MOBILE RADIO

MASTR® II

LOCAL CONTROL INTERMITTENT DUTY STATION COMBINATION MAINTENANCE MANUAL LBI 4785G

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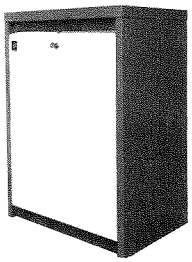
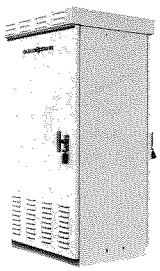
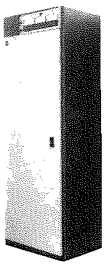


DESK MATE STATION



POLE MOUNT STATION



FLOOR MOUNT STATION

GENERAL ELECTRIC

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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*

EIA DIMENSIONS (H X W X D)	
DESK MATE (30-Inch)	30-1/4" X 21-1/2" X 15"
DESK MATE (44-Inch)	44-1/4" X 21-1/2" X 15" (Adding louvered door for Continuous Duty PA adds 1/2-inch to depth dimension)
POLE MOUNT	45" X 21-1/2" X 21"
FLOOR MOUNT	69" X 23" X 21"
WEIGHT	
DESK MATE (30-Inch)	160 lbs.
DESK MATE (40-Inch)	180 lbs.
POLE MOUNT	225 lbs.
FLOOR MOUNT	290 lbs.
INPUT VOLTAGE	121/242 VAC, 60 Hertz Only (50 Hertz Optional)

	AC INPUT POWER		
RF OUTPUT POWER	**TRANSMIT**	**RECEIVE**	**STANDBY**
LOW BAND			
50 Watts	270 Watts	75 Watts	40 Watts
100 Watts	560 Watts	105 Watts	65 Watts
HIGH BAND			
35 Watts	270 Watts	75 Watts	40 Watts
65 Watts	270 Watts	75 Watts	40 Watts
110 Watts	560 Watts	105 Watts	65 Watts
UHF BAND			
20 Watts	270 Watts	75 Watts	40 Watts
40 Watts	270 Watts	75 Watts	40 Watts
75 Watts	270 Watts	75 Watts	40 Watts
100 Watts	560 Watts	105 Watts	65 Watts
TEMPERATURE RANGE	-30°C to +60°C (-22°F to ±140°F)		

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

FCC FILING NUMBERS

25-50 MHz

MODEL SERIES	DUTY CYCLE (EIA)	POWER OUTPUT (Internally Adjustable)	FCC FILING NUMBER	
			5 ppm Freq. Stab.	2 ppm Freq. Stab.
(●)I64E...	Intermittent	15 to 50 W	KT-56-A	KT-56-C
(●)I74E...	Intermittent	50 to 100 W	KT-59-A	KT-59-C
(●)I64 (K, J, R or T)...	Intermittent	15 to 50 W	KT-57-A	KT-57-C
(●)I74 (K, J, R or T)...	Intermittent	50 to 100 W	KT-60-A	KT-60-C
(●)C64...	Continuous	15 to 50 W	KT-58-A	KT-58-C
(●)C74...	Continuous	50 to 100 W	KT-61-A	KT-61-C

72-76 MHz

MODEL SERIES	DUTY CYCLE (EIA)	POWER OUTPUT (Internally Adjustable)	FCC FILING NUMBER
(●)I54 (Local)	Intermittent	8-25 W	KT-155A
(●)I54 (Remote)	Intermittent	8-25 W	KT-156-A
(●)C54...	Continuous	8-25 W	KT-157-A

138-174 MHz

MODEL SERIES	DUTY CYCLE (EIA)	POWER OUTPUT (Internally Adjustable)	FCC FILING NUMBER	
			5 ppm Freq. Stab.	2 ppm Freq. Stab.
(●)I56E...	Intermittent	10 to 35 W	KT-41-A	KT-41-C
(●)I66E...	Intermittent	10 to 65 W	KT-42-A	KT-42-C
(●)I76E...	Intermittent	20 to 110 W	KT-43-A	KT-43-C
(●)I56 (K, J, R or T)...	Intermittent	10 to 35 W	KT-44-A	KT-44-C
(●)I66 (K, J, R or T)...	Intermittent	10 to 65 W	KT-45-A	KT-45-C
(●)I76 (K, J, R or T)...	Intermittent	20 to 110 W	KT-46-A	KT-46-C
(●)C56...	Continuous	10 to 35 W	KT-47-A	KT-47-C
(●)C66...	Continuous	10 to 65 W	KT-48-A	KT-48-C
(●)C76...	Continuous	20 to 100 W	KT-49-A	KT-49-C

406-512 MHz

MODEL SERIES	DUTY CYCLE (EIA)	POWER OUTPUT (Internally Adjustable)	FCC FILING NUMBER
(●)I45E...	Intermittent	1 to 20 W	KT-50-D
(●)I55E...	Intermittent	1 to 40 W	KT-53-D
(●)I65E...	Intermittent	10 to 75 W	KT-117-C
(●)I75E...	Intermittent	30 to 100 W	KT-118-C
(●)I45 (L, J, R or T)...	Intermittent	1 to 20 W	KT-51-D
(●)I55 (K, J, R or T)...	Intermittent	1 to 40 W	KT-54-D
(●)I65 (K, J, R or T)...	Intermittent	10 to 75 W	KT-115-C
(●)I75 (K, J, R or T)...	Intermittent	30 to 100 W	KT-116-C
(●)C45	Continuous	1 to 20 W	KT-52-D
(●)C55...	Continuous	1 to 40 W	KT-55-D
(●)C65...	Continuous	10 to 75 W	KT-113-C
(●)C75...	Continuous	30 to 100 W	KT-114-C

(o)Cabinet Style lst Digit "D", "S", "P" or "V")
Applicable to FCC Rules Part Numbers 21, 89, 91 & 93

NOTE: FCC Filing Number not relevant to equipment operating in 406 to 420 MHz frequency range.

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th & 9th Digit	10th Digit
Mechanical Package	Duty Cycle	Power Output	Channel Spacing (kHz)	Control	No. of Frequencies	Options	Frequency Range (MHz)	Oscillator Stability
D 30 - inch Desk Mate Cabinet	**I** Intermittent Duty	**4** 8 - 20 Watts	**4** 20	**E** Extended Local	**A** 1 TX 1 RX	**G** CG & UHS	**12** 25 - 30	**A** ±5 PPM
S 44 - inch Desk Mate Cabinet		**5** 21 - 40 Watts	**5** 25		**B** 2 TX 1 RX	**N** Noise Blanker	**13** 30 - 36	**B** ±2 PPM
P Pole Mount Cabinet		**6** 41 - 80 Watts	**6** 30		**C** 2 TX 2 RX	**P** UHS	**23** 36 - 42	**C** PLL* ±5 PPM
V Floor Mount Cabinet		**7** 81 - 128 Watts			**D** 1 TX 2 RX	**S** Standard	**33** 42 - 50	**D** PLL* ±2 PPM
					E 3 TX 3 RX	**U** Channel Guard	**44** 66 - 78	
					F 4 TX 4 RX	**W** CG & Noise Blanker	**45** 77 - 88	
					R 3 TX 1 RX		**56** 138 - 150.8	
					S 4 TX 1 RX		**66** 150.8 - 174	
							77 406 - 420	
							78 420 - 450	
							88 450 - 470	
							89 470 - 494	
							91 494 - 512	

*Phase-Lock-Loop

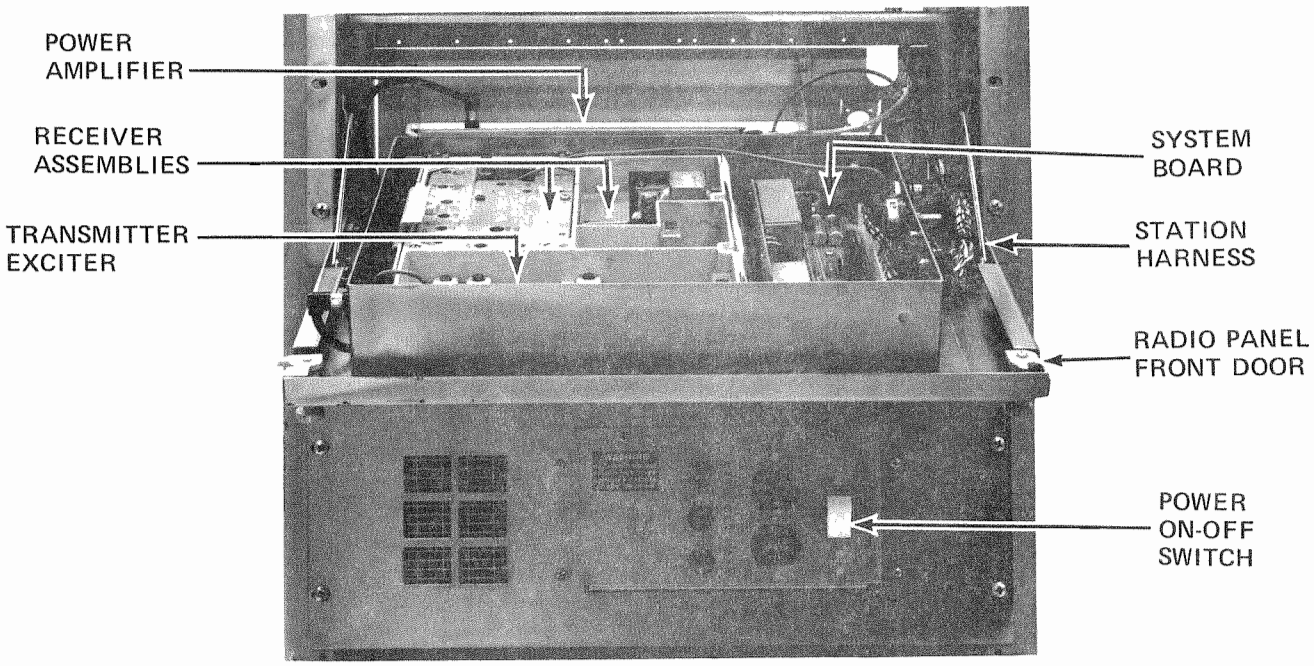

Figure 1 - MASTR II Local Control Intermittent Duty Station

DESCRIPTION

The General Electric MASTR II Local Control Intermittent Duty radio station combinations are designed for extended local control only. The station transmitter exciter and receiver mount on a frame which hinges to the radio panel front door. The exciter and receiver plug into a common exciter/receiver system board. The power amplifier and heat-sink assembly is hinged to the radio panel at the rear. See Figure 1.

The station power supply is connected to a 121 Volt AC power source. Conversion from 121 VAC to 242 VAC is made by jumper changes on the back of the power supply front panel.

The input voltage is stepped down to 12 Volts by a ferro-resonant transformer which provides line regulation of ±2% for a ±20% primary change. A power switch, primary and secondary fuses and two AC outlets are located on the power supply front panel. A high-current fuse for the PA supply is located on the back of the power supply chassis.

The station System Board provides interface with the plug-in accessories and the extended local control; supplies the regulated 10 Volts DC for station operation; contains the transmit/receive switching controls. A station microphone pre-amplifier is also provided on the System Board. See Figure 2.

INITIAL ADJUSTMENT

After the MASTR II Local Control Intermittent Duty station has been installed, the transmitter and receiver must be adjusted by an electronics technician who holds a First or Second Class FCC Radio-telephone or Radio-telegraph 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.

To set the transmitter modulation, perform the following procedure:

1. Set the MIC GAIN control R14 on the System Board to its fully clockwise position.

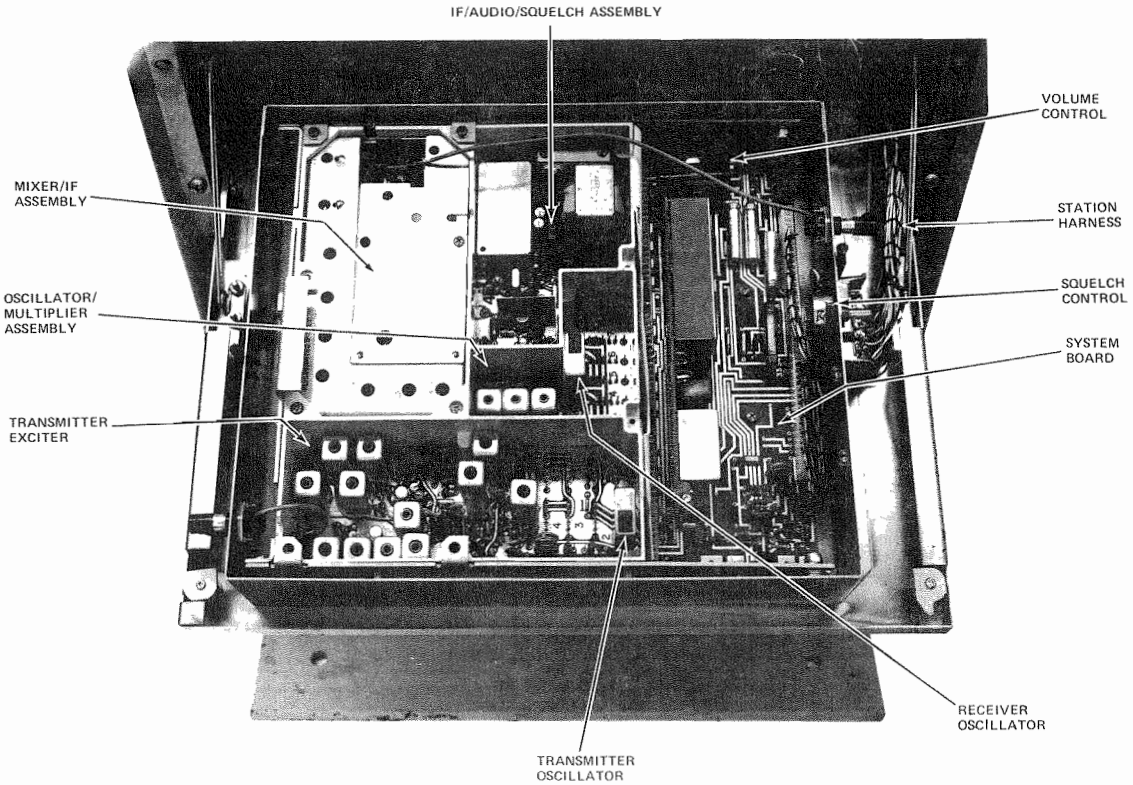

Figure 2 - Radio Panel Front Door Assembly

2. Apply a 1000 Hertz, 30 millivolt RMS signal across J952-13 & 14. Connect a 0.5 microfarad (or larger) DC blocking capacitor in series with the MIC HI lead (J952-13).
3. Set MOD ADJUST control R127 on the transmitter exciter for a 4.5 kHz deviation as indicated on a frequency modulation monitor.
4. While talking in a normal voice at the station microphone, adjust MIC GAIN control R14 for a deviation of 3 kHz as measured on the deviation monitor.

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 input circuit to match the antenna. Refer to the FRONT END ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the receiver.

To set the station VOLUME control (R16 on the System Board) use the following procedure:

1. Apply a 1000 microvolt on-frequency test signal modulated by 1,000 Hertz with ±3 kHz deviation to the receiver antenna jack J937.
2. Disconnect MASTR Local Controller cable from station input (P1102 from J1).
3. Connect an 8.0 ohm, 5-watt resistor across METERING jack J905 terminals 1 and 2 on the System Board. Connect an AC VTVM across the 8.0 ohm resistor and adjust R16 for a reading of 6.3 volts RMS on the meter.
4. Disconnect the 8.0 ohm resistor and connect the Controller cable to the station.

CAUTION

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

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

1. Turn the SQUELCH control clockwise (to the right) as far as possible.
2. Turn the SQUELCH control counterclockwise (to the left) until the noise just fades out. Then advance control another 20 degrees.

MAINTENANCE

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

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

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.

TROUBLESHOOTING 10-VOLT REGULATOR U1

SYMPTOM	PROCEDURE
No 10-Volt Output	1. Check input voltage (A+) at pin 1 of U1. 2. Remove the Power/Control cable from J951. Check for shorts from pins 3, 7 and 14 to A-. These readings should be no less than 100 ohms. 3. Check pass transistor Q1. 4. Replace U1.
Regulator output too high	1. Check Q1. 2. Replace U1.
No switched 10-Volts for transmitter or receiver	1. Check for shorts from pins 7 and 14 to A-. 2. Check to see that pin 8 of U1 goes to A- when PTT switch is pressed. 3. Replace U1.

SYSTEM DESCRIPTION

Receiver

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

Transmitter

The station transmitter consists of an exciter board and a power amplifier assembly. The PA assembly consists of a PA board mounted on a PA casting at he rear of the radio, with the heat-sink assembly fastened to two sheet metal adaptor plates which hinge at the radio panel. Refer to the transmitter Maintenance Manual for a complete description of the transmitter.

System Board A901

The station System Board is on the radio panel front door and the receiver and exciter modules plug directly into the board. Along the edge of the System Board are two connectors which interconnect to the MASTR Local Controller leads and to the power supply. A 10-Volt 1/2 Ampere regulator, transmit/receiver switching control, the station microphone preamplifier, and plug-in Channel Guard and Carrier Control Timer option jacks are provided. A metering jack is also provided for accomodating the General Electric 4EX3A11 Test Set. VOLUME control R16 is located on the System Board. SQUELCH control R901 is located on the receiver/exciter door.

A jumper is present between H2 and H3 in single-frequency transmit stations. A jumper is present between H8 and H9 in single-frequency receive stations. A jumper is present between H31 and H32 in non-Channel Guard stations.

10-Volt Regulator

The hybrid integrated circuit (U1) includes the 10-Volt Regulator and regulator amplifier. Regulator pass transistor Q1 is mounted on the side of the door assembly which acts as a heat sink for the transistor. The regualtor circuit provides a closely controlled supply voltage for the transmitter exciter and receiver, as well as for the Channel Guard and Carrie Control Timer options when present. Input voltage (A+) is supplied from the station power supply via J931-15.

Turning on the station power applies voltage through input filter L1-C1 to pin 1 of the regulator hybrid (U1). The regulator amplifier output at pin 2 of U1 is applied to the base of Q1, causing Q1 to conduct. The voltage at pin 3 of U1 is the regulated 10-Volts output.

The 10-Volts is applied to a voltage divider network. This high-impedance source provides a stable 5-Volt compensation input (from pin 5 of U1) to the transmitter and receiver ICOM's.

Receive Function (Figure 4)

Selecting a particular receive frequency (in multiple-receive stations) at the MASTR Local Controller applies a ground to the J931 pin corresponding to the frequency selected. For example, selecting RX F1 applies ground through the station harness to P952-8 on the System Board assembly. The ground is then connected via the System Board printed wiring to the receiver OSC/MULT to select the RX F1 oscillator.

When the radio is in the receive mode, the transmitter oscillator control switch in the regulator hybrid U1 is turned off and the receiver oscillator control switch is conducting. The 10-Volt output of this switch is connected through pin 7 of U1 to the receiver ICOM (s).

VOLUME/SQUELCH HI from the receiver Audio Pre-Amp is connected via J904-11 to the VOLUME (R16) and SQUELCH (R901) controls. The VOLUME control 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. The station VOLUME control (R16) is normally adjusted for 5-Watts output and the speaker level is controlled by the MASTR Local Controller VOLUME control.

Transmitter Keying and Delay (Figure 5)

Pressing the PTT (TRANSMIT) switch on the station microphone or the Controller connects pin 8 of U1 to A-. Capacitor C4 starts to charge. In 15 milliseconds C4 is charged to a voltage high enough to allow the time delay switch in U1 to turn on. This causes the transmitter oscillator control switch in U1 to turn on. +10 Volts is applied via pin 14 of U1 to the transmitter ICOM (s), keying the transmitter. The voltage at pin 7 of U1 goes low under these conditions, removing the supply to the receiver ICOM (s).

The 15 millisecond time delay in the transmitter oscillator keying circuit allows the antenna relay to energize before RF is applied to the relay. When the PTT is released, CR1 delays the antenna relay from de-energizing until the RF is removed from the contacts.

Operating the PTT switch turns on the receiver muting and delay circuit in U1, applying A- to pin 6. This is then applied to the receiver squelch and audio IC's, muting the receiver. C14 starts to charge from the +10-Volt line.

When the PTT switch is released, C14 keeps the A- voltage at pin 6 for approximately 50 milliseconds. This delays the turn-on of the receiver audio.

Channel Guard

In stations equipped with Channel Guard, Channel Guard Board 19D417261G1 is plugged into the System Board at P908 and P909. Each MASTR II receiver is equipped with a tone reject filter to prevent the CG tone from being heard in the speaker. In addition, all transmitters have a Channel Guard Modulation control to adjust for proper deviation.

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

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

Microphone Pre-Amplifier

Audio from the station microphone is applied to J952 terminals 13 and 14. The MIC HI audio is connected to Q2 in the microphone pre-amplifier. The audio is amplified by Q2 and the audio level is adjusted by MIC GAIN control R14. The audio is amplified further by Q3 and Q4. The emitter-follower output of Q4 is coupled through C9 to the TRANS AUDIO HI input of the transmitter exciter.

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GENERAL ELECTRIC*
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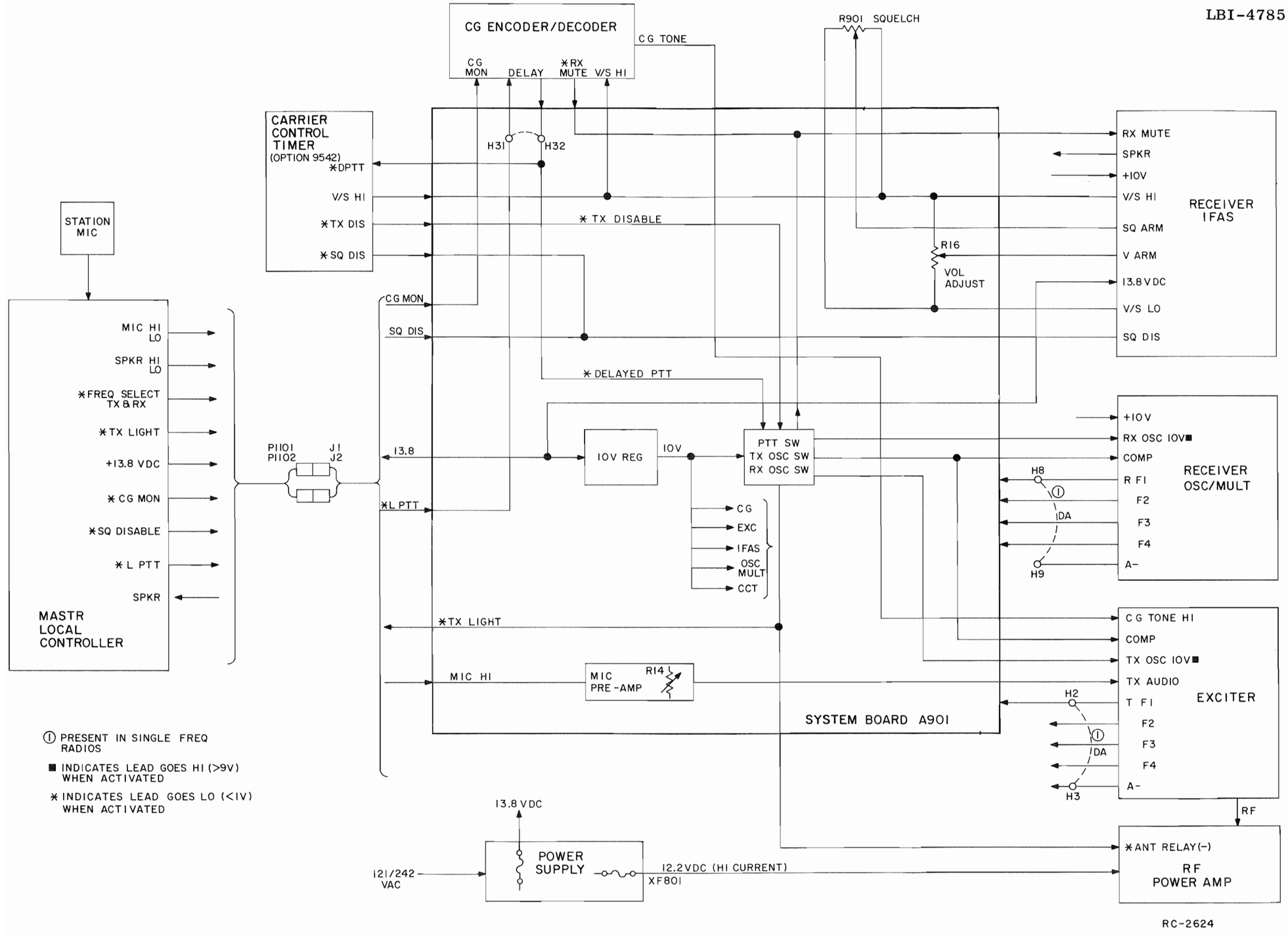


① PRESENT IN SINGLE FREQ RADIOS

■ INDICATES LEAD GOES HI (>9V) WHEN ACTIVATED

* INDICATES LEAD GOES LO (<1V) WHEN ACTIVATED

FIGURE 3 - SYSTEM BLOCK DIAGRAM

FUNCTION	AT	RECEIVE CG DISABLED	RECEIVE CG ON
COMP	P903-5	+5V	+5V
RX OSC CONTROL	P903-12	+10V	+10V
CAS	P904-8	UNSQ >5V SQ <1V	>5V <1V NO SIGNAL >5V CARRIER-ANY
RX MUTE	P904-7	UNSQ >5V SQ <1V	UNSQ >5V SQ <1V

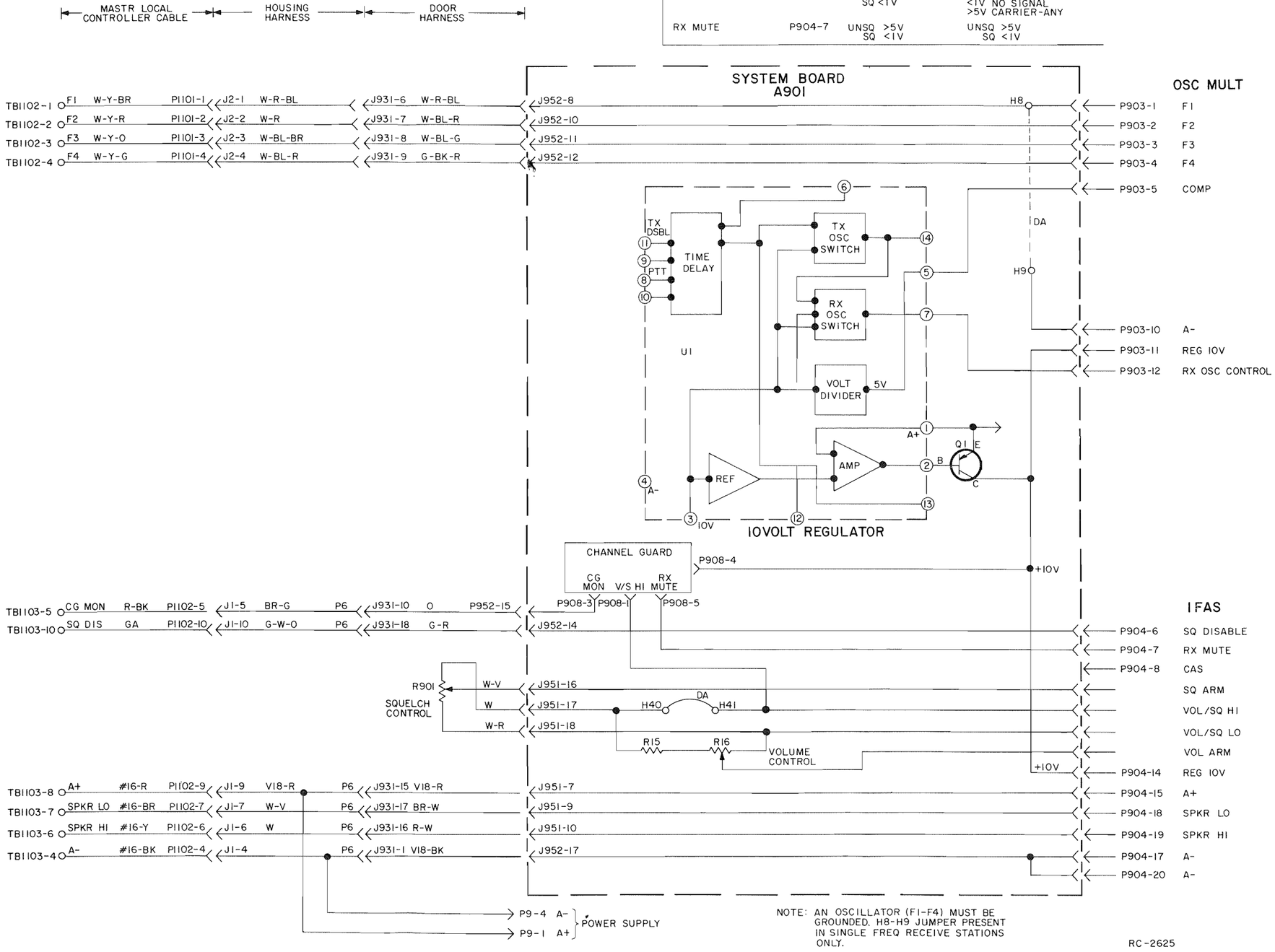
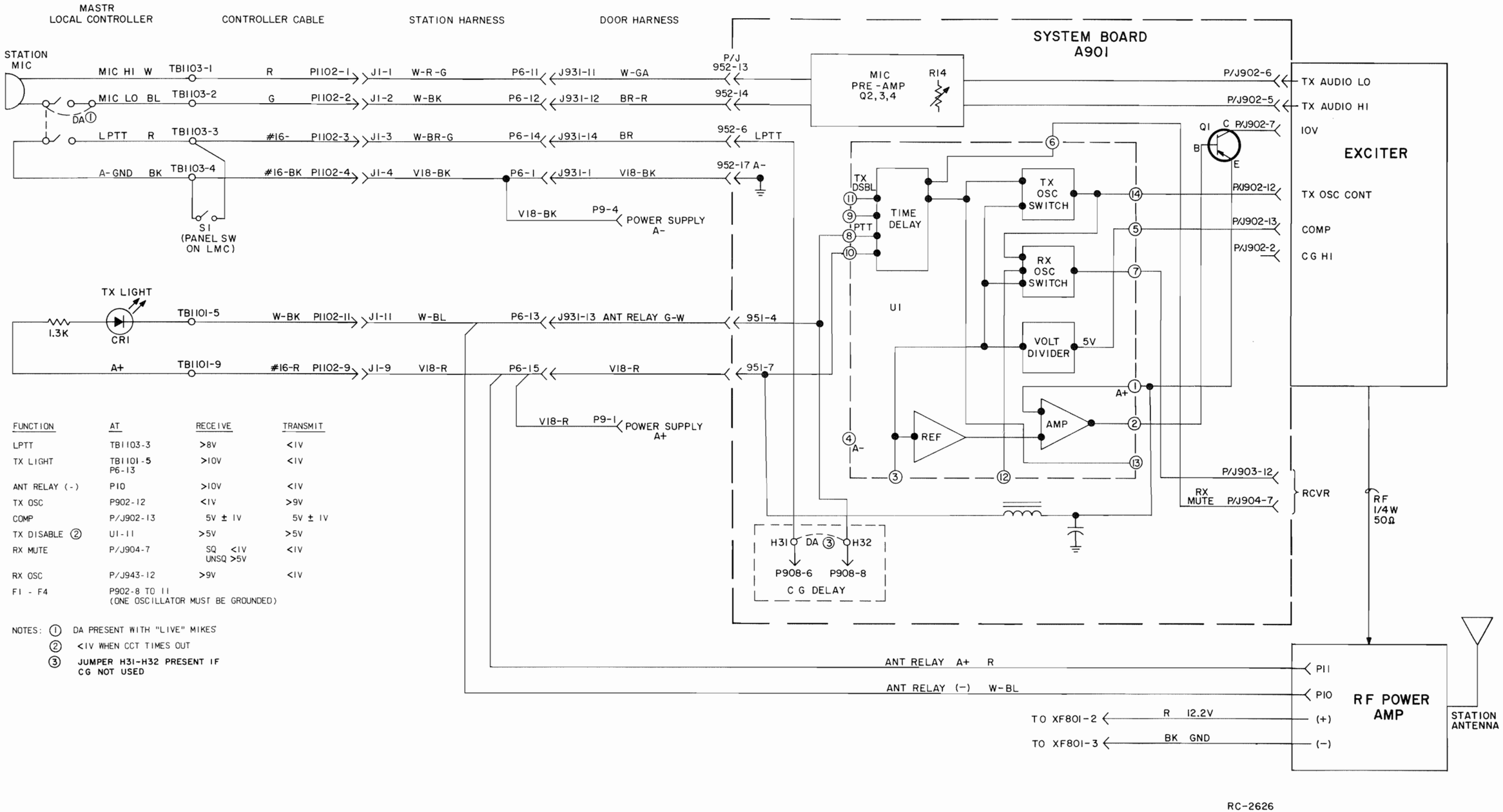


FIGURE 4 - STATION RECEIVE FUNCTIONS

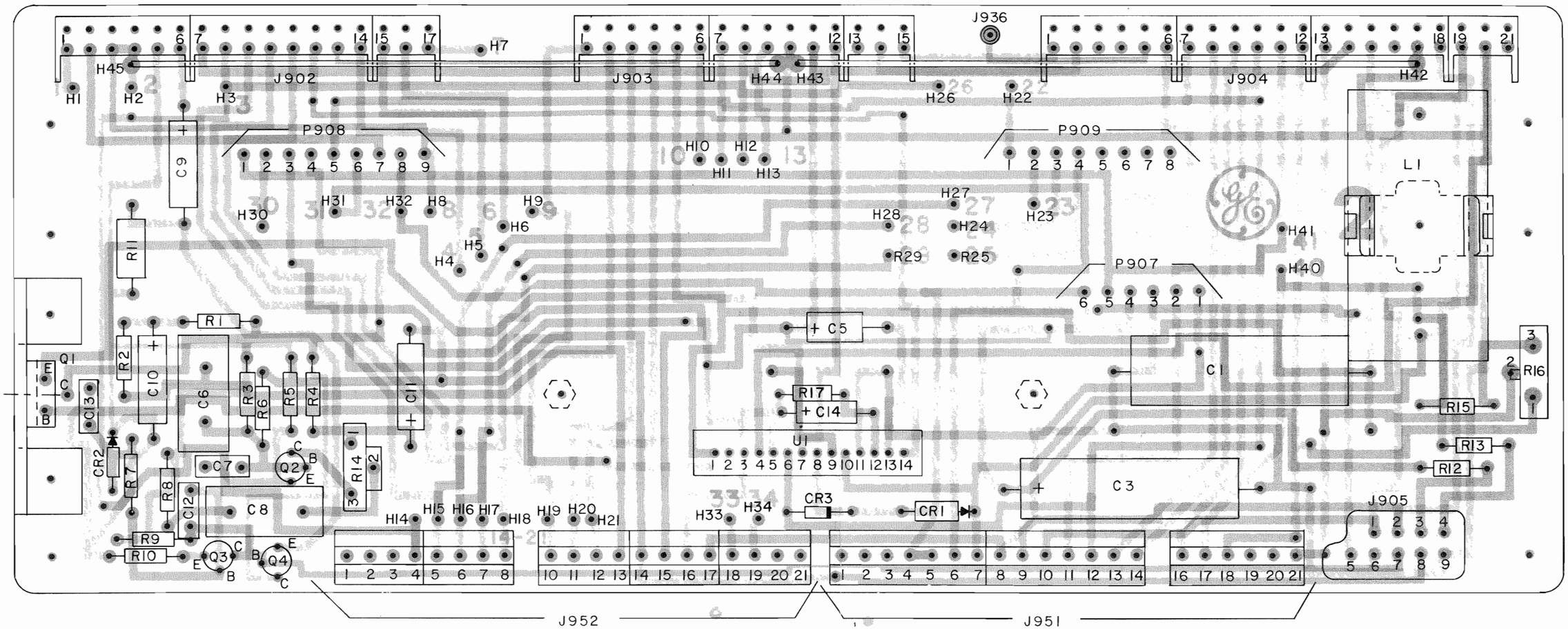


FUNCTION	AT	RECEIVE	TRANSMIT
LPTT	TBI103-3	>8V	<1V
TX LIGHT	TBI101-5 P6-13	>10V	<1V
ANT RELAY (-)	PI0	>10V	<1V
TX OSC	P902-12	<1V	>9V
COMP	P/J902-13	5V ± 1V	5V ± 1V
TX DISABLE (2)	UI-11	>5V	>5V
RX MUTE	P/J904-7	SQ <1V UNSQ >5V	<1V
RX OSC	P/J943-12	>9V	<1V
F1 - F4	P902-8 TO 11 (ONE OSCILLATOR MUST BE GROUNDED)		

NOTES: (1) DA PRESENT WITH "LIVE" MIKES
(2) <1V WHEN CCT TIMES OUT
(3) JUMPER H31-H32 PRESENT IF CG NOT USED

DF-9033

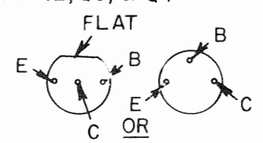
FIGURE 5 - STATION TRANSMIT FUNCTION



(19D423158, Rev. 2)
(19D417228, Sh. 2, Rev. 2)
(19D417228, Sh. 3, Rev. 2)

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

LEAD IDENTIFICATION
FOR Q2, Q3, & Q4

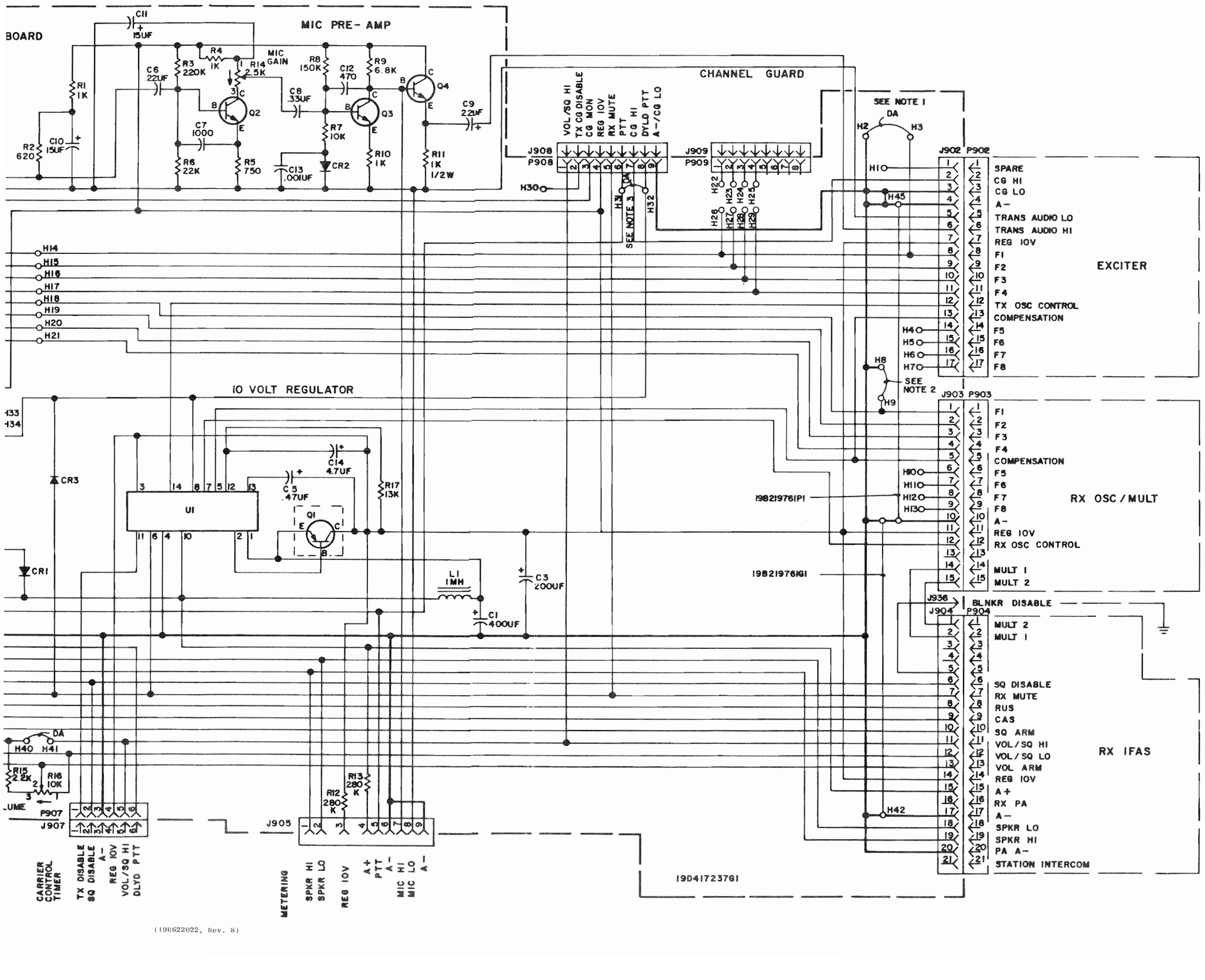


IN-LINE TRIANGULAR
VIEW FROM LEAD END

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

OUTLINE DIAGRAM

SYSTEM BOARD A901



(19R622022, Rev. 8)

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
PLI904172376I	C
PLI904173136I	

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

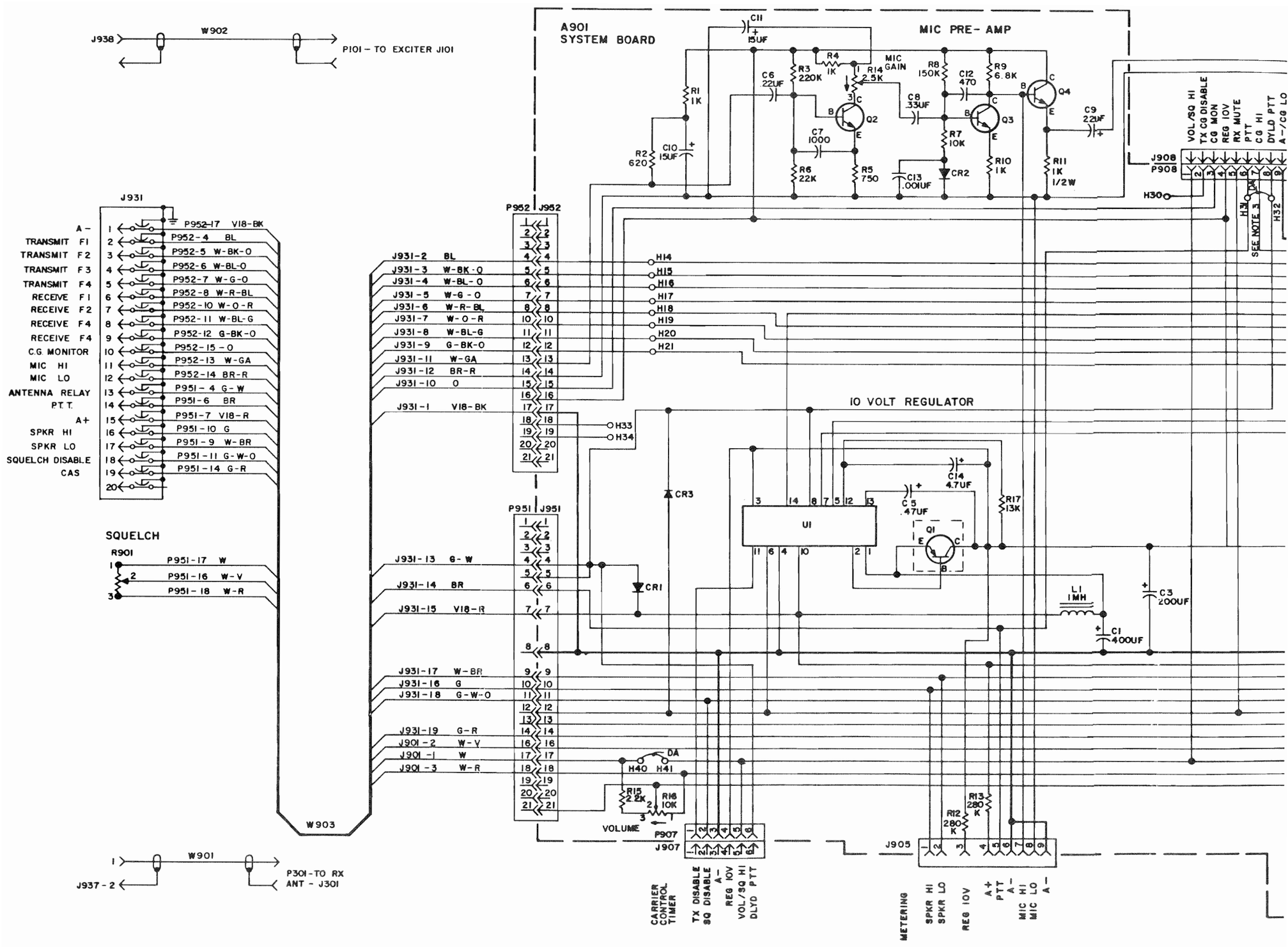
ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR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

NOTE FOR (A901)

1. H2-H3 PRESENT IN SINGLE FREQ. TRANSMITTERS.
2. H8-H9 PRESENT IN SINGLE FREQ. RECEIVERS.
3. H31-H32 PRESENT IN NON CHANNEL GUARD STATIONS.
4. ALL WIRE SF22 UNLESS OTHERWISE NOTED.
5. AT P951 & P952 TERMINATE SF22 WIRES WITH 19A116781P4 CONTACTS, AND V18 WIRES WITH 19A116781P3 CONTACTS.

SCHEMATIC DIAGRAM

RADIO PANEL FRONT DOOR 19D417313G1



(19R622022, Rev. 8)

PARTS LIST

LBI4800C

LOCAL CONTROL INTERMITTENT DUTY
RADIO PANEL FRONT DOOR ASSEMBLY
19D417313G1

SYMBOL	GE PART NO.	DESCRIPTION
A901		SYSTEM BOARD 19D417237G1 REV C
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A115680P24	Electrolytic: 400 uF +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C3	19A115680P10	Electrolytic: 200 uF +150-10%, 18 VDCW; sim to Mallory Type TTX.
C5	5496267P28	Tantalum: 0.47 uF ±20%, 35 VDCW; sim to Sprague Type 150D.
C6	19A116080P9	Polyester: 0.22 uF ±20%, 50 VDCW.
C7	5494481P111	Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C8	19A116080P10	Polyester: 0.33 uF ±20%, 50 VDCW.
C9	5496267P10	Tantalum: 22 uF ±20%, 15 VDCW; sim to Sprague Type 150D.
C10 and C11	5496267P14	Tantalum: 15 uF ±20%, 20 VDCW; sim to Sprague Type 150D.
C12	5494481P107	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C13	5494481P111	Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C14	5496267P5	Tantalum: 4.7 uF ±20%, 10 VDCW; sim to Sprague Type 150D.
		Earlier than REV A:
	19A116080P2	Polyester: 0.015 uF ±20%, 50 VDCW.
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1	4037822P1	Silicon, 1000 mA, 400 PIV.
CR2	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR3*	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV. Added by REV A.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J902		Connector. Includes:
	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032.
	19A116659P3	Connector, printed wiring: 8 contacts rated at 5 amps; sim to Molex 09-52-3082.
	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-52-3062.
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:
	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).

SYMBOL	GE PART NO.	DESCRIPTION
J952	19A116659P13	Connector, printed wiring: 4 contacts rated at 5 amps; sim to Molex 09-64-1041. (Quantity 5).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A115894P1	Audio freq: 1.0 mh inductance, 0.35 ohms DC res.
		- - - - - - - - - - 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).
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A116375P1	Silicon, PNP.
Q2 thru Q4	19A115889P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R2	3R152P621J	Composition: 620 ohms ±5%, 1/4 w.
R3	3R152P224J	Composition: 220K ohms ±5%, 1/4 w.
R4	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R5	3R152P751J	Composition: 750 ohms ±5%, 1/4 w.
R6	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R7	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R8	3R152P154J	Composition: 150K ohms ±5%, 1/4 w.
R9	19A700106P83	Composition: 6.8K ohms ±5%, 1/4 w.
R10	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R11	19A700113P63	Composition: 1K ohms ±5%, 1/2 w.
R12 and R13	19A701250P444	Metal film: 280K ohms ±1%, 1/4 w.
R14	19B209358P104	Variable, carbon film: approx 50 to 2500 ohms ±10%, 1/4 w; sim to CTS Type X-201.
R15	19A700106P71	Composition: 2.2K ohms ±5%, 1/4 w.
R16	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 1/4 w; sim to CTS Type X-201.
R17*	3R152P133J	Composition: 13K ohms ±5%, 1/4 w. Added by REV A.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - - -
U1*	19D416564G4	10-Volt Regulator.
		In REV A and earlier:
	19D416564G2	10-Volt Regulator.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J937		(Part of W901).
J938		(Part of W902).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101		(Part of W902).
P301		(Part of W901).
		- - - - - - - - - - CABLES - - - - - - - - - -
W901	5491689P105	Cable, RF: approx 14 inches long, 350 VRMS, 500 VDC operating voltage. (Includes J937, P301).
W902	5491689P104	Cable, RF: approx 4 inches long, 350 VRMS, 500 VDC operating voltage. (Includes J938, P101).
W903		HARNESS ASSEMBLY 19D417313G2
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J931	19C303426G1	Connector: 20 pin contacts.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - PLUGS - - - - - - - - - -
P951		Connector. Includes:
	19A116659P25	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 9).
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106. (Quantity 1).
P952		Connector. Includes:
	19A116659P25	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 11).
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106. (Quantity 1).
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms ±20%, sim to Mallory LC(25K).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	7118719P10	Clip, spring tension: sim to Prestole E-50019-003. (Used with L1).
	19A116023P1	Insulator, plate. (Used with Q901).
	19A116022P1	Insulator, bushing. (Used with Q901).
	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).
	19C320679G2	Door.
	19A121676P1	Guide pin. (Used with J931).
	19B209519P1	Polarity tab. (Used with P951 and P952).
	7115130P9	Lockwasher: sim to Shakeproof 1220-2. (Used with R901 mounting).
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with R901 mounting).
	19A115874P1	Catch, friction. (Latches A901).

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.

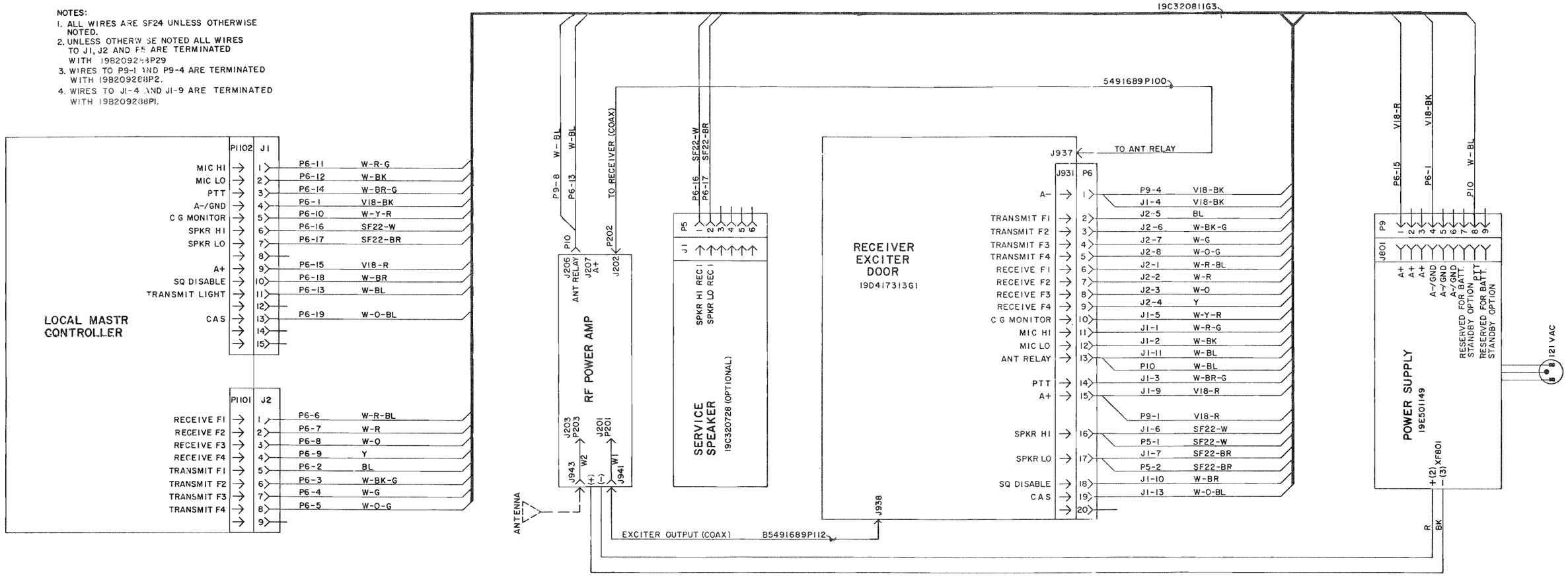
REV. A - To make the Regulator Hybrids 19D416564G2 and G3 interchangeable. Changed C14 and added CR3 and R17.

REV. B - To prevent regulator from sending transmit signal during switch-off delay period. Changed U1.

REV. C - Deleted C4. The capacitor was 19B200240P10; Tantalum: 10 pf ±5%, 15 VDCW.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1, J2 AND P5 ARE TERMINATED WITH 19B209253P29
3. WIRES TO P9-1 AND P9-4 ARE TERMINATED WITH 19B209288P2.
4. WIRES TO J1-4 AND J1-9 ARE TERMINATED WITH 19B209288P1.



(19R622031, Rev. 8)

INTERCONNECTION DIAGRAM

INTERMITTENT DUTY LOCAL CONTROL STATION

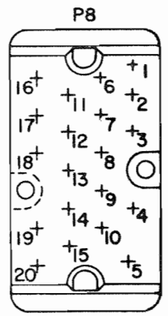
PARTS LIST

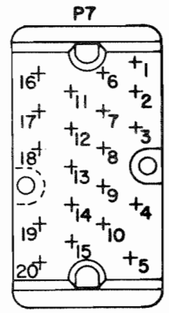
LBI-4798

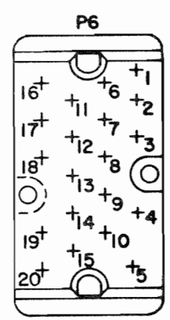
MASTR II STATION INTERMITTENT
DUTY LOCAL CONTROL STATION HARNESS
19C320811G3

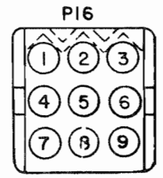
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1		Connector. Includes:
	19B209288P5	Shell.
	5496809P17	Contact, electrical: female; sim to Molex 1381-T. (Quantity 11).
J2		Connector. Includes:
	19B209288P3	Shell.
	5496809P17	Contact, electrical: female; sim to Molex 1381-T. (Quantity 8).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P5		Connector. Includes:
	19B209288P23	Shell.
	5496809P17	Contact, electrical: female; sim to Molex 1381-T. (Quantity 2).
P9		Connector. Includes:
	19B209288P4	Shell.
	5496809P18	Contact, electrical: male; sim to Molex 1380-T. (Quantity 1).
	19B209288P2	Contact, electrical: male; sim to Molex 1190-T. (Quantity 1).
P10 and P11	4036634P1	Contact, electrical; sim to AMP 42428-2.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

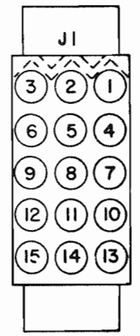


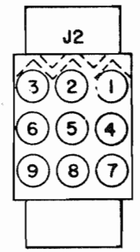


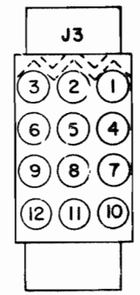


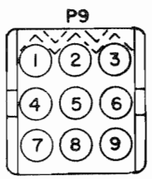


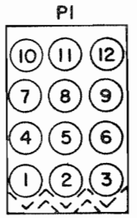
NOTE:
1. CONNECTORS SHOWN FROM WIRING SIDE.

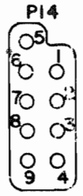


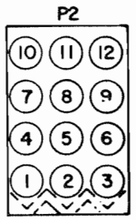


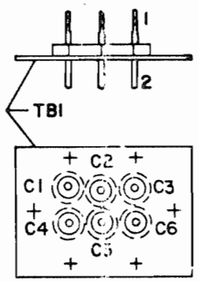


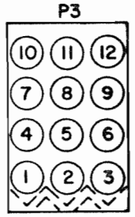


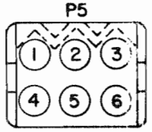


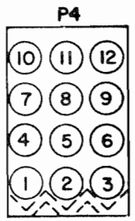












OUTLINE DIAGRAM

HARNESS 19C320811

(19C328112, Rev. 1)