MOBILE RADIO

MASTR®

Progress Line

MAINTENANCE MANUAL

FLOOR MOUNT STATION

TWO-WAY FM
FLOOR MOUNT
STATION
COMBINATION

HIGH POWER
REMOTE CONTROL

LBI4148B
****
DF9014

MICROPHONE

GENERAL ELECTRIC

TABLE OF CONTENTS

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.

EQUIPMENT INDEX

EQUIPMENT	TYPE OF MODEL NUMBER
Transmitter Exciters	ET-54-A through ET-59-D
Power Amplifier (25-50 MHz)	4EF4A1, 2, 3
Power Amplifier (132-174 MHz)	4EF5A1
Power Amplifier (450-470 MHz)	4EF6A1
Power Amplifier Power Supply	4EP6B1
Receiver	ER-39-A through ER-42-K
Cabinet	19C303465G5
Station Power Supply	EP-38-A
Antenna Relay (mounts on EP-38-A)	19A121260G1
Line Amplifier	EA-24-A
Remote Control Panel	4KC16A12
Meter Switching Circuit	19A121460G1
Meter Panel	19C303518G1
Microphone	4EM25A10
Microphone Mounting Kit	7141414G2
Speaker	19B219618G1
117-VAC Power Cable	7491206P1
Two-Prong Plug Adapter	7160486P1
Surge Protection Thyreetor	19A115095P2
Alignment Tools (hex slug type) (slotted screw type)	4038831P2 4033530G2
Keys	BF-10

OPTIONAL EQUIPMENT

EQUIPMENT	OPTION NO.	TYPE OR MODEL NUMBER
Priority Search Lock Monitor Remote Kits	7678 7679	19A122231G16 19A122231G15
Transmitter-Exciter Metering Cover	7648	19C303676G3
Receiver Metering Cover	7649	19C303676G2
Receiver Power Supply	7917, 18, 7978, 7979	4EP39A11
Antenna Matching Unit (25-50 MHz)	7976 - 7979	
Antenna Matching Unit (150.8-174 MHz)	7976 - 7979	
Antenna Matching Unit (450-470 MHz)	7976 - 7979	
220-110 Volt Stepdown Transformer Kit	7606	19C307148P1
Line Voltmeter	7901	19A120042G5
Cabinet Blower	7902	4029917G2
Intercom Kit	7620	19A122231G9

SPECIFICATIONS*

DIMENSIONS (H x W x D)	69" x 22" x 23"
WEIGHT	Approximately 395 pounds
DUTY CYCLE (Transmit & Receive)	Continuous
INPUT VOLTAGE	117 VAC, ±10%, 50/60 Hz
INPUT POWER	Transmit: 1100 watts Receive: 176 watts
OPERABLE TEMPERATURE RANGE	-30°C (-22°F) to +60°C (+140°F)

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

COMBINATION NOMENCLATURE

1st Digit	2nd Digit	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th & 9th Digits
Mechanical Package	Operating Voltage	RF Power Output Range	Channel Spacing	Control	Number of Freq.	Options	Frequency Range
V Floor-Mount Station	**M** 117 VAC	**8** 128—256 watts	**4** 20 kHz	**R** Remote Control Station	**A** 1-Freq. T 1-Freq. R	**S** Standard	**11** 25—33 MHz
		9 Over 256 watts	**5** 25 kHz		**B** 2-Freq. T 1-Freq. R	**N** Noise Blanker	**22** 33—42 MHz
			6 30 kHz		**C** 2-Freq. T 2-Freq. R	**U** Channel Guard (71.9—156.7 Hz)	**33** 42—50 MHz
			7 40 kHz		**D** 1-Freq. T 2-Freq. R	**V** Channel Guard (162.2—203.5 Hz)	**44** 66—77 MHz
			8 50 kHz		**E** 3-Freq. T 3-Freq. R	**W** Noise Blanker & Channel Guard (71.9—156.7 Hz)	**45** 77—88 MHz
			9 60 kHz		**F** 4-Freq. T 4-Freq. R	**X** Noise Blanker & Channel Guard (162.2—203.5 Hz)	**55** 132—150.8 MHz
						P UHS Receiver	**66** 150.8—174 MHz
						G UHS Receiver & Channel Guard (71.9—156.7 Hz)	**77** 406—420 MHz
						H UHS Receiver & Channel Guard (162.2—203.5 Hz)	**88** 450—470 MHz

DESCRIPTION

The General Electric MASTR Progress Line Floor Mount Station is a complete two-way High Power Remote Station. The station can be placed in the control building adjacent to the antenna installation or it may be located in another location suitable to your communication requirements. The transmitter exciter board and the receiver are fully transistorized. Silicon transistors are used throughout for added reliability.

A muffin fan is used to air cool the transmitter and 12.6-volt regulator transistors. The fan is mounted on the front of the Transmitter-Receiver Power Supply. A blower is also used to cool the PA tubes in the PA Power Supply. An optional cabinet blower is available for continuous duty or high temperature operation. This blower mounts on the lower rear of the cabinet.

Both front and back doors on the station cabinet can be opened to gain access to the transmitter, receiver and power supply. The transmitter exciter and receiver modules are equipped with centralized metering jacks, and are mounted on swing-out chassis for simplified alignment and troubleshooting.

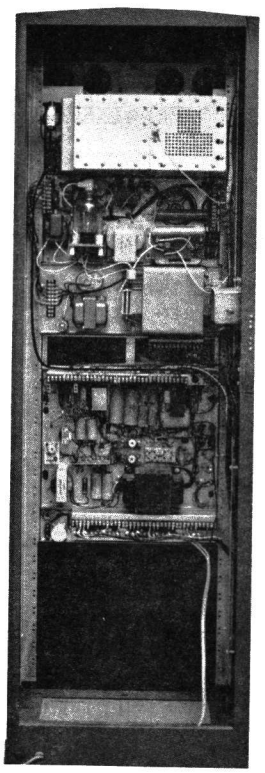


Figure 1 Rear View

The transmitter exciter and receiver modules may be used interchangeably in mobile and station installations. No modifications are required when transferring the units from one type of operation to another.

The rear door is interlocked to protect personnel from B+ voltages when the door is opened. A 117-VAC receptacle mounted in the cabinet provides AC for service equipment.

TRANSMITTER

The transmitter assembly consists of the transmitter exciter and power amplifier. The PA includes a power tube and is air cooled by a blower mounted on the PA supply. The standard transmitter may be equipped with:

- One through four frequencies
- Channel Guard (tone squelch)

RECEIVER

The fully transistorized receiver is completely contained in an aluminum casting, which provides excellent electrical shielding and reduces the effects of vibration. The standard receiver may be equipped with:

- One through four frequencies
- Channel Guard (tone squelch)
- Noise Blanker (25-50 MHz and 132-174 MHz)

POWER SUPPLIES

Transmitter Exciter-Receiver Power Supply

Station Power supply Type EP-38-A provides operating voltages for both the transmitter-exciter and receiver. The power supply provides:

- Regulated -20 volts for the transistorized transmitter exciter-board.
- Regulated +10 volts for the receiver and for transmitter Channel Guard.
- Regulated -13.4 volts for transmitter filaments, receiver audio, relays and pilot lights.

PA Power Supply (EP-6-B)

The Power Supply provides the B-plus plate and screen grid voltages for power amplifier (types EF-4-A, EF-5-A or EF-6-A). In addition, the following voltages are

provided for the power amplifier:

- 6 VDC regulated filament supply
- 140 VDC antenna relay supply

2nd Receiver Power Supply (Optional)

Receiver power supply type EP-39-A is provided when the station is equipped with a second receiver.

ANTENNA MATCHING UNITS (Optional)

The Antenna Matching Units are designed to provide the gain necessary to match two or three receivers to a single antenna where frequency separation requirements are 1.0 MHz or less. The unit consists of a highly-selective, dual-tuned preselector circuit with individual cathode follower outputs to properly match the receiver inputs.

ANTENNA CIRCUITS

The antenna transmission line connects to the top connector on the antenna relay located on the Power Amplifier chassis. The receiver antenna connects from the rear connector on the antenna relay to the left socket on the antenna bracket located on the Transmitter-Receiver power supply chassis. The transmit antenna connects directly from the front connector on the antenna relay to the high-power power amplifier. A coax cable connects the high power amplifier plug P482 to the exciter jack J103. (Transmitter exciter on Transmitter-Receiver Power Supply chassis).

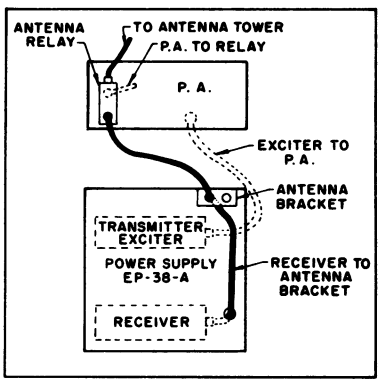


Figure 2 Antenna Connections (Rear View)

LINE AMPLIFIER

Line Amplifier Type EA-24-A are used for matching the receiver output to a 600-ohm telephone pair in remote control applications.

The amplifier assembly is mounted on the back of the power supply over the VOLUME and SQUELCH controls.

REMOTE CONTROL PANEL

The remote control panel contains a transmitter keying relay, remote control accessories and options, and terminal boards for power, wire line and station interconnections. Power for the station connects directly to TB706-1 and -2, and is controlled by power switch S701. S701 also controls the green power-on light on the station meter panel. An optional stepdown transformer kit is available for 220 VAC line voltages.

WARNING

117-volts AC is always present at TB706-1 and -2 even with S701 in the OFF position. Be careful when servicing the control panel.

SURGE PROTECTION

Surge Protection Thyrector 19A115095-P2 is connected across the 117 Volt Line in high power station combinations for lightning protection and to eliminate voltage surges on the input power leads. The thyrector is connected between terminals 3 and 4 of TB706 located on Control Panel KC-16-A or KC-19-A.

MICROPHONE

A microphone is mounted inside the station for use during service and maintenance work by the serviceman. The microphone is connected to mike jack J902 located on the front side of the Transmitter-Receiver Power Supply.

SPEAKERS

Speaker Assembly

Speaker Assembly 19B219618G1 is used in later station combinations, and provides an audio output of 1.5 watts. The speaker assembly mounts on the chassis of transmitter Receiver power supply Model 4EP3812.

NOTE

When a speaker is not used, a 3.5-ohm, 10-watt resistor must be connected from TB501-11 to TB502-5 as a substitute for the speaker load impedance.

Speaker 4EZ16A20

Speaker Model 4EZ16A20 is used in earlier station combinations, and provides an audio output of 5 watts, an attenuator is located on the speaker case for adjustment of audio output level by the serviceman.

The 4EZ16A20 is available as an external speaker option.

METERING CIRCUITS

Meter Panel (19C303518G1)

The Meter Panel is located above the front door on the station cabinet. The panel contains the following meters:

- Meter M901--measures test voltages in transmitter circuits.
- Meter M902--measures test voltages in receiver circuits.
- Meter M903--measures PA plate current in transmitter power amplifier curcuits.
- Meter M904--measures the PA plate voltage of the power amplifier.
- Line Voltmeter 19A120042-G5 (option)--continuously monitors line voltage. The meter is a 0-150 VAC voltmeter connected across the 117- VAC line.

Meter Switching Panel Assembly (19A121460G1)

The Meter Switching Panel Assembly is mounted on the front of the accessory panel and contains the switches and circuitry for switching from stage to stage in the receiver and transmitter. The coltage readings for each stage is indicated on the meters located in the Meter Panel. The Meter Switching Panel Assembly includes:

- Plug P1001--plugs into transmitter centralized metering jack J102 (or J1001 if optional transmitter top cover is used).
- Plug P1002--plugs into receiver centralized metering jack J442 (or J1002 if optional receiver top cover is used).
- Test Probe P1003--to measure high power amplifier grid voltage.
- Switch S1001--to switch transmitter voltage test points into the test meter circuit.
- Switch S1002--to switch receiver voltage test points into the test meter circuit.
- Switch S1004--test probe polarity reversing switch.

Test probe P1003 is used to measure the high voltage power amplifier grid current/voltage and plugs into the PA grid jack on the high power supply.

Refer to the transmitter and/or receiver maintenance manual for the proper voltage readings for each stage tested.

Transmitter voltage readings will be indicated on transmitter "tune up" meter (M901) and receiver readings will be indicated on the receiver "tune up" meter (M902). Both meters are located on the Meter Panel.

The meter voltage check points are:

TX (S1001) & RX (S1002) Switch Position No.	Transmitter Function	Meter Range Full Scale	Receiver Function	Meter Range Full Scale
A	MULT 1	1 V	DICS	1 V*
B	MULT 2	1 V	2nd IF	1 V*
C**	AMPL 3	1 V	1st LIM	1 V*
D	MULT 3	1 V	MULT 1	1 V*
E***	AMPL/MULT 4	1 V	MULT 2	1 V*
F	PA FRID	1 V	- - -	
G	PA PLATE CURRENT	1 V	AUDIO PA	1 V*
H***	POWER OUTPUT	1 V	BLANKER	1 V*
I	20 VOLTS	30 V	- - - -	
J	PA PLATE VOLTAGE	1,000 V	10-VOLTS	15 V
K	EXTERNAL PROBE	3 V	- - - -	
L/VM	RECEIVER 2nd IF	1 V	- - - -	

* can be increased to 3-V by switch S1003.
** not used in ET-54-A
*** used only in ET-59-C

Circuit Analysis

The voltage tests points in the receiver and transmitter are connected through the connecting cables to lug terminals on the receiver and transmitter voltage wafer switches. With the receiver switch in the "A" meter switch position for example, the discriminator output voltage is connected by the switch to TB901-11-12 through wire numbers 22 and 23 to receiver meter (M902) in the Meter Panel. If the transmitter switch is in the "F" position, for example, the PA grid voltage is connected by the switch to TB901-9-10, through wire numbers 20 and 22 to meter (M901) in the Meter Panel.

Switch S1003 is used to connect the 3-volt nultiplying resistor into the receiver meter circuit. Test probe P1003 is used to measure the high power amplifier grid drive. When using the test probe, turn the transmitter switch S1001 to the "External" position. R1002 is a multiplier resistor in series with the test probe to make the meter 3-volts full scale when using the external probe.

Resistor R1007 is a multiplier resistor in series with the receiver meter when switch S1003 is in the 3-volt position. Silicon rectifiers CR1001, CR1002, resistors R1003 and R1004 in the transmitter meter circuit and CR1003, CR1004, CR1005 and R1006 in the receiver meter circuit protect the meters from overload and voltage spikes.

NOTE

For continuous monitoring of test voltages, optional transmitter and receiver top covers (19C303676-G3 and -G2 respectively) are available. The covers contain external sockets to attach the transmitter and receiver cables from the Meter Switching Panel Assembly.

INITIAL ADJUSTMENT

After the station has been installed as described in the Installation Manual, the transmitter, exciter, PA, receiver, power supply, and control panel must be adjusted by an electronics technician who holds a 1st or 2nd Class FCC Radiotelephone or Radiotelegraph license before the station can be placed in operation. Built-in metering circuits are provided with the station.

TEST EQUIPMENT REQUIRED

The following test equipment is required for the adjustment of both transmitter and receiver:

1. A tuning tool and a screwdriver.
2. A signal source operating at the system frequency (preferably) the transmitter which will normally be monitored by the receiver).

TRANSMITTER ADJUSTMENT

The initial adjustment for the transmitter assembly includes:

- Turning grid and plate controls on PA.
- Loading the power amplifier into the antenna.
- Checking the frequency and modulation.

For the Initial Adjustment procedure, refer to the transmitter exciter and power amplifier MAINTENANCE MANUALS.

RECEIVER ADJUSTMENT

The initial adjustment for the receiver includes:

- Zeroing the receiver to the system operating frequency.
- Matching the antenna transformer to the antenna.

For the Receiver Initial Adjustment Procedure, refer to the FRONT END ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the receiver.

POWER SUPPLY ADJUSTMENT

The initial adjustment for the power supply includes:

- Turning on power switch S501.
- Setting VOLUME control R511 to mid-range, and setting SQUELCH control R512 for quieting.

LINE AMPLIFIER ADJUSTMENT

The initial adjustment for the line amplifier consists of setting LINE LEVEL ADJUST R1501 located on the power supply for 2.7 volts RMs (+11 dB) at the telephone pair.

For the line amplifier adjustment procedure, refer to the Maintenance Manual for the power supply.

REMOTE CONTROL PANEL ADJUSTMENT

The initial adjustment for either remote control panel includes:

- Turning power switch S701 ON.
- Adjusting AUDIO LEVEL CONTROL R701.

For the Initial Adjustment Procedure, refer to the MAINTENANCE MANUAL for the Control Panel.

ANTENNA MATCHING UNIT ADJUSTMENT

For the ADJUSTMENT procedures, refer to the MAINTENANCE MANUAL for the Antenna Matching Unit.

MAINTENANCE

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 actural performance of the transmitter or receiver against the specifications of the unit when shipped from the factory.

In addition, specific troubleshooting procedures are available to assist the serviceman in troubleshooting the transmitter, receiver and power supply.

For best results in servicing the station, the TEST PROCEDURES should be used in conjunction with the TROUBLESHOOTING PROCEDURES. Both sheets are listed in the Table of Contents of the applicable MAINTENANCE MANUAL.

PRECENTIVE MAINTENANCE

To insure high operation efficiency and to prevent mechanical and electrical failures from interrupting system operations, routine checks should be made of all mechanical and electrical parts. This preventive maintenance should include the maintenance checks listed in the following chart:

PREVENTIVE MAINTENANCE PROGRAM

CHECK THE FOLLOWING ONCE A YEAR:

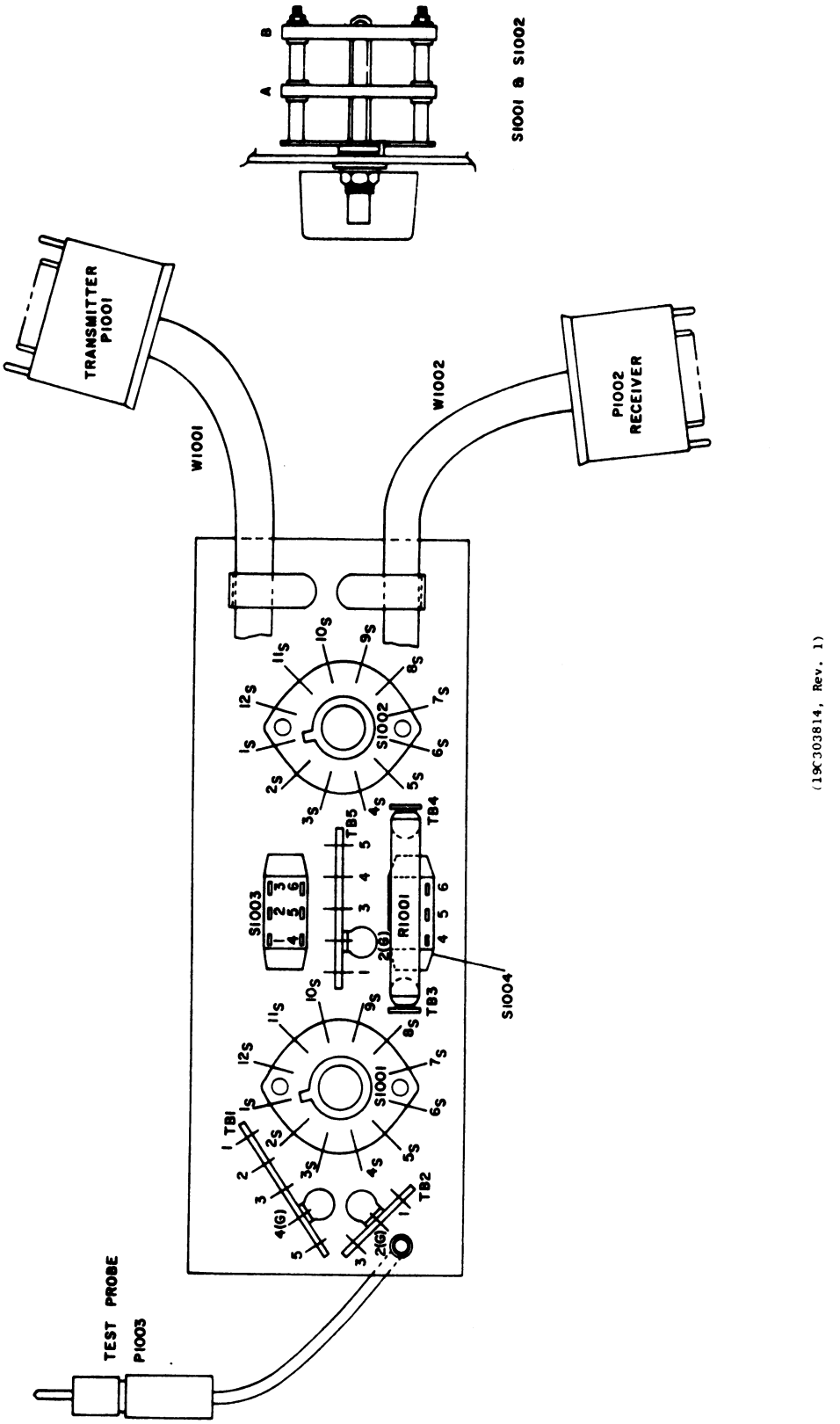
1. Transmitter frequency and deviation (FCC normally requires this check-up at least ONCE a year) ..... ☐
2. Measure and record the antenna system V.S.W.R. ..... ☐
3. Check input voltage at TB706-1 and -2 on control panel. Reading should be within 10% of 117 VAC. (Also check during routine service calls) ..... ☐
4. Compare and record transmitter meter readings with voltages taken during intiial tune-up. Retune, if necessary ..... ☐
5. Compare and record receiver meter readings with voltages taken during initial tune-up. Retune, if necessary ..... ☐
6. Check for positive indication of pressure on transmission line pressure gauge (if pressurized line is used) ..... ☐
7. Clean dust from fan blades and lubricate bearings ..... ☐
8. Burnish pitted or coated relay contacts to smooth out metallic deposits or remove the coating ..... ☐

MAKE THE FOLLOWING MAINTENANCE CHECKS DURING ROUTINE SERVICE CALLS:

1. Check antenna lines and mast for mechanical stability ..... ☐
2. Visually check:
   - External cables ..... ☐
   - Internal cables ..... ☐
   - Plugs ..... ☐
   - Sockets ..... ☐
   - Terminal boards ..... ☐
3. Check for tightness of nuts, bolts, and screws to make sure nothing is working loose from its mounting ..... ☐
4. Replace tubes as necessary. (It may be convenient to replace all station tubes during the yearly check-up) ..... ☐

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

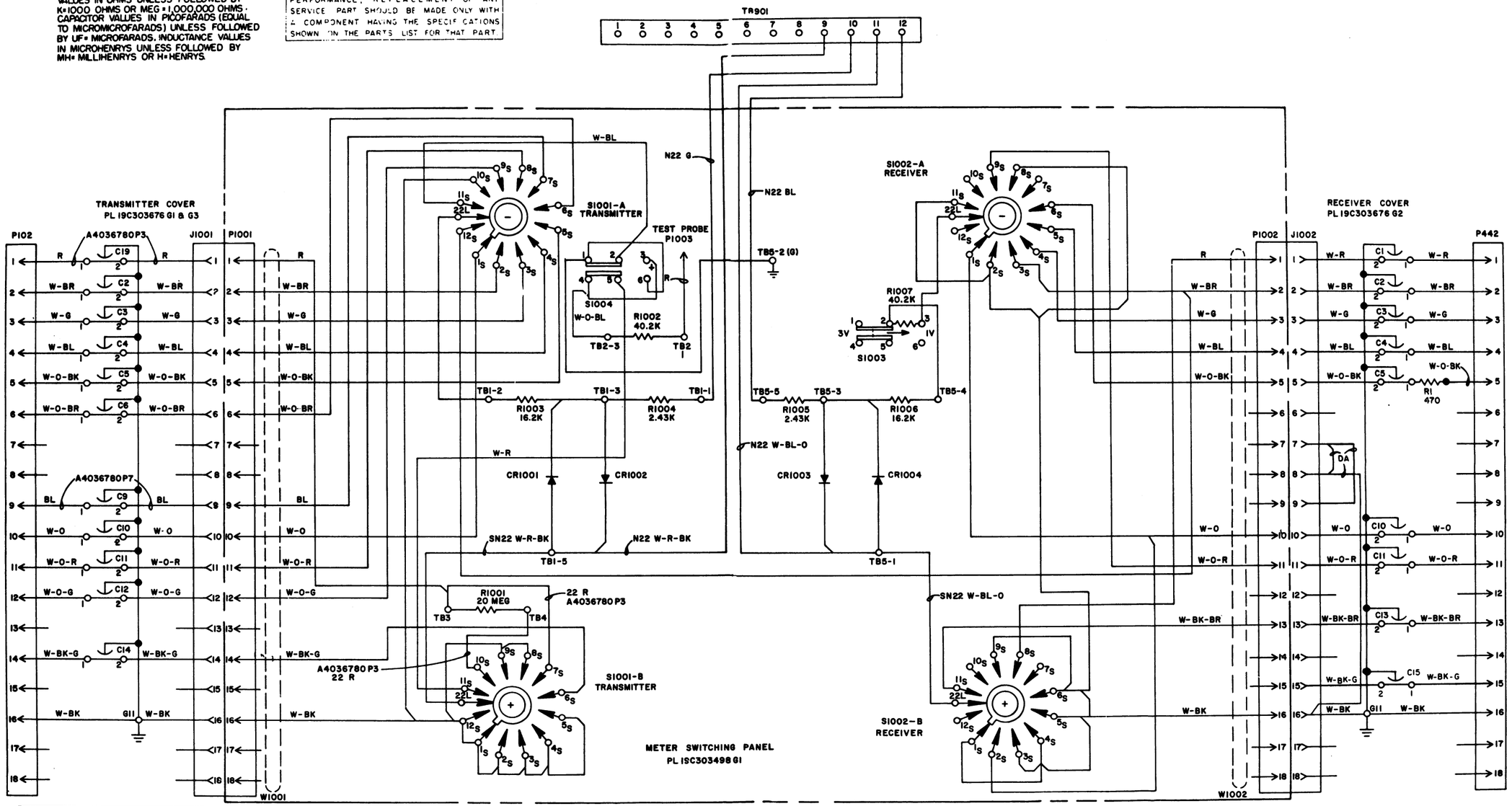


OUTLINE DIAGRAM

MASTR FLOOR-MOUNT STATION COMBINATION
METER SWITCHING PANEL

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.

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



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
19C303498G1	A
19C303676G2	B

NOTES:

1. ALL WIRES ARE DA UNLESS OTHERWISE SHOWN IN METER SWITCHING PANEL.
2. ALL WIRES ARE #24 UNLESS OTHERWISE SHOWN IN RECEIVER & TRANSMITTER COVER.
3. TERMINATE ALL WIRES NOT USED IN W1001 & W1002 BY CUTTING OFF FLUSH WITH CABLE JACKET.

(19D402334, Rev. 9)

SCHEMATIC DIAGRAM

MASTR FLOOR-MOUNT STATION COMBINATION
METER SWITCHING PANEL

PARTS LIST

LBI-3565C

METER SWITCHING PANEL ASSEMBLY
19A121460-G1

SYMBOL	G-E PART NO.	DESCRIPTION
		METER SWITCHING PANEL 19C303498-G1
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1001 thru CR1004	5494922-P1	Silicon; sim to Type 1N456.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P1001		(Part of W1001).
P1002		(Part of W1002).
P1003	4032797-P1	Probe, test; sim to Birnbach Type 415 (red).
		- - - - - - - - - - RESISTORS - - - - - - - - -
R1001	5496955-P576	Deposited carbon: 20 megohms ±2%, 2 w; sim to Texas Instruments Type CD2R.
R1002	5495948-P359	Deposited carbon: 40,200 ohms ±1%, 1/2 w; sim to Texas Instruments Type CD1/2MR.
R1003	5495948-P321	Deposited carbon: 16,200 ohms ±1%, 1/2 w; sim to Texas Instruments Type CD1/2MR.
R1004 and R1005	5495948-P238	Deposited carbon: 2430 ohms ±1%, 1/2 w; sim to Texas Instruments Type CD1/2MR.
R1006	5495948-P321	Deposited carbon: 16,200 ohms ±1%, 1/2 w; sim to Texas Instruments Type CD1/2MR.
R1007	5495948-P359	Deposited carbon: 40,200 ohms ±1%, 1/2 w; sim to Texas Instruments Type CD1/2MR.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S1001 and S1002	19C307113-P2	Rotary: 2 sections, 2 poles, 12 positions, non-shorting contacts, 2 amps at 28 VDC or 1 amp at 110 VDC; sim to Oak 235585-K2.
S1003 and S1004	7145098-P1	Slide: DPDT, 3/4 amp at 125 VAC or 1/2 amp at 125 VDC; sim to Stackpole SS-150.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	7775500-P9	Phen: 5 terminals.
TB2	7775500-P7	Phen: 3 terminals.
TB3 and TB4	7775500-P46	Phen: 1 terminal.
TB5	7775500-P9	Phen: 5 terminals.
		- - - - - - - - - - - CABLES - - - - - - - - - -
W1001	19C303568-P2	Metering: includes 18 pin plug (P1001) rated at 1000 VDC max, approx 38 inches long.
W1002	19C303568-P2	Metering: includes 18 pin plug (P1002) rated at 1000 VDC max, approx 38 inches long.
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B204861-G1	Chassis. (Used in 19C303498-G1).
	7763541-P5	Cable, clamp. (Used with W1001 and W1002 in 19C303498-G1).
	7487773-P6	Knob: red; sim to Eastman Chemical 28739. (Used with S1001 and S1002 in 19C303498-G1).
	19B204590-G1	Box. (Used in 19A121460-G1).
	4029030-P11	Rubber channel seal: approx 2-1/2 inches long. (Used in 19A121460-G1).

SYMBOL	G-E PART NO	DESCRIPTION
		COVER ASSEMBLY 19C303676-G1 (TRANSMITTER STATION METERING) 19C303676-G2 (RECEIVER STATION METERING) 19C303676-G3 (TRANSMITTER STATION METERING, VENTILATED)
		- - - - - - - - - - CAPACITORS - - - - - - - -
C1 thru C6	5493392-P7	Ceramic, feed-thru: .001 µf +100% -0%, 500 VDCW; sim to Allen-Bradley Type FA5C.
C9	19B209282-P1	Ceramic, feed-thru: 680 pf ±20%, 1000 VDCW; sim to Sprague Type 544C.
C10 thru C14	5493392-P7	Ceramic, feed-thru: .001 µf +100% -0% 500 VDCW; sim to Allen-Bradley Type FA5C.
C15*	5493392-P7	Ceramic, feed-thru: .001 µf +100% -0%, 500 VDCW; sim to Allen-Bradley Type FA5C. Added by Rev B.
C19	19B209282-P1	Ceramic, feed-thru: 680 pf ±20%, 1000 VDCW; sim to Sprague Type 544C.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J1001 and J1002	19B205689-G2	Connector: 18 contacts.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P102	19B204727-P1	Connector: 18 contacts rated at 1000 VDC max.
P442	19B204727-P1	Connector: 18 contacts rated at 1000 VDC max.
		- - - - - - - - - - - RESISTORS - - - - - - - - -
R1*	3R77-P471K	Composition: 470 ohms ±10%, 1/2 w. Added by Rev A.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

PRODUCTION CHANGES

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

REV. A — To eliminate 3 db loss in receiver sensitivity with cover on. Added R1 to receiver metering cover.

REV. B — To allow audio metering with cover. Added C15.

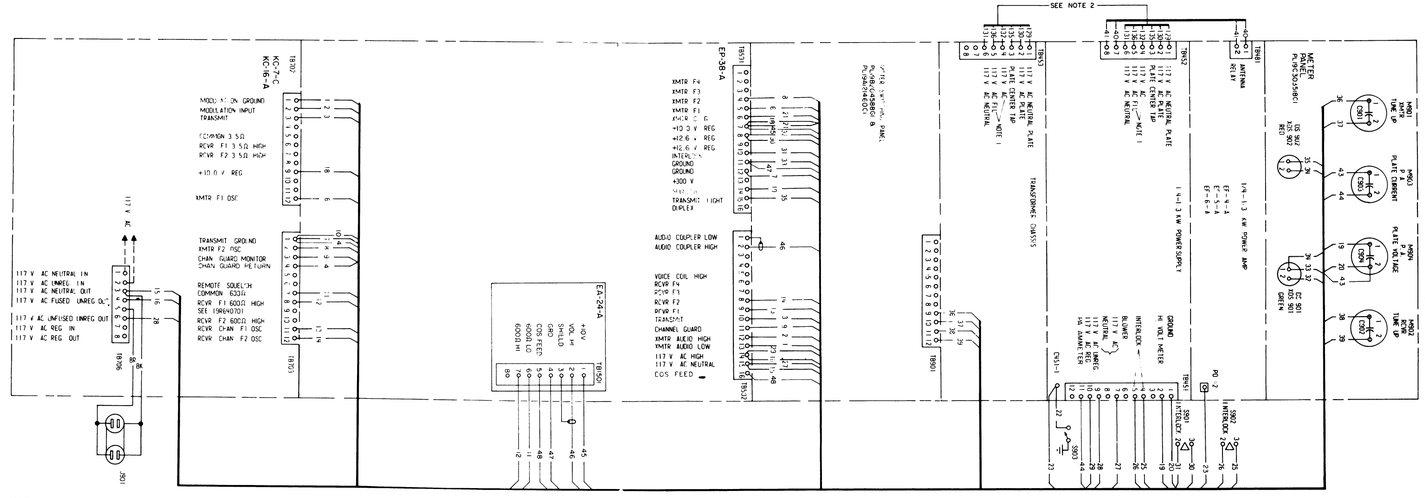
PARTS LIST

LBI-4153

MASTR HIGH POWER FLOOR MODEL
STATION CABINET
19C303465-G1, G2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J901	4029758-G1	Duplex outlet, phen: polarized, 15 amps at 125 v.
		- - - - - - - - - - SWITCHES - - - - - - - - -
S901	19A115887-P1	Push, door interlock: SPDT, 10 amps at 125 or 250 VAC.
S902	3490346-P1	Push, door interlock: SPDT, 10 amps at 125 or 240 VAC, 0.5 amp at 125 VDC or 0.25 amp at 250 VDC: sim to Micro Switch Type 2AC5.
S903	5491274-G1	Door interlock, grounding.
		METER PANEL 19C303518-G1, G2
		- - - - - - - - - - CAPACITORS - - - - - - - -
C901 thru C904	3494481-P11	Ceramic disc: radial leads, .001 µf ±20%, 500 VDCW; sim to RMC Type JF Discap.
		- - - - - - - - INDICATING DEVICES - - - - - -
DS901 and DS902	19C307037-P19	Lamp, incandescent: miniature, 14 v ±0.1 v: sim to GE 756.
		- - - - - - - - - - METERS - - - - - - - - -
M901 and M902	5491869-P11	Microammeter: -10/0/+50 µa, 3-1/2 inch: sim to GE Type DO-91.
M903	5491869-P4	Milliammeter, DC: 0-500 MADC, 500 ma movement, 3-1/2 inch: sim to GE Type DO-91.
M904	5491869-P5	Voltmeter, DC: 0-3000 VDC, 1 ma movement, 3-1/2 inch: sim to GE Type DO-91.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XDS901	7141855-P13	Lamp: cylindrical green plastic lens: sim to Dialight 135-410-1432.
XDS902	7141855-P12	Lamp: cylindrical red plastic lens: sim to Dialight 135-410-1431.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	X529P30C13	Plug, button: 1-1/16 dia. (Located in top of cabinet).
	19A121262-P1	Plate. (Located in top of cabinet).
	5491480-P5	Cable clip: sim to Adel Precision Type 754. (Located in top of cabinet).
	7127936-P1	Support. (Mounts cable clip in top of cabinet).
	19B215165-P3	Cable clip: sim to Thomas and Betts 3302. (Located in bottom of cabinet).
	N80P21008C13	Screw, phillips: 1/4-20 x 1/2. (Secures J901).
	N231P1C13	Nut, sheetspring: No. 6-18. (Secures GE Nameplate).
	NP243528	Nameplate. (GENERAL ELECTRIC).
	4029549-P1	Nut, spring tension. (Secures bottom edge of Meter Panel).
	N40P19008C13	Screw, phillips: 12-24 x 1/2. (Used to secure rack panel assemblies).
	N403P21C13	Lockwasher: external tooth, No. 12. (Used to secure rack panel assemblies).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



NOTES

1. CONNECTIONS ARE FOR 60 CYCLE OPERATION. FOR OTHER FREQUENCIES REMOVE CONNECTIONS TO TB432-4 AND 5 AND JUMPER BETWEEN THEM.
2. WIRES #129-132, 135 & 136 ARE PART OF EP-6-A RUNNING LIST.
3. IF RECEIVER MUTE IS NOT DESIRED, MOVE R22-BL WIRE INSIDE 4EP384 FROM TB501-- 16 TO TB501-7.
4. TB706-1 MUST BE CONNECTED TO GROUND OR NEUTRAL OF THE BUILDING WIRING SYSTEM.
5. IF REMOTE SQUELCH IS DESIRED, REMOVE SQUELCH POT WIRE #10 FROM TB702-3 AND CONNECT TO TB702-4 AND ADD JUMPER FROM TB701-6 TO TB702-1.

(19R621394, Rev. 1)

INTERCONNECTION DIAGRAM

MASTR FLOOR-MOUNT
REMOTE CONTROL STATION COMBINATION
HIGH POWER

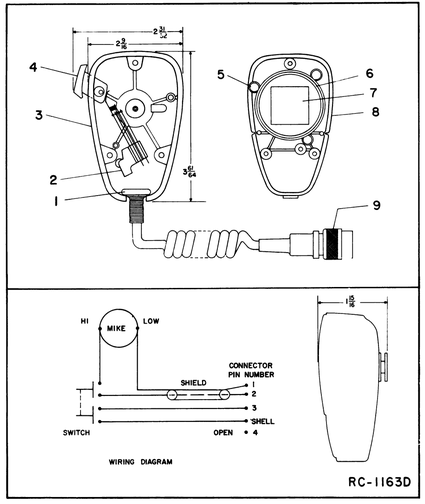
PARTS LIST

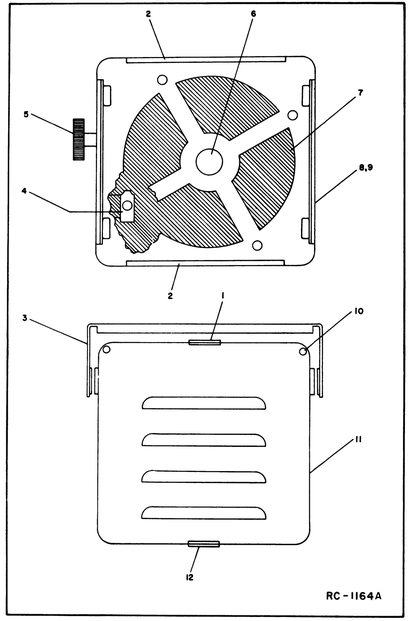
LBI-3558B

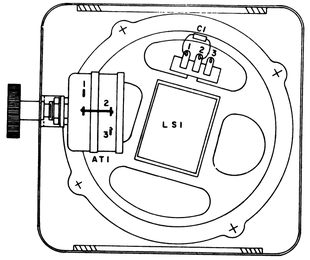
MILITARY MICROPHONE
MODEL 4EM25A10
(PL-19B209102-P1)
(SEE RC-1163)

SYMBOL	G-E PART NO.	DESCRIPTION
		MECHANICAL PARTS
		MODEL 4EM25A10
1		Cable clamp. Shure Brothers RP-16.
2		Switch. Shure Brothers RP26.
3		Case (back) and mounting button: plastic. Shure Brothers RP-67.
4		Switch button: red plastic. Shure Brothers RP-25.
5		Spring. Shure Brothers RP-1.
6		Shield. Shure Brothers RP-23.
7		Magnetic controlled cartridge. Shure Brothers RP-13.
8		Case (front) plastic. (Part of item 3).
9		Cable and plug: approx 6 feet long. Shure Brothers RP-14.

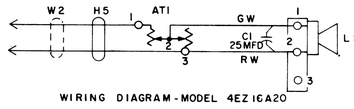
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.







NOTE: ATTENUATOR (ATI) USED ON MODEL 4EZ16A20 ONLY



NOTE

Remove speaker wires from TB501-12 and TB502-5 on EP38A and connect brown wire to TB701-7 and orange wire to TB701-8 on KC-16-A.

SPECIFICATIONS

Audio Power Input:	5-watts
Frequency Range:	300-3000 Hz
Input Impedance:	3.2 ohms
Attenuator:	3.5 ohms

PARTS LIST

LBI-4081

FIVE-WATT STATION SPEAKER

MODEL 4EZ16A20 19D403449-G13
MODEL 4EZ16A21 19D403449-G14

SYMBOL	G-E PART NO.	DESCRIPTION
		- - - - - - - - - ATTENUATORS - - - - - - - - -
AT1	7478301-P48	L-pad, variable, audio: 3.5 ohms res, 4 w, 40 db min attenuation max, 294° rotation.
		- - - - - - - - - CAPACITORS - - - - - - - - -
C1	19B209233-P1	Electrolytic, non-polorized: 25 µf ±20%, 25 VDCW; sim to Sprague 41D.
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS3	19B209422-P1	Permanent magnet: 5 inch, 3.2 ohms ±10% imp, 2.56 ohms ±15% DC res, 7.5 w max operating.
		- - - - - - - - - CABLES - - - - - - - - -
W2	7484521-G7	Speaker, 2 conductor with 2 spade tongue terminals, approx 4 feet long.
		MECHANICAL PARTS (SEE RC-1164)
1	5490407-P3	Neoprene grommet.
2	19A121623-P1	(Not used).
3	19A121521-G1	Mounting support.
4	7160861-P20	(Not used).
5	19A115837-P1	Plastic knob. (Used in Model 4EZ16A20).
6	19A13467-P1	(Not used).
7	19C303500-P1	(Not used).
8	19B216269-G3	Can. (Used in Model 4EZ16A20).
9	19B216269-G2	Can. (Used in Model 4EZ16A24).
10	4037073-P10	(Not used).
11	19A121550-G3	Speaker cover.
12	19A115470-P1	Rubber grommet: approx 2/4 inch dia; sim to Atlantic Rubber 2579 (without hole).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

PARTS LIST

LBI-4427

STATION SPEAKER
19B219618G1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS1	19A115964P1	Weatherproof, Permanent Magnet: 3-1/2 inch, 18 ohm ±10% imp at 1000 Hz, 15-19 ohms DC; sim to Oaktron 5-9847.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B219615P1	Cover.
	19B209260P103	Terminal, solderless: sim to AMP 60495-1.
	5490407P10	Grommet.
	19B201074P304	Tap screw: No. 6-32 x 1/4.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES