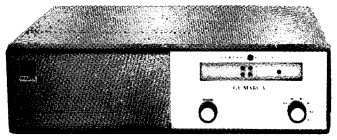
MOBILE RADIO

GE-MARC V™

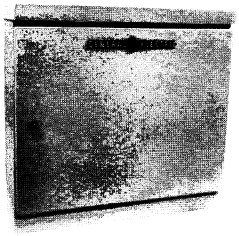
SYNTHESIZED TRUNKED MOBILE RADIO STATION COMBINATION

MAINTENANCE MANUAL LBI30922C



Desk Top Station

Desk Microphone



Wall-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 Top Station	6" x 20-3/8" x 13-3/4" (15.24 cm x 51.75 cm x 34.9 cm)		
Wall Mount Station	21-1/4" x 22-1/2" x 7" (53.9 cm x 57.15 cm x 17.5 cm)		
WEIGHT			
Desk Top Station	46 lbs. (20 kgs.)		
Wall Mount Station	65 lbs. (38 kgs.)		
INPUT VOLTAGE	121/242 VAC, ±20%, 50/60 Hz (Normally shipped wired for 121 VAC)		
RF OUTPUT	TRANSMIT	RECEIVE	STANDBY
25 Watts	360 Watts	72 Watts	36 Watts
TEMPERATURE RANGE	-22° F to +140° F -30° C to +60° C		

EQUIPMENT INDEX

EQUIPMENT	MODEL OR TYPE NUMBER	
	DESK TOP	WALL MOUNT
TRANSMITTER (806-825 MHz)	KT-188-A	KT-188-B
RECEIVER (851-870 MHz)	ER-177-A	ER-177-B
CONTROL PANEL	19D423452G4	19B227070G3
POWER SUPPLY	19D423500G9	19D423500G9
SYSTEM BOARD	19D430992G1	19D430992G1
SYNTHESIZER	19D432005G2	19D432005G2
LOGIC BOARD	19D432913G2	19D432913G2
TONE BOARD	19D432014G1-G4	19D432014G1-G4
CABINET		19D402658G2
TOP COVER	19A122161G4	
BOTTOM COVER	19C311827G2	
LOCK		5491682P14
KEY		5491682P8

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

COMBINATION NOMENCLATURE

Digits 1 & 2	Digit 3	Digit 4	Digit 5	Digit 6	Digit 7	Digit 8	Digit 9	Digit 10
Product Code	Mechanical Package	System Voltage	Control	Power Output	Channels	Channel Plan	Channel Block	Start Channels
S2	**Y** Desk Top Station Synthesized	**S** 121 VAC	**L** Local	**5** 21-40 Watts	**A** 1	**0** None	**A** 1	**A** 1st
	W Wall-Mount Station Synthesized	**H** 242 VAC	**K** Local/DC Remote 3051.9 Hz Busy Tone		**C** 2	**1** Chicago	**B** 2	**F** 6th
			R DC Remote	**R** 13	**E** 3	**2** Nation-wide No. 1	**C** 3	**L** 11th
			M Local/DC Remote 2918.7 Hz Busy Tone	**S** 14	**F** 4		**D** 4	**S** 16th
			E Extended Local	**T** 15	**G** 5		**E** 5	**X** As Specified
			W Extended Local/DC Remote	**U** 16	**H** 6		**F** 6	
				V 17	**J** 7		**G** 7	**L** 11
				W 18	**K** 8		**H** 8	**M** 12
				Y 19	**L** 9		**J** 9	**N** 13
				Z 20	**M** 10		**K** 10	**X** As Specified
				X As Specified	**N** 11			
					P 12			

Structured Options						
A	B	C	D	E	F	J
0 None	**0** None	**0** None	**0** None	**0** 3051.9 Hz Busy Tone	**0** None	**0** None
1 1 - Encode	**D** Call Decode	**H** Handset w/Hook-switch	**1** Clock 12 Hr. 60 Hz	**A** 2918.7 Hz Busy Tone	**C** Area Select	**D** Ind. Call Encode
2 2 - Encode			**2** Clock 12 Hr. 50 Hz			
3 3 - Encode			**3** Clock 24 Hr. 60 Hz			
4 4 - Encode			**4** Clock 24 Hr. 50 Hz			
5 5 - Encode						
6 Multi-call Encoder						

DESCRIPTION

The GE-MARC V TRUNKED MOBILE RADIO CONTROL STATION is fully transistorized utilizing silicon transistors and Integrated Circuits (IC's). The station transmitter/receiver assembly swings up (in the Desk Top Station) to provide access to both sides of the unit. The chassis swings down in Wall Mount Stations. Refer to Figure 1 and 2.

The transmitter and receiver are equipped with centralized metering jacks for aiding the serviceman while performing the alignment and troubleshooting procedures. The receiver and synthesizer plug in and out from the top of the radio chassis. The System Audio Squelch Board is accessible when the chassis is pivoted out of the frame. The transmitter PA heat sink casting forms an enclosure for the PA Board which is mounted parallel to the casting. The PA heat sink is mounted on pivoting brackets to allow access to the PA Board.

The Station System-Audio-Squelch (SAS) Board, located on the underside of the radio chassis, (Figure 2) contains the 5-Watt Audio Amplifier, Squelch, 10-Volt regulators for the synthesizer and receiver, the transmit/receive switching controls and a station audio pre-amplifier. Jacks are also provided on the SAS board for plug-in interface with the control and power functions.

The local control panel of the Desk Top Station is mounted on the front of the station and contains the Volume control and optional Encode Selector Switch. The Call/Transmit Switch and the Clear Switch are located at the base of the microphone. The Wall Mount Station local control panel is mounted within the weather-proof cabinet.

For DC Remote control application, the Remote Control Board is housed in a separate metal cabinet and is interconnected with a cable that is routed through the oval hole in the rear of the station. The cable is plugged into J901 on the SAS board (J912 on the Wall Mount Station SAS Board). Remote functions available are transmit receive and clear.

The GE-MARC V Power Supply operates from 121 VAC at 50 or 60 Hertz, delivering 16 VDC during receive and 13.2 VDC (at 11 Amperes) during transmit. Jumper connections are provided under the chassis for converting the Power Supply to 242 VAC operation.

INITIAL ADJUSTMENT

After the station combination has been installed (as described in the Installation Manual), the following adjusments should be made by an electronic technician holding a 1st or 2nd Class FCC Radiotelephone license. 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.

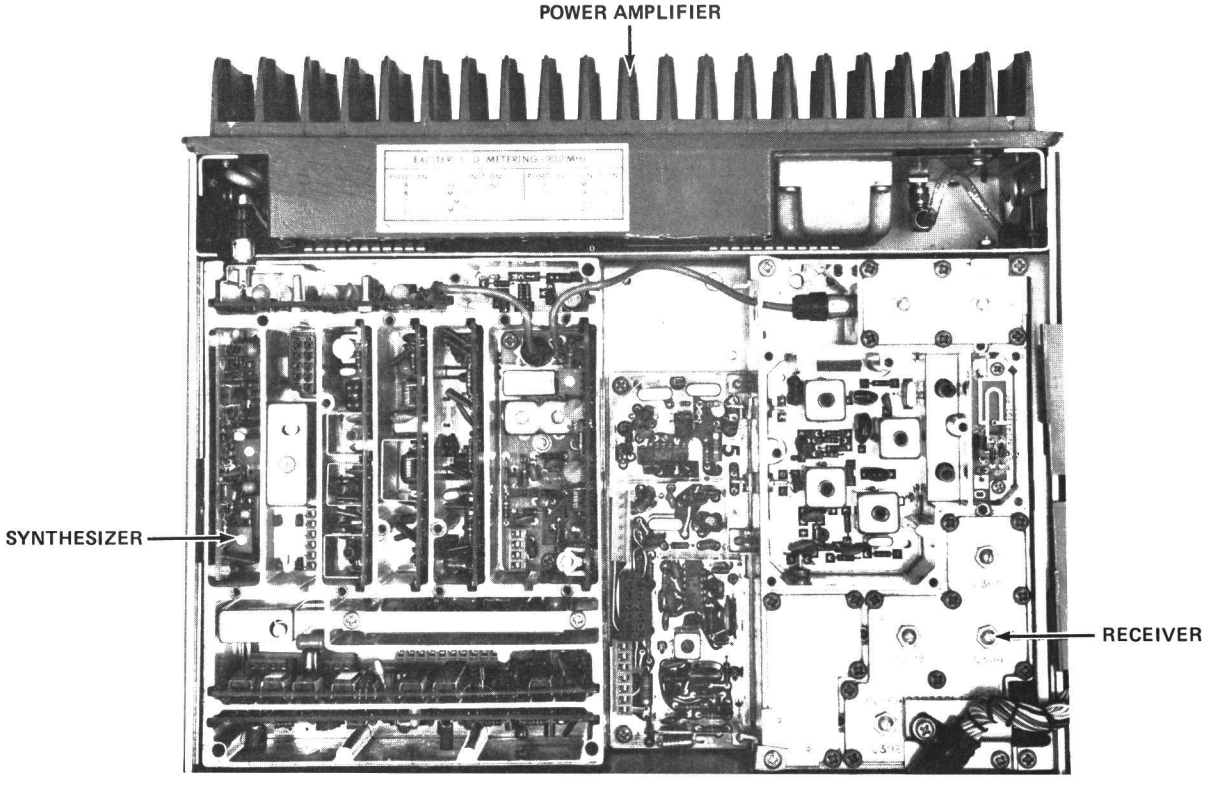

Figure 1 - Top View with Cover Removed

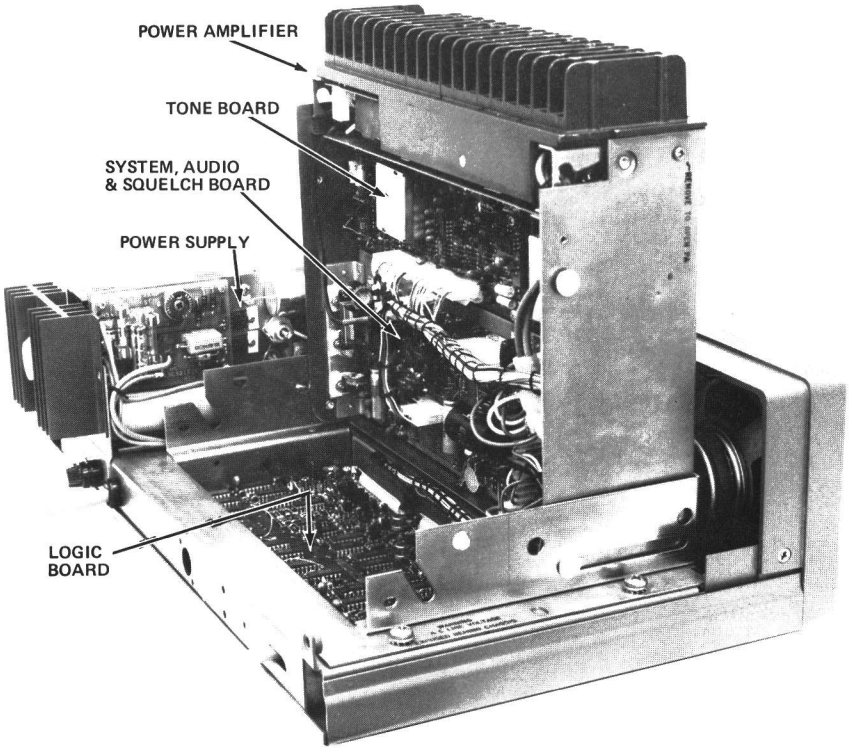

Figure 2 - Bottom View with Unit Lifted Out of the Mounting Frame

POWER SUPPLY ADJUSTMENT

Before applying power to the station, make certain that the power supply regulator potentiometer R5 is set at mid-range of its adjustment. Then apply power and adjust-R5 for an output from the regulator of 15.5 VDC.

TRANSMITTER ADJUSTMENT

The adjustments for the transmitter include measuring the forward and reflected power and adjusting the antenna length for optimum ratio, then setting the transmitter to rated power (or to the specific power output which may be required by the FCC station authorization). Next, measure the frequency and modulation and enter these measurements in the FCC required station records.

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

RECEIVER ADJUSTMENT

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

To set the station VOLUME control (R701), use the following procedures:

1. Apply a 1,000 microvolt on-frequency test signal modulated by 1,000 Hertz with ±3 kHz deviation to the receiver antenna jack J2.

2. Connect an AC VTVM across P912, terminals 1 and 2. Adjust R701 on the Control Unit for a reading of 6.3 Volts RMS on the meter.

To set the station SQUELCH control (R953) use the following procedure: Refer to Figure 3.

1. Turn the SQUELCH control R953 (located on the SAS Board) clockwise as far as possible.

2. Adjust the VOLUME control until the noise is easily heard in the speaker and is not annoyingly loud.

3. Turn the SQUELCH contol counterclockwise until the noise just disappears, then turn the control counterclockwise until the receiver just opens with 12 dB SINAD input to the radio.

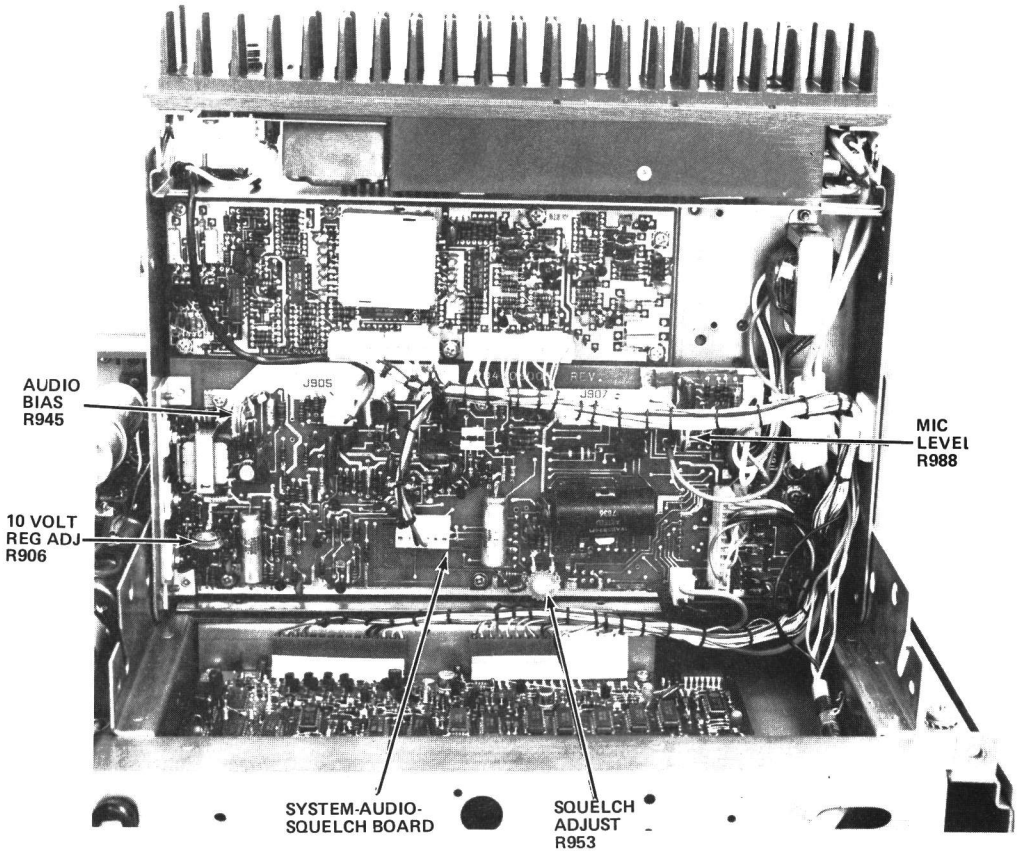

Figure 3 - Adjustments on System-Audio-Squelch Board

NOTE

The squelch is factory set for 12 dB SINAD. Adjustment of the squelch effects the signaling threshold of the radio.

MICROPHONE LEVEL ADJUSTMENT

While talking in a normal voice at four to six inches from the station microphone, adjust the MIC LEVEL control R988 (located on the SAS Board) for an average deviation of ±3.0 kHz as measured on a deviation monitor.

AUDIO BIAS ADJUSTMENT

AUDIO BIAS ADJUST trimmer R945 sets the bias on the audio output stage. The trimmer is adjusted for a reading of 20 mA at metering jack J910 (or 0.006 VDC across R949 with the receiver squelched).

CLOCK ADJUSTMENT (Logic Board)

NOTE

This is a factory adjustment and will not need routine adjustment.

The clock generator on the logic board operates the timers, channel search generator, tone sequence generator and various strobing functions. The clock period adjustment procedure is as follows: (Refer to Logic Board Maintenance Manual).

1. Connect oscilloscope to TP13 on the Logic board.
2. Adjust R13 for 11 cycles per second i.e., 90 milliseconds per cycle.

CAUTION

Be sure scope is calibrated, if in doubt check against 60 Hz line voltage for 16.6 ms per cycle.

OPERATIONAL STRAPPING ON LOGIC BOARD

Strapping is required on the Logic Board to adapt it to various operating parameters such as the number of channels, Individual Call Encode, and Individual Call Decode. Refer to the Logic Board Maintenance Manual for detailed strapping information.

TRANSMIT TIME OUT TIMER

The Transmit Time Out Timer can be disabled by connecting P2 to J15 on the Logic Board. For normal operation P2 is connected to J16.

VERSATONE IDENTIFICATION AND LOCATION

Versatones are located on the Tone Board. Tone identification, position of Versatones and standard signaling tones are identified on the Versatone chart. Refer to the Logic and Tone Board Outline Diagram.

MAINTENANCE

To insure high operating efficiency and to prevent mechanical and electrical failures from interrupting systems 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.

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 specification 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.

CAUTION

The Logic and Tone Boards contain C-MOSS IC's which may be damaged by handling. Use proper static protection when servicing these boards.

SYSTEM DESCRIPTION

RECEIVER

The 851-870 MHz Receiver consists of an RF assembly and IF-detector assembly (IFD). The audio and squelch circuitry is located on the System board.

Refer to the Receiver MAINTENANCE MANUAL for a complete description of the station receiver.

TRANSMITTER

The 806-825 MHz Transmitter consists of a synthesizer and a power amplifier assembly. The PA assembly mounts on a hinged heat sink casting that swings down for easy access. A low-pass filter mounts next to the PA assembly. In the receive mode, the synthesizer

MAINTENANCE CHECK	INTERVAL BETWEEN CHECKS	
	Every 6 Months	As Required
Transmitter Alignment - Compare meter reading at the synthesizer metering jack with voltages read during initial tune up. Check power output. (See Alignment Procedure for Transmitter).		X
Receiver - While receiving a modulated signal on the station frequency(s). Check SINAD and squelch sensitivity for 12 dB SINAD. (See the Receiver Alignment Procedure Maintenance Section).		X
Transmission Line - Check for positive indication of pressure on transmission line pressure gauge (if pressurized line is used).	X	
Antenna - Check antenna and mast for mechanical stability.	X	
Mechanical Inspection - Visually check cables, plugs, sockets, terminal boards and components for good electrical connections. Check for tightness of nuts, bolts and screws to make sure that nothing is working loose from its mounting.	X	
Cleaning - Use a vacuum cleaner to remove dust which has accumulated inside the cabinet.	X	
Frequency Check - Check transmitter frequency & deviation as required by FCC. VOICE MAX - 4.0 kHz BUSY TONE (ATTN) 1.0 kHz		X

serves as the receiver first oscillator. The antenna relay is mounted on the Low Pass Filter board. Refer to the Transmitter MAINTENANCE MANUAL for a complete description of the station transmitter.

DESK-TOP CONTROL PANEL

The Desk-Top Control Panel contains the station VOLUME control, Optional Tone Select Switch, a green Power "ON" Light Emitting Diode (LED) indicator, a red "Transmit" LED indicator, a Red "Wait" LED indicator, a Green "Ready" LED indicator, a Yellow "Call" LED indicator, and the station speaker.

VOLUME control R701 is a variable resistor used to control the audio output of speaker LS701.

A transistorized dynamic desk-top microphone is used with the station. The microphone has two push buttons on the mike base: A CALL/TRANSMIT button and a CLEAR button. The CLEAR button allows the Radio operator to unlock the radio from a channel allowing the radio to search the remaining channels for a call or to call another group.

WALL-MOUNT CONTROL PANEL

The Wall-Mount Control Panel is mounted on the system frame next to the power supply. The control panel contains the VOLUME control (R701), the CLEAR switch (S701), a microphone connector and a 3.5 ohm audio speaker load resistor (R702), connected across TB701-1 and 2. R702 is removed when the speaker option is used. A transistorized handheld microphone is also available for local applications.

POWER SUPPLY

The station power supply provides all supply voltages for the station. The supply is normally wired for 121 VAC, 50 or 60 Hertz operation. Jumper connections are provided under the chassis to convert the supply to 242 VAC operation when required. Refer to the Power Supply Schematic Diagram and to the 242 VAC modification instructions.

The station power supply delivers 16 Volts in the receive mode and 13.2 Volts in the transmit mode. A full-wave bridge rectifier (CR801-CR804) feeds a choke input filter (L801, C801, C802). A series pass regulator (Q801, Q802, Q803) provides regulation and filtering. The supply is designed for a 100% duty cycle.

Power is applied to T801 by turning OFF-ON switch S801 to the ON position. A 4-Amp fuse in one side of the AC lead protects the supply from overloads. The AC voltage developed across the secondary of T801 is rectified by full-wave bridge rectifier CR801 through CR804. Some filtering of the rectified voltage is provided by L801, C801 and C802. The secondary of T801 is protected by 15 Amp fuse F1 (on A801).

The regulator is located on printed board A801. The pass transistor (Q801) is mounted on a heat sink which dissipates heat to the outside ambient in the Desk-Top station. The rectifier output is applied to the collectors of Q801 and Q802. In the transmit mode, Q801 and Q802 operate as a filter for the voltage applied to the transmitter. In the receive mode, the circuit acts as a limiter for the receiver supply voltage.

If the output of Q801 starts to rise, VR1 (in the base of Q803) breaks down and Q803 starts conducting. This causes Q801 and Q802 to conduct less, limiting the voltage to the receiver. Potentiometer R5 is set at the factory for a maximum output of 16 Volts at the emitter of Q801 when the station is in the receive mode.

The power supply may be equipped with a battery standby kit (Option PA12). This kit permits operation from a Customer supplied 12 Volt battery in the event of an AC power failure. The circuit consists of fuse F802 and isolating diode CR805.

Under normal operating conditions, CR805 is reverse biased by the supply voltage from the limiter-filter circuit, preventing any drain on the battery. An AC power failure removes the reverse bias on CR805 and the battery voltage is automatically applied to the station.

For this application, a heavy duty battery (55 Ampere-hours or greater) and a trickle charger is recommended. These items must be supplied by the customer. This arrangement will supply 10 or more hours of standby capability.

SYSTEM-AUDIO-SQUELCH BOARD

The System-Audio-Squelch Board mounts on the underside of the radio chassis and is accessible when the radio chassis is pivoted out of the frame. The board provides interconnection between the control and radio modules. Molex pins on the board protrude through slots to make connection to IF/Detector board. Molex pins on the top of the board provide connections to the station harness plugs.

The System-Audio-Squelch (SAS) Board contains the 10 VDC power regulators for the synthesizer and receiver, the transmit/receive switching controls, a microphone preamplifier and the station audio amplifier and squelch circuits. Refer to the System, Audio and Squelch (SAS) MAINTENANCE MANUAL for a complete description of the SAS Board.

LOGIC BOARD

The Logic Board controls the operation of the station and consists of a control section, search section, sequency generator and clock. Refer to the Logic Board Maintenance Manual.

TONE BOARD

The Tone Board contains the tone generators (Versatones) required to control operation and provide signaling information with up to 10 Versatones used. In addition the board contains the Tone Notch Filter and Tone Alert Oscillator. Refer to the Tone Board Maintenance Manual.

SYNTHESIZER

The synthesizer is made up of ten boards that plug into the mother board that provide one through twenty channel operation. In the receive mode, the synthesizer provides the injection frequency for the local oscillator input to the 1st mixer stage. Refer to the transmitter MAINTENANCE MANUAL for a complete description of the synthesizer.

VU METER KIT (OPTION VB10)

The VU Meter allows the operator to check the mike output level. Only LOCAL PTT activates the VU Meter circuit by turning off Q3 and allowing the MIKE HI audio through to the meter M1. This prevents the meter from deflecting on background noise when a "live" microphone is used. The VU Meter Kit is located in the space provided on the front cover assembly of the Desk Top stations.

LOCAL CONTROLLER EXTENSION (OPTION MD15)

The Local Controller Extension Kit 19A130927G2 adapts the station for use with the Local Controller Extension, a Tone Remote Adapter, or a Phone Patch. This option is not compatible with option VB10 VU Meter Kit.

ELECTRONIC DIGITAL CLOCK (Comb. Digit D: 1-4)

The Electronic Digital Clock is designed for operation with a 12 Hour or 24 Hour readout. The readout consists of six digit positions. Each digit position is composed of a seven-segment display. The Clock Kit is located in the space provided on the Desk Top Station front cover assembly adjacent to the VU Meter. The following versions of the Electronic Digital Clock are available:

Comb. Digit D		
1	12 Hour Readout,	60 Hertz
2	12 Hour Readout,	50 Hertz
3	24 Hour Readout,	60 Hertz
4	24 Hour Readout,	50 Hertz

INDIVIDUAL CALL OPTION

The switch kit mounts in the front panel and plugs into the station harness to allow up to five (5) individual encode tones to be selected in addition to group or all call.

SYSTEM OPERATION AND CHECKOUT

Proper operation of the GE-MARC V system requires that the transmitter and receiver be aligned to provide a bandwidth of 5.0 MHz. This is achieved by tuning the receiver to the center frequency of the customers assigned operating frequencies. The transmitter is tuned to the lowest frequency provided. The deviation is set specifically for operation in the GE-MARC V system. Refer to the applicable Maintenance Manual for detailed alignment instructions.

TEST EQUIPMENT REQUIRED

1. GE-MARC V Test Set (TL59).
2. 50 ohm Wattmeter capable of dissipating 50 watts.
3. Deviation Monitor.

TEST EQUIPMENT SET-UP

1. Connect wattmeter to antenna jack.
2. Deviation Monitor as shown in Transmitter Manual.
3. Remove harness from logic board and connect it to the GE-MARC V test set connector. Station harness should be Parallel to test set harness.

NOTE

The System Operation and Checkout procedures given below assume the transmitter and receiver have been previously aligned to provide the 5.0 MHz bandwidth required for operation in the GE-MARC V System.

TRANSMITTER CHECKOUT

1. Using the test set, select each channel and check transmitter for proper power output, correct frequency and deviation. If realignment is required refer to the transmitter manual.

2. Check function switch positions; Wait Light, for "WAIT" light (LED) on control unit; Ready Light, for "READY" light (LED) on control unit; Call Light, for "CALL" light (LED) on control unit.

TONE DEVIATION CHECK

1. Select "ATTN" position with tone switch and "ENC" position using the mode switch on the test set. Key the transmitter using the PTT switch. Adjust the Channel Guard Mod adjustment control (R2) on the Audio Processor (in the synthesizer) for attenuated busy tone (3051.9 Hz) with deviation of 1 kHz ±0.1 kHz.

2. After busy tone (ATTN) has been properly adjusted, check busy, collect, all (IND. tones(s) if present) and ACQ Tone Deviation for 2.5 to 4 kHz.

NOTE

If the station has an Encode switch, check all positions with the test set in the "GROUP" position.

3. Select "ALERT" tone position (test set). A tone should be present in speaker with volume control at minimum and gets louder as the volume control is turned clockwise.

4. Select "MIC ENABLE" on the function switch (test set) and "ATTN" on the tone switch. Using the PTT switch, key the transmitter. Observing the deviation meter, talk loudly into the mike; the maximum deviation should be 4.5 kHz, with BUSY tone at 1 kHz Deviation (Encode) 3.75 kHz without BUSY tone (Decode).

5. Select "TX DIS" on the function switch (test set). Press the PTT switch. Power output should be 0 watts.

RECEIVER CHECKOUT

NOTE

Set function switch to "TX DIS" to protect signal generator from accidental RF damage.

1. Check receiver sensitivity, distortion and audio power output, on all channels. If tuning or receiver alignment is required, refer to the receiver maintenance manual before proceeding.

2. Verify squelch OPENS at 12 dB ±1 dB SINAD.

NOTE

The squelch adjustment is critical to proper system operation. Double check by slowly increasing RF signal until squelch opens.

3. Set ENCODE/DECODE Mode switch to "DECODE (test set).

4. Apply an RF signal with 0.5 kHz deviation of busy tone at 20 dB above equivalent SINAD level. The "TONE" LED should illuminate.

5. Check "COLLECT", "ALL", "IND" tones(s), and ACQ tone frequencies.

6. Turn power "off". Disconnect test set and reconnect harness to logic board. Disconnect wattmeter.

STATION SYSTEM SIGNALLING

NOTE

System signalling and operational checkout is accomplished on-the-air utilizing the customers operational system.

REPEATER ACQUISITION

1. Connect radio to antenna.

2. Key the radio using the mike PTT switch. The radio should begin to transmit; the WAIT light and then the "XMIT" light should come on. If a repeater is accessed, the WAIT light will go out and the READY light will come on. A one second interrupted tone should be heard in the speaker. If a repeater is not accessed, the radio will key several times and timeout. A continuous tone (approximately 1 sec.) should be heard in the speaker and the WAIT light will go out.

3. If a repeater is not accessed, troubleshoot the radio and/or repeater systems.

INITIATING A CALL

1. Apply power to the radio.

2. Select "M1" (if present) on the Control Unit.

3. Using the PTT switch, key the microphone When a repeater is acquired, the radio being tested should sound a one second interrupted tone. The mike and audio circuits should be activated on both radios and simplex conversation possible in each direction.

4. Unkey the microphone and allow the units to time out. (Repeater should time out in 5-6 seconds and the station less than one second later. (Ready light should go off).

5. Repeat above procedure for all radios in the system. Operation should be the same.

INDIVIDUAL CALL (Option)

1. Initiate a call as instructed before. The results should be the same except call light will light (if present).

NOTE

The called unit should respond in any switch position.

MULTI-GROUP (Option)

1. Check each group switch position. It should be possible to signal (one way) with corresponding group switch positions (with like Tone elements).

2. Check that the radio will not signal if switch position differs.

LOGIC AND TONE BOARD INTERFACE SIGNALS

NOTE

The Logic board and Tone board are not considered field repairable. Should these boards malfunction, they must be returned to the factory for repair or replacement.

The Logic Board and Tone board interconnect with the System, and Oscillator boards to the Control Unit through the power control cable. Each of the interface signals are defined below to aid the technician when troubleshooting the GE-MARC V system. A Logic "1" is a DC voltage greater than +2.0 VDC. A Logic "0" is less than 1.0 VDC. The absence or presence of a bar over the signal name indicates the active state for that signal. For example: $\overline{\text{MIC PTT}}$ indicates this signal is active in the logic "0" state. "ENCODE MODE" indicates the signal is active in the logic "1" state.

LOGIC BOARD			
SIGNAL	J2401	ORIGINATES	DESCRIPTION
F0 thru F7	-1 thru 8	Logic Board	FREQUENCY SELECT. BCD Code per chart in Test Set Book.
A-	-11	System Board	A-. System common.
+10 V REG	-12	System Board	+10 VOLT REGULATOR. Supply voltage to Logic Board +V1, V2 and V3.
$\overline{\text{TX DISABLE}}$	-13	Logic Board	TRANSMIT DISABLE. Logic "1" when the transmitter is NOT disabled. Logic 0 when transmitter is disabled by Timer. Timer times out after the transmitter has been keyed for 2.5 minutes (Accidental Key).
ENCODE MODE	-14	Logic Board	ENCODE MODE. Logic 1 when PTT switch is operated or during ALERT TONE ENABLE enables tone encoder. Logic 0 when PTT is released.
$\overline{\text{TONE PTT}}$	-15	Logic Board	TONE PUSH-TO-TALK. Logic 1 when TONE PTT switch is NOT operated. Logic 0 when TONE PTT switch is operated.
$\overline{\text{ACQUISITION TONE SELECT}}$	-16	Logic Board	ACQUISITION TONE SELECT. Logic 1 in IDLE and READY modes. Logic 0 in WAIT mode when Acquisition tone is selected.
SIGNAL	J2402	ORIGINATES	DESCRIPTION
$\overline{\text{MIC PTT}}$	-1	Microphone	Microphone Push-to-Talk. Logic 1 in idle mode, Logic 0 when PTT switch is operated.
$\overline{\text{HOOKSWITCH}}$	-2	Hookswitch	
CAS	-3	System Board	Carrier Activated Switch. Logic 1 when RF carrier is present in receive mode (receiver unsquelched). Logic 0 when no RF carrier is received.

LOGIC BOARD (CONTINUED)			
SIGNAL	J2402	ORIGINATES	DESCRIPTION
WAIT LIGHT	-4	Logic Board	Wait Light. Logic 1 during call-originate-mode (before channel acquisition). Logic 0 in idle mode and Ready mode.
$\overline{\text{TONE DETECT}}$	-5	Tone Board	TONE DETECT. Logic 1 when tone frequencies present on tone board are not being decoded. Logic 0 when any tone frequency present on tone board is decoded.
$\overline{\text{CALL LATCH}}$	-6	Logic Board	CALL LIGHT LATCH. Logic 1 when channel is idle and no calls are received. Logic 0 when a call is received, remains at Logic 0 until reset by first PTT in ready mode.
BUSY TONE ATTN	-7	Logic Board	BUSY TONE ATTENUATE. Logic 1 during READY mode. Logic 0 in idle or wait mode.
MIC ENABLE	-8	Logic Board	MICROPHONE ENABLE. Logic 1 during READY mode. Logic 0 when in idle mode when no transmissions are in progress and during ALERT TONE ENABLE.
READY-LIGHT	-9	Logic Board	READY LIGHT. Logic 1 during READY mode. Logic 0 when in idle mode when no transmissions are in progress.
$\overline{\text{RX MUTE}}$	-10	Logic Board	Receiver Mute. Logic 0 during IDLE and WAIT modes. Logic 1 during READY mode.
SQ DISABLE	-11	Logic Board	Squelch Disable. Logic 1 when Alert Tone is active. Logic 0 when not active.
$\overline{\text{ALERT TONE ENABLE}}$	-12	Logic Board	ALERT TONE ENABLE. Logic 1 when Tone is not enabled. Logic 0 (active) when Alert Tone is selected.
BUSY TONE SELECT	-13	Logic Board	Busy Tone Select. Logic 1 when Busy Tone is SELECTED. Logic 0 when Busy Tone is not SELECTED.
ALL SELECT	-14	Control Unit	ALL Select. Logic 0 when ALL mode is selected. Allows user to establish personal line to the base for telephone interconnection. Logic 1 when M1-M5 mode is selected. Allows communication with all users within group.
COLL TONE SELECT	-15	Logic Board	COLLECT TONE SELECT. Logic 1 when collect tone is SELECTED. Logic 0 when collect tone is not selected.
GROUP TONE (ALL) SELECT	-16	Logic Board	GROUP TONE SELECT. Logic 1 when group Tone is SELECTED during the WAIT and Idle modes. Logic 0 in READY mode and when not selected during WAIT and Idle modes.
I. Tone ENC. SELECT	-17	Logic Board	INDIVIDUAL TONE ENCODE SELECT. Logic 1 when Option switch in TEL or BASE position. Individual Tone is transmitted to establish a personal line. Logic 0 when OPTION switch is in NORM position.
I. TONE DECODE SELECT	-18	Logic Board	INDIVIDUAL TONE DECODE SELECT. Logic 1 when individual tone (2nd Group tone) is SELECTED, establishing a private channel from the caller. Logic 0 when not SELECTED.

TONE BOARD			
SIGNAL	J1401	ORIGINATES	DESCRIPTION
I. TONE ENCODE SELECT	-1	Logic Board	INDIVIDUAL TONE ENCODE SELECT. Logic 1 in WAIT mode when this Tone is selected. This tone is used during individual call only. Logic 0 during Idle and READY modes.
BUSY TONE SELECT	-2	Logic Board	BUSY TONE SELECT. Logic 1 when Busy Tone is ACTIVE during WAIT or IDLE modes. Logic 0 when not selected.
COLL TONE SELECT	-3	Logic Board	COLLECT-TONE SELECT. Logic 1 when collect tone is ACTIVE during WAIT or IDLE modes. Logic 0 when not selected.
I. TONE DECODE SELECT	-4	Logic Board	Individual Tone Decode Select. Logic 1 in IDLE MODE when anticipating receipt of 2nd TONE. Logic 0 during WAIT and READY modes.
GROUP TONE SELECT	-5	Logic Board	GROUP TONE SELECT. Logic 1 when Group Tone is ACTIVE during WAIT or IDLE modes. Logic 0 when not selected.
$\overline{\text{TONE DETECT}}$	-6	Tone Board	TONE DETECT. Logic 1 in all modes when tones are not being transmitted or received. Logic 0 when any of tones present on tone board are transmitted or received.
BUSY TONE ATTN.	-7	Logic Board	BUSY TONE ATTENUATOR. Logic 1 during READY mode and when call is received. Logic 0 in idle mode.
TONE LO	-8	System Board	TONE LO. A-
TONE HI	-9	Tone Board	TONE HI. Tone at selected tone frequency. Present when associated versatone is selected.
$\overline{\text{ALERT TONE ENABLE}}$	-10	Logic Board	ALERT TONE ENABLE (Accidental Key). Logic 1 when alert tone is inactive. Logic 0 when Alert Tone is generated.
TONE REJ. FILTER (IN)	-11,		TONE REJECT FILTER. Interconnects to System Board.
TONE REJ. FILTER (OUT)	-12		
SIGNAL	J1402	ORIGINATES	DESCRIPTION
VOL.SQ. H1	-1	System Board	VOLUME/SQUELCH H1. The point at which the Audio and Squelch are separated.
BLANK	-2		
ENCODE MODE	-3	Logic Board	ENCODE MODE. Logic 1 when PTT switch is operated or during ALERT TONE ENABLE enables tone encoder. Logic 0 when PTT is released.
+10V REG	-4	System Board	+10 VOLT REGULATOR. Supply voltage to Logic Board +V1, V2 and V3.
BLANK	-5		
A-	-6		A-. System common.

TONE BOARD (CONTINUED)			
SIGNAL	J1403	ORIGINATES	DESCRIPTION
GROUP 2 (M2) SELECT	-1	Tone Board	GROUP 2 (M2) TONE SELECT. Logic 0 when Group 2 (M2) Tone is active during WAIT or IDLE modes. Logic 1 when not selected.
GROUP 3 (M3) SELECT	-2	Tone Board	GROUP 3 (M3) TONE SELECT. Same as Group 2 (Except for tone).
GROUP 4 (M4) SELECT	-4	Tone Board	GROUP 4 (M4) TONE SELECT. Same as Group 2 (Except for Tone).
GROUP 5 (M5) SELECT	-3	Tone Board	GROUP 5 (M5) TONE SELECT. Same as Group 2 (Except for Tone).
$\overline{\text{ACQUISITION}}$ $\overline{\text{TONE SELECT}}$	-5	Logic Board	$\overline{\text{ACQUISITION TONE SELECT}}$. Logic 1 in IDLE and READY modes. Logic 0 in WAIT mode when Acquisition tone is selected.
GROUP 1 (M1) SELECT	-6	TONE BOARD	GROUP 1 (M1) TONE SELECT. Same as Group 2 (Except for Tone).

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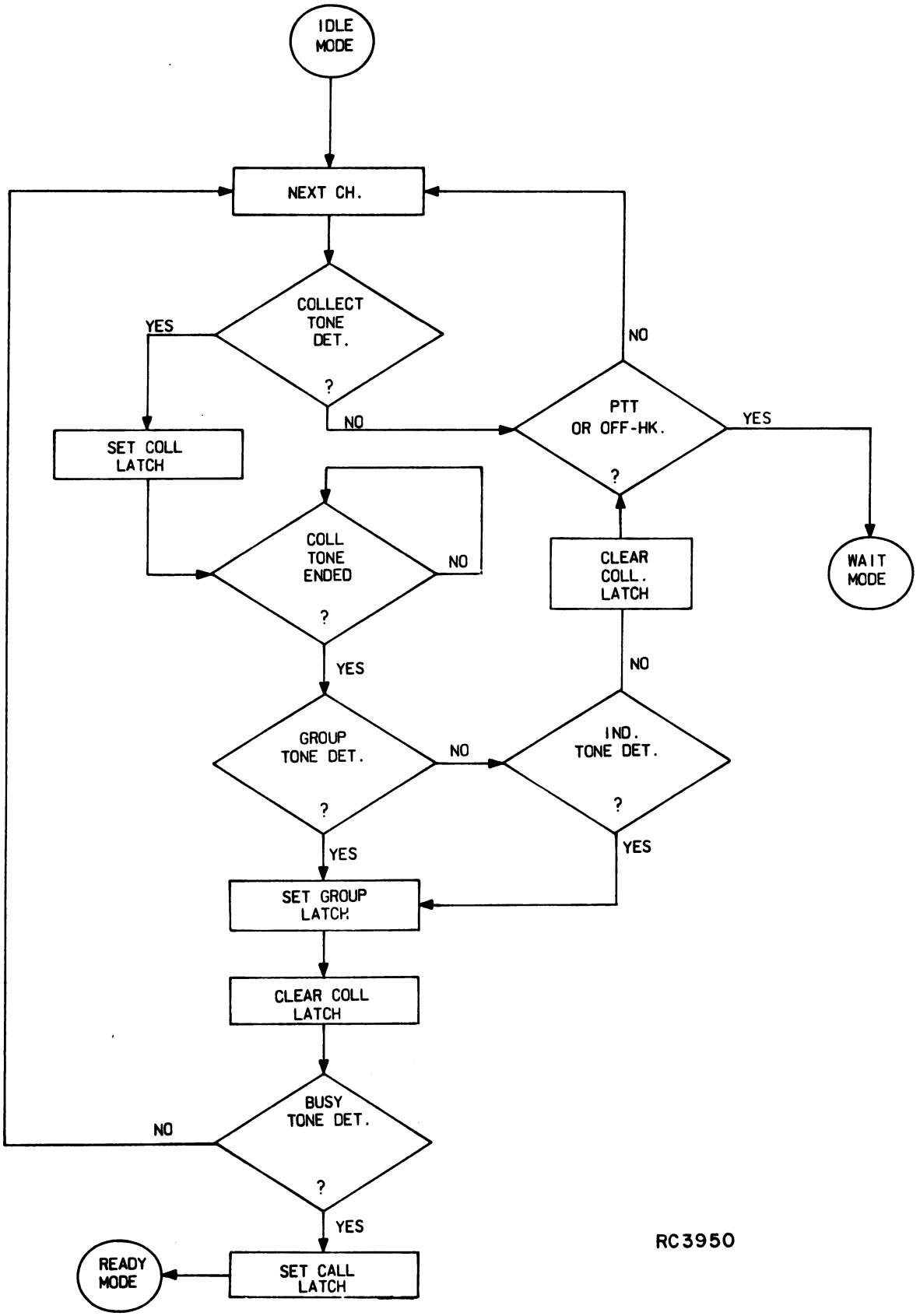
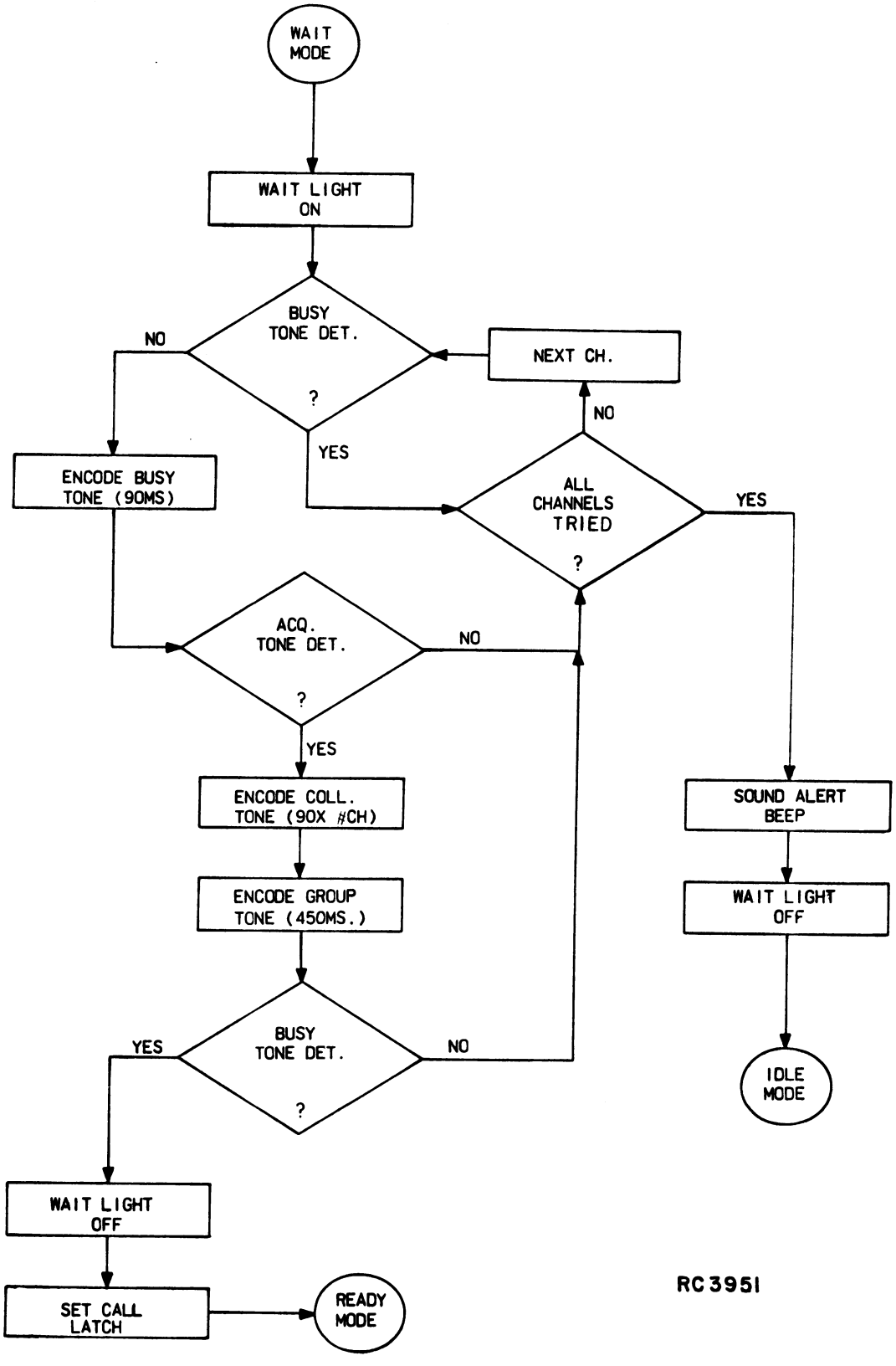
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

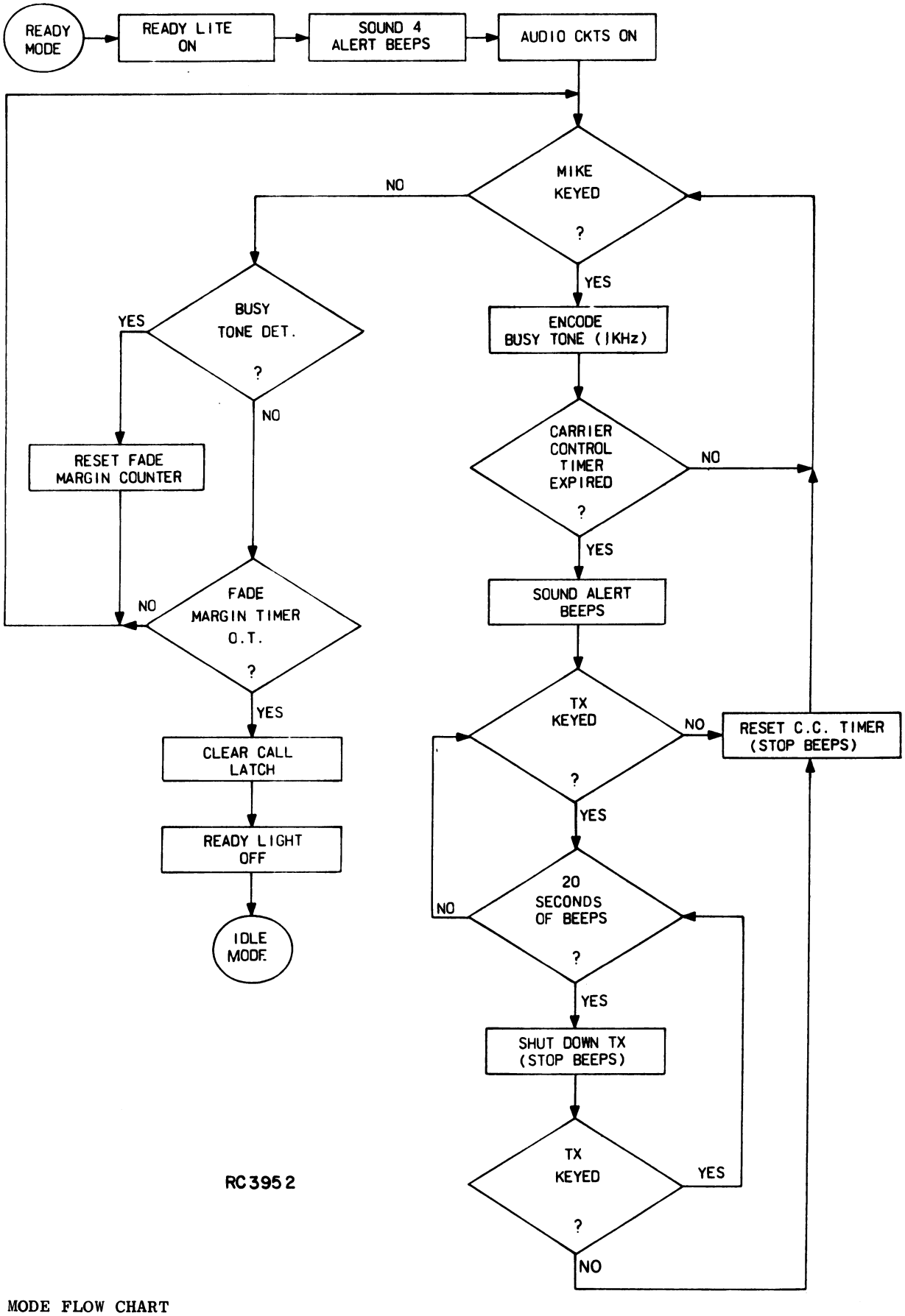
GENERAL ELECTRIC*
U.S.A.



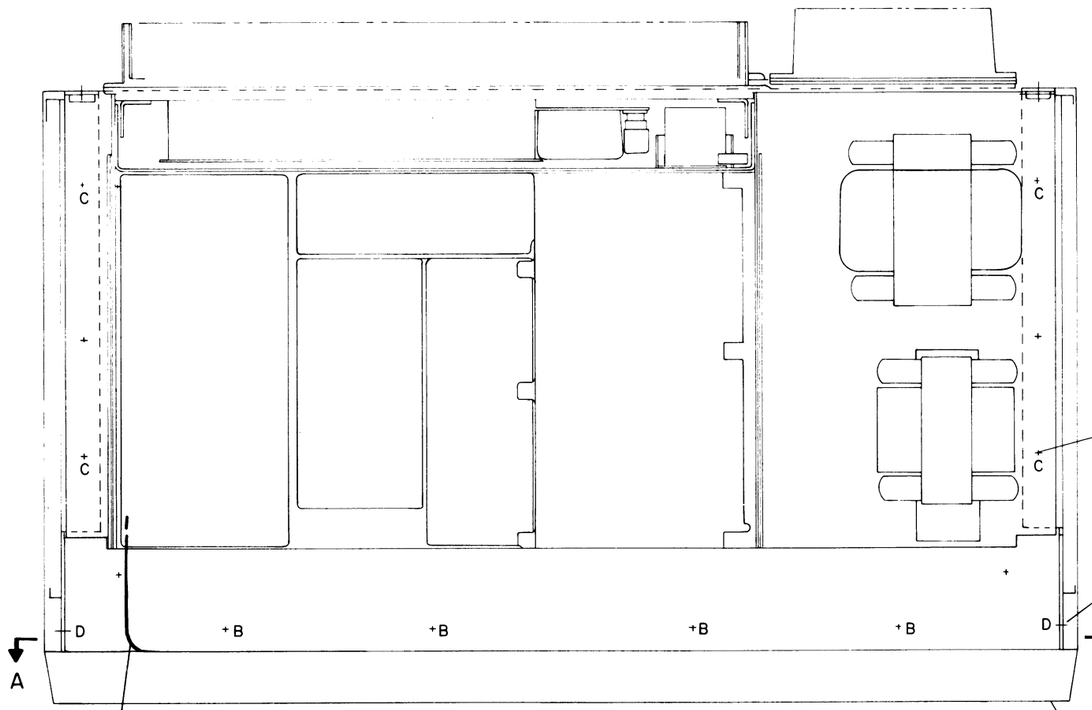
IDLE MODE FLOW CHART



WAIT MODE FLOW CHART



READY MODE FLOW CHART



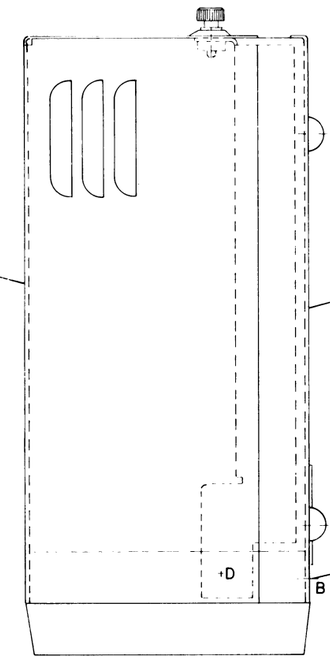
TOP VIEW WITH COVER REMOVED

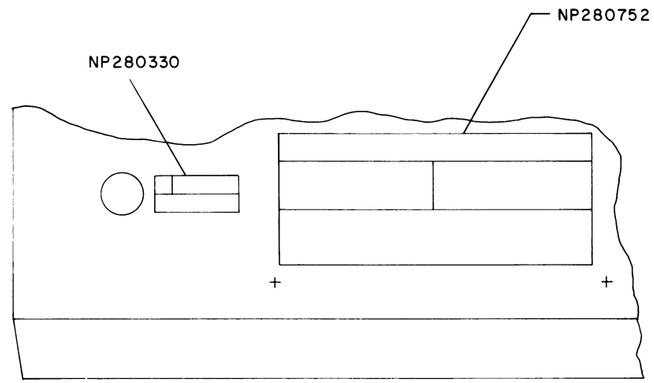
SECTION A–A

N80P21005C6
N403P25C6
1/4-20X5/16LG
& LK WASH 4 PLACES
AT "C" LOCATION

19B209209P405
#8-32X5/16
THD FORMING SCR
2 PLACES AT
"D" LOCATION

CONTROL UNIT
PL19D423452





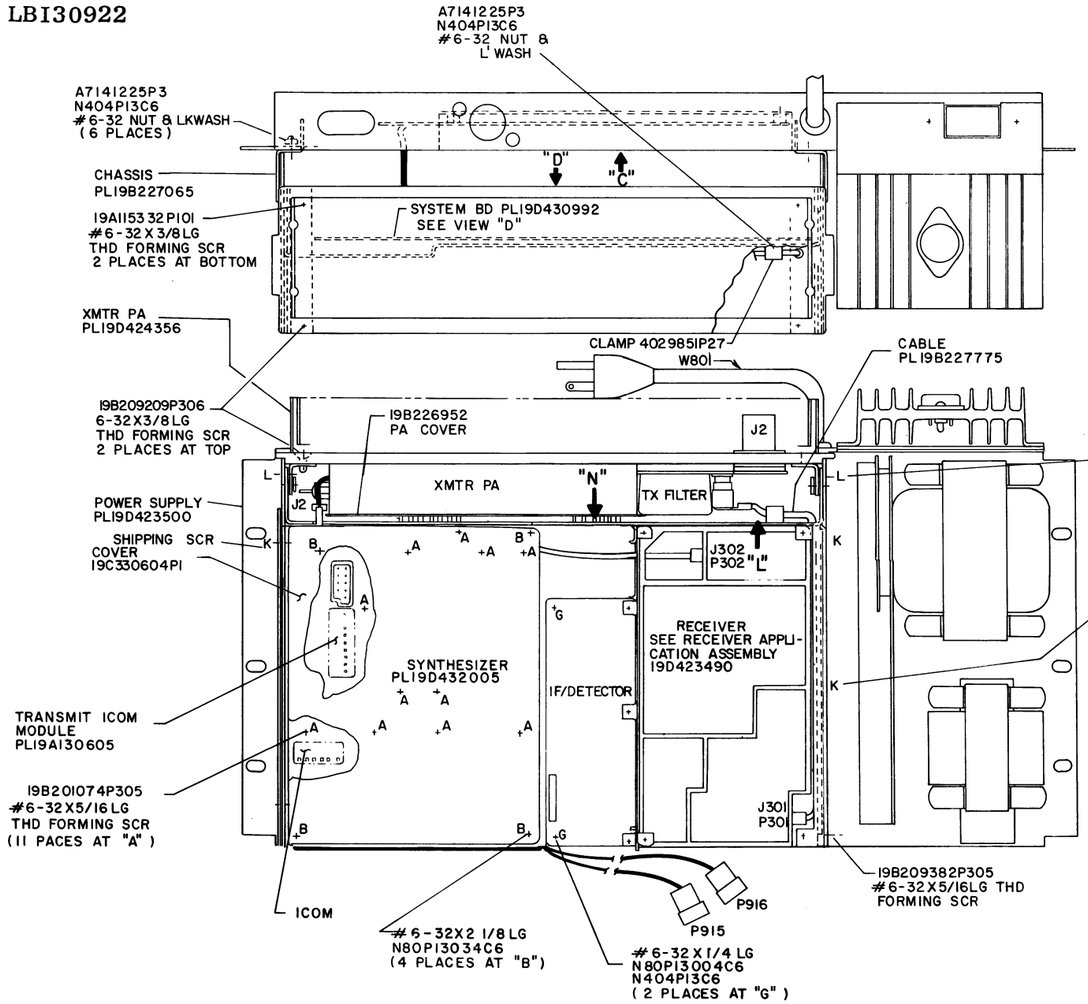
VIEW "P" (ENLARGED)
PARTIAL

RC3945

OUTLINE DIAGRAM

GE-MARC V DESK TOP STATION

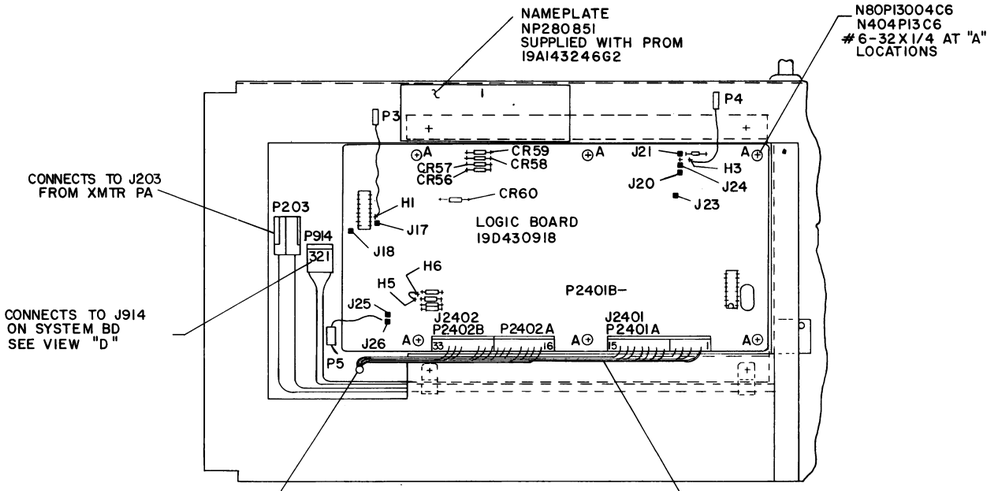
Issue 1



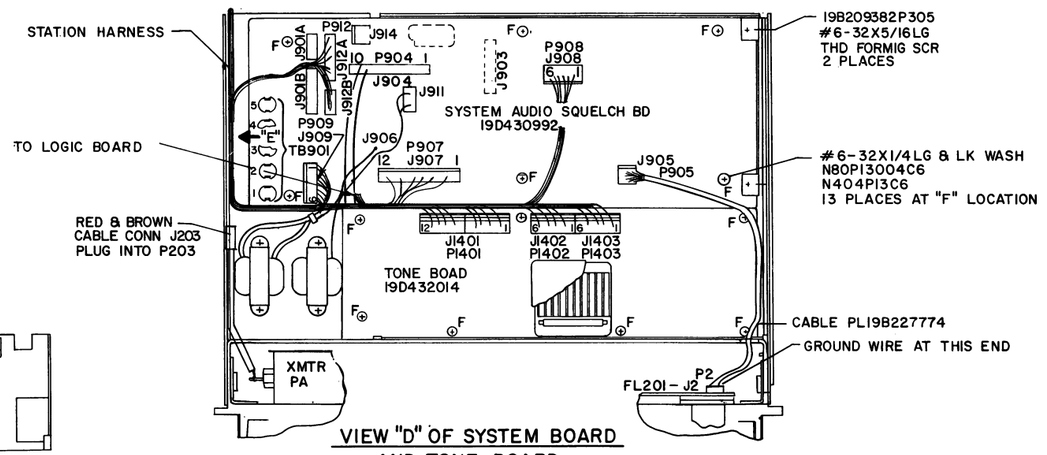
VIEW "E"
ROTATED 90° CW
(REDUCED SCALE)

VIEW "L"
INTEGAL ANT.
TRANSFER RELAY

VIEW "N"
ROTATED 180°
(REDUCED SCALE)



VIEW "C" OF LOGIC BOARD



VIEW "D" OF SYSTEM BOARD
AND TONE BOARD

RC3953A

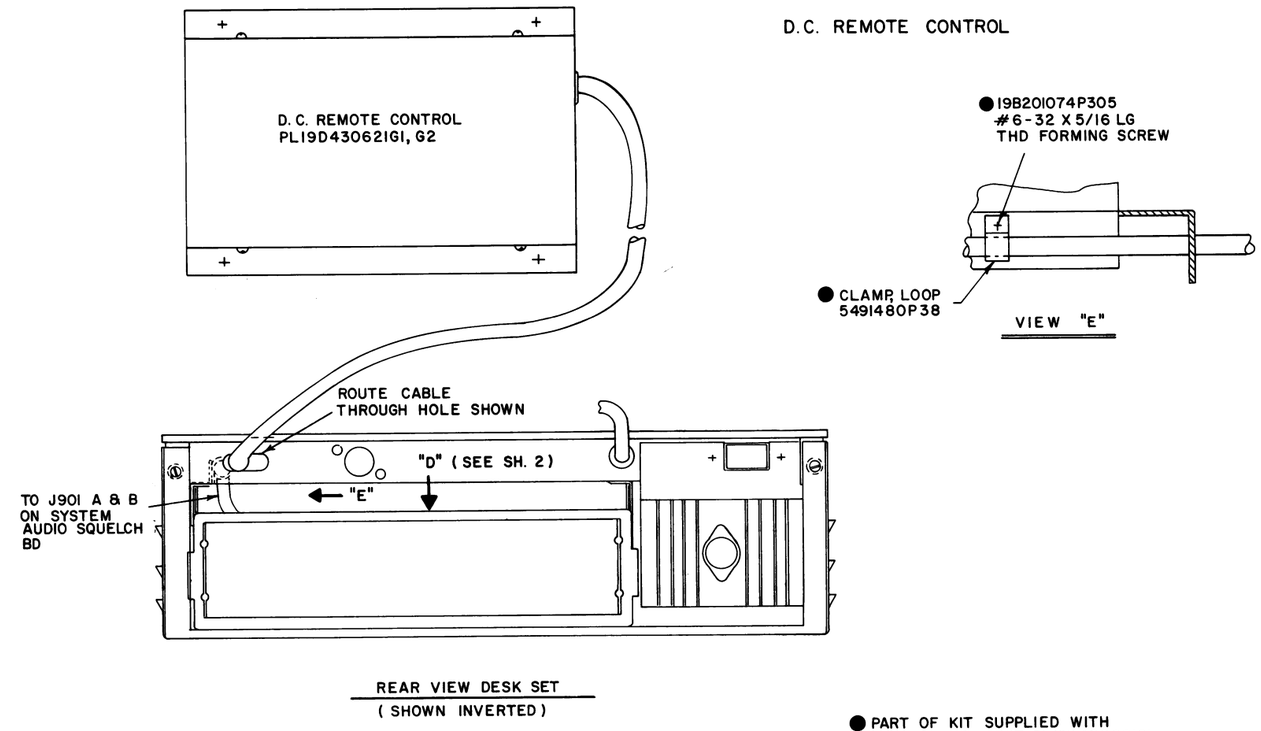
OUTLINE DIAGRAM

GE-MARC V DESK TOP STATION
SYNTHESIZED

PT NO.	DESCRIPTION	WHEN THE 7TH DIGIT OF THE RADIO COMBINATION NUMBER IS AS DEFINED IN COLUMN (1) THEN THE LOGIC BOARD MUST BE STRAPPED AS DEFINED IN COLUMN (2) AND THE APPROPRIATE DIODES APPEARING IN COLUMN (3) MUST BE REMOVED			COLUMN (3) CLIP OUT (X) DIODES ON LOGIC BOARD				
3	DESK TOP OR WALL MOUNT STATION (SYNTHESIZED)	COLUMN (1) (7TH DIGIT) RADIO COMBINATION NO.		COLUMN (2) LOGIC BOARD (19D430918) STRAPPING	CR56	CR57	CR58	CR59	CR60
	0 CHANNEL	X		NONE					
	1 CHANNEL	A		P4 TO J20		X	X	X	X
	2 CHANNEL	C		P4 TO J20	X		X	X	X
	3 CHANNEL	E		P4 TO J20			X	X	X
	4 CHANNEL	F		P4 TO J20	X	X		X	X
	5 CHANNEL	G		P4 TO J21		X		X	X
	6 CHANNEL	H		P4 TO J21	X			X	X
	7 CHANNEL	J		P4 TO J21				X	X
	8 CHANNEL	K		P4 TO J21	X	X	X		X
	9 CHANNEL	L		P4 TO J22		X	X		X
	10 CHANNEL	M		P4 TO J22	X		X		X
	11 CHANNEL	N		P4 TO J22			X		X
	12 CHANNEL	P		P4 TO J22	X	X			X
	13 CHANNEL	R		P4 TO J23		X			X
	14 CHANNEL	S		P4 TO J23	X				X
	15 CHANNEL	T		P4 TO J23					X
	16 CHANNEL	U		P4 TO J23	X	X	X	X	
	17 CHANNEL	V		P4 TO J24		X	X	X	
	18 CHANNEL	W		P4 TO J24	X		X	X	
	19 CHANNEL	Y		P4 TO J24			X	X	
	20 CHANNEL	Z		P4 TO J24	X	X		X	

RC3954A

D.C. REMOTE CONTROL



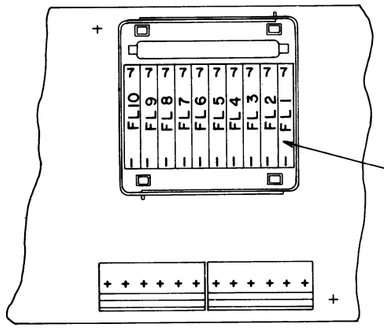
REAR VIEW DESK SET
(SHOWN INVERTED)

● PART OF KIT SUPPLIED WITH D.C. CONTROL UNIT PL19D430621G1

RC3947A

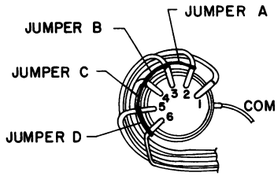
OUTLINE DIAGRAM

GE-MARC V DESK TOP STATION DC REMOTE CONTROL AND LOGIC BOARD STRAPPING CHART

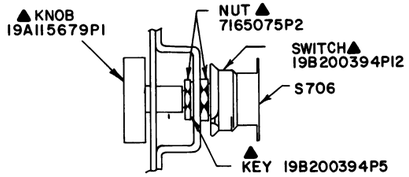


TONE BOARD
(19D432014)

TONE IDENTIFICATION	POSITION ON TONE BOARD
BUSY	FL1
COLLECT	FL2
INDIVIDUAL ENCODE	FL3
INDIVIDUAL DECODE	FL4
M1	FL5
ACQUISITION	FL6
M2	FL7
M3	FL8
M4	FL9
M5	FL10

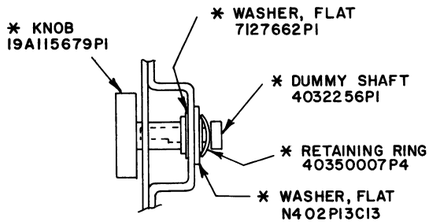


REAR VIE S706



SECTION "F-F"

IF THE STRUCTURED OPTION 'A' OF THE RADIO COMBINATION NUMBER IS OTHER THAN "0"



SECTION "F-F"

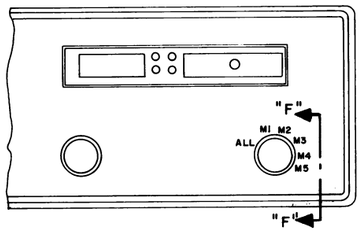
IF THE STRUCTURED OPTION 'A' OF THE RADIO COMBINATION IS "0"

OPTION	IF THE STRUCTURED OPTION "A" OF THE RADIO COMBINATION NUMBER IS	THE LISTED VERSATONE IS INSERTED IN SOCKET ON TONE BOARD	THE FOLLOWING JUMPER WIRES ON S706 ARE TO BE CUT OUT.	LOGIC BOARD STRAPPING SEE VIEW "C" SH.2 OR SH.6
INDIVIDUAL CALL ENCODE	0	FL2, FL5	———	———
	1	FL2, FL5, FL3	———	CUT DA JUMPER BETWEEN HOLES 5 & HOLES 6
	2	FL2, FL5, FL3 FL7	JUMPER A	
	3	FL2, FL5, FL3 FL7, FL8	JUMPER A & B	
	4	FL2, FL5, FL3, FL7, FL8, FL9	JUMPER A THRU C	
	5	FL2, FL5, FL3, FL7 THRU FL10	JUMPER A THRU D	
INDIVIDUAL CALL DECODE		FL4	———	P3 TO J18 P5 TO J26
SINGLE GROUP TONE DECODE				P3 TO J17
CALL LIGHT DECODE ALL CALL				P3 TO J18 P5 TO J25

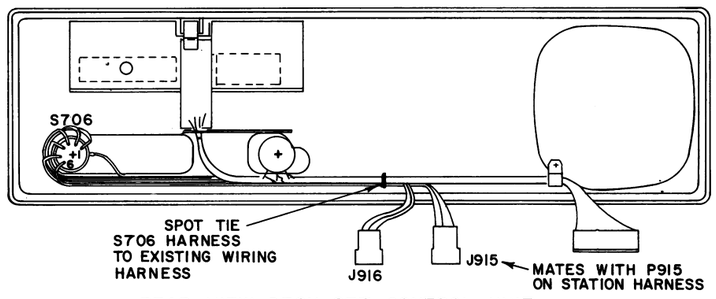
IF THE STRUCTURED OPTION "B" OF THE RADIO COMBINATION NUMBER IS "D"

▲ PART OF SWITCH OPTION KIT PL19B226950G10.

* PART OF DUMMY KNOB OPTION KIT PL19A142874G3.



FRONT VIEW DESK SET CONTROL UNIT

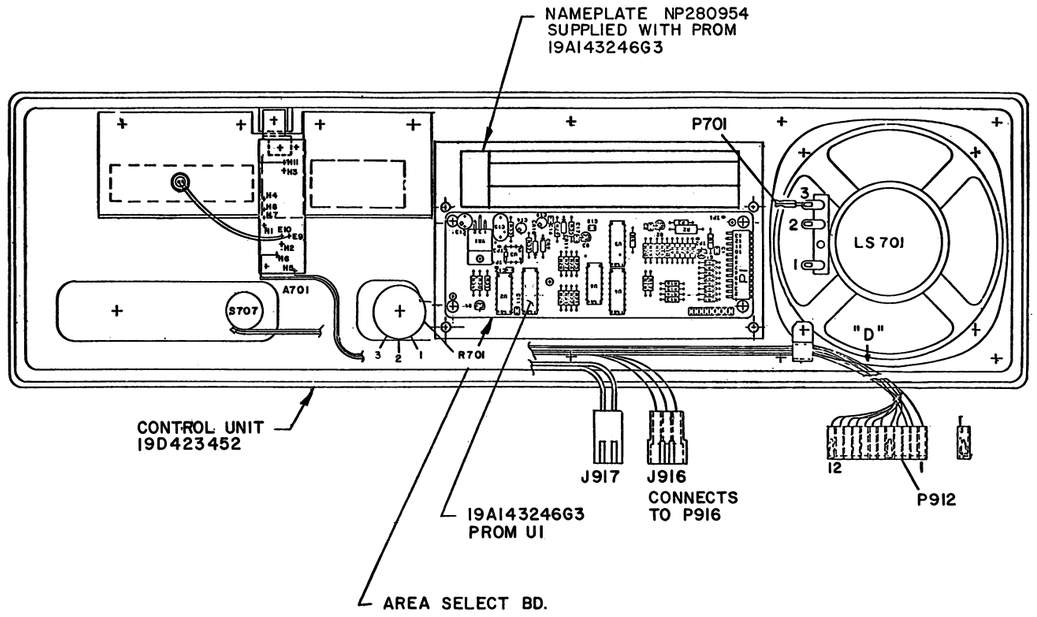


REAR VIEW DESK SET CONTROL UNIT
SHOWING LOCATION OF S706

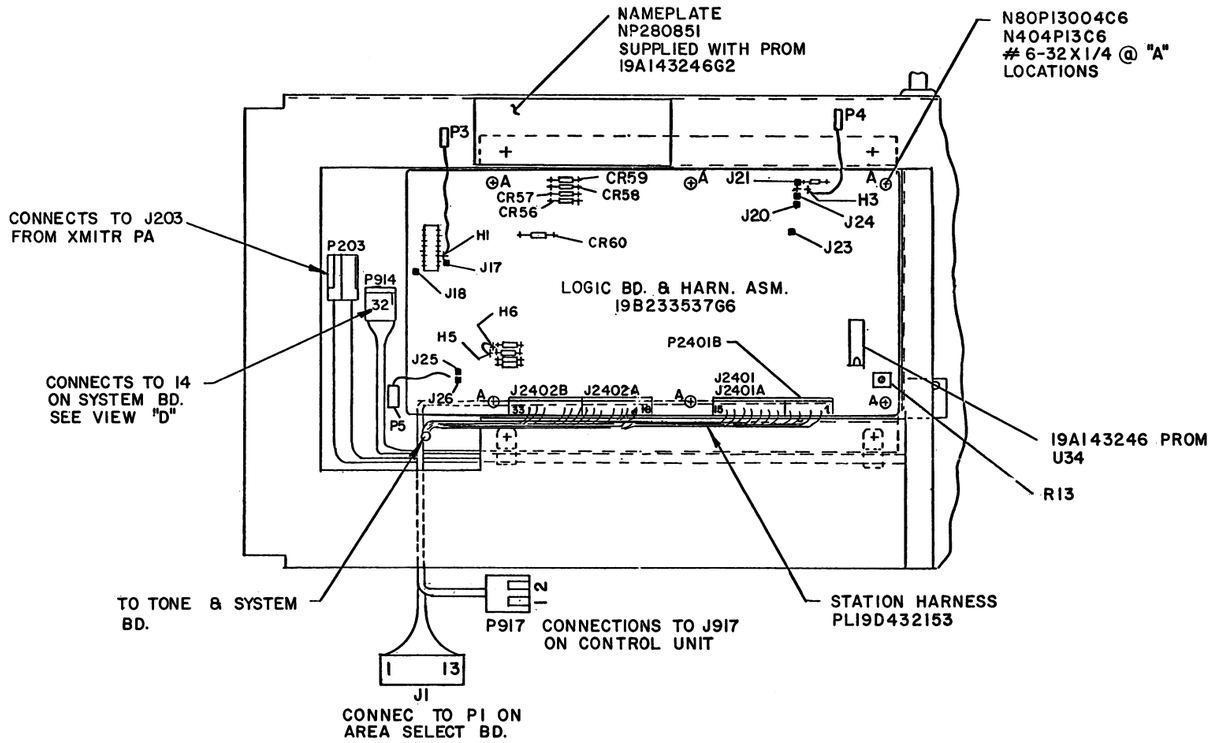
RC3948A

OUTLINE DIAGRAM

GE-MARC V DESK TOP STATION
TONE APPLICATION



REAR VIEW DESK SET CONTROL UNIT WITH AREA SELECT

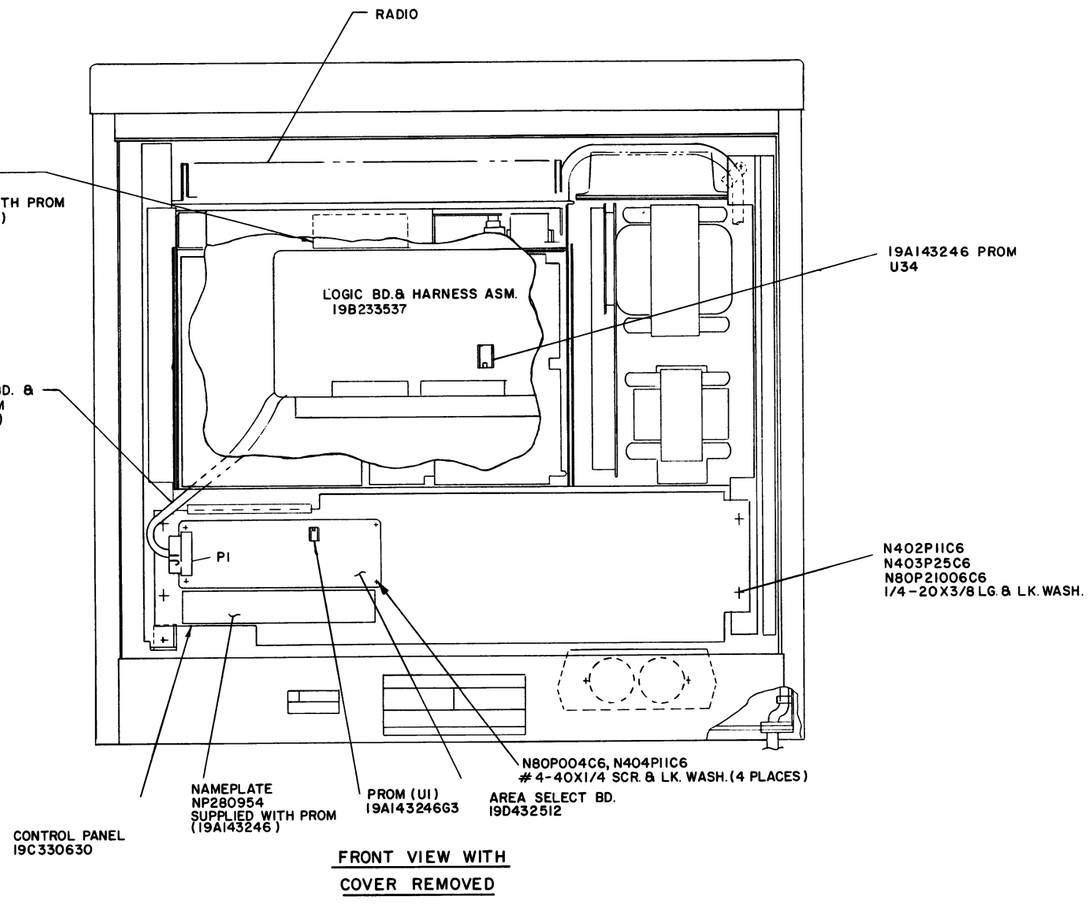


VIEW "C" OF LOGIC BOARD WITH AREA SELECT

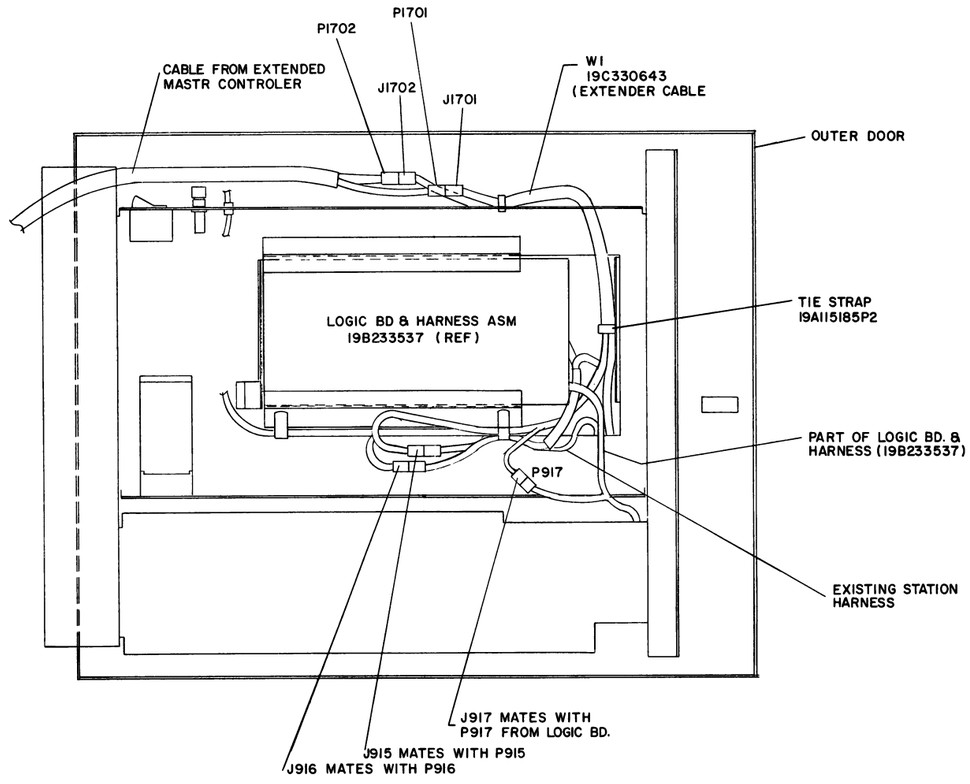
RC4086

OUTLINE DIAGRAM

LOGIC BOARD WITH AREA SELECT



FRONT VIEW WITH COVER REMOVED



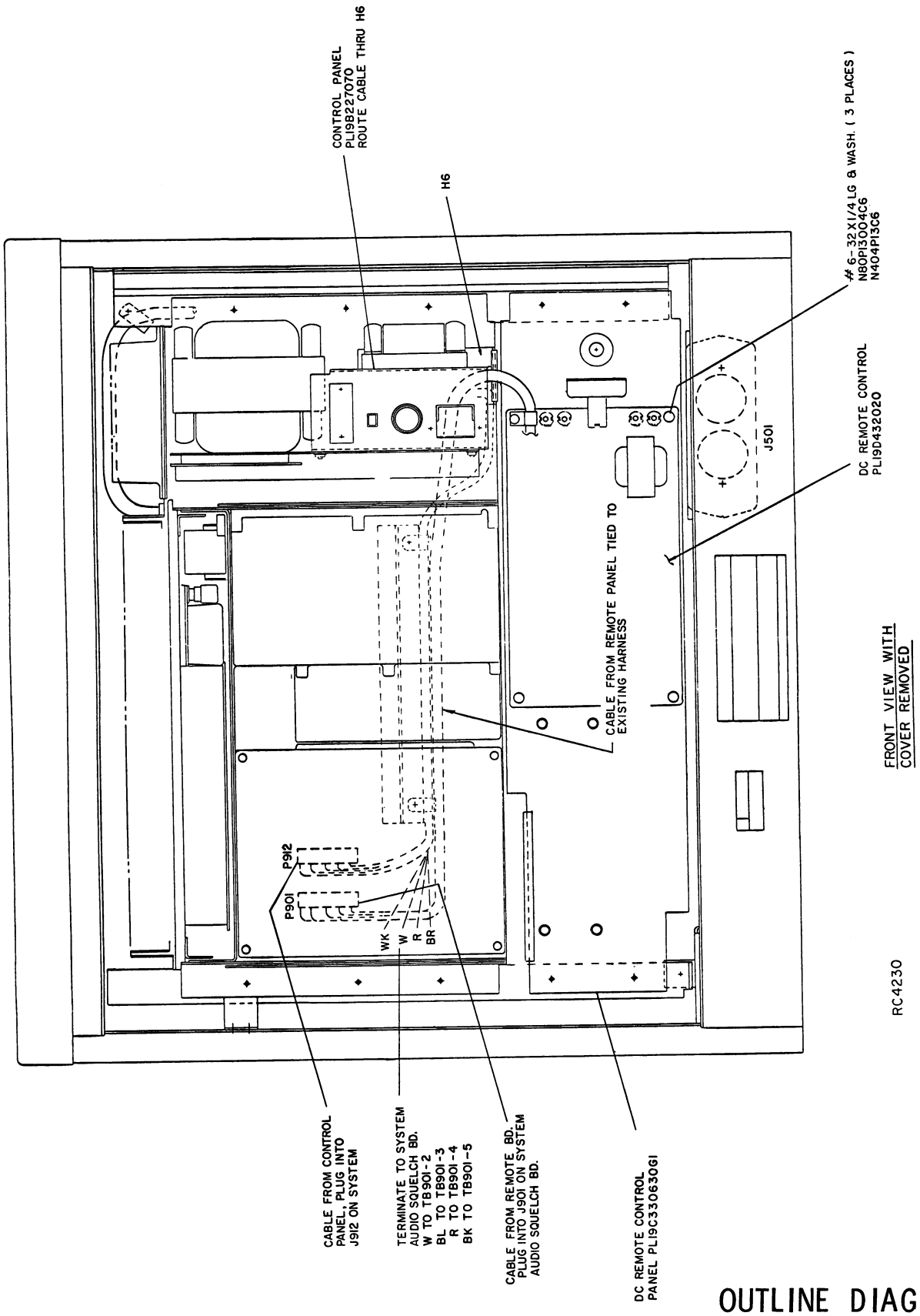
BOTTOM VIEW OF RADIO

RC4228

OUTLINE DIAGRAM

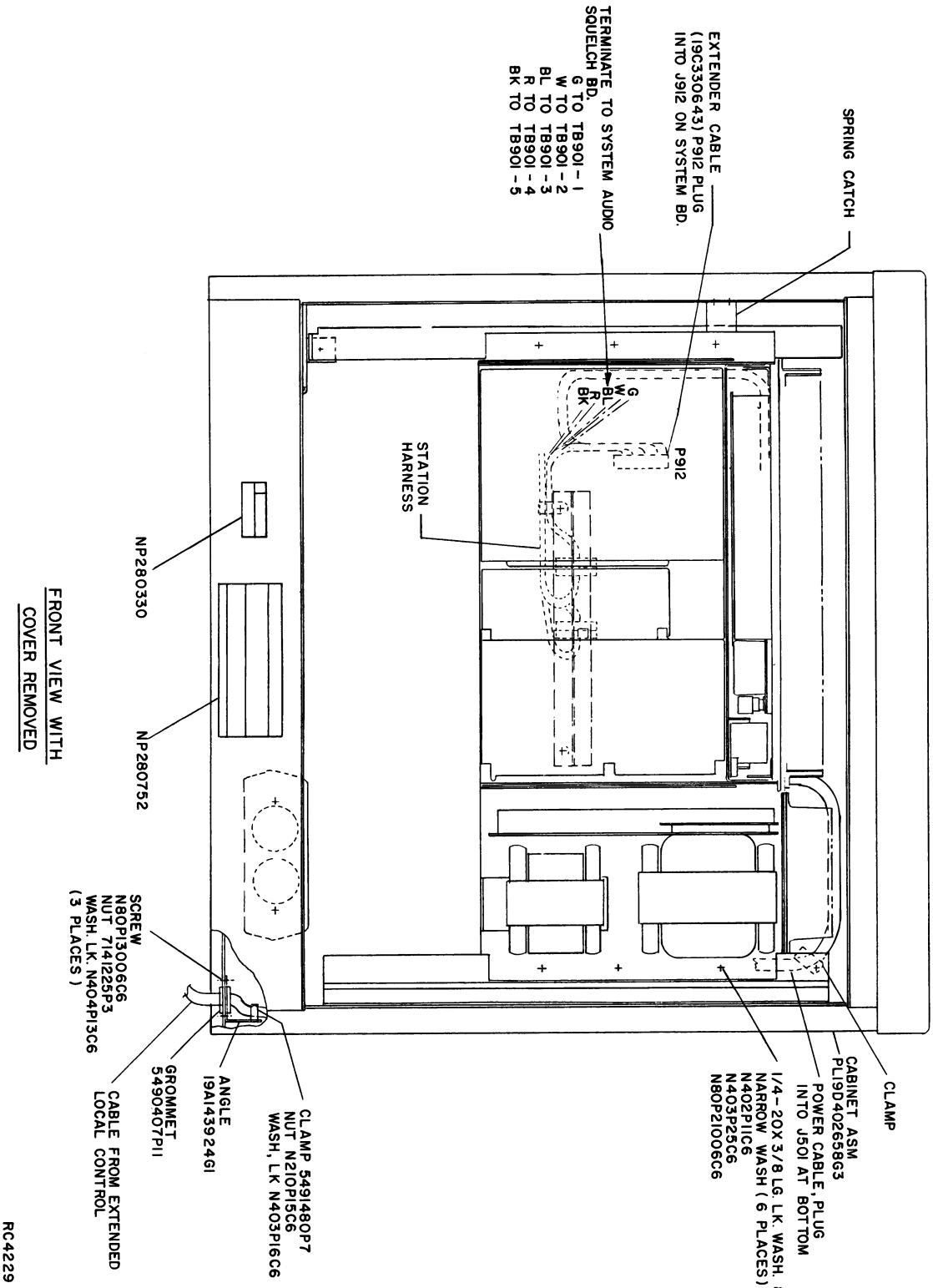
GE-MARC V WALL MOUNT STATION

20 Issue 1



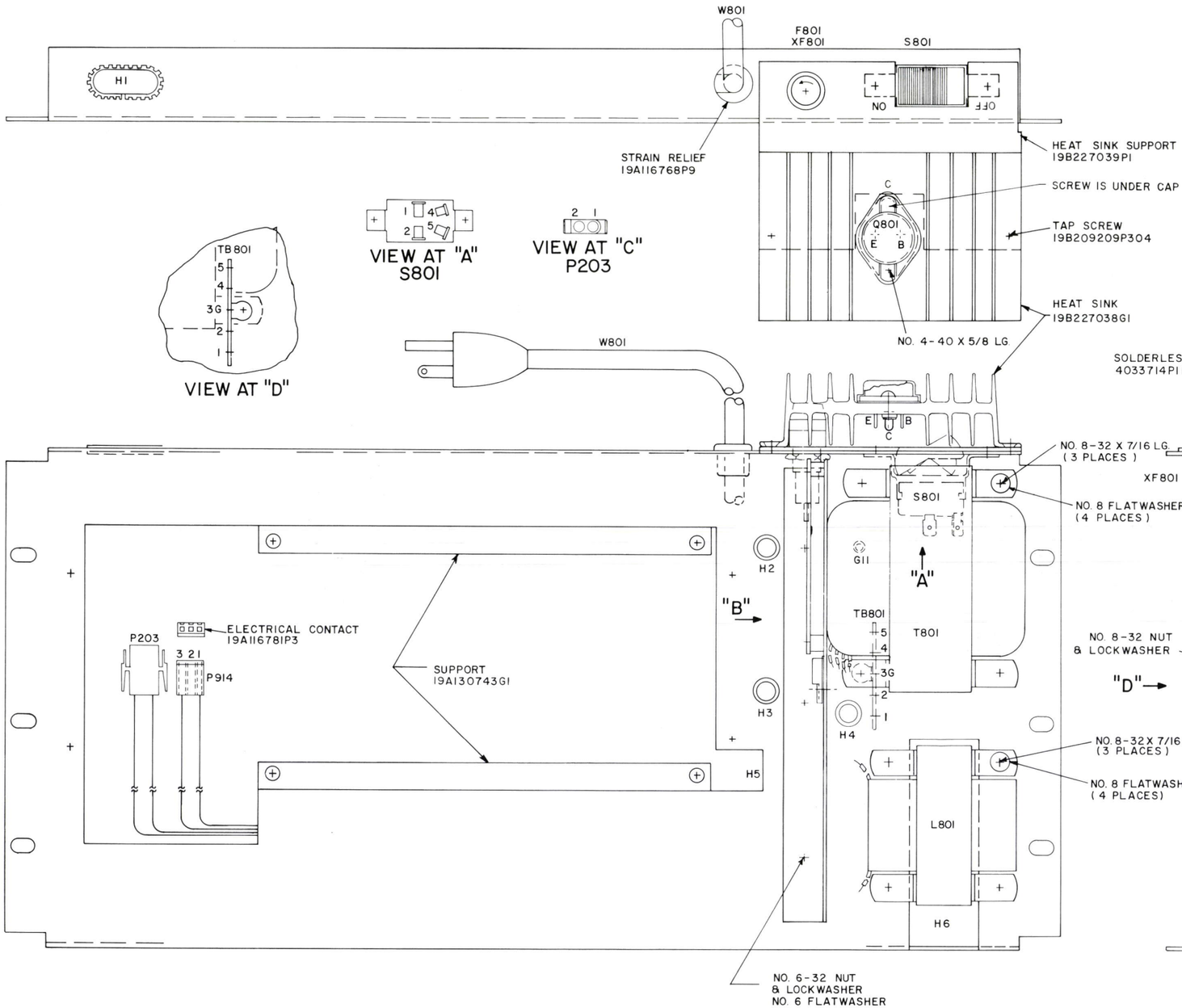
OUTLINE DIAGRAM

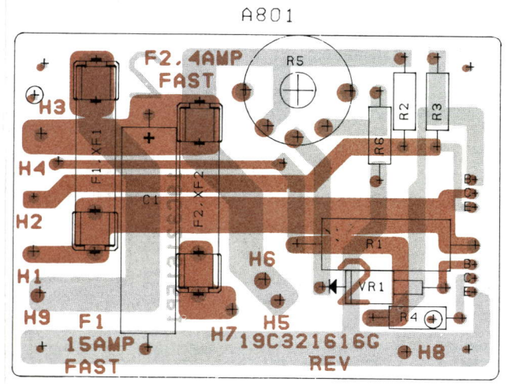
GE-MARC V WALL MOUNT STATION



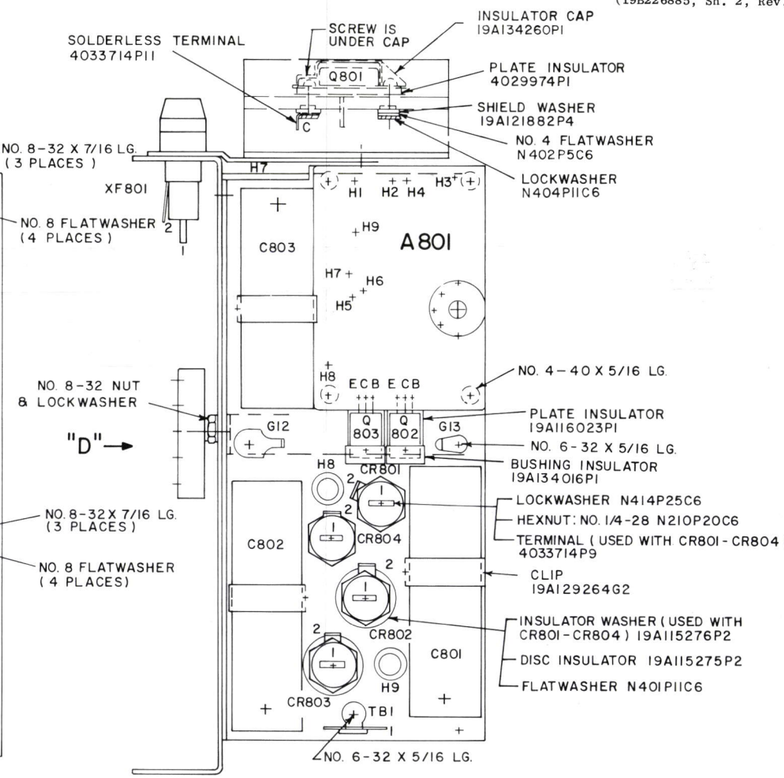
OUTLINE DIAGRAM

GE-MARC V WALL MOUNT STATION





(19B227407, Rev. 1)
(19B226885, Sh. 1, Rev. 2)
(19B226885, Sh. 2, Rev. 2)



VIEW AT "B"

(19D423973, Rev. 2)

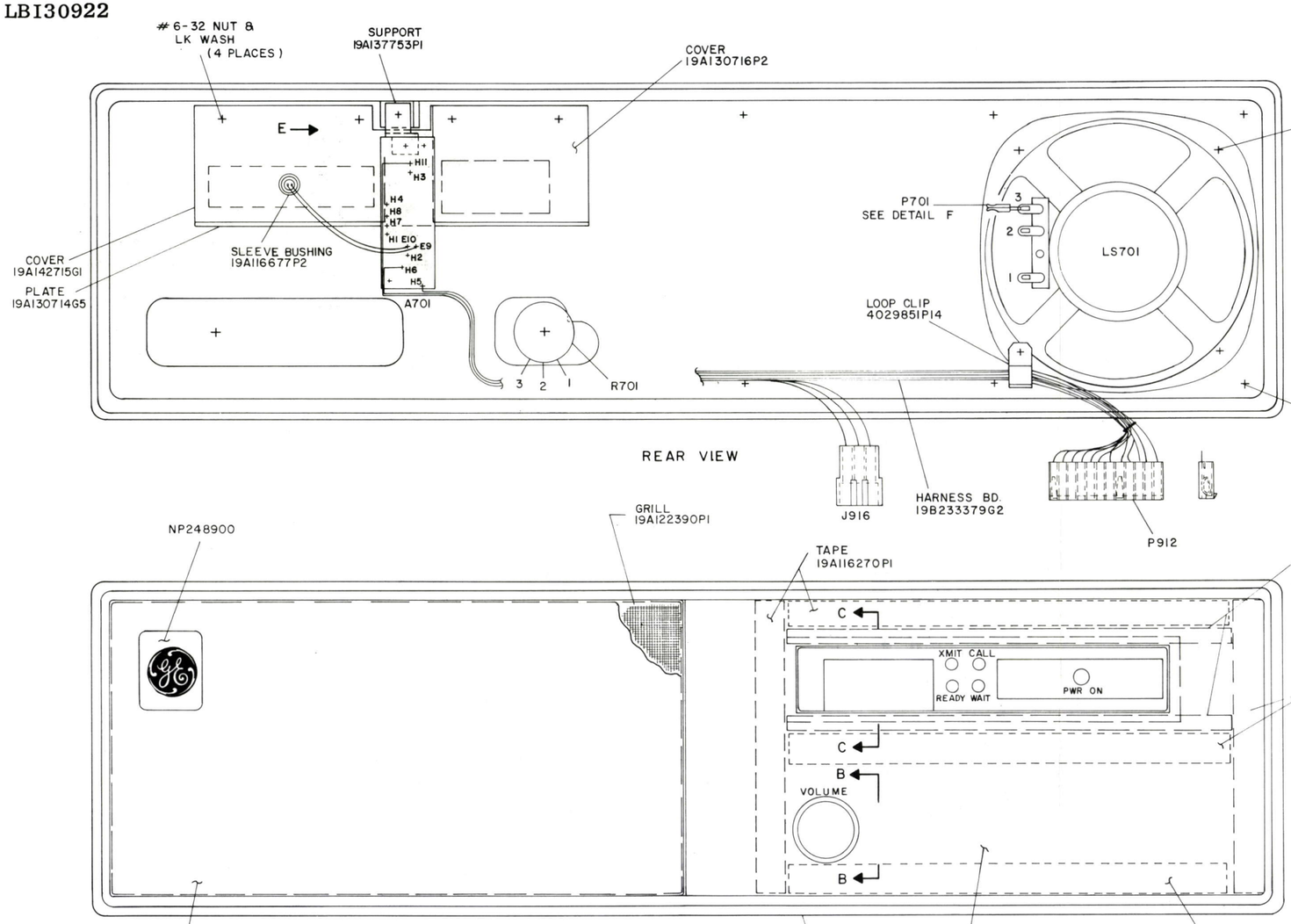
RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE

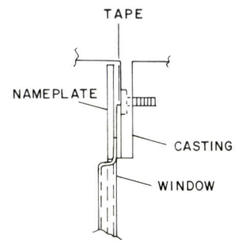
OUTLINE DIAGRAM

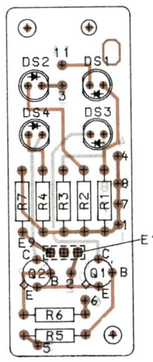
POWER SUPPLY 19D423500G9

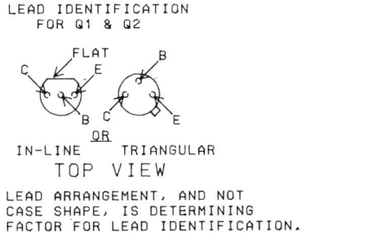
Issue 1

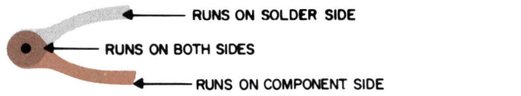
LBI30922

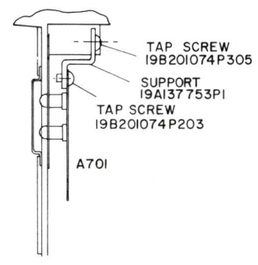


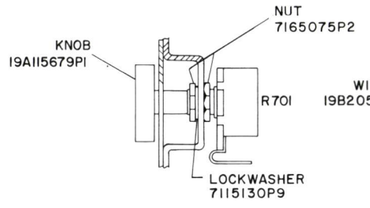


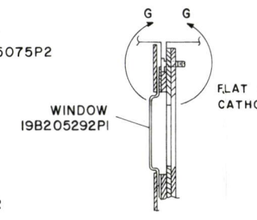


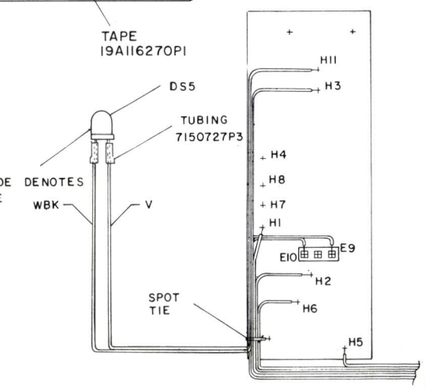


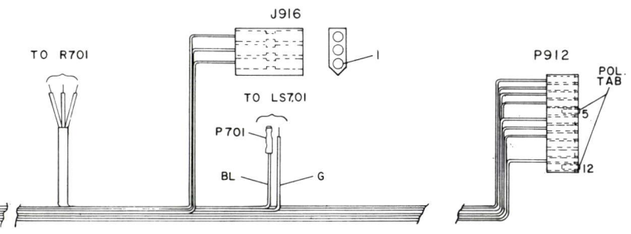










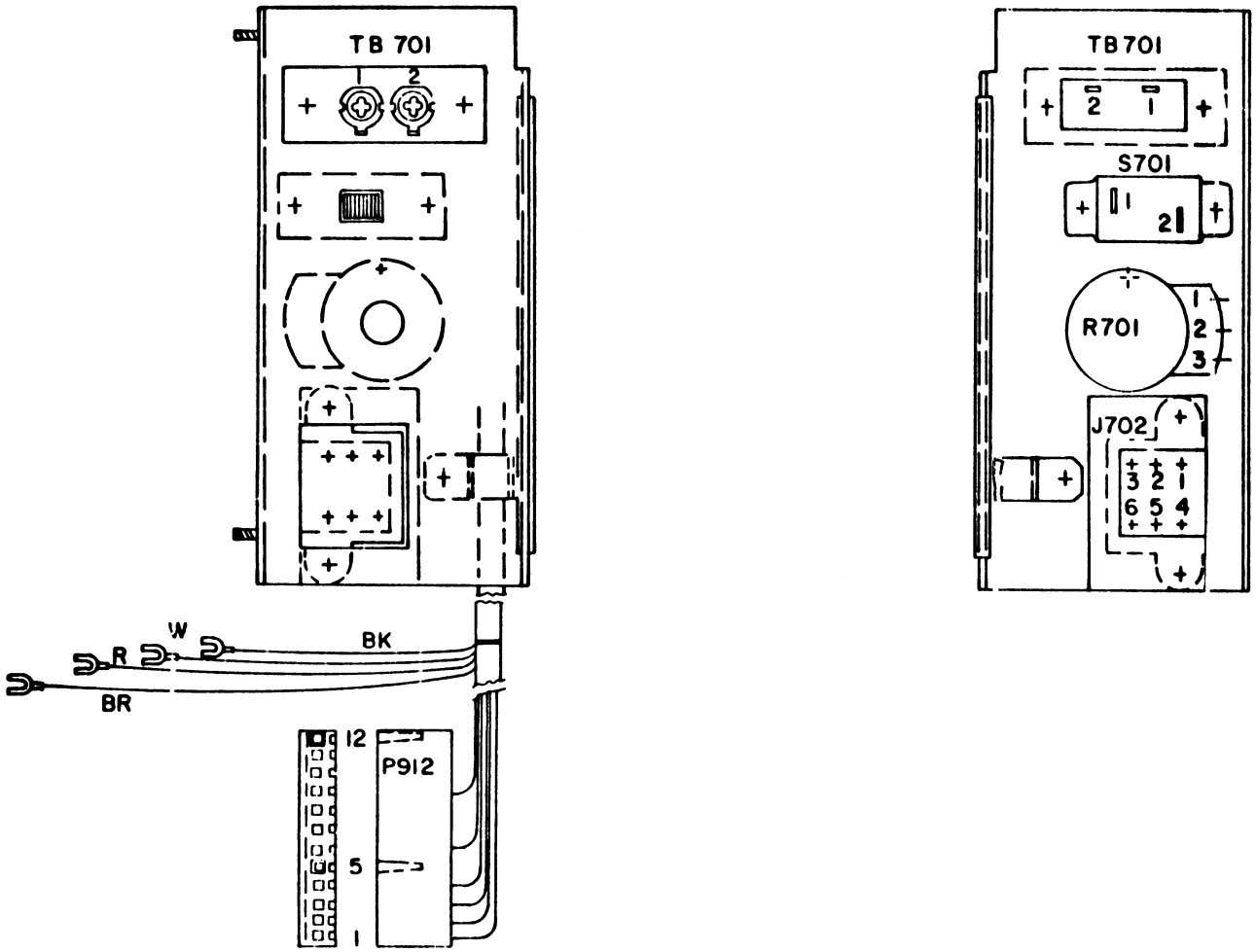


(19D432280, Rev. 0)

(19B233615, Rev. 0)

OUTLINE DIAGRAM

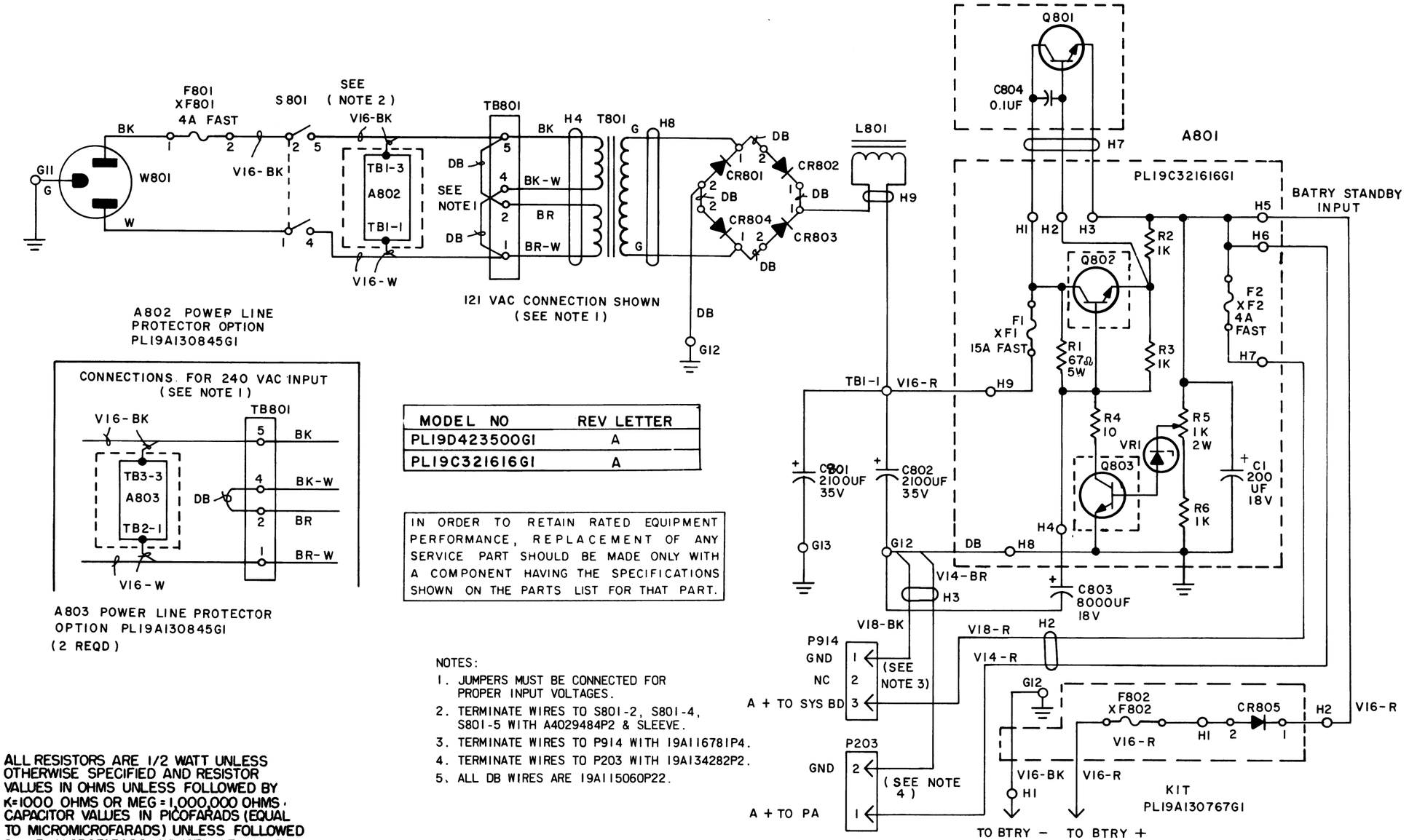
DESK TOP CONTROL PANEL 19D423452G4



(19B227414, Rev. 1)

OUTLINE DIAGRAM

WALL MOUNT CONTROL PANEL
19B227070G3



MODEL NO	REV LETTER
PL19D423500G1	A
PL19C321616G1	A

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.

NOTES:

1. JUMPERS MUST BE CONNECTED FOR PROPER INPUT VOLTAGES.
2. TERMINATE WIRES TO S801-2, S801-4, S801-5 WITH A4029484P2 & SLEEVE.
3. TERMINATE WIRES TO P914 WITH 19A116781P4.
4. TERMINATE WIRES TO P203 WITH 19A134282P2.
5. ALL DB WIRES ARE 19A115060P22.

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.

(19C321802, Rev. 4)

SCHEMATIC DIAGRAM

POWER SUPPLY 19D423500G9

Issue 1

PARTS LIST

GE MARC V
TRUNKED MOBILE RADIO
DESK TOP STATION POWER SUPPLY
19D423500G8 STANDARD
19D423500G9 SYNTHESIZED
ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
A801		COMPONENT BOARD 19C321616G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A115680P10	Electrolytic: 200 µf +150%-10%, 18 VDCW; sim to Mallory Type TTX.
		- - - - - - - - - - - - FUSES - - - - - - - - - - -
F1	7102673P2	Quick blowing: 15 amps at 32 v; sim to Littelfuse 311015 or Bussmann AGC15.
F2	1R16P7	Quick blowing: 4 amps at 250 v; sim to Littelfuse 312004 or Bussmann MTH-4.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	5493035P19	Wirewound: 67 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
R2 and R3	3R77P102K	Composition: 1K ohms ±10%, 1/2 w.
R4	19A700113P15	Composition: 10 ohms ±5%, 1/2 w.
R5	19A115681P1	Variable, wirewound: 1K ohms ±20%, 2.25 w; sim to CTS Series 115.
R6	3R77P102K	Composition: 1K ohms ±10%, 1/2 w.
		- - - - - - - - - - VOLTAGE REGULATORS - - - - - -
VR1	19A115528P4	Zener: 1 watt, 6.6 mW.
		- - - - - - - - - - SOCKETS - - - - - - - - - - -
XF1 and XF2	19A116688P1	Fuse clip: sim to Littlefuse, Inc. 102068. (Quantity 2 used with each holder).
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C801 and C802	19A126770P106	Electrolytic: 2100 µf ±75-10%, 35 VDCW; sim to Sprague 34D218G035JT0.
C803	5493132P17	Electrolytic: 8000 µf +150-10%, 20 VDCW.
C804	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR801 thru CR804	19A115617P2	Rectifier, silicon.
		- - - - - - - - - - - - FUSES - - - - - - - - - - -
F801	1R16P7	Quick blowing: 4 amps at 250 v; sim to Littelfuse 312004 or Bussmann MTH-4. (Used in G8).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L801A	19A116038P1	Reactor: 4.5 mh at 11 amps DC, 0.1 ohm DC res max, 58 VDC operating. (Used in G8).
L801B	19A143398P1	Reactor: 4.5 mh at 11 amps DC, 0.1 ohm DC res max, 58 VDC operating. (Used in G9).
		- - - - - - - - - - - - PLUGS - - - - - - - - - - -
P203		Connector. Includes:
	19A134281P1	Shell.
	19A134282P2	Contact, electrical: sim to AMP 350200-2. (Quantity 2).
P914		Connector. Includes:
	19A116659P14	Shell.
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106. (Quantity 2).
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q801	19A116753P1	Silicon, NPN; sim to Type 2N5302.
Q802 and Q803	19A116118P1	Silicon, NPN.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S801	19B209498P1	Push: DPST, 20 amps and 220 VRMS; sim to McGill 0811-0188.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T801	19A116037P1	Power, step-down: Pri: 117 VRMS, 60 Hz (Parallel connected), Sec: 16.0 VDC at 11 amps.
		- - - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500P45	Phen: 3 terminals.
TB801	7775500P111	Phen: 5 terminals.
		- - - - - - - - - - - - CABLES - - - - - - - - - - -
W801	19A130809G1	Cable, RF: 3 conductor, approx 10 feet long.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XF801	19B209005P1	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342012.
		HARNESS ASSEMBLY 19D423500G2 (Includes P203, P914)
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A116768P9	Strain relief: sim to HEYCO SR-6P3-4. (Used with W801).
	19B227039P1	Support. (Mounts Q801 heat sink).
	19B209209P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Secures heat sink to support).
	19B227038G1	Heat sink. (Q801).
	19A134260P1	Insulator, plate. (Used with Q801).
	4029974P1	Insulator, plate: aluminum. (Used with Q801).
	19A121882P1	Washer, shield. (Used with Q801).
	4033714P11	Solderless terminal. (Used with Q801).
	19A116023P1	Insulator, plate. (Used with Q802, Q803).
	19A134016P1	Insulator, bushing. (Used with Q802, Q803).
	19A129264G2	Clip. (Secures C801).
	19A115276P4	Insulator, washer. (Used with CR801-CR804).
	4033714P9	Terminal: sim to Stewart Stampinc 928. (Used with CR801-CR804).
	N414P25C6	Lockwasher, internal tooth: No. 1/4. (Used with CR801-CR804).
	N210P20C6	Hex nut: No. 1/4-28. (Used with CR801-CR804).
	19A115275P2	Insulator, disc. (Used with CR801-CR804).
	N401P11C6	Flatwasher: No. 1/4. (Used with CR801-CR804).
	19B209075P3	Solderless terminal. (Located at G12).
	4029851P27	Clip loop. (Secures cable to P203 & P914).
	4029484P11	Contact, electrical; sim to AMP 41274. (Located at T801).
	4036994P1	Solderless terminal. (Located at G13).
	N26P21008C6	Cap screw. (External ground connector).
	N403P25C6	Lockwasher, external tooth. (External ground connection).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

LBI-30116

BATTERY STANDBY KIT
19A130767G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR805	19A115617P2	Silicon.
		- - - - - - - - - - - - FUSES - - - - - - - - - - -
F802	7102673P2	Quick blowing: 15 amps at 32 v; sim to Littelfuse 311015 or Bussmann AGC-15.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XF802	19A122111G1	Fuse, lead: approx 8 feet long.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A127199P2	Support. (Mounts CR805).
	19A115276P2	Insulator, washer: mica. (Used with CR805).
	19A115275P2	Insulator, disc: teflon. (Used with CR805).
	4033714P9	Solderless terminal: sim to Stewart Stampinc 928. (Used with CR805).
	N401P11C6	Flatwasher: No. 1/4. (Used with CR805).
	N414P25C6	Lockwasher, internal tooth: No. 1/4. (Used with CR805).
	N210P20C6	Hex nut: No. 1/4-28. (Used with CR805).
	19B201074P305	Tap screw, Phillips POZIDRIV®: No. 6-32 x 5/16. (Secures CR805 support).
	4029851P4	Cable clamp: nylon.
	N80P13005C6	Machine screw: 6-32 x 5/16. (Secures cable clamp).
	7141225P3	Hex nut: No. 6-32. (Secures cable clamp).
	N404P13C6	Lockwasher: No. 6. (Secures cable clamp).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

LBI-30118A

POWER LINE PROTECTOR KIT
19A130845G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1	19A116062P1	Selenium.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1 thru TB3	7775500P107	Phen: 2 insulated, 1 grounded terminal.
		NOTE: USE ONE KIT FOR A802 TWO KITS FOR A803.

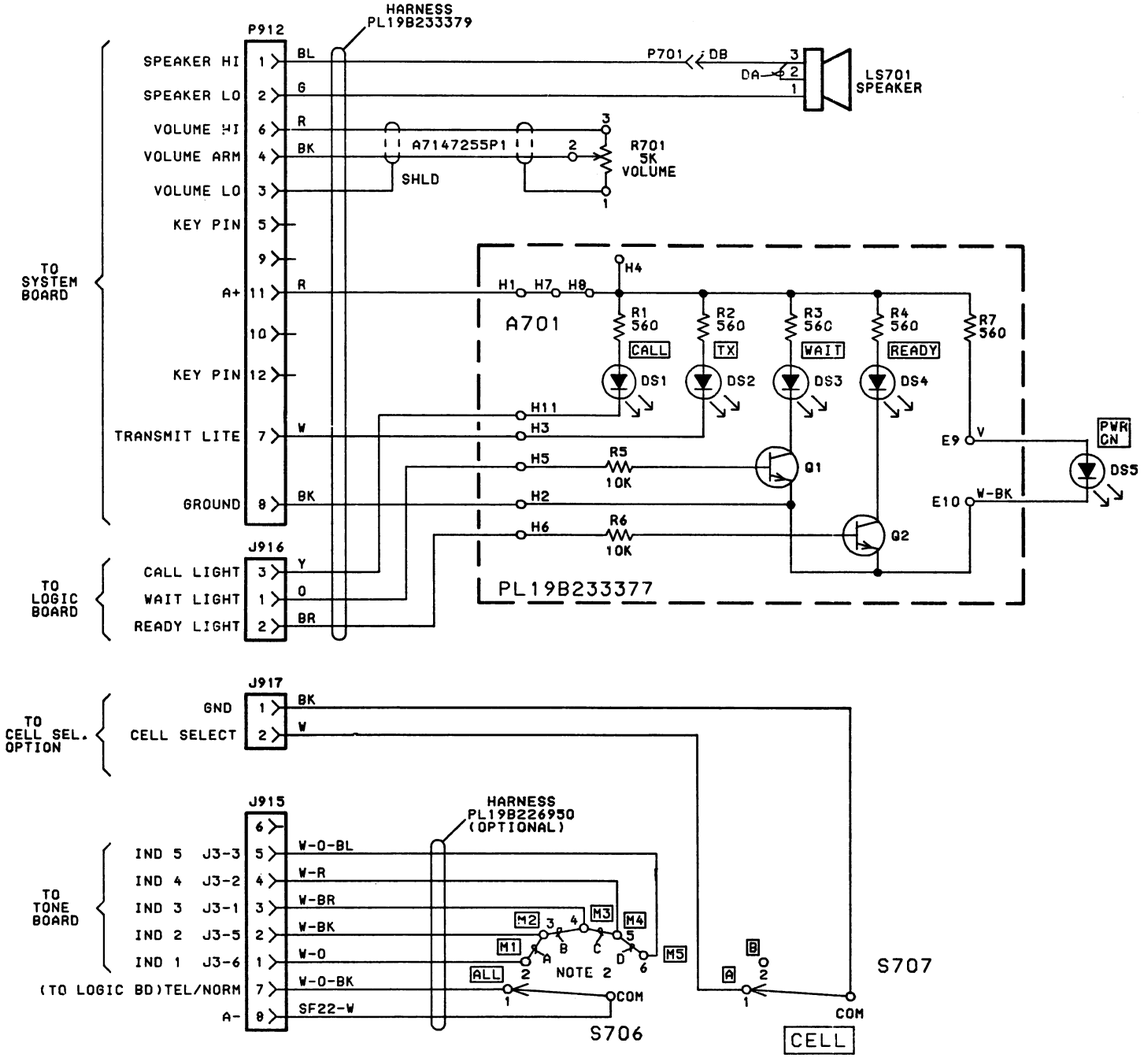
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

DESK TOP CONTROL PANEL
19D423452G4 (UPGRADE)
19D423452G6 WITH CELL SELECT
ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
A702	19D432512G1	Cell Select Board. (Refer to Area Select Maintenance Manual).
		- - - - - - - - - - LOUDSPEAKERS - - - - - - - - - -
LS701	19A116910P1	Permanent magnet: 5 inch, 3.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 002009.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R701	5496870P23	Variable, carbon film: 5K ohms ±20%; sim to Mallory LC(5K).
		LED DISPLAY BOARD HARNESS 19B233379G2
A701		LED DISPLAY BOARD 19B233377G1
		- - - - - - - - - - DIODES - - - - - - - - - -
DS1	19A134354P2	Diode, optoelectronic: yellow; sim to HEW. Packard 5082-4555.
DS2 and DS3	19A134354P1	Diode, optoelectronic: red; sim to HEW. Packard 5082-4655.
DS4	19A134354P3	Diode, optoelectronic: green; sim to HEW. Packard 5082-4955.
		- - - - - - - - - - TERMINALS - - - - - - - - - -
E9 and E10		(Part of 19A134152P21).
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 and Q2	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 thru R4	19A700106P57	Composition: 560 ohms ±5%, 1/4 w.
R5 and R6	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R7	19A700106P57	Composition: 560 ohms ±5%, 1/4 w.
		- - - - - - - - - - DIODES - - - - - - - - - -
DS5	19A134354P3	Diode, optoelectronic: green; sim to HEW. Packard 5082-4955.
		- - - - - - - - - JACKS AND RECEPTACLES - - - - - -
J916		Connector. Includes:
	19B209288P8	Shell.
	19B209288P29	Contact, female: sim to Molex 02-09-1141.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P701	4036634P1	Contact, electrical; sim to AMP 42428-2.
P912		Connector. Includes:
	19A116659P21	Shell.
	19A116781P6	Contact, electrical: sim to Molex 08-50-0108. (Quantity 8).
	19B209519P1	Polarity tab. (Located on pins 5 & 12).
		HARNESS 19A233379G1 (Includes DS5, J916, P701, P912)
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19C303980G2	Casting.
	19C303921P2	Grille.
	19A122390P1	Grille cloth.
	19B205292P1	Window.
	NP280736	Faceplate. (Located around window).
	19A130716P2	Cover. (Located behind option for VU Meter).
	19A142715G1	Cover. (Located behind DS5).
	19A137753P1	Support. (A701).
	NP248900	Nameplate. (GE Monogram).
	7165075P2	Hex nut: thd. size No. 3/8-32. (Secures R701-VOLUME).
	7115130P9	Lockwasher, internal tooth: No. 3/8. (Used to secure R701).
	19A115679P1	Knob, push-on. (R701-VOLUME).
	19A116677P2	Bushing. (Used with DS5).
	4029851P14	Clip loop. (Secures cable near P912).
	N193P1204C6	Tap screw, phillips head: No. 6-20 x 1/4. (Secures grille).
	19B201074P203	Tap screw, Phillips POZIDRIV®: No. 4-40 x 3/16. (Secures A701).
	19B201074P305	Tap screw, Phillips POZIDRIV®: No. 6-32 x 5/16. (Secures A701 support).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.



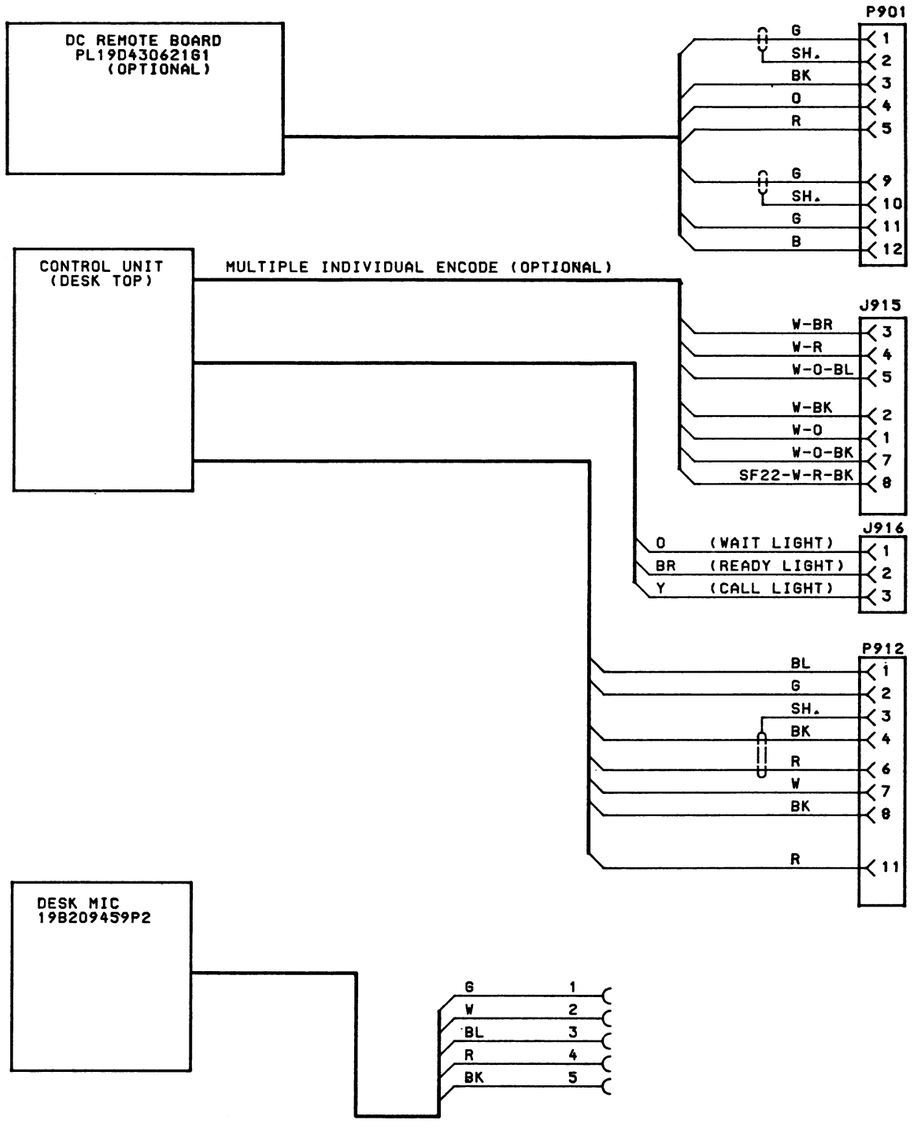
(19C330624, Rev. 2)

NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE SPECIFIED. LETTERED JUMPERS ARE DA WIRE.
2. LETTERED JUMPERS ON S706 ARE CUT AS REQUIRED PER MULTIPLE INDIVIDUAL ENCODE OPTION.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR ME6=1,000,000 OHMS.

SCHEMATIC DIAGRAM

DESK TOP CONTROL PANEL 19D423452G4
AREA SELECT 19D423452G6



(19D432155, Sh. 3, Rev. 3)

INTERCONNECTION DIAGRAM

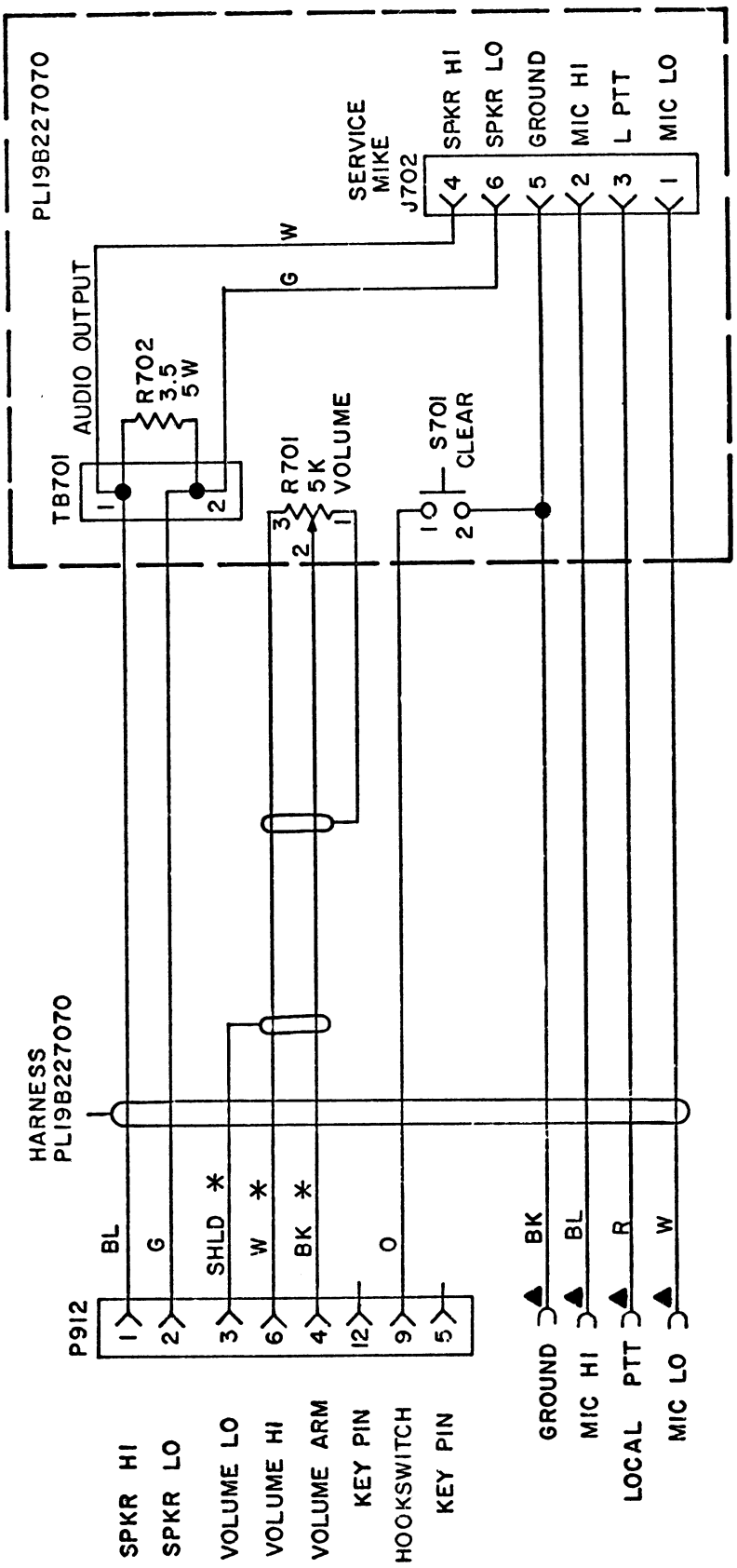
GE-MARC V DESK TOP STATION
SYNTHESIZED

PARTS LIST

GE MARC V STATION HARNESS
(SYNTHESIZED)
19D432153G1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P904		Connector. Includes:
	19A116659P81	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P907A and P907B		Connector. Includes:
	19A116659P80	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6 each).
J908		Connector. Includes:
	19A116659P19	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 5).
P915		Connector. Includes:
	19B209288P4	Shell.
	19B209288P30	Contact, male: sim to Molex 02-09-2141. (Quantity 7).
P916		Connector. Includes:
	19B209288P10	Shell.
	19B209288P30	Contact, male: sim to Molex 02-09-2141. (Quantity 3).
P1401		Connector. Includes:
	19A116659P21	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 12).
P1402		Connector. Includes:
	19A116659P19	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 3).
P1403		Connector. Includes:
	19A116659P19	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6).
P2401A		Connector. Includes:
	19A116659P89	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P2401B		Connector. Includes:
	19A116659P20	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6).
P2402A		Connector. Includes:
	19A116659P89	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P2402B		Connector. Includes:
	19A116659P20	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 8).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



ALL WIRES ARE SF22
* WIRE 19A116885P1
▲ TERMINATE WITH 19B209260P103

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PL19B227070G3	

(19B233548, Rev. 1)

SCHEMATIC DIAGRAM

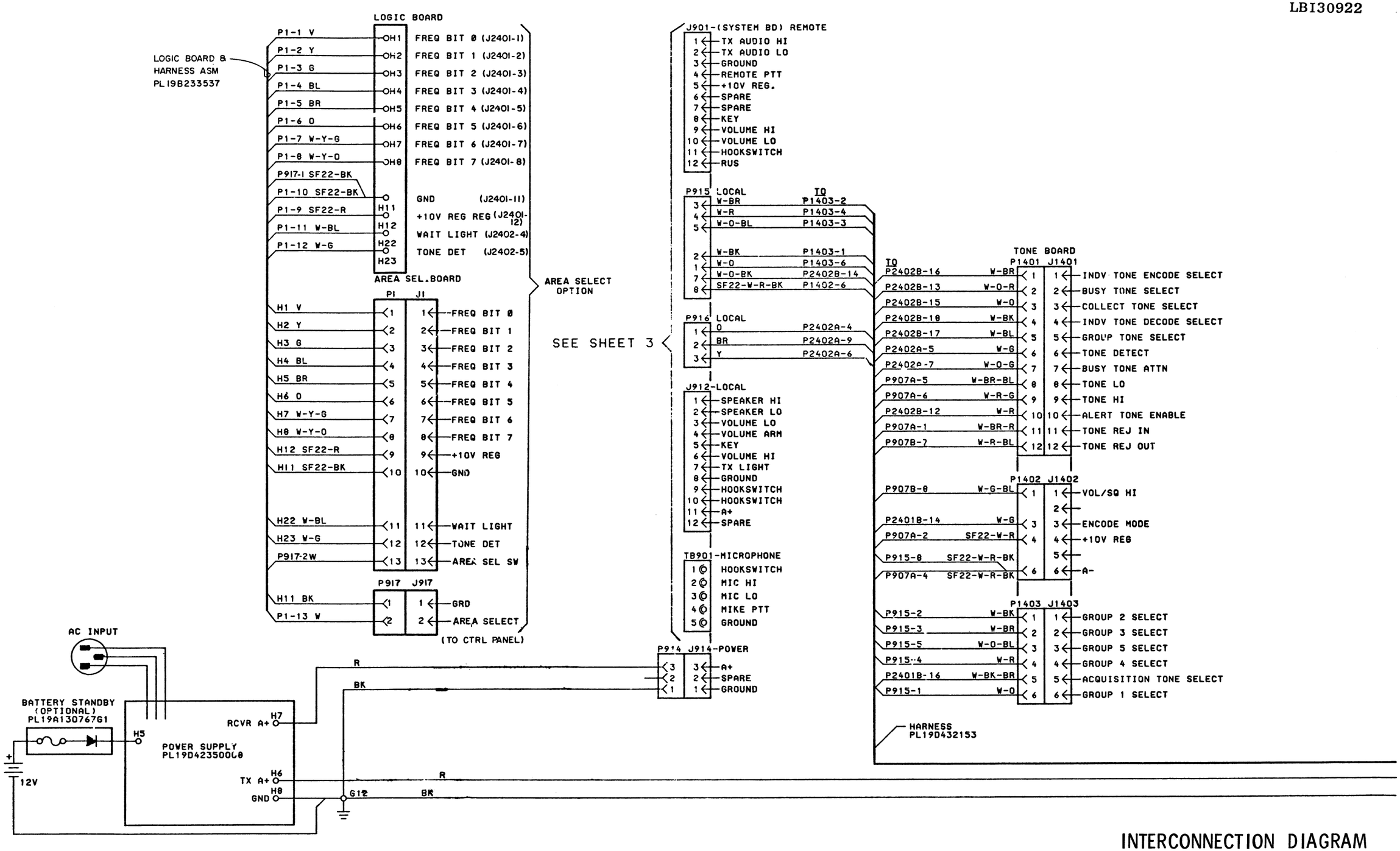
WALL MOUNT CONTROL PANEL
19B227070G3

PARTS LIST

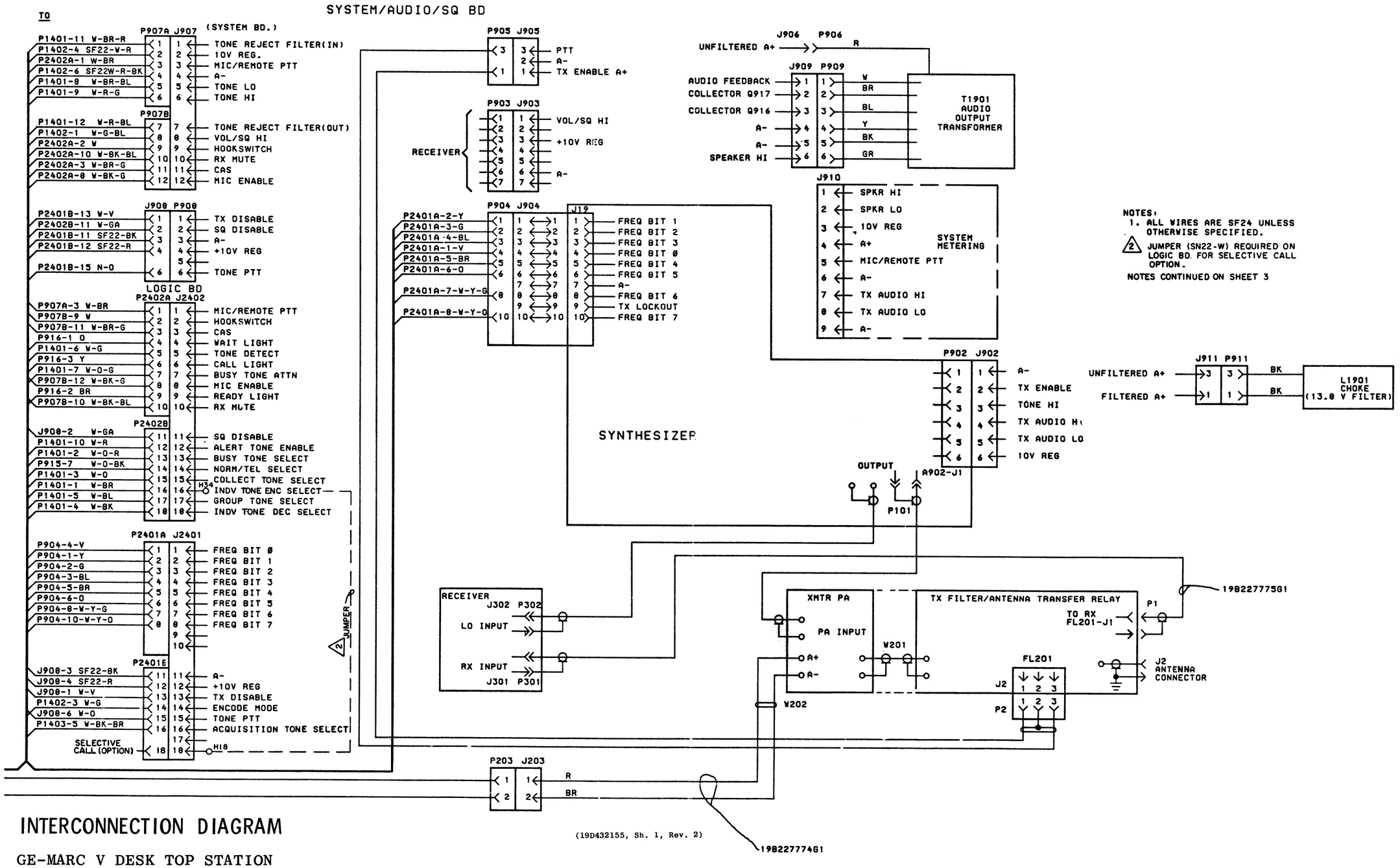
GE MARC V WALL MOUNT
CONTROL PANEL
19B227070G3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J702	19B219627G1	Connector: 6 contacts.
		- - - - - - - - - - - - PLUGS - - - - - - - - - - - -
P912		Connector. Includes:
	19A116659P21	Connector, printed wiring: sim to Molex 09-50-3121.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
	19B209519P1	Polarity tab.
		- - - - - - - - - - - - RESISTORS - - - - - - - - - - - -
R701	5496870P11	Variable, carbon film: 5000 ohms ±20%; sim to Mallory LC(5K).
R702	7141971G10	Resistor kit: includes 3.5 ohms ±5%, 5 w resistor with 2 spade tongue terminals.
		- - - - - - - - - - - - SWITCHES - - - - - - - - - - - -
S701	4031922P1	Push: SPST, normally open, 1/2 amp at 12 VDC; sim to Stackpole Type SS-15.
		- - - - - - - - - - TERMINAL BOARDS - - - - - - - - - -
TB701	7117710P2	Phen: 2 terminals; sim to Cinch 1781.
		HARNESS ASSEMBLY 19B227070G2 (Includes J702, P912)
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19B209260P103	Terminal, solderless: wire range No. 24-20; sim to AMP 60495-1. (Part of harness assembly).
	19B209591P1	Knob. (Used with R701).
	715130P9	Lockwasher: No. 3/8; sim to Shakeproof 1220-2. (Used with R701)
	7165075P2	Hex nut, brass: thd. size No. 3/8-32. (Used with R701).
	19A130758P1	Plate. (Used with J702).
	4029851P14	Clip loop. (Used with harness assembly).
	4029030P17	Seal, rubber channel.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



(19D432155, Sh. 2, Rev. 5)



INTERCONNECTION DIAGRAM

GE-MARC V DESK TOP STATION
SYNTHESIZED

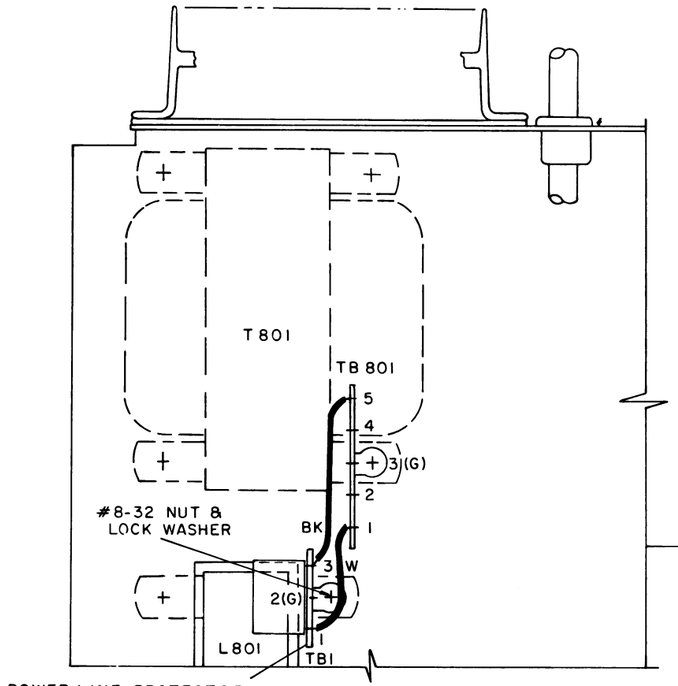


FIG. 1
FOR 121 VAC

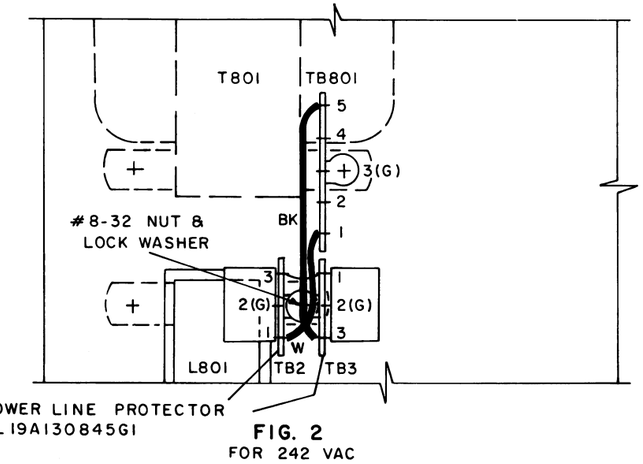


FIG. 2
FOR 242 VAC

THESE INSTRUCTIONS COVER THE INSTALLATION OF POWER LINE PROTECTOR TO MASTR EXEC II STATIONS.

INSTRUCTIONS:

FOR FIG. 1 121 VAC.

1. INSTALL TB1 AS SHOWN, OVER THE EXISTING NUT FOR L801.
2. CONNECT BLACK WIRE FROM TB1-3 TO TB801-5. AND WHITE WIRE FROM TB1-1 TO TB801-1.

FOR FIG. 2 242 VAC.

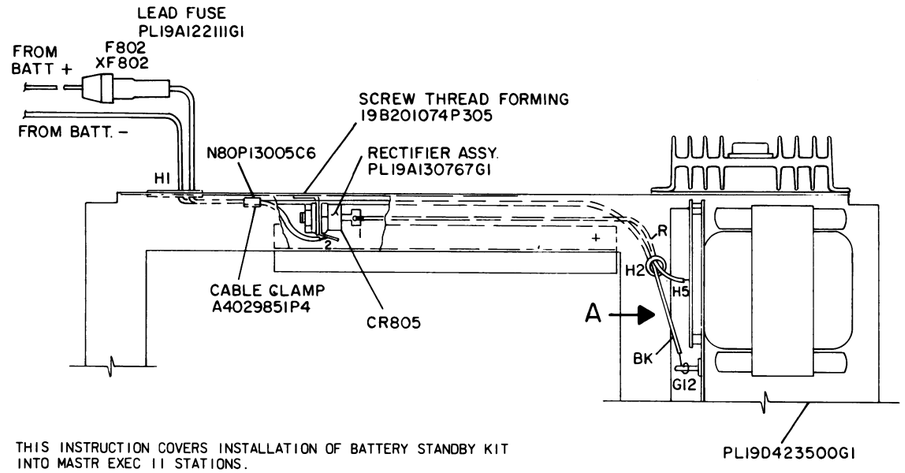
1. INSTALL TB2 AND TB3 AS SHOWN, OVER THE EXISTING NUT FOR L801.
2. REMOVE BLACK WIRE FROM TB2-3.
3. REMOVE WHITE WIRE FROM TB3-1.
4. CONNECT DB WIRE FROM TB2-3 TO TB3-1.
5. CONNECT WHITE WIRE FROM TB2-1 TO TB801-1. AND BLACK WIRE FROM TB3-3 TO TB801-5.

POWER SUPPLY
PLI9D423500G1

(19C321887, Rev. 1)

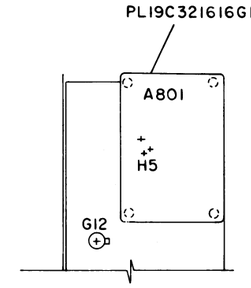
INSTALLATION INSTRUCTIONS

POWER LINE PROTECTOR KIT
(OPTIONS PD11 AND PD12)
19A130845G1



THIS INSTRUCTION COVERS INSTALLATION OF BATTERY STANDBY KIT INTO MASTR EXEC II STATIONS.

1. ADD RECTIFIER ASM TO POWER SUPPLY BY USING SELF FORMING SCREW (19B201074P305) AS SHOWN.
2. TERMINATE FUSE LEAD TO CR805-2 AND CLAMP AS SHOWN.
3. TERMINATE R-WIRE TO H5 OF A801, AND BK-WIRE TO G12 AS SHOWN.

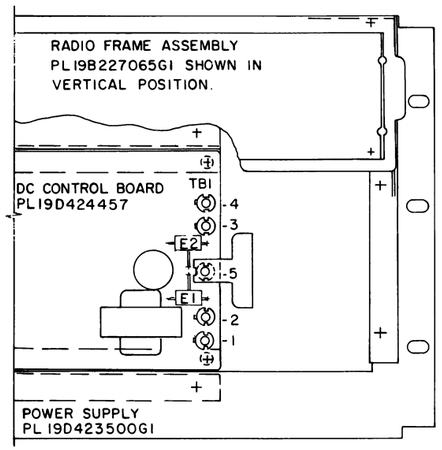


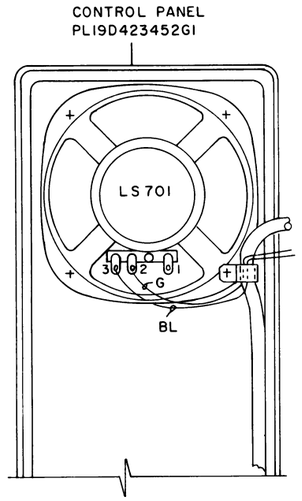
VIEW AT "A"

(19B227077, Rev. 1)

INSTALLATION INSTRUCTIONS

BATTERY STANDBY KIT
(OPTION PA12) 19A130767G1





VIEW AT A
PARTIAL

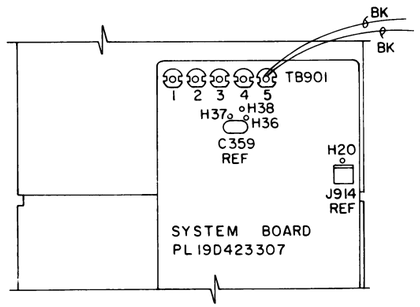
THESE INSTRUCTIONS COVER THE INSTALLATION OF TELEPHONE LINE SURGE PROTECTION KIT PL19A129368G2 TO MASTR EXEC II STATION.

INSTRUCTIONS:

1. SOLDER E1 & E2 TO BOARD AS SHOWN.
2. TRIM LEADS ON E1 & E2 TO .09 MAX. ON SOLDER SIDE OF PW BOARD.

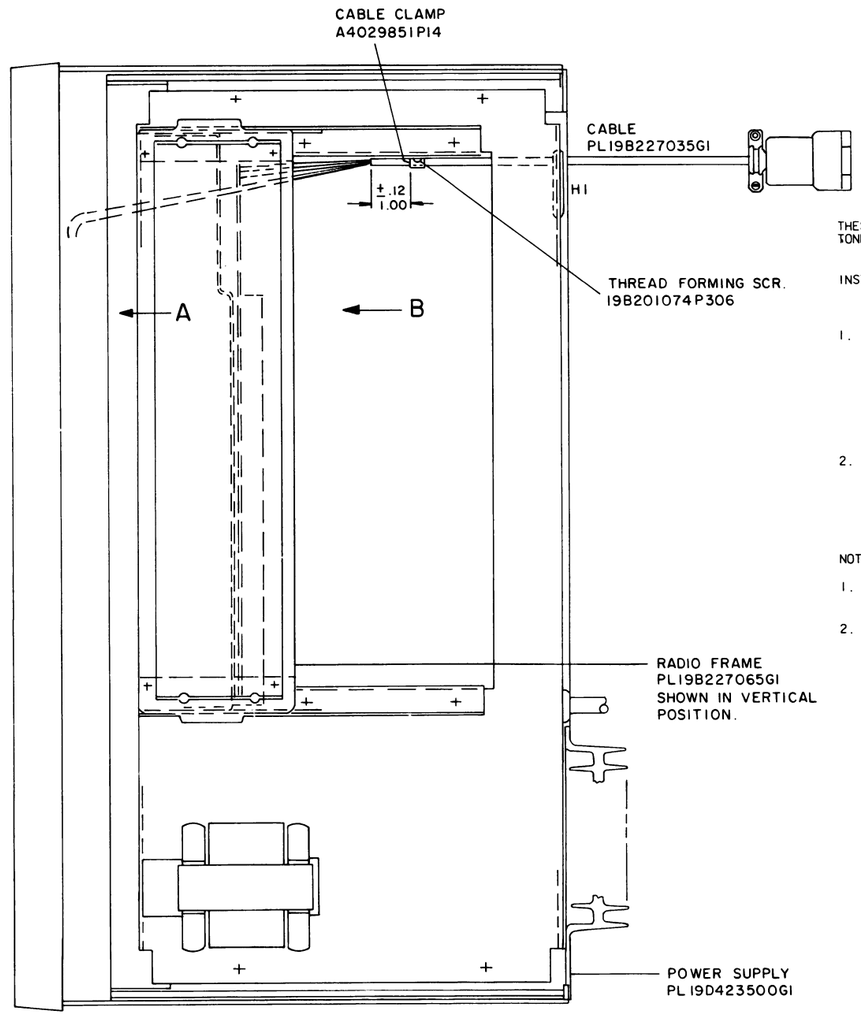
NOTES:

1. THE EFFECTIVENESS OF THE LINE PROTECTORS IS DEPENDENT UPON A GOOD EARTH GROUND. THE GROUND CONNECTION SHOULD BE MADE WITH A SINGLE 14 AWG OR LARGER COPPER CONDUCTOR AND SHOULD BE CONNECTED TO THE GROUND SIDE OF THE PROTECTORS AT TB1-5. THE CONDUCTOR SHOULD BE SHORT, STRAIGHT AND A CONTINUOUS PIECE OF WIRE.
2. PROVIDE THE LOWEST POSSIBLE RESISTANCE AT THE CONNECTORS AT EACH END OF THE GROUND WIRE.



VIEW AT B
PARTIAL

(19B227171, Sh. 2, Rev. 0)



THESE INSTRUCTIONS COVER THE INSTALLATION OF EXTERNAL TONE CABLE, TO MASTR EXEC II STATION.

INSTRUCTIONS:

REFER TO WIRING DIAGRAM 19C321900

1. ROUTE CABLE PL19B227035G1 THRU HOLE 1 AND SECURE WITH CABLE CLAMP AS SHOWN. CONNECT THE 2 BLACK WIRES TERMINATED WITH TERMINAL TO TB901-5 ON SYSTEM BOARD VIEW AT B.

   SOLDER GREEN LEAD FROM P1-J TO H36 ON SYSTEM BOARD VIEW AT B.
   " SHIELD " " P1-C TO H37 " " " "
   " BROWN " " P1-H TO H38 " " " "
   " RED " " P1-D TO H20 " " " "

2. ROUTE THE TWO LONG WIRES - GREEN AND BLUE THRU THE CABLE CLAMP ON LS701 VIEW AT A, THEN SOLDER THE GREEN WIRE TO LS701-2 AND THE BLUE WIRE TO LS701-3.

NOTES:

1. WHEN TONE DECODER IS PRESENT, JUMPER FROM LS701-3 TO LS701-2 MAY BE CUT IF MUTING IS DESIRED.
2. EITHER STATION OR MOBILE (12 VDC) ENCODERS OR DECODERS MAY BE USED WITH STATION. EXTENSION CABLE PL19B216148G1 MAY NOT BE USED WITH 12 VDC UNITS.

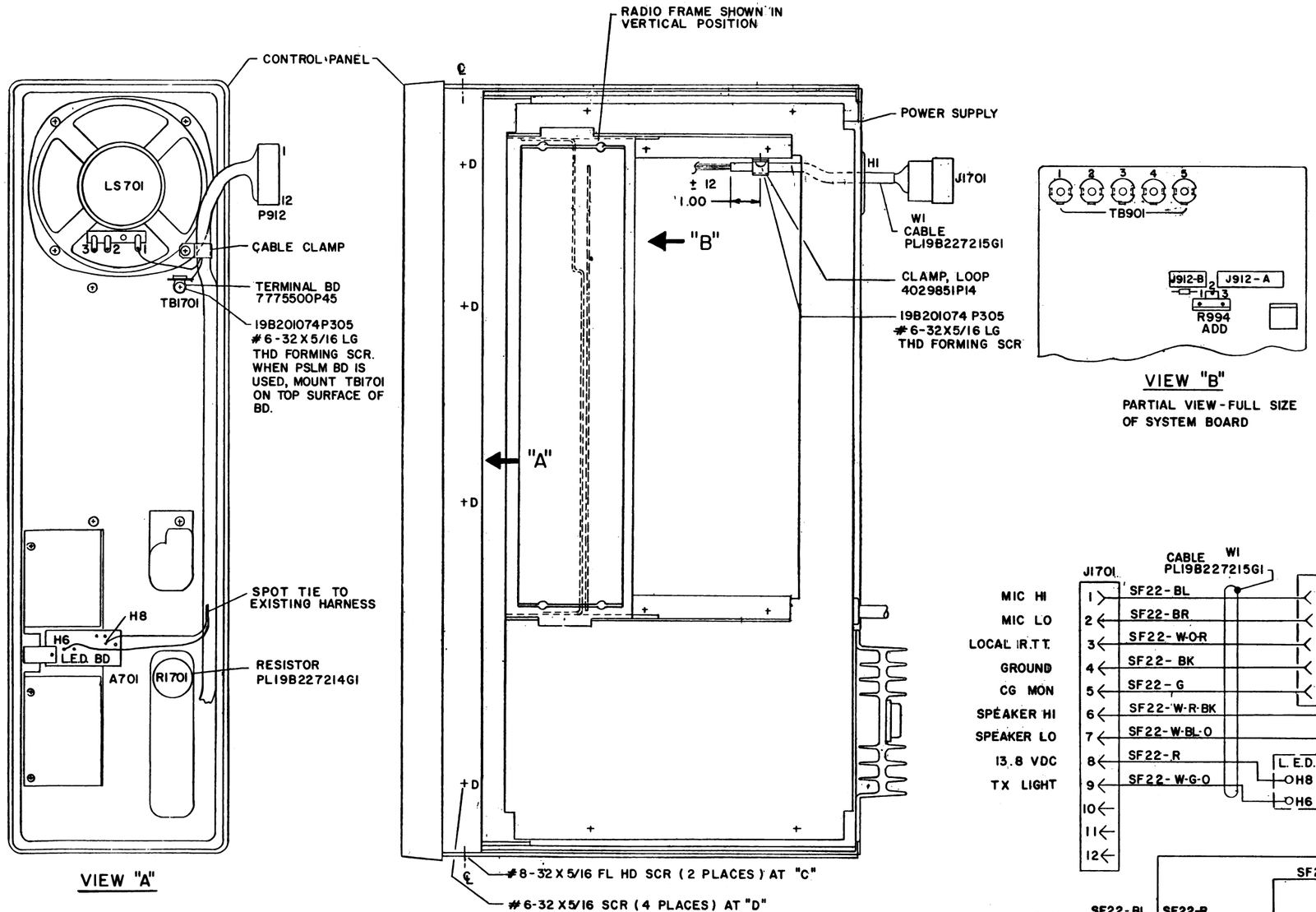
(19D423646, Rev. 1)

INSTALLATION INSTRUCTIONS

TELEPHONE LINE PROTECTOR KIT (OPTION WC10) 19A129368G2

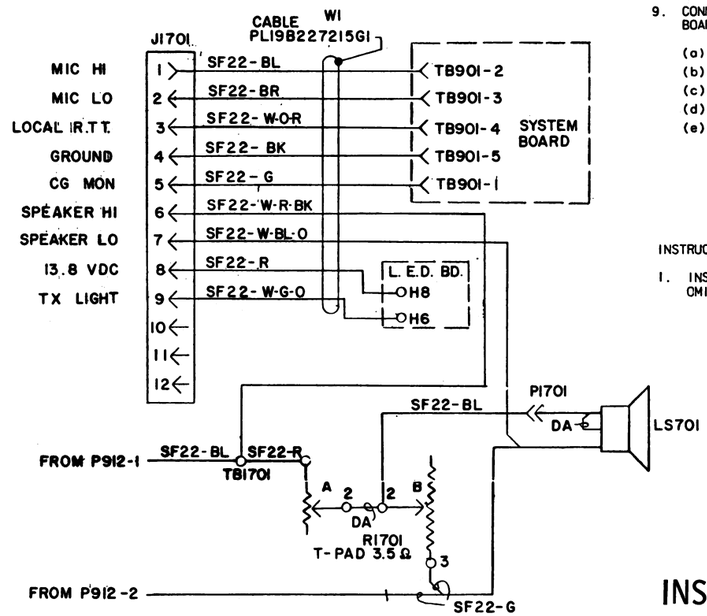
INSTALLATION INSTRUCTIONS

TONE APPLICATION KIT (OPTION WD11) 19B227035G1



VIEW "B"

PARTIAL VIEW - FULL SIZE OF SYSTEM BOARD



WIRING DIAGRAM

(19D423699, Rev. 2)

THESE INSTRUCTION COVER THE INSTALLATION OF MOD. KITS PL19A130927G1 OR G2 TO ADAPT MASTR EXEC II DESK TOP STATION FOR USE WITH LOCAL CONTROLLER EXTENSION, A TONE REMOTE ADAPTER, OR A PHONE PATCH.

ALL MATERIAL IS INCLUDED IN KIT PL19A130927G1.

INSTRUCTIONS:

1. REMOVE THE CONTROL PANEL FROM THE BASE & SAVE HARDWARE FOR REASSEMBLY.
2. ASSEMBLE TB1701 AS SHOWN.
3. UNPLUG BL WIRE FROM LS701-3 AND CUTOFF CONNECTOR P701. SOLDER BL WIRE TO TB1701.
4. REPLACE R701 WITH R1701 (19B227214G1) USING KNOB AND MOUNTING HARDWARE FROM R701. CUT OFF LEADS FROM R701 AND TAPE TO PREVENT SHORTS.
5. CONNECT WIRES HANGING FROM R1701 AS FOLLOWS:
   (a) SOLDER G WIRE TO LS701-1
   (b) CONNECT BL WIRE (P1701) TO LS701-3
   (c) SOLDER R WIRE TO TB1701
6. ASSEMBLE W1 (19B227215G1) AS SHOWN. ROUTE WIRES THRU CABLE CLAMP ON LS701 AND CONNECT AS FOLLOWS:
   (a) SOLDER W-R-BK TO TB1701
   (b) SOLDER W-BL-O TO LS701-1
   (c) SOLDER R TO H8 ON LED BD.
   (d) SOLDER W-G-O TO H6 ON LED BD.
7. REASSEMBLE CONTROL PANEL TO BASE.
8. INSTALL R994 (19B209358P106) ON SYSTEM BOARD AS SHOWN IN VIEW AT "B".
9. CONNECT WIRES FROM W1 (19B227215G1) TO SYSTEM BOARD TB901 AS FOLLOWS:
   (a) CONNECT G WIRE TO TB901-1
   (b) CONNECT BL WIRE TO TB901-2
   (c) CONNECT BR WIRE TO TB901-3
   (d) CONNECT W-O-R WIRE TO TB901-4
   (e) CONNECT BK WIRE TO TB901-5

INSTRUCTIONS FOR 19A130927G2

1. INSTALL 19A130927G2 BY 19A130927G1 PROCEDURE EXCEPT OMIT STEPS 6 AND 9.

INSTALLATION INSTRUCTIONS

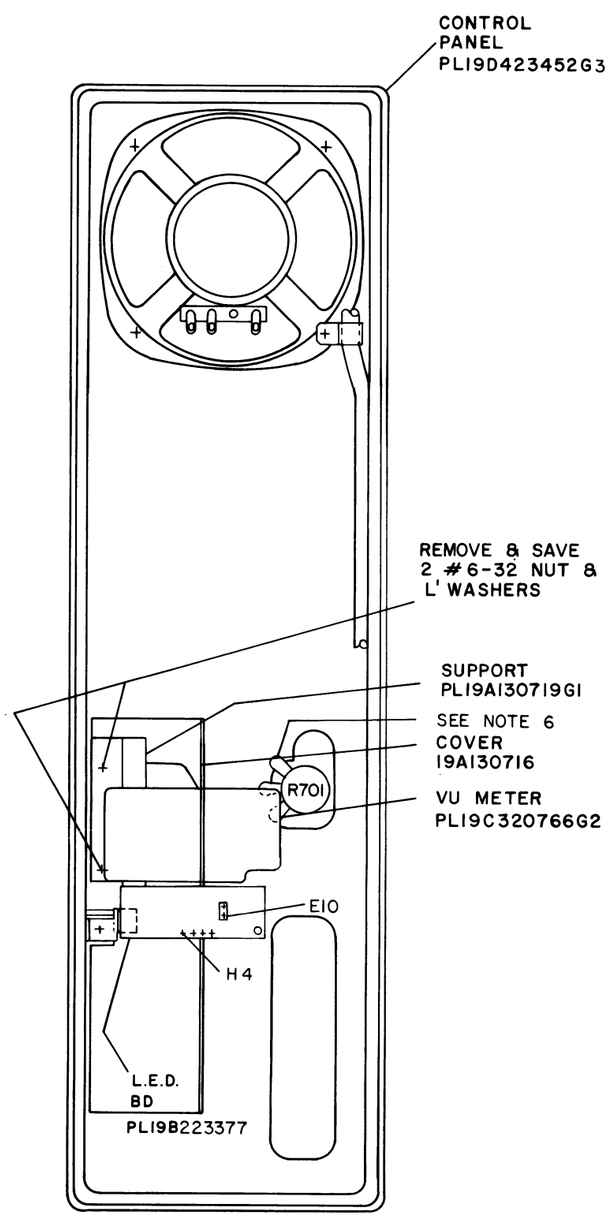
LOCAL CONTROLLER EXTENSION (OPTION MD15) 19A130927G2

PARTS LIST

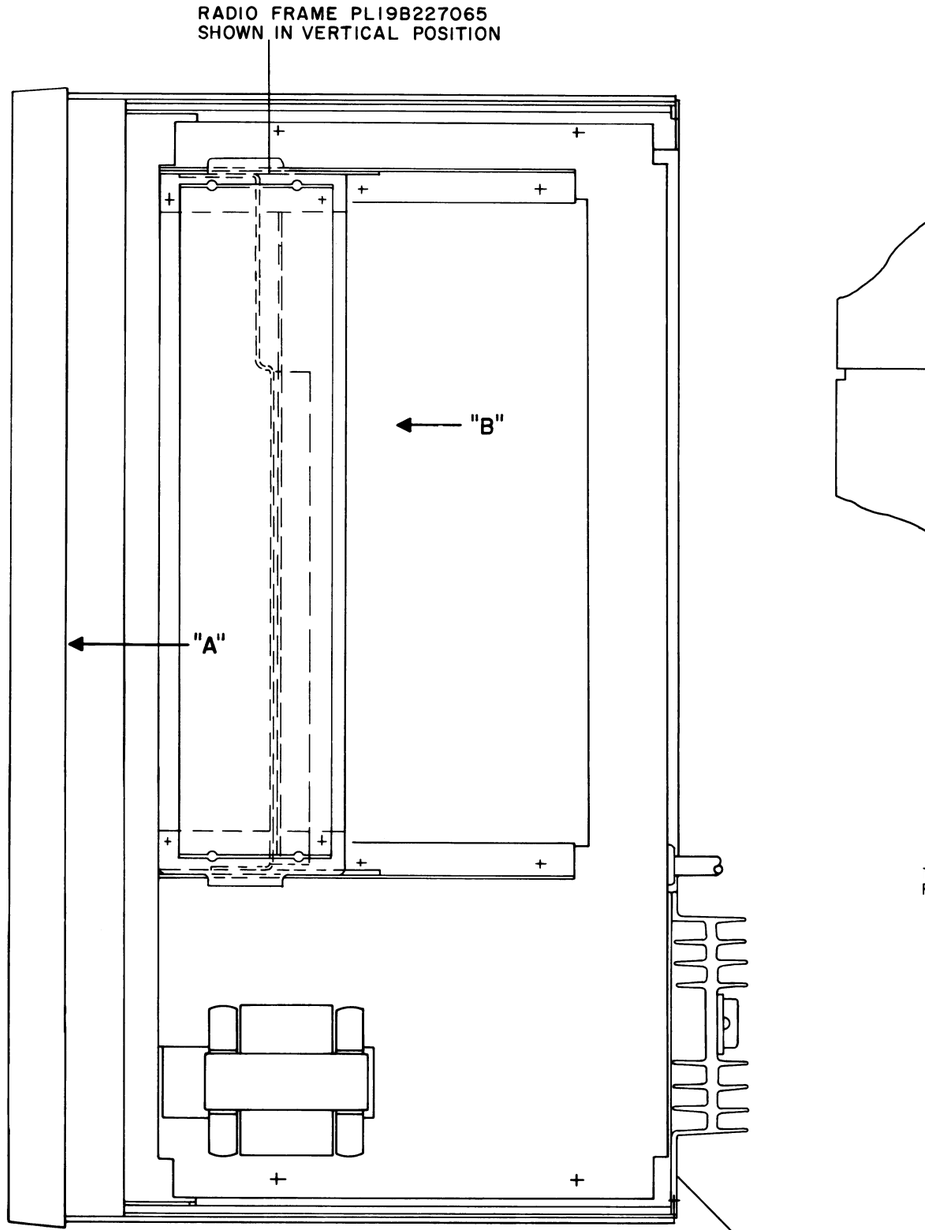
LOCAL CONTROLLER EXTENSION KIT
19A130927G1, G2
ISSUE 1

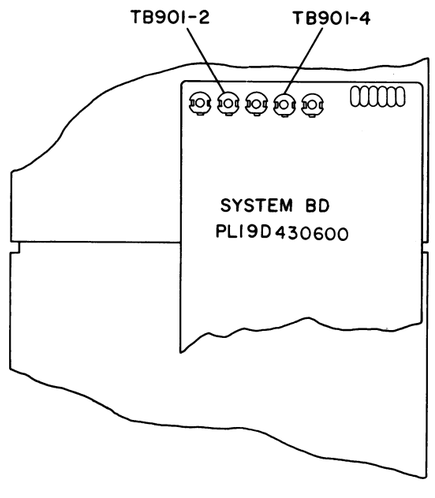
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - RESISTORS - - - - - - - - - -
R994*	19B209358P106	Variable, carbon film: approx 300 to 10,000 ohms ±10%, 0.25 w; sim to CTS Type X-201.
R1701	19B227214G1	T Pad resistor. Includes:
P1701	4036634P1	Contact, electrical; sim to AMP 42428-2.
	19B209423P1	Resistor, variable, audio, L-pad: 3.5 ohms ±15%, 2.5 w; sim to CTS Type AW.
		- - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1701	7775500P45	Terminal board: phen, 3 terminals.
		- - - - - - - - - - - CABLES - - - - - - - - -
W1		CABLE ASSEMBLY 19B227215G1
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J1701		Connector. Includes:
	19B209288P24	Shell.
	5496809P17	Contact, female; sim to Molex 1381-T. (J1701-1).
	5496809P18	Contact, male; sim to Molex 1380-T. (J1701-2 thru J1701-9).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	4029851P14	Clip loop. (Secures W1).
	19B209260P103	Terminal, solderless; sim to AMP 60495-1. (Located at loose ends of J1701-1 thru J1701-5).
	19B201074P305	Tap screw, Phillips POZIDRIV®: No. 6-32 x 5/16.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



VIEW AT "A"





VIEW AT "B"

THIS INSTRUCTION COVERS INSTALLATION OF V.U. METER PL I9AI29382G3 INTO GE-MARC V DESK TOP STATION.

INSTRUCTIONS:

1. REMOVE AND DISCARD COVER PLATE I9AI30716 AND SAVE 2 #6-32 NUTS AND L'WASHERS.
2. MOUNT V.U. METER (PLI9C320766G2) BY USING MOUNTING PLATE PLI9AI30719GI AND #6 NUTS AND L'WASHERS.
3. SOLDER R WIRE FROM METER BD TO HOLE 4 OF L.E.D. BD.
4. SOLDER BK WIRE FROM METER BD TO EIO OF L.E.D. BD.
5. DRESS GR AND BL WITH CONTROL PANEL HARNESS, CABLE CLAMP AND SPOT TIE. CONNECT GR WIRE TO TB901-4 SYSTEMS BD. BL WIRE TO TB901-2 SYSTEM BD.
6. CAREFULLY STRAIGHTEN SOLDER TERMINALS ON R701 TO AVOID CONTACT WITH VU METER BOARD.

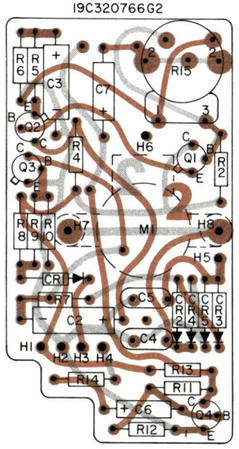
INSTALLATION INSTRUCTIONS

VU METER KIT (OPTION VB10) 19A129382G3

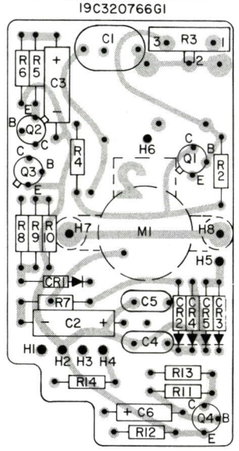
(19D423550, Sh. 2, Rev. 0)

OUTLINE DIAGRAM

VU METER BOARD
19C320766G2

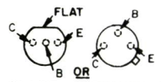


VU METER BOARD
19C320766G1



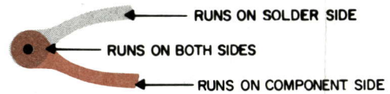
(19C320765, Sh. 2, Rev. 2)
(19C320765, Sh. 3, Rev. 2)

LEAD IDENTIFICATION FOR Q1,Q2,Q3 & Q4



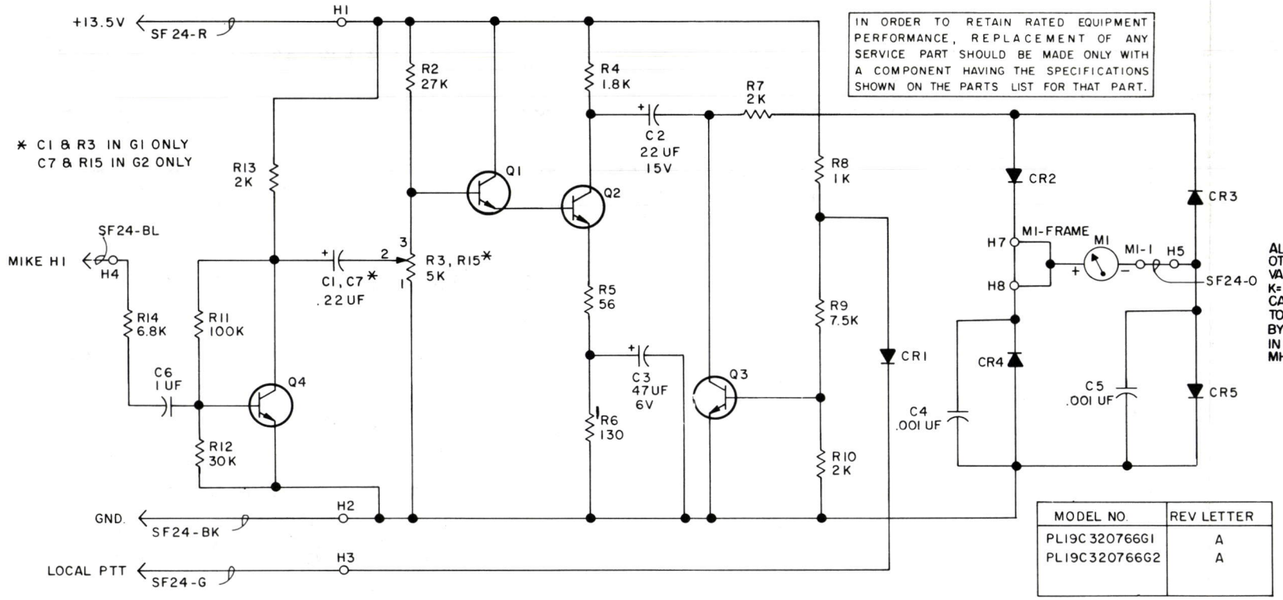
TOP VIEW

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



(19C327197, Rev. 1)

SCHEMATIC DIAGRAM



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.

MODEL NO.	REV LETTER
PLI9C320766G1	A
PLI9C32076662	A

(19C320767, Rev. 3)

SERVICE SHEET

VU METER KIT (OPTION VB10)
19A129382G3

PARTS LIST

LBI30117A

VU METER KIT
19A129382G2, G3

SYMBOL	GE PART NO.	DESCRIPTION
		COMPONENT BOARD 19C320766G1, G2
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116080P109	Polyester: 0.22 µf ±10%, 50 VDCW. (Used in G1 only).
C2	5496267P10	Tantalum: 22 µf ±20%, 15 VDCW; sim to Sprague Type 150D.
C3	5496267P2	Tantalum: 47 µf ±20%, 6 VDCW; sim to Sprague Type 150D.
C4 and C5	549448iP111	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C6	5496267P17	Tantalum: 1.0 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C7	5496267P26	Tantalum: 0.22 µf ±20%, 35 VDCW; sim to Sprague Type 150D. (Used in G2 only).
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR2 thru CR5	4038056P1	Germanium.
		- - - - - - - - - - METERS - - - - - - - - - -
M1	19A116729P1	Panel DC: 200 µA mechanism; sim to Jewel Instruments 20504003-032.
		- - - - - - - - - - TRANSISTORS - - - - - - - -
Q1* and Q2*	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		Earlier than REV A:
	19A115889P1	Silicon, NPN.
Q3*	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		Earlier than REV A:
	19A115720P1	Silicon, NPN; sim to Type 2N2222.
Q4	19A115910P1	Siiicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - -
R2	3R152P273J	Composition: 27K ohms ±5%, 1/4 w.
R3	19B209358P105	Variable, carbon film: approx 200 to 5000 ohms ±10%, 0.25 w; sim to CTS Type X-201. (Used in G1 only).
R4	3R152P182J	Composition: 1.8K ohms ±5%, 1/4 w.
R5	3R152P560J	Composition: 56 ohms ±5%, 1/4 w.
R6	3R152P131J	Composition: 130 ohms ±5%, 1/4 w.
R7	3R152P202J	Composition: 2K ohms ±5%, 1/4 w.
R8	3R152P102J	Composition: 1K ohms ±5%, 1/4 w.
R9	3R152P752J	Composition: 7.5K ohms ±5%, 1/4 w.
R10	3R152P202J	Composition: 2K ohms ±5%, 1/4 w.
R11	3R152P104J	Composition: 100K ohms ±5%, 1/4 w.
R12	3R152P303J	Composition: 30K ohms ±5%, 1/4 w.
R13	3R152P202J	Composition: 2K ohms ±5%, 1/4 w.
R14	3R152P682J	Composition: 6.8K ohms ±5%, 1/4 w.
R15	19B209358P5	Variable, carbon film: approx 200 to 5000 ohms ±20%, 0.25 w; sim to CTS Type U-201. (Used in G2 only).
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A116022P1	Insulator, bushing. (Used with M1).
	19B209260P103	Terminal, solderless. (Terminates wires from H1-H4).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

19C320766G1 & G2 COMPONENT BOARD

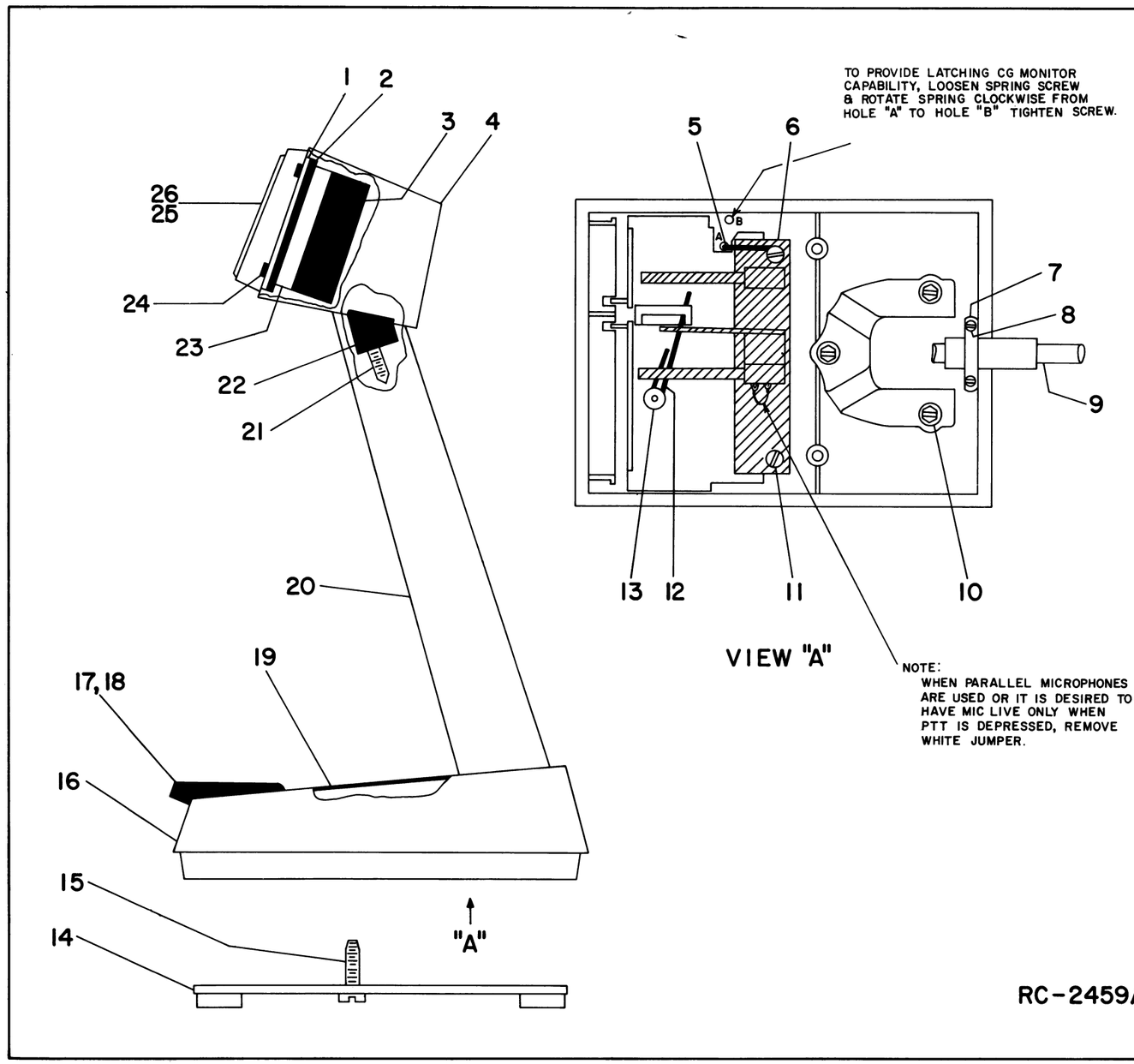
REV. A - To standardize transistors. Changed Q1, Q2 and Q3.

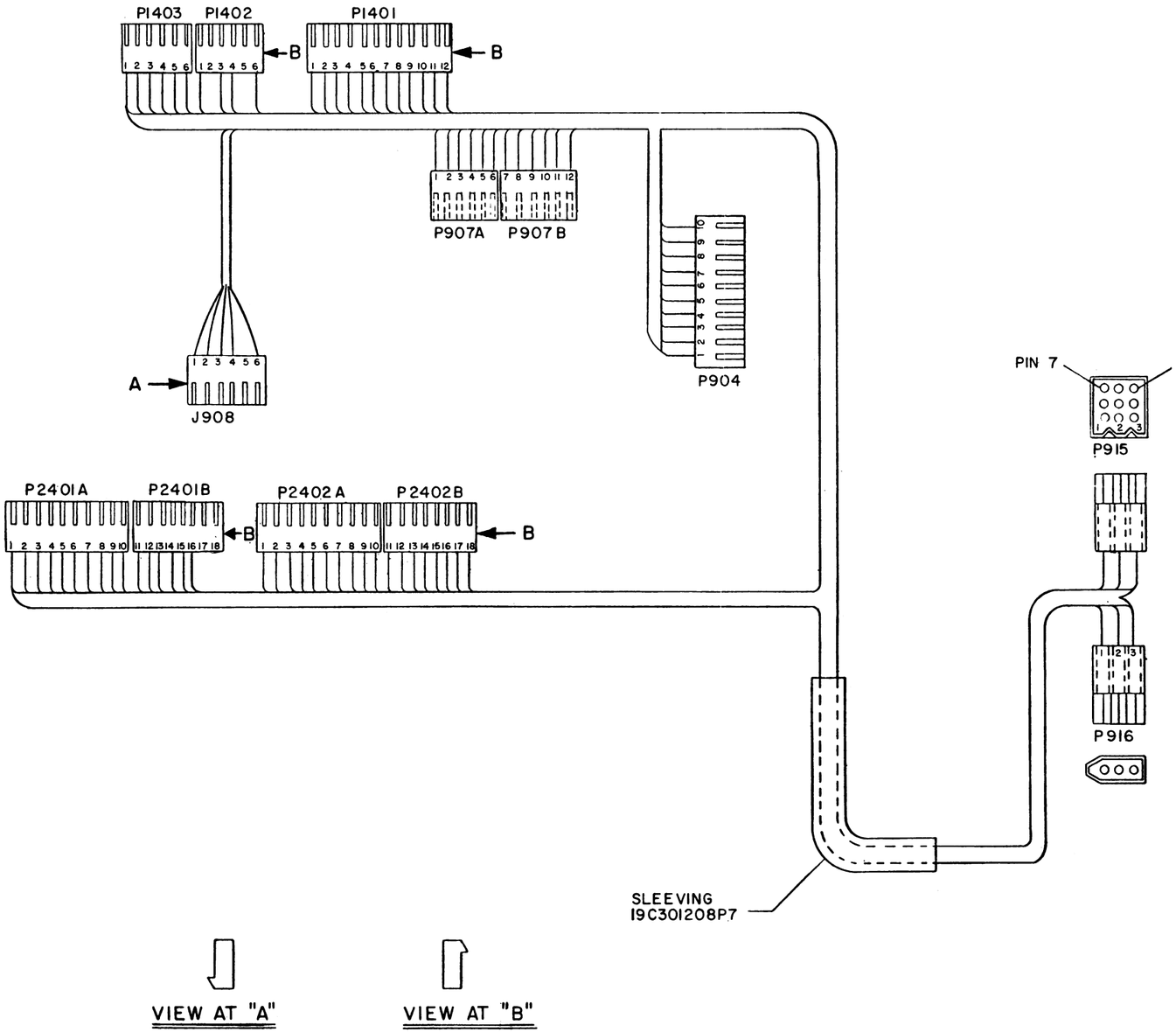
PARTS LIST

GE-MARC V DESK MICROPHONE
19B209459P2
(SEE RC2459)
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
1		Locking plate. (Part of item 4).
2		Gasket. (Part of item 4).
3		"O" Ring. (Part of item 4).
4		Head Assembly. RP122. (Includes items 1-3, 24-26).
5		Lock spring. (Part of item 6).
6		Switch Kit. RP119. (Includes items 5, 11, 12, 13, 17, 18).
7		Retaining Bar. (Part of item 9).
8		Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 9).
9		Cable Kit. RP118. (Includes items 7, 8).
10		Screw, thread forming, slotted: No. 8 x 3/4. (Part of item 20).
11		Screw, thread forming, slotted: No. 4 x 5/8. (Part of item 6).
12		Spring. (Part of item 6).
13		Retainer. (Part of item 6).
14		Base plate. (Part of item 16).
15		Screw, thread forming slotted: No. 8 x 3/4. (Secures Base Plate- Part of item 16).
16		Base Assembly. RP120. (Includes items 14, 15, 19).
17		Pushbutton, CLEAR. (Part of item 6).
18		Pushbutton, Transmit. (Part of item 6).
19		Nameplate. (Part of item 16).
20		Stem Assembly. RP121.
21		Screw, thread forming, slotted: No. 8 x 1/2. (Part of item 20).
22		Clamp. (Secures Head Assembly to Stem Assembly- Part of item 20).
23		Transistorized Cartridge. RP117.
24		Screw, thread forming, slotted: No. 4 x 1/2. (Part of item 4).
25		Grille. (Part of item 4).
26		Dust cloth. (Part of item 4).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES





(19C330959, Rev. 0)

SERVICE SHEET

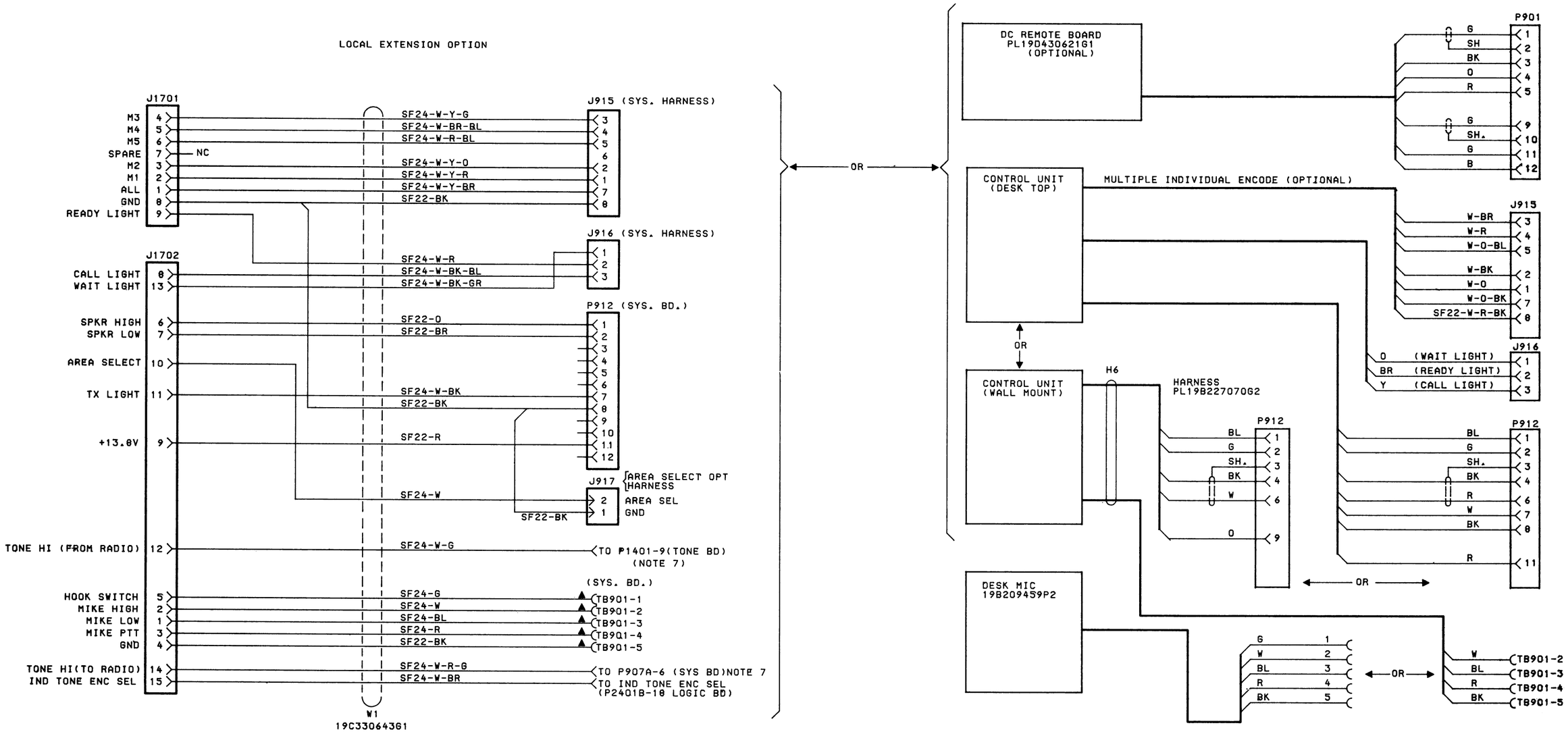
STATION HARNESS 19D432153G1
FOR SYNTHESIZED STATION

PARTS LIST

GE MARC V STATION HARNESS
(SYNTHESIZED)
19D432153G1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P904		Connector. Includes:
	19A116659P81	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P907A and P907B		Connector. Includes:
	19A116659P80	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6 each).
J908		Connector. Includes:
	19A116659P19	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 5).
P915		Connector. Includes:
	19B209288P4	Shell.
	19B209288P30	Contact, male: sim to Molex 02-09-2141. (Quantity 7).
P916		Connector. Includes:
	19B209288P10	Shell.
	19B209288P30	Contact, male: sim to Molex 02-09-2141. (Quantity 3).
P1401		Connector. Includes:
	19A116659P21	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 12).
P1402		Connector. Includes:
	19A116659P19	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 3).
P1403		Connector. Includes:
	19A116659P19	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6).
P2401A		Connector. Includes:
	19A116659P89	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P2401B		Connector. Includes:
	19A116659P20	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 6).
P2402A		Connector. Includes:
	19A116659P89	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 10).
P2402B		Connector. Includes:
	19A116659P20	Shell.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 8).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.



NOTES:(CONT'D)

3. UNLESS OTHERWISE SPECIFIED TERMINATE WIRES AT J1701,J1702,J915 AND J916 WITH 19B209288P29.
4. TERMINATE WIRE AT J1701-8 WITH 5496809P17.
5. TERMINATE WIRES AT P912 WITH 19A116781P4, EXCEPT P912-8 USE 19A116781P3.
6. TERMINATE WITH 19B209260P103.
7. REMOVE EXISTING WIRE ON P1401-9 AND P907A-6, SLEEVE & TIE BACKS.INSTALL WIRES AS SHOWN WHEN SELECTIVE CALL OPTION IS USED.
8. TERMINATE WIRES AT J917 WITH 19B209288P30.

(19D432155, Sh. 3, Rev. 3)

INTERCONNECTION DIAGRAM

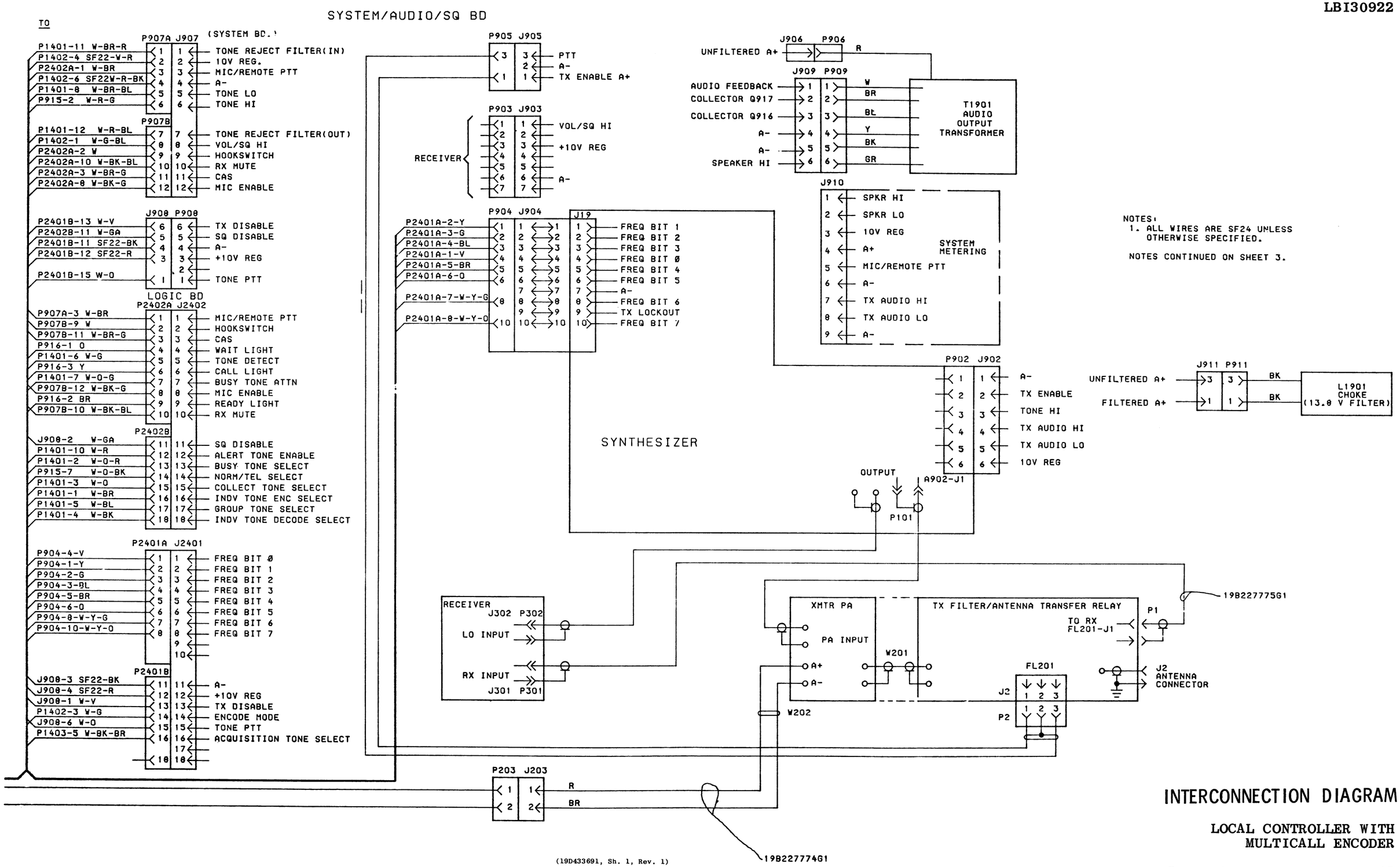
DESK TOP STATION WITH LOCAL CONTROLLER OPTION HARNESS

PARTS LIST

EXTENDED LOCAL CONTROL HARNESS
19C330643G1
ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J915		Connector. Includes:
	19B209288P38	Shell.
	19B209288P29	Contact, electrical. (Quantity 7).
J916		Connector. Includes:
	19B209288P8	Shell.
	19B209288P29	Contact, electrical. (Quantity 3).
J917		Connector. Includes:
	19B209288P12	Shell.
	19B209288P30	Contact, electrical. (Quantity 2).
J1701		Connector. Includes:
	19B209288P38	Shell.
	19B209288P29	Contact, electrical. (J1701-2 thru 6, 8, & 9).
	5496809P17	Contact, electrical. (J1701-1).
J1702		Connector. Includes:
	19B209288P39	Shell.
	19B209288P29	Contact, electrical. (Quantity 15).
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P912		Connector. Includes:
	19A116659P21	Shell.
	19A116781P6	Contact, electrical. (P912-1,2,4,6,7,8 & 11).
	19A116781P5	Contact, electrical. (P12-3).
	19B209519P1	Polarity tab. (Located on contacts 5 & 12).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B209260P103	Solderless terminal. (Hung in wiring - to TB901).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



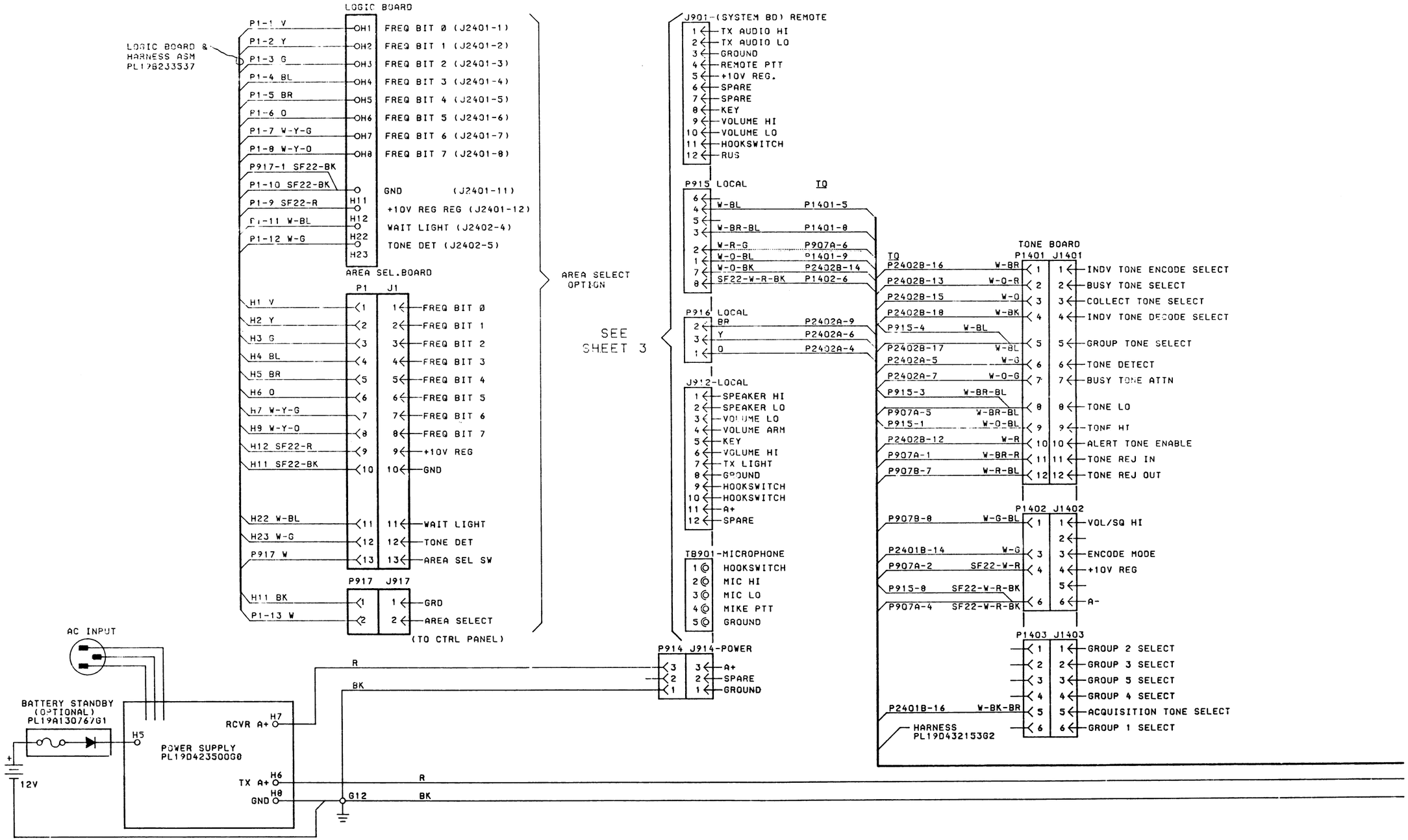
NOTES:
1. ALL WIRES ARE SF24 UNLESS OTHERWISE SPECIFIED.

NOTES CONTINUED ON SHEET 3.

(19D433691, Sh. 1, Rev. 1)

INTERCONNECTION DIAGRAM

LOCAL CONTROLLER WITH MULTICALL ENCODER

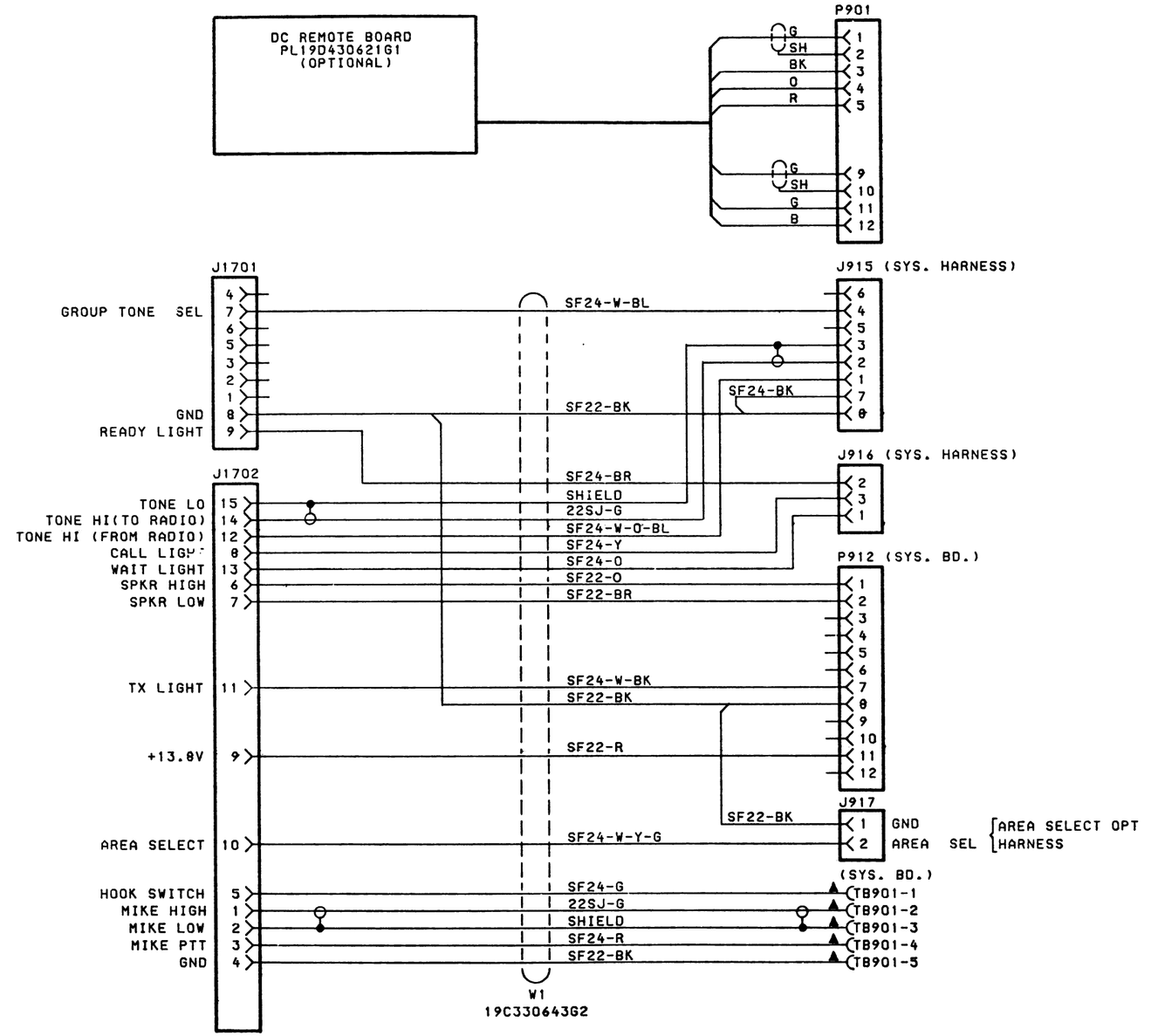


INTERCONNECTION DIAGRAM

LOCAL CONTROLLER WITH MULTICALL ENCODER

(19D433691, Sh. 2, Rev. 0)

GE MARC V MULTI-CALL OPTION



NOTES:(CONT'D)

2. UNLESS OTHERWISE SPECIFIED TERMINATE WIRES AT J1701,J1702,J915 AND J916 WITH 19B209288P29.
3. TERMINATE WIRES AT J1701-8,J915-3,J915-8,J1702-2 AND J1702-15 WITH 5496809P17.
4. TERMINATE WIRES AT P912 WITH 19A116781P4,EXCEPT P912-8 USE 19A116781P3.
▲5. TERMINATE WITH 19B209260P103.
6. TERMINATE WIRES AT J917 WITH 19B209288P30.

(19D433691, Sh. 3, Rev. 1)

INTERCONNECTION DIAGRAM

LOCAL CONTROLLER WITH MULTICALL ENCODER