Mobile Communications

GE-MARC V
TRUNKED
MOBILE RADIO
100 WATT SOLID
STATE REPEATER STATION
COMBINATIONS

Maintenance Manual

Ericsson GE Mobile Communications Inc.
Mountain View Road • Lynchburg, Virginia 24502

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LBI-31998

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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!

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SPECIFICATIONS*

DIMENSIONS (Hx 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 (5O Hertz Optional)
AC INPUT POWER	550 Watts (100 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

Digits 1 & 2	Digit 3	Digits 4 & 5	Digit 6	Digits 7, 8, & 9	Digit 10
Product Code	Cabinet	Frequency Range	Radio Type	Power Output	Color
S1	**S** 44-inch Desk Mate	**ZY** 851-870 MHz Transmit 806-825 MHz Receive	**Y** Repeater	**100** 100 Watts	**M** Moonstone (indoor) Pebble Beige (outdoor)
	P Pole Mount				
	V Floor Mount				**G** Gray (indoor) Pebble Beige (outdoor)
	N None				

STRUCTURED OPTIONS

Digit B

Busy Tone
0 Standard (3051.9 Hz)
A 2918.7 Hz

Transmitter FCC Filing No.	Power Output
KT 256-A2	100 W

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.

100 Watt Transmitter

The GE-MARC V Station 100 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 an exciter board and a power amplifier assembly.

The 100 watt PA is driven directly from the output of the exciter and is located behind the shielded compartment on the radio housing front door. The power amplifier circuits are mounted to a finned heat sink which bolts to the rear of the cabinet. The front of the PA is covered by an RF shield containing a cooling fan.

The 45 watt power amplifier is directly intercbangeable with the 100 watt P.A. It too is located behind the radio housing front door and bolts to the rear of the cabinet.

The amplifier is driven directly by the exciter and uses four power transistors interconnected by strip line layouts and bandwidth limiting components.

The first output is a single transistor which delivers RF power to the output circuits.

The power amplifier assembly uses five RF power transistors interconnected with appropriate components and strip line layouts. The final output has two RF transistors operated in parallel which in turn delivers RF power to a circulator, low pass filter, and finally the antenna.

Repeater Control

Directly above the 100 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 2.

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.

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),

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the timer resets to zero and the repeater reverts to 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 reverted 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 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 J904-1 1 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 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 BUSYTONE 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 3O ms pulse to allow a 3O 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 J1-8 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 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 the 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 position (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 LBI-4845 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. LBI-4848 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 24O 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.

INITIAL ADJUSTMENT

After the GE-MARC Repeater 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.

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. Next, measure the frequency and modulation and record these measurements for future reference.

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

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RECEIVER ADJUSTMENT

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

Station Volume (R3 on System Board)

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 ACVTVM across J905 terminals 1 and 2 and adjust R3 for a reading of 6.3 Volts RMS on the meter.

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 ICs (and all 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.

MODIFICATIONS

This information enables the user to properly connect the local Oscillator Output from the exciter/loader (J3) to the receiver first mixer input jack J302. J302 is located on receiver cavity assembly A302. This procedure assumes that the old exciter board has been replaced with the new exciter/loader and that the oscillator/multiplier board has been removed.

Reference Material:

LBI-38232 - Station Receiver Assembly
LBI-38253 - Transmitter

Procedures:

1. Remove the old local oscillator connector from the receiver if it has not already been done. Tuck the old connector down and out of the way.

2. Connect one end of the receiver local oscillator cable (19B801529G10) to the receive local oscillator connector J302 on the receiver.

3. Snake the other end of the cable out through the grommet in the receive/system cavity and back into the other grommet in the exciter section of the repeater.

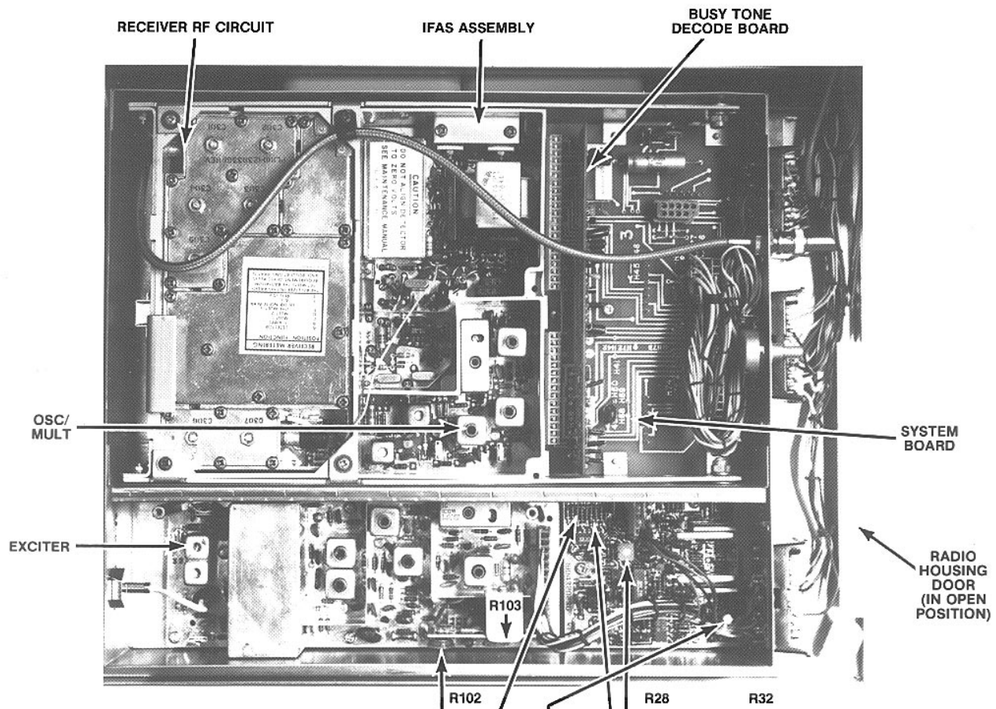
4. Connect the other end of the cable to the REC LO output J3 on the exciter/loader board.

5. Be sure the local oscillator cable is properly dressed and out of the way - not lying on top of the interior wall which contacts the cover plate (it may be tucked under the loader board)

6. Reassemble the radio. Align and set up as instructed in the appropriate LBI.

INITIAL ADJUSTMENT

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.



END ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the receiver.

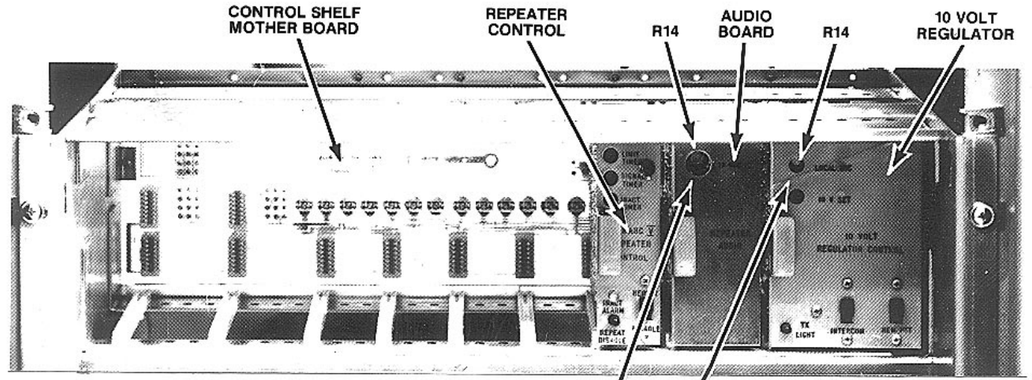
To set the station VOLUME control (R3 on the System Board) use the following procedure:

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.

Figure 1 - Radio Housing Front Door Adjustments



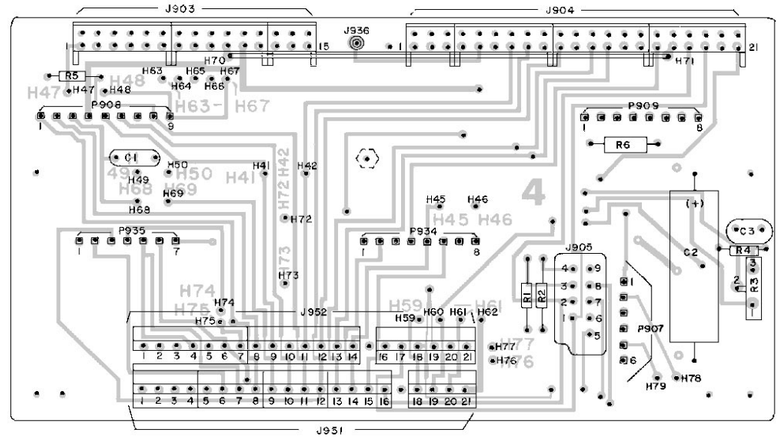
1. Remove the Busy Tone Decoder Board from the System Board and unplug P453 from the Repeater Tone Encode Board.
2. Apply a 1000 microvolt on-frequency signal modulated with 1000 Hz tone at ±3 kHz deviation to the station receiver.
3. Adjust Tx MOD control R14 on the Repeater Audio Board to its maximum 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.

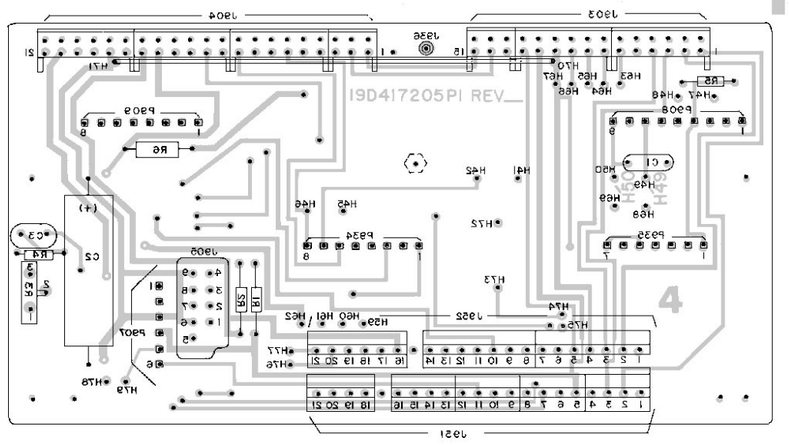
Figure 2 - Control Shelf Adjustments

COMPONENT SIDE



(19D423147, Rev. 2)
(19D417205, Sh. 2, Rev. 4)

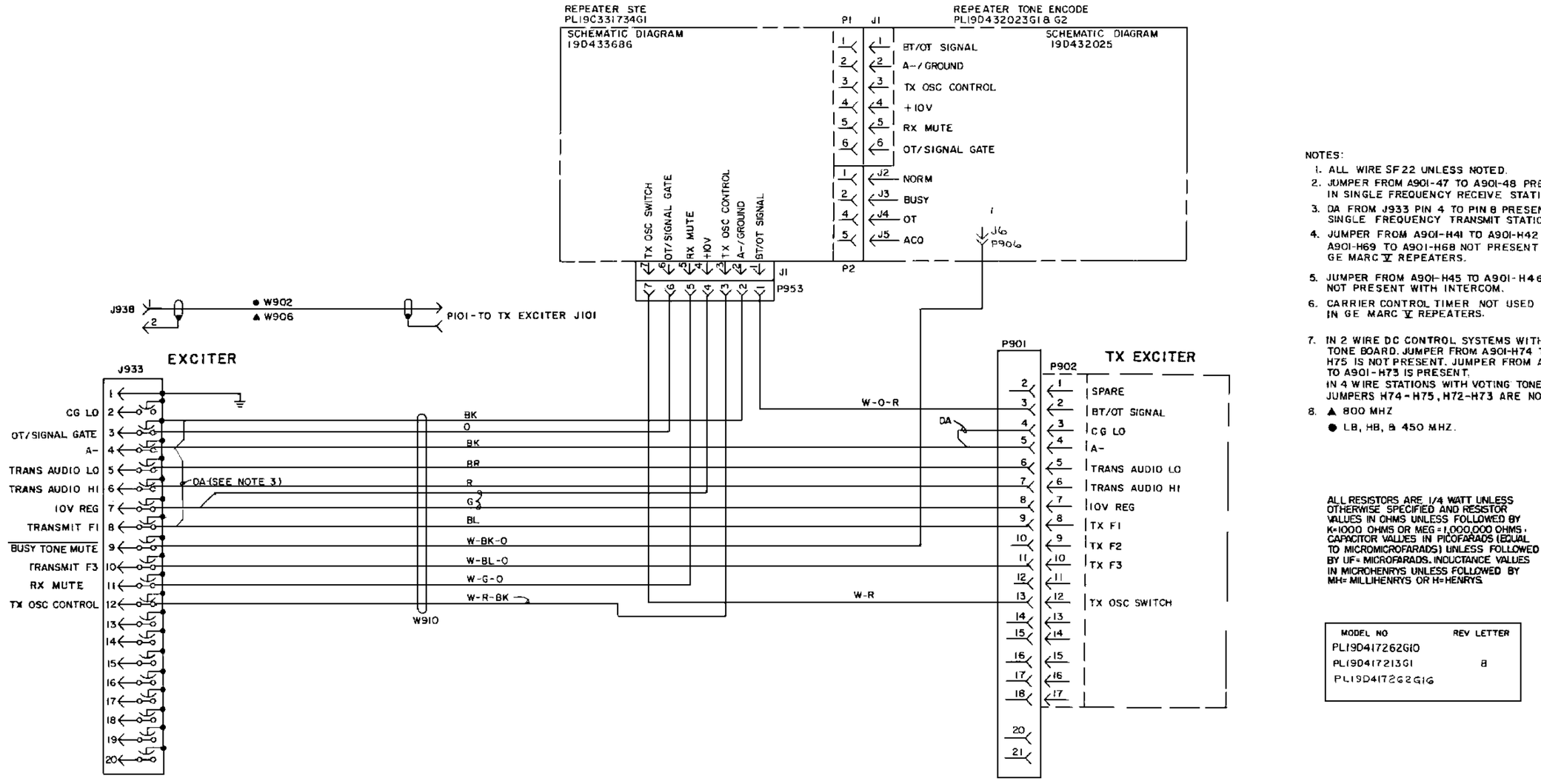
SOLDER SIDE



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

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

SYSTEM BOARD A901
19D417213G1



NOTES:

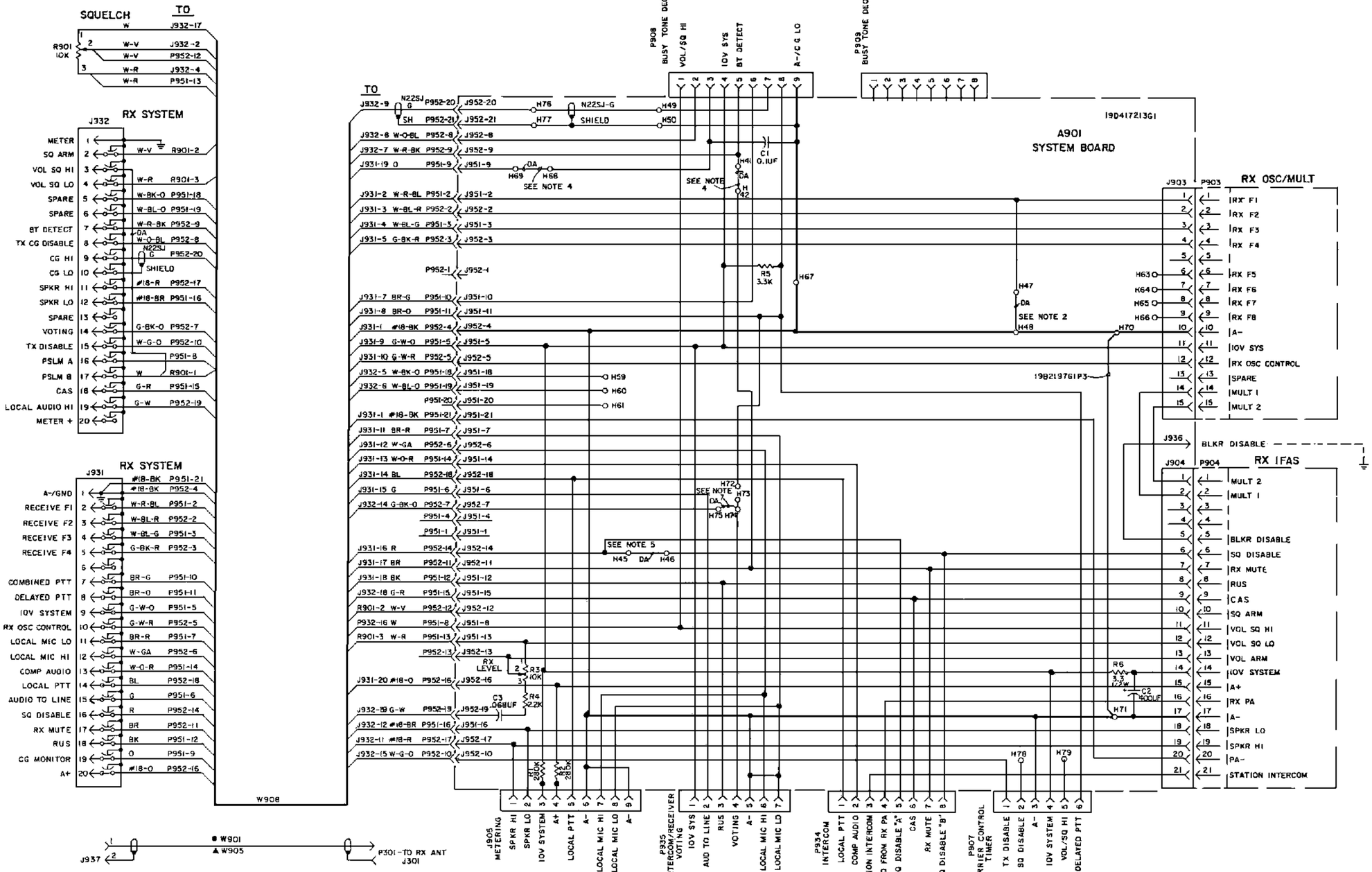
1. ALL WIRE SF22 UNLESS NOTED.
2. JUMPER FROM A901-47 TO A901-48 PRESENT IN SINGLE FREQUENCY RECEIVE STATIONS.
3. DA FROM J933 PIN 4 TO PIN 8 PRESENT IN SINGLE FREQUENCY TRANSMIT STATIONS.
4. JUMPER FROM A901-H41 TO A901-H42 AND A901-H69 TO A901-H68 NOT PRESENT IN GE MARC V REPEATERS.
5. JUMPER FROM A901-H45 TO A901-H46 NOT PRESENT WITH INTERCOM.
6. CARRIER CONTROL TIMER NOT 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
   ● L8, H8, & 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.

MODEL NO	REV LETTER
PLI9D417262G10	
PLI9D417213G1	B
PLI9D417262G16	

RADIO HOUSING FRONT DOOR
19D417262G10

(19D433689, Sh. 1 Rev. 5)



RADIO HOUSING FRONT DOOR

19D417262G10

(19D433689, Sh. 2 Rev. 2)

PARTS LIST

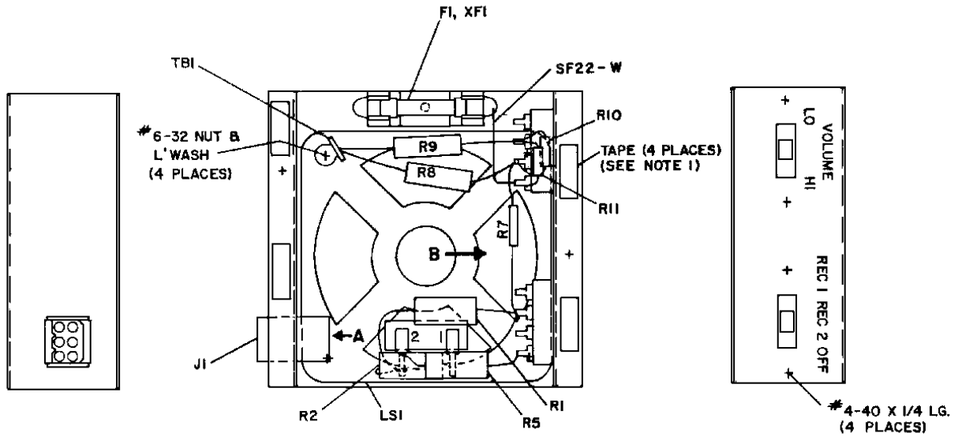
GE MARC V
RADIO HOUSING FRONT DOOR ASSEMBLY
19D417262G10
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A901		COMPONENT BOARD 19D417213G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C2	19A115680P24	Electrolytic: 400 uF +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C3	19A116080P106	Polyester: 0.068 uF + or -10%, 50 VDCW.
		- - - - - - - - - - JACKS - - - - - - - - - -
J903		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 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 + or - 1%, 1/4 w.
R3	19B209358P106	Variable, carbon film: approx 300 to 10K ohms + or -10%, 1/4 w; sim to CTS Type X-201.
R4	19A700106P71	Composition: 2.2K ohms + or -5%, 1/4 w.
R5	19A700106P75	Composition: 3.3K ohms + or - 5%, 1/4 w.
R6	19A700113P3	Composition: 3.3 ohms + or - 5%, 1/2 w.
		- - - - - - - - - - CABLES - - - - - - - - - -
W905		CABLE ASSEMBLY 19A136930G2
		- - - - - - - - - - JACKS - - - - - - - - - -
J937		Connector. Includes:
	19A115938P12	Connector, coaxial: (BNC Series); sim to Amphenol 31-342.

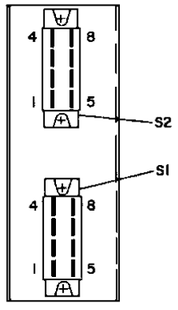
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - PLUGS - - - - - - - - - -
P301	19A134357P8	Cable, RF: approx 21 inches long.
W906		CABLE ASSEMBLY 19A136930G1
		- - - - - - - - - - JACKS - - - - - - - - - -
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 - - - - - - - - - -
J931 thru J933	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.
	19B209519P1	Polarity tab.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms + or -20%, sim to Mallory LC(25K).
W909		EXCITER CABLE 19D417262G8
		- - - - - - - - - - PLUGS - - - - - - - - - -
P901		Connector. Includes:
	19A116659P25	Shell.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0107.
	19B209519P1	Polarity tab.
P906	19A127042P1	Terminal, solderless: sim to Malco 12093-12.
P953		Connector. Includes:
	19A116659P82	Shell.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0107.
	19B209519P1	Polarity tab.
W910	19D417262G11	Harness.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19C320679G1	Door.
	19B226035G1	Support. (Secures door).
	19B226105G2	Support. (Secures door).
	19B234589P1	Pawl. (Part of door latch).
	19C336435P1	Knob. (Part of door latch).
	N193P120B6	Tap screw, phillips head: No. 6-20 x 1/2. (Part of door latch).
	5493361P8	Washer, spring tension. (Part of door latch).
	403566 4P8	Nut, self locking. (Secures supports).
	19A115161P2	Sleeving. (Located between self locking nuts and supports).

SYMBOL	GE PART NO.	DESCRIPTION
	19B226035G2	Support. (Secures door).
	N402P39B6	Flatwasher: No. 10. (Part of door hinge).
	19A115874P1	Catch, friction. (Latches A901).
	19A116686P2	Nut, sheet spring. (Located by J933).
	N529P11B6	Button plug.
	19A121676P1	Guide pin. (Used with J931-J933).
	19A116496P1	Cable clip. (Secures Exciter to Driver cable).
	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).
	19C320664P3	Frame.
	4037158P4	Rubber channel. (Located at edge of door).
	19A121175P10	Insulator plate. (Used at P901).



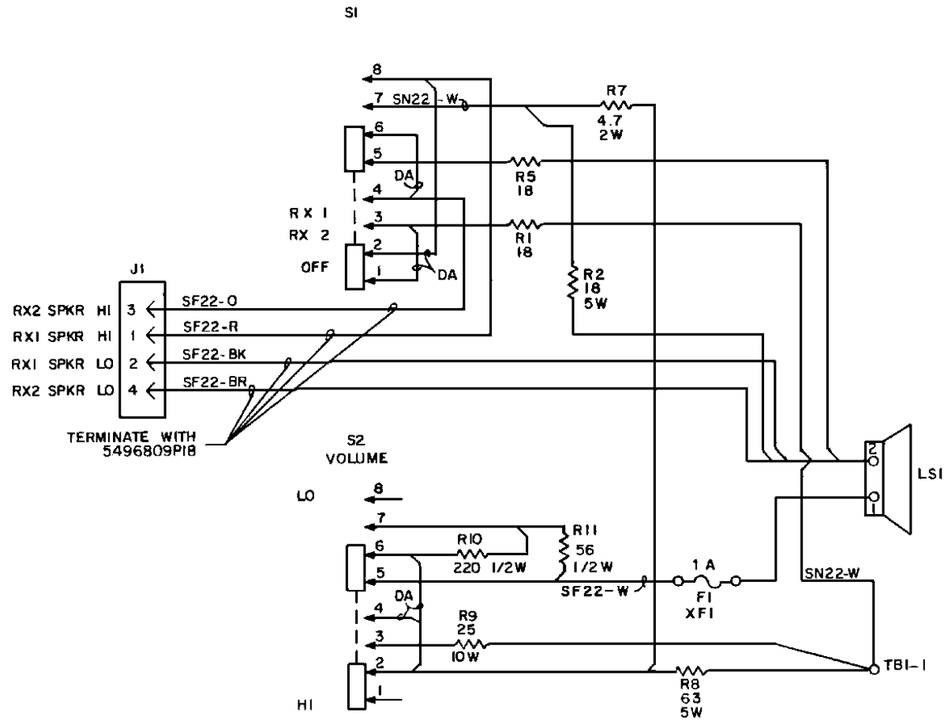
VIEW A



VIEW B

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

(19C328482, Rev. 3)



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)

SERVICE SPEAKER
19C320728G2

PARTS LIST

LBI-4816E

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.
		- - - - - - - - - - JACKS - - - - - - - - - -
J1		Connector. Includes:
	19B209288P22	Shell.
	5496809P18	Contact, pin: male, sim to Molex Products 1380-T.
		- - - - - - - - - - LOUDSPEAKERS - - - - - - - - - -
LS1	19A115964P1	Permanent magnet: 3.5 inch, 18 ohms + or -10% imp, 15 to 19 ohms + or -20% DC res, resonant frequency 290 Hz; sim to Oaktron S-9847.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	5493035P53	Wirewound: 18 ohms + or -5%, 5 w.
R5	5493035P53	Wirewound: 18 ohms + or -5%, 5 w.
R7	19A700050P21	Wirewound: 4.7 ohms + or - 10%, 2 w.
R8	5493035P17	Wirewound: 63 ohms + or -5%, 5 w; sim to Hamilton Hall Type HR.
R9	5493035P44	Wirewound: 25 ohms + or - 5%, 10 w; sim to Hamilton Hall Type HR.
R10	19A700113P47	Composition: 220 ohms + or - 5%, 1/2 w.
R11	19A700113P33	Composition: 56 ohms + or - 5%, 1/2 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1 and S2	19B209261P5	Slide: DPDT, sim. to Switchcraft 11D103B.
		- - - - - - - - - - TERMINAL BOARDS - - - - - - - - - -
TB1	7775500P44	Phenolic: 1 insulated, 1 ground.
		- - - - - - - - - - FUSE SOCKETS - - - - - - - - - -
XF1	7141008P1	Fuseholder: 30 amps at 125V; sim to Bussman 2863.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	N80P13006B6	Machine screw, phillips head: No. 6-32 x 3/8. (Secures service speaker).
	7141225P3	Hex Nut: No. 6-32. (Secures service speaker).
	N404P13B6	Lockwasher, internal tooth: No. 6. (Secures service speaker).
	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).

*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.

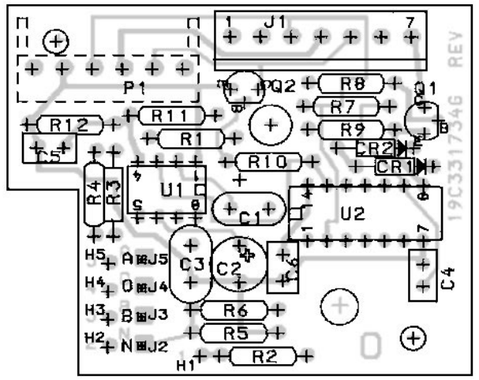
PARTS LIST

REPEATER STK BOARD
19C331734G1
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A700005P10	Polyester: 0.033 uF + or -10%, 50 VDCW.
C2	19A701534P8	Tantalum: 22 uF + or -20%, 16 VDCW.
C3	19A700005P11	Polyester: 0.047 uF + or -10%, 50 VDCW.
C4	19A700005P1	Polyester: 1000 pF + or - 10%, 50 VDCW.
C5 and C6	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 and CR2	19A700028P1	Silicon, fast recovery: fwd current 75 mA, 75 PIV; sim to Type 1N4148.
		- - - - - - - - - - JACKS - - - - - - - - - -
J1	19A116659P106	Connector, 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		Connector. Includes:
	19A116659P123	Shell.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0107.
P3	19A127042P3	Solderless terminal.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A700022P1	Silicon, PNP; sim to Type 2N3906.
Q2	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	H212CRP333C	Deposited carbon: 33K ohms + or -5%, 1/4 w.
R2	H212CRP210C	Deposited carbon: 1K ohms + or -5%, 1/4 w.
R3	19A701250P358	Metal film: 2.7 ohms + or -5%, 1/4 w.
R4	H212CRP110C	Deposited carbon: 100 ohms + or -5%, 1/4 w.
R5	H212CRP347C	Deposited carbon: 47K ohms + or -5%, 1/4 w.
R6	H212CRP410C	Deposited carbon: 0.1M ohms + or -5%, 1/4 w.
R7 thru R10	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R11	H212CRP410C	Deposited carbon: 0.1M ohms + or -5%, 1/4 w.
R12	H212CRP327C	Deposited carbon: 27K ohms + or -5%, 1/4 w.
		- - - - - - - - - - INTEGRATED CIRCUITS - - - - - - - - - -
U1	19A701865P1	Linear: 555 Timer, sim to Signetics NE555N.
U2	19A700029P56	MOS: QUAD 2 - INPUT NAND SCHMITT TRIGGER.
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19B233428G2	Cable. (Includes P3).
W2	19B234109G1	Cable. (Includes P2).
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19A701235P4	Spacer. (Located on printed board).

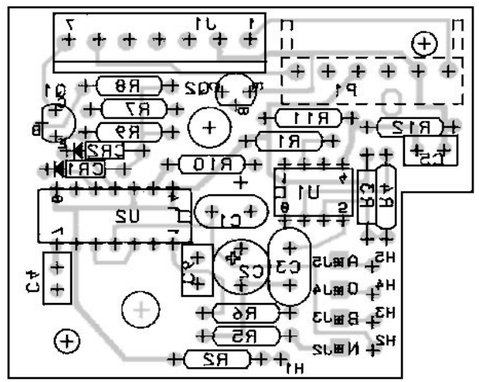
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

COMPONENT SIDE



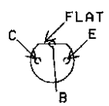
(19C331735, Rev. 0)
(19A144525, Sh. 1, Rev. 0)

SOLDER SIDE



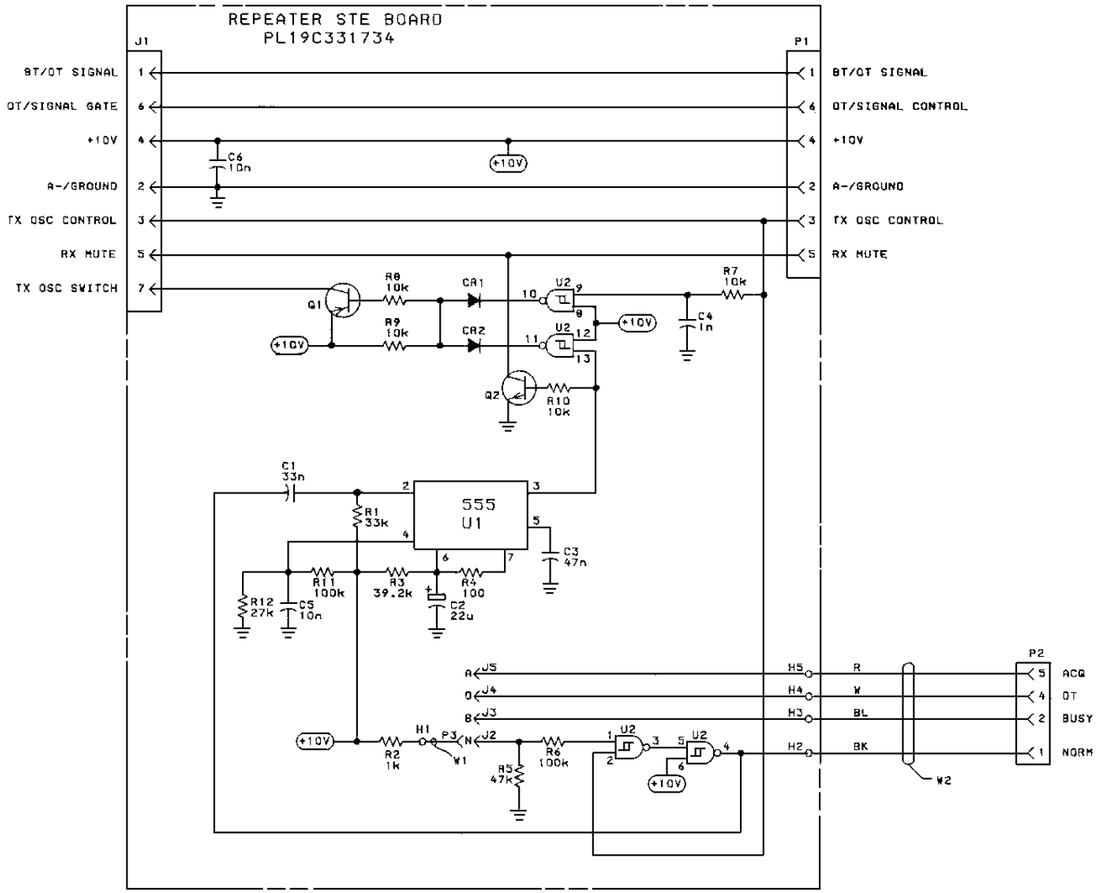
(19C331735, Rev. 0)
(19A144525, Sh. 2, Rev. 0)

LEAD IDENTIFICATION
FOR Q1 & Q2



TRIANGULAR
TOP VIEW

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



(19D433686, Rev. 2)

MODEL NO.	REV. LETTER
19C331734G1	

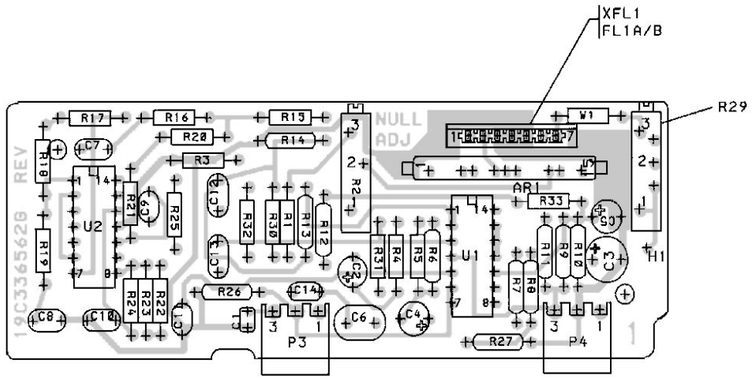
ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED.
RESISTOR VALUES IN Ω UNLESS FOLLOWED BY MULTIPLIER k OR M.
CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER µ,n OR p.
INDUCTANCE VALUES IN H UNLESS FOLLOWED BY MULTIPLIER m OR µ.

PWR & GND CONNECTIONS

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

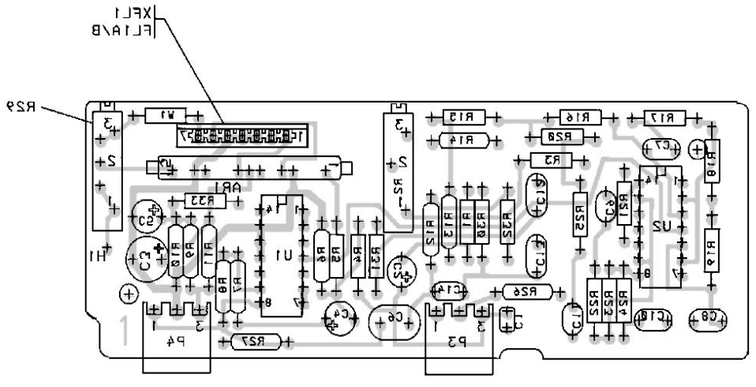
REPEATER STE BOARD
19C331734G1

COMPONENT SIDE

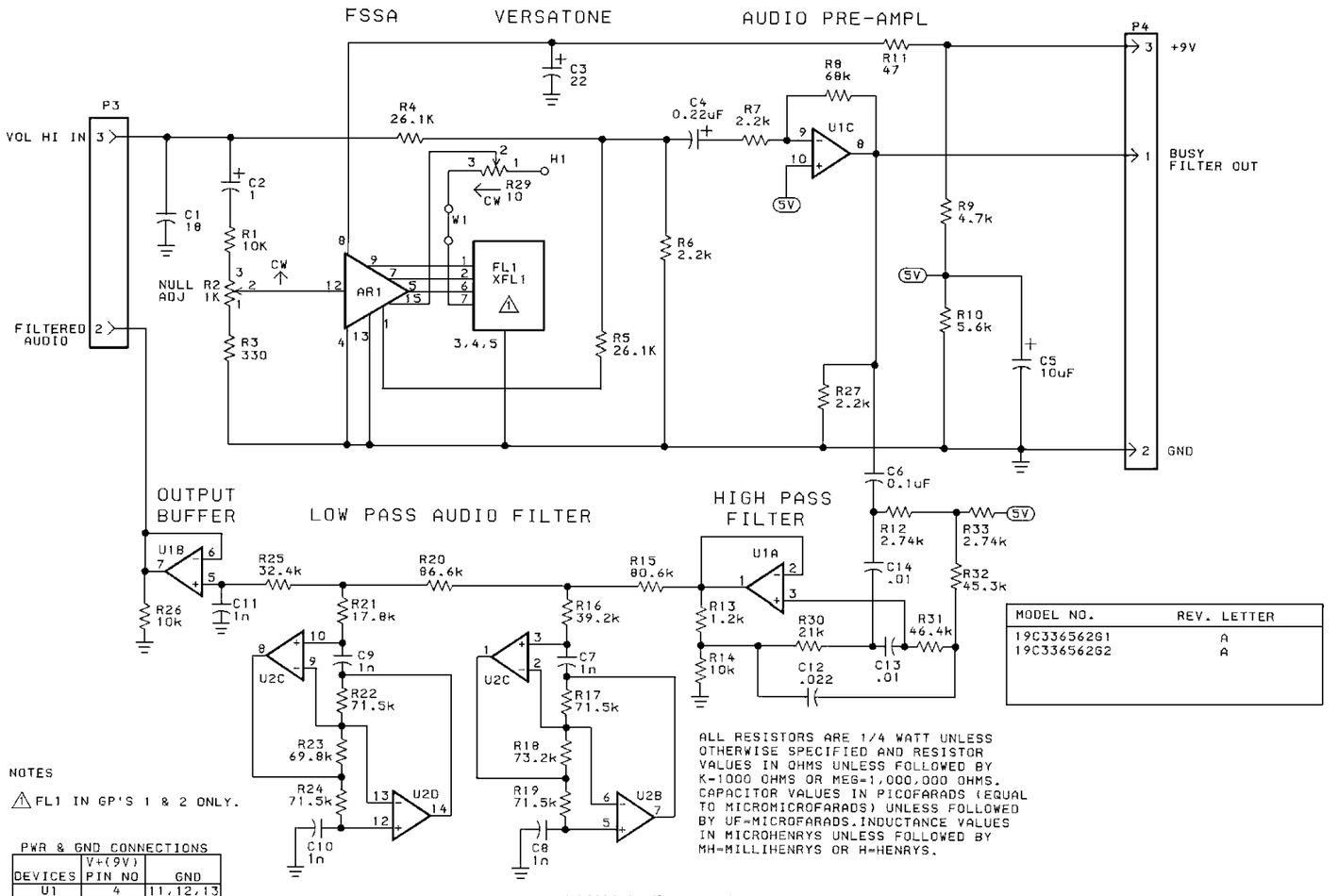


(19C336564, Rev. 1)
(19A158788, Sh. 1, Rev. 1)

SOLDER SIDE



(19C336564, Rev. 1)
(19A158788, Sh. 2, Rev. 1)



(19C336565, Sh. 1, Rev. 1)

BUSY TONE/AUDIO FILTER
19C336562G1 & G2

PARTS LIST

GE MARC V
BUSY TONE/AUDIO FILTER BOARD
19C336562G1 3051 HZ BUSY TONE
19C336562G2 2918 HZ ALTERNATE BUSY TONE
19C336562G3 LESS BUSY TONE NETWORK
ISSUE 4

SYMBOL	GE PART NO.	DESCRIPTION
AR1	19D417092G2	Selective Amplifier.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C2	19A701534P4	Tantalum: 1 uF + or - 20%, 35 VDCW.
C3	19A701534P8	Tantalum: 22 uF + or -20%, 16 VDCW.
C4	19A701534P2	Tantalum: 0.22 uF + or -20%, 35 VDCW.
C5	19A703314P10	Electrolytic: 10 uF -10+50% tol, 50 VDCW; sim to Panasonic LS Series.
C6	19A702250P113	Polyester: 0.1 uF + or -10%, 50 VDCW.
C7 thru C11	T644ACP210J	Polyester: .0010 uF + or -5%, 50 VDCW.
C12	T644ACP322K	Polyester: .022 uF + or -10%, 50 VDCW.
C13 and C14	T644ACP310K	Polyester: .010 uF + or -10%, 50 VDCW.
		- - - - - - - - - - FILTERS - - - - - - - - - -
		NOTE: When reordering give GE Part number and specify exact frequency needed.
FL1A	19C320291G10	Hybrid filter, 2918 Hz.
FL1B	19C320291G9	Hybrid filter, 3051 Hz.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P3 and P4	19A700102P1	Printed wire: 3 contacts rated at 5 amps; sim to Molex 09-52-3031.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A701250P301	Metal film: 10K ohms + or - 1%, 1/4 w.
R2	19A116430P5	Variable, cermet: 1000 ohms + or - 10%, 0.75 w; sim to Helitrim Model 79P.
R3	H212CRP133C	Deposited carbon: 330 ohms + or -5%, 1/4 w.
R4 and R5	19A701250P341	Metal film: 26.1K ohms + or - 1%, 1/4 w.
R6 and R7	H212CRP222C	Deposited carbon: 2.2K ohms + or -5%, 1/4 w.
R8	H212CRP368C	Deposited carbon: 68K ohms + or -5%, 1/4 w.
R9	H212CRP247C	Deposited carbon: 4.7K ohms + or -5%, 1/4 w.
R10	H212CRP256C	Deposited carbon: 5.6K ohms + or -5%, 1/4 w.
R11	H212CRP047C	Deposited carbon: 47 ohms + or -5%, 1/4 w.
R12	19A701250P243	Metal film: 2.74K ohms + or -1%, 1/4 w.
R13	19A701250P209	Metal film: 1.21K ohms + or -1%, 1/4 w.
R14	19A701250P301	Metal film: 10K ohms + or - 1%, 1/4 w.
R15	19A701250P388	Metal film: 80.6K ohms + or - 1%, 250 VDCW, 1/4 w.
R16	19A701250P358	Metal film: 2.7 ohms + or -5%, 1/4 w.
R17	19A701250P383	Metal film: 71.5K ohms + or -1%, 1/4 w.
R18	19A701250P384	Metal film: 73.2K ohms + or -1%, 1/4 w.
R19	19A701250P383	Metal film: 71.5K ohms + or -1%, 1/4 w.
R20	19A701250P391	Metal film: 86.6K ohms + or -1%, 1/4 w.
R21	19A701250P325	Metal film: 17.8K ohms + or -1%, 1/4 w.
R22	19A701250P383	Metal film: 71.5K ohms + or -1%, 1/4 w.
R23	19A701250P382	Metal film: 69.8K ohms + or -1%, 1/4 w.
R24	19A701250P383	Metal film: 71.5K ohms + or -1%, 1/4 w.
R25	19A701250P350	Metal film: 32.4K ohms + or -1%, 1/4 w.
R26	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R27	H212CRP222C	Deposited carbon: 2.2K ohms + or -5%, 1/4 w.
R29	19A116430P1	Variable: 10 ohms + or -20%, 250K ohms + or - 10%.
R30	19A701250P332	Metal film: 21K ohms + or -1%, 1/4 w.
R31	19A701250P365	Metal film: 46.4K ohms + or -1%, 250 VDCW, 1/4 w.
R32	19A701250P364	Metal film: 45.3K ohms + or -1%, 1/4 w.
R33	19A701250P243	Metal film: 2.74K ohms + or -1%, 1/4 w.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1 and U2	19A701789P1	Linear, Low Power OP AMP; sim to LM324N.
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19A700184P1	Jumper.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, electrical.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

PARTS LIST

GE MARC V
REPEATER BUSY TONE DECODER BOARD
19D430562G1 3051.9 HZ
19D430562G2 2918.7 HZ
ISSUE 5

SYMBOL	GE PART NO.	DESCRIPTION
AR1	19D417092G2	Selective Amplifier.
AR2	19A134511P1	Linear: QUAD OP AMP; sim to LM224J.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1 thru C5	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C6	19C307114P1002G	Polystyrene: 10,000 pF + or -2%, 100 VDCW, temp coef -120+30 PPM.
C7	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C8 thru C12	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C13 thru C22	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C23	19A134202P5	Tantalum: 3.3 uF + or -20%, 15 VDCW.
C24	19A134202P6	Tantalum: 22 uF + or -20%, 15 VDCW.
C25 and C26	19C307114P5001G	Polystyrene: 5,000 pF + or - 2%, 100 VDCW, temp. coef -120+30 PPM/oC.
C27	19A700005P10	Polyester: 0.033 uF + or -10%, 50 VDCW.
C28	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 and CR2	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
		- - - - - - - - - - FILTERS - - - - - - - - - -
		NOTE: When reordering give GE Part number and specify exact frequency.
FL1A	19C320291G6	Hybrid: 3051.9 Hz.
FL1B	19C320291G8	Hybrid: 2918.7 Hz.
		- - - - - - - - - - JACKS - - - - - - - - - -
J908	19A116659P76	Connector, printed wiring: 9 contacts rated at 5 amps; sim to Molex 09-52-3091.
J909	19A116659P77	Connector, printed wiring: 8 contacts rated at 5 amps; sim to Molex 09-52-3081.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A116774P1	Silicon, NPN; sim to Type 2N5210.
Q2 and Q3	19A700023P1	Silicon, NPN; sim to Type 2N3904.
Q4	19A700022P1	Silicon, PNP; sim to Type 2N3906.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19A701250P332	Metal film: 21K ohms + or -1%, 1/4 w.
R3	19A700106P79	Composition: 4.7K ohms + or -5%, 1/4 w.
R4 and R5	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R6 and R7	19A701250P343	Metal film: 27.4K ohms + or -1%, 1/4 w.
R8	19A701250P230	Metal film: 2K ohms + or -1%, 1/4 w.
R9	19A701250P302	Metal film: 70.2K ohms + or -1%, 1/4 w.
R10	19A701250P322	Metal film: 16.5K ohms + or -1%, 250 VDCW, 1/4 w.
R11 and R12	19A701250P287	Metal film: 7.87K ohms + or -1%, 250 VDCW, 1/4 w.
R13	19A701250P256	Metal film: 3.7K ohms + or -1%, 1/4 w.
R14	19A701250P241	Metal film: 2610 ohms + or -1%, 1/4 w.
R15	19A700106P51	Composition: 330 ohms + or - 5%, 1/4 w.
R16	19A700106P105	Composition: 56K ohms + or - 5%, 1/4 w.
R17	19A700106P63	Composition: 1K ohms + or - 5%, 1/4 w.
R18	19A701250P413	Metal film: 150K ohms + or - 1%, 1/4 w.
R19	19A701250P289	Metal film: 8.25K ohms + or -1%, 250 VDCW, 1/4 w.
R20	19A701250P356	Metal film: 37.4K ohms + or -1%, 1/4 w.
R21 and R22	19A701250P418	Metal film: 150K ohms + or -1%, 1/4 w.
R23	3R152P203J	Composition: 20K ohms + or - 5%, 1/4 w.
R24 and R25	19A700106P111	Composition: 100K ohms + or - 5%, 1/4 w.
R26	3R152P275J	Composition: 2700K ohms + or - 5%, 1/4 w.
R27	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R28	19A700106P109	Composition: 82K ohms + or - 5%, 1/4 w.
R29	3R152P203J	Composition: 20K ohms + or - 5%, 1/4 w.
R30 thru R32	19A700106P103	Composition: 47K ohms + or - 5%, 1/4 w.
R33	3R152P684J	Composition: 680K ohms + or -5%, 1/4 w.
R34	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R35	19A700106P103	Composition: 47K ohms + or - 5%, 1/4 w.
		- - - - - - - - - - TEST POINTS - - - - - - - - - -
TP1 thru TP3	19B211379P1	Spring (Test Point).
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, electrical. (Quantity 7).

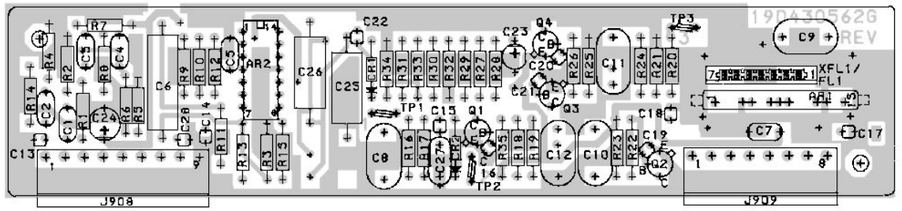
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

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.

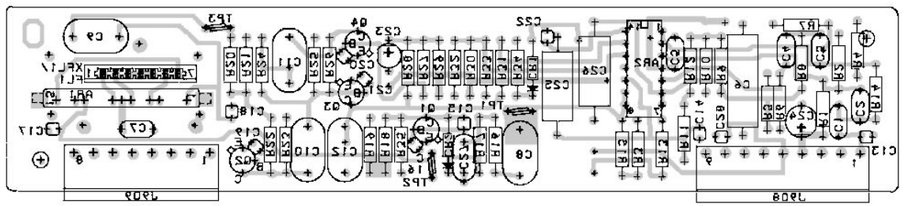
REV. A - To increase signaling reliability. Changed R18 to metal film: 133K ohms ±1%, 1/4 W. (19C314256P21333). Changed R35 to composition: 47K ohms ±5%, 1/4 W. (19A700106P103). Changed Q1 to 19A116774P1.

COMPONENT SIDE



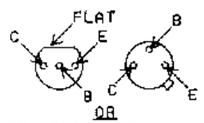
(19D430560, Rev. 1)
(19A142656, Sh. 1, Rev. 0)

SOLDER SIDE



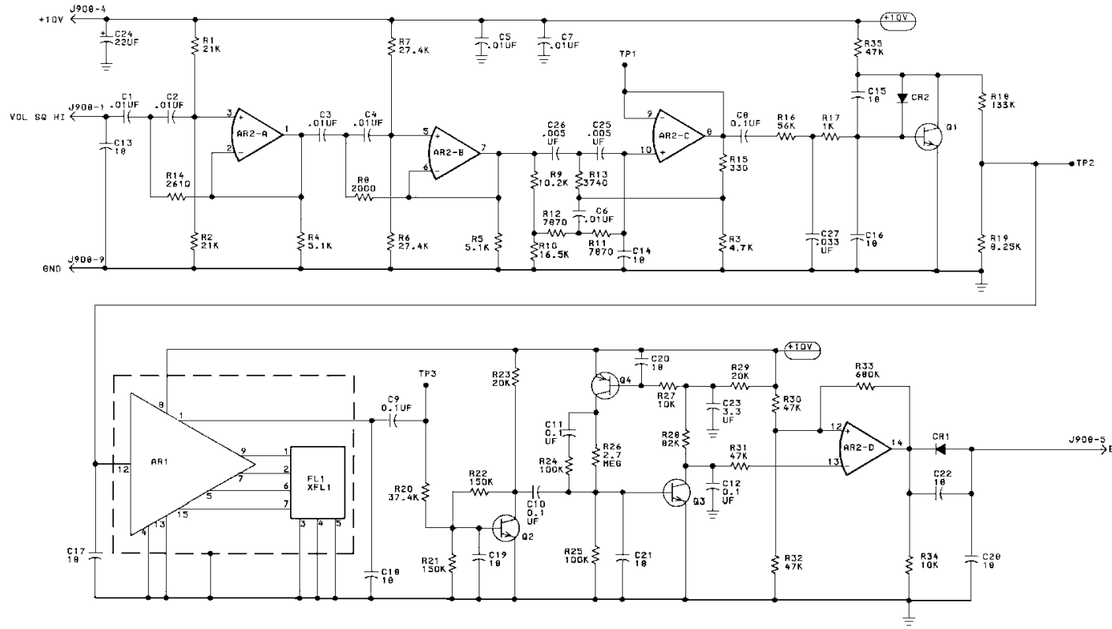
(19D430560, Rev. 1)
(19A142656, Sh. 1, Rev. 0)

LEAD IDENTIFICATION
FOR Q1 THRU Q4



TOP VIEW

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



POWER & GND CONNECTIONS

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

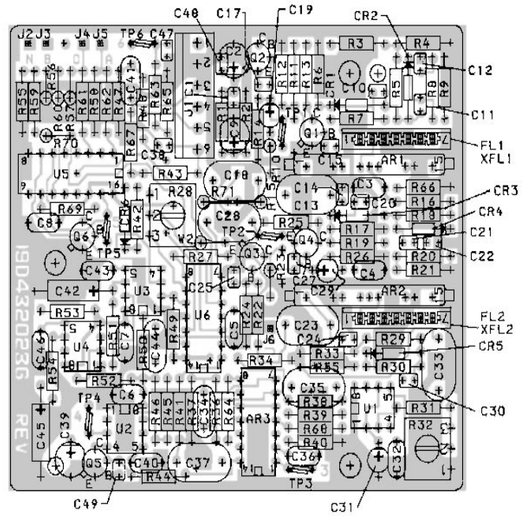
MODEL NO	REV LETTER
19D430562G1	A
19D430562G2	

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)

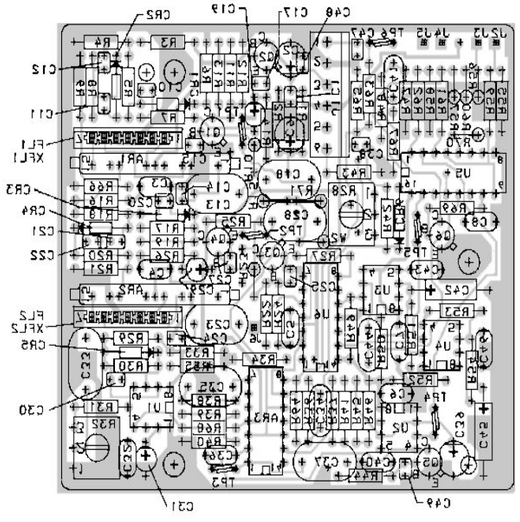
BUSY TONE DECODER BOARD
19D430562G1 & G2

COMPONENT SIDE

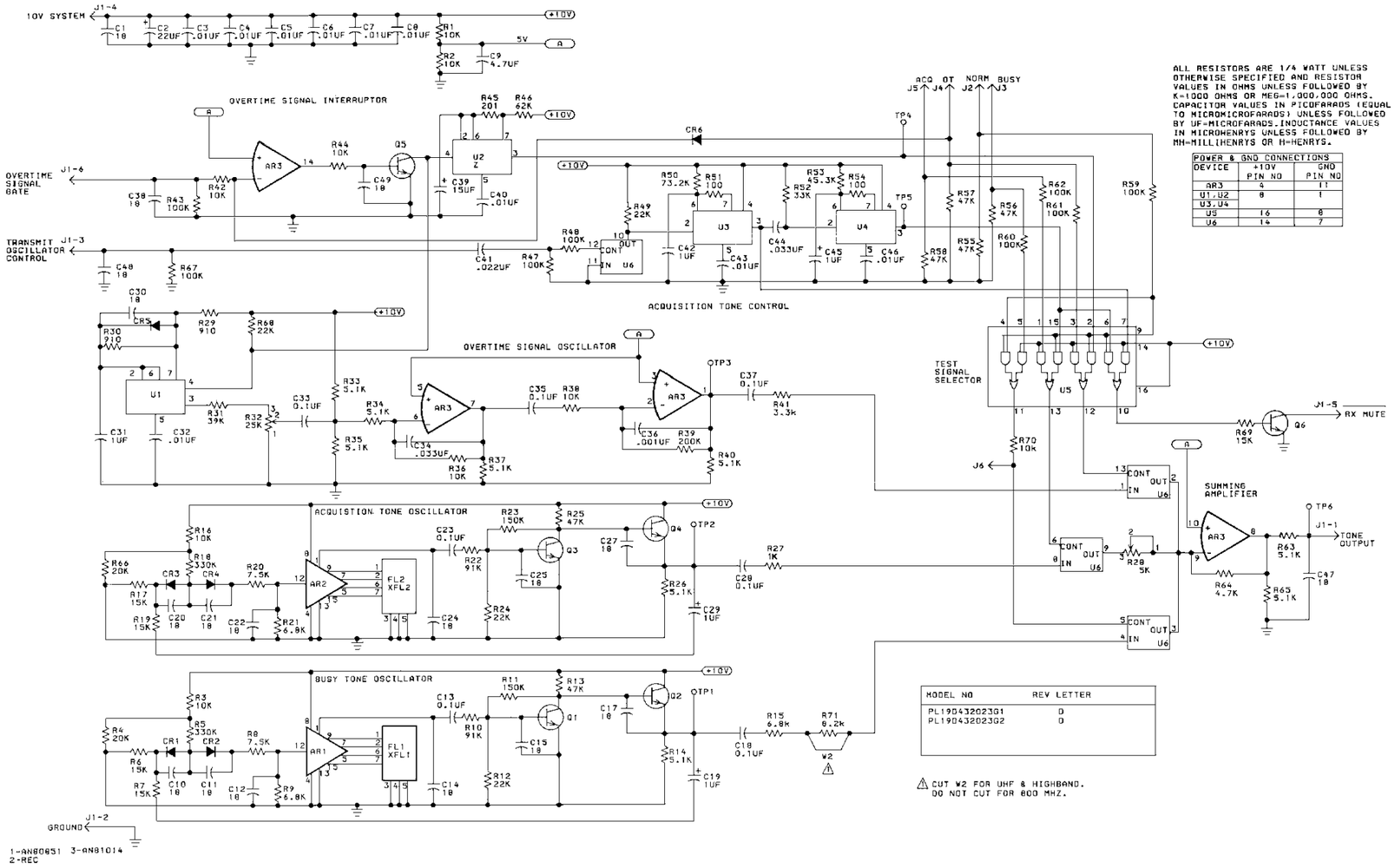


(19D432026, Rev. 3)
(19A143141, Sh. 1, Rev. 1)

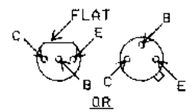
SOLDER SIDE



(19D432026, Rev. 3)
(19A143141, Sh. 1, Rev. 1)



LEAD IDENTIFICATION FOR Q1-Q6



TOP VIEW

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

REPEATER TONE ENCODE BOARD
19D432023G1 & G2

PARTS LIST

GE MARC V
REPEATER TONE ENCODE BOARD
19D43202G1 3052.9 HZ BUSY TONE
19D43202G2 2918.7 HZ BUSY TONE
ISSUE 7

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 + or -10%, 100 VDCW, temp coef 0 PPM.
C2	19A134202P6	Tantalum: 22 uF + or -20%, 15 VDCW.
C3 thru C8	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C9	19A134202P16	Tantalum: 4.7 uF + or -20%, 25 VDCW.
C10 thru C12	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C13	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C14 and C15	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C17	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C18	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C19	19A134202P14	Tantalum: 1 uF + or -20%, 35 VDCW.
C20 thru C22	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C23	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C24 and C25	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C27	19A700219P36	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C28	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C29	19A134202P14	Tantalum: 1 uF + or -20%, 35 VDCW.
C30	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C31	19A134202P14	Tantalum: 1 uF + or -20%, 35 VDCW.
C32	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C33	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C34	19A700005P10	Polyester: 0.033 uF + or -10%, 50 VDCW.
C35	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C36	19A700005P1	Polyester: 1000 pF + or - 10%, 50 VDCW.
C37	19A116080P107	Polyester: 0.1 uF + or -10%, 50 VDCW.
C38	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C39	19A134202P8	Tantalum: 15 uF + or -20%, 20 VDCW.
C40	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C41	19A700005P9	Polyester: 0.022 uF + or -10%, 50 VDCW.
C42	5496267P417	Tantalum: 1.0 uF + or -5%, 35 VDCW; sim to Sprague Type 150D.
C43	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C44	19A700005P10	Polyester: 0.033 uF + or -10%, 50 VDCW.
C45	5496267P417	Tantalum: 1.0 uF + or -5%, 35 VDCW; sim to Sprague Type 150D.
C46	19A700005P7	Polyester: 0.01 uF + or -10%, 50 VDCW.
C47 thru C49	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - RECTIFIERS - - - - - - - - - -
CR1 thru CR6	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.
FL1B	19C320291G8	Hybrid: 2918.7 Hz.
FL2	19C320291G7	Hybrid: 1962.9 Hz.
		- - - - - - - - - - JACKS - - - - - - - - - -
J1	19A116659P105	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-60-1061.
J2 thru J6	19A701785P6	Contact, electrical.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q6	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 thru R3	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R4	3R152P203J	Composition: 20K ohms + or - 5%, 1/4 w.
R5	3R152P334J	Composition: 0.33 megohms + or - 5%, 1/4 w.
R6 and R7	19A700106P91	Composition: 15K ohms + or - 5%, 1/4 w.
R8	3R152P752J	Composition: 7.5K ohms + or -5%, 1/4 w.
R9	19A700106P83	Composition: 6.8K ohms + or - 5%, 1/4 w.
R10	3R152P913J	Composition: 91K ohms + or - 5%, 1/4 w.
R11	3R152P154J	Composition: 150K ohms + or -5%, 1/4 w.
R12	19A700106P95	Composition: 22K ohms + or - 5%, 1/4 w.
R13	19A700106P103	Composition: 47K ohms + or - 5%, 1/4 w.
R14	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R15	19A700106P83	Composition: 6.8K ohms + or - 5%, 1/4 w.
R16	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R17	19A700106P91	Composition: 15K ohms + or - 5%, 1/4 w.
R18	3R152P334J	Composition: 0.33 megohms + or - 5%, 1/4 w.
R19	19A700106P91	Composition: 15K ohms + or - 5%, 1/4 w.
R20	3R152P752J	Composition: 7.5K ohms + or -5%, 1/4 w.
R21	19A700106P83	Composition: 6.8K ohms + or - 5%, 1/4 w.
R22	3R152P913J	Composition: 91K ohms + or - 5%, 1/4 w.
R23	3R152P154J	Composition: 150K ohms + or -5%, 1/4 w.
R24	19A700106P95	Composition: 22K ohms + or - 5%, 1/4 w.
R25	19A700106P103	Composition: 47K ohms + or - 5%, 1/4 w.
R26	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R27	19A700106P63	Composition: 1K ohms + or - 5%, 1/4 w.
R28	19A116559P102	Variable cermet: 5000 ohms + or - 20%, 1/2 w; sim to CTS Series 360.
R29 and R30	3R152P911J	Composition: 910 ohms + or -5%, 1/4 w.
R31	19A700106P101	Composition: 39K ohms + or -5%, 1/4 w.
R32	19A116559P107	Variable cermet: 25K ohms + or - 20%, 1/2 w; sim to CTS Series 360.
R33	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R34	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R35	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R36	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.

SYMBOL	GE PART NO.	DESCRIPTION
R37	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R38	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R39	3R152P204J	Composition: 200K ohms + or -5%, 1/4 w.
R40	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R41	19A700106P75	Composition: 3.3K ohms + or - 5%, 1/4 w.
R42	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R43	19A700106P111	Composition: 100K ohms + or - 5%, 1/4 w.
R44	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R45	3R152P203J	Composition: 20K ohms + or - 5%, 1/4 w.
R46	3R152P623J	Composition: 62K ohms + or - 5%, 1/4 w.
R47 and R48	19A700106P111	Composition: 100K ohms + or - 5%, 1/4 w.
R49	19A700106P95	Composition: 22K ohms + or - 5%, 1/4 w.
R50	19A701250P304	Metal film: 73.2K ohms + or -1%, 1/4 w.
R51	19A700106P39	Composition: 100 ohms + or - 5%, 1/4 w.
R52	19A700106P99	Composition: 33K ohms + or - 5%, 1/4 w.
R53	19A701250P364	Metal film: 45.3K ohms + or -1%, 1/4 w.
R54	19A700106P39	Composition: 100 ohms + or - 5%, 1/4 w.
R55 thru R58	19A700106P103	Composition: 47K ohms + or - 5%, 1/4 w.
R59 thru R62	19A700106P111	Composition: 100K ohms + or - 5%, 1/4 w.
R63	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R64	19A700106P79	Composition: 4.7K ohms + or -5%, 1/4 w.
R65	3R152P512J	Composition: 5.1K ohms + or -5%, 1/4 w.
R66	3R152P203J	Composition: 20K ohms + or - 5%, 1/4 w.
R67	19A700106P111	Composition: 100K ohms + or - 5%, 1/4 w.
R68	19A700106P95	Composition: 22K ohms + or - 5%, 1/4 w.
R69	19A700106P91	Composition: 15K ohms + or - 5%, 1/4 w.
R70	19A700106P87	Composition: 10K ohms + or - 5%, 1/4 w.
R71	19A700106P85	Composition: 8.2K ohms + or -5%, 1/4 w.
		- - - - - - - - - - TEST POINTS - - - - - - - - - -
TP1 thru TP6	19A134552P1	Jack, tip.
		- - - - - - - - - - INTEGRATED CIRCUITS - - - - - - - - - -
U1 thru U4	19A116968P1	Linear, timer: DUAL IN-LINE 8 Pin Mini Dip Package; sim to Signetics SA555N.
U5	19A700029P13	QUAD AND-OR SELECT GATE.
U6	19A700029P44	Digital: BILATERAL SWITCH.
		- - - - - - - - - - CABLES - - - - - - - - - -
W2	19A700184P1	Jumper.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1 and XFL2	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B21968IP1	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 pervious revisions. Refer to the Parts List for the 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.

REV. D - To add busy tone function and improve tone deviation performance. Added R70 & R71. Changed R15, R27, R28, and R41.

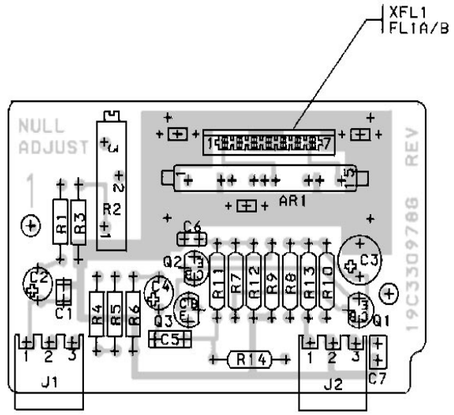
R15 was: 19A700106P87 - Composition:10K ohms ±5%, 1/4 watt.

R27 was: 19A700106P69 - Composition:10K ohms ±5%, 1/4 watt.

R28 was: 19A116559P104 - Variable cermet: 2500 ohms ±20%, 1/2 watt; sim. to CTS Series 360.

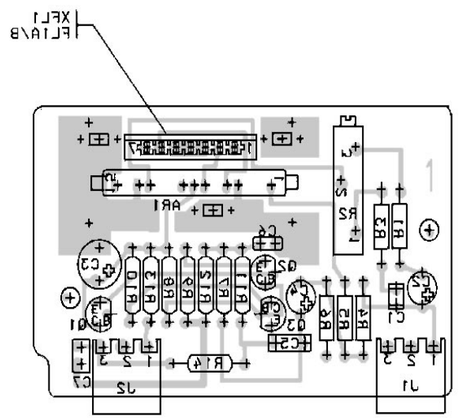
R41 was: 19A700106P79 - Composition: 4.7K ohms ±5%, 1/4 watt.

COMPONENT SIDE



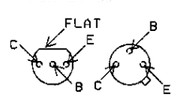
(19C331068, Rev. 1)
(19A143585, Sh. 1, Rev. 1)

SOLDER SIDE



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

LEAD IDENTIFICATION
FOR Q1-Q3

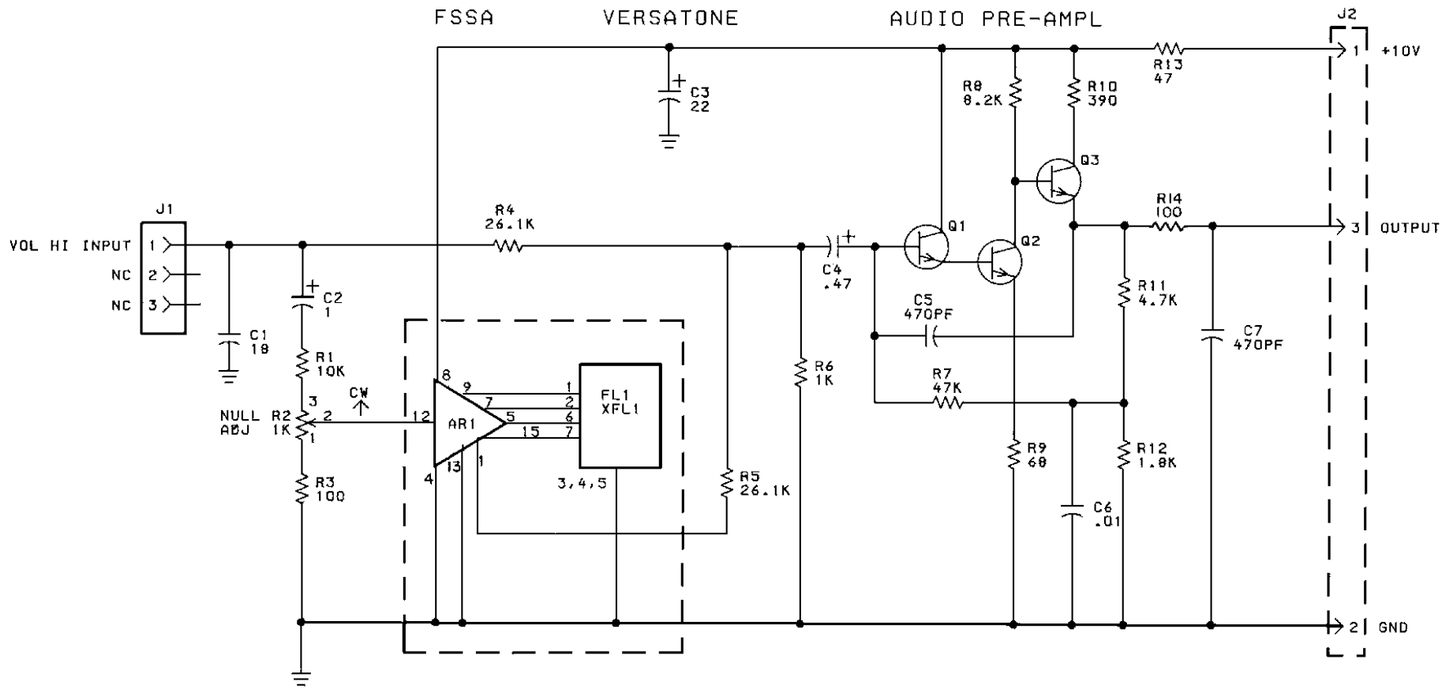


OR

IN-LINE TRIANGULAR

TOP VIEW

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



(19C331070, Rev. 1)

BUSY TONE NOTCH FILTER
19C330978G1 & G2

PARTS LIST

BUSY TONE NOTCH FILTER
19C330978G1 3051 HZ STANDARD
19C330978G2 2918 HZ ALTERNATE
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - - -
AR1	19D417092G2	Selective Amplifier.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A700219P38	Ceramic: 18 pF + or -10%, 100 VDCW, temp coef 0 PPM.
C2	19A701534P4	Tantalum: 1 uF + or - 20%, 35 VDCW.
C3	19A701534P8	Tantalum: 22 uF + or -20%, 16 VDCW.
C4	19A701534P3	Tantalum: 0.47 uF + or - 20%, 35 VDCW.
C5	19A700227P89	Ceramic: 82 pF ± 10%, 100 VDCW, temp coef 0 PPM.
C6	19A116192P1	Ceramic: 0.01 uF + or -20%, 50 VDCW; sim to Erie 8121 Special.
C7	19A116192P2	Ceramic: 470 pF + or -20%, 50 VDCW; sim to Erie 811-A050-W5R-471M.
		- - - - - - - - - - FILTERS - - - - - - - - - -
		NOTE: When reordering give GE Part number and specify exact frequency needed.
FL1A	19C320291G10	Hybrid: 2918 Hz.
FL1B	19C320291G9	Hybrid: 3051 Hz.
		- - - - - - - - - - JACKS - - - - - - - - - -
J1 and J2	19A700102P1	Printed wire: 3 contacts rated at 5 amps; sim to Molex 09-52-3031.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q3	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A701250P301	Metal film: 10K ohms + or - 1%, 1/4 w.
R2	19A116430P5	Variable, cermet: 1000 ohms + or - 10%, 0.75 w; sim to Helitrim Model 79P.
R3	19A701250P101	Metal film: 100 ohms + or - 1%, 1/4 w.
R4 and R5	19A701250P341	Metal film: 26.1K ohms + or - 1%, 1/4 w.
R6	19A701250P201	Metal film: 1K ohms + or -1%, 250 VDCW, 1/4 w.
R7	H212CRP347C	Deposited carbon: 47K ohms + or -5%, 1/4 w.
R8	H212CRP282C	Deposited carbon: 8.2K ohms + or -5%, 1/4 w.
R9	H212CRP068C	Deposited carbon: 68 ohms + or -5%, 1/4 w.
R10	H212CRP139C	Deposited carbon: 390 ohms + or -5%, 1/4 w.
R11	H212CRP247C	Deposited carbon: 4.7K ohms + or -5%, 1/4 w.
R12	H212CRP218C	Deposited carbon: 1.8K ohms + or -5%, 1/4 w.
R13	H212CRP047C	Deposited carbon: 47 ohms + or -5%, 1/4 w.
R14	H212CRP110C	Deposited carbon: 100 ohms + or -5%, 1/4 w.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1	19C320299G1	Connector. Includes:
	19D416714P1	Shell.
	19B219681P1	Contact, electrical. (Quantity 7).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

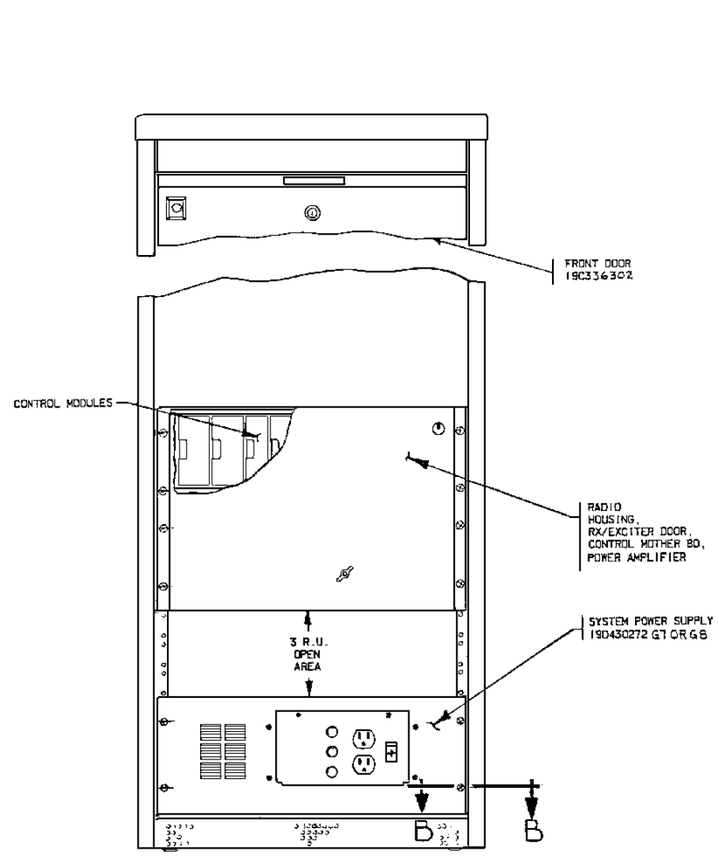
PARTS LIST

GE MARC V

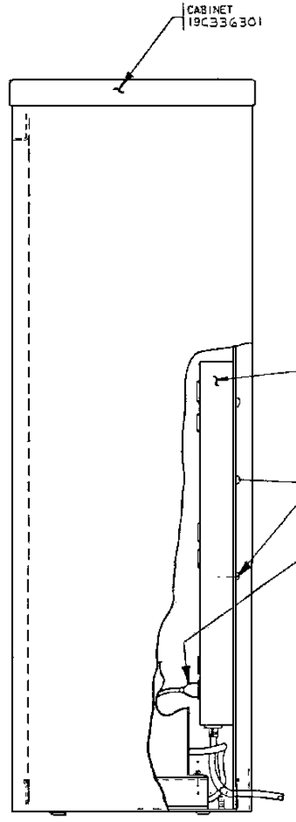
REPEATER STATION HARNESS
19C320811G10
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - JACKS - - - - - - - - - -
J1		Connector. Includes:
	19B209288P5	Shell, 15 circuits; sim to Molex 03-09-1151.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (J1-1 thru J1-8, J1-10 thru J1-13).
	19B209288P1	Contact, electrical: wire size No. 14-20 AWG; sim to Molex 02-09-1101. (J1-9).
J2		Connector. Includes:
	19B209288P3	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1		Connector. Includes:
	19B209288P20	Connector, rectangular: 12 contacts; sim to Molex 09-03-1122.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P1-2 thru P1-12).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P1-1).
P2		Connector. Includes:
	19B209288P20	Connector, rectangular: 12 contacts; sim to Molex 09-03-1122.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P2-4 thru P2-9).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P2-3).
P3		Connector. Includes:
	19B209288P20	Connector, rectangular: 12 contacts; sim to Molex 09-03-1122.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P3-4 thru P3-8, P3-10 thru P3-12).
	19B209288P1	Contact, electrical: wire size No. 14-20 AWG; sim to Molex 02-09-1101. (P3-3).
P4		Connector. Includes:
	19B209288P20	Connector, rectangular: 12 contacts; sim to Molex 09-03-1122.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P4-2, P4-5, P4-7, P4-10 thru P4-12).
	19B209288P30	Contact, electrical: male; sim to Molex 02-09-2141. (P4-3).
	19B209288P1	Contact, electrical: wire size No. 14-20 AWG; sim to Molex 02-09-1101. (P4-1, P4-4).
P5		Connector. Includes:
	19B209288P23	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P5-1, P5-2).
P6 thru P8	19A143191G1	Connector includes 19C330656P1 - SHELL and 19A115793P1 - CONTACTS
P9		Connector. Includes:
	19B209288P4	Shell.
	19B209288P29	Contact, electrical: wire size No. 22-30 AWG; sim to Molex 02-09-1141. (P9-8).
	19B209288P2	Contact, electrical: sim to Molex 02-09-2101. (P9-1, P9-4).

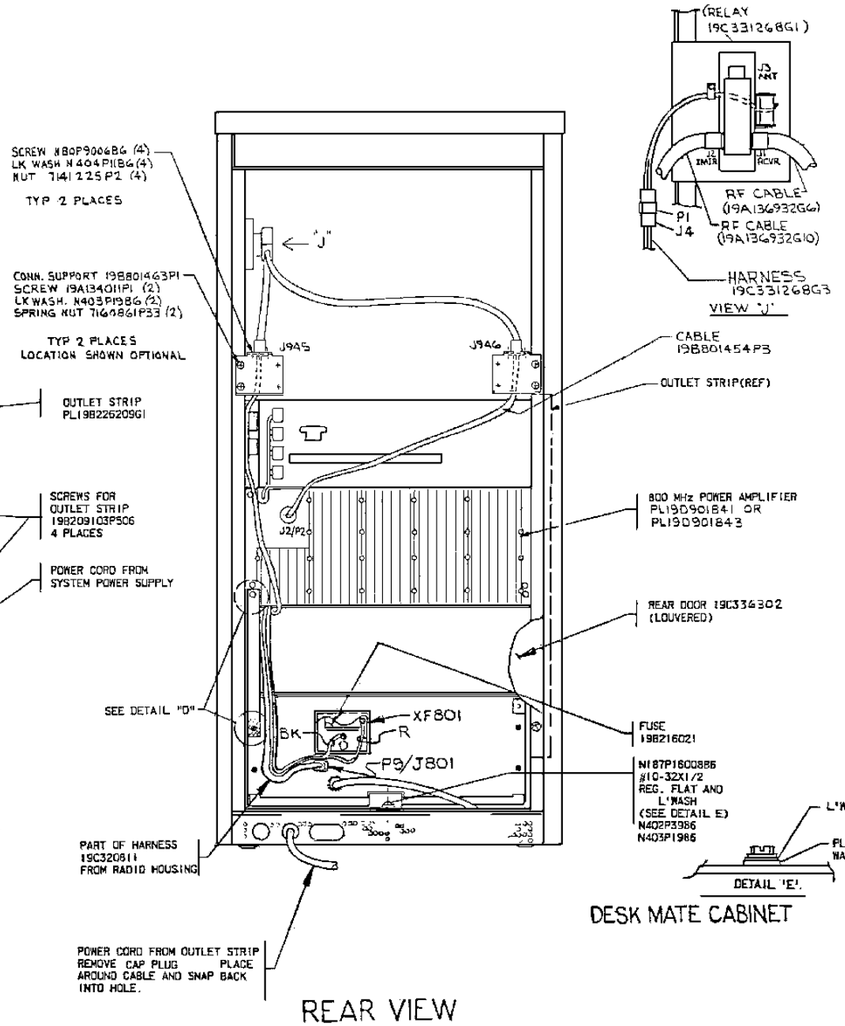
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.



FRONT VIEW

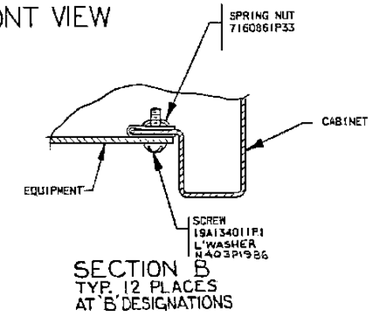


SIDE VIEW

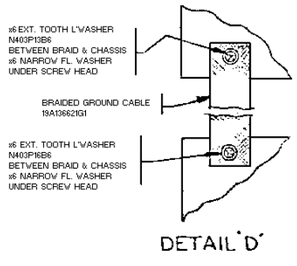


DESK MATE CABINET

REAR VIEW

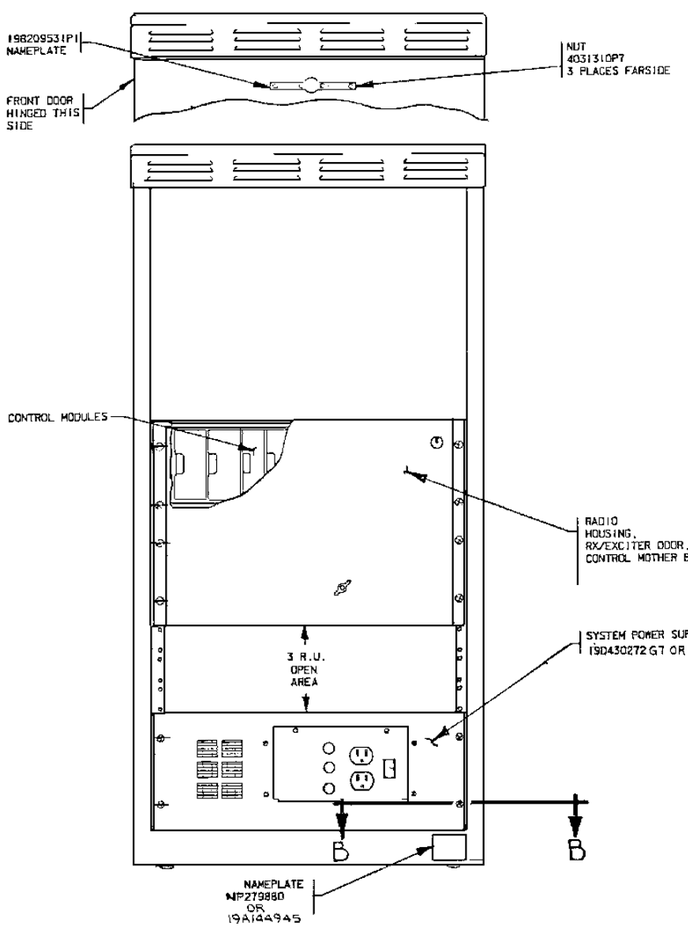


SECTION B
TYP. 12 PLACES
AT 'B' DESIGNATIONS

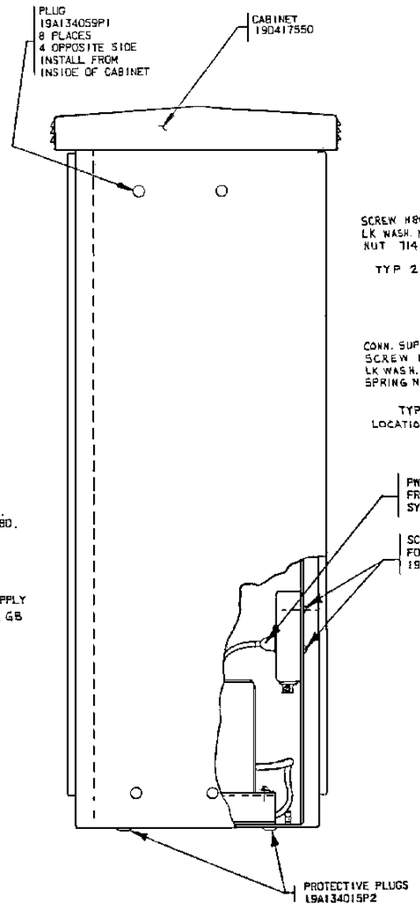


DETAIL 'D'

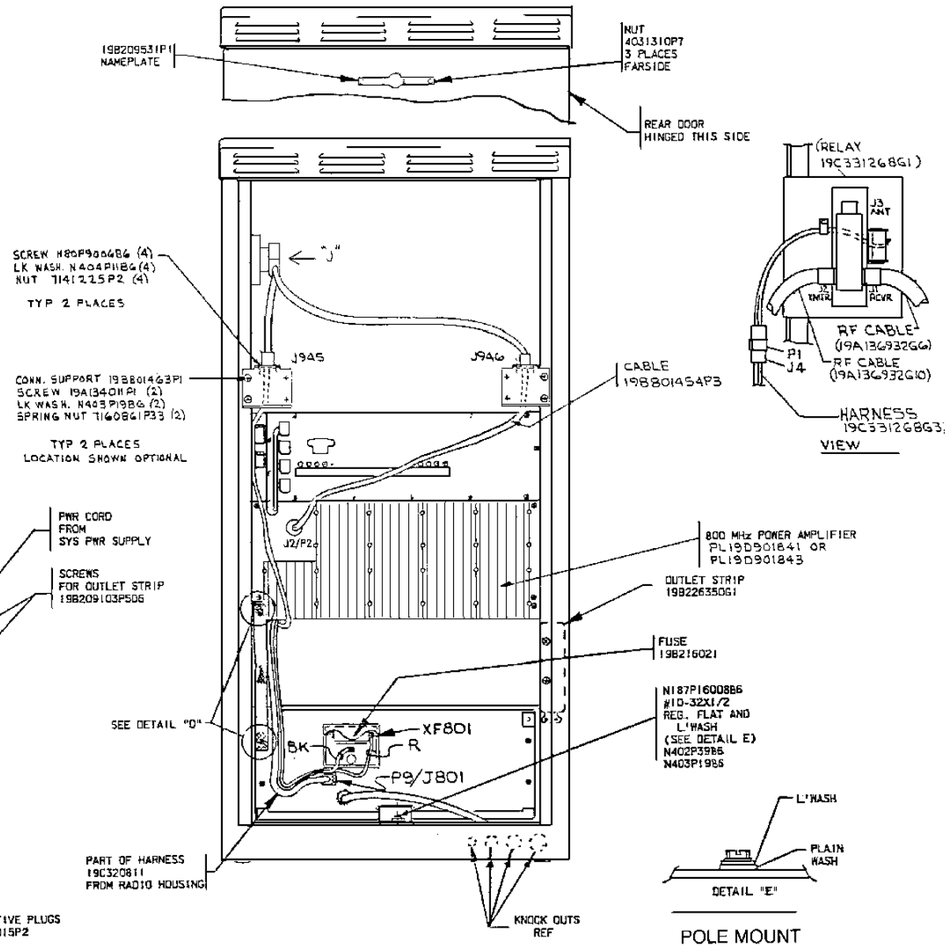
100 WATT SOLID STATE
DESK MATE STATION



FRONT VIEW

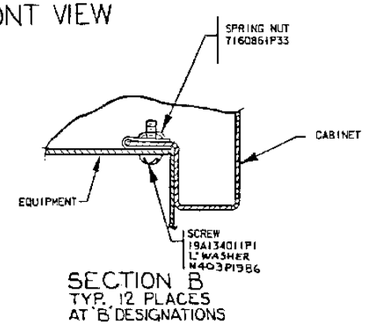


SIDE VIEW

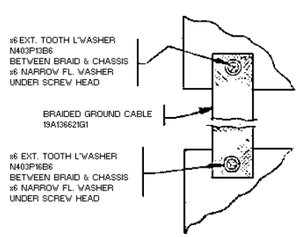


REAR VIEW

POLE MOUNT

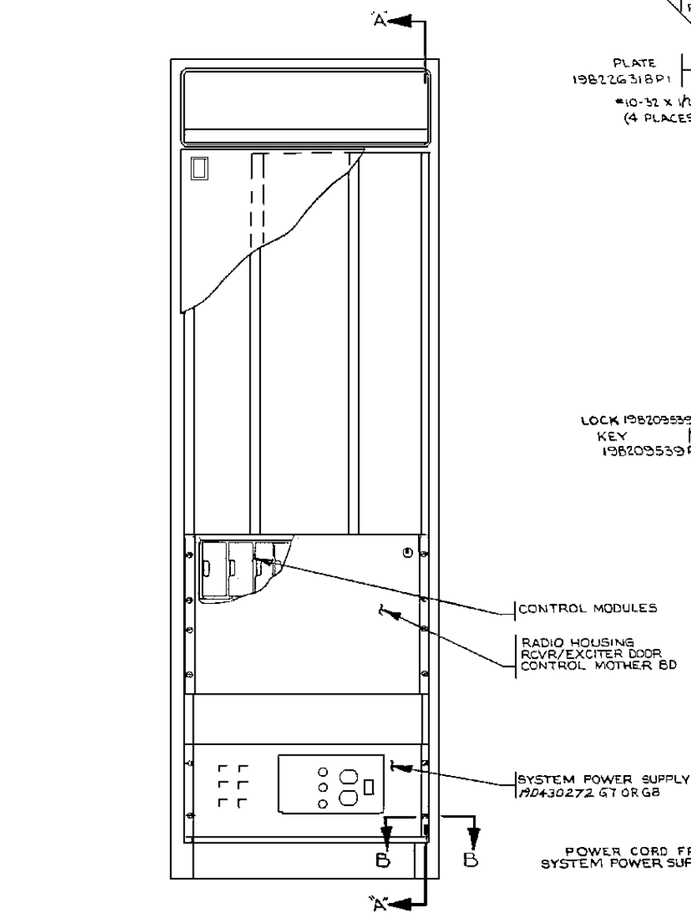


SECTION B
TYP. 12 PLACES
AT 'B' DESIGNATIONS

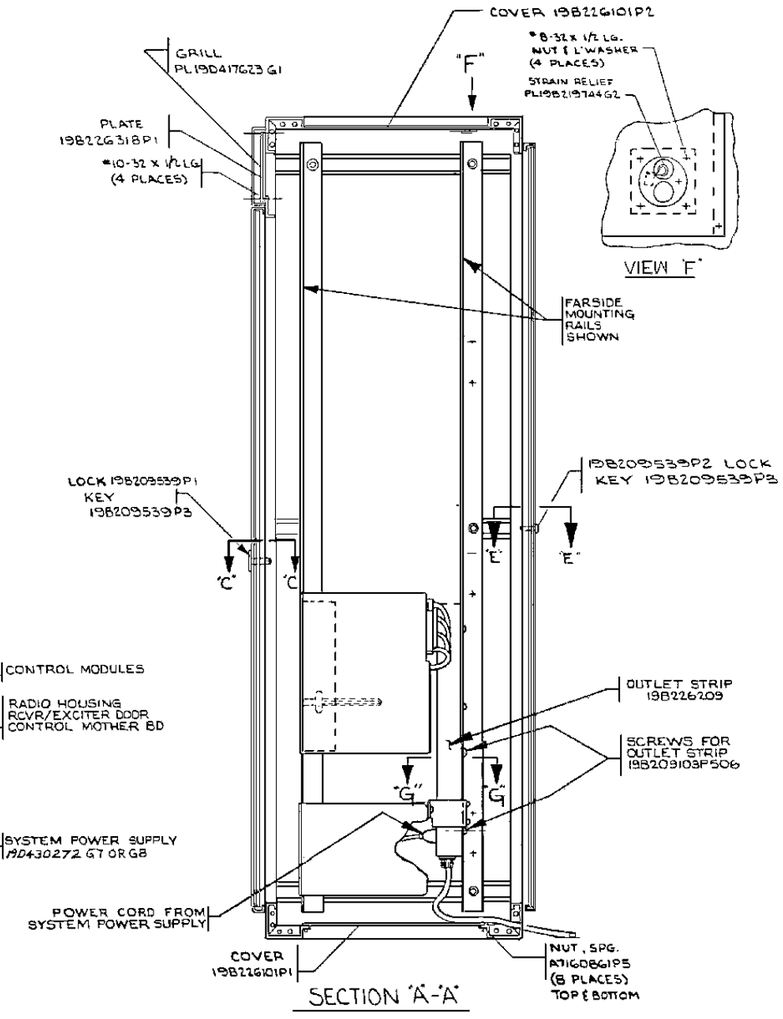


DETAIL 'D'

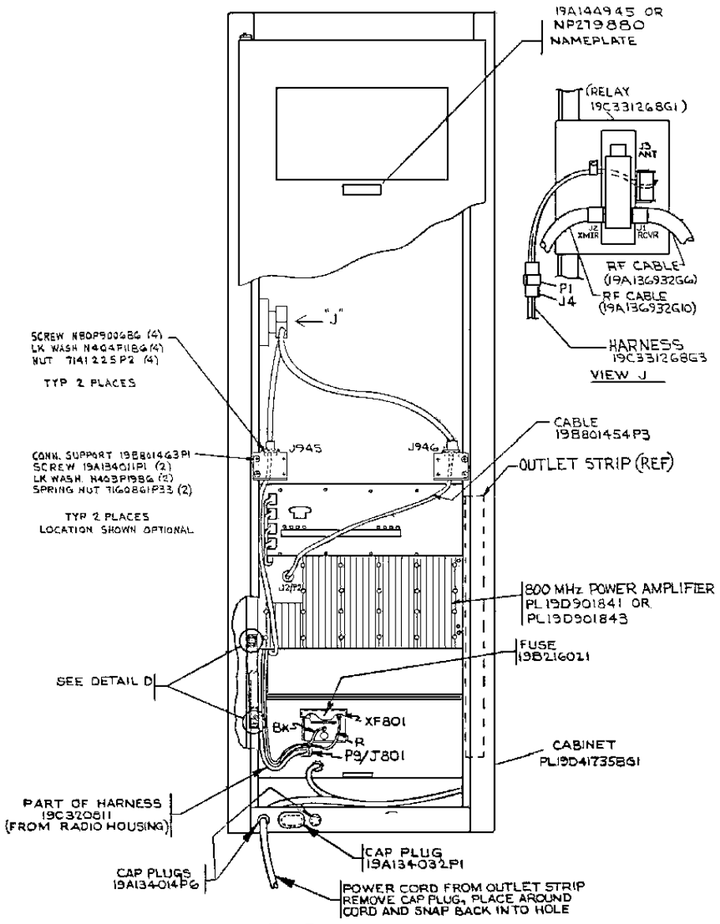
100 WATT SOLID STATE
POLE MOUNT STATION



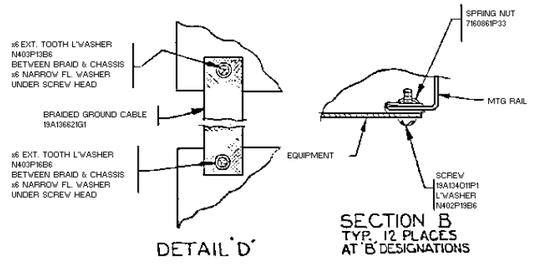
FRONT VIEW
WITH DOOR PARTIALLY REMOVED FOR CLARITY



SECTION "A-A"

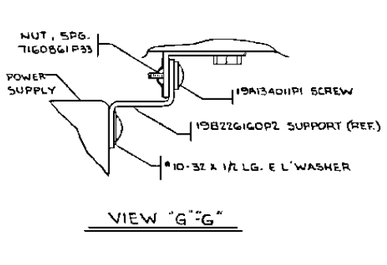


REAR VIEW
FLOOR MOUNT

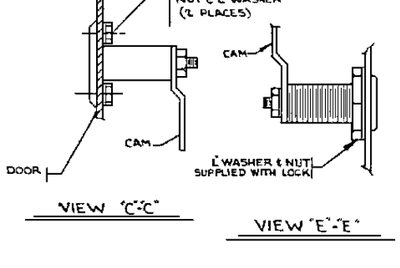


DETAIL "D"

SECTION B
TYP. 12 PLACES AT 'B' DESIGNATIONS

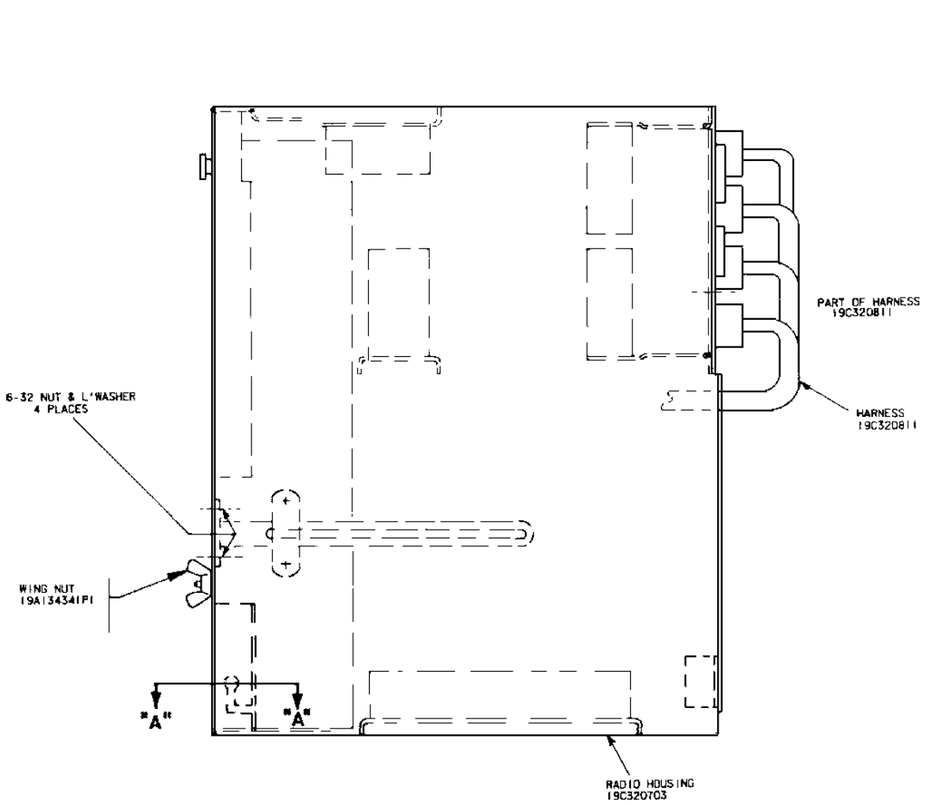


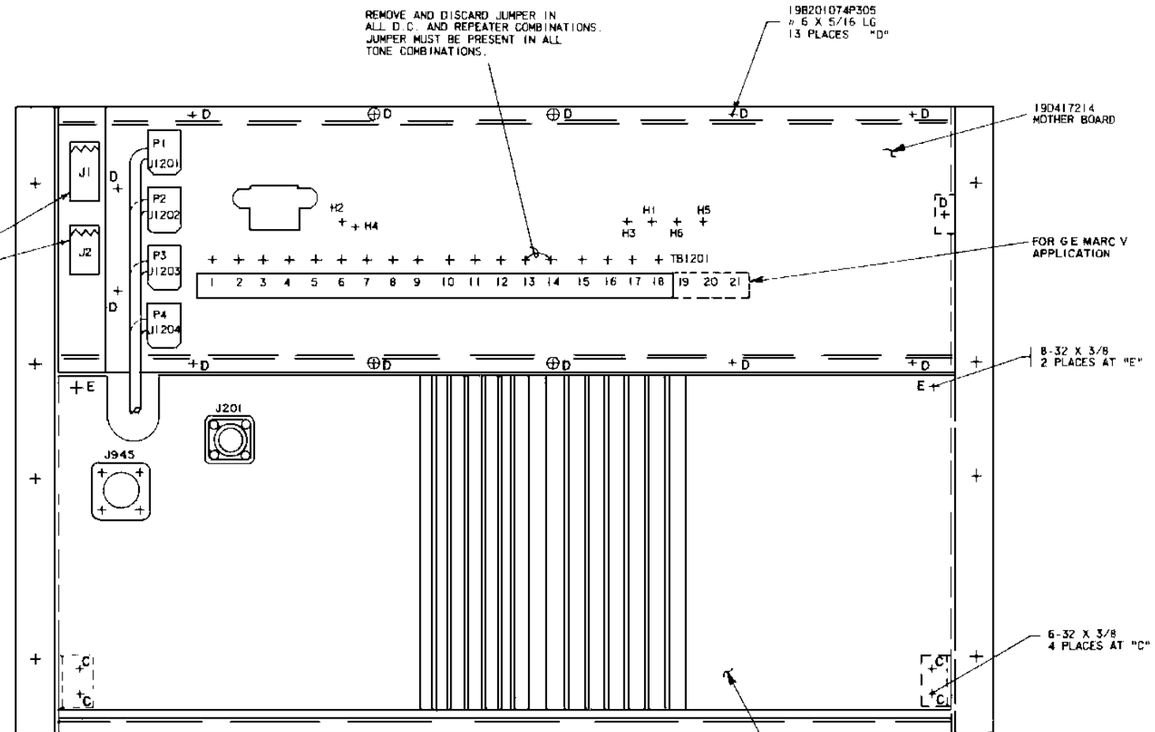
VIEW "G"-"G"



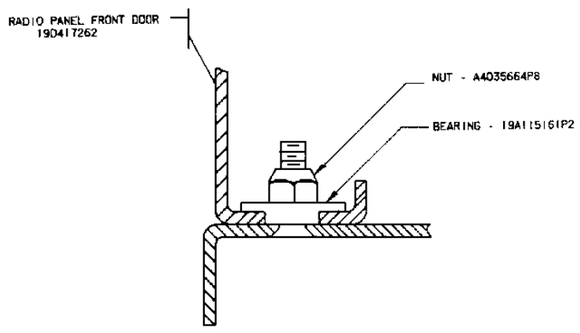
VIEW "C"-"C" VIEW "E"-"E"

100 WATT SOLID STATE FLOOR MOUNT STATION





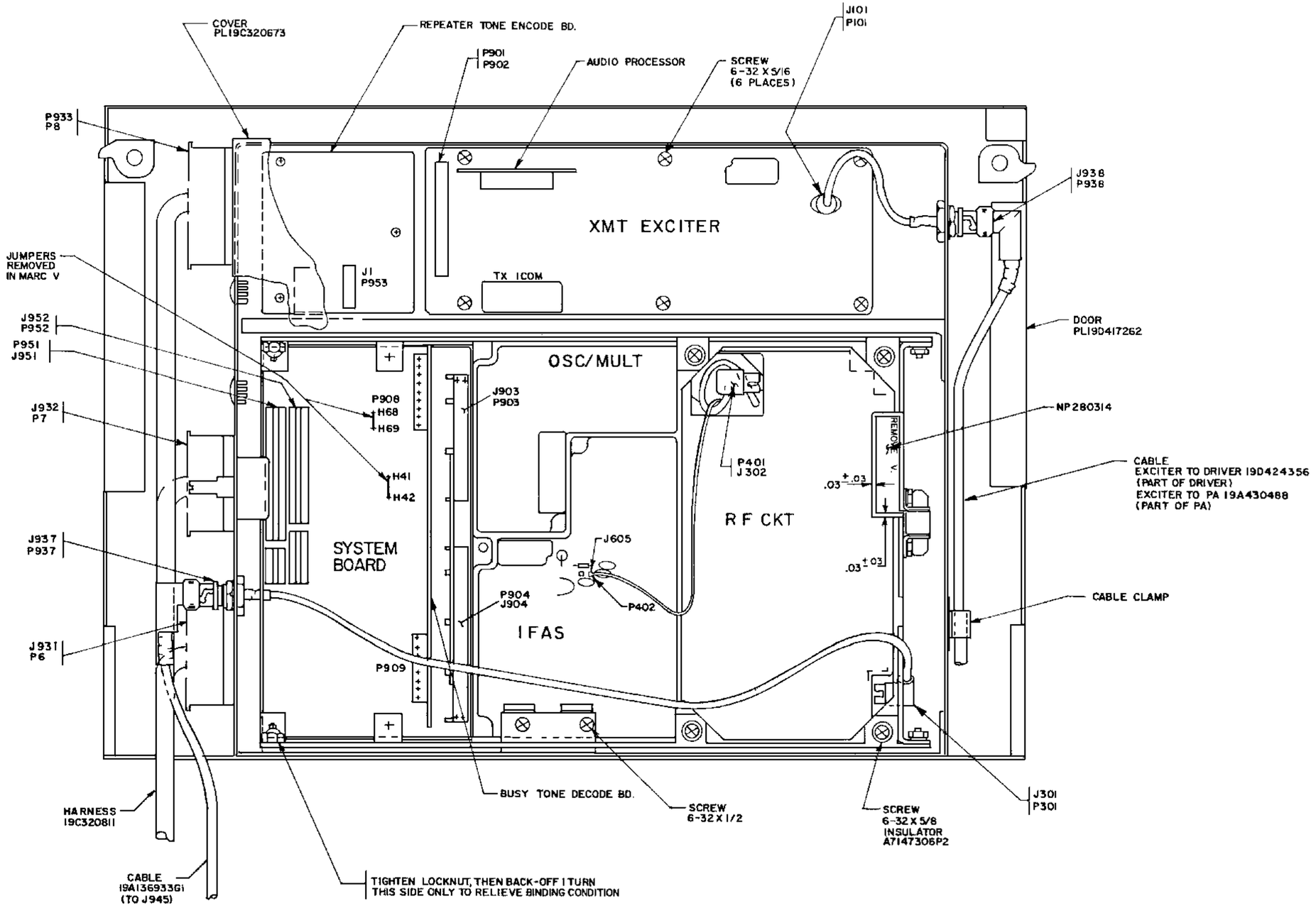
REAR VIEW



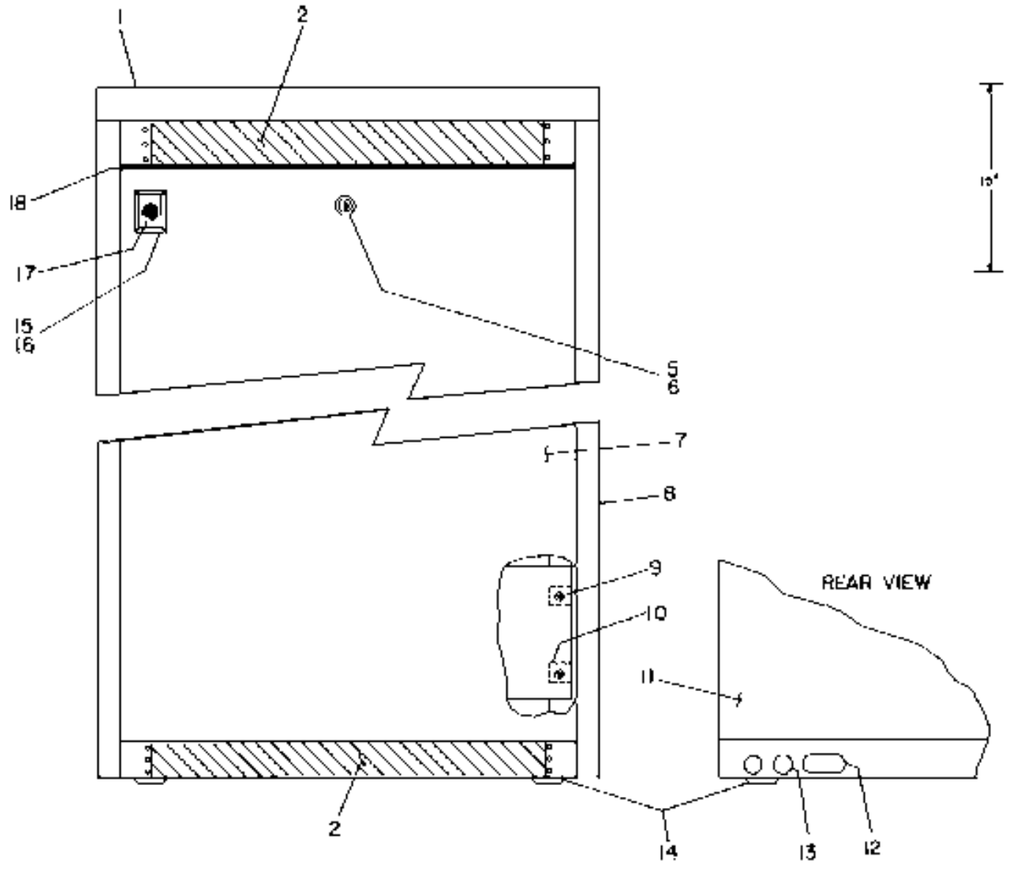
ENLARGED SECTION "A" – "A" (PARTIAL)

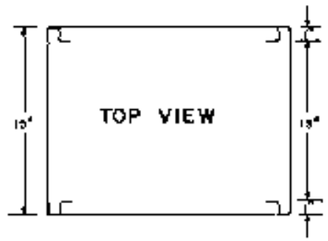
TYPICAL OPPOSITE SIDE

100 WATT SOLID STATE STATION
MOTHER BOARD AND DRIVER ASSEMBLIES



RADIO HOUSING FRONT DOOR





PARTS LIST

LBI-4975E

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	19C336302G1	Front door.
	19C320744G7	Front door. (Earlier Models).
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	19C336302G2	Rear door.
	19C320744G8	Rear door. (Earlier Models).
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	NP276492	Nameplate. (GENERAL 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	19C336302G3	Front door.
	19C320744G9	Front door. (Earlier Models).
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 C1964G-10AB-3S. (Quantity 52).
11	19C336302G4	Rear door.
	19C320744G10	Rear door. (Earlier Models).
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	NP276492	Nameplate. (GENERAL ELECTRIC).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

DESK MATE CABINET

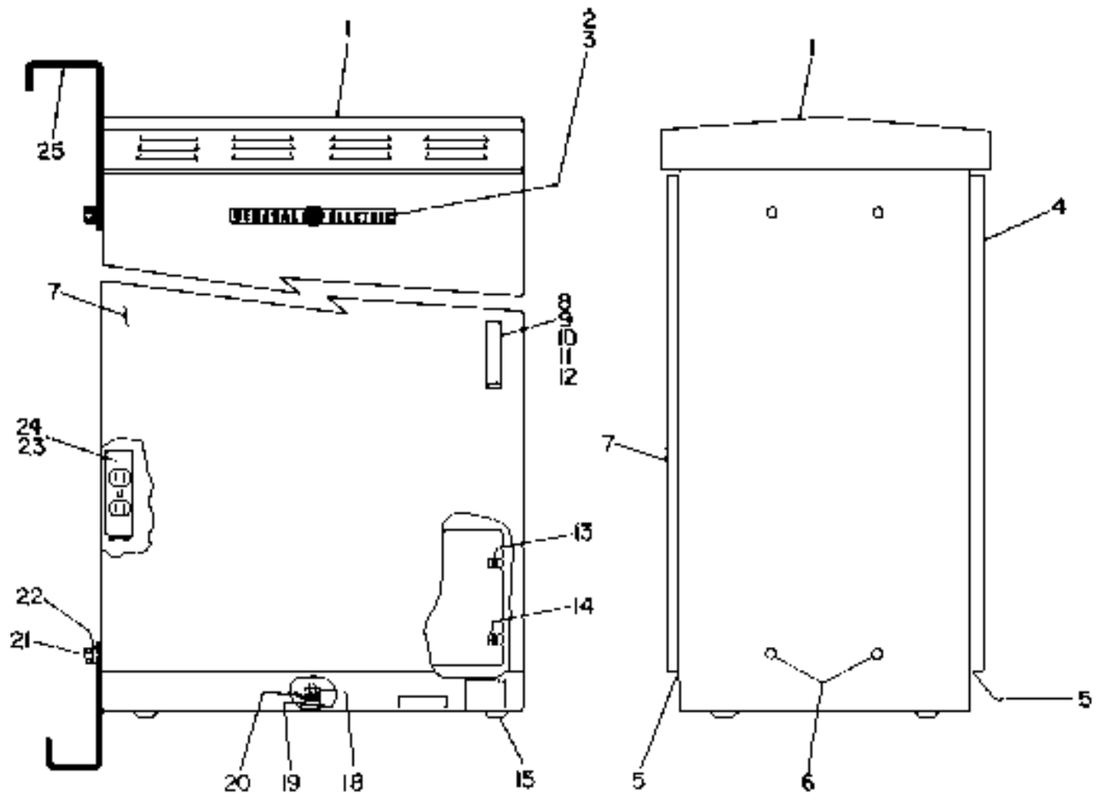
PARTS LIST

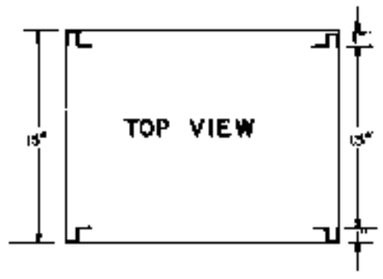
LBI4976F

POLE MOUNT STATION CABINET
CONTINUOUS AND INTERMITTANT DUTY
19D417550G2
(SEE RC2806)

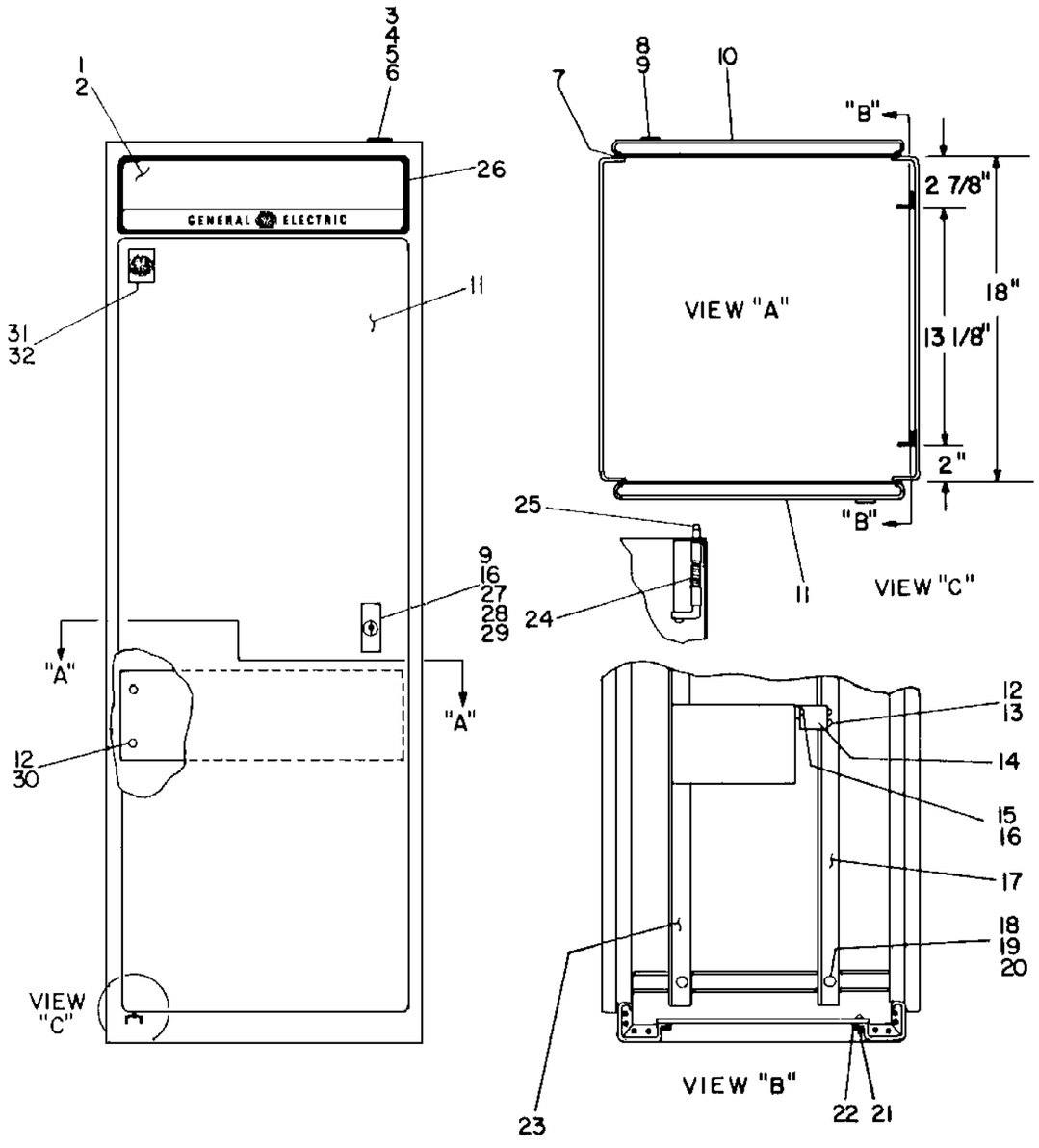
SYMBOL	GE PART NO.	DESCRIPTION
1	19D417550G2	Cabinet. (Less Doors).
2	19B209531P1	Nameplate. (GENERAL ELECTRIC).
3	4031310P7	Nut, push on: sim to Tinnerman C610-012-24.
4	19D417543G2	Door, left hand.
5	19A134128P1	Door seal. (Front and rear).
6	19A134059P1	Protective plug.
7	19D417543G1	Door, right hand.
8	19A134049P3	Door handle.
9	7150752P1	Strike catch.
10	N84P1508B6	Machine screw: No. 8-32 x 1/2.
11	N403P16B6	Lockwasher, external tooth: No. 8.
12	N210P15B6	Hex nut: No. 8-32.
13	19A134011P1	Tap screw: No. 10-16 x 1-1/8. (Quantity 52).
14	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-10AB-600. (Quantity 52).
15	19A134015P2	Protective plug.
16	NP270697	Nameplate.
17	NP196405	Nameplate.
18	N210P21B6	Hex nut: No. 1/4-20.
19	N403P25B6	Lockwasher, external tooth: 1/4 inch.
20	19A115141P2	Solderless terminal: sim to ILSCO SLU70.
21	N22P25016B6	Cap screw: No. 3/8-16 x 1.
22	N405P43B6	Lockwasher: 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





POLE MOUNT CABINET



PARTS LIST

LBI4977D

FLOOR MOUNT STATION CABINET
19D417558G3
(SEE RC-2804)

SYMBOL	GE PART NO.	DESCRIPTION
1	19D417623G2	Grille.
2	19B226318P2	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	19C320756G4	Door, rear. 64 inch.
11	19C320756G3	Door, front. 59 inch.
12	19A134011P1	Tap screw: No. 10-16 x 1-1/8. (Quantity 52).
13	7160861P32	Nut, sheet spring; sim to Tinnerman C1794-10Z-24. (Quantity 16).
14	19B226160P2	Support.
15	N80P16008C6	Machine screw: No. 10-32 x 1/2.
16	N403P19C6	Lockwasher: No. 10.
17	19B226094P2	Support.
18	N80P21012C6	Machine screw: No. 1/4-20 x 3/4.
19	N403P25C6	Lockwasher: No. 1/4.
20	N402P41C6	Flatwasher: No. 1/4.
21	N80P15006C6	Machine screw: 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	Hex nut: No. 10-32.
30	7160861P31	Nut, sheet spring; sim to Tinnerman C18610-031.
31	NP257660	Nameplate. (GE).
32	403105 3P7	Nut, sheet spring; sim to Tinnerman C12046-012-67.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

FLOOR MOUNT CABINET

LBI-31998

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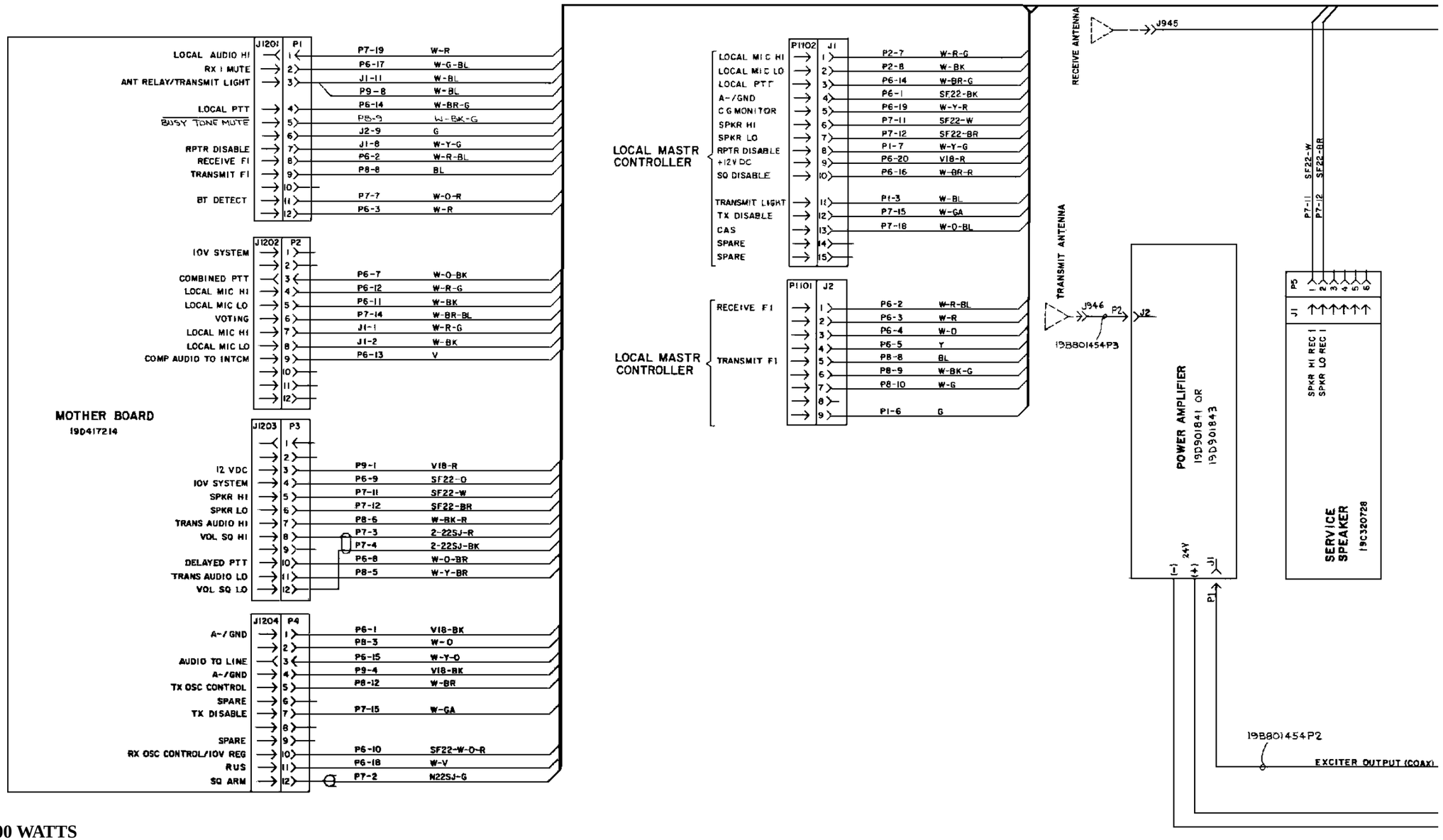
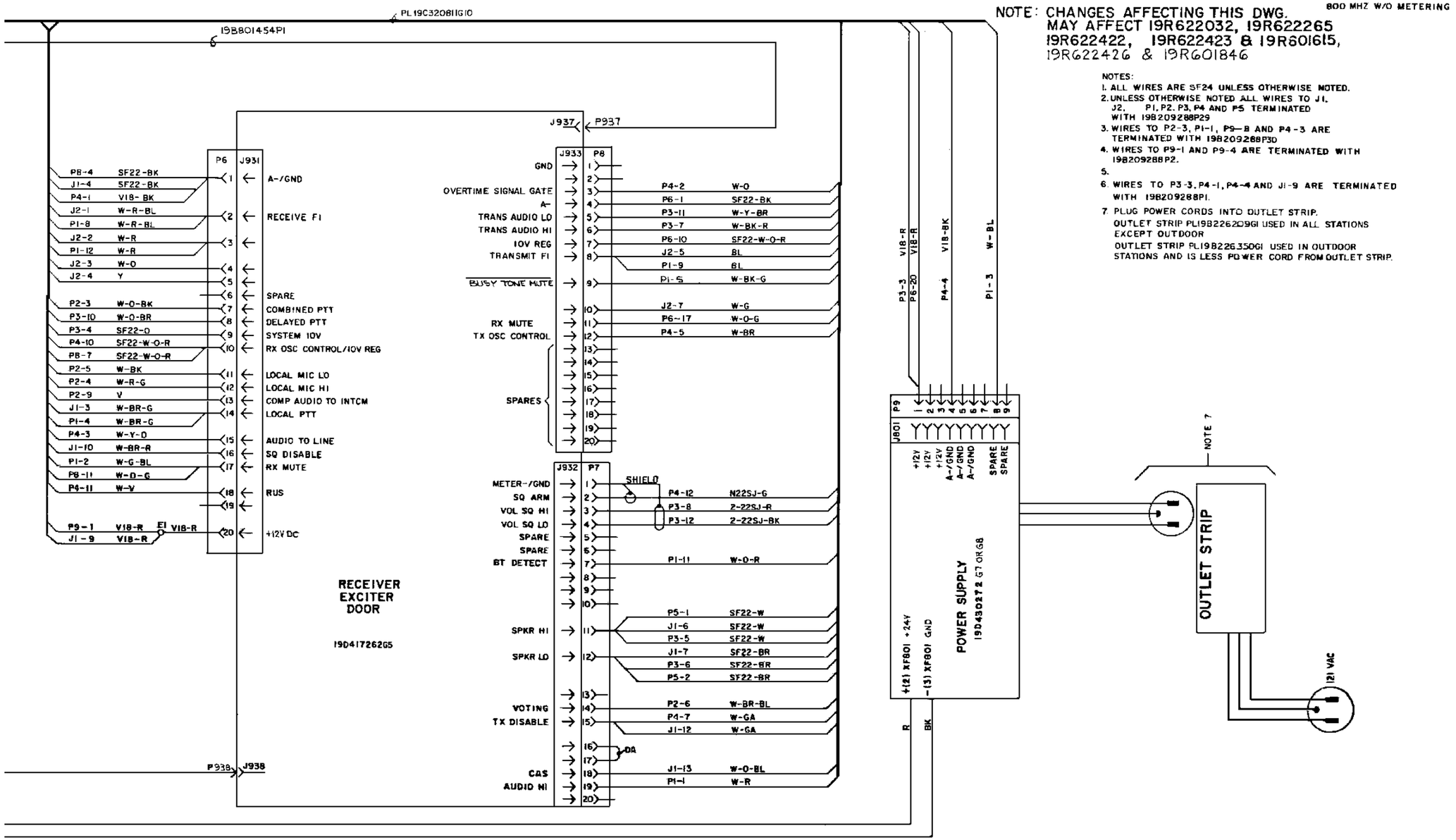


800 MHz, 100 WATTS
REPEATER STATION HARNESS
(19C320811G10)

(19R622600, Rev. 5)



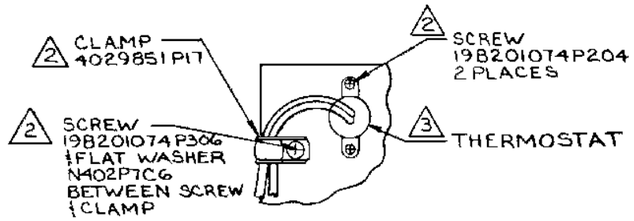
NOTE: CHANGES AFFECTING THIS DWG. MAY AFFECT 19R622032, 19R622265 19R622422, 19R622423 & 19R601615, 19R622426 & 19R601846

800 MHZ W/O METERING

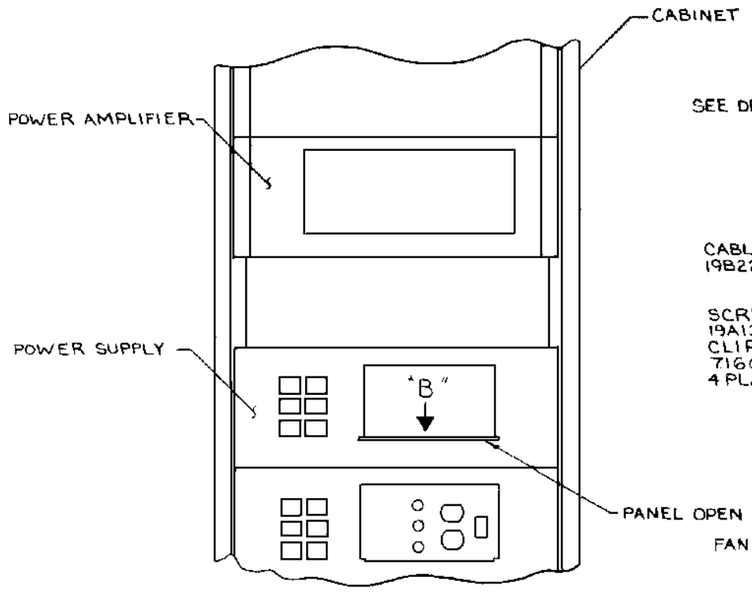
NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1, J2, P1, P2, P3, P4 AND P5 TERMINATED WITH 19B209288P29
3. WIRES TO P2-3, P1-1, P9-8 AND P4-3 ARE TERMINATED WITH 19B209288P30
4. WIRES TO P9-1 AND P9-4 ARE TERMINATED WITH 19B209288P2.
5.
6. WIRES TO P3-3,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

800 MHz, 100 WATTS
REPEATER STATION HARNESS
(19C320811G10)

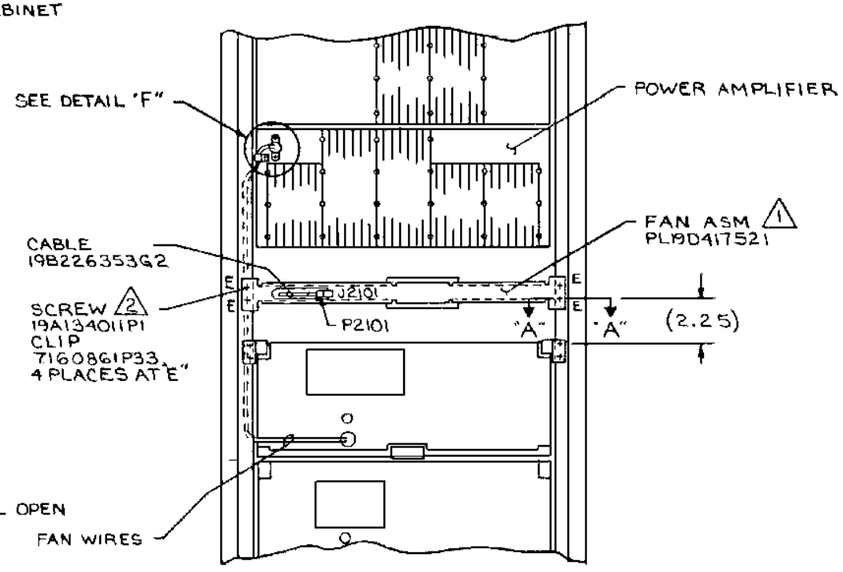
(19R622600, Rev. 5)



DETAIL "F"



FRONT VIEW



REAR VIEW

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

(1) 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.

(2) INSTRUCTIONS:

SAME AS PART 1 EXCEPT SUBSTITUTE INSTRUCTION 8 AS FOLLOWS:

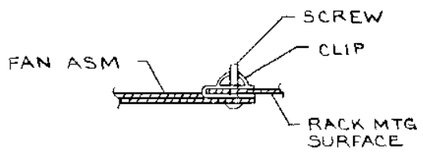
8. CONNECT TERMINALS FOR 297 - 253 VAC OPERATION AS SHOWN IN DETAIL "D".

NOTES:

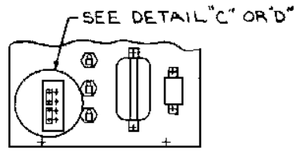
1. THE FAN OPTION SHOULD BE INSTALLED ONLY WITH VOLTAGE RANGES SHOWN BELOW.

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

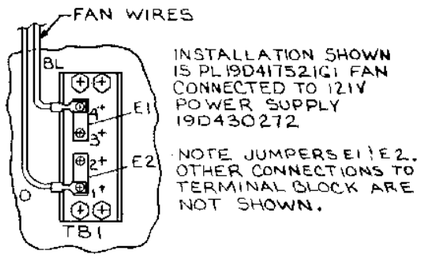
2. SUPPLIED PACKAGED WITH FAN.
3. SUPPLIED AS PART OF 19B226353G2 CABLE ASM.



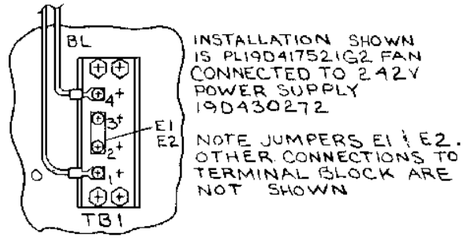
SECTION "A"-"A"



VIEW AT "B"



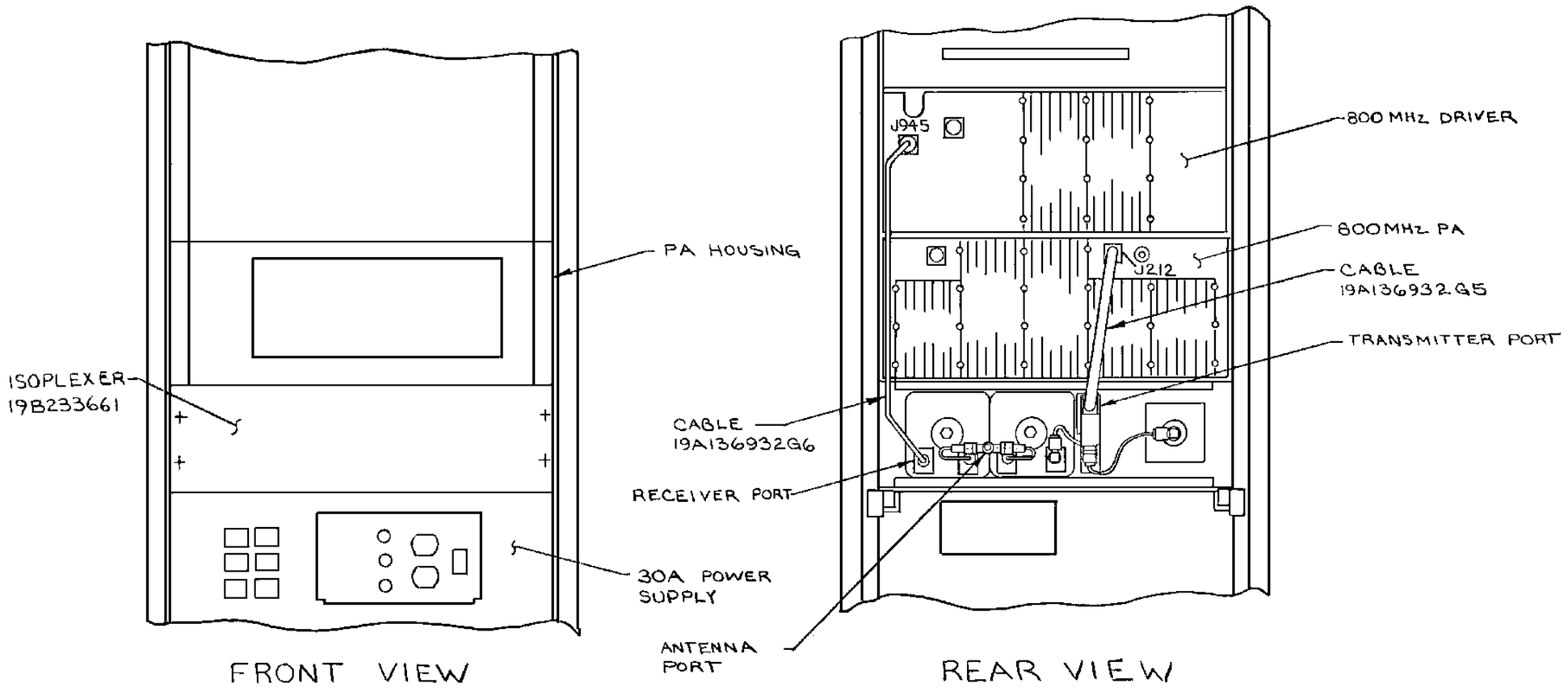
DETAIL "C"
(19D432369, Rev. 0)



DETAIL "D"

ISOPLEXER OPTION 9736

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



INSTRUCTIONS:

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

2. CONNECT 19A136932G6 CABLE BETWEEN RECEIVER PORT ON ISOPLEXER AND J945 ON 800 MHz DRIVER CHASSIS.

3. CONNECT 19A136932G5 CABLE BETWEEN TRANSMITTER PORT ON ISOPLEXER AN J212 ON 800 MHz PA CHASSIS.

19C330920, Rev. 1)

HEATSINK BLOWER, OPTIONS 9738, 9739 & 9740