MOBILE RADIO

MASTR

Progress Line

MAINTENANCE MANUAL

FLOOR MOUNT
STATION

TWO-WAY FM
FLOOR-MOUNT
STATION
COMBINATION

MEDIUM POWER
REMOTE CONTROL
LBI-4147B

MICROPHONE

DF-9014

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 OR MODEL NUMBER
Transmitter	ET-55-A through ET-60-H
Receiver	ER-39-A through ER-42-L
Cabinet	19C303465 G3
Station Power Supply	4EP38A11
Antenna Relay (mounts on 4EP38A11)	19A121260 G1
Line Amplifier	4EA24A10, 11
Remote Control Panel	4KC16A12
Meter Switching Circuit	19A121460 G1
Meter Panel	19C303519 G1
Microphone	4EM25A10
Microphone Mounting Kit	7141414 G2
Speaker Assembly	19B219618G1
117-VAC Power Cable	7491206 P1
Two-Prong Plug Adapter	7160486 P1
Alignment Tools (hex slug type) (slotted screw type)	4038831 P2 4033530 G2
Door Handle (with lock) Key	7488490 P4 BF-10

OPTIONAL EQUIPMENT

EQUIPMENT	OPTION NO.	TYPE OR MODEL NUMBER
Priority Search Lock Monitor Remote Kits	7678 7679	19A122231G16 19A122231 G15
Transmitter Metering Cover	7648	19C303676 G3
Receiver Metering Cover	7649	19C303676 G2
Receiver Power Supply	7708, 09, 7976, 77	4EP39A11
Antenna Relay	7708, 09, 7976, 77	19A121260 G2
Antenna Matching Power Supply	7917-24	4EP41A10
Antenna Matching Unit (30-40 MHz)	7919, 7922	4KY8A2
Antenna Matching Unit (40-50 MHz)	7920, 7923	4KY8A3
Antenna Matching Unit (152-174 MHz)	7921, 7924	4KY8C1
220/110 volt Stepdown Transformer Kit	7608	19A121971G1
Line Voltmeter	7901	19A120042G5
Intercom Kit	7620	19A122231G9

SPECIFICATIONS*

DIMENSIONS (H x W x D)	69" x 22" x 23"
WEIGHT	Approximately 245 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 servicemen. Refer to the appropriate Specification Sheet for complete specifications.

COMBINATION NOMENCLATURE

1st Digit Mechanical Package	2nd Digit Operating Voltage	3rd Digit RF Power Output Range	4th Digit Channel Spacing	5th Digit Control	6th Digit Number of Freq.	7th Digit Options	8th & 9th Digits Frequency Range
V Floor-Mount Station	**M** 117 VAC	**5** 16-38 watts	**4** 20 kHz	**R** Remote Control Station	**A** 1-Freq. T 1-Freq. R	**S** Standard	**11** 23-33 MHz
		6 38-64 watts	**6** 30 kHz		**B** 2-Freq. T 1-Freq. R	**N** Noise Blanker	**22** 33-42 MHz
		7 64-128 watts	**7** 40 kHz		**C** 2-Freq. T 2-Freq. R	**U** Channel Guard	**33** 42-50 MHz
			8 50 kHz		**D** 1-Freq. T 2-Freq. R	**W** Noise Blanker & Channel Guard	**44** 66-77 MHz
			9 60 kHz		**E** 3-Freq. T 3-Freq. R	**P** UHS Receiver	**45** 77-88 MHz
					F 4-Freq. T 4-Freq. R	**G** UHS Receiver & Channel Guard	**55** 132-150.8 MHz
							66 150.8-174 MHz
							77 406-420 MHz
							88 450-470 MHz
							89 470-494 MHz
							91 494-512 MHz

DESCRIPTION

The General Electric MASTR Progress Line Floor Mount Station is a complete two-way medium 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. Both the transmitter exciter and the receiver are fully transistorized. Silicon transistors are used throughout for added regulator transistor (Q502). The fan is mounted on the front of the Transmitter-Receiver Power Supply.

SERVICING

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

The transmitter 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.

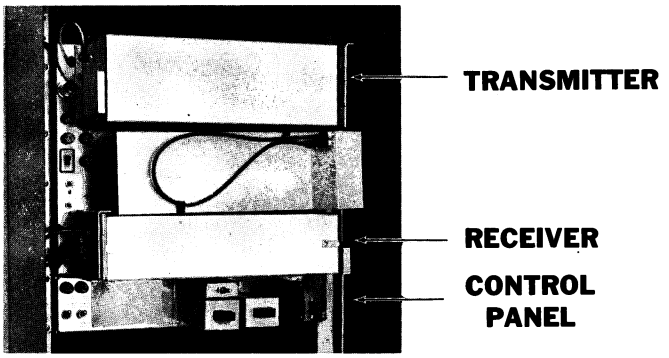


Figure 1 - Front View

The rear door is interlocked to protest personnel from contact with voltages. Interlock switch S901 opens the power supply output to the transmitter when the rear door is opened. A 117-VAC receptacle is mounted inside the rear of the cabinet for plug-in service equipment.

TRANSMITTER

The transmitter assembly consists of the transistorized exciter board and the power amplifier section. 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-Receiver Power Supply

Station Power Supply Model 4EP38A10 provides operating voltages for both the transmitter and receiver. In addition to plate, screen and bias voltages for the transmitter, 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 +12.6 volts for transmitter filaments, receiver audio, relays and pilot lights.

Antenna Switching Relay

The Antenna Switching Relay (K502) is mounted on the power supply. Keying the transmitter energizes the relay, which connects the transmitter output to the antenna. When the transmitter is unkeyed, K502 is de-energized and the receiver is connected to the antenna.

Receiver Power Supply (Optional)

Receiver Power Supply Model 4EP39A10 is provided when the station is equipped with a second receiver.

Antenna Matching Power Supply (Optional)

The Antenna Matching Power Supply provides the 200-VDC B-plus and filament voltage for the station antenna matching units. The supply mounts on the meter switching panel.

ANTENNA MATCHING UNITS (Optional)

The Antenna Matching Unit is 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.

LINE AMPLIFIER

Line Amplifier Models 4EA24A10, 11 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 the AC input circuit, remote control kits, and telephone line connections. The panel is mounted on the chassis mounting frame below the Transmitter-Receiver Power Supply.

AC Input

The 117-VAC input is connected directly to TB706-1 and 2. All power to the station is controlled by switch S701 on the control panel. When S701 is turned ON, the green Power-On light on the meter panel will become illuminated.

An optional 220/110-volt AC Stepdown Transformer Kit is available for use when the input line voltage is 220-volts AC.

WARNING

117-volts AC is always present at TB706-1 and 2. Always use care when servicing the Control Panel, even when S701 is in the OFF position.

Telephone Lines

The key link in a Remote Control installation is the telephone line from the Dispatcher unit to the Remote Control station. The telephone line is connected directly from the dispatcher's console to the remote station wherever it may be located.

There are three methods of telephone line control:

1. Two telephone pair--one for audio and one for control.
2. One metallic pair for both audio and control, simplexing the control voltage from the center-tap of the output transformer to ground.
3. One metallic pair for both audio and control, simplexing the control voltage from one line to the other by splitting the output transformer with a capacitor.

Refer to the MAINTENANCE MANUAL for Remote Control Panel Model 4KC16A10 to obtain complete information or remote control telephone lines.

Tx (S1001) & Rx (S1002) Switch Position No.	Transmitter Function	Meter Range Full Scale	Receiver Function	Meter Range Full Scale
A	MULT 1	1 V	DISC	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 GRID	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-58-B, ET-58-B, ET-59-C & ET-60-C
**** used only in ET-59-C & ET-60-C

MICROPHONE (4EM25A10)

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 4EP38A12.

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 adjustment of audio output level by the serviceman.

The 4EZ16A20 is available as an external speaker option.

METERING CIRCUITS

Meter Panel (19C303519G1)

The Meter Panel is located above the front door on the station cabinet. The panel contains the following meters for making voltage test readings in the transmitter and receiver:

- Meter M901--measures test voltages in transmitter circuits.
- Meter M902--measures test voltages in receiver circuits.
- 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 voltage 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.

The meter voltage check points are listed in Table at bottom of page 2.

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.

CIRCUIT ANALYSIS

The voltage test 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 (M901) 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 multiplying 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, R1005 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, 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 includes:

- Loading the power amplifier into the antenna.
- Checking the frequency and modulation.

For the Initial Adjustment procedure, refer to the ALIGNMENT PROCEDURE in the MAINTENANCE MANUAL for the transmitter.

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.

CONTROL PANEL ADJUSTMENT

The initial adjustment for the 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

The initial antenna matching unit adjustment is peaking T671 and Z671. 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 actual performance of the transmitter or receiver against the specifications of the unit when shipped from the factory.

In addition, specific troubleshooting procedures are available to assist the serviceman in troubleshooting the transmitter, 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.

PREVENTIVE MAINTENANCE

To insure high operating efficiency and to prevent mechanical and electrical failures from interrupting system operations, routine checks should be make of all mechanical and electrical parts. This preventive maintenance should include the maintenance checks listed below:

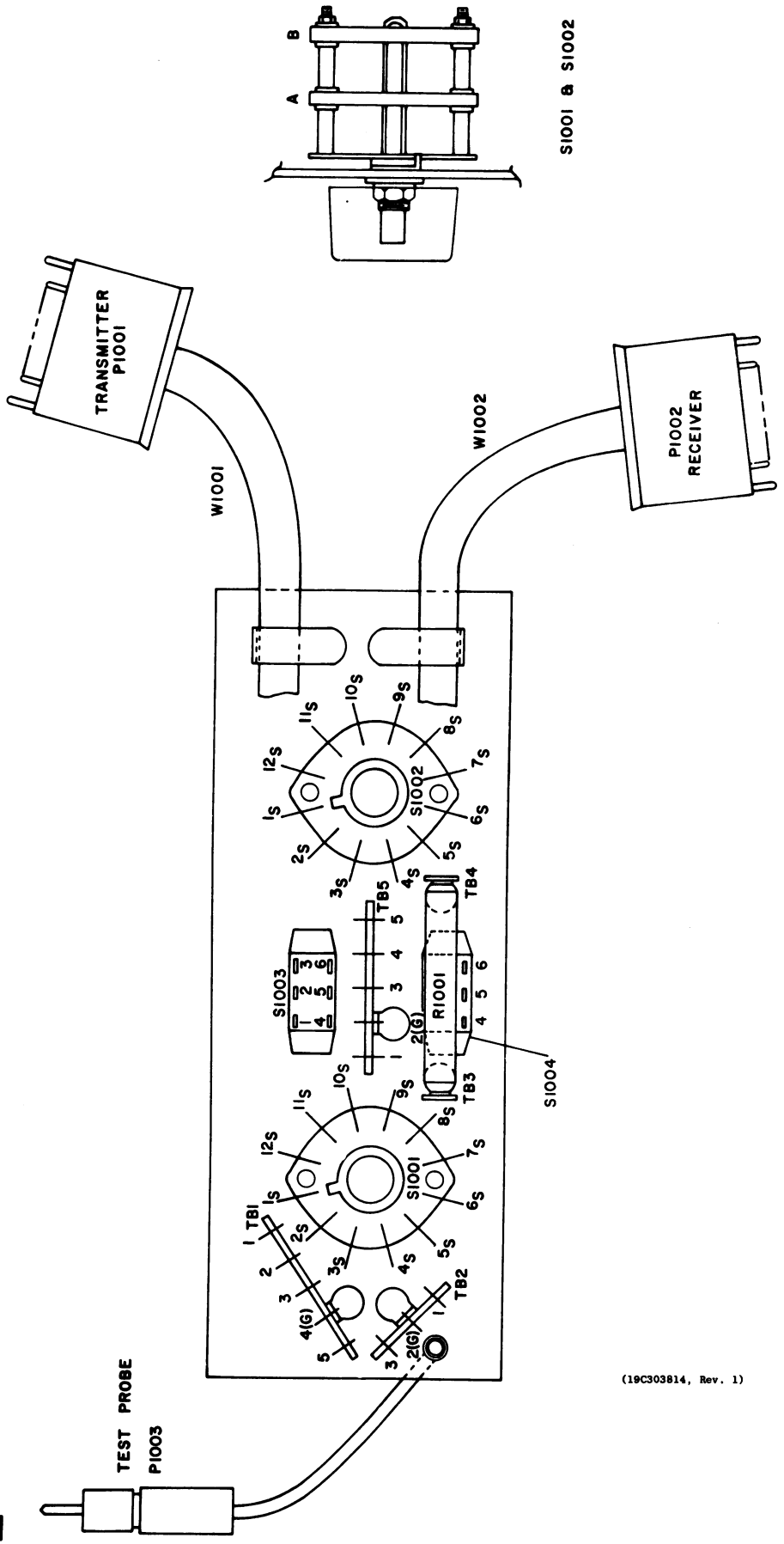
PREVENTIVE MAINTENANCE PROGRAM

CHECK THE FOLLOWING ONCE A YEAR:

1. Transmitter frequency and deviation (FCC requires this check-up ONCE a year) ..... ☐
2. Measure and record the antenna system V.S.W.R. ..... ☐
3. Check input voltage at TB706-1-2 on control panel. Reading should be with-in 10% of 117 VAC. (Also check during routine service calls) ..... ☐
4. Compare and record transmitter meter readings with voltages taken during initial 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 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) ..... ☐

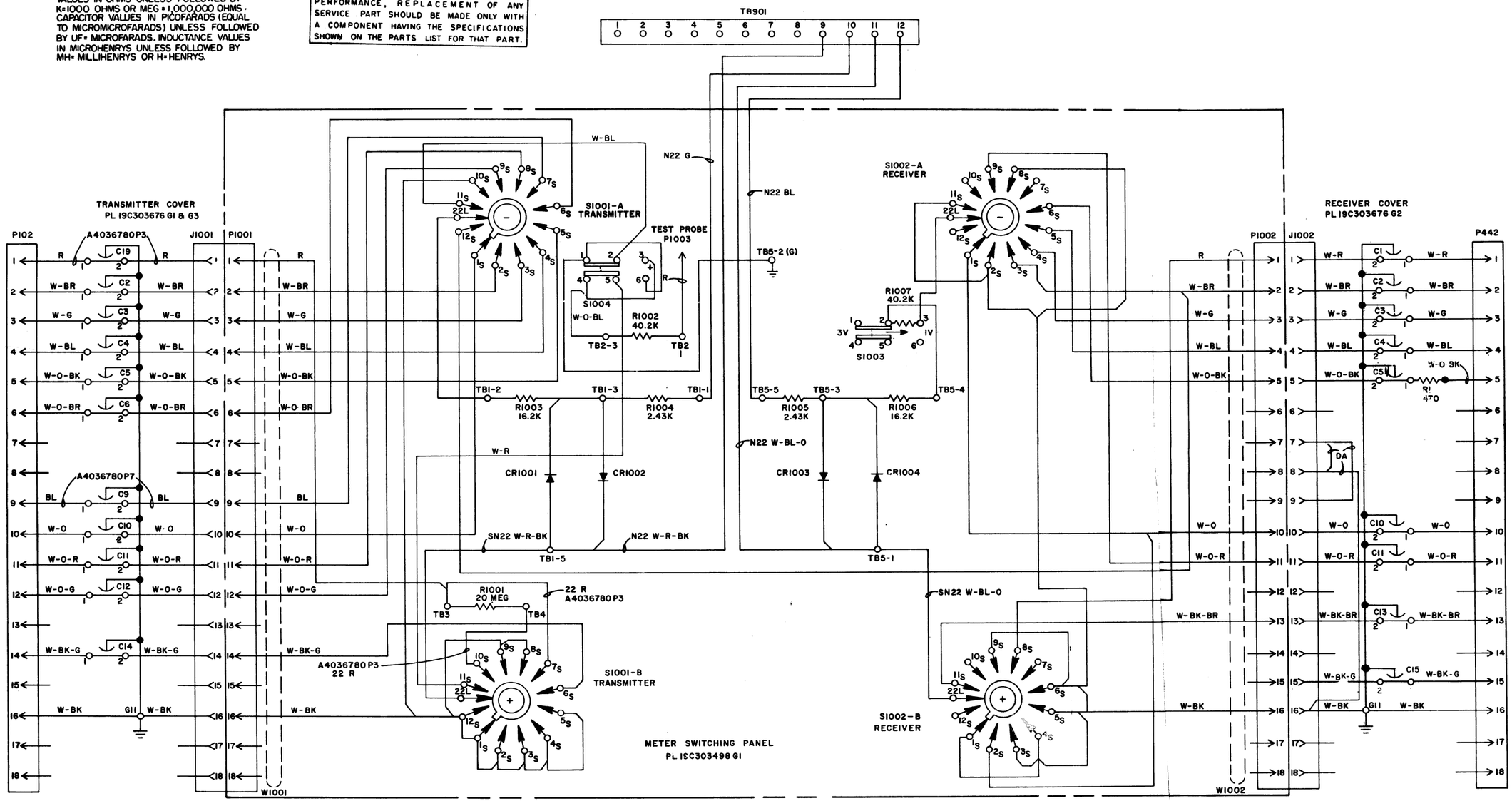


OUTLINE DIAGRAM

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 ON 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 SF24 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

Issue 1

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

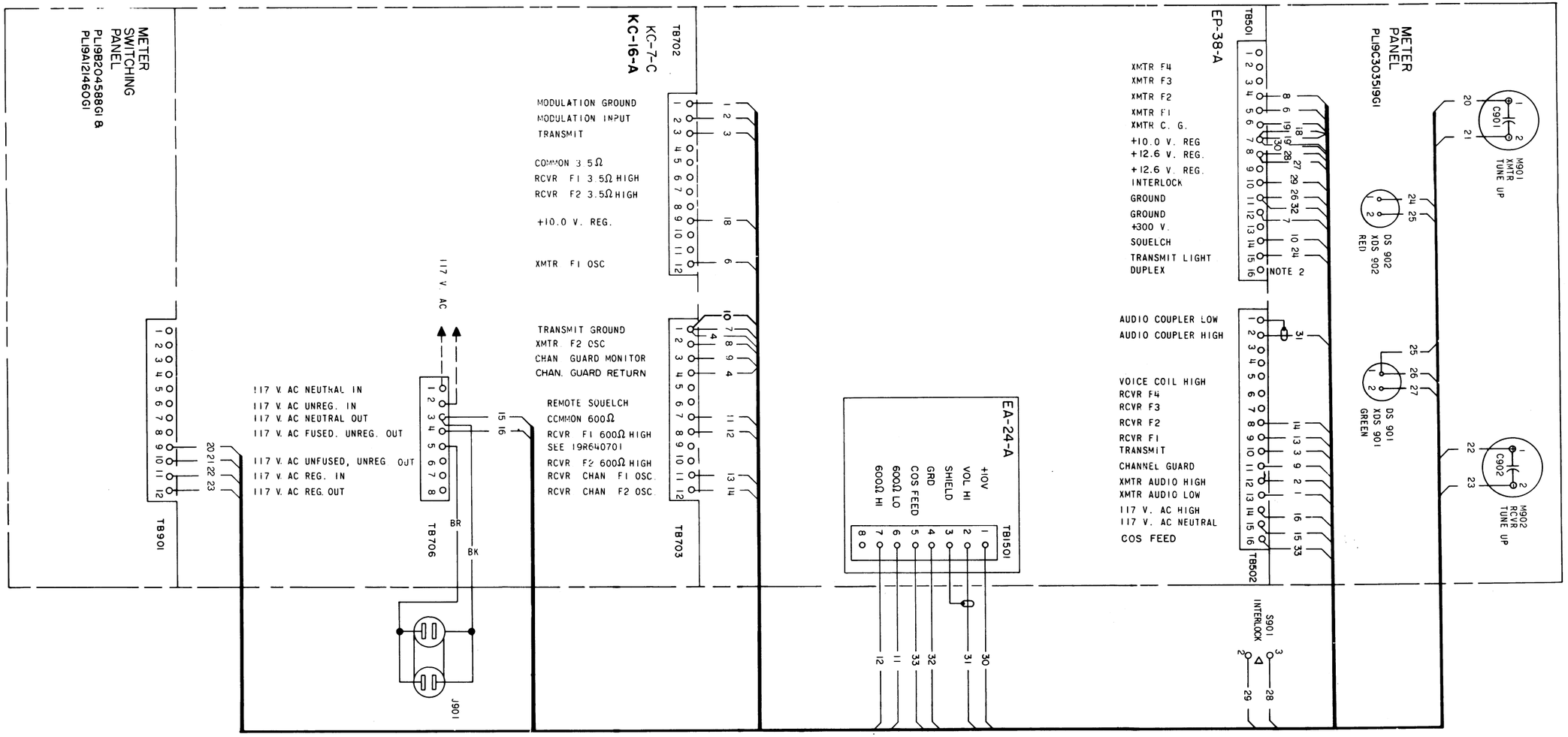
Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

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.

NOTES:

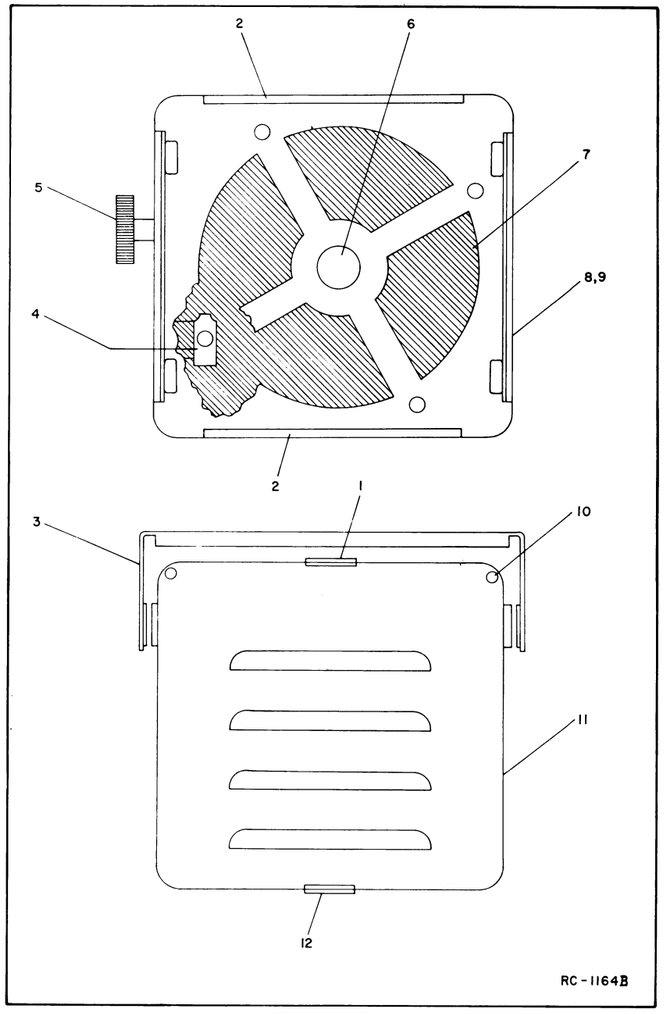
1. TB706-1 MUST BE CONNECTED TO GROUND OR NEUTRAL OF THE BUILDING WIRING SYSTEM.
2. IF RECEIVER MUTE IS NOT DESIRED, MOVE #22 BL WIRE INSIDE 4EP38A FROM TB501-16 TO TB501-7.
3. IF REMOTE SQUELCH IS DESIRED, **REMOVE SQUELCH POT WIRE #10 FROM TB703-1 AND CONNECT TO TB703-6 AND ADD JUMPER FROM TB701-6 TO TB702-1.**

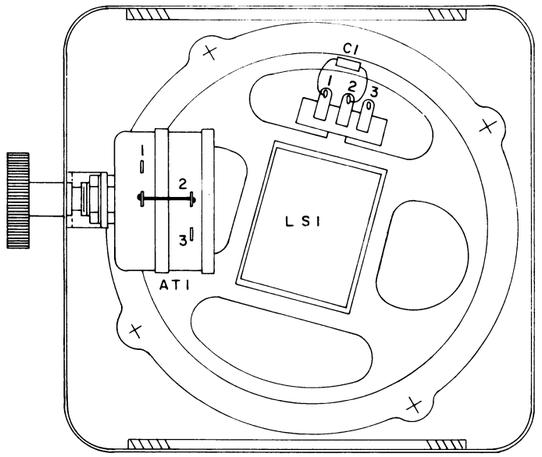


(19D413780, Rev. 1)

INTERCONNECTION DIAGRAM

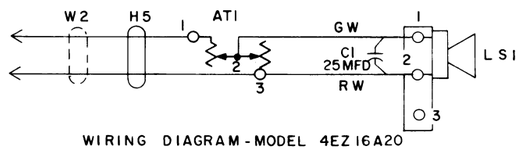
MASTR FLOOR-MOUNT
REMOTE CONTROL STATION COMBINATION
MEDIUM POWER





NOTE: ATTENUATOR (AT1) USED ON MODEL 4EZ16A20 ONLY

RC-1363 B



WIRING DIAGRAM - MODEL 4EZ16A20

RC-1362 B

The speaker leads connect to TB501-11 and TB502-5 on the Transmitter-Receiver Power Supply.

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 19D402449-G13
MODEL 4EZ16A21 19D402449-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, 2.98 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	19A12467-P1	(Not used).
7	19C303500-P1	(Not used).
8	19B216269-G3	Can. (Used in Model 4EZ16A20).
9	19B216269-G2	Can. (Used in Model 4EZ16A21).
10	4037072-P10	(Not used).
11	19A121550-G3	Speaker cover.
12	19A115470-P1	Rubber grommet: approx 3/4 inch dia; sim to Atlantic Rubber 2279 (without hole).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

ORDERING SERVICE PARTS

Each component appearing on the schematic diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number followed by description and GE Part Number.

Service parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number for component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contigency to be met in connection with installation, operation or maintenance.

Should further information be desired, or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

MAINTENANCE MANUAL

LBI-4147

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

DF-9014

PRINTED IN U.S.A