MOBILE RADIO

(APPLIES TO MONITOR RECEIVER)

MAINTENANCE MANUAL

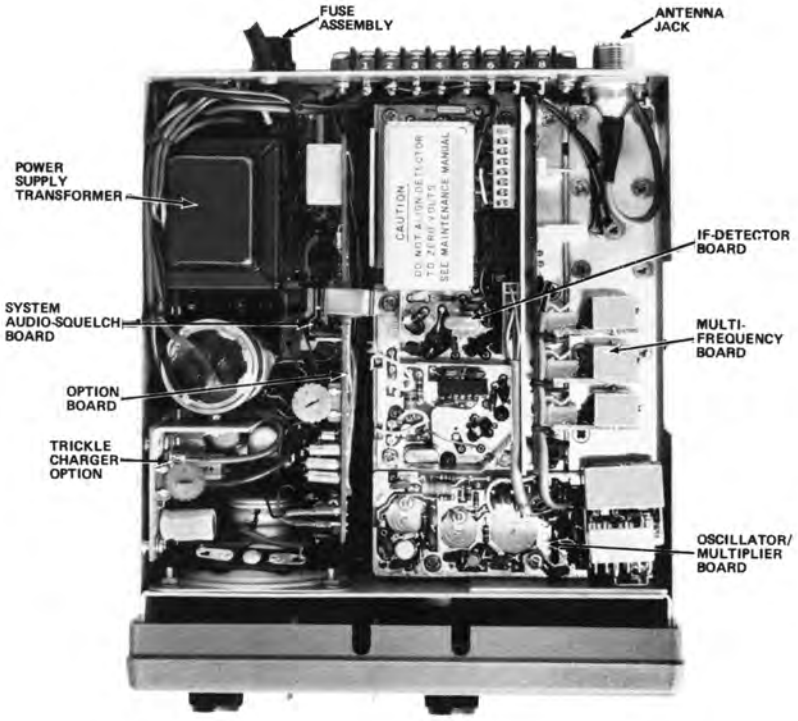
SYSTEM BOARD & ASSOCIATED ASSEMBLIES

TABLE OF CONTENTS

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit	7th & 8th Digit
Mechanical Package	Operating Voltage	External Options	Freq. Capacity	Freq.	RF Options	Frequency Range
L 121/242 VAC	**A** None	**1** None	**A** 1-Freq.	**A** 1-Freq.	**S** None	**13** 30-36 MHz
N 121/242 VAC W/Charger	**B** COR	**2** Tone Jack	**F** 4-Freq.	**C** 2-Freq.	**U** Channel Guard	**23** 36-42 MHz
	C T-90 DEC Ext. Alarm			**E** 3-Freq.	**N** Noise Blanker	**33** 42-50 MHz
	D T-99 DEC Ind. Call Ext. Alarm			**F** 4-Freq.	**P** UHS	**44** 66-78 MHz
	E T-99 DEC Group Call Ext. Alarm				**W** CG & NB	**45** 77-88 MHz
	F 2-Freq. PSLM				**G** CG & UHS	**56** 138-155 MHz
	G 2-Freq.PSLM Selectable Priority					**66** 150.8-174 MHz
	H 2-Freq.PSLM Selectable Non-Priority					**77** 406-420 MHz
						78 420-450 MHz
						88 450-470 MHz
						89 470-494 MHz
						91 494-512 MHz

TOP VIEW



BOTTOM VIEW

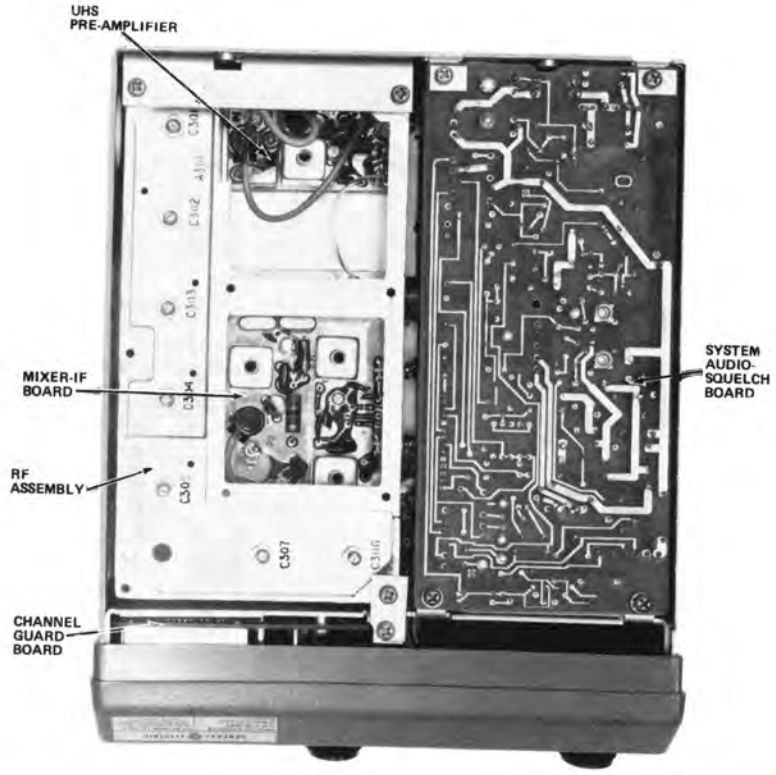


Figure 1 - Typical Module Layout

DESCRIPTION

General Electric Monitor Receivers are single conversion FM receivers and are fully transistorized-utilizing both discrete components and integrated circuits (IC's) for high reliability. Monolithic crystal filters are located between gain stages to provide 85 dB selectivity, and maximum protection from desensitization and intermodulation. The standard combinations may be equipped with the following:

- One through four frequencies.
- Plug-in crystal oscillator modules for ±0.0005% oscillator stability.
- Channel Guard (tone squelch)
- Noise Blanker (not available at UHF)
- Ultra High Sensitivity Receiver (not available at low band)
- Priority Search Lock Monitor (PSLM)
- Type 90 Decoder (T90)
- Type 99 Decoder (T99)
- Trickle Charger
- Carrier Operated Relay (COR)

The Monitor Receiver consists of a front cap attached to a module mounting frame which slides into a box-type cover. The frame is retained in the cover by four screws at the rear of the unit.

The control panel located on the front cap of the radio contains an ON/OFF VOLUME control, SQUELCH switch, an optional 4-frequency control switch, a power ON indicator (Light Emitting Diode, LED), and an OPTION switch and indicator.

A harness terminated with a 6-pin connector connects these controls to the System-Audio-Squelch Board.

A terminal board on the rear of the Monitor Receiver provides interface connections for an external speaker, standby battery and COR/T90/T99 relay contacts.

The chassis assembly houses the System-Audio-Squelch (SAS) board, speaker, trickle charger option, power supply components, and provides for mounting of all standard and option modules. A vertical partition at the front provides mounting for the speaker and Channel Guard board. The oscillator/multiplier (osc/mult) board, receiver IF-Detector (IF-DET) board, and the multi-frequency board are mounted on a shelf next to the system board. The sides of the chassis provide mounting space for the trickle charger and miscellaneous components (transformer, fuse, capacitor, AC strain relief, etc.). The SAS board mounts to the chassis assembly and untilizes Molex connectors for interconnection with other modules and options. A centralized metering jack located on the IF-DET board is provided for simplified alignment.

An optional 4.5 ampere hour standby battery (19A116574P1) is available to power the receiver in the event of power failure. The receiver may also be operated from an external 12-Volt battery if desired.

OPERATION

Complete operating instructions for the Monitor Receiver are provided in a separate Operator's Manual. The basic procedures for receiving a message follows:

TO RECEIVE A MESSAGE

1. Turn the radio on by turning the OFF-VOLUME control halfway to the right.
2. Set the SQUELCH switch on the Control Panel to the TEST position and adjust the VOLUME control for a comfortable listening level, then set the SQUELCH switch to the NORM position.

NOTE

If the receiver is equipped with Channel Guard, Type 90 or Type 99 Tone Decoders, disable the decoder circuitry by placing the SQUELCH switch in the MON position. Always return the SQUELCH switch to the NORM position after making all adjustments.

3. In multi-frequency receivers, set the frequency select switch to the desired channel.
4. If the receiver is equipped with an option board, an option ON-OFF switch is also provided. For normal operation the OPTION switch is set to the ON position.

OPTIONS

Option boards used with the Monitor Receiver include PSLM, Tone, and the Carrier Operated Relay. Refer to the appropriate maintenance manual for details on the PSLM and tone options. The COR circuitry is contained on the COR extender board. The COR relay mounted on the extender board is also used as the external relay

for the Type 90 and Type 99 tone option boards. An extender board without the COR circuitry is used with PSLM. When the receiver is equipped with a tone option, jumper connections on the extender board and SAS board must be changed. Refer to the Option Installation diagrams for complete installation instructions.

CHANNEL GUARD

The Channel Guard board mounts vertically behind the control panel and connects to the SAS board through connector J904 and cable W1003. It allows the receiver to be unsquelched only when a received message is preceded by a specific tone frequency.

PRIORITY SEARCH LOCK MONITOR

The PSLM option consists of the PSLM board, OPTION toggle switch and a channel busy/search indicator mounted in the upper right hand corner of the control panel. The red channel busy/search indicator LED will turn on steady when receiving on the priority channel or when the channel is busy. When receiving the non-priority channel the indicator will flash. The OPTION ON-OFF switch controls the DC power to the PSLM board.

TYPE 90 and TYPE 99 DECODERS

The tone detector options consist of either the Type 90 or Type 99 decoder board, OPTION toggle switch and a red LED indicator mounted in the upper right hand corner of the control panel. The indicator lights when the proper tone(s) are decoded, and remain on until reset by the SQUELCH switch. The output control relay is the same one used with the COR circuitry and is located on the COR extender board. External alarms are connected to the relay contacts through a terminal board located on the rear of the monitor receiver.

The Type 90 Decoder has a latched relay output only. The Type 99 Decoder has either a timed or latched relay output, determined by a strapping arrangement on the decoder board.

CARRIER OPERATED RELAY

The COR circuitry is located on the COR extender board and is used as a carrier detector to operate an external alarm. When a tone option is used, the COR relay is controlled by the tone decoder board to operate an external alarm.

A red indicator LED lights when a carrier is present. Refer to Circuit Analysis for details.

UNIVERSAL TONE JACK

The universal tone jack option consists of a 9-pin female Winchester connector with a cable harness that plugs into the SAS board. This option allows the use of external tone decoders.

TRICKLE CHARGER

The trickle charger mounts on the front left side of the chassis and is held in place by three pan head screws. The output voltage is adjustable over a range of 13.6 to 14.2 VDC and is set to deliver 13.8 VDC.

CIRCUIT ANALYSIS

SYSTEM-AUDIO-SQUELCH BOARD

The SAS board contains a regulated power supply, a temperature compensating circuit, a hybrid Squelch IC and a monolithic 3-Watt audio amplifier circuit. An active filter de-emphasis network is provided in the audio circuit. The SAS board also provides interconnections for the Channel Guard board through J904 and cable W1003 and the speaker through to J905.

Power Supply

The Monitor Receiver has a self-contained power supply that operates from either a 121 or 242 volt AC, 50/60 Hz. Restrapping of power transformer T1 is required for 242 volt AC operation (Refer to the Interconnection Diagram for details). The power supply consists of transformer T1, bridge rectifier CR904-CR907, a 15 and a 10 Volt DC regulator.

AC voltage developed across the secondary of T1 is applied across the bridge rectifier and filtered by C1. The unregulated output of the bridge rectifier taken at the junction of CR905 and CR907, is applied to the trickle charger through J907-7 to maintain a charge on the optional external GEL CELL battery. This output is not controlled by the ON-OFF switch, but is always present when the Monitor Receiver is plugged in. A second output from the bridge rectifier is applied to the 15-VDC regulator VR902 and Q906. Diode VR902 maintains the base of Q906 at 16.0 VDC. The regulated 15 VDC output is taken from the emitter of Q906, filtered by C929 and C930 and applied to the input of the 10-volt regulator through J906-1, power ON/OFF switch S701 and J906-3. The 10-Volt DC regulator consists of VR903 and Q907. Zener diode VR903 maintains the base of Q907 at 11.0 VDC. The regulated 10 volt output is taken from the emitter of Q907 and filtered by C932 and is used for all receiver stages except the audio PA stage which operates from the A+ supply.

Diode switch CR908 isolates the regulated 15 Volt DC output from the GEL Cell battery. When AC voltage is supplied to the Monitor Receiver, diode CR908 is reverse biased by 15 VDC on the cathode. This disconnects the GEL Cell battery from the Monitor Receiver. If the AC power fails, the 15 VDC is removed and CR908 is forward biased, applying current from the GEL Cell battery to the monitor receiver.

Compensator Circuits

The crystal modules are temperature compensated at both ends of the temperature range to provide instant frequency compensation. The temperature compensator consists of Q905, VR901, RT902, RT903 and associated components. Zener diode VR901 provides a constant +8.5 V reference voltage for compensator Q905.

The cold end compensation circuit does not operate at temperatures above -10°C (+14°F). When the temperature drops below -10°C, the circuit is activated. As the temperature decreases, the resistance of RT902 increases and the compensation voltage increases.

An increase in compensation voltage decreases the capacitance of the varactor in the oscillator, thereby raising the output frequency of the crystal module.

The hot end compensation circuit does not operate at temperatures below +55°C (131°F). When the temperature rises above +55°C, the circuit is activated. As the temperature increases, the resistance of RT903 decreases and the compensation voltage decreases. The decrease in compensation voltage increases the capacity of the varactor, lowering the output frequency of the crystal module.

Receive Audio

VOLUME/SQUELCH HI from the IF-Det module is connected through the VOLUME control (R701) to the audio amplifier on the SAS board. The active filter (Q904) and de-emphasis network provide a 6 dB/Octave frequency response. Audio from the filter is applied to monolithic amplifier AR901. This amplifier is supplied in a modified 16-lead, quad in-line package with wing-tab heat sinks. The amplifier provides 3-Watts output to the speaker.

When Channel Guard is used, the filter located on the Channel Guard module is connected in series with the VOLUME control arm (by removing R938 on the SAS board) and the input to the de-emphasis network. The Channel Guard filter provides an additional 17 dB attenuation of the CG tone frequencies. Total attenuation is greater than 30 dB.

Squelch Control Circuit

The hybrid squelch IC (U901) contains the noise amplifier, active noise filter, detector, and the slow squelch circuit.

Noise from the IF-Det board is coupled through the fixed squelch adjust control R901 to pin 1 of U901. This signal is applied to the noise amplifier and then to the active filter circuit.

The noise amplifier and active filter provide the gain and selectivity to distinquish between noise and audio. The filter output drives the active detector circuit to provide the squelch switching functions. Thermistor RT901 keeps the input to the active detector constant over wide variations in temperature. The slow squelch circuit provides a 200 millisecond squelch operation to prevent rapid squelch opening and closing in weak signal areas.

The squelch switch output at pin 7 of U901 is connected to the receiver mute control circuit. When the receiver is squelched, the output at pin 7 is near A-. This keeps Q902 turned off, allowing Q903 to conduct. Conduction of Q903 applies a low to pin 7 of AR901, turing the amplifier off and muting the receiver. When the receiver is quieted by an on-frequency signal (unsquelches), the voltage at pin 7 of U901 rises to approximately 7 Volts. This turns on Q902, preventing Q903 from conducting. The resulting high at pin 7 of AR901 turns on the amplifier and audio is heard at the speaker. With the receiver unsquelched the RUS (receiver unsquelched) circuit within the squelch IC (U901) increases the audio gain to prevent squelch closing on weak signals. A RUS signal is also supplied to the COR circuitry through J961-1.

Squelch Disable

Placing Squelch switch S702 (located on the Control Panel) in the TEST position applies a bias voltage to the base of Q901 on the SAS board. Q901 turns on and applies a positive voltage to the base of Q902, turning it on. Q902 grounds the base of Q903, preventing it from operating. As long as this condition exists the squelch circuit is disabled. In Channel Guard radios, moving SQUELCH switch S702 to the MON position applies ground to the CG DISABLE circuit on the Channel Guard board. This results in removing the low from the RX MUTE lead at J904-5 and the base of Q902, enabling the audio circuit.

Channel Busy Indicator

The Channel busy indicator on the control panel is controlled by channel

busy driver Q908 on the SAS board. Q908 is controlled by the PSLM indicator switch on the PSLM board. When a message is received on the priority channel, the base of Q908 goes high, turning Q908 on. A positive voltage is then applied to channel busy indicator CR702 through J952 and P752. P753 and J953 complete the ground return path for the indicator. When a non-priority channel is received, the indicator will flash. Refer to the PSLM option manual for details.

MULTI-FREQUENCY KIT

The Multi-Frequency Kit is provided in receivers with more than one operating frequency. It contains the necessary circuitry to provide three additional receive frequencies. The multi-frequency board utilizes crystal modules to determine the exact operating frequencies.

The Colpitts oscillator circuit consists of Q2601 in conjunction with the selected crystal module. Crystal modules are selected by the frequency select lead from the control panel. PIN diodes are used to switch the output of the selected crystal module to the base of Q2601.

Since the oscillator circuits are identical, only the F2 circuit is described here. When F2 is selected by S703 at the control panel, A- is applied to the junction of R2603 and R2606 and to the PSLM board through J2602-3. PIN diode CR2601 is forward biased, applying the output of the crystal module (pin 1) to the base of common oscillator transistor Q2601. The output of the oscillator is taken from the collector of Q2601 and supplied to the OSC/MULT board through cable W2601 and P401. Voltage for the multi-frequency board is provided by the 10-Volt regulator.

When a different frequency is selected, A- is removed from the junction of R2603-R2606. This reverse biases PIN diode CR2601, removing the crystal module output from the base circuit of Q2601.

CRYSTAL MODULE

Crystal modules determine the operating frequency of the receiver. The plug-in module contains a crystal, a trimmer capacitor and a varicap for temperature compensation.

Compensation voltage from the SAS board is applied to pin 4 of the crystal modules to maintain frequency stability within 5 parts-per-million (PPM) over a temperature range of -30°C to +60°C.

SERVICE NOTE

Proper crystal module operation is dependent on the closely-controlled input voltages from the 10-Volt regulator. Should all of the crystal modules shift off-frequency, check the 10-Volt regulator.

The compensation voltage varies non-linearly with temperature to complement the temperature/frequency characteristics of the crystal. Listed below are typical minimum and maximum voltage readings to be expected at pin 4 of the crystal modules, as measured with a high impedance meter.

	OUTPUT VOLTAGE	
TEMPERATURE RANGE	MINIMUM	MAXIMUM
-30°C	4.9 Volts	6.0 Volts
-10° to +50°C	3.7 Volts	4.3 Volts
75°C	3.30 Volts	3.8 Volts

Trimmer capacitor C3 is used to adjust the radio for the exact operating frequency. Refer to the applicable Alignment Procedure for details.

Operating voltage for the crystal module is supplied by the 10-Volt regulator.

COR EXTENDER BOARD

The COR extender board contains the COR circuitry and provides voltage and signal interconnections for the Type 90 and Type 99 tone option boards. Output control relay K1901 is operated by the COR circuitry or the tone option board. When the tone boards are used, a change in strapping is required on the COR extender board. Refer to the COR schematic diagram.

Also provided is a second set of Form C contacts available at the extender card interface molex connector.

Operation of the COR is normally controlled by the RUS line. However, a strapping arrangement using H1, H2 and H3 permits operation from the CAS line.

When an incoming message is received. the RUS line goes high, turning Q1901 on. Q1901 turns Q1902 on which, in turn, turns Q1903 on. Q1903 turns COR indicator CR1902 on. Q1902 completes the ground return for K1901, energizing the relay.

Voltage "spikes" produced across K1901 (when K1901 de-energizes) are absorbed by diode CR1901 to prevent damage to transistors Q1901 and Q1902. Connections to

the relay contacts are made at TB1 on the rear of the receiver. Current through the relay contacts must not exceed 1 ampere at 12 VDC.

The COR indicator circuitry may be modified to indicate OPTION ON or OFF. Refer to the Schematic Diagram for details.

A strapping arrangement provided by H8-H11 allows the relay to latch up when a RUS or CAS signal is received. S1901 must by switched OFF to reset the relay and then ON for normal operation. See the Schematic Diagram for details.

TRICKLE CHARGER

A trickle charger option may be added to the Monitor receiver to maintain the charge on an optional Gel Cell battery.

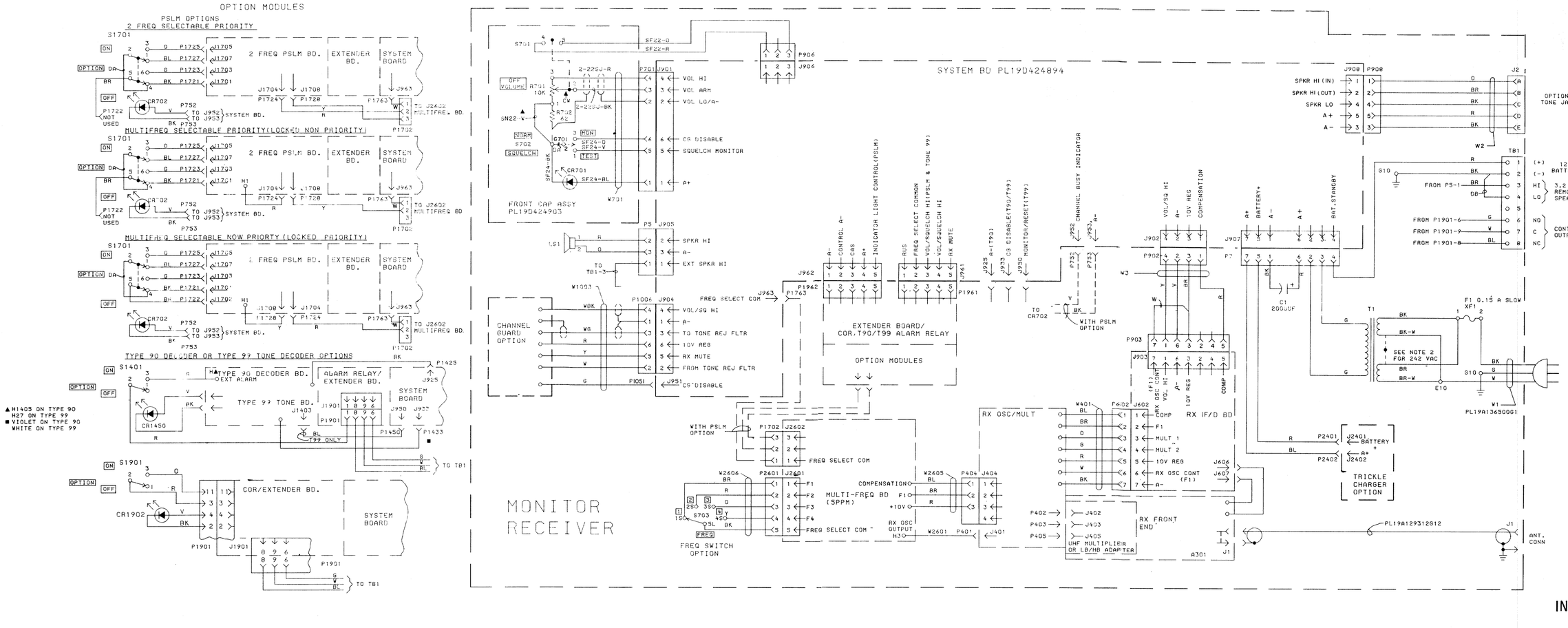
As long as the power source and power supply are operating properly, CR908 on the SAS board is reverse biased and the battery is on charge. A charging current is provided from the SAS board to the charger through J907-7. A variable voltage, adjusted by R2401, sets the bias on the base of Q2402 which in turn controls the conduction of Q2401. If the charge on the battery is low, Q2403 supplies the required charge current. When the charge on the battery rises, zener diode VR2402 breaks down and Q2402 starts conducting. This causes Q2401 and Q2403 to conduct less, limiting the amount of charge current to the battery.

If the power source or power supply fails, CR908 is forward biased connecting the battery directly to the A+ input of the 10 Volt regulator. C2401 provides filtering of the battery voltage. Two cables are provided to connect the charger to J907.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

(Page 8 is blank)



(19R622305, Rev. 3)

INTERCONNECTION DIAGRAM

MONITOR RECEIVER

PARTS LIST

MONITOR RECEIVER CONTROL PANEL
19D424903G1

SYMBOL	GE PART NO.	DESCRIPTION
W701		HARNESS ASSEMBLY 19D424903G2
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR701	19B219800G7	Diode, green light emitting.
		- - - - - - - - - - TERMINALS - - - - - - - - -
G701	19B200785P14	Terminal, standoff.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P701		Connector. Includes:
	19A116659P80	Shell.
	19A116781P6	Contact, electrical: sim to Molex 08-50-0108. (Quantity 6).
P706		Connector. Includes:
	19A116659P16	Shell.
	19A116781P6	Contact, electrical: sim to Molex 08-50-0108. (Quantity 2).
		- - - - - - - - - - RESISTORS - - - - - - - - -
R701	5496870P35	Variable, carbon film: 10K ohms ±20%; sim to Mallory LC(10K) FAC.
R702	3R152P620J	Composition: 62 ohms ±5%, 1/4 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S701		(Part of R701).
S702	19A116877P5	Toggle: SPDT, Center Off, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7107G.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19D423788P3	Cover.
	19A116677P2	Bushing, sleeving. (Used with CR701).

PARTS LIST

MONITOR RECEIVER PSLM OPTION KIT
19A137165G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR702	193219800G8	Diode, optoelectronic: red; sim to Opcoa LSM-3L.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1701	19B232184G1	Toggle: DPDT, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7201G.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19C320453G1	PSLM Board. (Refer to applicable maintenance manual).
	19A116677P2	Bushing, sleeving. (Used with CR702).
	19A137166G1	Cable, clamp.
	19B201074P306	Tap screw, Phillips POZIDRIV®: No. 6-32 x 3/8. (Secures cable clamp).
	19B232156G1	Cable: 11-1/2 inches long. (White).
	19B232156G2	Cable: 7 inches long. (Red).
	19B232156G3	Cable: 7-1/2 inches long. (Yellow).

PARTS LIST

MONITOR RECEIVER TYPE 90 DECODER OPTION KIT
19A137165G2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1450	19B219800G8	Diode, optoelectronic: red; sim to Opcoa LSM-3L.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1901	19A116659P124	Connector, printed wiring: 11 contacts; sim to Molex 09-50-7111.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1401	19A137150G1	Toggle: SPDT, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7101G. Includes 19A116781P6 contact.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19C321221G2	Type 90 Decoder Board. (Refer to applicable maintenance manual).
	19A116677P2	Bushing, sleeving. (Used with CR1450).
	19A137166G1	Cable clamp.
	19B201074P306	Tap screw, Phillips POZIDRIV®: No. 6-32 x 3/8. (Secures cable clamp).
	19B232156G6	Cable: 8 inches long. (Green).
	19B232156G7	Cable: 8 inches long. (White).
	19B232156G8	Cable: 8 inches long. (Blue).

PARTS LIST

MONITOR RECEIVER TYPE 99 DECODER OPTION KIT
19A137165G3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1450	19B219800G8	Diode, optoelectronic: red; sim to Opcoa LSM-3L.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1901	19A116659P124	Connector, printed wiring: 11 contacts; sim to Molex 09-50-7111.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1401	19A137150G1	Toggle: SPDT, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7101G. Includes 19A116781P6 contact.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19C320645G1	Type 99 Decoder Board. (Refer to applicable maintenance manual).
	19A116677P2	Bushing, sleeving. (Used with CR1450).
	19A137166G1	Cable clamp.
	19B201074P306	Tap screw, Phillips POZIDRIV®: No. 6-32 x 3/8. (Secures cable clamp).
	19B232156G6	Cable: 8 inches long. (Green).
	19B232156G7	Cable: 8 inches long. (White).
	19B232156G8	Cable: 8 inches long. (Blue).
	19B232156G9	Cable: 4-1/2 inches long. (Blue).

PARTS LIST

MONITOR RECEIVER BATTERY CABLE KIT
19A137165G4

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CABLES - - - - - - - - - -
	19B232156G10	Cable: approx 8 feet long. (Red).
	19B232156G11	Cable: approx 8 feet long. (Black).

PARTS LIST

MONITOR RECEIVER COR OPTION KIT
19A137165G6

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1902	19B219800G6	Diode, optoelectronic: red; sim to Opcoa LSM-3L.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1901	19A116659P124	Connector, printed wiring: 11 contacts; sim to Molex 09-50-7111.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1901	19A137150G2	Toggle: SPDT, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7101G. Includes (2) 19A116781P6 contacts.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A116677P2	Bushing, sleeving. (Used with CR1902).
	19B232156G6	Cable: 8 inches long. (Green).
	19B232156G7	Cable: 8 inches long. (White).
	19B232156G8	Cable: 8 inches long. (Blue).

PARTS LIST

MONITOR RECEIVER TONE JACK KIT
19B232158G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - JACKS AND RECEPTACLES - - - - -
J2	7489183P5	Plug: 9 contacts rated at 7.5 amps max; sim to Winchester M9S-LRN.
		- - - - - - - - - - PLUGS - - - - - - - - -
P908		Connector. Includes:
	19A116659P123	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.

PARTS LIST

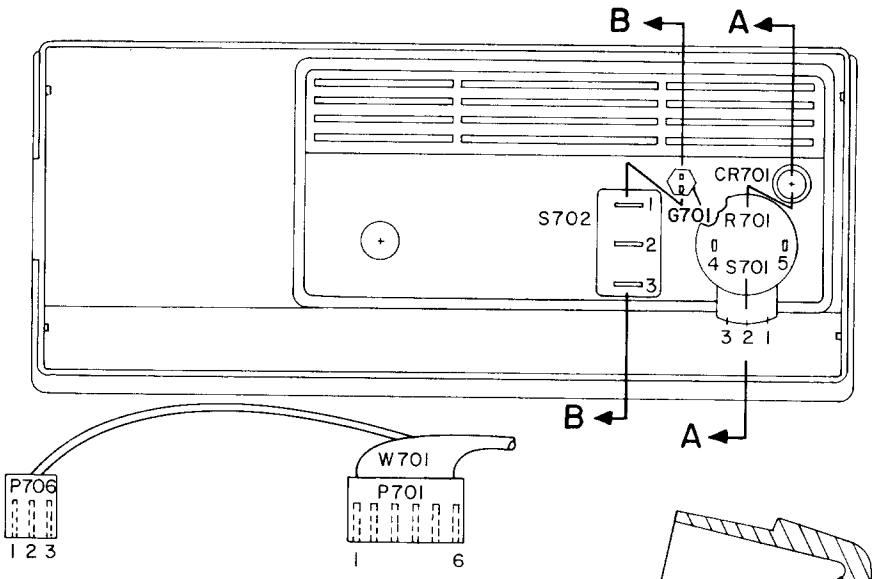
MONITOR RECEIVER HARNESS
19A137155G1
ISSUE 2

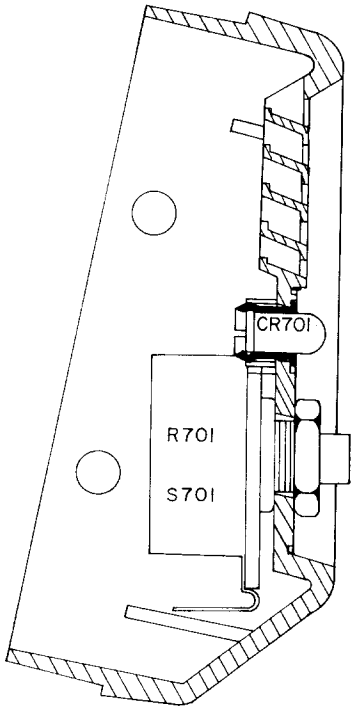
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - PLUGS - - - - - - - - - -
P902		Connector. Includes:
	19A116659P84	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 8).
P902		Connector. Includes:
	19A116659P82	Shell.
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106. (Quantity 1).
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 8).

PARTS LIST

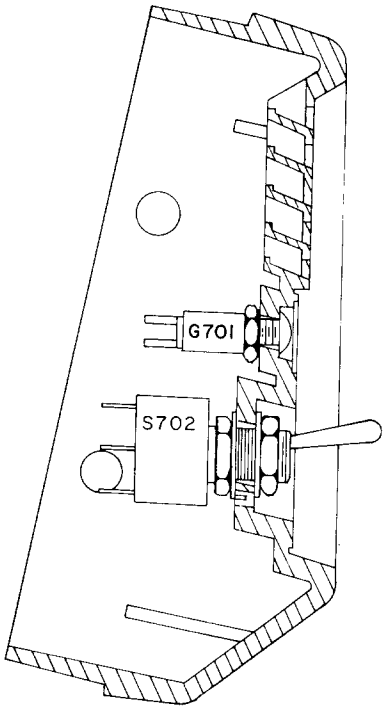
MONITOR RECEIVER ANTENNA CABLE
19A129312G12

SYMBOL	GE PART NO.	DESCRIPTION
	5491689P111	Molded plug and cable: approx 13 inches long.
	4029493P1	Connector, receptacle: sim to Amphenol 83-798 or Equivalent Military SO-239A.
	4029082P2	Cover, electrical connector. (Used with 4029493P1 connector).
	19C301208P5	Insulated sleeving, electrical.





SECTION A-A
ENLARGED

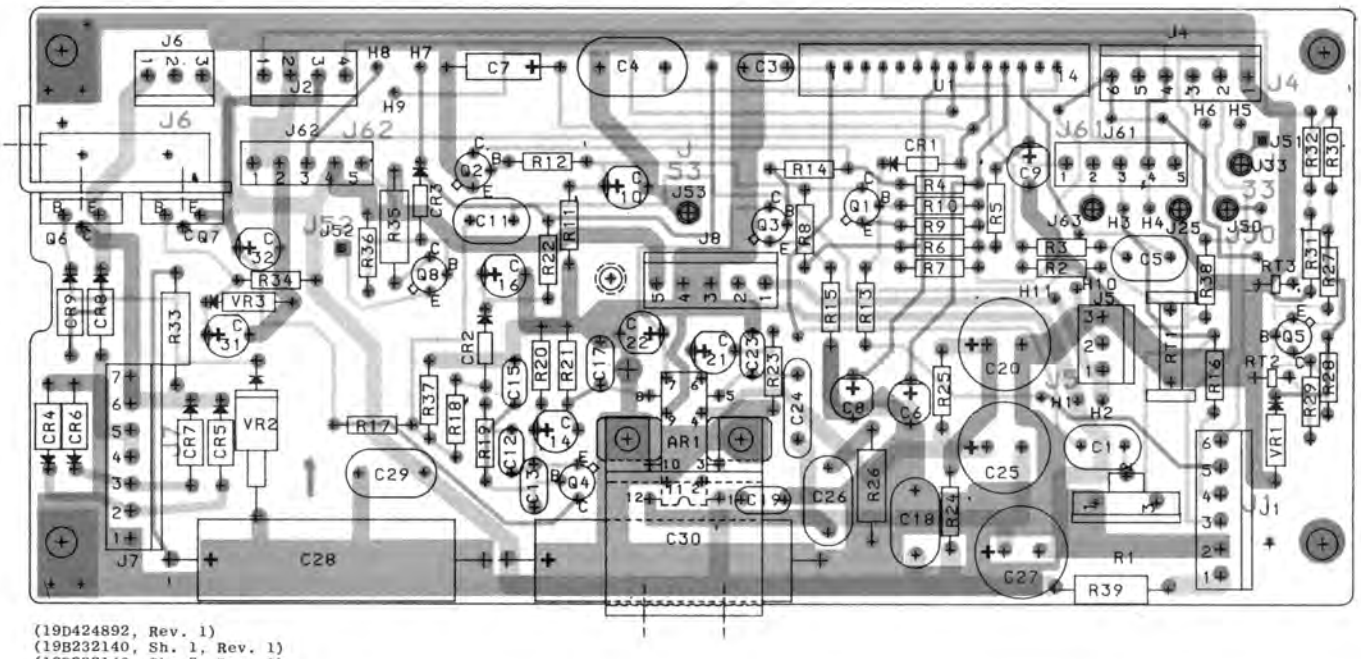


SECTION B-B
ENLARGED

(19C328304, Rev. 0)

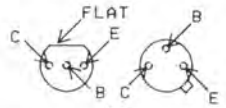
OUTLINE DIAGRAM

CONTROL PANEL



(19D424892, Rev. 1)
(19B232140, Sh. 1, Rev. 1)
(19B232140, Sh. 2, Rev. 1)

LEAD IDENTIFICATION
FOR Q1-Q5 & Q8

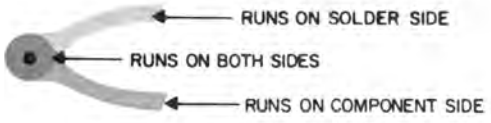


TOP VIEW

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

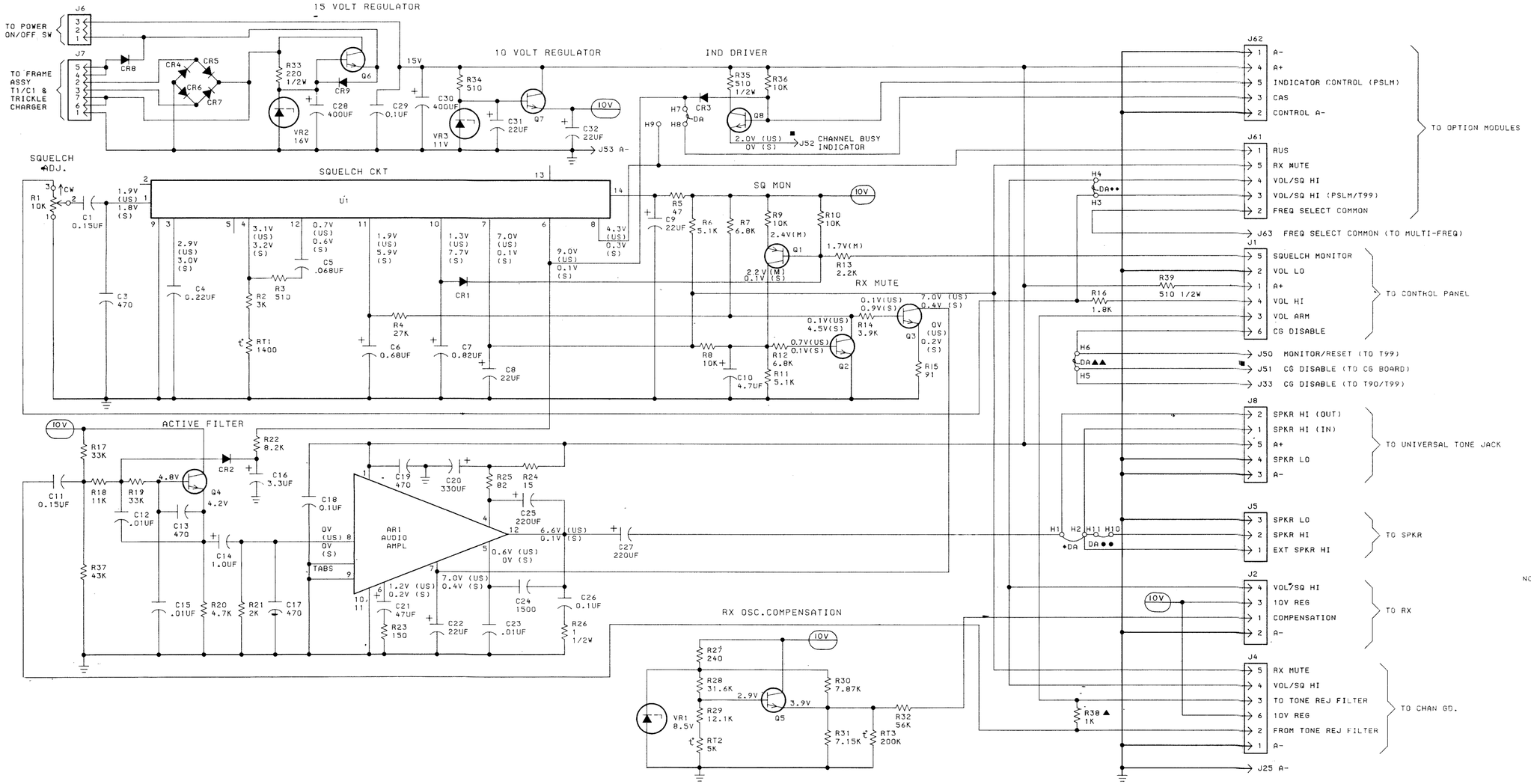
REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH 900 SERIES. EXAMPLE: C1-C901, R1-R901 ETC.

FROM	TO	WIRE
H1	H2	DA
H3	H4	DA
H5	H6	DA
H7	H8	DA
H10	H11	DA



OUTLINE DIAGRAM

SYSTEM BOARD



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.

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MEASURED TO SYSTEM NEGATIVE (J962-2) WITH TEST SET MODEL 4PA3A1 OR A 20,000 OHM-PER-VOLT METER.
S=NO SIGNAL IN WITH SQUELCH CONTROL FULLY CLOCKWISE (MAXIMUM SQUELCH).
US=SQUELCH CONTROL FULLY COUNTER-CLOCKWISE.

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.

MODEL NO	REV LETTER
PLI9D4248945	A

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH 900 SERIES. EXAMPLE: C1=C901, R1=R901 ETC.
2. ■ INDICATES SQUARE POST.
3. • REMOVE JUMPER H1 TO H2 FOR SPEAKER MUTE FUNCTION WITH EXTERNAL DECODER.
4. ●● REMOVE JUMPER H10 TO H11 FOR EXTERNAL SPEAKER.
5. ▲▲ REMOVE JUMPER H5 TO H6 FOR T99 DECODER OPTION.
6. •• REMOVE JUMPER H3 TO H4 FOR T99 DECODER OR PSLM.
7. ▲ REMOVE R38 FOR CHANNEL GUARD APPLICATION.

(19R622306, Rev. 3)

SCHEMATIC DIAGRAM

SYSTEM BOARD

PARTS LIST

MONITOR RECEIVER SYSTEM BOARD
AND
CHASSIS ASSEMBLY
19D424926G1
ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
A1		SYSTEM BOARD 19D424894G1
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
AR901	19A134339P1	Linear, audio amplifier: sim to SGS-ATES TBA810AS.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C901	19A116080P108	Polyester: 0.15 µf ±10%, 50 VDCW.
C903	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C904	19A116080P109	Polyester: 0.22 µf ±10%, 50 VDCW.
C905	19A116080P106	Polyester: 0.068 µf ±10%, 50 VDCW.
C906	19A134202P13	Tantalum: 0.68 µf ±20%, 35 VDCW.
C907	5496267P230	Tantalum: 0.82 µf ±10%, 35 VDCW; sim to Sprague Type 150D.
C908 and C909	19A134202P6	Tantalum: 22 µf ±20%, 15 VDCW.
C910	19A134202P3	Tantalum: 4.7 µf ±20%, 10 VDCW.
C911	19A116080P108	Polyester: 0.15 µf ±10%, 50 VDCW.
C912	19A116080P101	Polyester: 0.01 µf ±20%, 50 VDCW.
C913	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C914	19A134202P14	Tantalum: 1 µf ±20%, 35 VDCW.
C915	19A116080P101	Polyester: 0.01 µf ±20%, 50 VDCW.
C916	19A134202P5	Tantalum: 3.3 µf ±20%, 15 VDCW.
C917	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C918	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C919	5494481P107	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C920	19A134319P2	Electrolytic: 330 µf +75% -10%, 25 VDCW; sim to Sprague Type 502D189.
C921	19A134202P2	Tantalum: 47 µf ±20%, 6 VDCW.
C922	19A134202P6	Tantalum: 22 µf ±20%, 15 VDCW.
C923	19A116080P101	Polyester: 0.01 µf ±20%, 50 VDCW.
C924	5494481P124	Ceramic disc: 1500 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C925	19A134319P1	Electrolytic: 220 µf +75% -10%, 25 VDCW; sim to Sprague Type 502D182.
C926	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C927	19A134319P1	Electrolytic: 220 µf +75% -10%, 25 VDCW; sim to Sprague Type 502D182.
C928	19A115680P24	Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C929	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C930	19A115680P24	Electrolytic: 400 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
C931 and C932	19A134202P6	Tantalum: 22 µf ±20%, 15 VDCW.
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR901 thru CR903	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR904 thru CR909	4037822P1	Silicon, 1000 mA, 400 PIV.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J901	19A116659P105	Connector, printed wiring: 6 contacts; sim to Molex 09-60-1061.
J902	19A116659P103	Connector, printed wiring: 4 contacts; sim to Molex 09-60-1041.
J904	19A116659P105	Connector, printed wiring: 6 contacts; sim to Molex 09-60-1061.
J905 and J906	19A116659P101	Connector, printed wiring: 3 contacts; sim to Molex 09-60-1031.
J907	19A116659P106	Connector, printed wiring: 7 contacts; sim to Molex 09-60-1081.
J908	19A116659P104	Connector, printed wiring: 5 contacts; sim to Molex 09-60-1051.
J925	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J933	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J950	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J951 and J952	19A116779P1	Contact, electrical: sim to Molex 08-50-0104.
J953	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J961 and J962	19A116659P127	Connector, printed wiring: 5 contacts; sim to Molex 09-64-1051.
J963	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q901	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q902 thru Q904	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q905	19A116774P1	Silicon, NPN; sim to Type 2N5210.
Q906*	19A116742P2	Silicon, NPN.
		Earlier than REV A:
	19A116742P1	Silicon, NPN.
Q907*	19A116742P2	Silicon, NPN.
		Earlier than REV A:
	19A116118P1	Silicon, NPN.
Q908	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R902	3R152P302J	Composition: 3K ohms ±5%, 1/4 w.
R903	3R152P511J	Composition: 510 ohms ±5%, 1/4 w.
R904	3R152P273J	Composition: 27K ohms ±5%, 1/4 w.
R905	3R152P470J	Composition: 47 ohms ±5%, 1/4 w.
R906	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R907	3R152P682J	Composition: 6.8K ohms ±5%, 1/4 w.
R908 thru R910	3R152P103K	Composition: 10K ohms ±10%, 1/4 w.
R911	3R152P512J	Composition: 5.1K ohms ±5%, 1/4 w.
R912	3R152P682K	Composition: 6.8K ohms ±10%, 1/4 w.
R913	3R152P222K	Composition: 2.2K ohms ±10%, 1/4 w.
R914	3R152P392J	Composition: 3.9K ohms ±5%, 1/4 w.
R915	3R152P910J	Composition: 91 ohms ±5%, 1/4 w.
R916	3R152P182J	Composition: 1.8K ohms ±5%, 1/4 w.
R917	3R152P333J	Composition: 33K ohms ±5%, 1/4 w.
R918	3R152P113J	Composition: 11K ohms ±5%, 1/4 w.
R919	3R152P333J	Composition: 33K ohms ±5%, 1/4 w.
R920	3R152P472J	Composition: 4.7K ohms ±5%, 1/4 w.
R921	3R152P202J	Composition: 2K ohms ±5%, 1/4 w.
R922	3R152P822J	Composition: 8.2K ohms ±5%, 1/4 w.
R923	3R152P151J	Composition: 150 ohms ±5%, 1/4 w.
R924	3R152P150K	Composition: 15 ohms ±10%, 1/4 w.
R925	3R152P820K	Composition: 82 ohms ±10%, 1/4 w.
R926	7147161P19	Composition: 1.0 ohms ±5%, 1/2 w.
R927	3R152P241J	Composition: 240 ohms ±5%, 1/4 w.
R928	19C314256P23162	Metal film: 31.6K ohms ±1%, 1/4 w.
R929	19C314256P21212	Metal film: 12.1K ohms ±1%, 1/4 w.
R930	19C314256P27871	Metal film: 7.87K ohms ±1%, 1/4 w.
R931	19C314256P27151	Metal film: 7.15K ohms ±1%, 1/4 w.
R932	3R152P563J	Composition: 56K ohms ±5%, 1/4 w.
R933	3R77P221K	Composition: 220 ohms ±10%, 1/2 w.
R934	3R152P511J	Composition: 510 ohms ±5%, 1/4 w.
R935	3R77P511J	Composition: 510 ohms ±5%, 1/2 w.
R936	3R152P103J	Composition: 10K ohms ±5%, 1/4 w.
R937	3R152P433J	Composition: 43K ohms ±5%, 1/4 w.
R938	3R152P102J	Composition: 1K ohms ±5%, 1/4 w.
R939	3R77P511J	Composition: 510 ohms ±5%, 1/2 w.
		- - - - - - - - - - THERMISTORS - - - - - - - - -
RT901	5490828P38	Thermistor: 1400 ohms ±5%, color code green and and white; sim to Carborundum Type 723H-2.
RT902	19C300048P7	Disc: 5000 ohms ±10%; sim to NL 1D 103.
RT903	19C300048P5	Disc: 200K ohms ±10%; sim to NL 4D 051.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - -
U901	19D416560G3	Hybrid Squelch.
		- - - - - - - - VOLTAGE REGULATORS - - - - - - -
VR901	4036887P9	Zener: 500 MW, 6.5 PIV.
VR902	19A115528P6	Zener: 6.6 MW, 17.6 v max.
VR903	4036887P8	Zener: 500 MW, 8.4 PIV.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A137145G1	Electrolytic, twist-prong: 2000 µf +250-10%, 50 VDCW; sim to Sprague Type 60D10419. Includes (2) 19A116781P5 contacts.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E10	19B200785P14	Terminal, standoff.
		- - - - - - - - - - FUSES - - - - - - - - - -
F1	7487942P7	Slow blowing: 15/100 amp at 250 v; sim to Bussmann MDL-15/100.
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS1	19A137132G1	Loudspeaker, permanent magnet: 3 inch. Includes:
	19A116659P16	Shell.
	19A116781P6	Contact, electrical: sim to Molex 08-50-0108. (Quantity 2).
		- - - - - - - - - - PLUGS - - - - - - - - - -
P7	19A116659P82	Connector, printed wiring: 7 contacts; sim to Molex 09-50-7071.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T1	19A137133G1	Power, step-down: Pri: 121/242 input volt, 50/60 Hz, Sec: 15.0±0.3 VDC output, 60 Hz.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	19B232186G1	Feed-thru, phen: 8 terninals; sim to GE CR151D.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XF1	19B209005P1	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342012.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	N681P9004C6	Screw, phillips head: No. 4-40 x 1/4. (Secures bracket under C1- Quantity 2).
	N529P18C6	Plug button. (Located near TB1-1).
	19A116768P9	Strain relief: sim to Heyco SR-6P3-4. (Used with 19A136500G1 cable).
	19A136500G1	Power cable.
	19A137220G1	Heat sink. (Used with Q906, Q907).
	19A134016P1	Insulator, bushing. (Used with Q906, Q907).
	19A116023P1	Insulator, plate. Dupont 300 Kapton H. (Used with Q906, Q907).
	19A137219G1	Heat sink. (Used with AR901).
	4035656P30	Spacer, threaded. (Used with AR901- Quantity 2).
	4037072P5	Plug button. (Located by J908).
	19B200525P205	Rivet, tubular. (Secures Q906, Q907, Heat Sink).

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 - System Board 19D424894G1

To improve performance of the 10- and 15- Volt regulator. Changed Q906 and Q907.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

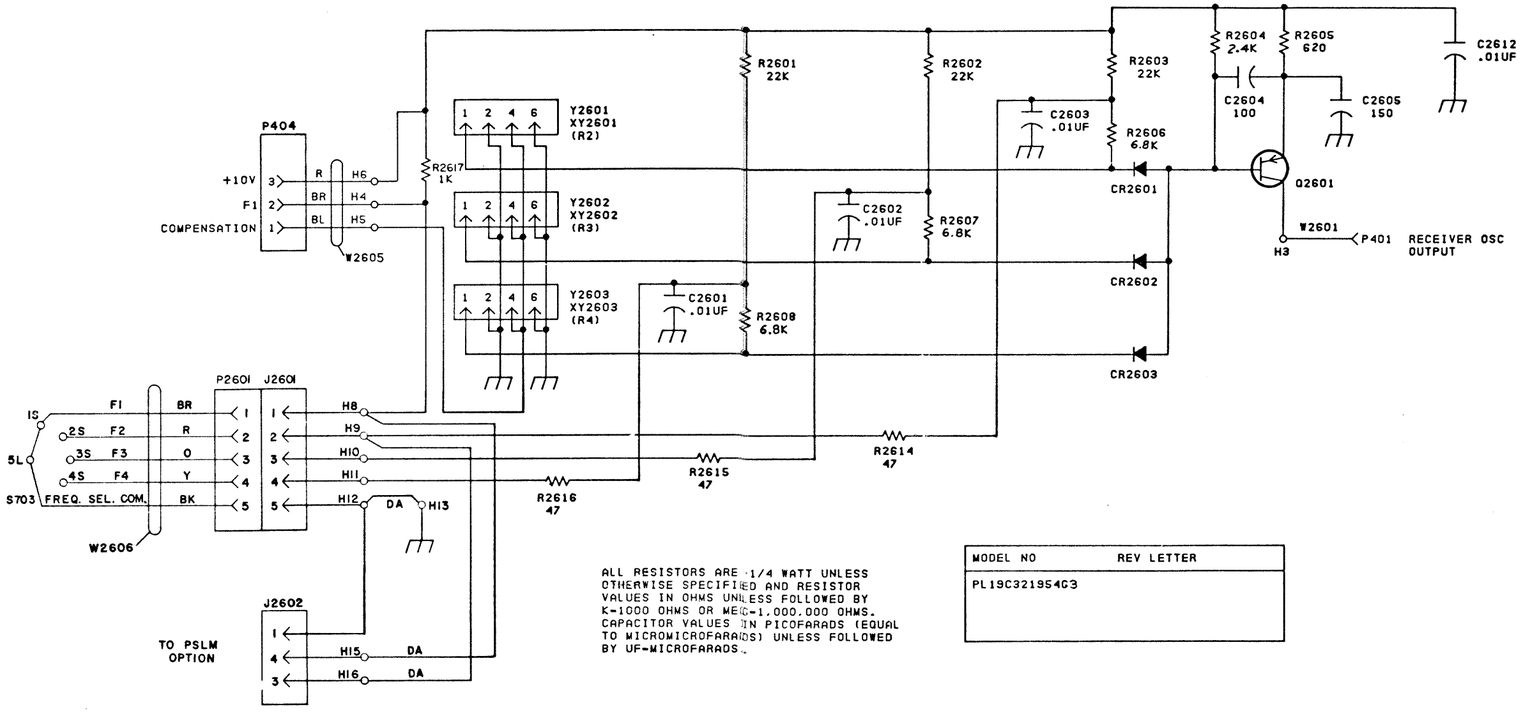
MONITOR RECEIVER MULTI FREQUENCY KIT
19C321954G3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C2601 thru C2603	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
C2604	5496218P763	Ceramic disc: 100 pf ±5%, 500 VDCW, temp coef -750 PPM.
C2605	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C2612	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR2601 thru CR2603	19A116925P4	Silicon.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J2601	19A116659P104	Connector, printed wiring: 5 contacts.
J2602	19A116659P101	Connector, printed wiring: 3 contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P2601		(Part of W2601).
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q2601	19A115852P1	Silicon, PNP; sim to Type 2N3906.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R2601 thru R2603	3R152P223J	Composition: 22K ohms ±5%, 1/4 w.
R2604	3R152P242J	Composition: 2.4K ohms ±5%, 1/4 w.
R2605	3R152P621J	Composition: 620 ohms ±5%, 1/4 w.
R2606 thru R2608	3R152P682J	Composition: 6.8K ohms ±5%, 1/4 w.
R2614 thru R2616	3R152P470J	Composition: 47 ohms ±5%, 1/4 w.
R2617	3R152P102J	Composition: 1000 ohms ±5%, 1/4 w.
		- - - - - - - - - - CABLES - - - - - - - - - -
W2601	19A129947G2	Single conductor: approx 3 inches long. (Includes P2601).
W2605		CABLE ASSEMBLY 19B228965G4
		- - - - - - - - - - PLUGS - - - - - - - - - -
P404		Connector. Includes:
	19A116659P84	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
W2606		CABLE ASSEMBLY 19B232162G1
		- - - - - - - - - - PLUGS - - - - - - - - - -
P2601		Connector. Includes:
	19A116659P123	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S703	5495454P45	Rotary: 1 section, 1 pole, 2 to 4 positions, (with adj. stop), non-shorting contacts, 2 amps at 25 VDC or 1 amp at 110 VAC; sim to Oak Type "A".

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XY2601 thru XY2603	19A130958G1	Connector, printed wiring: 6 contacts; sim to Molex 09-65-1061.
		- - - - - - - - - - MISCELLANEOUS - - - - - - -
	198201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Quantity 3).
	7165075P4	Hex nut, brass: thd. size No. 3/8-32. (Quantity 1).
	19C327854P1	Printed wire board.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SCHEMATIC DIAGRAM

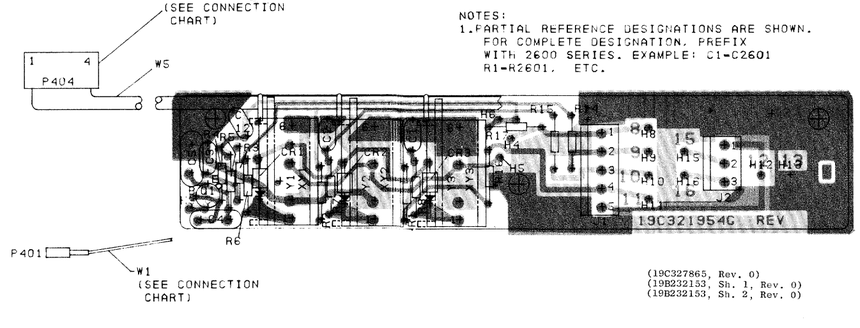


ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS.

MODEL NO	REV LETTER
PL19C321954G3	

OUTLINE DIAGRAM

(19D424911, Rev. 1)

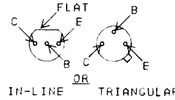


NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH 2600 SERIES. EXAMPLE: C1-C2601 R1-R2601, ETC.

CONNECTION CHART		
WIRE	TO	REMARKS
W1	H3	
W5-R	H6	
W5-BL	H5	
W5-BR	H4	
H12	H13	DA WIRE
H8	H15	DA WIRE
H9	H16	DA WIRE

(19C327865, Rev. 0)
(19B232153, Sh. 1, Rev. 0)
(19B232153, Sh. 2, Rev. 0)

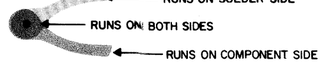
LEAD IDENTIFICATION FOR Q1



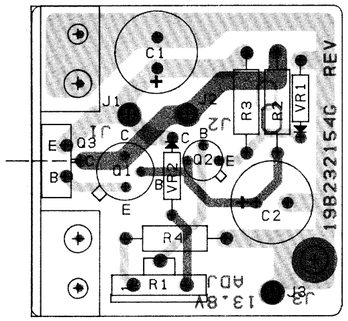
IN-LINE OR TRIANGULAR

TOP VIEW

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

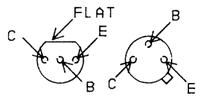


OUTLINE DIAGRAM



(19B232160, Rev. 0)
(19B232157, Sh. 1, Rev. 0)
(19B232157, Sh. 2, Rev. 0)

LEAD IDENTIFICATION
FOR Q1 AND Q2

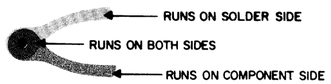


OR

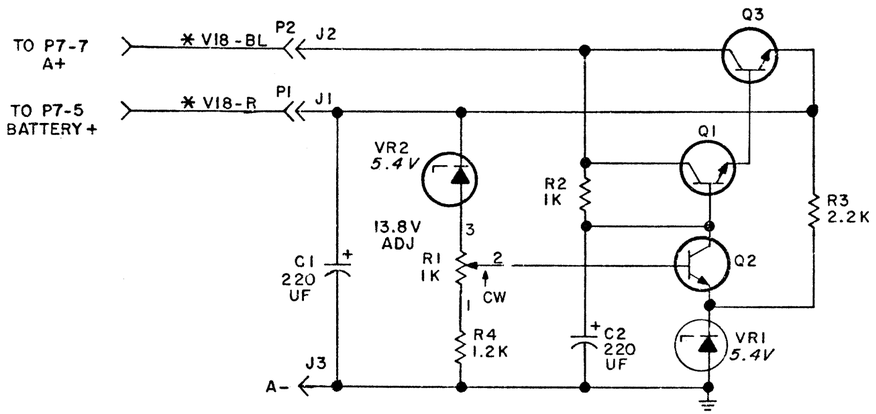
IN-LINE TRIANGULAR

TOP VIEW

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



SCHEMATIC DIAGRAM



ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

(19B232159, Rev. 0)

* PART OF PL19A137165G5

NOTE:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS, PREFIX WITH 2400 SERIES.
EXAMPLE: C1- C2401, R1- R2401 ETC.

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.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
19B232154G1	

PARTS LIST

MONITOR RECEIVER TRICKLE CHARGER KIT
19A137165G5

SYMBOL	GE PART NO.	DESCRIPTION
		CHARGER BOARD 19B232154G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C2401 and C2402	19A134319P1	Electrolytic: 220 µf +75% -10%, 25 VDCW; sim to Sprague Type 502D182.
		- - - - - - - - - JACKS AND RECEPTACLES - - - - - -
J2401 thru J2403	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q2401	19A115300P4	Silicon, NPN.
Q2402	19A116755P1	Silicon, NPN; sim to Type 2N3947.
Q2403	19A116742P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R2401	19B209358P103	Variable, carbon film: approx 50 to 1K ohms ±10%, 0.2 w; sim to CTS Type X-201.
R2402	3R77P102J	Composition: 1K ohms ±5%, 1/2 w.
R2403	3R77P222J	Composition: 2.2K ohms ±5%, 1/2 w.
R2404	3R77P122K	Composition: 1.2K ohms ±10%, 1/2 w.
		- - - - - - - - - VOLTAGE REGULATORS - - - - - - -
VR2401 and VR2402	4036887P5	Zener: 500 MW, 1.5 PIV.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A137139P1	Heat sink. (Used with Q2603).
	19B200525P155	Rivet, tubular. (Secures Q2603 heat sink).
	19A134016P1	Insulator, bushing. (Used with Q2603).
	19A116023P1	Insulator, plate. (Used with Q2603).
	4036555P1	Insulator, washer: nylon. (Used with Q2401).
	N80P13005C6	Machine screw: No. 6-32 x 5/16. (Secures Charger Board- Quantity 2).
	N80P13004C6	Machine screw: No. 6-32 x 1/4. (Secures Charger Board- Quantity 1).
	19B232156G4	Cable: 13 inches long. (Red).
	19B232156G5	Cable: 13 inches long. (Blue).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SERVICE SHEET

TRICKLE CHARGER BOARD

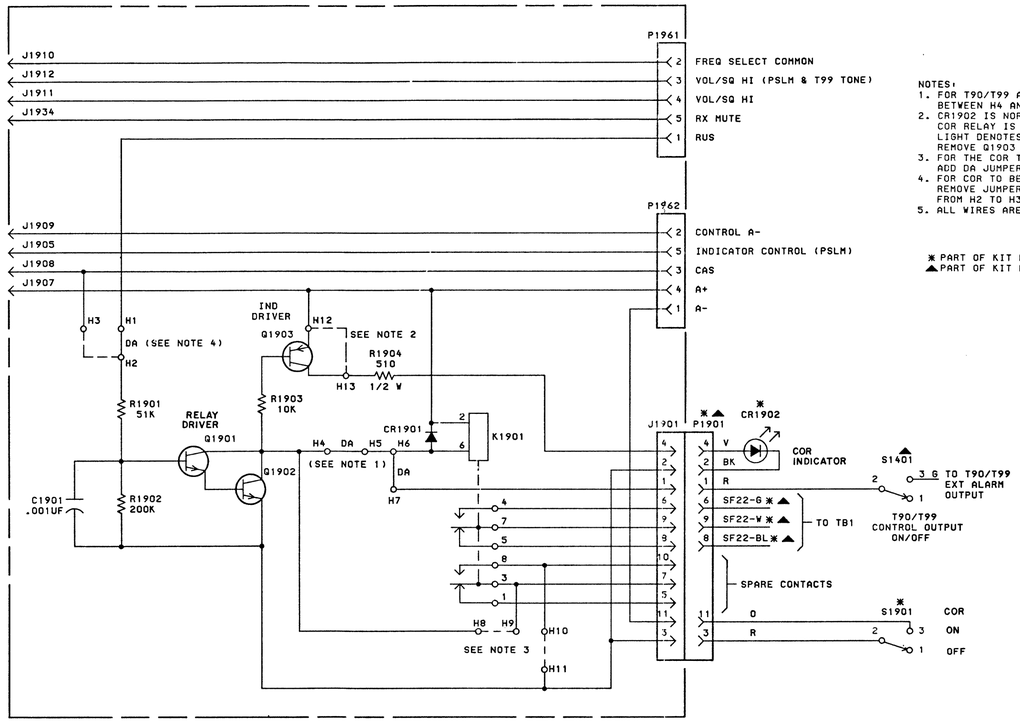
PARTS LIST

MONITOR RECEIVER EXTENDER BOARD CARRIER OPERATED RELAY
19C328043G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1901	5494481P111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1901	4037822P1	Silicon, 1000 mA, 400 PIV.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J1901		Connector. Includes:
	19A116659P118	Connector, printed wire. (Quantity 2).
	19A137186G1	Connector. (Quantity 1).
J1905	19B219892P3	Terminal, brass.
J1907 thru J1912	19B219892P3	Terminal, brass.
J1934	19B219892P3	Terminal, brass.
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1901	19B209558P1	Hermetic sealed: 180 to 341 ohms coil res, 2 form C contacts, 8.0 to 16.3 VDC; sim to GE 3SAV1760A2.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1961 and P1962	19A116659P128	Connector, printed wiring: 5 contacts; sim to Molex 09-52-3051.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1901	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q1902	19A115300P4	Silicon, NPN.
Q1903	19A115852P1	Silicon, PNP; sim to Type 2N3906.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1901	3R152P513J	Composition: 51K ohms ±5%, 1/4 w.
R1902	3R152P204J	Composition: 200K ohms ±5%, 1/4 w.
R1903	3R152P103J	Composition: 10K ohms ±5%, 1/4 w.
R1904	3R77P511J	Composition: 510 ohms ±5%, 1/2 w.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	4036555P1	Insulator, washer: nylon. (Used with Q1902).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SCHEMATIC DIAGRAM



NOTES:
1. FOR T90/T99 APPLICATION, REMOVE DA JUMPER BETWEEN H4 AND H5.
2. CR1902 IS NORMALLY WIRED TO BE ON WHEN THE COR RELAY IS ACTIVATED. TO WIRE SO THAT THE LIGHT DENOTES OPTION ON OR OFF (S1901 SWITCH) REMOVE Q1903 AND ADD DA JUMPER FROM H12 TO H13.
3. FOR THE COR TO LATCH ON UNTIL TURNED OFF BY S1901, ADD DA JUMPERS FROM H8 TO H9 AND H10 TO H11.
4. FOR COR TO BE CONTROLLED BY CAS (NORMALLY RUS) REMOVE JUMPERS BETWEEN H1 AND H2, ADD JUMPER FROM H2 TO H3.
5. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.

* PART OF KIT PL19A13716506.
▲ PART OF KIT PL19A13716562,63.

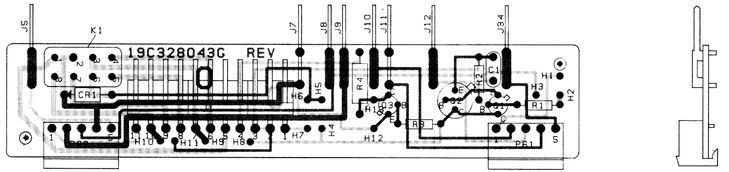
IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

MODEL NO	REV LETTER
PL19C328043G1	

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.

(19D429103, Rev. 2)

OUTLINE DIAGRAM



(19C328044, Rev. 0)
(19B232328, Sh. 1, Rev. 0)
(19B232328, Sh. 2, Rev. 0)

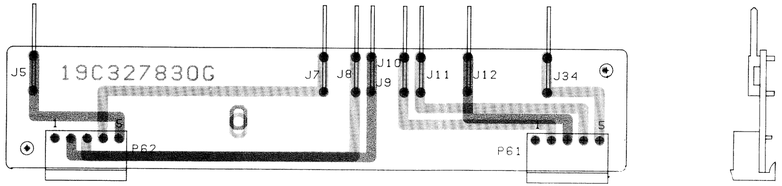
CONNECTION CHART		
FROM	TO	WIRE
H1	H2	DA
H4	H5	DA
H6	H7	DA

PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH 1900 SERIES. EXAMPLE: J5-J1905, P61-P1961 ETC.

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

SERVICE SHEET
COR ENTENDER BOARD
Issue 1

OUTLINE DIAGRAM

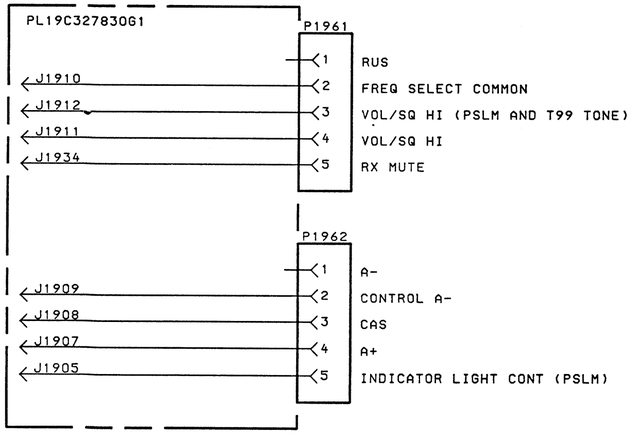


(19C327831, Rev. 0)
(19B232143, Sh. 1, Rev. 0)
(19B232143, Sh. 2, Rev. 0)

PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH 1900 SERIES. EXAMPLE: J5=J1905, P61=P1961 ETC.

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

SCHEMATIC DIAGRAM



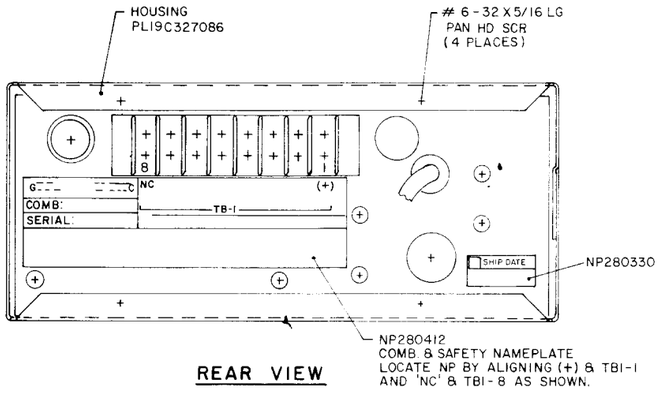
(19B232245, Rev. 1)

MODEL NO	REV LETTER
PL19C327830G1	

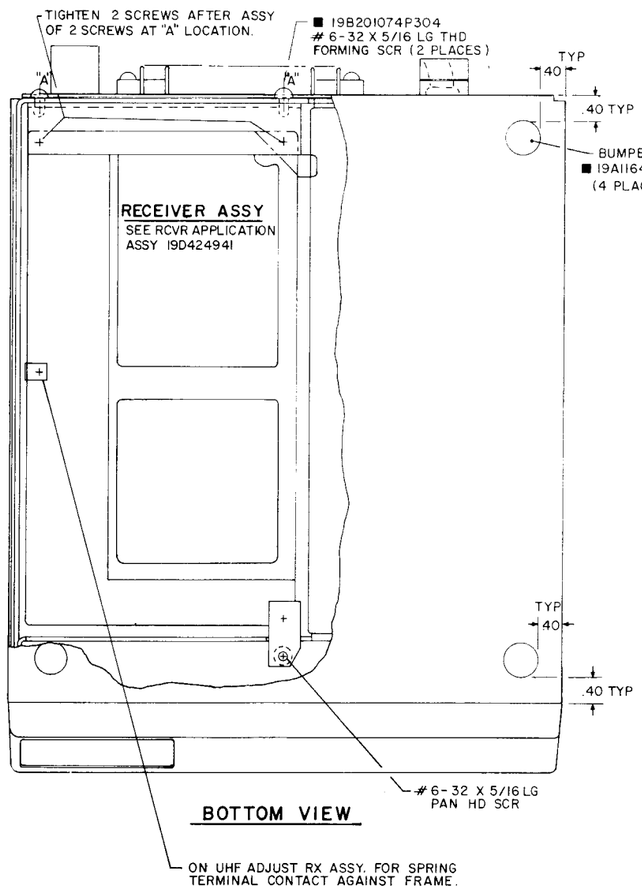
PARTS LIST

MONITOR RECEIVER EXTENDER BOARD
19C327830G1

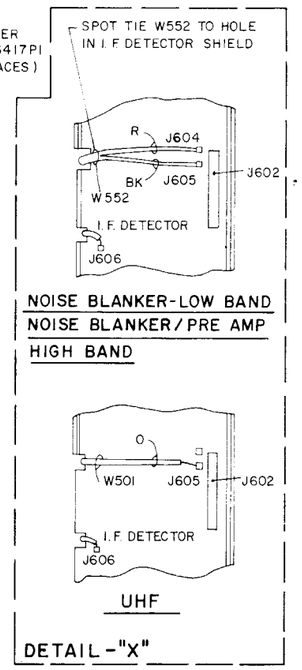
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J1905	19B219892P3	Terminal, brass.
J1907 thru J1912	19B219892P3	Terminal, brass.
J1934	19B219892P3	Terminal, brass.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P1961 and P1962	19A116659P128	Connector, printed wiring: 5 contacts; sim to Molex 09-52-3051.



REAR VIEW



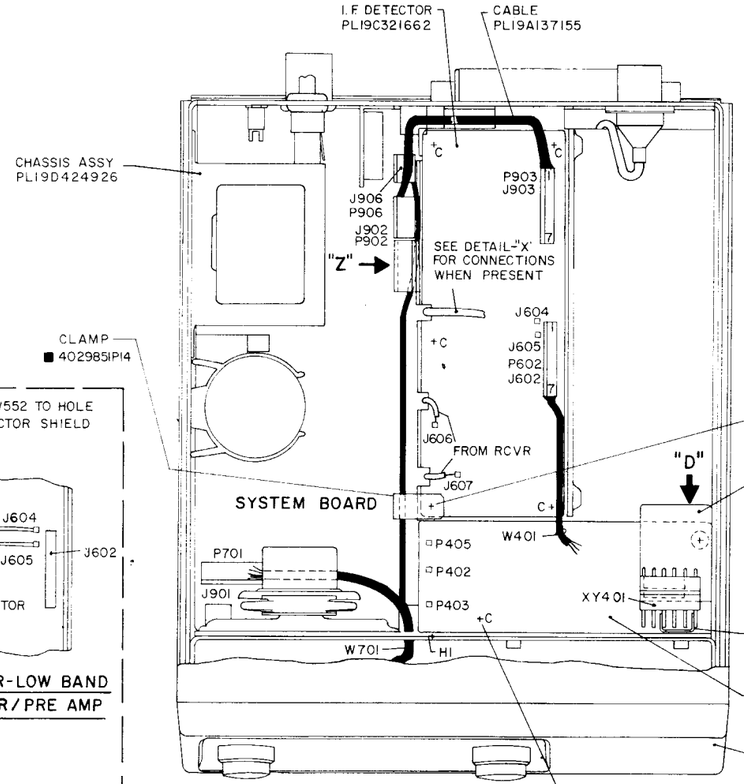
BOTTOM VIEW



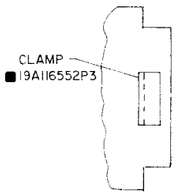
DETAIL-"X"

NOTES:
1. ■ PART OF HARDWARE LIST PL19A136613G5
2. SEE DIAGRAM 19R622305 FOR INTERCONNECTIONS.

(1) BASIC UNIT



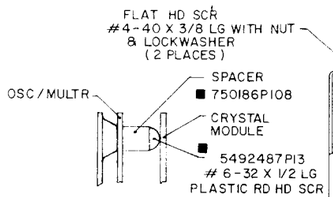
TOP VIEW



VIEW "Z"

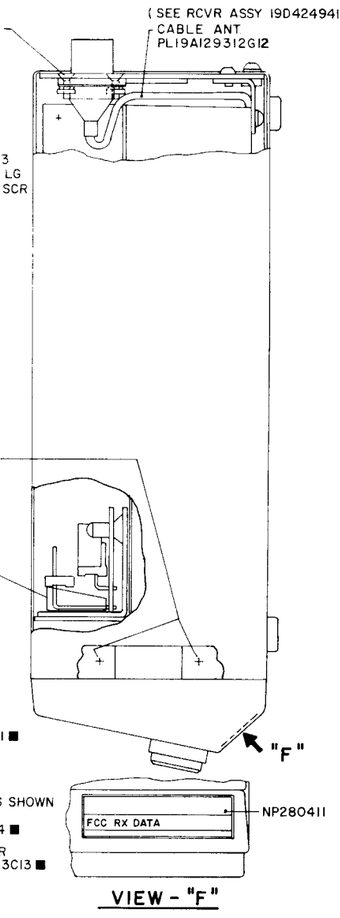
LOCATE AS SHOWN
WITH OPEN SIDE DOWN.

PT. NO.	ASSEMBLY OF:
1	BASIC UNIT
2	MULTI FREQUENCY
3	CHANNEL GUARD
4	TRICKLE CHARGER
5	UNIVERSAL TONE JACK
6	PSLM 2 FREQUENCY
7	PSLM MULTI FREQ SELECTABLE PRIORITY (LOCKED NON PRIORITY)
8	PSLM MULTI FREQ SELECTABLE NON-PRIORITY (LOCKED PRIORITY)
9	TYPE 90 DECODER
10	TYPE 99 DECODER
11	TYPE 99 DECODER GROUP CALL
12	CARRIER OPERATED RELAY

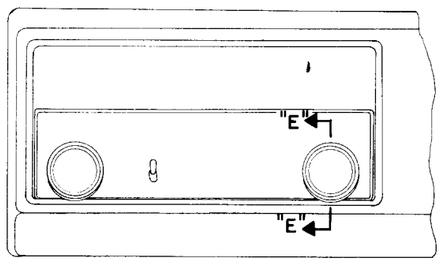


VIEW-"D"

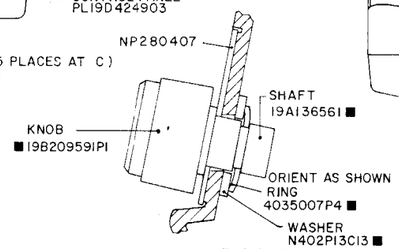
ROTATED 90° CCW



VIEW-"F"



PARTIAL FRONT VIEW

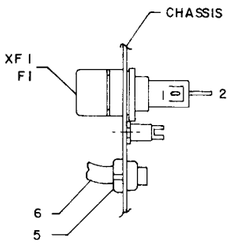


SECT "E"-"E"

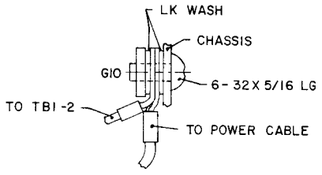
ENLARGED

MECHANICAL PARTS BREAKDOWN

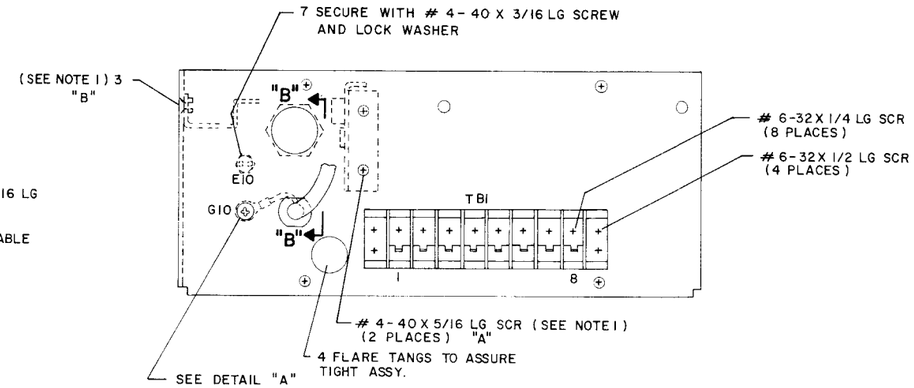
RECEIVER ASSEMBLY

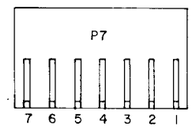


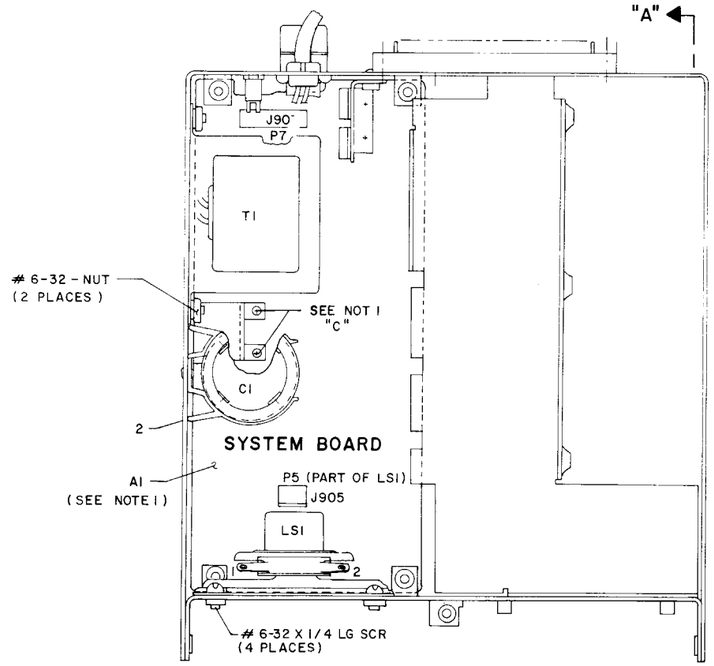
SECTION "B"–"B"



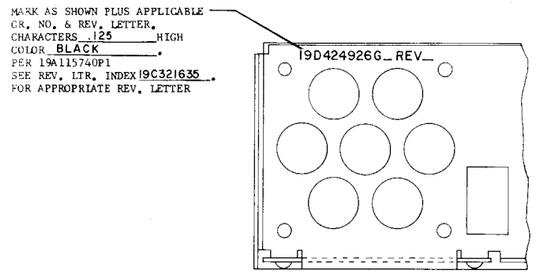
DETAIL "A"
ENLARGED VIEW OF GROUND CONN

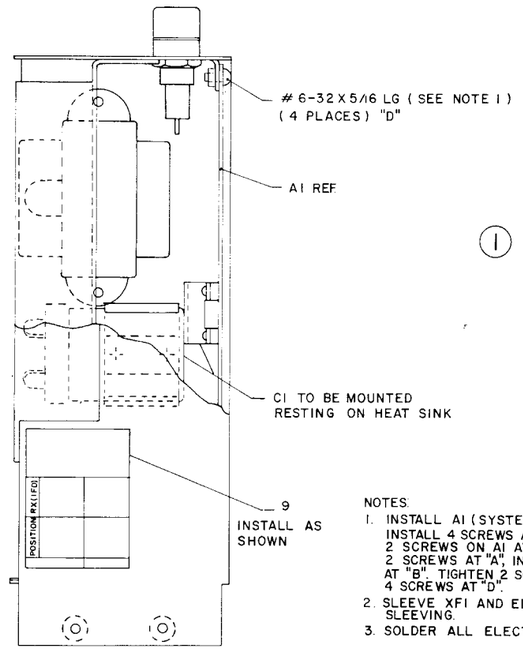






CONNECTION CHART			
FROM	TO	WIRE	REMARKS
C1	P7-6	R	
C1	P7-1	BK	
T1	P7-2	G	
T1	P7-3	G	
TB1-1	P7-4	R	
TB1-3	P5-1	BR	
P7	J907		CONNECT
P5	J905		CONNECT
TB1-2	G10		SEE DET. "A"
T1	XF1-1	BK	
T1	XF1-1	BR	
T1	E10	BK-W	
T1	E10	BR-W	
W1	XF1-2	BK	
W1	E10	W	
W1	G10	G	SEE DET. "A"





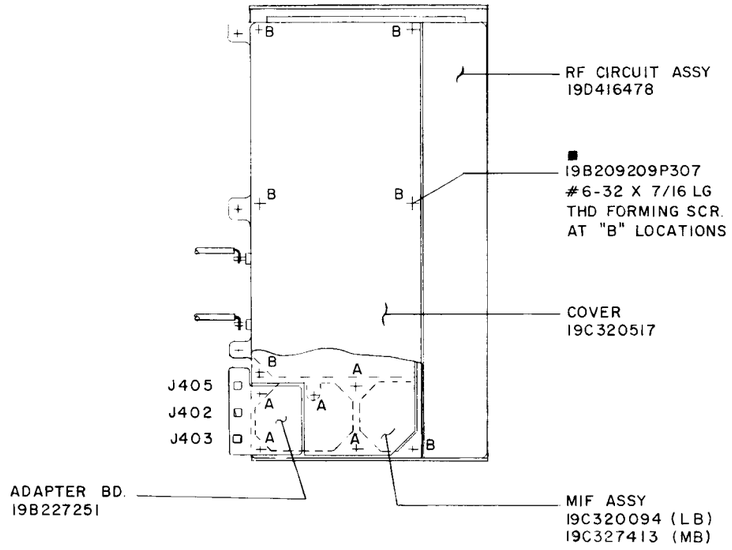
SECT A-A

NOTES:
1. INSTALL A1 (SYSTEM BD.) AS FOLLOWS:
   INSTALL 4 SCREWS AT "D" LOOSE, THEN LOOSEN 2 SCREWS ON A1 AT "C". INSTALL AND TIGHTEN 2 SCREWS AT "A", INSTALL AND TIGHTEN 2 SCREWS AT "B". TIGHTEN 2 SCREWS AT "C", THEN TIGHTEN 4 SCREWS AT "D".
2. SLEEVE XF1 AND E10 WITH HEAT SHRINK SLEEVING.
3. SOLDER ALL ELECTRICAL CONNECTIONS

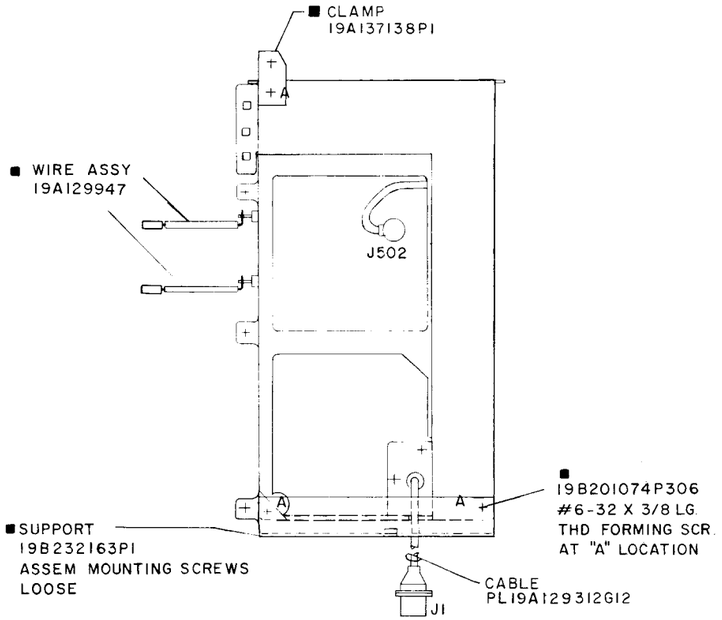
MECHANICAL PARTS BREAKDOWN

MAIN CHASSIS

(19D424926, Rev. 2)

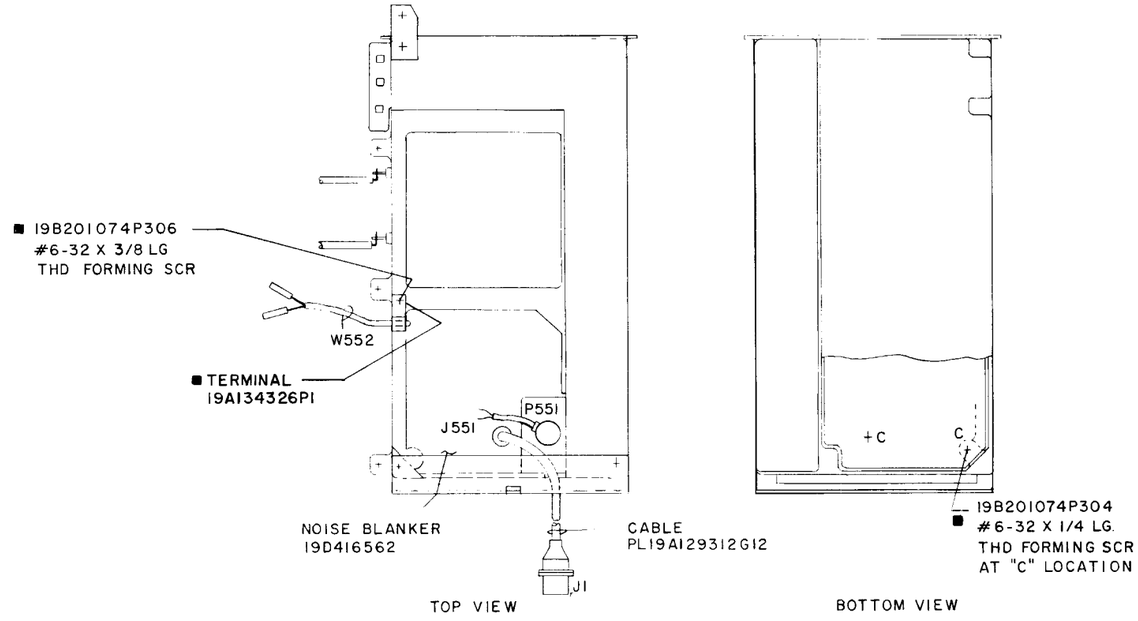


BOTTOM VIEW



RECEIVER LOW BAND/ MID BAND

TOP VIEW



TOP VIEW

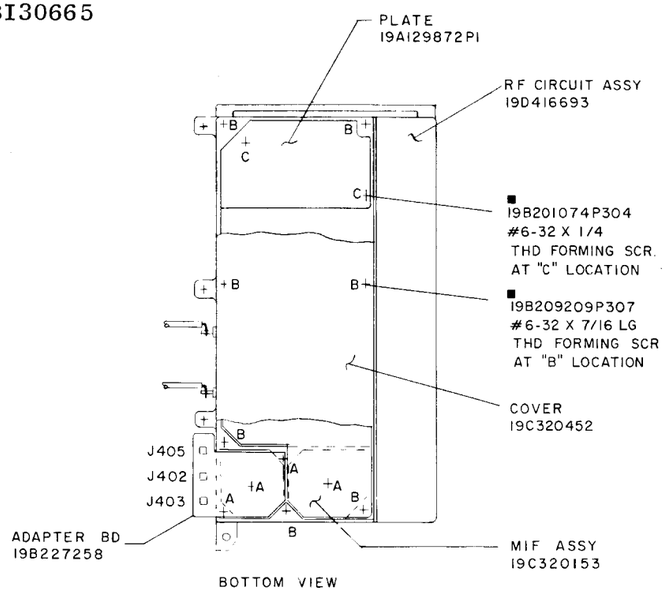
BOTTOM VIEW

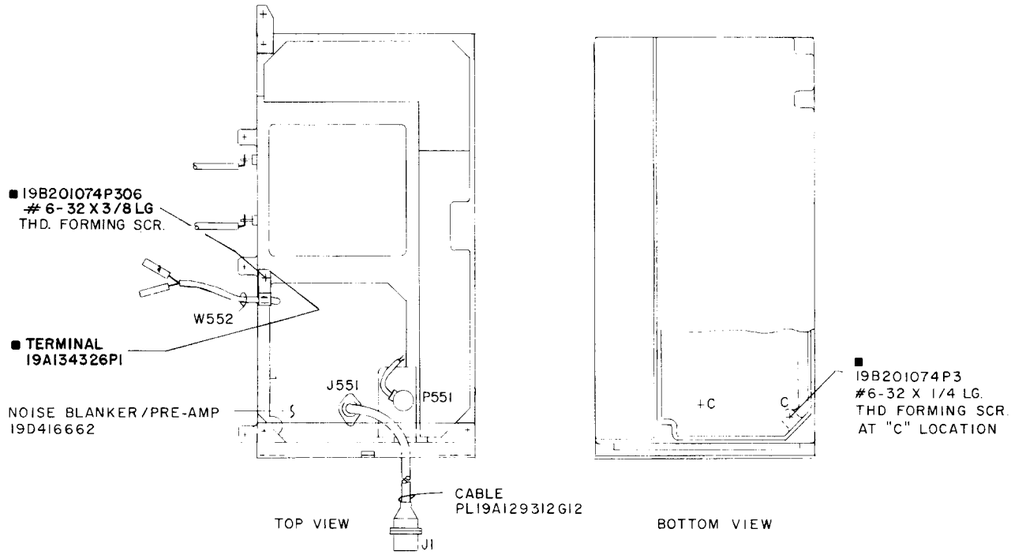
NOISE BLANKER FOR LOW BAND

NOTES:
1. ■ PART OF HARDWARE LIST 19A136613G6

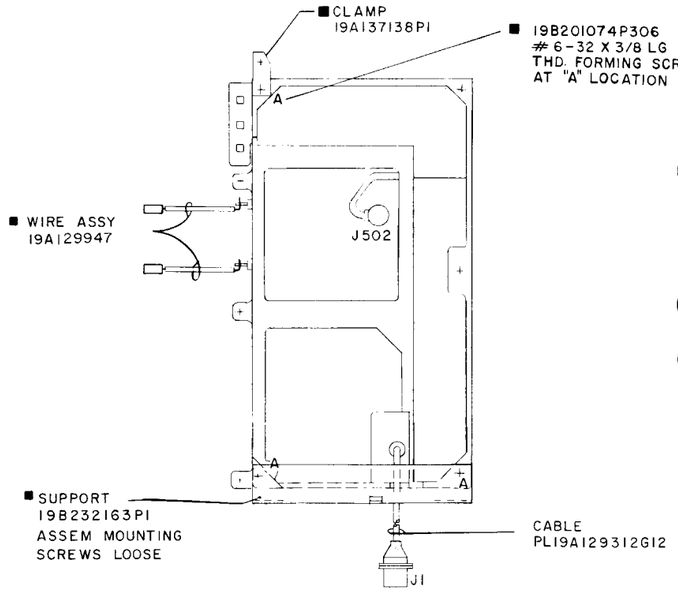
(1) ASSEMBLY OF LOW BAND RECEIVER/ MID BAND RECEIVER

(4) ASSEMBLY OF LOW BAND NOISE BLANKER





NOISE BLANKER-PRE AMP HIGH BAND



RECEIVER HIGH BAND

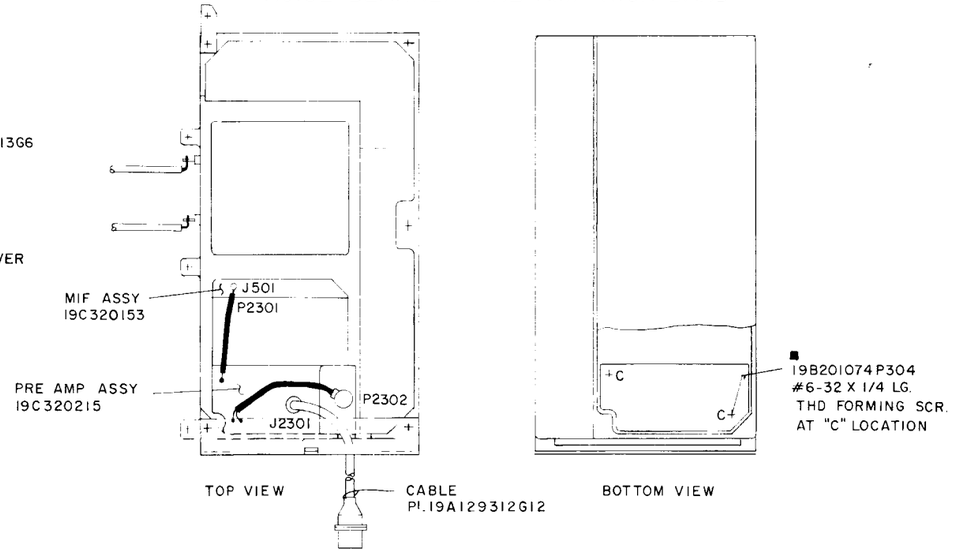
TOP VIEW

NOTES:
1. ■ PART OF HARDWARE LIST 19A136613G6

(2) ASSEMBLY OF HIGH BAND RECEIVER

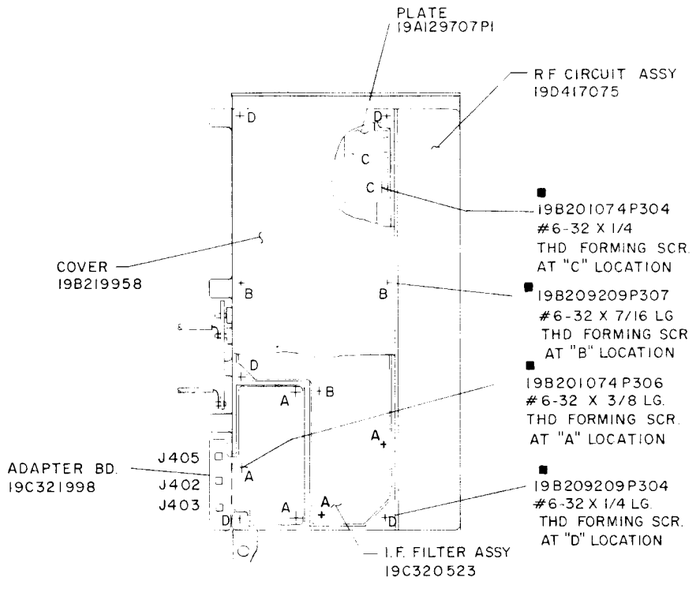
(5) ASSEMBLY OF HIGH BAND NOISE BLANKER

(6) ASSEMBLY OF HIGH BAND PRE-AMP

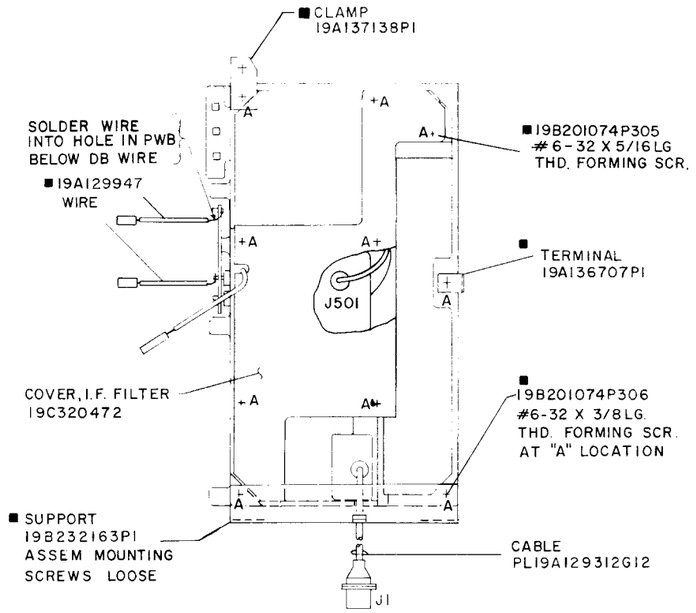


PRE-AMP HIGH BAND

(19D424941, Sh. 2, Rev. 0)

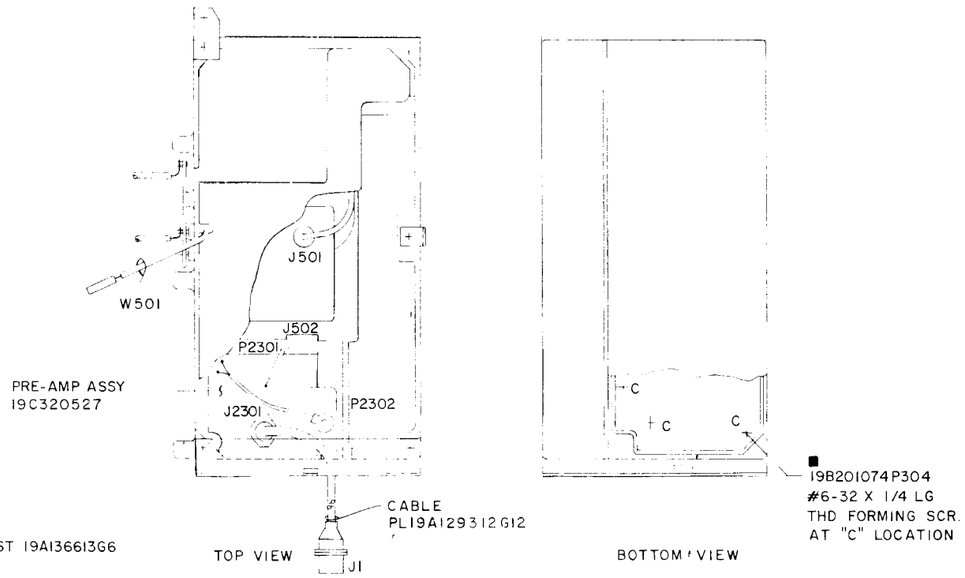


BOTTOM VIEW



RECEIVER UHF I.F. FILTER

TOP VIEW



TOP VIEW

BOTTOM VIEW

PRE AMP UHF

NOTES:
1. ■ PART OF HARDWARE LIST 19A136613G6

(3) ASSEMBLY OF UHF RECEIVER

(7) ASSEMBLY OF UHF PRE-AMP

(19D424941, Sh. 3, Rev. 1)

② MULTIFREQUENCY

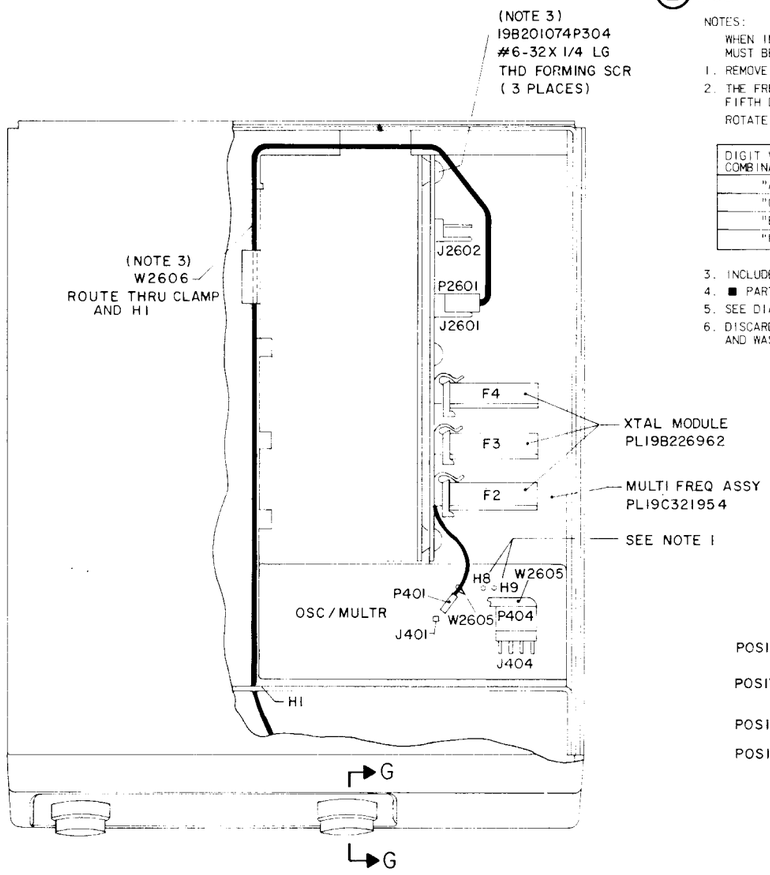
NOTES:

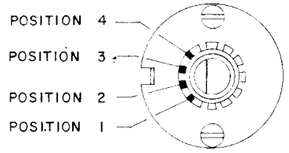
WHEN INSTALLING MULTI-FREQ., THE FOLLOWING MODIFICATIONS MUST BE PERFORMED:

1. REMOVE JUMPER ON OSC/MULTR BD H8-H9.
2. THE FREQ. SWITCH STOP IS TO BE SET TO CONFORM WITH THE FIFTH DIGIT OF THE COMBINATION NOMENCLATURE.
   ROTATE SWITCH FULLY COUNTERCLOCKWISE.

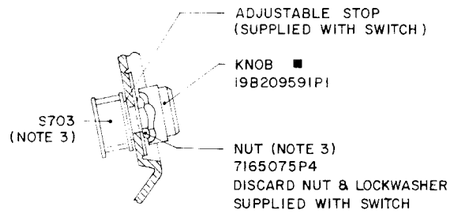
DIGIT V OF THE COMBINATION NO.	INSERT THE STOP INTO POSITION NUMBER
"A"	1 (1 FREQUENCY)
"C"	2 (2 FREQUENCY)
"E"	3 (3 FREQUENCY)
"F"	4 (4 FREQUENCY)

3. INCLUDED AS PART OF 19C321954 MULTI FREQ KIT.
4. ■ PART OF HARDWARE LIST PLI9AI3661365.
5. SEE DIAGRAM 19R622305 FOR INTERCONNECTIONS.
6. DISCARD SHAFT 19AI36561P1, "C" RING 4035007P4, AND WASHER N402P13013 SUPPLIED WITH PLI9AI3661365.

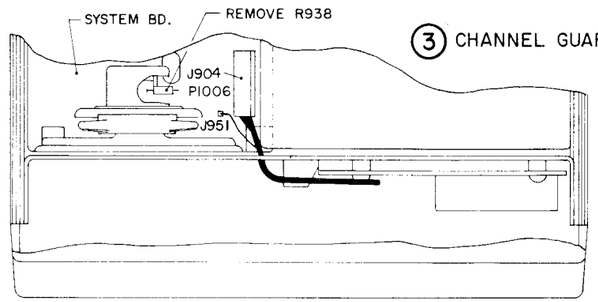




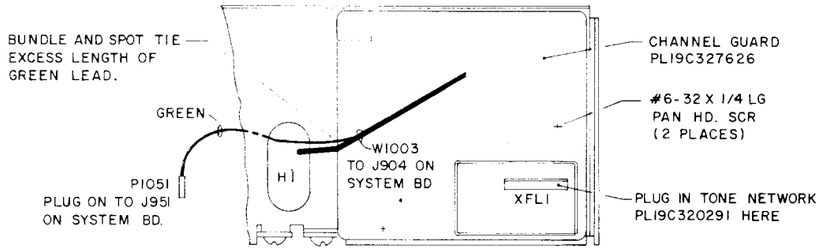
SWITCH (S703)
VIEWED FROM SHAFT END
ENLARGED
(SEE NOTE 2)



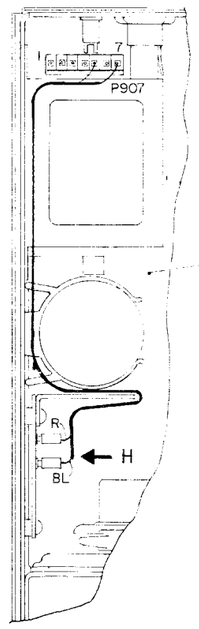
SECT. G-G
ROTATED 90° CCW



③ CHANNEL GUARD



FRONT VIEW WITH CONTROL PANEL REMOVED



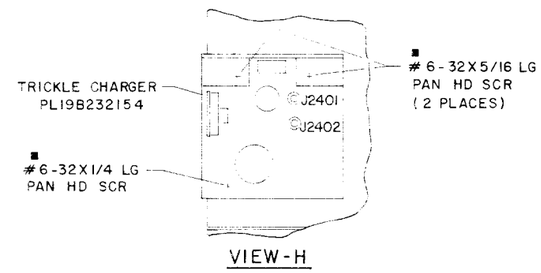
④ TRICKLE CHARGER

NOTES:

1. ■ PART OF TRICKLE CHARGER KIT PL19AI37165G5.
2. PL19AI37165G4 CABLE KIT SUPPLIED FOR CUSTOMER APPLICATION.

CONNECT WIRES AS FOLLOWS:

WIRE	FROM	TO	REMARKS
BL	J2402	P907-7	■ CABLE PL19B232156
R	J2401	P907-5	■ CABLE PL19B232156



VIEW-H

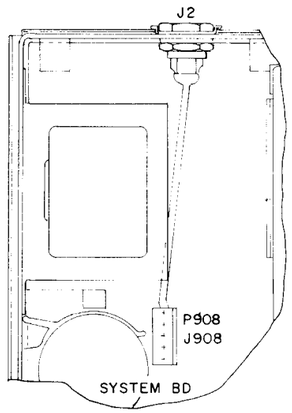
OPTION INSTALLATION

MULTI-FREQUENCY CHANNEL GUARD
TRICKLE CHARGER

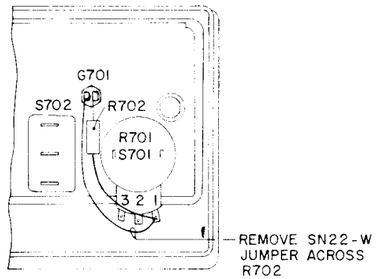
(19D424961, Sh. 2, Rev. 2)

(5) UNIVERSAL TONE JACK

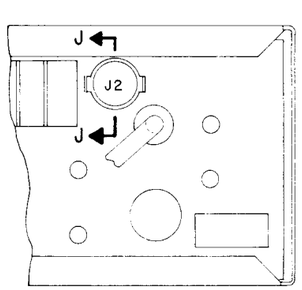
NOTES: 1. ■ PART OF TONE JACK PLI9B232158.
2. REMOVE PLUG BUTTON & DISCARD



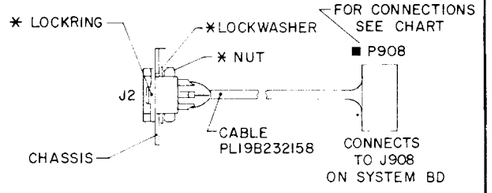
PARTIAL VIEW OF SYSTEM BD



REAR VIEW OF CONTROL PANEL



REAR VIEW

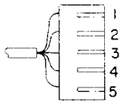


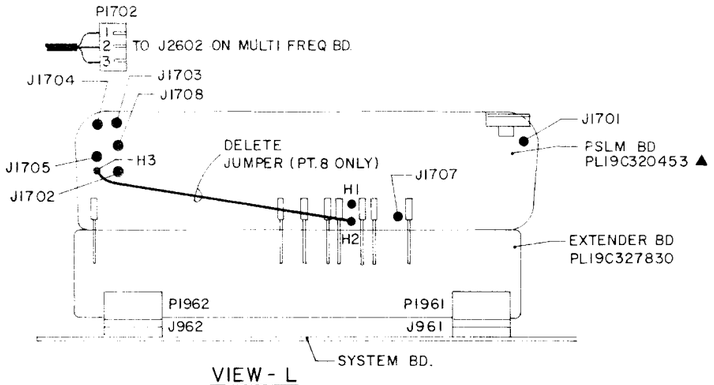
SECT. J-J

* HARDWARE SUPPLIED WITH CONNECTOR J2

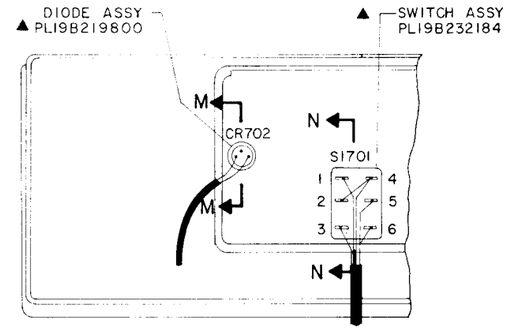
CONNECT WIRES AS FOLLOWS INTO P908 AFTER MOUNTING J2 TO THE CHASSIS ASSY.

WIRE	FROM	TO	REMARKS
BK	J2-E	P908-3	
BK	J2-C	P908-4	
R	J2-D	P908-5	
O	J2-A	P908-1	
BR	J2-B	P908-2	

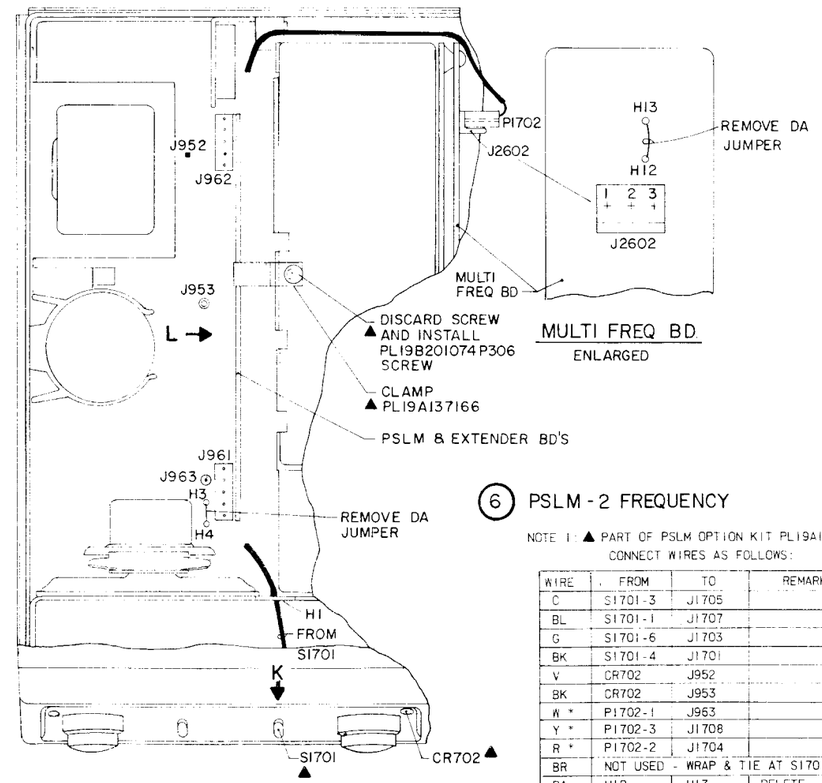




VIEW-L
ROTATED 90° CCW



VIEW-K
ROTATED 90° CW



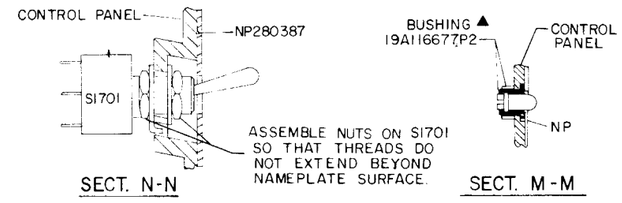
MULTI FREQ BD
ENLARGED

(6) PSLM-2 FREQUENCY

NOTE 1: ▲ PART OF PSLM OPTION KIT PLI9A137165G1
CONNECT WIRES AS FOLLOWS:

WIRE	FROM	TO	REMARKS
O	SI701-3	JI705	
BL	SI701-1	JI707	
G	SI701-6	JI703	
BK	SI701-4	JI701	
V	CR702	J952	
BK	CR702	J953	
W *	PI702-1	J963	
Y *	PI702-3	JI708	
R *	PI702-2	JI704	
BR	NOT USED - WRAP & TIE AT SI701		
DA	HI2	HI3	DELETE
DA	H3	H4	DELETE

* 19B232156 CABLES ▲



SECT. N-N

SECT. M-M

(7) PSLM-SELECTABLE PRIORITY

NOTE 1: ▲ PART OF PSLM OPTION KIT PLI9A137165G1
CONNECT WIRES AS FOLLOWS:

WIRE	FROM	TO	REMARKS
O	SI701-3	JI705	
BL	SI701-1	JI707	
G	SI701-6	JI703	
BK	SI701-4	JI701	
V	CR702	J952	
BK	CR702	J953	
W *	PI702-1	J963	
Y *	PI702-2	JI708	
R *	HI	JI704	CUT WIRE TO LENGTH, STRIP & TIN FOR HI
BR	NOT USED - WRAP AND TIE AT SI701		
DA	HI2	HI3	DELETE
DA	H3	H4	DELETE

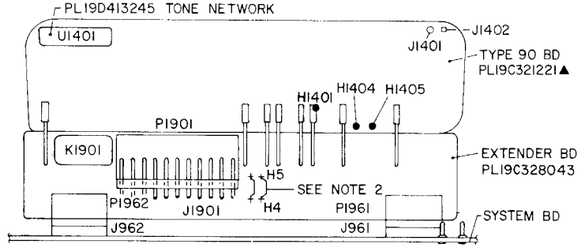
(8) PSLM-SELECTABLE NON PRIORITY (LOCKED PRIORITY)

NOTE 1. ▲ PART OF PSLM OPTION KIT PLI9A137165G1
CONNECT WIRES AS FOLLOWS:

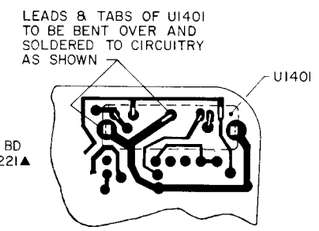
WIRE	FROM	TO	REMARKS
DA	H2	H3	DELETE
O	SI701-3	JI705	
BL	SI701-1	JI707	
G	SI701-6	JI703	
BK	SI701-4	JI701	
BR	SI701-5	JI702	
V	CR702	J952	
BK	CR702	J953	
W *	PI702-1	J963	
R *	PI702-2	JI704	
Y *	HI	JI708	CUT WIRE TO LENGTH, STRIP & TIN FOR HI
DA	HI2	HI3	DELETE
DA	H3	H4	DELETE

(9) TYPE 90 DECODER

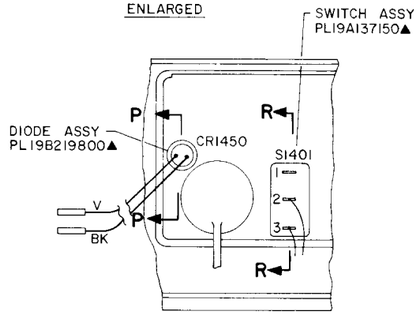
NOTE 1. ▲PART OF KIT PLI9A137165G2
2. REMOVE JUMPER H4 TO H5.

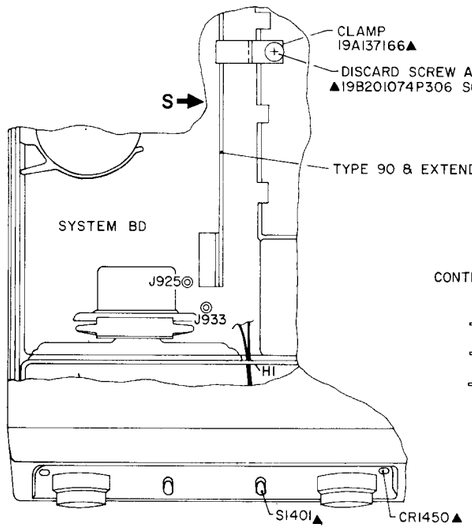


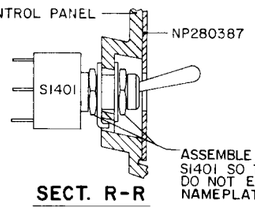
VIEW-S
ROTATED 90° CCW



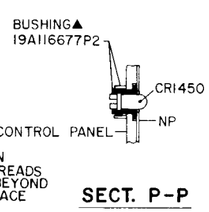
TYPE 90 BD SOLDER SIDE
ENLARGED







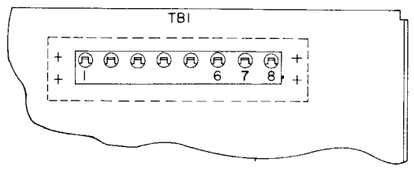
SECT. R-R

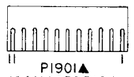


SECT. P-P

CONNECT WIRES AS FOLLOWS:			
WIRE	FROM	TO	REMARKS
G	SI401-3	HI405	SOLDER
R	SI401-2	PI901-1	
V	CRI450	JI402	
BK	CRI450	JI401	
BK	HI404	J925	
V	HI401	J933	
G *	PI901-6	TBI-6	SOLDER
W *	PI901-9	TBI-7	SOLDER
BL*	PI901-8	TBI-8	SOLDER

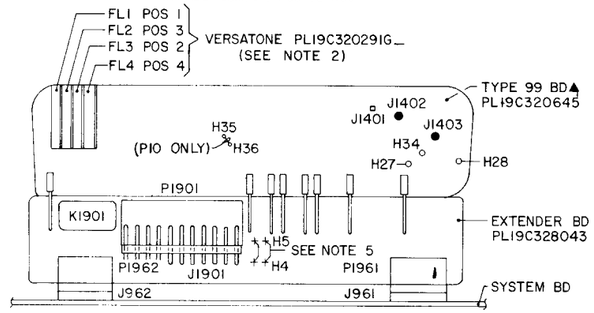
* 19B232156 CABLES ▲



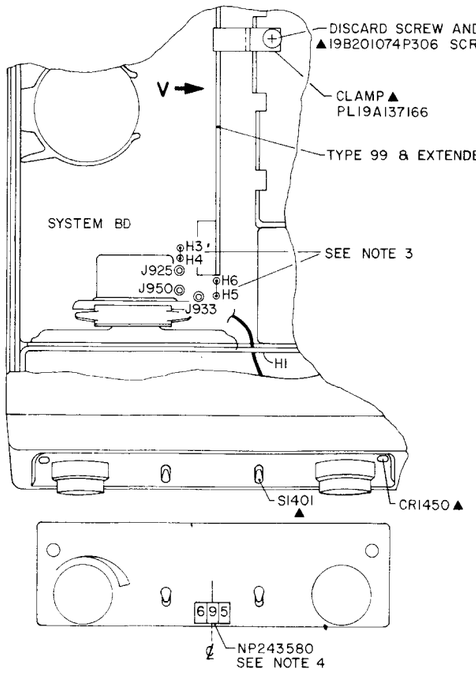


(10) TYPE 99 DECODER, INDIVIDUAL CALL

NOTES:
1. ▲ PART OF PLI9A137165G3.
2. PUT THE VERSATONE FREQUENCY ELEMENTS IN THE POSITIONS INDICATED ON THE "SELECTIVE CALLING SYSTEM" REQUISITION WORK SHEET.
3. ON SYSTEM BD, CUT JUMPER BETWEEN H5 TO H6 & H3 TO H4.
4. APPLY CALL NUMBER PER THE "SELECTIVE CALLING SYSTEM" REQUISITION WORK SHEET AND CENTER AS SHOWN USING NP243580.
5. REMOVE JUMPER H4 TO H5.
6. ADD JUMPER H35 TO H36

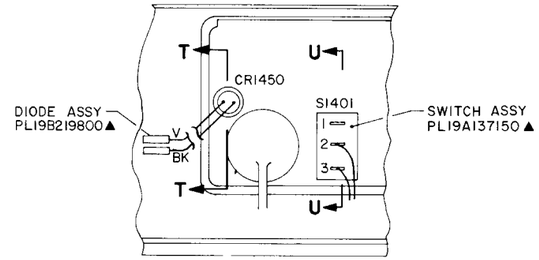


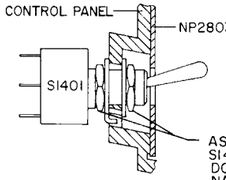
VIEW-V
ROTATED 90° CCW



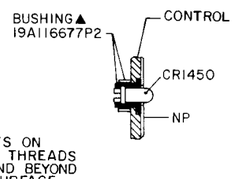
(11) TYPE 99 DECODER, GROUP CALL

SAME AS PART 0 EXCEPT
OMIT "DA" JUMPTER H35 TO H36





SECT. U-U

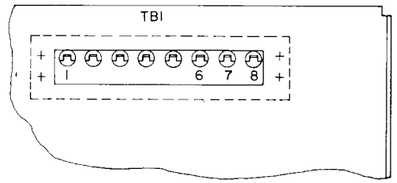


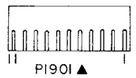
SECT. T-T

CONNECT WIRES AS FOLLOWS:

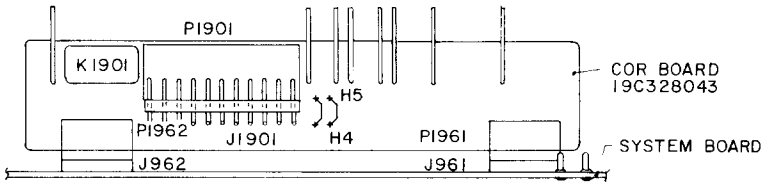
WIRE	FROM	TO	REMARKS
G	SI401-3	H27	SOLDER
R	SI401-2	PI901-1	
V	CRI450	JI401	
BK	CRI450	JI402	
BK	H28	J925	
W	H34	J933	
BL	JI403	J950	▲19B232156
G *	PI901-6	TBI-6	SOLDER
W *	PI901-9	TBI-7	SOLDER
BL*	PI901-8	TBI-8	SOLDER

* 19B232156 CABLES ▲



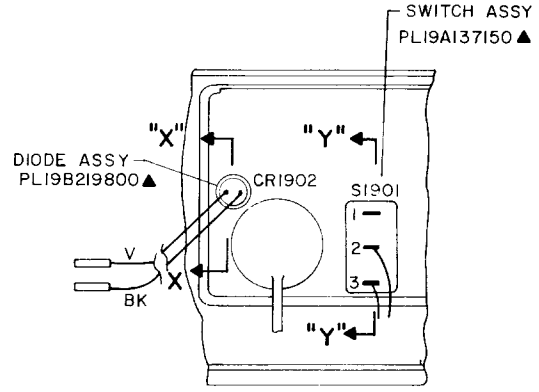


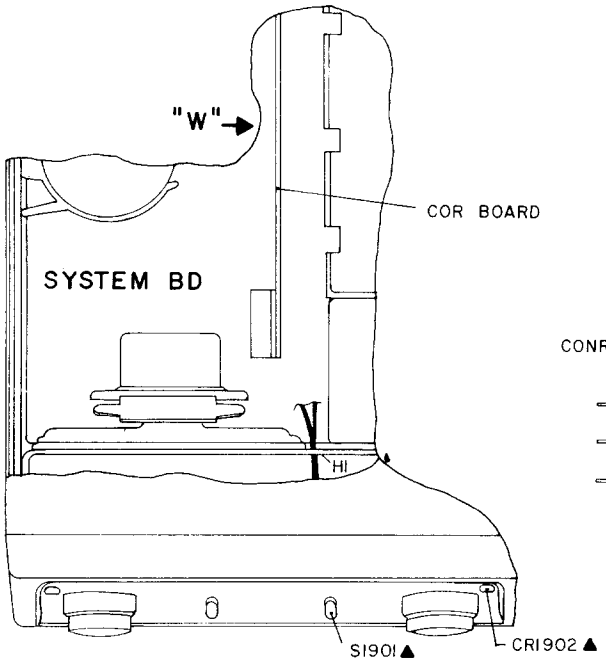
(19D424961, Sh. 4, Rev. 4)

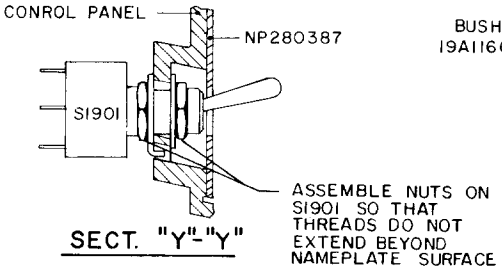


VIEW "W"

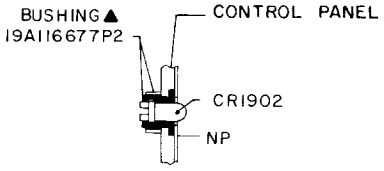
ROTATED 90° CCW







SECT. "Y"-"Y"



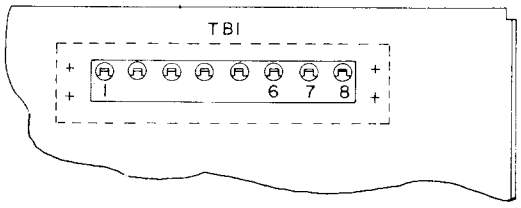
SECT. "X"-"X"

(12) CARRIER OPERATED RELAY

NOTES: 1. ▲ PART OF KIT PLI9AI37165G6

CONNECT WIRES AS FOLLOWS			
WIRE	FROM	TO	REMARKS
R	SI901-2	P1901-3	
O	SI901-3	P1901-11	
V	CRI902	P1901-4	
BK	CRI902	P1901-2	
G *	P1901-6	TBI-6	SOLDER
W *	P1901-9	TBI-7	SOLDER
BL*	P1901-8	TBI-8	SOLDER

* 19B232156 CABLES▲



19A116659P124

(19D424961, Sh. 5, Rev. 2)