MOBILE RADIO

MAINTENANCE MANUAL

C-500 SERIES

1-FREQUENCY CONTROL UNIT WITH OPTIONS - 19D423590G3

1-THRU 8-FREQUENCY CONTROL UNIT - 19D423590G4

SPECIFICATIONS *

Controls	Power-On Volume Squelch Channel Selector Switch (G4 only) Option Switch Optional Blanker Disable Switch
Indicators	Power On Light Transmit Light Optional Channel Busy Light Option Light

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

GENERAL ELECTRIC

Maintenance Manual LBI 30239E

DATAFILE FOLDER - DF 4.105

C-500 SERIES 1-FREQUENCY AND 1-THRU 8-FREQUENCY CONTROL UNITS WITH OPTIONS

TABLE OF CONTENTS

OPTIONS

DESCRIPTION	MODEL NUMBER
Fixed Squelch (Option 9276)	19A129567G3
Channel Busy Light (Option 9277)	19A129567G6
Noise Blanker Switch (Option 9279)	19A129567G7
Universal Tone Jack (Option 9278)	19A129567G17
Extender Board (Option 9029)	19C320588G1
Window Mount Speaker Kit (Option 9053)	19A130023G1
Ignition Switch Standby Cable (Option 9065)	19B219537G1
Control Hump Mount Bracket (Option 9079)	19A130889G1
33 Foot Ground Cable (Option 9081)	19A136690G1

WARNING

Although the highest DC voltage in the radio is supplied by the vehicle battery, high current may be drawn under short circuit conditions. These currents can possibly heat metal objects such as tools, rings watchbands, etc. enough to cause burns. Be careful when working near energized 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!

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th & 7th Digit		8th Digit
Mechanical Package	System Voltage	Channel Capacity	Number of Operating Channels	Microphone or Handset	Options	Options Cont.	Control Unit Series
F Control Unit with Mounting Bracket only	**1** ±12 VDC MASTR II Appl.	**A** 1-Channel	**A** One	**1** None	**BB** Standard (May apply all four digit options and Handset with Hookswitch)	**QK** Type 90 Decoder with External Alarm	**5** C-500
Q Control Unit with Mounting Bracket, Cables, and Speaker MASTR II Appl.	**2** ±24 to 48 VDC MASTR II Appl.	**C** 2-Channels	**C** Two	**2** Std. Microphone	**CC** Dual Control	**QL** Type 90 Encoder	
H Control Unit with Mounting Bracket, Cables, and Speaker EXEC II Appl.	**3** ±12 VDC (Neg. Gnd. only) EXEC II Appl.	**F** 4-Channels	**E** Three	**3** Std. Microphone with CG Hookswitch	**DD** Public Address	**QM** Type 90 Encoder with Auto Burst	
		K 8-Channels	**F** Four	**4** Handset with Hookswitch (Compatible with CG)	**EE** Marine HI-LO Power Option	**HH** INT/EXT Speaker	
			G Five	**5** Noise Canceling Microphone	**FF** Type 99 Decoder, Individual Call	**JJ** Squelch Operated Relay	
			H Six	**6** Noise Canceling Microphone with CG Hookswitch	**FQ** Type 99 Decoder, Group Call	**LL** PSLM, 2 Frequency	
			J Seven	**7** Handset with Hookswitch, Duplex (Compatible with CG)	**FH** Type 99 Decoder, Individual Call with External Alarm	**LM** PSLM, 2- or 8-Frequency (Locked Priority)	
			K Eight	**8** Handset (Decoder Appl.)	**FJ** Type 99 Decoder, Group Call with External Alarm	**LN** PSLM, 2- or 8-Frequency (Locked Non-Priority)	
					GG Type 90 Encoder/Decoder	**MM** External CG Encoder Application Kit	
					GH Type 90 Encoder/Decoder with External Alarm	**NN** GE Star Encoder	
					GJ Type 90 Decoder		

DESCRIPTION

C-500 Series Control Units are attractivly styled, highly functional units that are enclosed in a two-piece molded Lexan® housing for durability and ease of disassembly. The Control Units are mounted to the vehicle with a Safety Release Lexan® mounting bracket assembly for passenger safety.

The Control Unit uses a printed wiring board to provide a minimum of wiring. The only internal wires used are on the POWER-ON switch, indicator lights and jumpers for various options.

Cable plugs are secured to the back of the Control Unit by plastic locking clips. The plugs are equipped with indexing tabs to assure connection to the correct jack. The cable is equipped with a strain relief hook that attaches to a steel plate on the bottom rear of the Control Unit.

The microphone plug is secured to a jack on the bottom of the unit by means of a captive locking screw.

All indicator lights are light-emitting diodes (LEDs) for reliability, long life, and low power consumption.

In addition to MASTR™II applications the Control Unit can be applied to EXEC II applications through the use of the MASTR II/ EXEC II Interface Power/Control Cable.

CIRCUIT ANALYSIS

The Control Units are equipped with a VOLUME control, SQUELCH control and a POWER-ON rocker switch. The multi-frequency Control Unit is also equipped with a frequency selector switch.

When the POWER-ON switch (S701) is in the OFF position, power is removed from the radio except for the transmitter PA, which is connected to the vehicle battery at all times. Pushing the switch to the ON position applies power to the radio, provides power for the push-to-talk (PTT) circuit and lights the power-on LED in the Power-ON/Frequency Indicator window.

Releasing the PTT switch turns off the transmitter and transmit indicator, de-energizes the antenna switch and unmutes the receiver. Refer to the Table of Contents for a simplified Transmitter Keying and Power Distribution Diagram.

CR701 and CR708 are protective diodes. CR701 will cause the fuse in the yellow lead to blow if the polarity is reversed. CR708 inhibits the PTT circuit if the polarity is reversed.

MULTI-FREQUENCY SWITCH (S703)

The frequency selector switch is a 12-position switch with a mechanical stop that limits rotation from one through eight positions as required.

The frequency selector switch selects the desired channel for both transmitting and receiving. The switch connects A- to the selected transmitter and receiver ICOM so that the radio operates on the selected channel.

DC CONVERTER MODIFICATIONS (MASTR II ONLY)

In radios equipped with the DC converter, the POWER-ON switch is modified so that placing the switch in the ON position

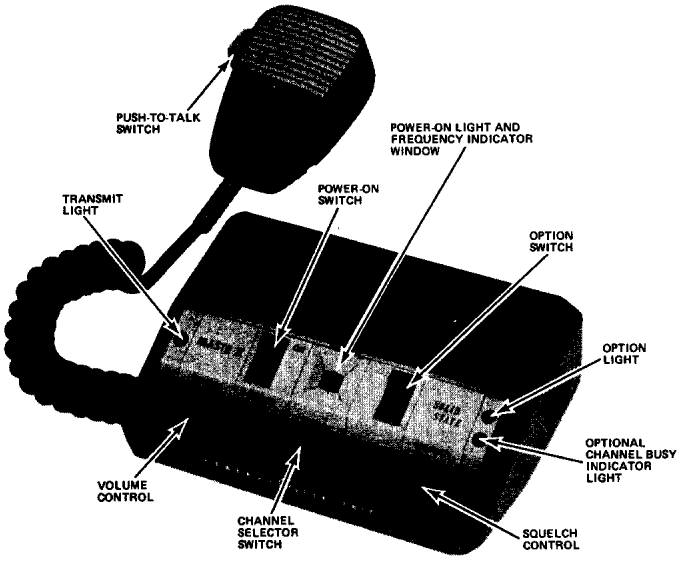

Figure 1 - Control Unit Layout

applies the input voltage directly to the DC converter. Instructions for the modification are shown on the control unit Schematic Diagram.

OPTIONS

MASTR II control units may be equipped with different options. All controls and indicator lights (LEDs) are shown in Figure 1.

Channel Busy Indicator

When no signal is applied to the receiver, the Carrier Activity Sensor (CAS) voltage from the receiver squelch IC is near A-. This forward biases diode CR702 in the control unit, keeping Q701 turned off. When a signal is applied to the receiver (with or without audio), the CAS voltage rises to approximately 10 Volts. This reverse biases CR702, allowing Q701 to conduct, turning on Channel Busy Indicator CR706. The indicator will remain on as long as a signal is applied to the receiver, or until the transmitter is keyed.

Noise Blanker Disable Switch (MASTR II only)

Noise Blanker Disable switch S1 mounts on the back of the control unit (see Outline Diagram). Placing the switch in the "OFF" position applies A- to the blanker disable lead. The A- is connected to pin 4 of the receiver blanker IC (U551), disabling the noise blanker circuit. The A- is connected to the blanker disable circuit by a jumper from H63 to H66 on the system board (see Front Panel & System Board Maintenance Manual).

Placing the switch in the "ON" position removes the A- to pin 4 of the blanker IC, allowing the blanker to operate.

Fixed Squelch

In radios with the Fixed Squelch option, a two-position rotary switch replaces the standard variable squelch potentiometer. A squelch potentiometer is then mounted on J904 on the system board (see Front Panel & System Board Maintenance Manual).

Turning the optional squelch switch on the Control Unit to the right applies A- to the squelch disable lead. The A- is connected to pin 2 of the receiver audio IC (U604), disabling the squelch circuit (and Channel Guard if present). Turning the switch to the left removes the A- to Pin 2 of the squelch IC, enabling the squelch circuit (and Channel Guard).

Internal/External Speaker

For radios equipped with the Internal/External Speaker option, the control unit will be equipped with optional SPEAKER switch (marked INT-EXT), an Option indicator light and an Internal/External Speaker component board. The radio also has an external speaker mounted outside the vehicle passenger compartment (on the roof, under the hood, etc).

With the switch in the INT (Internal) position, all of the messages received will be heard on the speaker mounted in the vehicle.

Placing the switch in the EXT (External) position turns on the option light, and applies all received messages to both the external and internal speaker. This allows the received messages to be heard while the operator is inside or outside of the vehicle.

For complete details, refer to the Maintenance Manual for the Internal/External Speaker option.

Public Address (MASTR II only)

With the Public Address option, the control unit will be equipped with an optional PA-ON switch, an Option indicator light, and a Public Address component board. The vehicle will also have an additional speaker mounted outside of the passenger compartment.

With the PA switch in the "OFF" position, the operator can send and receive messages as he normally does. Placing the PA switch in the ON position lights the Option light, disables the transmitter, and switches the receiver audio output to the external speaker.

Pressing the PTT switch on the microphone switches the microphone output through the receiver audio amplifier circuit so that the amplified message is heard on the external speaker only. No messages can be transmitted in this mode of operation, and all incoming messages will be heard on the external speaker.

For complete details, refer to the Maintenance Manual for the Public Address option.

Priority Search-Lock Monitor

For radios equipped with Priority Search-Lock Monitor, (PSLM), the control unit will be equipped with a SEARCH-ON switch, a Channel Busy light, and a PSLM board.

With the SEARCH switch in the ON position, the PSLM provides two channel monitoring (depending on the PSLM option used) by alternately sampling a priority channel and then a non-priority channel.

When a signal is received on the priority channel, the PSLM stops searching and locks on the priority channel for the duration of the message. When a signal is

irst received on the non-priority channel, the PSLM stops on that channel while monitoring the priority channel. If a signal is received on the priority channel while the PSLM is stopped on the non-priority channel, the PSLM reverts to the priority channel and locks on that channel for the duration of the message.

NOTE

The PSLM will operate only when the receiver is squelched. When the receiver is unsquelched, the PSLM will lock on the first channel that receives a message.

The Channel Busy light will glow steadily whenever a message is received on the priority channel. When a message is received on a non-priority channel, the Channel Busy light will flash on and off. Keying the transmitter turns on the red Transmit light, and turns off the Channel Busy light.

Placing the SEARCH switch in the "OFF" position disables the PSLM circuit, and messages can be sent and received only on the channel selected by the frequency selector switch.

For complete details, refer to the Maintenance Manual for the Priority Search-Lock Monitor option.

Squelch Operated Relay

In radios equipped with the Squelch Operated Relay option, the control unit will be equipped with an OPTION-ON switch, an Option light and a Squelch Operated Relay component board.

When the switch is in the ON position, the relay will energize and the Option light will turn on each time a message is received (receiver unsquelches). The relay will remain locked up and the Option light will remain on until the OPTION switch is turned "OFF". The relay can be connected to turn on a light, operate an alarm or perform other functions as desired.

For complete details, refer to the Maintenance Manual for the Squelch Operated Relay option.

Type 99 Tone Decoders

Type 99 Tone equipment eliminates reception of unwanted calls through the use of a Sequential Tone Decoder. The equipment provides individual or group call capability using either two or four Versatone networks. (Versatone networks determine the tone frequencies that the unit responds to.

Decoder operation is controlled by the Monitor/Reset switch and/or Hookswitch. When the microphone or handset is removed from the hookswitch, the decoder is deactivated and the receiver reverts to noise squelch operation. Replacing the microphone or handset automatically resets the receiver to respond to only those calls properly tone coded. A Decoder Call Indicator will light each time a properly coded call is received.

An optional external alarm relay is controlled by the two position Option-ON switch. When a properly tone coded call is received and the Option switch is in the ON position, the relay will operate an external horn or light.

For complete details, refer to the Maintenance Manual for the Type 99 Tone Decoder option.

Type 90 Tone Encoder and Decoders

Type 90 Tone equipment provides tone coded message transmission to eliminate reception of unwanted calls. All Type 90 Tone Encoders and Decoders operate on a single tone selectable from ten standard frequencies between 1000 and 3000 Hz.

A single tone burst automatically preceeds the first transmission in the standard unit. The tone burst is initiated by removing the microphone or handset from the hookswitch and keying the PTT. The Pushbutton Tone-On switch allows the tone to be sent manually if desired.

Decoder operation is controlled by the Monitor/Reset switch and/or Hookswitch. When the microphone or handset is removed, the receiver reverts to noise squelch operation. Replacing the microphone or handset, automatically resets the unit to the decode function. A Decoder Call Indicator will light each time a properly tone coded call is received.

An optional External Alarm Relay is controlled by the Two Position Option-ON switch. When a properly tone coded call is received and the Option-ON switch is in the ON position, the Relay will operate an external horn or light.

For complete details, refer to the Maintenance Manual for the Type 90 Tone Encoder/Decoder option.

Dual Control

The Dual Control equipment allows the radio to be operated by either of two remotely located control units. Control is transferred between control units by depressing the Control switch on the control unit where control is desired.

When the Control switch is depressed, the Control Light indicates the unit with control. Control remains with this unit until the Dual Control switch on the second control unit is operated.

For complete details, refer to the Maintenance Manual for the Dual Control option.

Universal Tone Jack

The Universal Tone Jack (J750) mounts on the back of the control unit (see Outline Diagram). The nine pin jack provides interface connections between the control unit and external tone equipment.

Extender Board

Troubleshooting the component board options in the control unit is facilitated by using Extender Board 19C320588G1 (Option 9029). The Extender Board provides feed throughs for all connections between the control unit printed wire board and the option component board.

12-VOLT IGNITION SWITCH CONNECTIONS

In 12-Volt vehicle systems, the Control Unit may be connected for two different modes of operation, depending on the way the ignition switch cables are connected in the vehicle system. The black cable provides the system ground connection. The yellow fused lead provides the receiver hot connections and the transmitter Push-To-Talk hot connection. The two types of operation are:

1. Ignition Switch Control - For ignition switch control, the yellow fused lead connects to the ACCESSORY or ON terminal of the ignition switch. The transmitter and receiver will operate only when the ignition switch is in the ACCESSORY or ON position. Turning the ignition switch OFF removes all power to the Control Unit.

2. Ignition Switch Bypass - For ignition switch bypass, the yellow fused lead connects to the "hot" side of the ignition switch or the vehicle fuse block assembly. Both the transmitter and receiver operate independently of the ignition switch and are turned on and off only by the POWER-ON switch on the Control Unit.

DC CONVERTER CONNECTIONS (MASTR II ONLY)

For combinations equipped with the DC converter, a single red fused lead is used. The fused lead always connects to battery plus in either positive or negative ground systems.

CAUTION

When using the DC Converter, do not connect battery ground to the Control Unit A-. To do so may cause failure of the current limiting circuit in the converter.

MAINTENANCE

DISASSEMBLY

To gain access to the inside of the Control Unit, simply remove the two screws on the bottom of the front edge of the unit, and lift off the top cover.

To remove the printed wiring board from the control unit housing:

1. Remove the two screws holding the microphone jack.

2. Remove the screw between J701 and J702 and remove the screw between J702 and J703.

3. Remove the screw at each end of the switch and control mounting bracket.

4. Remove the screw holding Power-On switch S701 to the bottom housing. Then swing the printed wiring board up from the front and lift the board out.

RE-INSTALLATION

12-Volt Systems. MASTR II mobile combinations can operate in ±12-Volt systems. EXEC II mobile combinations operate in ±12-Volt (negative ground) systems only. If the radio is moved to a different vehicle, always check the battery polarity and voltage of the new system before using the radio.

If the radio is moved to a vehicle with different battery polarity, it will be necessary to change the ignition switch leads to the vehicle system plug (MASTR II only). Use the extraction tool as shown in Figure 2, and change the leads as shown in Figures 3 or 4 as required.

DC Converter Systems (MASTR II only)

For radios equipped with the DC Converter, no changes are required in the lead to the vehicle system plug.

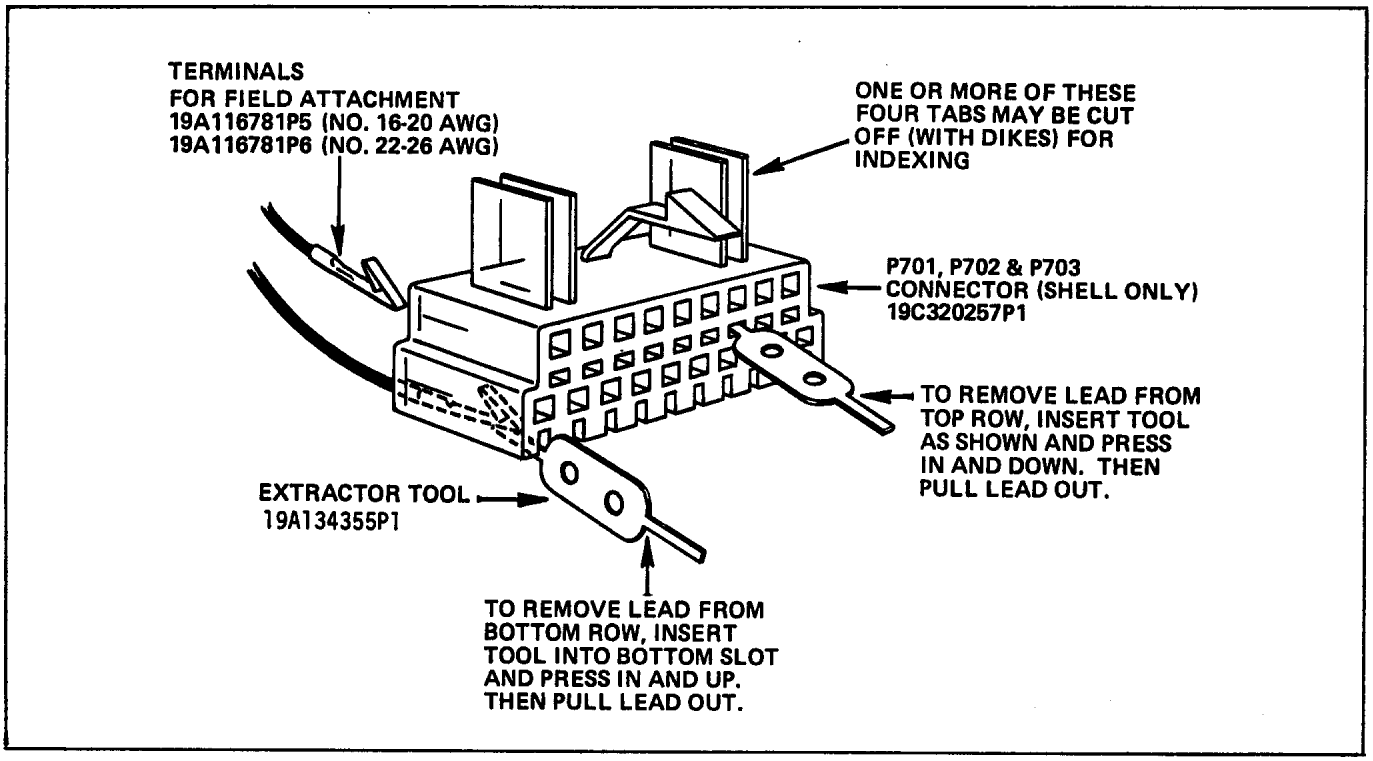

Figure 2 - Using Extraction Tool

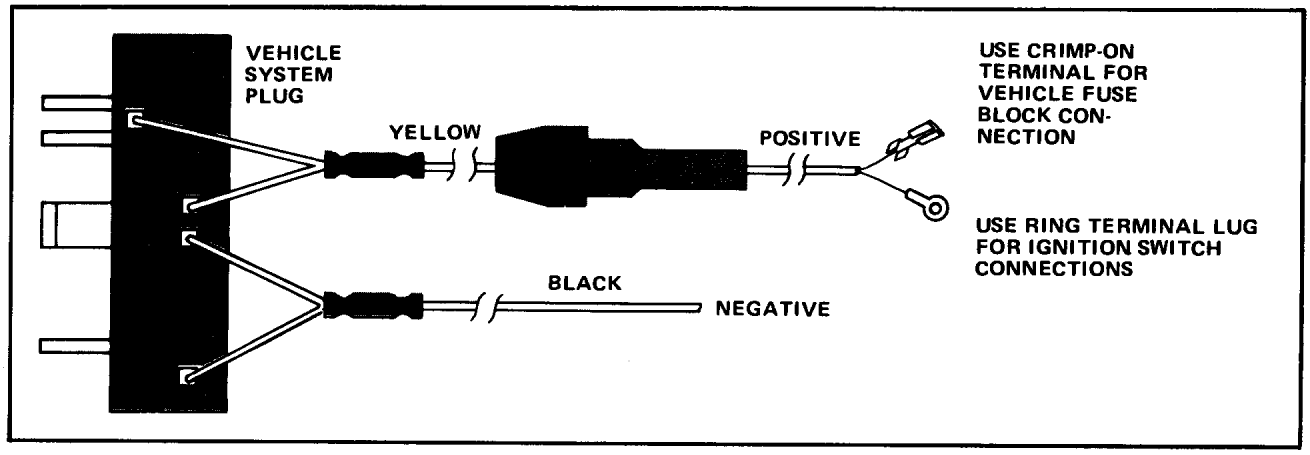

Figure 3 - 12-Volt, Negative Ground Connections

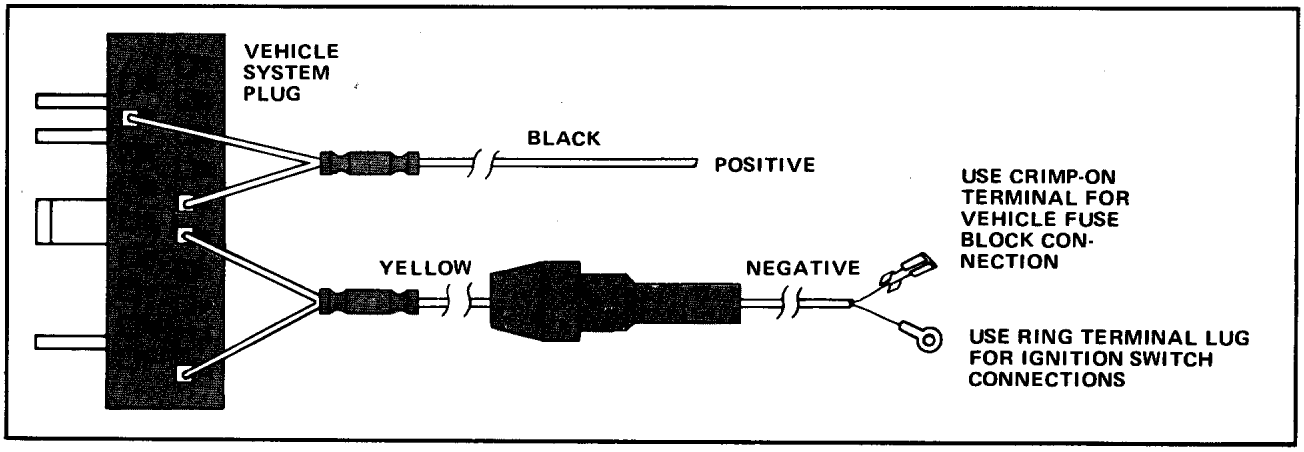

Figure 4 - 12-Volt, Positive Ground Connections (MASTR II only)

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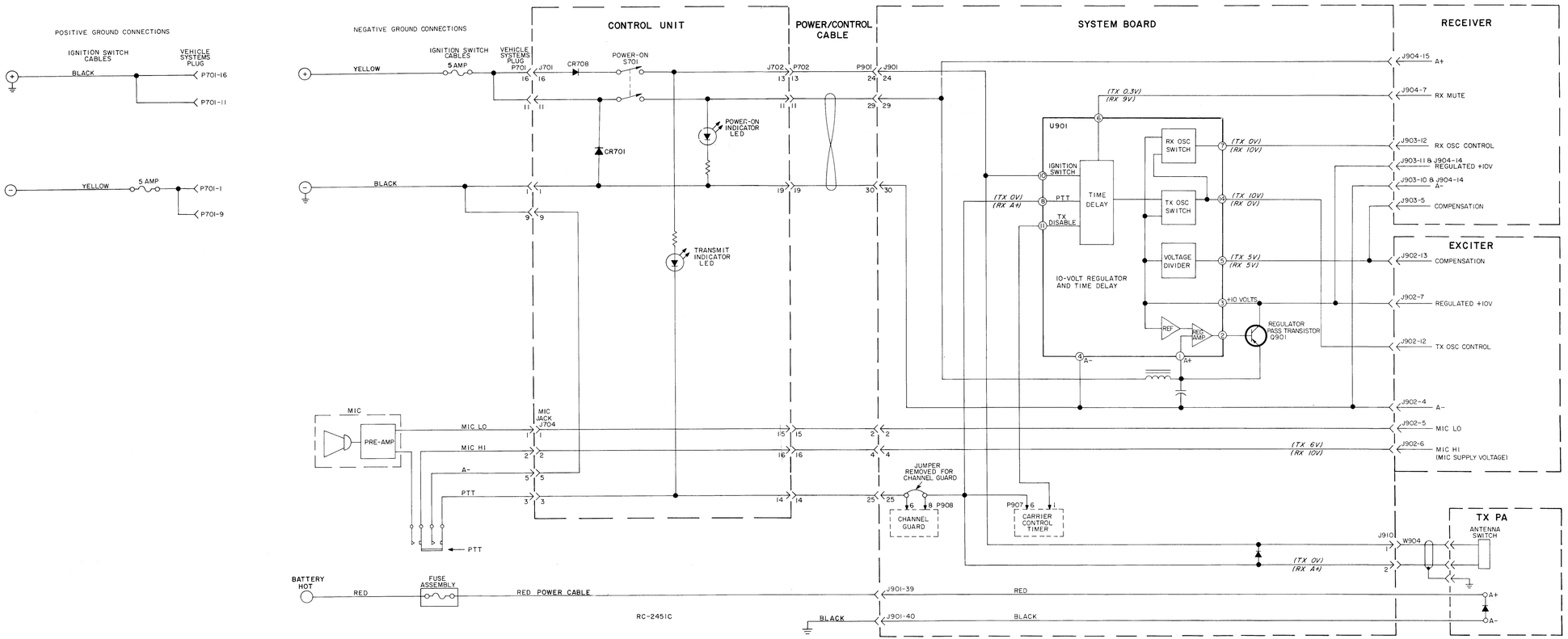
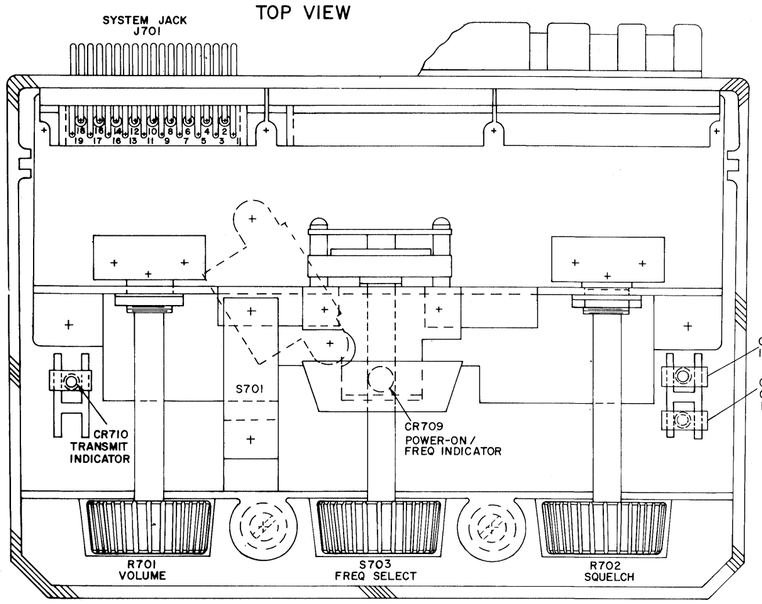
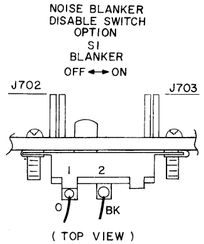
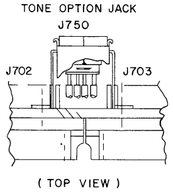
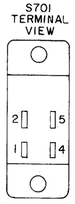


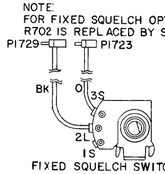
TRANSMITTER KEYING & POWER DISTRIBUTION DIAGRAM

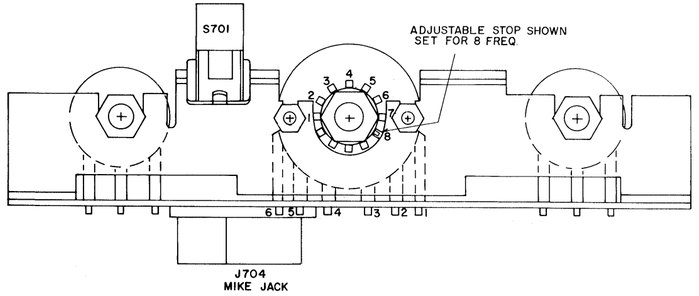


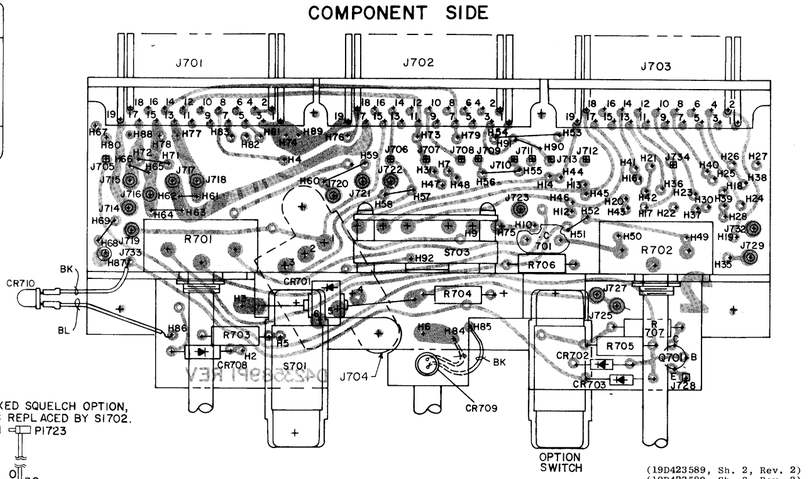












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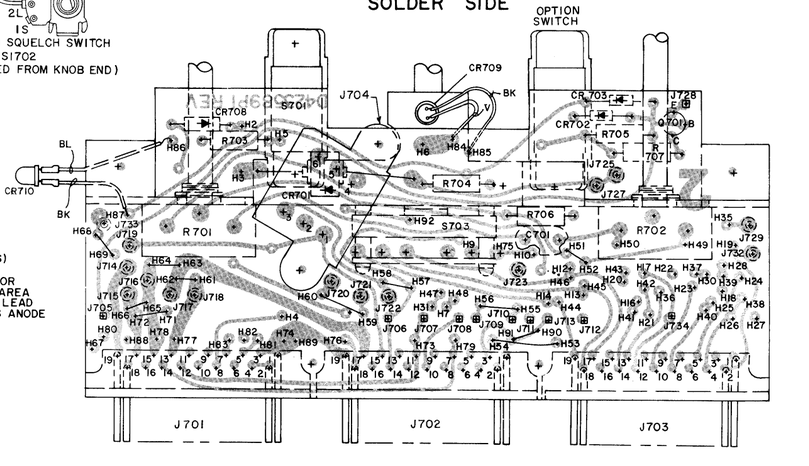

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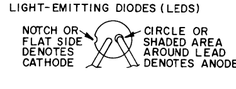

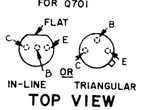

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

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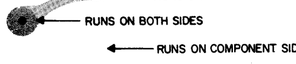


FREQUENCY SELECTOR SWITCH STOP SETTING

IF THE NUMBER OF OPERATING FREQUENCIES ARE CHANGED, IT WILL BE NECESSARY TO CHANGE THE STOP SETTING ON THE FREQUENCY SELECTOR SWITCH, TO SET THE STOP:

1. REMOVE THE TWO SCREWS ON THE BOTTOM OF THE FRONT EDGE OF THE CONTROL UNIT, AND LIFT THE TOP COVER OFF.
2. REMOVE THE TWO MOUNTING SCREWS ON THE POWER-ON/ FREQUENCY INDICATOR (CR709) RETAINER AND MOVE THE INDICATOR AND RETAINER TO ONE SIDE.
3. LOOSEN AND SLIDE BACK ON THE FREQUENCY SELECTOR SWITCH SHAFT THE 3/8 INCH NUT AND WASHER HOLDING THE STOP IN PLACE.
4. ROTATE THE FREQUENCY SELECTOR SWITCH FULLY COUNTERCLOCKWISE TO THE FIXED STOP (CHANNEL 1 ON THE FREQUENCY SELECTOR SWITCH INDICATOR).
5. PLACE THE ADJUSTMENT STOP IN THE STOP POSITION CORRESPONDING TO THE DESIRED NUMBER ON OPERATING FREQUENCIES.
6. REPLACE THE 3/8-INCH NUT AND WASHER, THE POWER-ON/ FREQUENCY INDICATOR RETAINER AND MOUNTING SCREWS, AND THE CONTROL UNIT TOP COVER AND RETAINING SCREWS.
7. CHECK THE FREQUENCY SELECTOR SWITCH FOR PROPER OPERATION.

OUTLINE DIAGRAM

1 & 1 THRU 8 FREQUENCY
CONTROL UNIT 19D423590G3 & G4

PARTS LIST

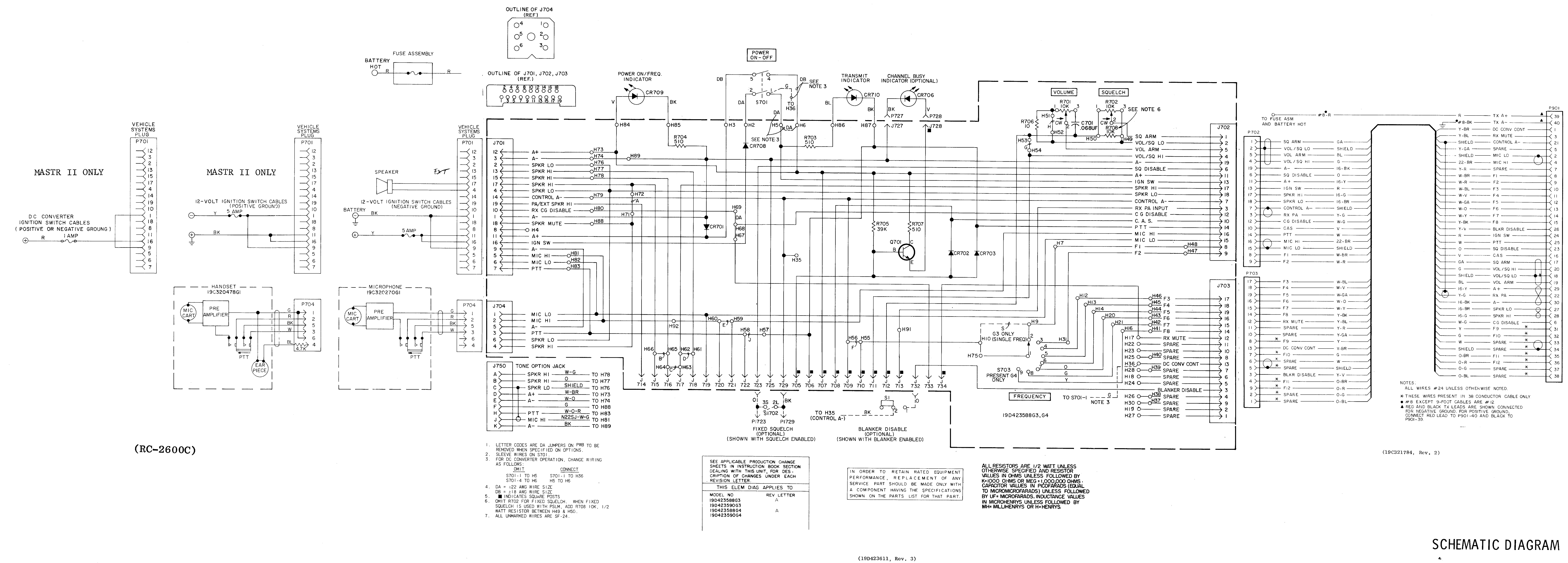
LBI30256D

C-500 SERIES CONTROL UNIT
19D423590G3 (1-FREQ)
19D423590G4 (8-FREQ)
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		COMPONENT BOARD 19D423588G3 (1-FREQ) 19D423588G4 (8-FREQ)
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C701	19A116080P106	Polyester: 0.068 µf ±10%, 50 VDCW.
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR701	19A116783P1	Rectifier, silicon: 100 VDC blocking, 6 amps.
CR702 and CR703	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR708	4037822P1	Silicon, 1000 mA, 400 PIV.
CR710	19B219800G3	Diode, red light emitting.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J701 thru J703	19C320257P2	Pin wafer assembly: 19 contacts.
J704	19B219627G1	Connector: 6 contacts.
J705 thru J713	19A700090P3	Contact, electrical; sim to Molex 08-50-0404.
J714 thru J723	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J725	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J727	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J728	19A700090P3	Contact, electrical; sim to Molex 08-50-0404.
J729	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J732 and J733	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J734	19A700090P3	Contact, electrical; sim to Molex 08-50-0404.
		- - - - - - - - - - TRANSISTORS - - - - - - - -
Q701	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - -
R701	19A116687P2	Variable, carbon film: 10,000 ohms ±20%, 1/4 w; sim to Mallory M204.
R702	19A116687P1	Variable, carbon film: 10,000 ohms ±20%, 1/2 w; sim to Mallory M101.
R703 and R704	3R77P511J	Composition: 510 ohms ±5%, 1/2 w.
R705	19A700113P101	Composition: 39K ohms ±5%, 1/2 w.
R706	19A700113P15	Composition: 10 ohms ±5%, 1/2 w.
R707	3R77P511J	Composition: 510 ohms ±5%, 1/2 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S701	19A116622P5	Push: DPST, 0.5 amp VDC or 3.0 amps at 125 v; sim to Switchcraft 11K1088.
S703	19B219996G2	Rotary: 1 section, 1 pole, 8 positions (adj stop), 2 amps at 28 VDC or 1 amp at 110 VRMS; sim to Oak Mfg Type "F".

(Cont'd on Page 10)

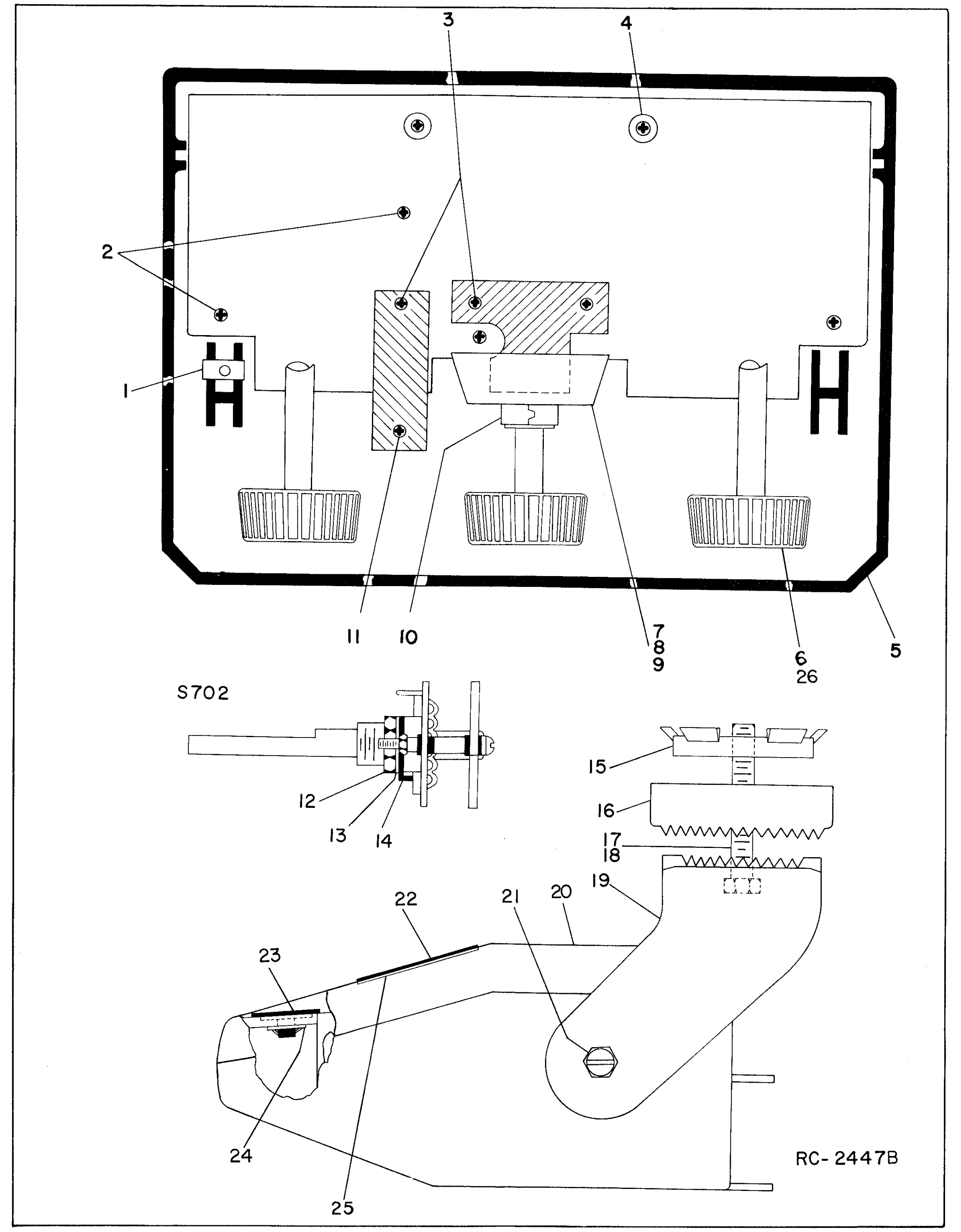
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



SCHEMATIC DIAGRAM

1 & 1 THRU 8 FREQUENCY
CONTROL UNIT 19D423590G3 & G4

SYMBOL	GE PART NO.	DESCRIPTION
		FREQUENCY INDICATOR LIGHT ASSEMBLY 19B219696G3
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR709	19A134354P4	Diode, optoelectronic: green; sim to Hew. Packard 5082-4992.
		CHANNEL BUSY OPTION 19A129567G6
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR706	19B219800G2	Diode, red light emitting.
	19A116807P1	Clip, spring tension. (Secures CR706).
		NOISE BLANKER DISABLE OPTION 19A129567G7
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B219988G1	Slide: SPST, 1 pole, 2 positions, 0.5 amp VDC or 3 amps VAC at 125; sim to Switchcraft 46202LH.
	4032480P1	Nut, sheet spring. (Secures S1).
	N80P9006C6	Machine screw, phillips: No. 4-40 x 3/8.
		FIXED SQUELCH OPTION
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1702		SWITCH ASSEMBLY 19A129567G3
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1723	4033348P1	Contact, electrical: sim to Bead Chain M125-34.
P1729	4033348P1	Contact, electrical: sim to Bead Chain M125-34.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
	19A700113P87	Resistor, composition: 10K ohms ±5%, 1/2 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
	19A129628G1	Rotary: 1 section, 1 pole, 2 positions, non-shorting contacts, 2 amp at 28 VDC or 1 amp at 110 VRMS; sim to Oak Type "22" Series. (Includes P1723 & P1729).
		UNIVERSAL TONE JACK OPTION 19A129567G17
		- - - - - - - - - - PLUGS - - - - - - - - - -
P750	19B227105G1	Connector, receptacle: 9 contacts; sim to Winchester M9S-LRN.
	N80P9005C6	Screw, phillips: No. 4-40 x 5/16.
	7141225P2	Hex nut: No. 4-40.
	N404P11C6	Lockwasher, internal tooth: No. 4.
		MECHANICAL PARTS (SEE RC2447)
1	19A116807P1	Clip, spring tension.
2	19A116773P106	Tap screw: thd size No. 7-19 x 3/8.
3	19B201074P204	Tap screw, Phillips POZIDRIV®: No. 4-40 x 1/4.
4	N402P8C6	Washer: No. 8.
5	19C320389G1	Housing.
6	19B219825G1	Knob.
7	19C320175P1	Frequency indicator.
8	NP270754A	Nameplate. (1-12).
9	NP270754B	Nameplate. (OFF, A-H).
10	4029006P1	Retainer strap: sim to Tinnerman C2386-020-1.
11	N117P9004C13	Tap screw: No. 4-40 x 1/4.
12	7165075P2	Hex nut, brass: thd. size No. 3/8-32.
13	7115130P9	Lockwasher: sim to Shakeproof 1220-2.
14	19A134017P1	Adjustable stop.
15	19B219578G1	Safety release disc.
16	19C320022P1	Retaining bracket.
17	N187P16010C6	Screw, hexhead, slotted: No. 10-32 x 5/8. (Quantity 1, used with safety release disc and retaining bracket).
18	N710P16012C6	Screw, hexhead, slotted: No. 10-16 x 3/4. (Quantity 3, used without safety release disc & retaining bracket).
	N130P1624C6	Screw, thd. forming: No. 10-16 x 1-1/2. (Quantity 3- used without safety release disc retaining bracket for extra thick carpet).
19	19D416594P1	Mounting bracket.
20	19E500988P1	Cover.
21	N187P16010C6	Machine screw, slotted, Hex/washer head: No. 10-32 x 5/8.
22	NP270753P1	Nameplate. (MASTR II SOLID STATE).
23	19B219626P1	Knob plug. (Frequency switch S702).
24	7140578P4	Nut, push on: sim to Tinnerman C1259-014-27. (Used with item 23).
25	19A130009P1	Diffuser.
26	7160815P4	(Not Used).
		ASSOCIATED ASSEMBLIES
		POWER/CONTROL CABLE 30 CONDUCTOR 19D423424G8
		- - - - - - - - - - PLUGS - - - - - - - - - -
P702		Connector. Includes:
	19B226516G1	Shell.
	19A116781P5	Contact, electrical: wire size No. 18-24 AWG; sim to Molex 08-50-0106. (Quantity 4).
	19A116781P6	Contact, electrical: wire size No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 15).
P703		Connector. Includes:
	19B226516G2	Shell.
	19A116781P6	Contact, electrical: wire size No. 22-26 AWG; sim to Molex 08-50-0108. (Quantity 11).
P901		Connector, special purpose. Includes:
	19C307162P1	Shell.
	19A134240P1	Contact, electrical: sim to AMP 350657-1. (Quantity 26).
	19A134240P2	Contact, electrical: sim to AMP 350656-1. (Quantity 4).
	19A134240P3	Contact, electrical: sim to AMP 350655-1. (Quantity 2).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	7139880P14	Cable: 30 conductor, 20 feet.
	7142878G1	Clip loop (strain relief).
	19B209245P103	Coil.
	19A134241P1	Jack screw. (Used with P901).
		POWER/CONTROL CABLE NEGATIVE GRD EXECUTIVE II INTERFACE 19C321890G1
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1		Connector. Includes:
	19C311409P1	Shell.
	19D413039P1	Connector cover. (Nut side).
	19D413039P2	Connector cover. (Screw side).
P702		Connector. Includes:
	19B226516G1	Shell.
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
P703		Connector. Includes:
	19B226516G2	Shell.
	19A116781P5	Contact, electrical: wire range No. 18-24 AWG; sim to Molex 08-50-0106.
	19A116781P6	Contact, electrical: wire range No. 22-26 AWG; sim to Molex 08-50-0108.
	7142878G1	Clip loop. (strain relief).
	19A115799P7	Solderless terminal: wire size No. 12-10 AWG; sim to AMP 35772.
	19B209260P27	Terminal, solderless: wire range No. 12-10; sim to AMP 31828 LOOSE PC.
	7339880P14	Cable: 30 conductor, 20 feet.
		12-VOLT 2-WIRE IGNITION SWITCH CABLE 19B219537G4
		- - - - - - - - - - PLUGS - - - - - - - - - -
P701		Connector. Includes:
	19B226516G3	Shell.
	19A129504G1	Y Cable. (BLACK).
		FUSED LEAD ASSEMBLY 19A129480G3 (Used with 19B219537G4)
	1R16P8	Fuse, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
	19A115776P6	Fuseholder, phen: sim to Bussmann Type 9835.
	19A115776P5	Knob assembly; sim to Bussmann Mfg. 9953 1/2.
	19A115776P7	Spring; sim to Bussmann Mfg. No. 1A1853.
	19A115776P3	Contact, electrical: sim to Littelfuse 904-88. (Located inside fuseholder).
	7491823P7	Ring terminal, solderless: wire size No. 16-14 AWG.
	7491823P8	Ring terminal, solderless: wire size No. 16-14 AWG.
	4029484P2	Terminal, quick connect: wire size 14-18 AWG, fits 1/4 x .032 tab; sim to AMP 41274.
	19A116849P1	Insulated splice.
	19A116781P5	Contact, electrical: wire size No. 18-24 AWG; sim to Molex 08-50-0106.
		DC CONVERTER IGNITION SWITCH CABLE 19B219537G3
		- - - - - - - - - - PLUGS - - - - - - - - - -
P701		Connector. Includes:
	19B226516G3	Shell.
	19A130117G1	Jumper.
		FUSED LEAD ASSEMBLY 19A129480G1 (Used with 19B219537G3)
	1R16P3	Fuse, quick blowing: 1 amp 250 v; sim to Littelfuse 312001 or Bussmann AGC-1.
	19A115776P6	Fuseholder, phen: sim to Bussmann Type 9835.
	19A115776P5	Knob assembly; sim to Bussmann Mfg. 9953 1/2.
	19A115776P7	Spring; sim to Bussmann Mfg. No. 1A1853.
	19A115776P3	Contact, electrical: sim to Littelfuse 904-88. (Located inside fuseholder).
	7491823P7	Ring terminal, solderless: wire size No. 16-14 AWG.
	7491823P8	Ring terminal, solderless: wire size No. 16-14 AWG.
	4029484P2	Terminal, quick connect: wire size 14-18 AWG, fits 1/4 x .032 tab; sim to AMP 41274.
	19A116849P1	Insulated splice.
	19A116781P5	Contact, electrical: wire size No. 18-24 AWG; sim to Molex 08-50-0106.
		OPTIONAL 12-VOLT 3-WIRE IGNITION SWITCH CABLE 19B219537G1
		- - - - - - - - - - PLUGS - - - - - - - - - -
P701		Connector. Includes:
	19B226516G3	Shell.
	19A129504G1	Y Cable. (BLACK).
		FUSED LEAD ASSEMBLY 19A129480G1 1 AMP (RED) (Used with 19B219537G1)
	1R16P3	Fuse, quick blowing: 1 amp 250 v; sim to Littelfuse 312001 or Bussmann AGC-1.
	19A115776P6	Fuseholder, phen: sim to Bussmann Type 9835.
	19A115776P5	Knob assembly; sim to Bussmann Mfg. 9953 1/2.
	19A115776P7	Spring; sim to Bussmann Mfg. No. 1A1853.
	19A115776P3	Contact, electrical: sim to Littelfuse 904-88. (Located inside fuseholder).
	7491823P7	Ring terminal, solderless: wire size No. 16-14 AWG.
	7491823P8	Ring terminal, solderless: wire size No. 16-14 AWG.
	4029484P2	Terminal, quick connect: wire size 14-18 AWG, fits 1/4 x .032 tab; sim to AMP 41274.
	19A116849P1	Insulated splice.
	19A116781P5	Contact, electrical: wire size No. 18-24 AWG; sim to Molex 08-50-0106.
		FUSED LEAD ASSEMBLY 19A129480G2 5 AMP (YELLOW) (Used with 19B219537G1)
	1R16P8	Fuse, quick blowing: 5 amp 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
	19A115776P6	Fuseholder, phen: sim to Bussmann Type 9835.
	19A115776P5	Knob assembly; sim to Bussmann Mfg. 9953 1/2.
	19A115776P7	Spring; sim to Bussmann Mfg. No. 1A1853.
	19A115776P3	Contact, electrical: sim to Littelfuse 904-88. (Located inside fuseholder).
	7491823P7	Ring terminal, solderless: wire size No. 16-14 AWG.
	7491823P8	Ring terminal, solderless: wire size No. 16-14 AWG.
	4029484P2	Terminal, quick connect: wire size 14-18 AWG, fits 1/4 x .032 tab; sim to AMP 41274.
	19A116849P1	Insulated splice.
	19A116781P5	Contact, electrical: wire size No. 18-24 AWG; sim to Molex 08-50-0106.
		25 - 50 MHz ANTENNA
	7491074P1	Antenna: includes stainless steel rod approx 96-1/2 inches long; ball tip; lockwasher; No. 10-32 hex socket set screw; sim to Antenna Specialists ASPA3BGE. (30-50 MHz).
	7491074P2	Antenna: includes stainless steel rod approx 102 inches long; ball tip; No. 10-32 hex socket set screw; sim to Antenna Specialists ASPA3BGE. (25-30 MHz).
	7102930P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4KY9A1	Loading coil: 25-33 MHz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook.
	19C307172P1	Antenna Package: Includes base and ball assembly, adapter spring assembly, cable assembly, horseshoe plate, and rubber gasket.
		Base and ball assembly. Newtronics 5495.
		Adapter spring assembly. Newtronics 3327.
		Cable assembly. Newtronics 183-RAO.
		Horseshoe plate. Newtronics 3323-3.
		Rubber gasket. Newtronics 3320.
		66-88 MHz ANTENNA 19C320111P3
	19C320111G1	Antenna base: 15 ft. cable with M2R22P1 connector with 7105381P1 adaptor; sim to Decibel Products DB719.
	19C320111G2	Antenna whip and Spring base: sim to Decibel Products DB670A.
		132-512 MHz ANTENNA 19B209568P1
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LARGE). 007059-122.
		Stud assembly. 068046-001.
		RG58/U Cable, 15 ft. 068115-001.
		800-870 MHz ANTENNA 19B209568P4
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LARGE). 007059-122.
		Stud assembly. 068046-001.
	19B209018P5	Plug, Type N. sim to UG536B/U.
		Cable. (Included as part of complete antenna assembly only).
		12 VOLT FUSE ASSEMBLY 19B216021G4 (Fuses must be ordered separately)
		- - - - - - - - - - FUSES - - - - - - - - - -
F1	1R11P4	Quick blowing: 15 amps, 250 v; sim to Bussmann NON15. (Used with 16-38 w MASTR II Mobiles).
F3	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussmann NON30. (Used with 66-128 w MASTR II and EXECUTIVE II Mobiles).
F4	1R11P5	Quick blowing: 20 amps, 250 v; sim to Bussmann NON20. (Used with 38-66 w MASTR II and 35-66 w EXECUTIVE II Mobiles).

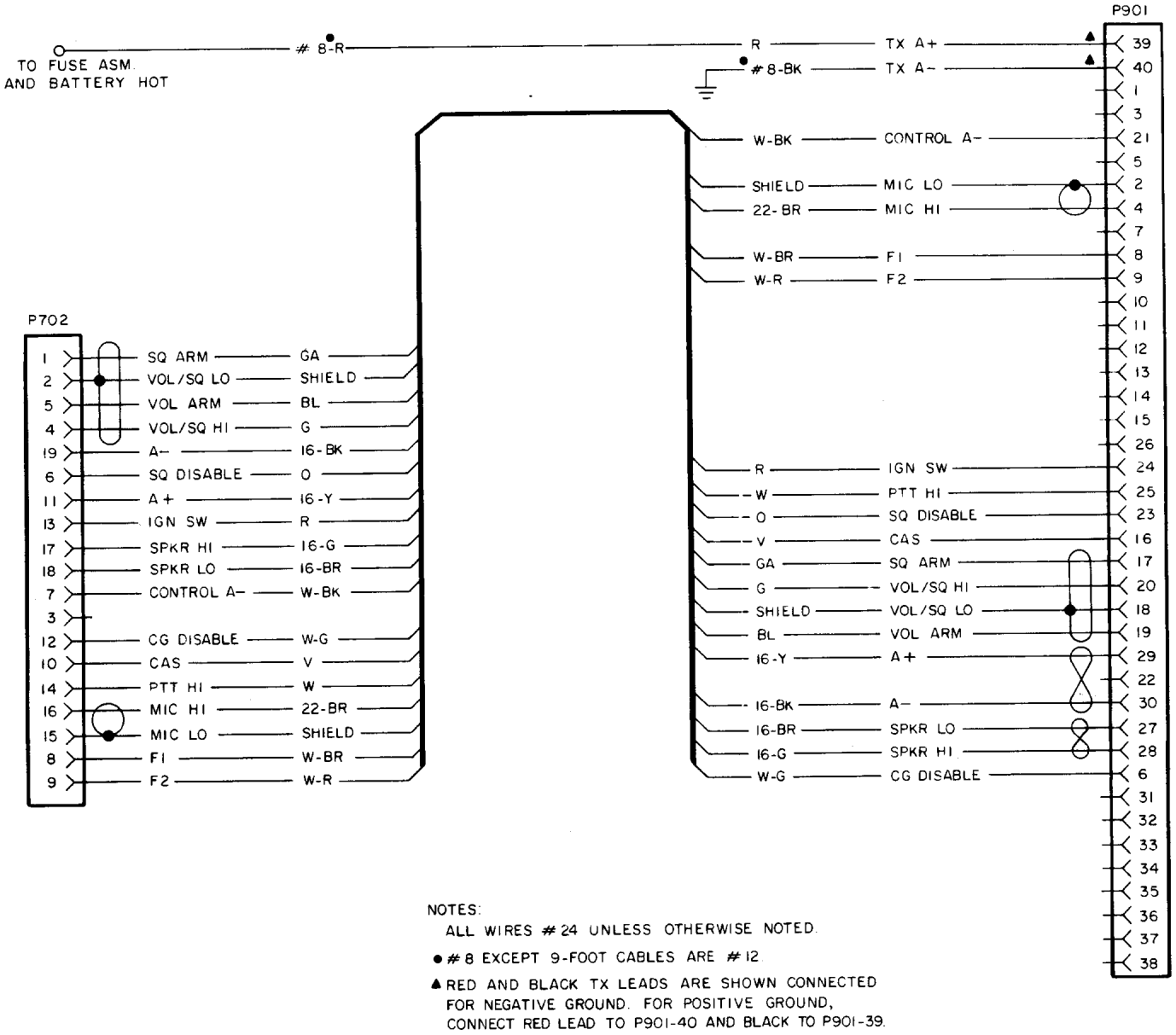


PRODUCTION CHANGES

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.

Component Board 19D423588G1, 2

REV. A - Replace DA jumper between H90-H91 with printed wire run.



NOTES:

ALL WIRES # 24 UNLESS OTHERWISE NOTED.

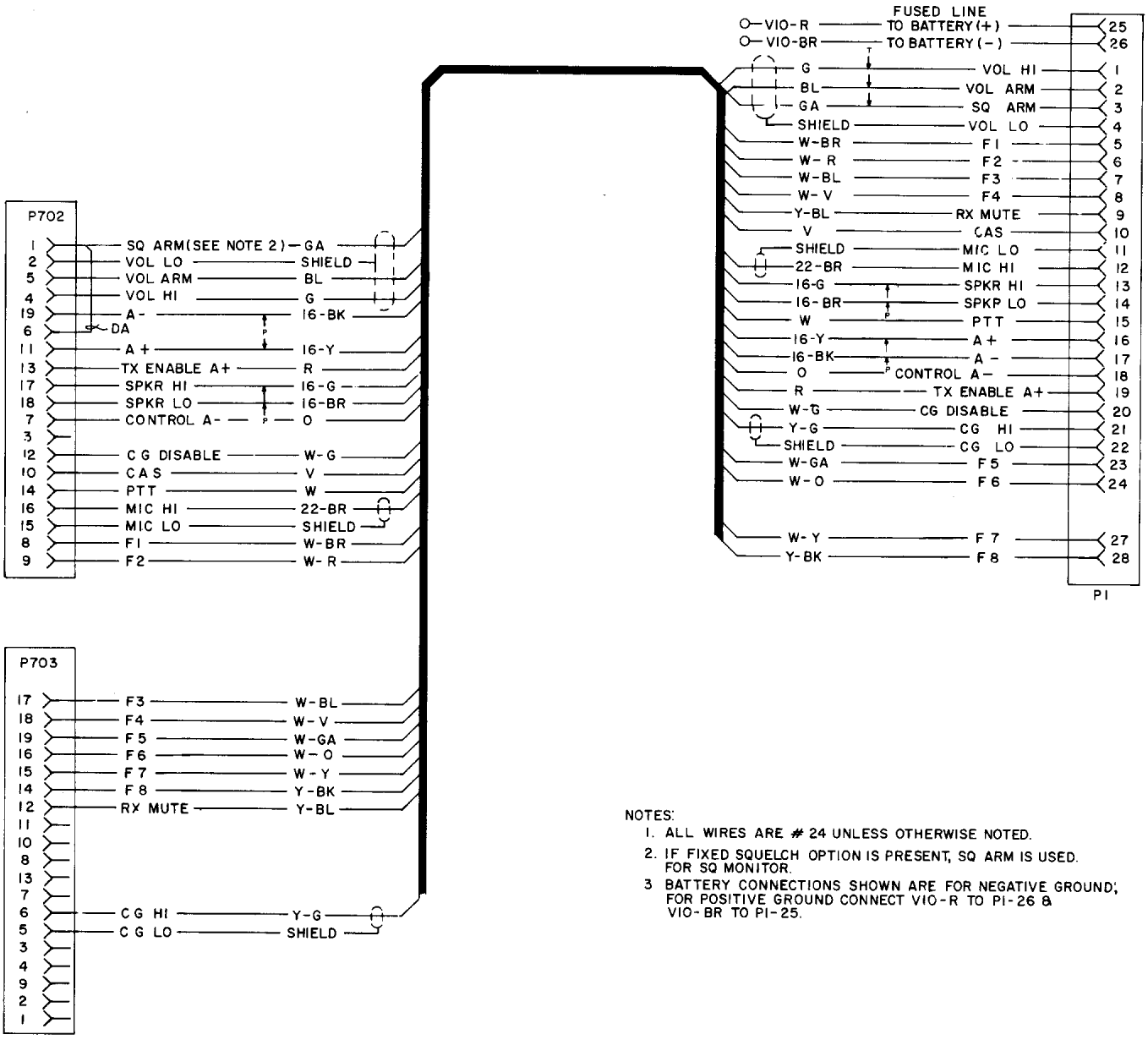
● # 8 EXCEPT 9-FOOT CABLES ARE # 12.

▲ RED AND BLACK TX LEADS ARE SHOWN CONNECTED FOR NEGATIVE GROUND. FOR POSITIVE GROUND, CONNECT RED LEAD TO P901-40 AND BLACK TO P901-39.

(19C321783, Rev. 2)

SCHEMATIC DIAGRAM

OPTIONAL 18-CONDUCTOR POWER/CONTROL CABLE 19D423424G2



NOTES:
1. ALL WIRES ARE # 24 UNLESS OTHERWISE NOTED.
2. IF FIXED SQUELCH OPTION IS PRESENT, SQ ARM IS USED FOR SQ MONITOR.
3 BATTERY CONNECTIONS SHOWN ARE FOR NEGATIVE GROUND; FOR POSITIVE GROUND CONNECT VIO-R TO P1-26 & VIO-BR TO P1-25.

(19C321630, Rev. 4)

SCHEMATIC DIAGRAM

POWER/CONTROL CABLE 19C321890G1
MASTR II/EXEC II INTERFACE

PARTS LIST

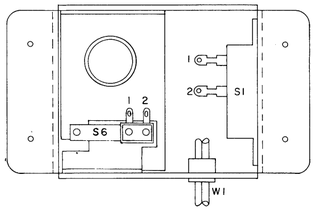
LBI30449A

MICROPHONE HOOKSWITCH
19C320318G3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B209261P18	Slide: SPST, 1 pole, 2 positions, 0.5 amp VDC or 3 amp VAC at 125 v; sim to Switchcraft 46202LH.
S6	19A134398P1	Push: sim to Chicago Switch S-1527-1.
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19A129414G1	Cable: 2 conductor; approx 5 feet long, includes (2) 19A116781P5 contacts.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B219698G4	Housing.
	19B219694P1	Base plate.
	19A116768P6	Bushing, strain relief: sim to Heyco SR-3P-4.
	N193P1410C	Tap screw: No. 8-18 x 5/8. (Secures base plate to mounting surface).
	19A134398P101	Metal plate. (Used with S6).
	19B219693P2	Spring.

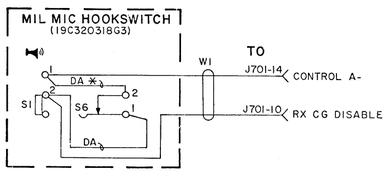
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

OUTLINE DIAGRAM



(19B227626, Rev. 0)

SCHEMATIC DIAGRAM



* REMOVE DA JUMPER TO DISABLE AUTOMATIC CHANNEL GUARD MONITOR

S6- SHOWN OFF HOOK

S1- SHOWN OFF MONITOR

(19A136836, Rev. 1)

MODEL NO.	REV LETTER

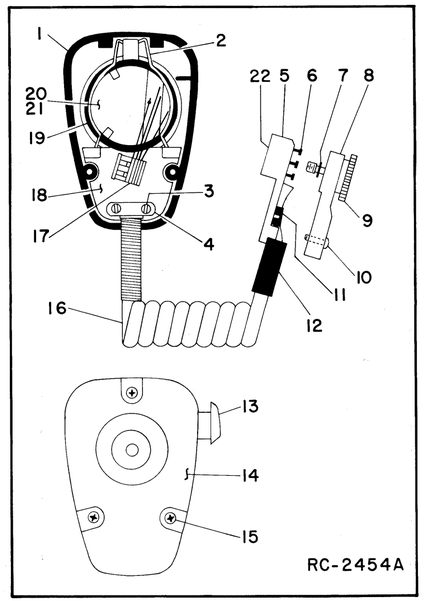
PARTS LIST

LBI-4481B

TRANSISTORIZED DYNAMIC MICROPHONE
19C320270G1, G2
(SEE RC-2454)

SYMBOL	GE PART NO.	DESCRIPTION
1		Front Case Assembly. RP127. (includes items 14, 15).
2		Retaining spring. (Part of item 18).
3		Tap screw, phillips. (Part of item 16).
4		Retaining bar. (Part of item 16).
5	19D416766P1	Connector base.
6	19A129435P1	Contact.
7	7109043P1	Retaining ring.
8	19D416767P1	Connector cover.
9	19B219723G1	Screw.
10	N136AP905C	Tap screw, phillips: No. 4 x 5/16.
11	19A116937P1	Cable clip.
12	19B219749P1	Strain relief.
13		Switch button kit. RP126.
14		Rear Case Assembly. (Part of item 1).
15		Tap screw, phillips. (Part of item 1).
16	19C321016G1	Cable assembly: Includes items 3-12 and cable RP129.
17		Switch Assembly. RP128.
18		Grille Assembly. RP130. (includes items 2, 19, 21).
19		"O" Ring. (Part of item 18).
20		Transistorized Cartridge. RP117.
21		Washer. (Located under cartridge- part of item 18).
22	19C321016G3	Connector assembly: Includes items 5-12.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

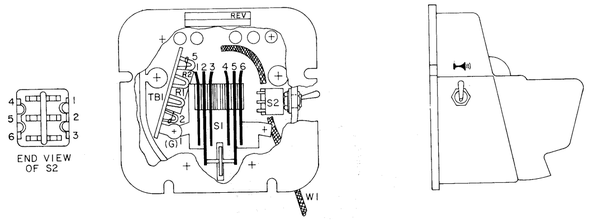


SERVICE SHEET

MICROPHONE & HOOKSWITCH

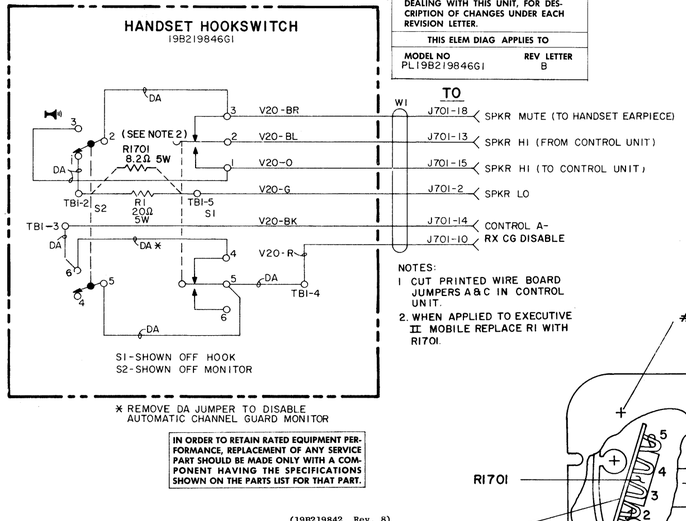
Issue 3

OUTLINE DIAGRAM



(19B226131, Rev. 2)

SCHEMATIC DIAGRAM



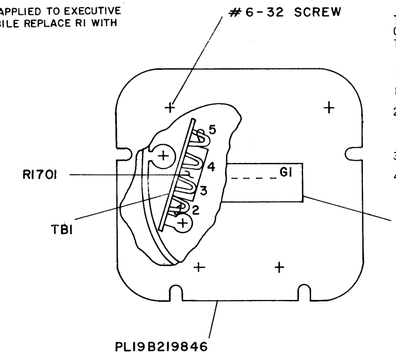
SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.	
THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PLI19B219846G1	B

* REMOVE DA JUMPER TO DISABLE AUTOMATIC CHANNEL GUARD MONITOR

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. CUT PRINTED WIRE BOARD JUMPERS A&C IN CONTROL UNIT.
2. WHEN APPLIED TO EXECUTIVE II MOBILE REPLACE R1 WITH R1701.

(19B219842, Rev. 8)



THESE INSTRUCTIONS COVER THE MODIFICATION OF MASTR II HANDSET HOOKSWITCH TO BE APPLIED TO EXEC II

INSTRUCTIONS:

1. REMOVE FOUR #6-32 SCREWS AND COVER.
2. REMOVE R1 RESISTOR (40 OHM) AND DISCARD. REPLACE WITH R1701 RESISTOR (8.2 OHM) AND SOLDER TO TBI-5 AND TBI-2 AS SHOWN.
3. REPLACE COVER AND SCREWS.
4. ADD LABEL (19A136775) AS SHOWN.

(19B227530, Rev. 2)

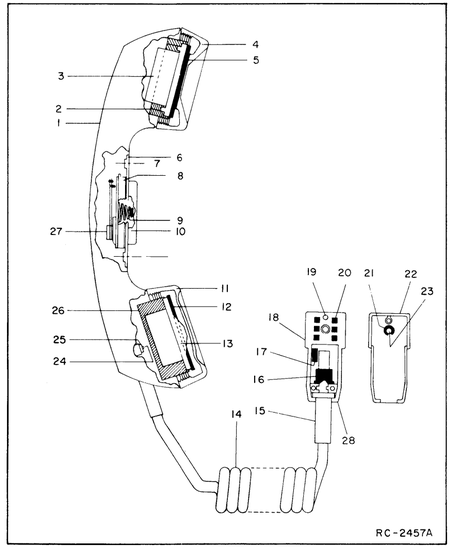
PARTS LIST

LBI4484G

HANDSET HOOKSWITCH
19B219846G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1*	5493035P55	Wirewound: 20 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
		In REV A:
	5493035P11	Wirewound: 40 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
		Earlier than REV A:
	5493035P12	Wirewound: 60 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19A129585G1	Holder and switch: Thermoplastic case, contact rating 1 amp at 125 v.
S2	19A116877P6	Toggle: DPDT, 5 amps at 28 VDC or 115 VAC; sim to C and K Components 7201G. (CHANNEL GUARD DISABLE).
		- - - - - - - - - - TERMINAL BOARDS - - - - - - - - - -
TB1	7775500P203	Phen: 5 terminals.
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19B219841G1	Cable: 6 conductor; approx 5 feet long.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	N190P1312C	Tap screw, phillips: No. 6-20 x 3/4. (Secures housing to base plate).
	N101P1510P	Tap screw, phillips: No. 8-15 x 5/8. (Used for mounting base plate).
	19A129586G1	Bumper, rubber. (2).
		EXECUTIVE II MODIFICATION KIT 19A136767G1
R1701	5493035P52	Resistor, wirewound: 8.2 ohms ±10%, 5 w; sim to Hamilton Hall Type HR.
	19A136775P1	Label.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



PRODUCTION CHANGES

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

REV. A - Handset Hookswitch 19B219846G1
Incorporated in initial shipment.

REV. B - To improve operation of handset when speaker is removed from circuit. Changed R1.

PARTS LIST

LBI-4482A

TRANSISTORIZED DYNAMIC HANDSET
19C320478G1

SYMBOL	GE PART NO.	DESCRIPTION
1		Case Assembly. Includes items 1, 2, 4, 5, 11, 12, 26. Shure Brothers RP142.
2		Adapter. Part of item 1.
3		Receiver Cartridge. Shure Brothers RP140.
4		Receiver Cap. Part of item 1.
5		Washer. Part of item 1.
6		Escutcheon. Part of item 27.
7		Flat head screw, socket cap: No. 4-40 x 1/4. Part of item 27.
8		Actuator. Part of item 27.
9		Spring. Part of item 27.
10		Plunger bar. Part of item 27.
11		Transmitter cap. Part of item 1.
12		Washer. Part of item 1.
13		Transmitter cartridge. Shure Brothers RP139.
14	19C321016G2	Cable assembly: Includes items 14-23 and cable RP141.
15	19B219749P1	Flex relief.
16	19A116937P1	Cable clamp: sim to Malco 21012-3.
17	3R77P472K	Resistor, (R1) Composition, 4700 ohms ±10%, 1/2 w.
18	19D416766P1	Connector case.
19	N136AP905C	Screw.
20	19A129435P1	Pin contact.
21	7109043P1	Retaining ring. 3/16 inch, sim to National Lockwasher WA 510.
22	19D416767P1	Connector Cover.
23	19B219723G1	Screw. (Secures cover, item 22 to case, item 18).
24		Screw. Part of item 14.
25		Cable clamp. Part of item 14.
26		Shield. Part of item 1.
27		Switch Assembly. Includes items 6-10. Shure Brothers RP143.
28	19C321016G3	Connector assembly: Includes items 15, 16, 18-23. Does not include resistor, item 17.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

LBI-4488B

SPEAKER
19C320302G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS1	19A116694P1	Permanent magnet, 5 inch: 20 watts, 8 ohms ±10% imp, 100 to 10,000 Hz response; sim to Oaktron 5EU2189-2.
		- - - - - - - - - - CABLES - - - - - - - - - -
W1	19A129414G1	2 conductor cable: approx 5 feet long, includes (2) 19A116781P3 contacts.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B219692G1	Grille.
	19B227593G1	Housing.
	19C320016P1	Mounting bracket. (Located between housing and retaining bracket).
	19C320022P1	Retaining bracket. (Located between mounting bracket and safety release disc).
	19B219578G1	Safety Release Disc.
	19A116986P108	Tap screw, with lockwasher: No. 7-19 x 1/2. (Secures speaker to housing).
	19A116986P112	Tap screw, with lockwasher: No. 7-19 x 3/4. (Secures grille to housing).
	N187P16010C6	Machine screw: No. 10-32 x 5/8. (Secures mounting bracket to housing- used with safety release disc, retaining bracket).
	N710P16012C6	Screw, hexhead, slotted: No. 10-16 x 3/4. (Secures mounting bracket or retaining bracket).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES