, provided the repeaters are linked together by a DC line called the BUSY BUS. When a repeater enters the busy mode, a timer is started. If the user vacates the channel before the timing period ends (1-10 minutes, adjustable), the timer resets to zero and the repeater reverts to the idle mode. If the user exceeds the time limit and there are still empty channels in the system, the conversation time is not limited. When the time limit has been exceeded and all channels are busy, a shutdown sequence begins in which the repeater transmits a 5-20 second (adjustable) interrupted 800 MHz warning tone. At the end of the tone the repeater shuts down and reverts to the idle mode after a one-second hold-down period. The shutdown occurs only when all channels in the system are busy and the conversation time limit is exceeded.

Another feature of the repeater is the ability to shut down after receiving uninterrupted BUSY TONE for an excessive period of time. When this condition exists, the INACTIVITY ALARM is set indicating to system operators that there is a problem.

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 Control Shelf and Power Supply. Plug-in tone jacks are provided. A metering jack is provided for accommodating 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.

A jumper is present between J933-4 and J933-8. Also, a jumper is present between H47 and H48. The jumpers between H41 and H42 as well as between H68 and H69 are not present in GE-MARC V Repeaters.

VOLUME/SQUELCH HI from the receiver audio pre-amp is connected via J904-11 to the Busy Tone Decoder Board (through P908-1) and J932-16 and J932-17 to SQUELCH control R901. The SQUELCH arm is returned to the IFAS board of the receiver through P952-12. VOL/SQ HI is also connected through J932-3 to J1203-8 on the Control Shelf Mother Board and then to B11 on the Repeater Audio Board.

After removing the BUSY TONE from the audio signal (at the Busy Tone Reject Filter), the audio is returned via A10, J1201-1 and J932-19 to the VOLUME Control R3. The VOLUME arm is returned to the receiver IFAS board where the audio 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 and 19.

Busy Tone Decoder Board 19D430562G1 & G2

Audio applied to the Busy Tone Decoder Board on the VOL/SQ HI lead is passed through a voice rejection filter composed of AR2-A, -B, -C. The resultant signal is limited by Q1 and passed to the Frequency Switchable Selective Amplifier (FSSA) AR1. The FSSA responds only to the BUSY TONE frequency, determined by Versatone filter FL1.

The operating frequency and Q of the FSSA circuit are controlled by the tone network. When the incoming signal matches the resonant frequency of the FSSA, sufficient tone is present to trigger the detection network consisting of Q2, Q3 and Q4. AR2-D inverts the output of the tone detector and provides the BT DETECT logic signal which is coupled through J908-5 to the Repeater Control Board.

Busy Tone Notch Filter 19C330978G1 & G2

When a BUSY TONE is received from a transceiver, the repeater enters the BUSY mode and retransmits the incoming signal. However, the incoming BUSY TONE is removed from the signal by the Busy Tone Notch Filter. A locally generated BUSY TONE is substituted in the retransmitted signal.

The Busy Tone Notch Filter plugs into the Repeater Audio Board at J3 and J4. The filter consists of a Frequency Switchable Selective Amplifier (FSSA) AR1. The FSSA responds only to the BUSY TONE frequency, determined by Versatone filter FL1. Two groups of the filter are available. 19C330978G1 has the Versatone filter tuned to the standard BUSY TONE frequency (3051 Hertz). 19C330978G2 has the Versatone filter tuned to an alternate BUSY TONE frequency (2918 Hertz).

The incoming audio signal, with the BUSY TONE removed, is amplified by the Pre-amplifier circuit Q1-Q3 and returned to the Repeater Audio Board.

Repeater Tone Encode Board 19D432023G1 & G2

The Repeater Tone Encode Board mounts in the Radio Housing Front Door of the repeater. The Encode Board consists of the BUSY TONE oscillator, the ACQUISITION TONE Oscillator, the OVERTIME SIGNAL oscillator and the associated control circuits.

The Frequency Switchable Selective Amplifier (FSSA) AR1 operates only at the BUSY TONE frequency determined by Versatone filter FL1. The FSSA output is amplified by Q1 and Q2 and fed back to the input of the FSSA through C19, R7 and limiter CR1 and CR2 to sustain oscillation. The output of the BUSY TONE oscillator is coupled through switch U6 to summing amplifier AR3.

The ACQUISITION TONE oscillator operates in the same way as the BUSY TONE oscillator with FSSA AR2 and Versatone filter FL2 determining the operating frequency; Q3 and Q4 provide amplification and feedback is accomplished by C29, R19 and CR3, CR4.

When the TRANSMIT OSCILLATOR CONTROL applied to terminal J1-3 goes high, switch V6 triggers V3 which generates a 55 ms pulse. The trailing edge of the pulse from V3 triggers U4 which generates a 30 ms pulse to allow a 30 ms burst of ACQUISITION TONE to be coupled to summing amplifier AR3. The TEST SIGNAL SELECTOR permits manual selection of each of the tones, one at a time, for system adjustment, R28 adjusts the level of the ACQUISITION TONE.

When the CONVERSATION LIMIT TIMER on the Repeater Control Board times out, an OVERTIME SIGNAL GATE voltage is applied to pin J1-6 of the Encode Board. This voltage (high) is inverted by AR3 and applied to the base of Q5, turning the transistor off. With Q5 off, timer U1 and U2 are free to oscillate, generating the OVERTIME SIGNAL. R32 adjusts the level of the OVERTIME SIGNAL. AR3 filters harmonics from the signal, after which it is applied to the summing amplifier through control switch U6 (pin 1). U6 is triggered by U2 to interrupt the OVERTIME SIGNAL periodically during normal operation. The summing amplifier adds the tones and couples them to the repeater transmitter through J1-1.

When the test jumper (W1) is moved from the NORM position to one of the test positions (BUSY, OT or ACQ), that particular control switch of U6 (controlled by

the logic of the TEST SIGNAL SELECTOR U5) allows the tone to pass through to the tone output lead continuously while blocking the other tones.

STE Board 19C331734G1

The Repeater Squelch Tail Eliminator (STE) board 19C331734G1 mounts on the Tone Encoder board. The station harness plugs into the STE board. Strapping for testing tones is part of the STE board.

The Repeater STE Board provides approximately 900 milliseconds of carrier without BUSY TONE prior to unkeying the transmitter. As long as the TX OSC CONTROL signal is at logic 1, the low NAND gate U2 (pin 10) holds Q1 on, keeping the transmitter keyed. When TX OCS CONTROL goes to logic 0, NAND gate U2 (pin 4) goes low, triggering the 555 timer U1. The high output of U1 at pin 3 operates Q2, muting the receiver. The logic 0 at U2 (pin 11) keeps Q1 operating for the duration of the 555 timer (approximately 900 ms) before the transmitter is unkeyed.

When the test jumper (W2) is moved from the NORM position to one of the test positions (BUSY, OT or ACQ), that particular control switch of U6 (controlled by the logic of the TEST SIGNAL SELECTOR U5) allows the tone to pass through to the tone output lead continuously while blocking the other tones.

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 point. LBI4848 provides detailed installation instructions for this option.

Heat Sink Blower Kit (Options 9738, 9739, 9740

A Heat Sink Blower Kit is provided 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.

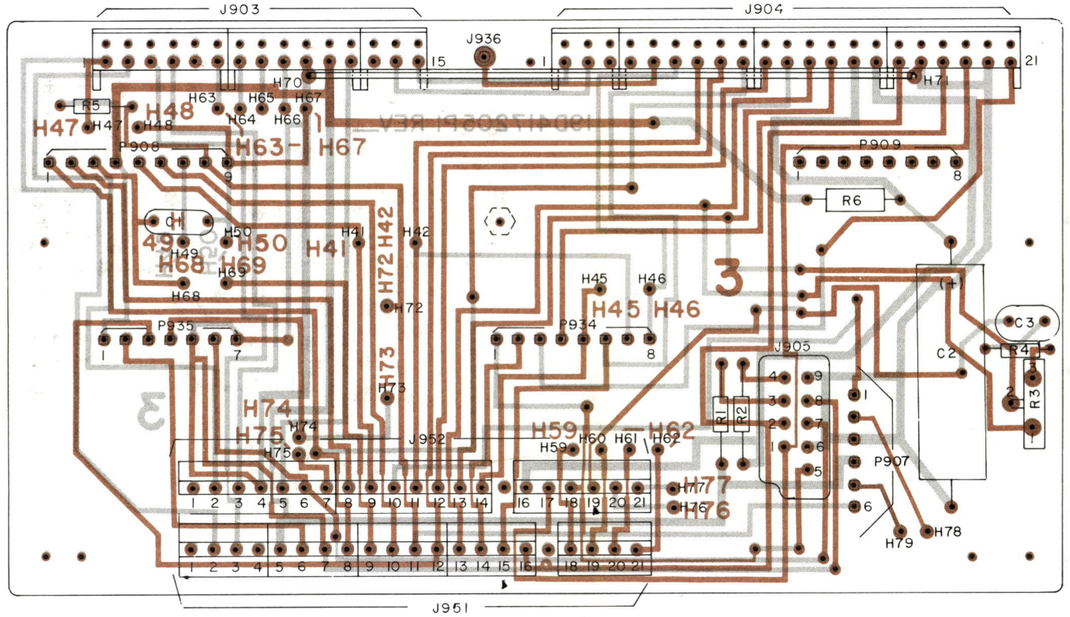
Isoplexer Option 9736

If duplex operation of the station from a single antenna is required, Option 9736 provides the Isoplexer and cables for this application.

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

GENERAL ELECTRIC*
U.S.A.

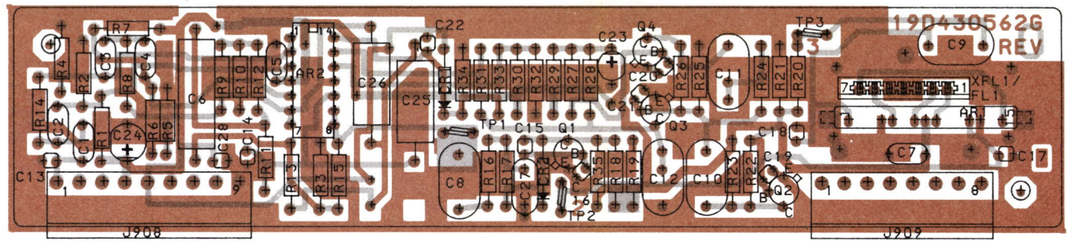
SYSTEM BOARD A901



(19D423147, Rev. 1)
(19D417205, Sh. 2, Rev. 3)
(19D417205, Sh. 3, Rev. 3)

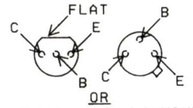
REFER TO WIRING DIAGRAM FOR THE FOLLING CONNECTIONS	
FROM	TO
H41	H42
H50	H77
H45	H46
H47	H48
H68	H69
H49	H76

BUSY TONE DECODER BOARD



(19D430560, Rev. 1)
(19A142656, Sh. 1, Rev. 0)
(19A142656, Sh. 2, Rev. 0)

LEAD IDENTIFICATION
FOR Q1 THRU Q4



OR

IN-LINE TRIANGULAR

TOP VIEW

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

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

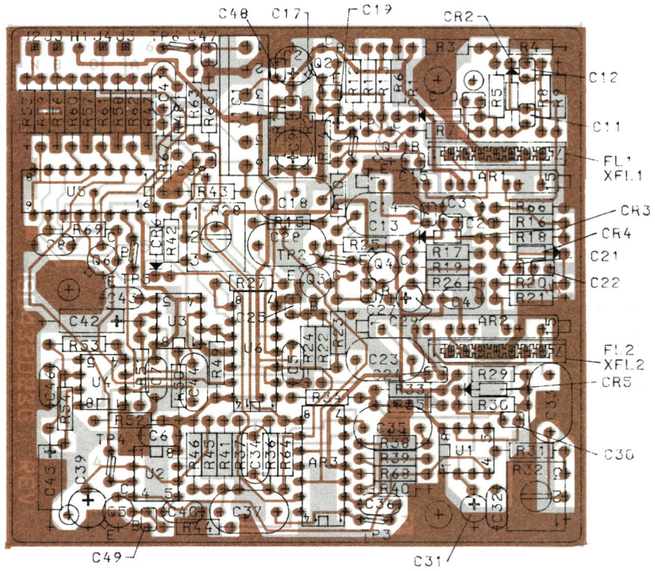
OUTLINE DIAGRAM

SYSTEMS BOARD A901 &
BUSY TONE DECODER BOARD
19D430562G1 & G2

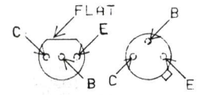
Issue 1

LBI30966

REPEATER TONE ENCODE BOARD



LEAD IDENTIFICATION
FOR Q1-Q6



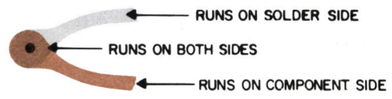
OR

IN-LINE TRIANGULAR

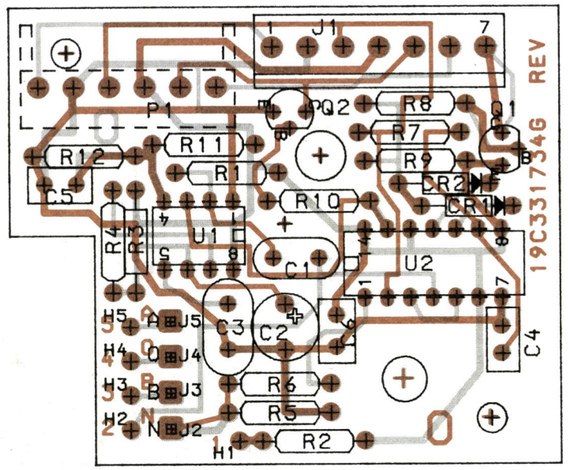
TOP VIEW

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

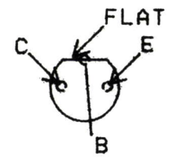
(19D423026, Rev. 1)
(19A143141, Sh. 1, Rev. 0)
(19A143141, Sh. 2, Rev. 1)



STE BOARD 19C331734G1



LEAD IDENTIFICATION
FOR Q1 & Q2



TRIANGULAR

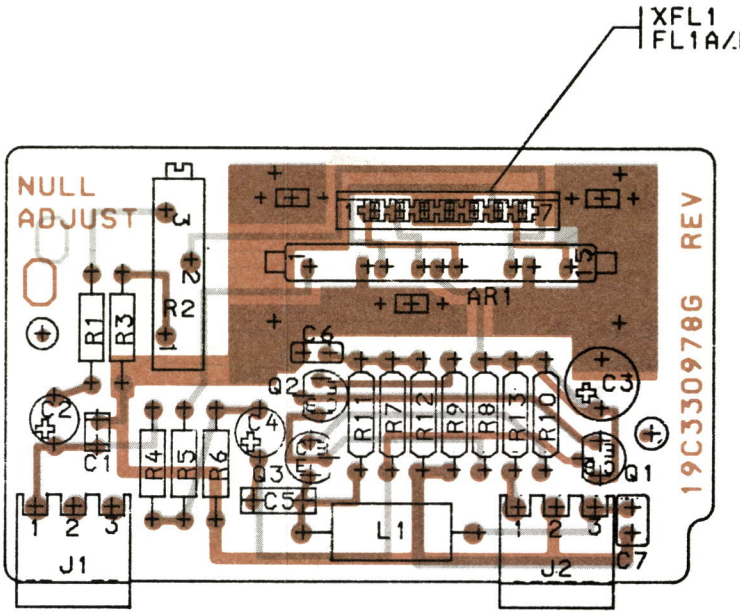
TOP VIEW

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

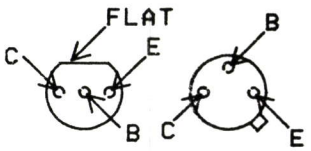
(19C331735, Rev. 0)
(19A144525, Sh. 1, Rev. 0)
(19A144525, Sh. 2, Rev. 0)

OUTLINE DIAGRAM

STE BOARD 19C331734G1 &
REPEATER TONE ENCODE BOARD
19D432023G1 & G2



LEAD IDENTIFICATION
FOR Q1-Q3



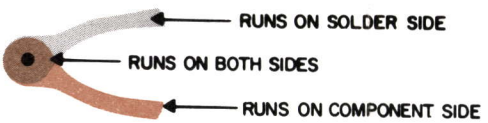
OR

IN-LINE TRIANGULAR

TOP VIEW

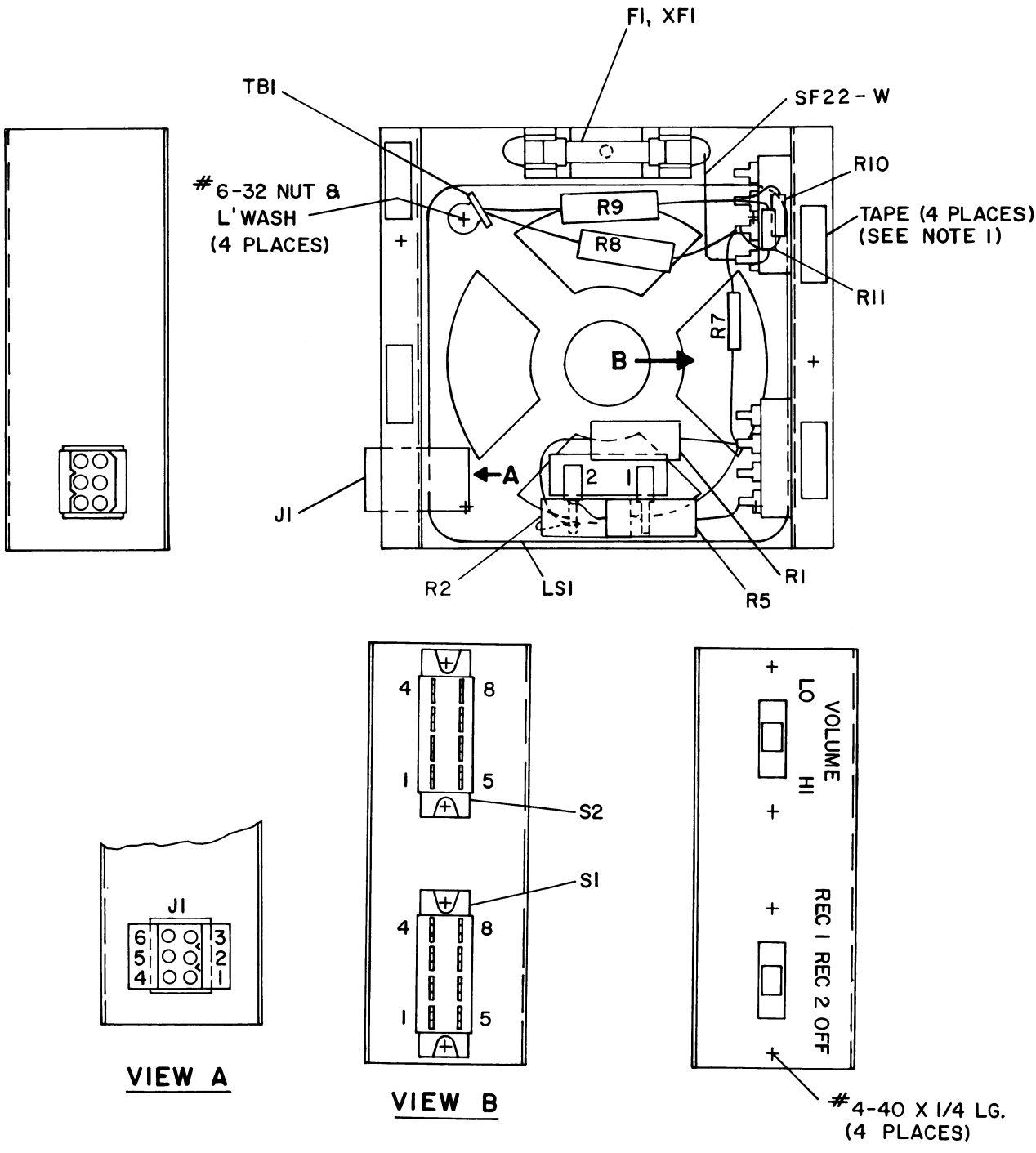
NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

(19C331068, Rev. 0)
(19A143585, Sh. 1, Rev. 0)
(19A143585, Sh. 2, Rev. 0)



OUTLINE DIAGRAM

BUSY TONE NOTCH FILTER
19C330978G1 & G2



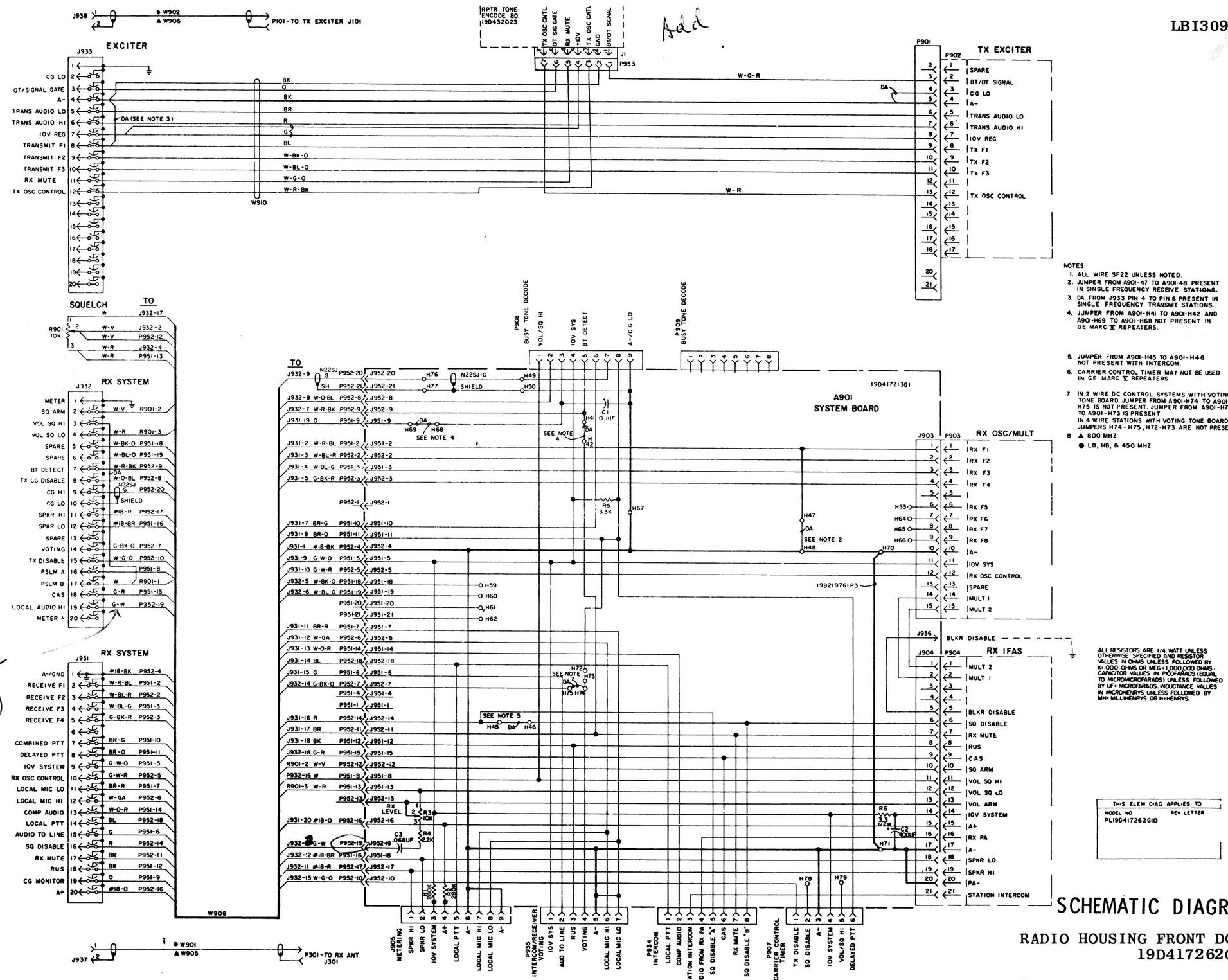
NOTES:

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

(19C328482, Rev. 3)

OUTLINE DIAGRAM

SERVICE SPEAKER 19C320728G2



NOTES:

1. ALL WIRE SF22 UNLESS NOTED.
2. JUMPER FROM A901-47 TO A901-48 PRESENT IN SINGLE FREQUENCY RECEIVE STATIONS.
3. DA FROM J933 PIN 4 TO PIN 8 PRESENT IN SINGLE FREQUENCY TRANSMIT STATIONS.
4. JUMPER FROM A901-H41 TO A901-H42 AND A901-H69 TO A901-H68 NOT PRESENT IN GE MARC V REPEATERS.
5. JUMPER FROM A901-H45 TO A901-H46 NOT PRESENT WITH INTERCOM.
6. CARRIER CONTROL TIMER MAY NOT BE USED IN GE MARC V REPEATERS
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.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PLI9D417262G10	

(19E501762, Rev. 2)

SCHEMATIC DIAGRAM

RADIO HOUSING FRONT DOOR
19D417262G10

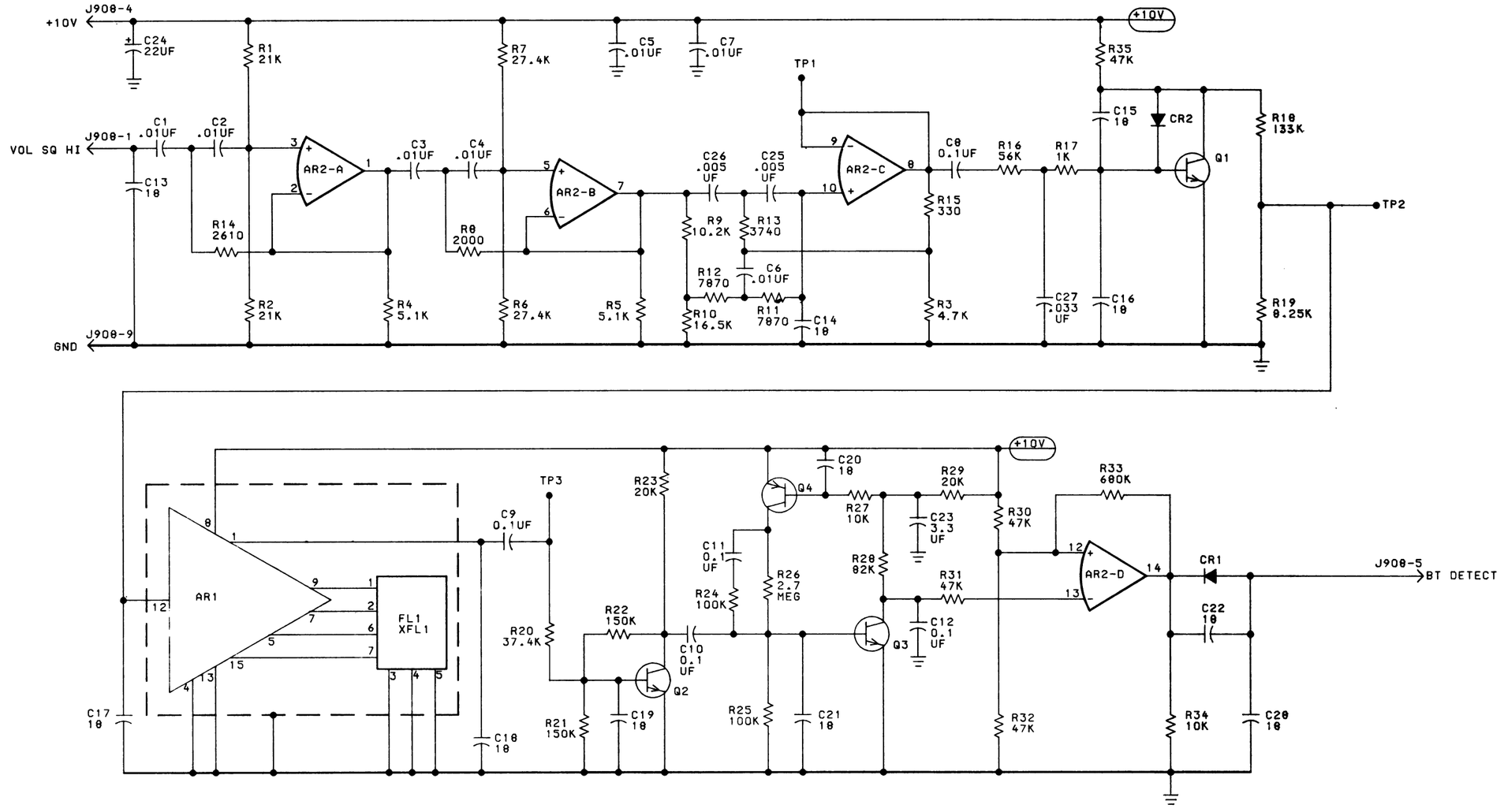
Issue 1

PARTS LIST

GE MARC V
RADIO HOUSING FRONT DOOR ASSEMBLY
19D417262G10
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
A901		COMPONENT BOARD 19D417213G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116080P7	Polyester: 0.1 uF ±20%, 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		Connector. Includes:
	19A116659P1	Connector: 3 contacts; 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 - - - - - - - - - -
P907	19A701785P1	Contact, electrical; sim to Molex 08-50-0404. (Quantity 6).
P908	19A701785P1	Contact, electrical; sim to Molex 08-50-0404. (Quantity 9).
P909	19A701785P1	Contact, electrical; sim to Molex 08-50-0404. (Quantity 8).
P934	19A701785P1	Contact, electrical; sim to Molex 08-50-0404. (Quantity 8).
P935	19A701785P1	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 - - - - - - - - - -
W905		CABLE ASSEMBLY 19A136930G2
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J937		Connector. Includes:
	19A115938P12	Connector, coaxial: (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, coaxial: (BNC Series); sim to Amphenol 31-318.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101	19A134357P6	Cable, RF: approx 6 inches long.
W908		CABLE ASSEMBLY 19D417262G6
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J931 and J932	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P951 and P952		Connector. Includes
	19A116659P25	Shell.
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms ±20%, sim to Mallory LC(25K).
W909		EXCITER CABLE 19D417262G8
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J933	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P901		Connector. Includes:
	19A116659P25	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
P953		Connector. Includes:
	19A116659P80	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19C320679G1	Door.
	19B219178P1	Pawl. (Part of door latch).
	19C318151P1	Knob. (Part of door latch).
	N193P1208C6	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).
	7115130P9	Hex nut, brass: No. 3/8-32. (Used with R901 mounting).
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with R901 mounting).
	19A115874P1	Catch, friction. (Latches A901).
	4037158P4	Rubber channel. (Located on edge of door).
	4035664P8	Nut, self locking. (Secures supports).
	19A115161P2	Sleeving. (Located between self locking nuts & supports).
	19A116686P2	Nut, sheet spring. (Located by J933).
	N529P11C6	Button plug.
	19A116496P1	Cable clamp. (Secures Exciter to Driver cable).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



POWER & GND CONNECTIONS

DEVICE	+10V PIN NO.	GND PIN NO.
AR2	4	11

MODEL NO	REV LETTER
19D430562G1 19D430562 G2	A

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.

(19D430563, Rev. 3)

SCHEMATIC DIAGRAM

BUSY TONE DECODER BOARD 19D430562G1 & G2

PARTS LIST

GE MARC V
REPEATER BUSY TONE DECODER BOARD
19D430562G1 3051.9 Hz
19D430562G2 2918.7 Hz
ISSUE 3

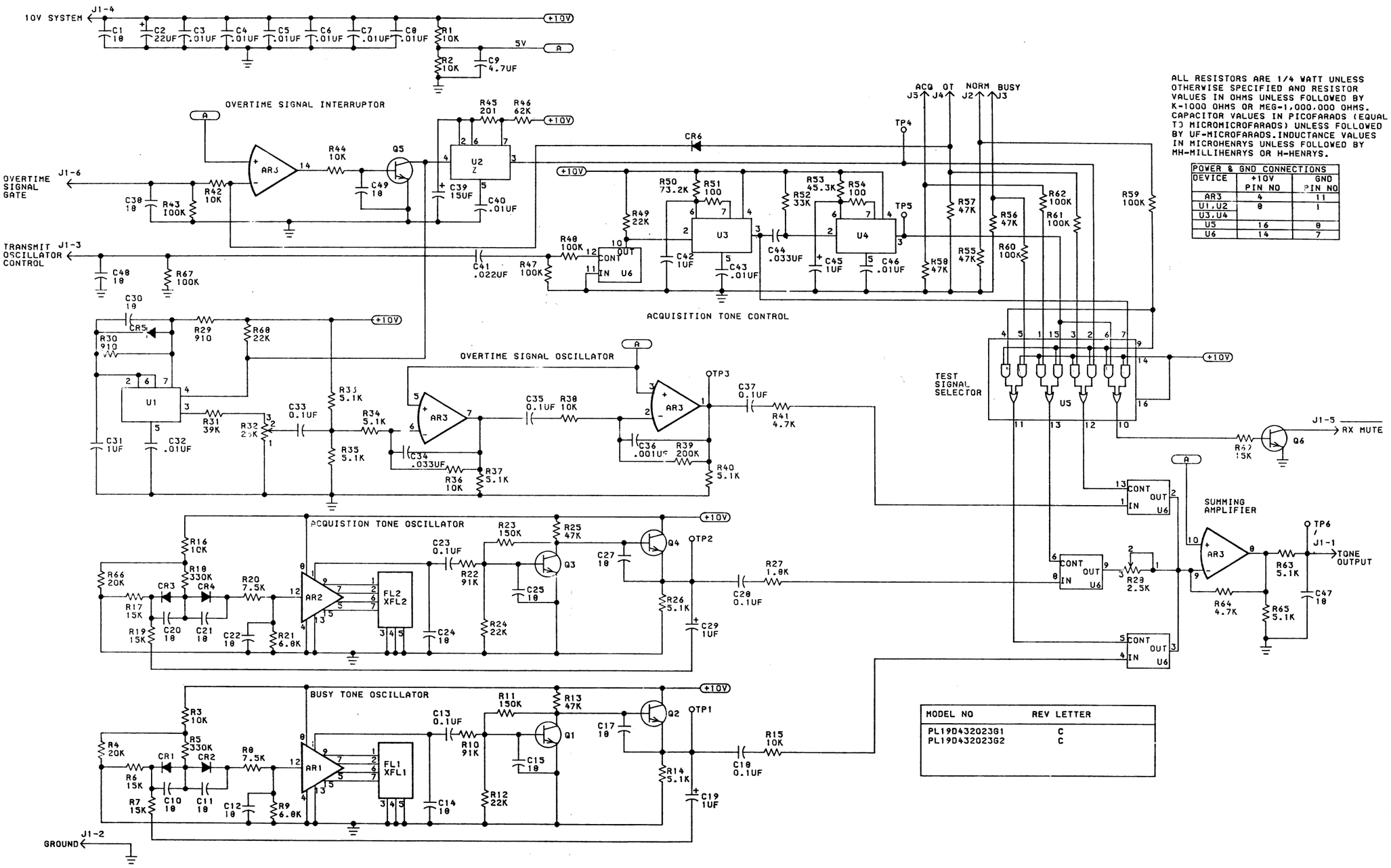
SYMBOL	GE PART NO.	DESCRIPTION
AR1	19D417092G2	Selective Amplifier.
AR2	19A134511P1	Integrated circuit, linear: Quad OP Amp; sim to NSCLM 224J.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1 thru C5	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
C6	19C307114P1002G	Polystyrene: 0.01 µf ±2%, 100 VDCW, temp coef -120±30 PPM/°C.
C7	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
C8 thru C12	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C13 thru C22	19A700219P38	Ceramic: 18 pf ±5%, 100 VDCW; temp coef 0 PPM.
C23	19A134202P5	Tantalum: 3.3 µf ±20%, 15 VDCW.
C24	19A134202P6	Tantalum: 22 µf ±20%, 15 VDCW.
C25 and C26	19C307114P5001G	Polystyrene: 5000 pf ±2%, 100 VDCW, temp coef -120±30 PPM/°C.
C27	19A116080P4	Polyester: 0.033 µf ±20%, 50 VDCW.
C28	19A700219P38	Ceramic: 18 pf ±5%, 100 VDCW; temp coef 0 PPM.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1 and CR2	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
		- - - - - - - - - - FILTERS - - - - - - - - - -
		NOTE: when reordering give GE Part number and specify exact frequency needed.
FL1A	19C320291G6	Hybrid. 3051.9 Hz (Standard).
FL1B	19C320291G8	Hybrid. 2918.7 Hz (Optional).
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J908	19A116659P76	Connector, printed wiring: 9 contacts; sim to Molex 09-52-3091.
J909	19A116659P77	Connector, printed wiring: 8 contacts; sim to Molex 09-52-3081.
		- - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q3	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q4	19A115852P1	Silicon, PNP; sim to Type 2N3906.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19C314256P22102	Metal film: 21K ohms ±1%, 1/4 w.
R3	19A700106P79	Composition: 4.7K ohms ±5%, 1/4 w.
R4 and R5	3R152P512K	Composition: 5.1K ohms ±10%, 1/4 w.
R6 and R7	19C314256P22742	Metal film: 27.4K ohms ±1%, 1/4 w.
R8	19C314256P22001	Metal film: 2K ohms ±1%, 1/4 w.
R9	19C314256P21022	Metal film: 10.2K ohms ±1%, 1/4 w.
R10	19C314256P21652	Metal film: 16.5K ohms ±1%, 1/4 w.
R11 and R12	19C314256P27871	Metal film: 7.87 ohms ±1%, 1/4 w.
R13	19C314256P23741	Metal film: 3.7K ohms ±1%, 1/4 w.
R14	19C314256P22611	Metal film: 2.6K ohms ±1%, 1/4 w.
R15	19A700106P51	Composition: 330 ohms ±5%, 1/4 w.
R16	19A700106P105	Composition: 56K ohms ±5%, 1/4 w.
R17	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R18	19C314256P21503	Metal film: 150K ohms ±1%, 1/4 w.
R19	19C314256P28251	Metal film: 8.25K ohms ±1%, 1/4 w.
R20	19C314256P23742	Metal film: 37.4K ohms ±1%, 1/4 w.
R21 and R22	19C314256P21503	Metal film: 150K ohms ±1%, 1/4 w.
R23	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R24 and R25	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R26	3R152P275J	Composition: 2.7 megohms ±5%, 1/4 w.
R27	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R28	19A700106P109	Composition: 82K ohms ±5%, 1/4 w.
R29	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R30 thru R32	19A700106P103	Composition: 47K ohms ±5%, 1/4 w.
R33	3R152P684J	Composition: 680K ohms ±5%, 1/4 w.
R34	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R35	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
		- - - - - - - - - TEST POINTS - - - - - - - - -
TP1 thru TP3	19B211379P1	Spring (Test Point).
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, eletrical. (Quantity 7).

*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 increase signaling reliability. Changed R18 to metal film: 133K ohms ±1%, 1/4 W. (19C314256P21333). Changed R35 to composition: 47K ohms ±5%, 1/4 W. (19A700106P103). Changed Q1 to 19A116774P1.



(19D432025, Rev. 8)

SCHEMATIC DIAGRAM

REPEATER TONE ENCODE BOARD
19D432023G1 & G2

PARTS LIST

GE MARC V
REPEATER TONE ENCODE BOARD
19D432023G1 3052.9 Hz BUSY TONE - REV C
19D432023G2 2918.7 Hz BUSY TONE - REV C
ISSUE 4

SYMBOL	GE PART NO.	DESCRIPTION
AR1 and AR2	19D417092G2	Selective Amplifier.
AR3	19A134511P1	Linear: QUAD OP AMP; sim to LM224J.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C2	19A134202P6	Tantalum: 22 uF ±20%, 15 VDCW.
C3 thru C8	19A116080P101	Polyester: 0.01 uF ±10%, 50 VDCW.
C9	19A134202P16	Tantalum: 4.7 uF ±20%, 25 VDCW.
C10 thru C12	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C13	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C14 and C15	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C17	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C18	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C19	19A134202P14	Tantalum: 1 uF ±20%, 35 VDCW.
C20 thru C22	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C23	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C24 and C25	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C27	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C28	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C29	19A134202P14	Tantalum: 1 uF ±20%, 35 VDCW.
C30	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C31	19A134202P14	Tantalum: 1 uF ±20%, 35 VDCW.
C32	19A116080P101	Polyester: 0.01 uF ±10%, 50 VDCW.
C33	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C34	19A700005P10	Polyester: 0.033 uF ±10%, 50 VDCW.
C35	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C36	19A116080P118	Polyester: 0.001 uF ±20%, 50 VDCW.
C37	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
C38	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
C39	19A134202P8	Tantalum: 15 uF ±20%, 20 VDCW.
C40	19A116080P101	Polyester: 0.01 uF ±10%, 50 VDCW.
C41	19A116080P103	Polyester: 0.022 uF ±10%, 50 VDCW.
C42	5496267P417	Tantalum: 1.0 uF ±5%, 35 VDCW, sim to Sprague Type 150D.
C43	19A116080P101	Polyester: 0.01 uF ±10%, 50 VDCW.
C44	19A700005P10	Polyester: 0.033 uF ±10%, 50 VDCW.
C45	5496267P417	Tantalum: 1.0 uF ±5%, 35 VDCW, sim to Sprague Type 150D.
C46	19A116080P101	Polyester: 0.01 uF ±10%, 50 VDCW.
C47 thru C49	19A700219P38	Ceramic: 18 pF ±10%, 100 VDCW, temp coef 0 PPM.
CR1 thru CR6	19A115250P1	- - - - - - - - DIODES AND RECTIFIERS - - - - - - - - Silicon, fast recovery, 225 mA, 50 PIV.
		- - - - - - - - - - TONE NETWORKS - - - - - - - - - - NOTE: When reordering give GE Part number and specify exact frequency needed.
FL1A	19C320291G6	Hybrid: 3051.9 Hz.
FL1B	19C320291G8	Hybrid: 2918.7 Hz.
FL2	19C320291G7	Hybrid: 1962.9 Hz.
J1	19A116659P105	- - - - - - - - JACKS AND RECEPTACLES - - - - - - - - Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-60-1061.
J2 thru J5	19A701785P6	Contact, electrical.
Q1 thru Q6	19A115910P1	- - - - - - - - - - TRANSISTORS - - - - - - - - - - Silicon, NPN; sim to Type 2N3904.
R1 thru R3	19A700106P87	- - - - - - - - - - RESISTORS - - - - - - - - - - Composition: 10K ohms ±5%, 1/4 w.
R4	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R5	3R152P334J	Composition: 0.33 megohms ±5%, 1/4 w.
R6 and R7	19A700106P91	Composition: 15K ohms ±5%, 1/4 w.
R8	3R152P752J	Composition: 7.5K ohms ±5%, 1/4 w.
R9	19A700106P83	Composition: 6.8K ohms ±5%, 1/4 w.
R10	3R152P913J	Composition: 91K ohms ±5%, 1/4 w.
R11	3R152P154J	Composition: 150K ohms ±5%, 1/4 w.
R12	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R13	19A700106P103	Composition: 47K ohms ±5%, 1/4 w.
R14	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R15	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R16	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R17	19A700106P91	Composition: 15K ohms ±5%, 1/4 w.
R18	3R152P334J	Composition: 0.33 megohms ±5%, 1/4 w.
R19	19A700106P91	Composition: 15K ohms ±5%, 1/4 w.
R20	3R152P752J	Composition: 7.5K ohms ±5%, 1/4 w.
R21	19A700106P83	Composition: 6.8K ohms ±5%, 1/4 w.
R22	3R152P913J	Composition: 91K ohms ±5%, 1/4 w.
R23	3R152P154J	Composition: 150K ohms ±5%, 1/4 w.
R24	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R25	19A700106P103	Composition: 47K ohms ±5%, 1/4 w.
R26	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R27	19A700106P69	Composition: 1.8K ohms ±5%, 1/4 w.
R28	19A116559P104	Variable cermet: 2500 ohms ±20%, 1/2 w; sim to CTS Series 360.
R29 and R30	3R152P911J	Composition: 910 ohms ±5%, 1/4 w.
R31	19A700106P101	Composition: 39K ohms ±5%, 1/4 w.
R32	19A116559P107	Variable cermet: 25K ohms ±20%, 1/2 w; sim to CTS Series 360.
R33	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R34	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R35	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R36	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R37	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R38	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R39	3R152P204J	Composition: 200K ohms ±5%, 1/4 w.
R40	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R41	19A700106P79	Composition: 4.7K ohms ±5%, 1/4 w.
R42	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R43	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R44	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R45	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R46	3R152P623J	Composition: 62K ohms ±5%, 1/4 w.
R47 and R48	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R49	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R50	19A701250P384	Metal film: 73.2K ohms ±1%, 1/4 w.
R51	19A700106P39	Composition: 100 ohms ±5%, 1/4 w.
R52	19A700106P99	Composition: 33K ohms ±5%, 1/4 w.
R53	19A701250P364	Metal film: 45.3K ohms ±1%, 1/4 w.
R54	19A700106P39	Composition: 100 ohms ±5%, 1/4 w.
R55 thru R58	19A700106P103	Composition: 47K ohms ±5%, 1/4 w.
R59 thru R62	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R63	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R64	19A700106P79	Composition: 4.7K ohms ±5%, 1/4 w.
R65	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R66	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R67	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R68	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R69	19A700106P91	Composition: 15K ohms ±5%, 1/4 w.
TP1 thru TP6	19A134552P1	- - - - - - - - - - TEST POINTS - - - - - - - - - - Jack, tip.
U1 thru U4	19A116968P1	- - - - - - - - INTEGRATED CIRCUITS - - - - - - - - Linear, timer: DUAL IN-LINE 8 Pin Mini Dip Package; sim to Signetics SA555N.
U5	19A134097P16	QUAD AND-OR SELECT GATE.
U6	19A134097P52	Digital; QUAD SWITCH.
XFL1 and XFL2	19C320299G1	- - - - - - - - - - SOCKETS - - - - - - - - - - Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, electrical. (Quantity 7).

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 - 80 msec delay increased to 95 msec; changed R50. This resistor was 19C314256P27322, 73.2 k ohms ±1%, 1/4 watt.

REV. B - Acquisition tone delay changed to 80 msec. ±10%, Changed R50 to 19C314256P27322. To change tone burst to 50 msec ±10%, changed R53. This resistor was 19C314256P23652, 38.5 K ohms ± 1%, 1/4 watt.

REV. C - Adding repeater STE board deleted cable W1 (19B233428G2) from encoder board.

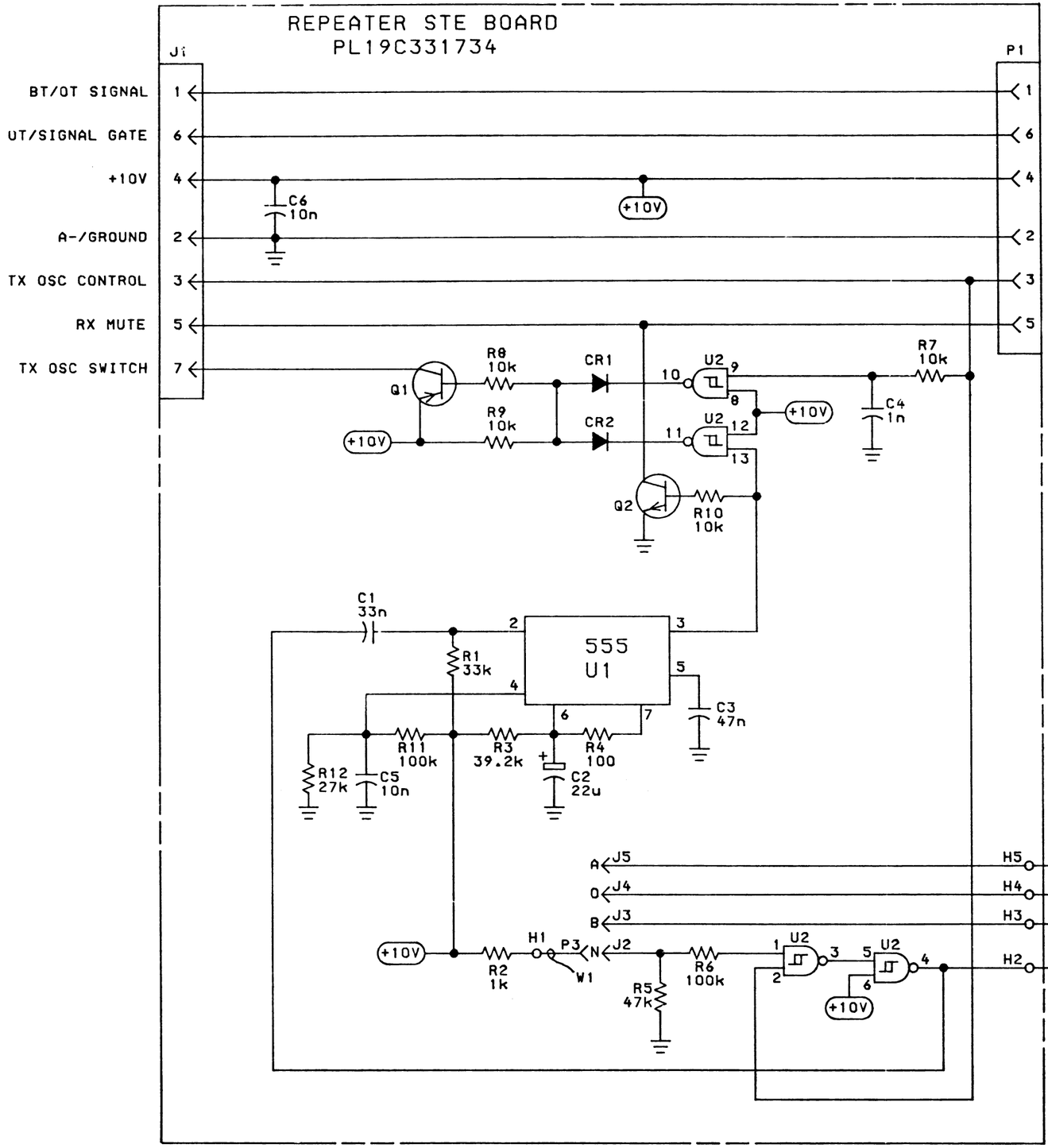
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

REPEATER STE BOARD
19C331734G1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		---------- CAPACITORS ----------
C1	19A700005P10	Polyester: 0.033 µf ±10%, 50 VDCW.
C2	19A700003P8	Tantalum: 22 µf ±20%, 16 VDCW.
C3	19A700005P11	Polyester: 0.047 µf ±10%, 50 VDCW.
C4	19A700005P1	Polyester: 1000 pf ±10%, 50 VDCW.
C5 and C6	19A700005P7	Polyester: 0.010 µf ±10%, 50 VDCW.
		---------- DIODES ----------
CR1 and CR2	19A700028P1	Silicon, fast recovery: Fwd. current 75 mA, 75 PIV; sim to Type 1N4148.
		---------- JACKS ----------
J1	19A116659P106	Printed wire: 7 contacts rated at 5 amps; sim to Molex 09-60-1071.
J2 thru J5	19A701785P5	Contact, electrical.
		---------- PLUGS ----------
P1	19A700102P26	6 contacts rated at 5 amps; sim to Methode 3000-006-2101.
P2	19A127042P2	Solderless terminal. (Part of W2).
P3	19A116781P6	Contact, electrical. (Part of W1 - Quantity 4).
		---------- TRANSISTORS ----------
Q1	19A700022P1	Silicon, PNP; sim to Type 2N3906.
Q2	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		---------- RESISTORS ----------
R1	19A700019P55	Deposited carbon: 33K ohms ±5%, 1/4 w.
R2	19A700019P37	Deposited carbon: 1K ohms ±5%, 1/4 w.
R3	19A701250P358	Metal film: 39.2K ohms ±10%, 1/4 w.
R4	19A700019P25	Deposited carbon: 100 ohms ±5%, 1/4 w.
R5	19A700019P57	Deposited carbon: 47K ohms ±5%, 1/4 w.
R6	19A700019P61	Deposited carbon: 100K ohms ±5%, 1/4 w.
R7 thru R10	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R11	19A700019P25	Deposited carbon: 100 ohms ±5%, 1/4 w.
R12	19A700019P54	Deposited carbon: 27K ohms ±5%, 1/4 w.
		---------- INTEGRATED CIRCUITS ----------
U1	19A701865P1	Linear. 555 TIMER.
U2	19A700029P56	Digital. QUAD 2-INPUT NAND SCHMITT TRIGGER.
		---------- CABLES ----------
W1	19B233428G2	Cable. (Includes P3).
W2	19B234109G1	Cable. (Includes P2).
		---------- MISCELLANEOUS ----------
	19A701235P4	Spacer. (Located on printed board).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



PWR & GND CONNECTIONS		
DEVICE	VCC(+10V) PIN NO.	GND PIN NO.
U1	8	1
U2	14	7

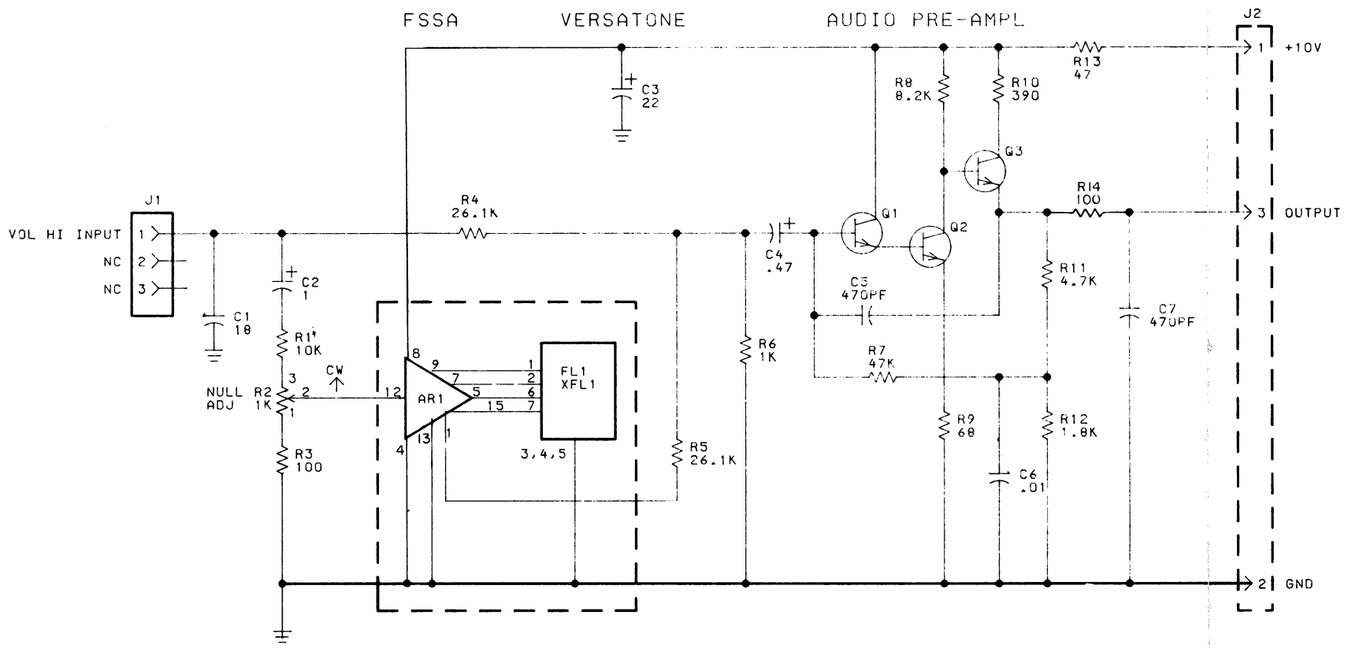
MODEL NO.	REV. LETTER
19C331734G1	

(19D433686, Rev. 2)

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED.
RESISTOR VALUES IN Ω UNLESS FOLLOWED BY MULTIPLIER k OR M.
CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER µ,n OR p.
INDUCTANCE VALUES IN H UNLESS FOLLOWED BY MULTIPLIER m OR µ.

SCHEMATIC DIAGRAM

STE BOARD 19C331734G1



(19C331070, Rev. 1)

SCHEMATIC DIAGRAM

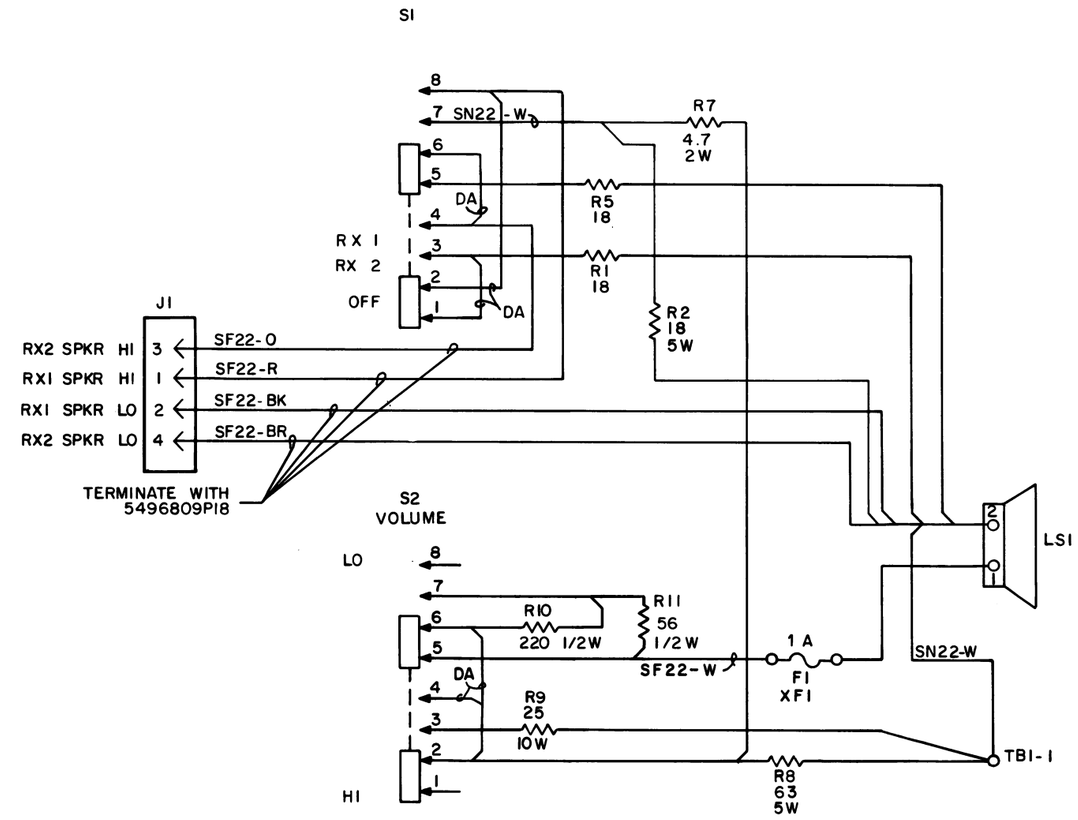
BUSY TONE NOTCH FILTER
19C330978G1 & G2

PARTS LIST

BUSY TONE REJECT FILTER
19C330978G1 3051 Hz STANDARD
19C330978G2 2918 Hz ALTERNATE
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
AR1	19D417092G2	Selective Amplifier.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A700219P38	Ceramic: 18 pf ±5%, 100 VDCW, temp coef 0 PPM.
C2	19A700003P4	Tantalum: 1 µf ±20%, 35 VDCW.
C3	19A700003P8	Tantalum: 22 µf ±20%, 16 VDCW.
C4	19A700003P3	Tantalum: 0.47 µf ±20%, 35 VDCW.
C5	19A700219P61	Ceramic: 82 pf ±10%, 100 VDCW, temp coef 0 PPM.
C6	19A116192P1	Ceramic: 0.01 µf ±20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C7	19A116192P13	Ceramic: 1000 pf ±10%, 50 VDCW; sim to Erie 8121-A050-W5R-102K.
		- - - - - - - - - TONE NETWORKS - - - - - - - - -
		NOTE: When reordering give GE Part number and specify exact frequency needed.
FL1A	19C320291G10	Hybrid: 2918 Hz.
FL1B	19C320291G9	Hybrid: 3051 Hz.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J1 and J2	19A700102P1	Connector, printed wiring: 3 contacts; sim to Molex 09-52-3031.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A700000P25	Coil, RF: 15.0 µh ±10%, 1.20 ohms DC res max.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q3	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A701250P301	Metal film: 10.0K ohms ±1%, 250 VDCW.
R2	19A116430P5	Variable, cermet: 1000 ohms ±10%, 0.75 w; sim to Helitrim Model 79P.
R3	19A701250P101	Metal film: 100 ohms ±1%, 250 VDCW.
R4 and R5	19A701250P341	Metal film: 26.1K ohms ±1%, 250 VDCW.
R6	19A701250P201	Metal film: 1000 ohms ±1%, 250 VDCW.
R7	19A700019P57	Deposited carbon: 47K ohms ±5%, 1/4 w.
R8	19A700019P48	Deposited carbon: 8.2K ohms ±5%, 1/4 w.
R9	19A700019P23	Deposited carbon: 68 ohms ±5%, 1/4 w.
R10	19A700019P32	Deposited carbon: 390 ohms ±5%, 1/4 w.
R11	19A700019P45	Deposited carbon: 4.7K ohms ±5%, 1/4 w.
R12	19A700019P40	Deposited carbon: 1.8K ohms ±5%, 1/4 w.
R13	19A700019P21	Deposited carbon: 47 ohms ±5%, 1/4 w.
		- - - - - - - - - - SOCKETS - - - - - - - - - - -
XFL1	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, electrical. (Quantity 7).

*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

Issue 1

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-9847.
		- - - - - - - - - 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.
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.

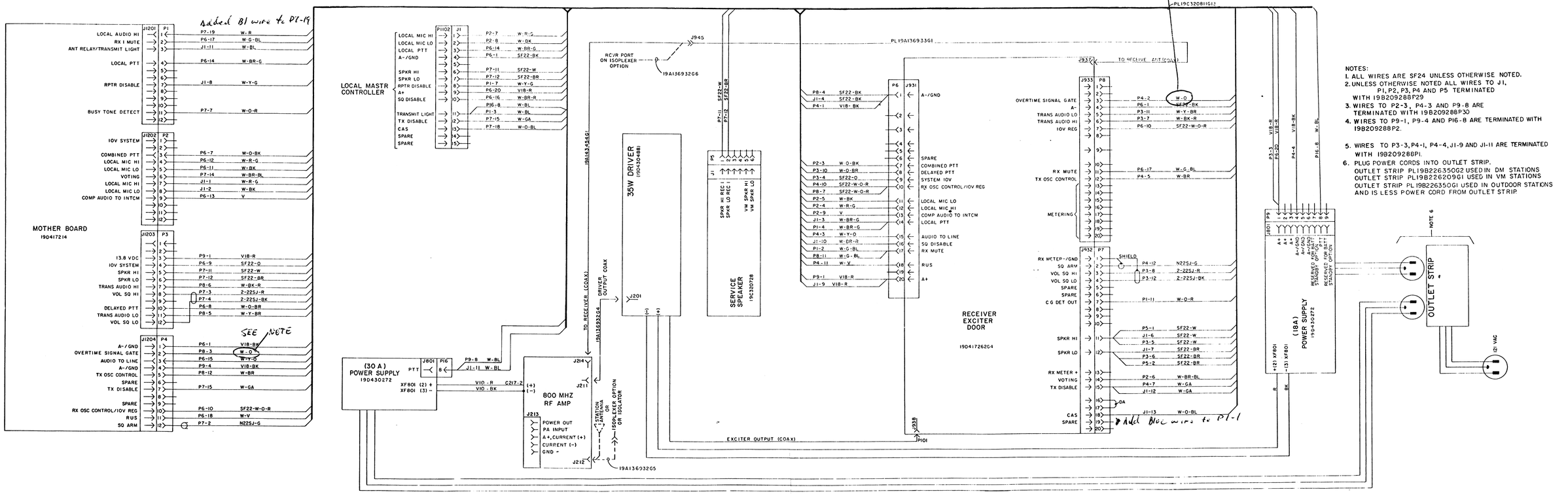
REV. E - To protect speaker from excessive drive. Changed F1, R8 and R9.

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.

(Wire Not in Harness) NOTE: USED BLUE WIRE (XMIT FI) FROM PB-8 to P1-9
MOVED TO - PB-3 ~~P4-3~~ P4-2 (CT SIGNAL)

LBI30966



NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1, P1, P2, P3, P4 AND P5 TERMINATED WITH 19B209288P29
3. WIRES TO P2-3, P4-3 AND P9-8 ARE TERMINATED WITH 19B209288P30
4. WIRES TO P9-1, P9-4 AND P16-8 ARE TERMINATED WITH 19B209288P2.
5. WIRES TO P3-3, P4-1, P4-4, J1-9 AND J1-11 ARE TERMINATED WITH 19B209288P1.
6. PLUG POWER CORDS INTO OUTLET STRIP.
   OUTLET STRIP PLI9B226350G02 USED IN DM STATIONS
   OUTLET STRIP PLI9B226209G1 USED IN VM STATIONS
   OUTLET STRIP PL19B226350G1 USED IN OUTDOOR STATIONS AND IS LESS POWER CORD FROM OUTLET STRIP

(19R601658, Rev. 0)

INTERCONNECTION DIAGRAM

90 WATT STATION HARNESS 19C320811G13

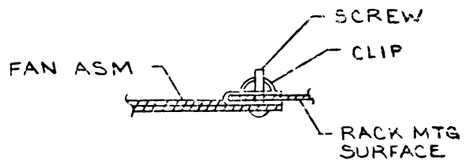
Issue 1

PARTS LIST

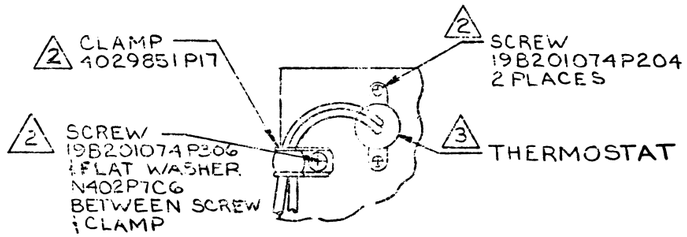
STATION HARNESS
19C320818G13
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1		Connector. Includes:
	19B209288P5	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (J1-1 thru 4,6,7,8,10,12,13).
	19B209288P1	Contact, electrical: female; sim to Molex 02-09-1101. (J1-9 & J1-11).
		- - - - - - - - - - - - PLUGS - - - - - - - - - -
P1		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (P1-2,3,4,7,11).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P1-1).
P2		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (P2-4 thru 9).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P2-3).
P3		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (P3-4 thru 8, P3-10 thru 13).
	19B209288P1	Contact, electrical: female; sim to Molex 02-09-1101. (P3-3).
P4		Connector. Includes:
	19B209288P20	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (P4-2,5,7,10,11,12).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P4-3).
	19B209288P1	Contact, electrical: female; sim to Molex 02-09-1101. (P4-1, 4).
P5		Connector. Includes:
	19B209288P23	Shell.
	19B209288P29	Contact, electrical: female; sim to Molex 02-09-1141. (P5-1, 2).
P6 thru P8	19C303508P1	Connector, phen: 20 contacts.
P9		Connector. Includes:
	19B209288P4	Shell.
	19B209288P2	Contact, electrical: male; sim to Molex 02-09-2101. (P9-1, 4).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P9-8).
P16		Connector. Includes:
	19B209288P4	Shell.
	19B209288P2	Contact, electrical: male; sim to Molex 02-09-2101. (P16-8).

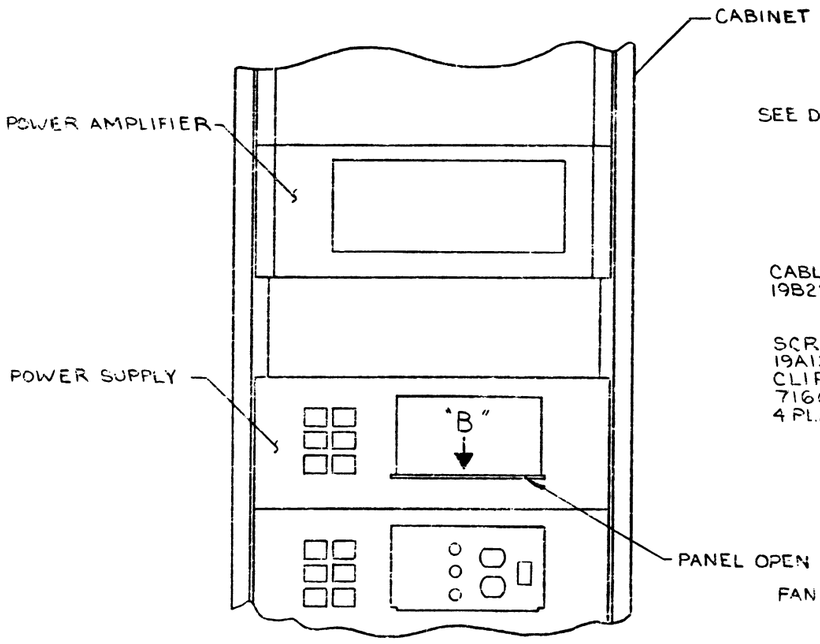
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



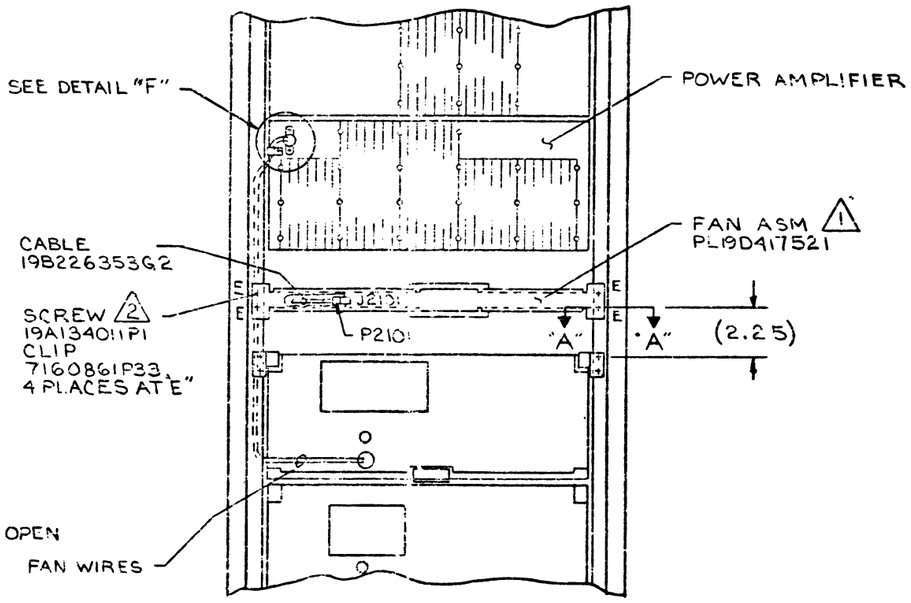
SECTION "A"-"A"



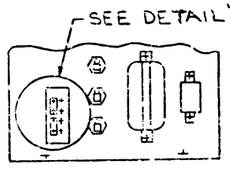
DETAIL "F"



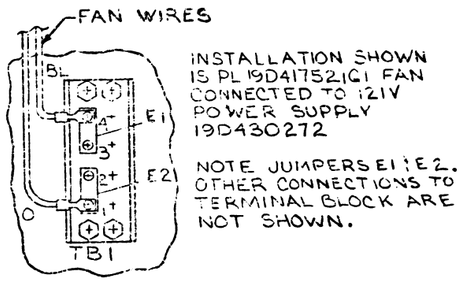
FRONT VIEW



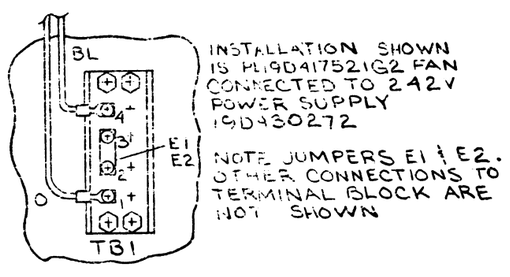
REAR VIEW



VIEW AT "B"



DETAIL "C"



DETAIL "D"

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.

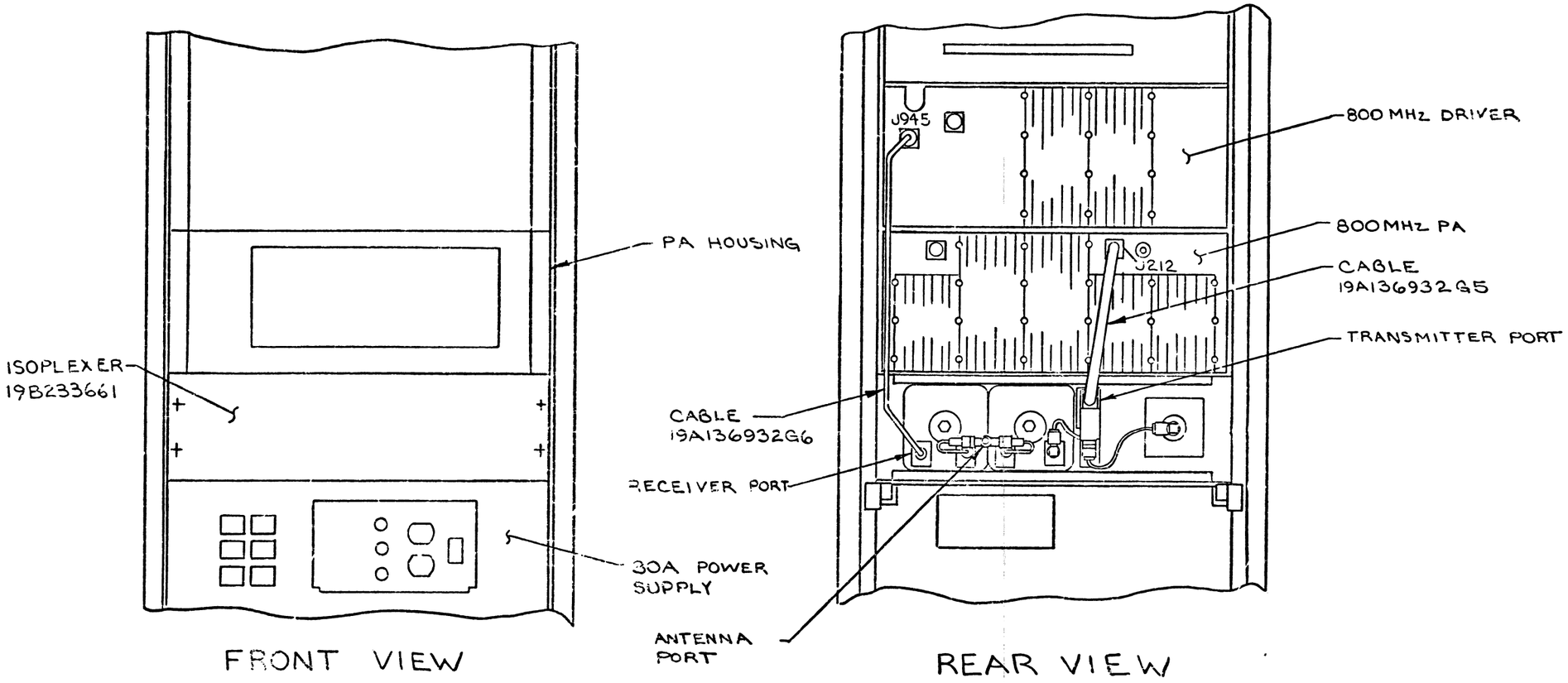
FAN ASSEMBLY	POWER SUPPLY INPUT VOLTAGE
PL19D417521G1	104 TO 126 VAC, 50/60 Hz
PL19D417521G2	207 TO 253 VAC, 50/50 Hz

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 19A130785G2 INSTALLATION HARDWARE KIT IN 800 MHz 90W SOLID STATE STATIONS



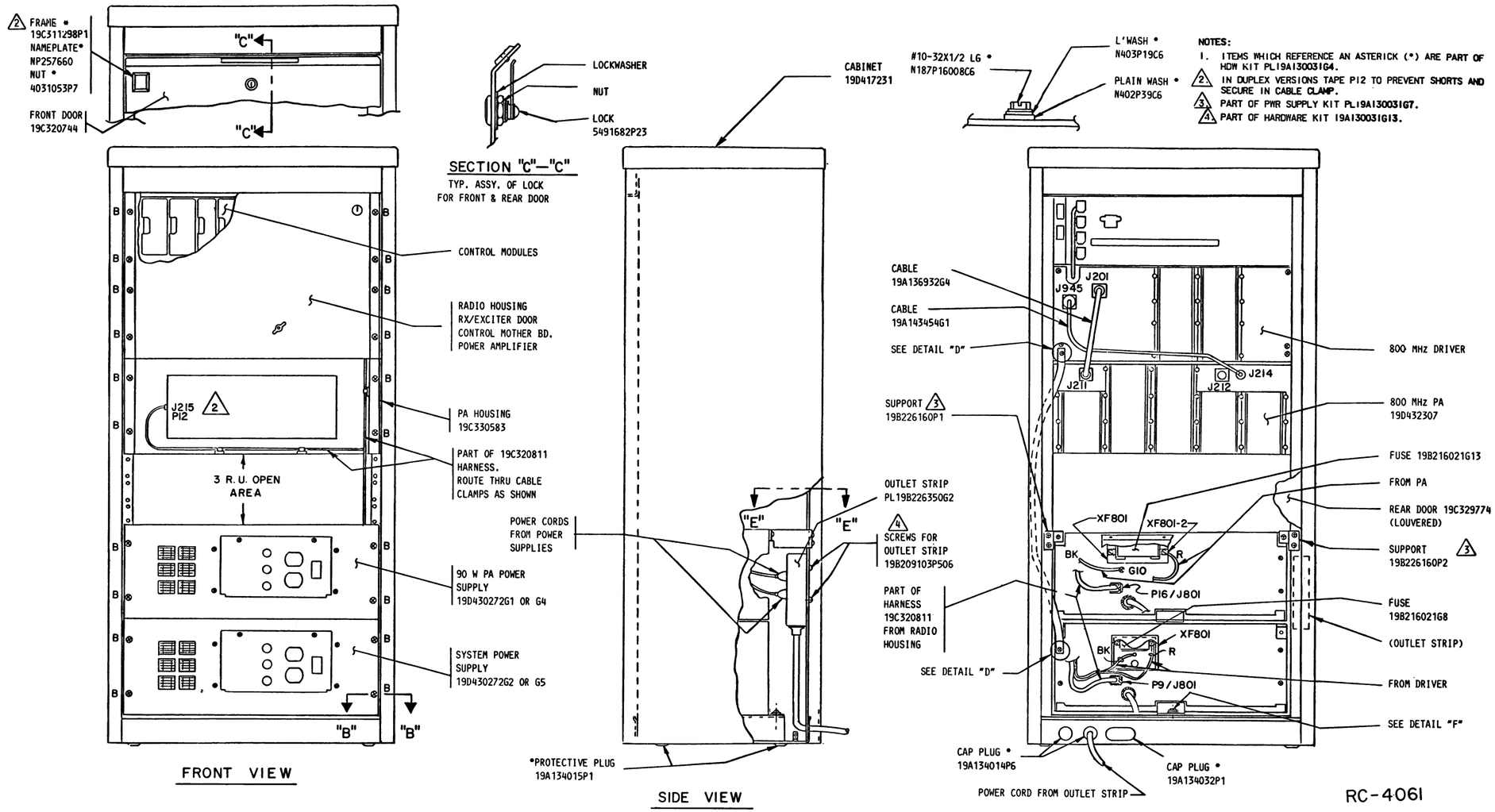
INSTRUCTIONS:

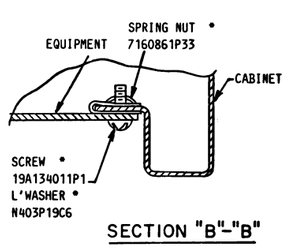
1. USING HARDWARE SUPPLIED IN INSTALLATION KIT, MOUNT ISOPLEXER FROM FRONT OF CABINET BETWEEN PA HOUSING AND 30A POWER SUPPLY. USE SPRING NUTS ON RAILS AND PLACE PLAIN WASHER AGAINST FRONT OF ISOPLEXER PANEL. USE LOCK WASHER BETWEEN PLAIN WASHER AND SCREW.
2. CONNECT 19A136932G6 CABLE BETWEEN RECEIVER 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.

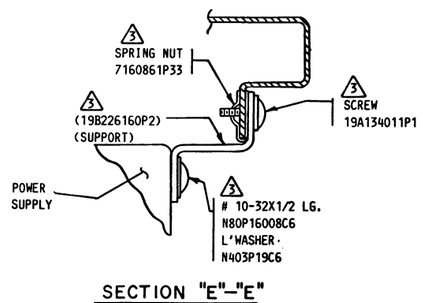
(19C330920, Rev. 0)

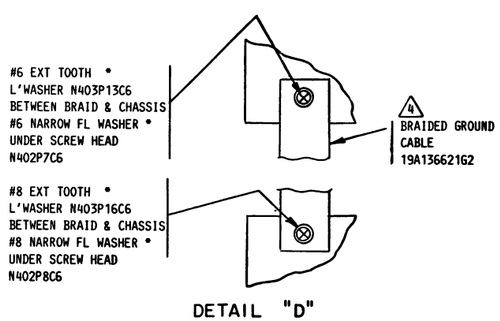
INSTALLATION INSTRUCTIONS

ISOPLEXER OPTION 9736



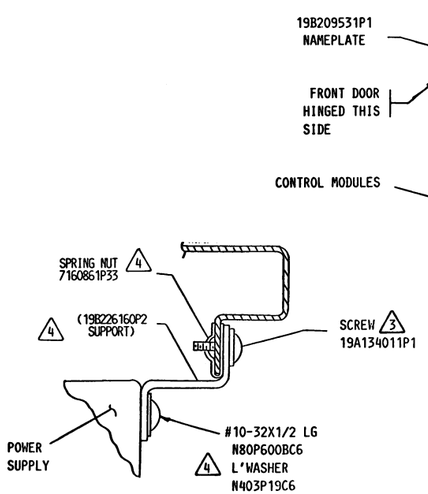




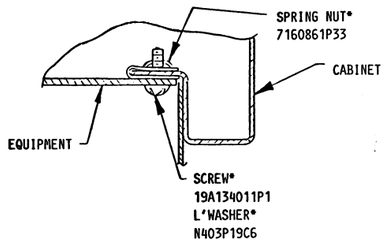


MECHANICAL PARTS BREAKDOWN

90 WATT SOLID STATE DESK MATE STATION

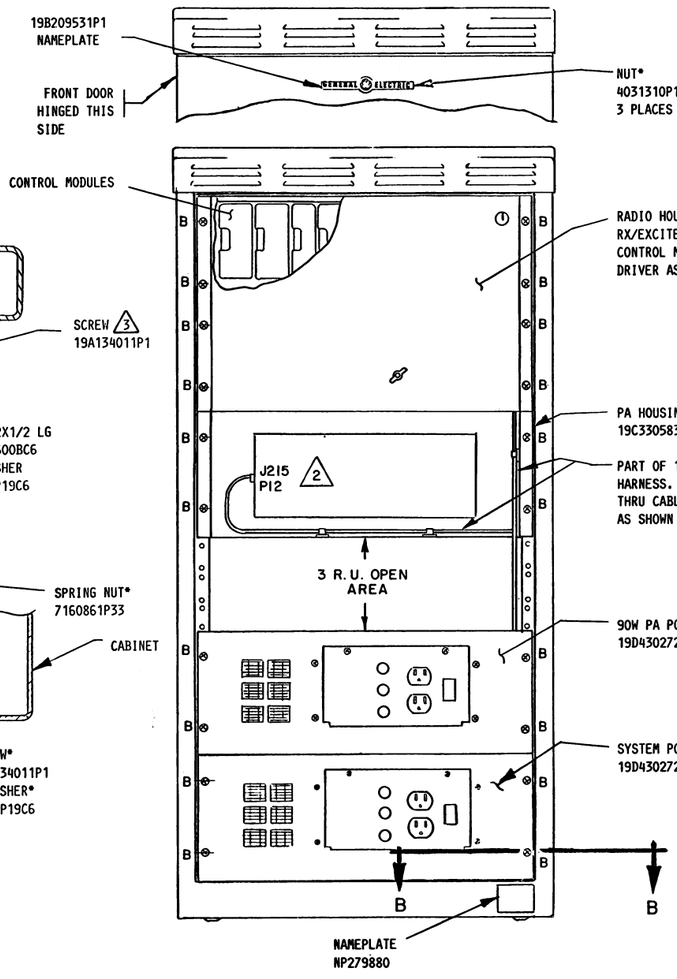


SECTION "A"-"A"

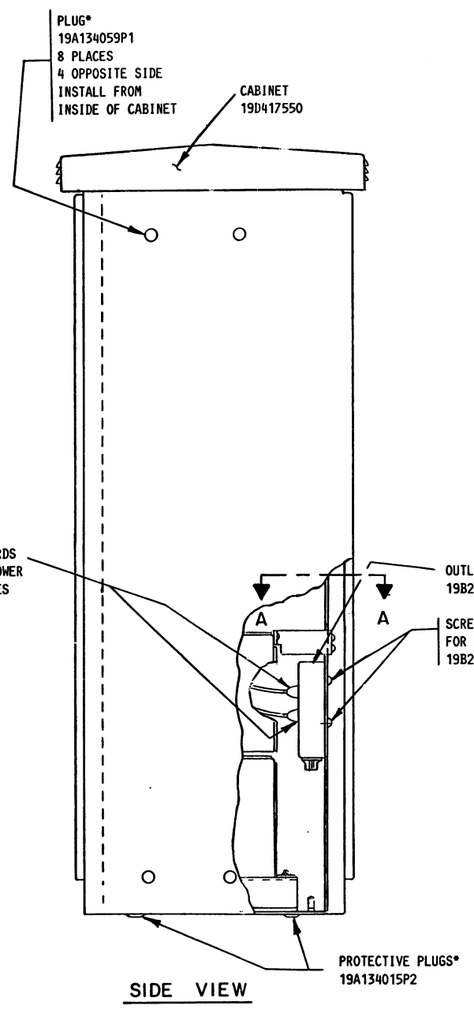


SECTION "B"-"B"

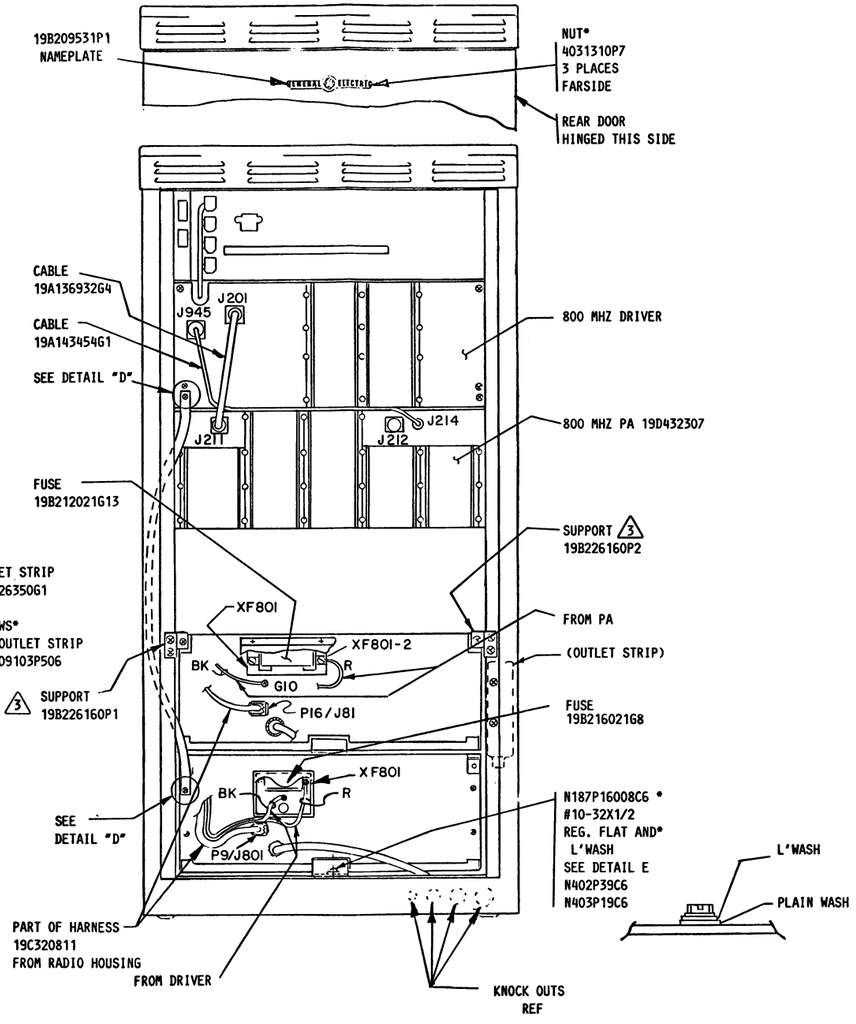
TYP. PLACES
AT "B" DESIGNATIONS



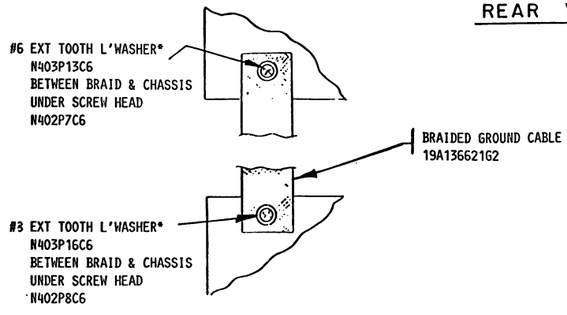
FRONT VIEW



SIDE VIEW



REAR VIEW



DETAIL "D"

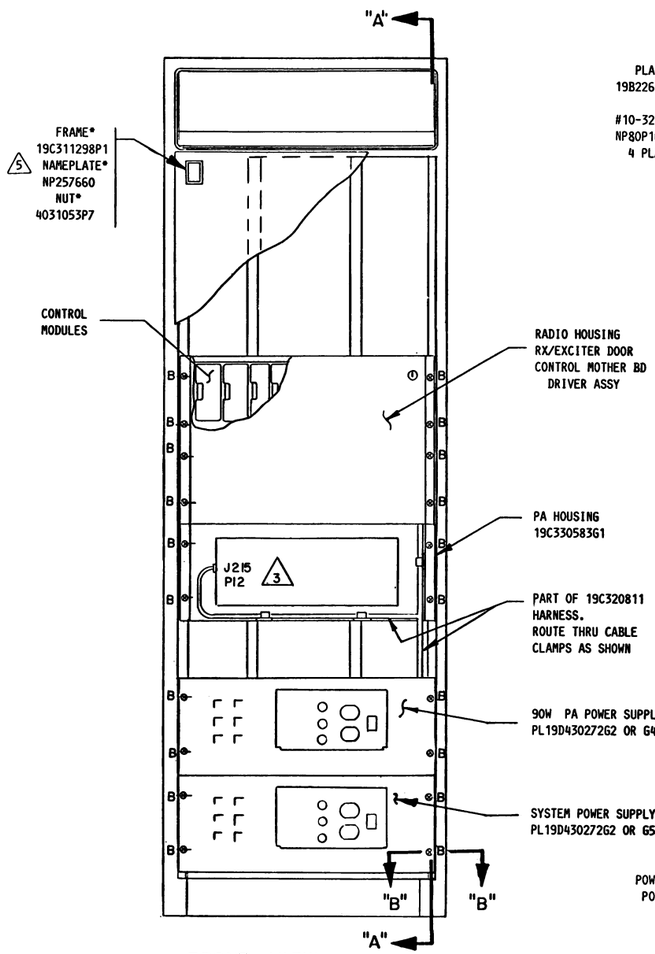
NOTES:

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

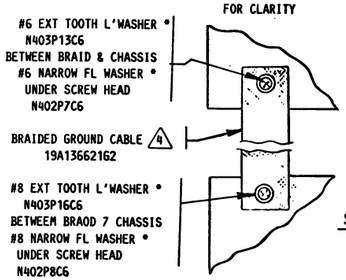
MECHANICAL PARTS BREAKDOWN

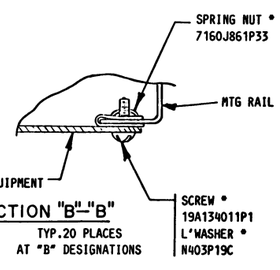
90 WATT SOLID STATE POLE MOUNT STATION



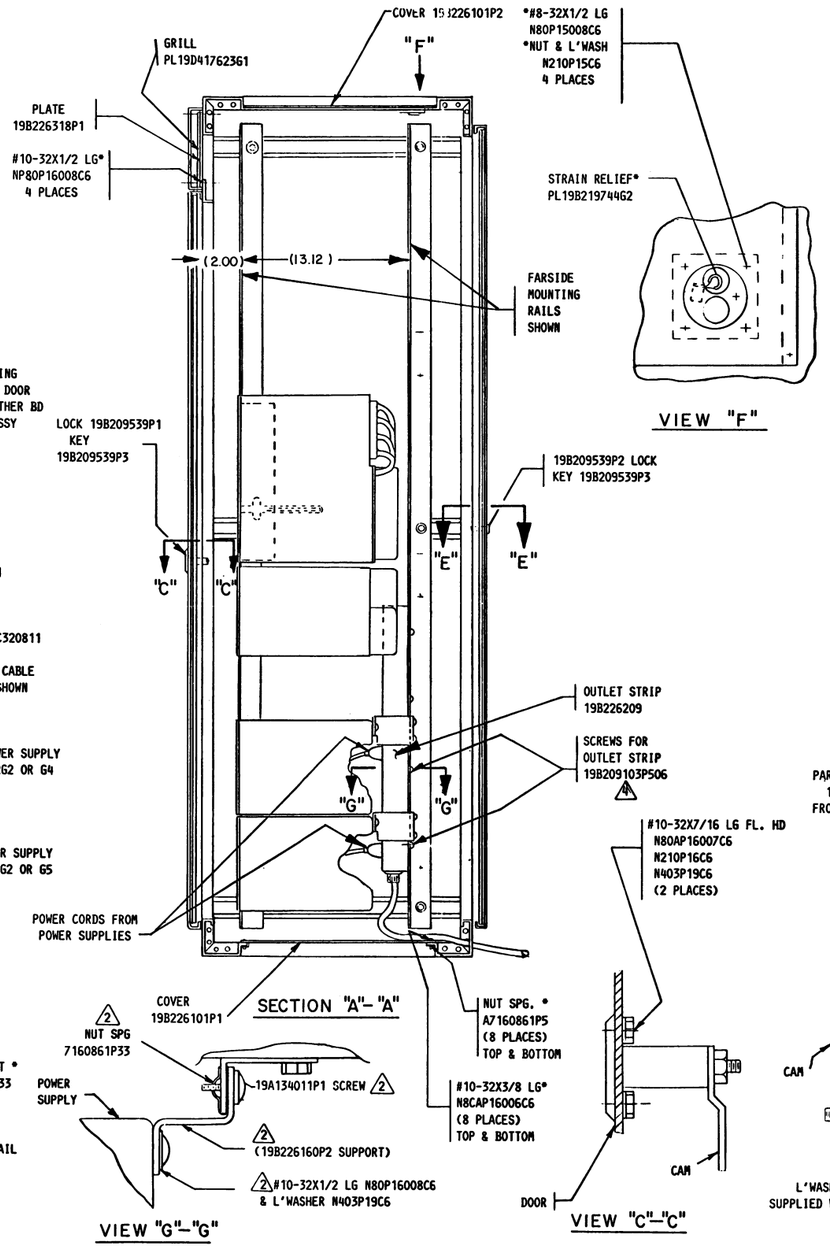
FRONT VIEW

WITH DOOR PARTIALLY REMOVED FOR CLARITY





SECTION "B"–"B"
TYP.20 PLACES AT "B" DESIGNATIONS

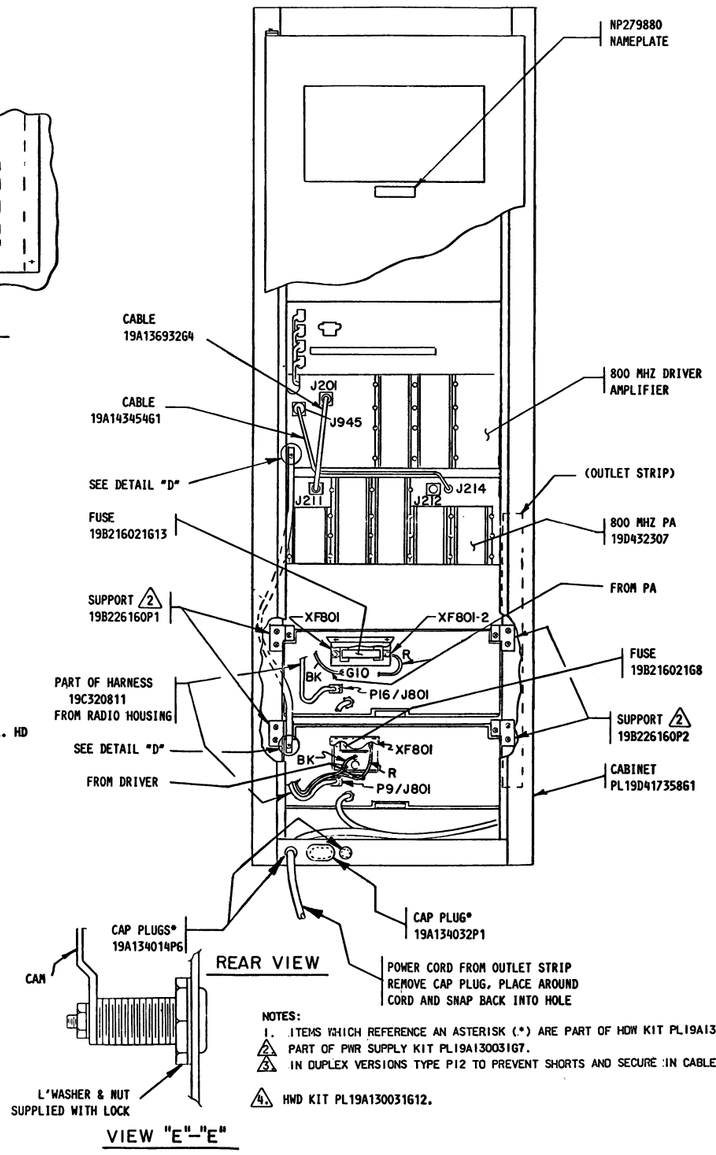


SECTION "A"–"A"

VIEW "G"–"G"

VIEW "F"

VIEW "C"–"C"

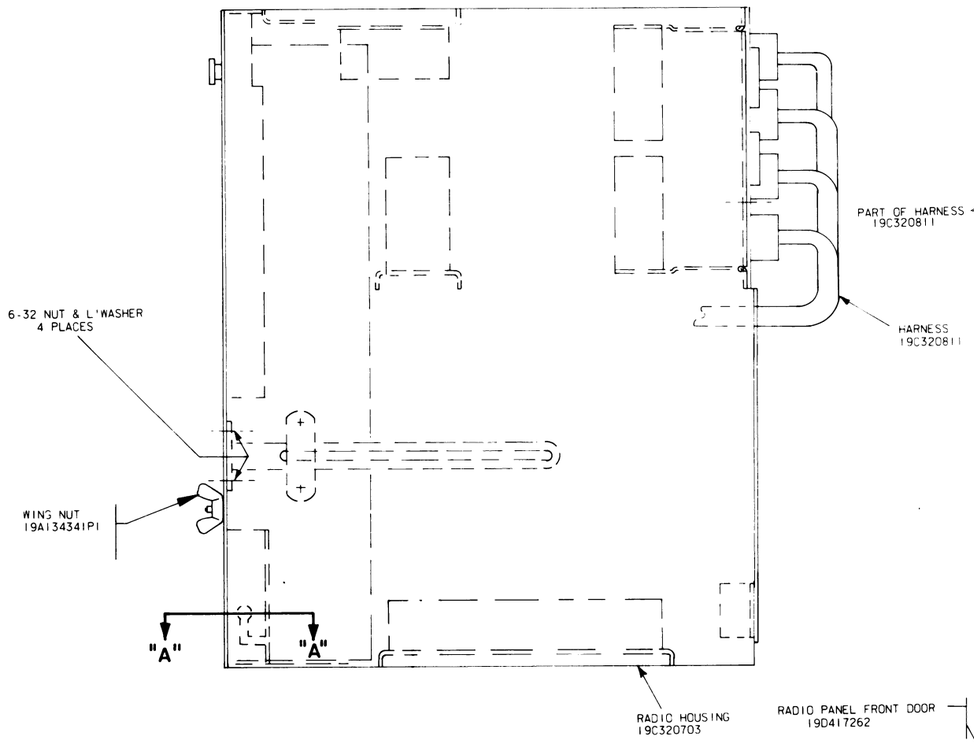


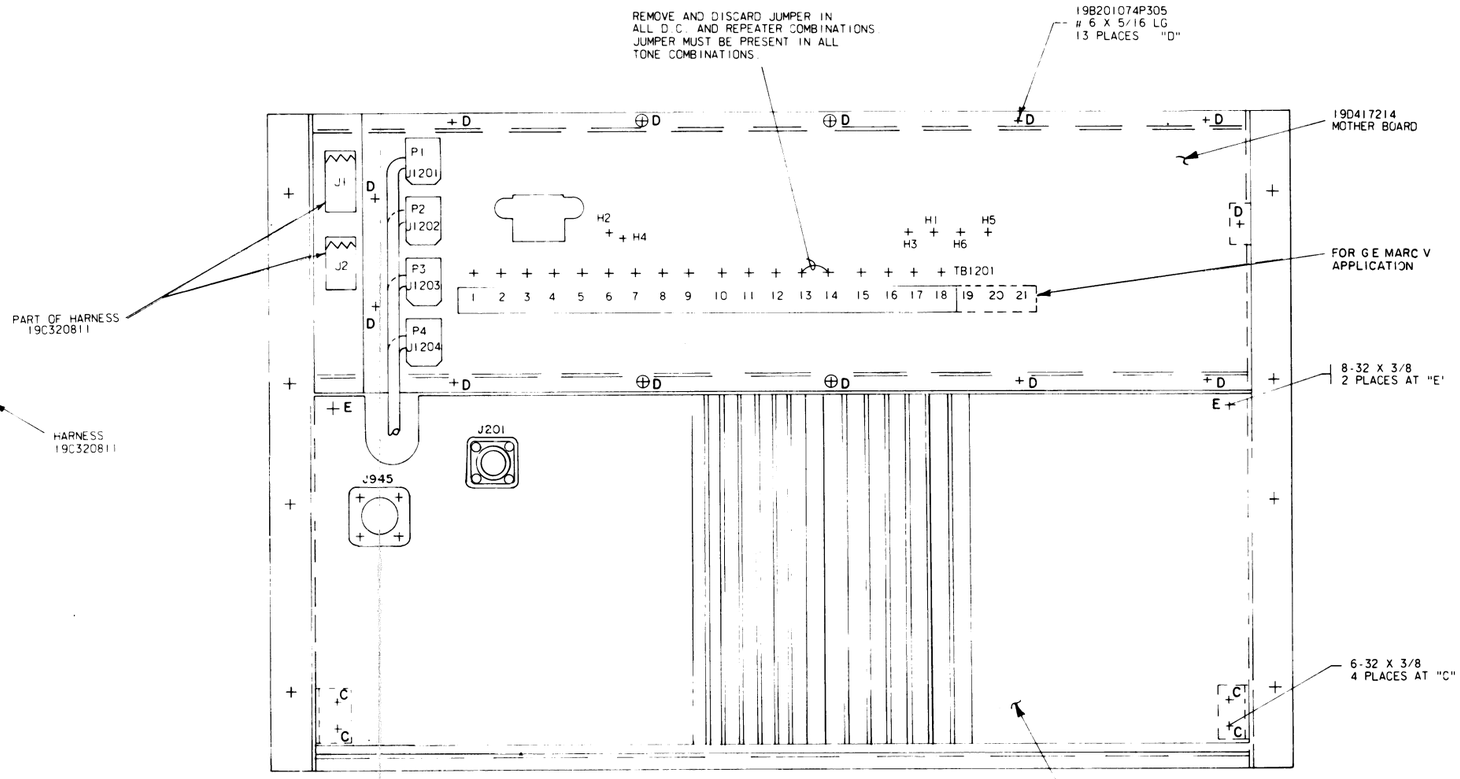
REAR VIEW

VIEW "E"–"E"

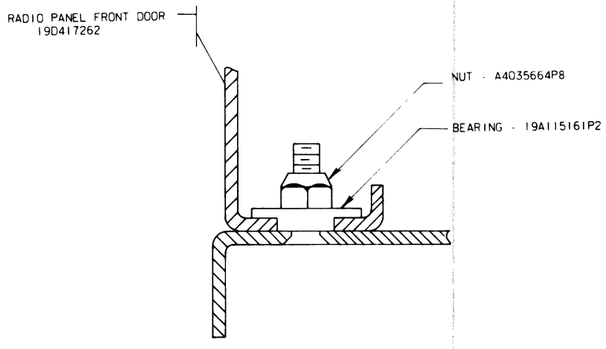
NOTES:
1. ITEMS WHICH REFERENCE AN ASTERISK (*) ARE PART OF HDW KIT PL19A130031G6.
2. PART OF PWR SUPPLY KIT PL19A130031G7.
3. IN DUPLEX VERSIONS TYPE P12 TO PREVENT SHORTS AND SECURE IN CABLE CLAMP.
4. HWD KIT PL19A130031612.

RC4063





REAR VIEW



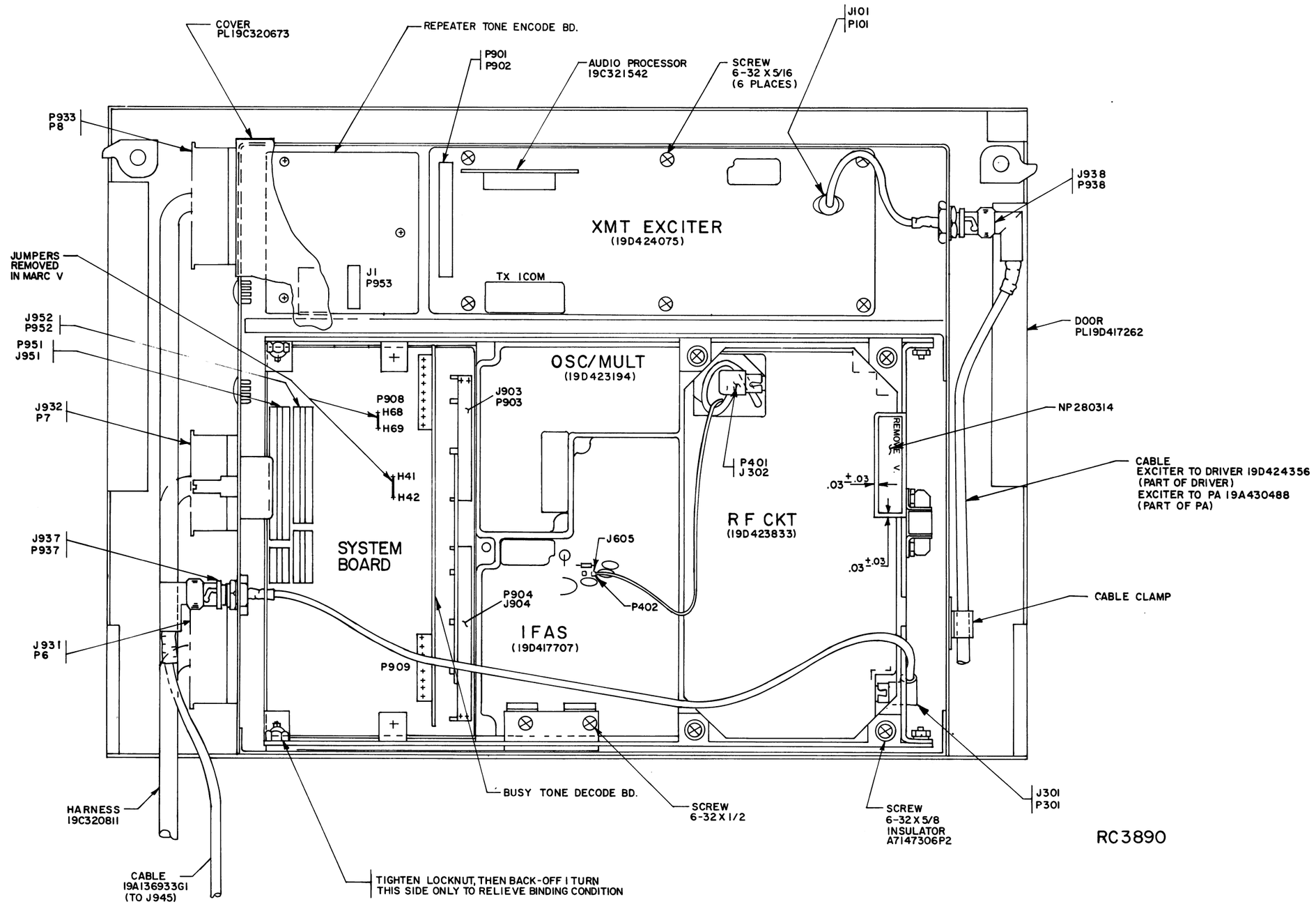
ENLARGED SECTION "A" - "A" (PARTIAL)

TYPICAL OPPOSITE SIDE

RC - 3891

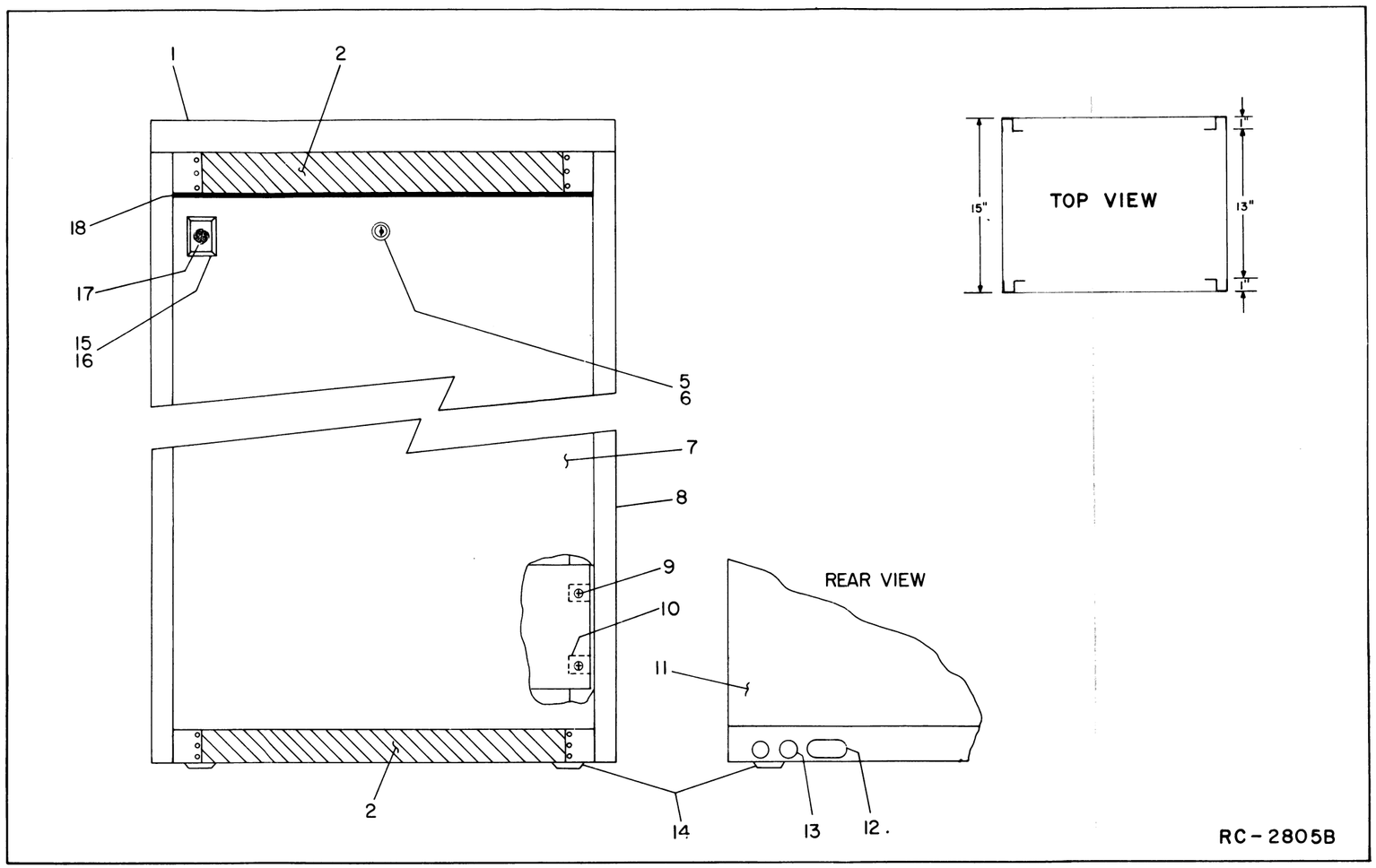
MECHANICAL PARTS BREAKDOWN

90 WATT STATION MOTHER BOARD
AND DRIVER ASSEMBLIES



MECHANICAL PARTS BREAKDOWN

RADIO HOUSING FRONT DOOR



MECHANICAL PARTS BREAKDOWN

DESK MATE CABINET

30 Issue 1

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. (GRNERAL 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

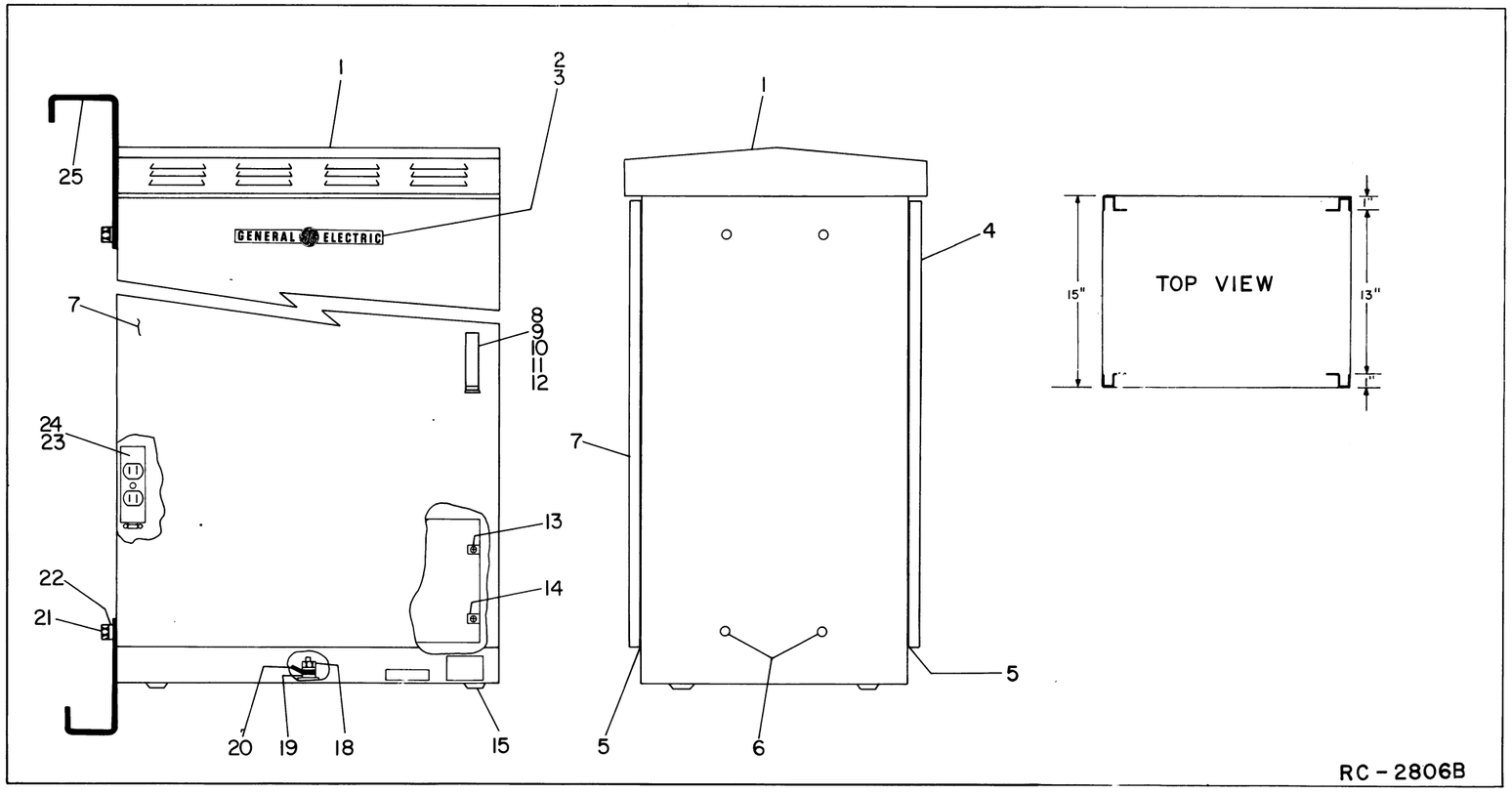
PARTS LIST

LBI4976D

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

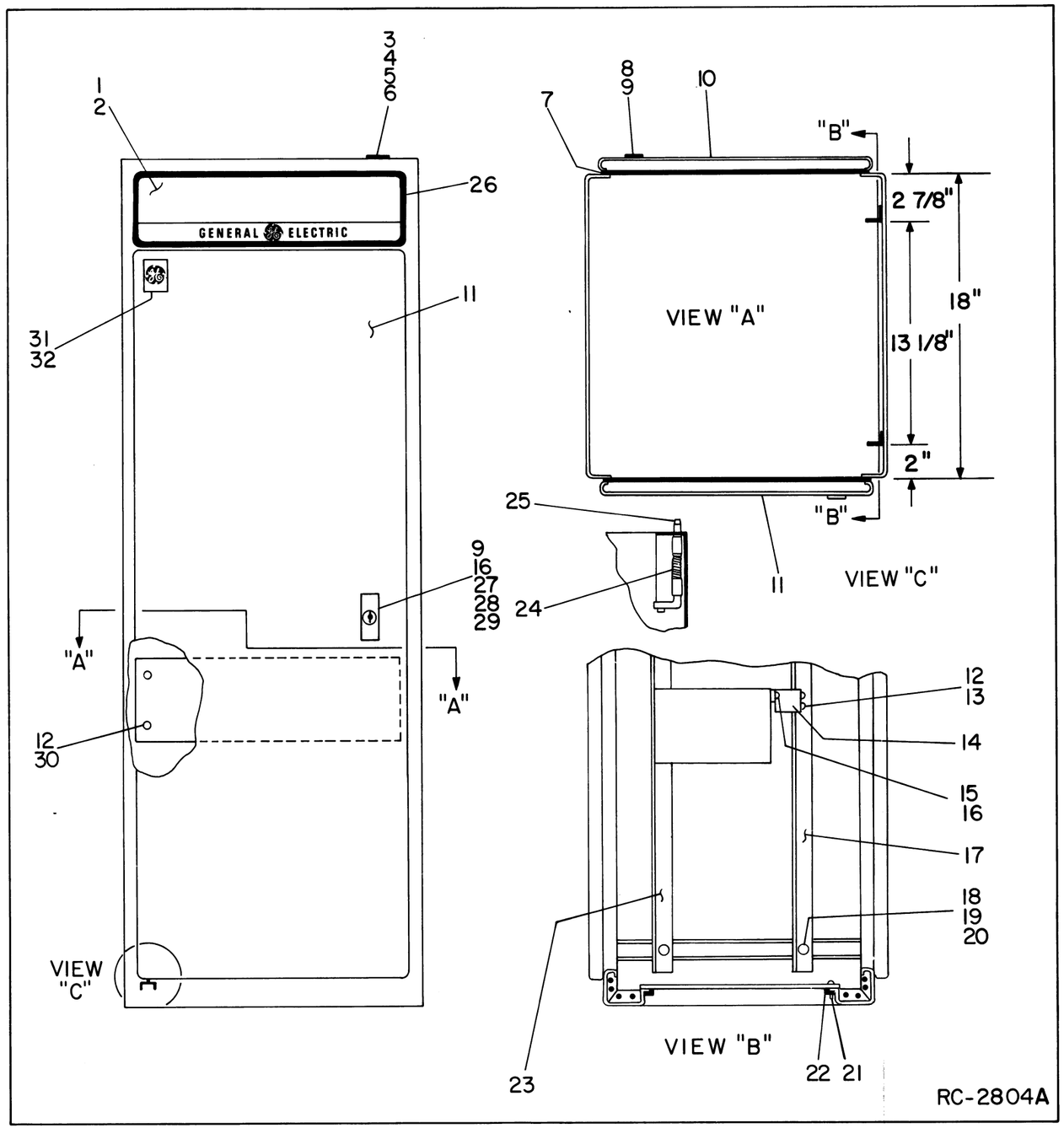
SYMBOL	GE PART NO.	DESCRIPTION
1	19D417550G1	Cabinet.
2	19B209531P1	Nameplate. (GENERAL ELECTRIC).
3	4031310P7	Nut, push on: sim to Tinnerman C610-012-24.
4	19D417543G2	Door, left hand.
5	19A134128P1	Door seal. (Front and rear).
6	19A134059P1	Protective plug.
7	19D417543G1	Door, right hand.
8	19A134049P3	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-38. (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



MECHANICAL PARTS BREAKDOWN

POLE MOUNT CABINET



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

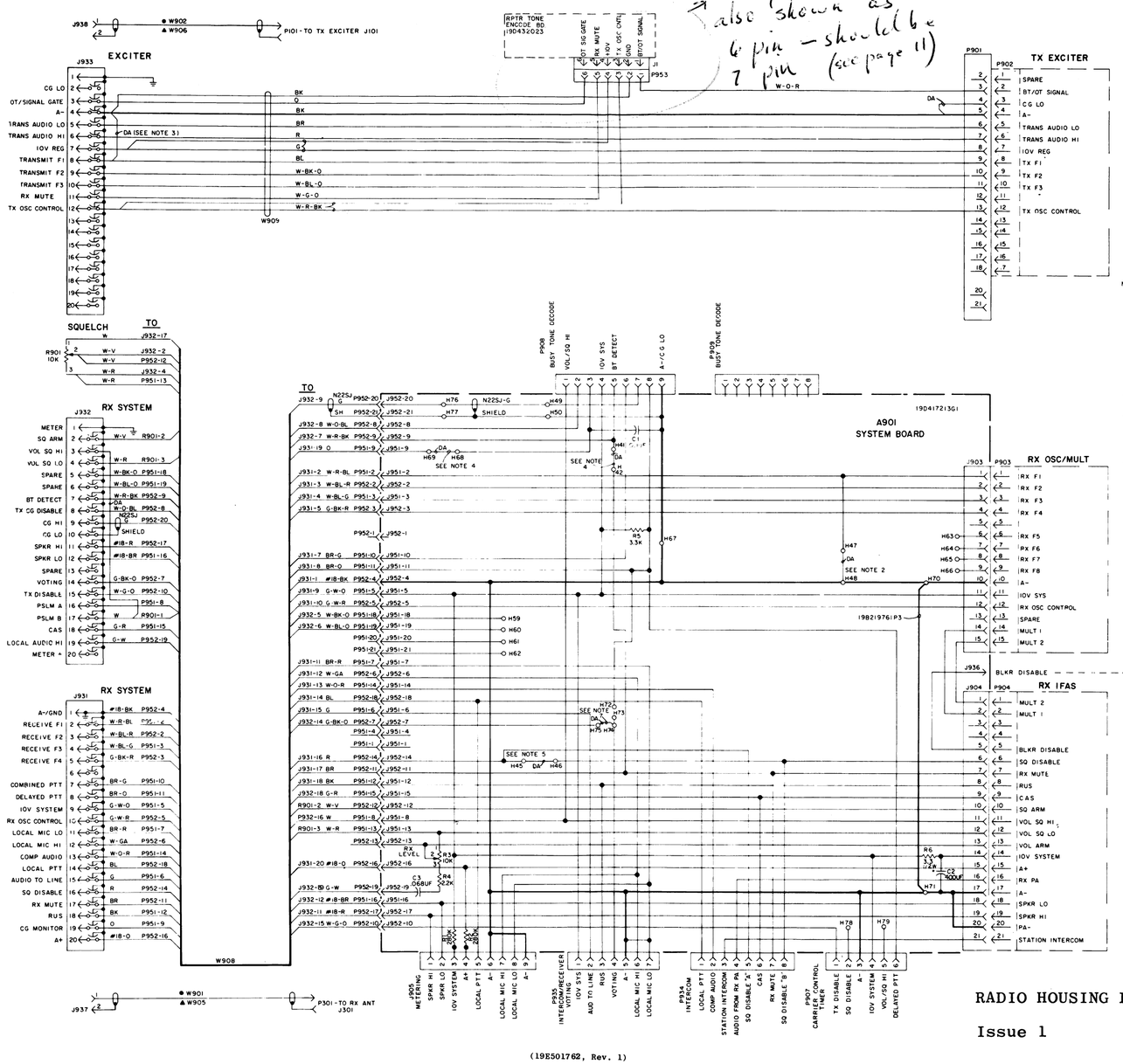
FLOOR MOUNT CABINET

PARTS LIST

GE MARC V
RADIO HOUSING FRONT DOOR ASSEMBLY
19D417262G9
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
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 09-52-3032. (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 09-54-1041. (Quantity 5).
J952		Connector. Includes:
	19A116659P11	Connector: 7 contacts; sim to Molex 09-56-1071. (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 10,000 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 - - - - - - - - - -
W905		CABLE ASSEMBLY 19A136930G2
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J937	19A115938P12	Connector, receptacle: (BNC Series); sim to Amphenol 31-342.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTES:
1. ALL WIRE SF22 UNLESS NOTED.
2. JUMPER FROM A901-47 TO A901-48 PRESENT IN SINGLE FREQUENCY RECEIVE STATIONS.
3. DA FROM J933 PIN 4 TO PIN B PRESENT IN SINGLE FREQUENCY TRANSMIT STATIONS.
4. JUMPER FROM A901-H41 TO A901-H42 AND A901-H69 TO A901-H68 NOT PRESENT IN GE MARC V REPEATERS.
5. JUMPER FROM A901-H45 TO A901-H46 NOT PRESENT WITH INTERCOM.
6. CARRIER CONTROL TIMER MAY NOT BE USED IN GE MARC V REPEATERS.
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, & 45U 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.

SCHEMATIC DIAGRAM

RADIO HOUSING FRONT DOOR 19D417262G9

Issue 1

(19E501762, Rev. 1)

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - 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.
W908		CABLE ASSEMBLY 19D417262G6
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J931 and J932	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P951 and P952		Connector. Includes:
	19A116659P25	Shell.
	19A116781P5	Contact, electrical: wire No. 18-24 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
		- - - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms ±20%; sim to Mallory LC(10K).
W909		EXCITER CABLE 19D417262G8
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J933	19C303426G1	Connector: 20 pin contacts.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P901		Connector. Includes:
	19A116659P25	Shell.
	19A116781P5	Contact, electrical: wire No. 18-24 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
P953		Connector. Includes:
	19A116659P80	Shell.
	19A116781P6	Contact, electrical: wire No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C320679G1	Door.
	19B218178P1	Pawl. (Part of door latch).
	19C318151P1	Knob. (Part of door latch).
	N193P1208C6	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).
	7115130P9	Lockwasher, internal tooth: No. 3/8. (Used with with R901 mounting).
	7165075P2	Hex nut, brass: No. 3/8-32. (Used with R901 mounting).

SYMBOL	GE PART NO.	DESCRIPTION
	19A115874P1	Catch, friction. (Latches A901).
	4037158P4	Rubber channel. (Located on edge of door).
	4029851P11	Clip, loop. (Secures W905).
	4035664P8	Nut, self locking. (Secures supports).
	19A115161P2	Sleeving. (Located between self locking nuts & supports).
	19A116686P2	Nut, sheet spring. (Located by J933).
	N529P11C6	Button plug.
	19A116496P1	Cable clamp. (Secures Exciter to Driver cable).

PARTS LIST

LBI-4801A

MASTR II STATION RADIO PANEL
FRONT DOOR ASSEMBLY
19D417262G1

SYMBOL	GE PART NO.	DESCRIPTION
		DOOR ASSEMBLY 19D417262G1
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 09-56-1041. (Quantity 5).
J952		Connector. Includes:
	19A116659P11	Connector: 7 contacts; sim to Molex 09-56-1071. (Quantity 2).
	19A116659P12	Connector: 6 contacts; sim to Molex 09-56-1061. (Quantity 1).
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P907	19A116779P1	Contact, electrical: sim to Molex 08-54-0404. (Quantity 6).
P908	19A116779P1	Contact, electrical: sim to Molex 08-54-0404. (Quantity 9).
P909	19A116779P1	Contact, electrical: sim to Molex 08-54-0404. (Quantity 8).
P934	19A116779P1	Contact, electrical: sim to Molex 08-54-0404. (Quantity 8).
P935	19A116779P1	Contact, electrical: sim to Molex 08-54-0404. (Quantity 7).
		- - - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19C314256P22803	Metal film: 280,000 ohms ±1%, 1/4 w.
R3	19B209358P106	Variable, carbon film: approx 75 to 10,000 ohms ±10%, 0.25 w; sim to CTS Type X-201.
R4	3R152P222J	Compositon: 2200 ohms ±5%, 1/4 w.
R5	3R152P332J	Composition: 3300 ohms ±5%, 1/4 w.
R6	7147161P15	Composition: 3.3 ohms ±5%, 1/2 w.
		- - - - - - - - - - - CABLES - - - - - - - - - -
W901	5491689P105	Cable, RF: approx 12 inches long, 350 VRMS, 500 VDC operating voltage. Includes J937, P301.
W902	5491689P104	Cable, RF: approx 3-5/8 inches long, 350 VRMS, 500 VDC operating voltage. Includes J938, P101.

SYMBOL	GE PART NO.	DESCRIPTION
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: 10,000 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.
		- - - - - - - - - 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.