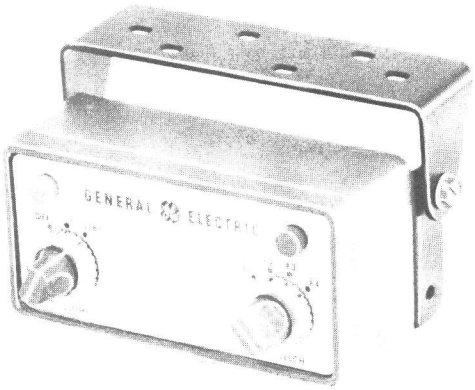
MOBILE RADIO

MASTR Progress Line

MOBILE CONTROL UNIT MODELS 4EC59A50–57 & 4EC59A66–73

Maintenance Manual LBI-3511K
DF 4070



SPECIFICATIONS *

MODEL NUMBERS	4EC59A50 through 4EC59A57 and 4EC59A66 through 4EC59A73
USED WITH	MASTR Professional Series Mobile Combinations
CONTROLS	VOLUME Control OFF-ON-STBY Switch SQUELCH Control Three or Four-Frequency Selector Switch Optional Controls CHANNEL GUARD Monitor Switch SPEAKER-OFF Monitor Switch Dimmer Control for Pilot Lights
INDICATORS	Transmitter filament-on light: green Transmit light: red

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

EC-59-A

GENERAL ELECTRIC

TABLE OF CONTENTS

ILLUSTRATIONS

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.**

DESCRIPTION

MASTR Progress Line Control Units are compact, highly functional control units that are designed for either Trunk-Mount or Front-Mount MASTR mobile combinations.

In Trunk-Mount installations, a plate is installed on the back of the Control Unit to hold the connectors. A mounting bracket is provided for mounting the Control Unit within convenient reach of the operator. In Front-Mount installations, the Control Unit is attached to the front of the MASTR Two-Way Radio.

Cable connections are secured to the Control Unit by means of captive locking screws.

CIRCUIT ANALYSIS

The OFF-ON-STBY (standby) switch determines whether or not the transmitter and receiver are operative. With the switch in the OFF position, all power is removed from the Two-Way Radio. Turning the switch to STBY applies power to the receiver only, and the green pilot light does not light.

Turning the switch to the ON position applies filament voltage to the transmitter, activates the push-to-talk (PTT) circuit, and lights the green pilot light. After a short warm-up time, the PTT button may be pressed to key the transmitter.

Pushing the PTT button energizes the system relay, which, in turn, starts the power supply, switches the antenna and mutes the receiver. Keying the transmitter also lights the red pilot light.

CONTROLS

All models of the Control Unit have VOLUME and SQUELCH controls, and an OFF-ON-STBY switch. Depending on the model number, some of the Control Units may have one or more of the controls described in the following paragraphs. A chart showing which controls are present on each Control Unit model is provided on the Control Unit Wiring Diagram.

Instructions for adjusting the controls are in the Operator's Manual for the Two-Way Radio.

Three and Four-Frequency Switch (S706)

For three or four-frequency operation, a frequency selector switch selects the channel desired (F1 thru F4) for both transmitting and receiving. For three-frequency operation, the F3 and F4 channels on S706 are jumpered together. The switch connects +10 volts to the selected receiver oscillator switching diode, and connects the transmitter oscillator switching diode to ground, so that the unit will operate on the frequency determined by each of the crystal-controlled oscillators.

The transmitter and receiver Channel Guard operates only when the frequency selector switch is in the F1 position.

SPEAKER-OFF Switch (S702)

The SPEAKER-OFF switch is used whenever a telephone handset and hookswitch is used. The switch operates in parallel with the hookswitch and, in the SPEAKER position, overrides the speaker muting circuit in the handset hookswitch. Calls can then be heard from the speaker, regardless of whether the handset is on or off the hookswitch.

With the switch in the OFF position and the handset off the hookswitch, calls are heard only from the handset earpiece. The speaker still operates with the handset hung up.

CHANNEL GUARD-OFF Switch (S703)

Placing this switch in the OFF position disables the receiver Channel Guard so that the receiver operates on noise squelch only.

Dimmer Control (R705 - Optional)

The dimmer control is a rheostat in series with the green pilot light. Turning the control adjust the amount of light given off by the green pilot light.

12-VOLT SYSTEMS

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

1. Ignition Switch Standby

For this type of operation, the red fused lead (transmitter filament voltage) is connected to the ACCESSORY or ON terminal of the ignition switch. The yellow fused

lead (receiver hot) is connected to the hot side of the ignition switch, and the black lead connects to vehicle ground.

With the ignition switch OFF, the receiver automatically reverts to STBY, ready to receive messages. Turning the ignition switch to the ON or ACCESSORY position turns on the green pilot light and supplies transmitter filament voltage. Turning the OFF-ON-STBY switch to OFF removes all power to the Two-Way Radio.

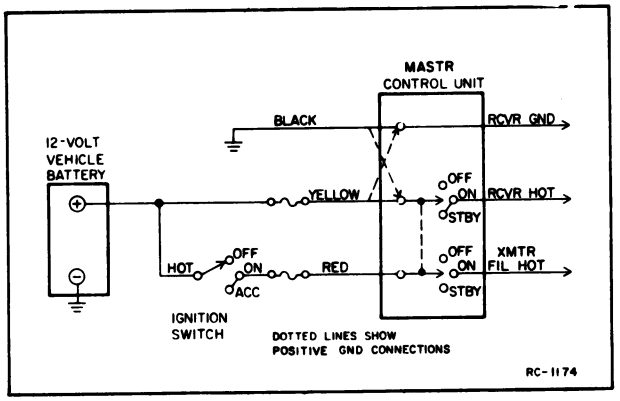


Figure 1 - 12-VDC Connections for Ignition Switch Standby

2. Ignition Switch Control

For ignition switch control, the yellow and red fused leads are connected 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 radio.

3. Ignition Switch Bypass

For ignition switch bypass, the yellow and red fused leads connect 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 can be turned on the off only by the OFF-ON-STBY switch on the MASTR Control Unit.

6- AND 28-VOLT SYSTEMS

In 6- and 28-volt systems, the Control Unit may be connected for two different modes of operation, depending on the way the two ignition switch cables are connected in the vehicle system. The black cable provides the connection from the relay coil on the fuse assembly to the control head. The yellow fused lead provides the hot connection to operate the relay. The two types of operation are:

1. Ignition Switch Control

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

2. Ignition Switch Bypass

For ignition switch bypass, the yellow fused lead connects to the "hot" side of the ignition switch of vehicle fuse block assembly. Both the transmitter and receiver operate independently of the ignition switch, and can be turned on and off by the OFF-ON-STBY switch on the MASTR Control Unit.

MAINTENANCE

DISASSEMBLY

In Trunk-Mount installations, access to the inside of the Control Unit is obtained by removing the two Phillips-head screws in the back of the unit and pulling the back panel away from the housing.

In Front-Mount installations, remove the two Phillips-head screws holding the front casting to the frame and move the casting away from the frame. Next, remove the two screws securing the control cable plug to the inside of the front casting. Then remove the two flat-head screws holding the Control Unit to the front casting.

PILOT LIGHT REPLACEMENT

The pilot lights can be easily replaced without disassembling the Control Unit. First, unscrew the colored lens. Then wrap a small piece of masking tape around the bulb, to give the fingers a firm grip, and unscrew the bulb.

REINSTALLATION

If it becomes necessary to move the Two-Way Radio and Control Unit to another vehicle, the 25-pin control cable plug may need to be disassembled.

Refer to Figure 2 for disassembly of the plug.

NOTE

The plug is assembled so that the cable comes out of the top of the plug when connected to the Control Unit. To have the cable come out of the bottom of the plug, remove the remaining two screws and rotate the metal frame 180 degress.

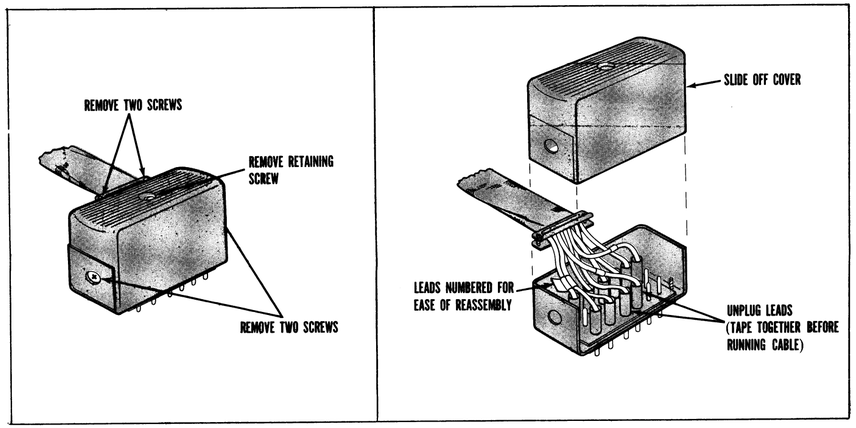
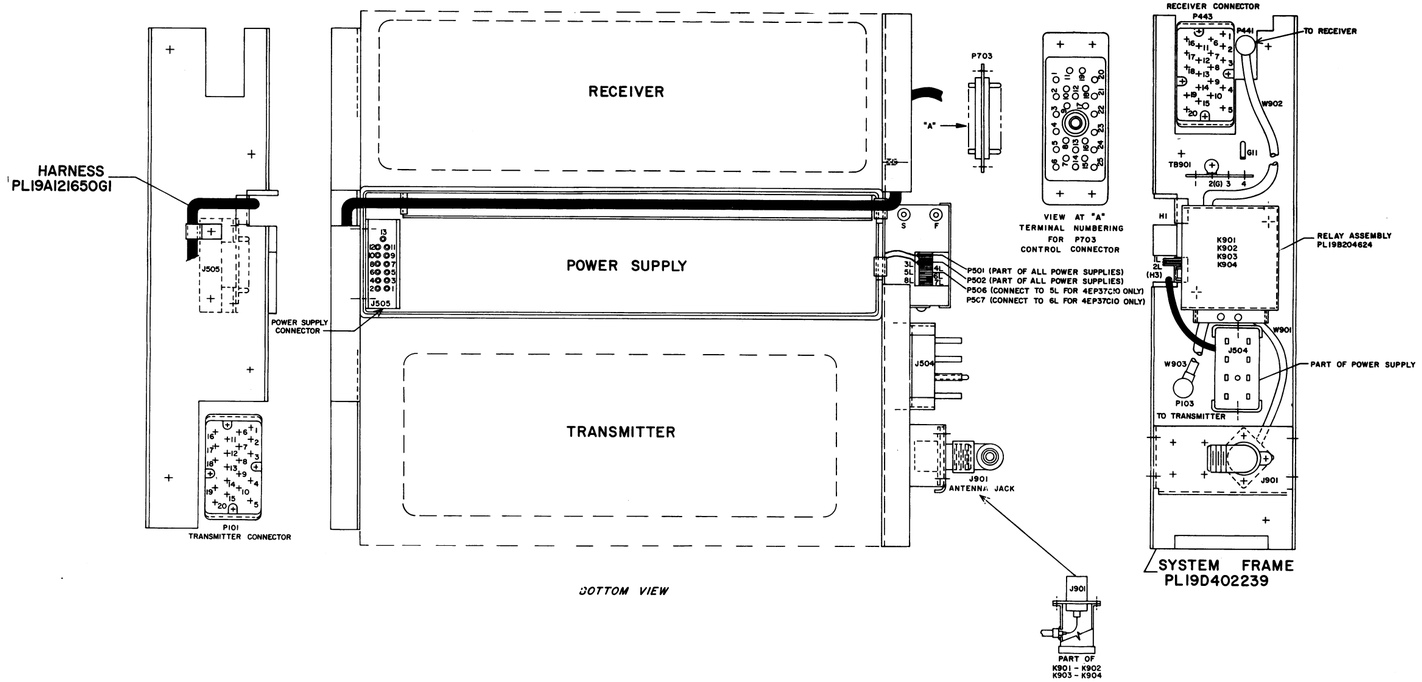


Figure 2 - Disassembly of Control Cable Plug

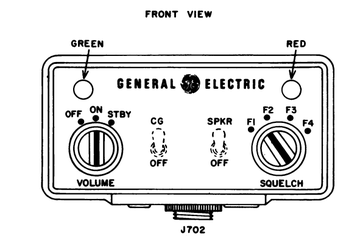
(DF-4070)

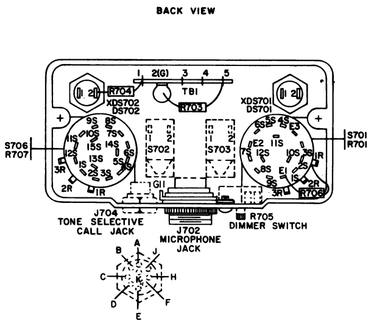
SYSTEM FRAME & HARNESS



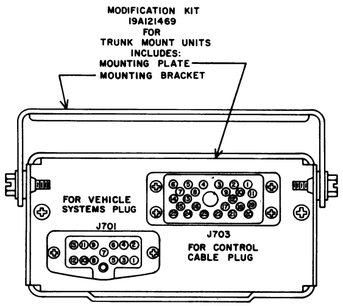
(19D402582, Rev. 3)

CONTROL UNIT





(19C303819, Rev. 1)



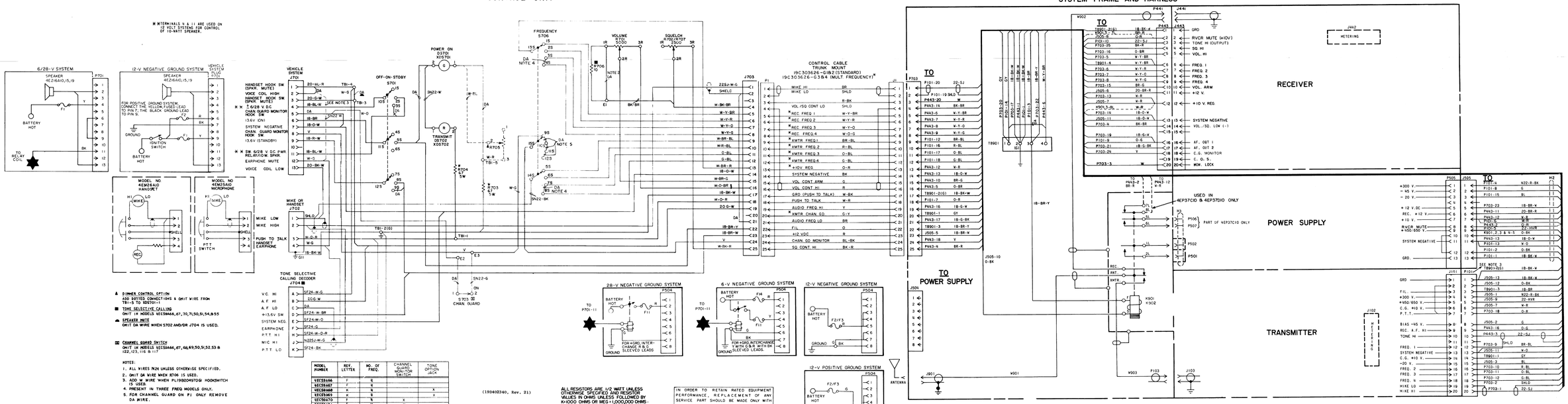
SYMBOL	FUNCTION
R701	VOLUME CONTROL
R707	SQUELCH CONTROL
S701	OFF-ON-STBY CONTROL
S702	SPEAKER-OFF
S703	CHANNEL GUARD-OFF
S706	FREQUENCY SELECTOR

OUTLINE DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A50-57 & 4EC59A66-73

CONTROL UNIT

SYSTEM FRAME AND HARNESS



▲ DINNER CONTROL OPTION
ADD DOTTED CONNECTIONS & OMIT WIRE FROM TB1-5 TO XD5701-1

■ TONE SELECTIVE CALLING
OMIT IN MODELS 4EC59A66, 67, 70, 71, 50, 51, 54, & 55

◓ SPEAKER MUTE
OMIT DA WIRE WHEN R706 IS USED.

◘ CHANNEL GUARD SWITCH
OMIT IN MODELS 4EC59A66, 67, 68, 69, 50, 51, 52, 53 & 122, 123, 116 & 117

NOTES:
1. ALL WIRES IN2N UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R706 IS USED.
3. ADD W WIRE WHEN P1-19 D2049702G HOOKSWITCH IS USED.
4. PRESENT IN THREE FREQ MODELS ONLY.
5. FOR CHANNEL GUARD ON P1 ONLY REMOVE DA WIRE.

MODEL NUMBER	REV. LETTER	NO. OF FREQ.	CHANNEL GUARD MONITOR SWITCH	TONE OPTION JACK
4EC59A66	F	4		
4EC59A67	F	4		
4EC59A68	K	4		X
4EC59A69	K	4		X
4EC59A70	F	4	X	
4EC59A71	F	4	X	
4EC59A72	K	4	X	
4EC59A73	K	4	X	
4EC59A50	F	3		
4EC59A51	F	3		
4EC59A52	K	3		X
4EC59A53	K	3		X
4EC59A54	F	3	X	
4EC59A55	F	3	X	
4EC59A56	K	3	X	X
4EC59A57	K	3	X	X
4EC59A122		4		
4EC59A123	A	4		X
4EC59A124		4	X	
4EC59A125	A	4	X	X
4EC59A116		3		
4EC59A117	A	3		X
4EC59A118		3	X	
4EC59A119	A	3	X	X

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 MICROFARADS (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.

NOTES:
1. ALL WIRES ARE SF24 EXCEPT AS OTHERWISE SHOWN.
2. SEE 19D402976 FOR ORIENTATION AND LOCATION OF COMPONENTS AND ROUTING OF CABLE.
3. SEE 19A121837P1 FOR CONNECTIONS OF P101

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A50-57 & 4EC59A66-73

Issue 13

(DF-4070)

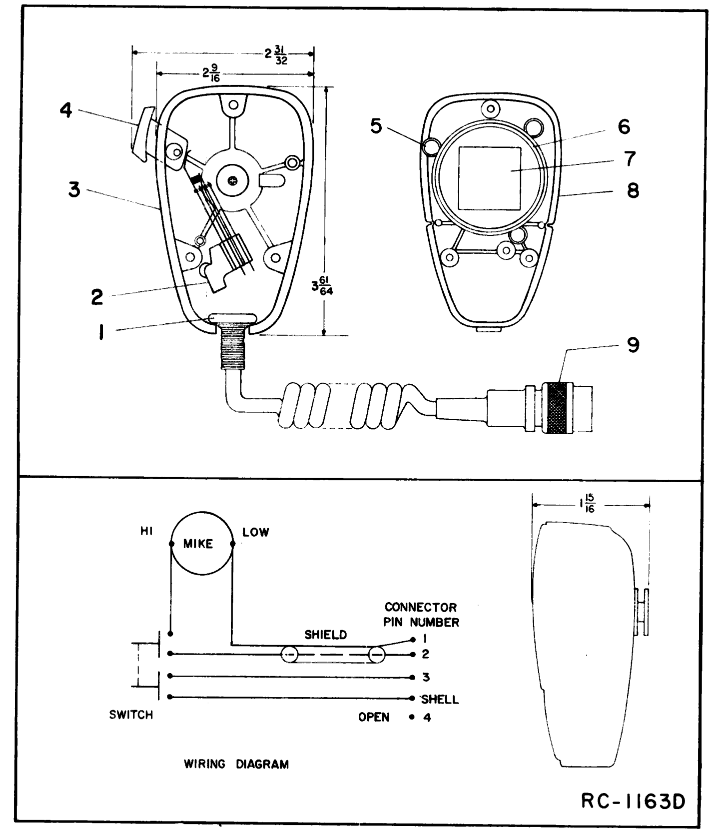
PARTS LIST

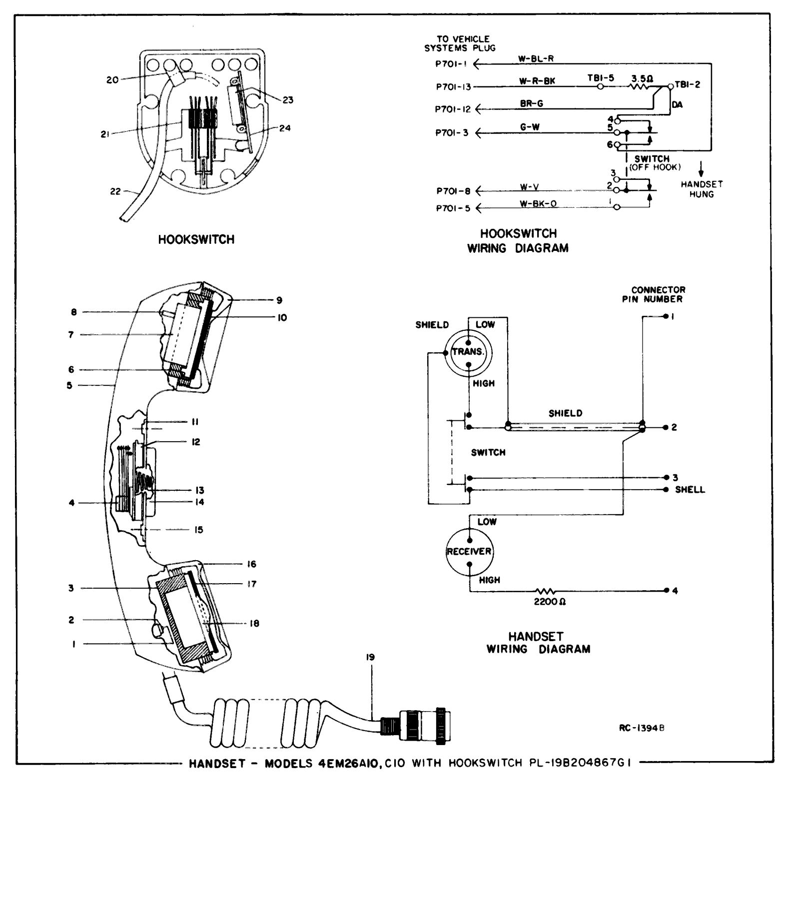
LBI-3523J

CONTROL UNIT
MODELS 4EC59A50 - 4EC59A57
MODELS 4EC59A66 - 4EC59A73
19D413054G7
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		CONTROL UNIT 19D413054G7
		- - - - - - - - INDICATING DEVICES - - - - - - - -
DS701 and DS702	19B201122P1	Light, indicator: miniature, 6 v; sim to GE Type 1768.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - -
J701	19C303576P1	Socket, phen: 13 contacts rated at 5 amps max.
J702	19A116061P1	Connector, chassis: 4 female contacts.
J703	19D402408P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	19B216279G1	Jack assembly: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester M9S-LRN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R701		(Part of S701).
R703 and R704	5493035P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Tru-Ohm Type X-60.
R706*	3R77P100K	Composition: 10 ohms ±10%, 1/2 w.
		In Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73 of REV B thru H:
	3R77P560K	Composition: 56 ohms ±10%, 1/2 w.
		In Models of REV A:
	3R77P271K	Composition: 270 ohms ±10%, 1/2 w.
		In Models earlier than REV A:
	3R77P220K	Composition: 22 ohms ±10%, 1/2 w.
R707		(Part of S706).
		- - - - - - - - - - - SWITCHES - - - - - - - - - - -
S701*	19C307089P19	Switch/Resistor: includes switch, rotary, 3 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w.
		In Models 4EC59A50, 51, 54, 55, 66, 67, 70 and 71 earlier than REV B: In Models 4EC59A52, 53, 56, 57, 68, 69, 72 and 73 earlier than REV D:
	19C307089P1	Switch/Resistor: includes Switch, rotary, 3 poles, 3 positions, non-shorting contacts, 250 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w.
S703	5491899P5	Toggle: SPST, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer 8280K15.
S706	19C307089P21	Switch/Resistor: includes Switch, rotary, 3 poles, 4 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±10%, 1 w; sim to Mallory LC2500-3134.
		- - - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500P12	Phen: 5 terminals.
		- - - - - - - - - - - SOCKETS - - - - - - - - - - -
XDS701 and XDS702	19B201122P2	Lamp, miniature; sim to Drake Series 121.
		MECHANICAL PARTS (SEE RC-1197)
1	N529P19C13	(Not Used).
2	N529P5C13	(Not Used).
3	19A121521G1	Mounting bracket.
4	19B201122P3	Lens cap; green translucent nylon.
5	NP243422	Nameplate; etched aluminum. (Used with STANDARD Models).
6	NP243471	(Not Used).
7	NP243350	Nameplate; etched aluminum. (Used with CHANNEL GUARD MONITOR SWITCH Models).
8	NP243351	(Not Used).
9		(Not Used).
10		(Not Used).
11	19B201122P4	Lens cap; red translucent nylon.
12	19B204443G1	Knob: gray.
13	19C303413P1	Knob: VOLUME/SQUELCH.
14	19B216271G1	Housing.
15	19B204522P1	Mounting plate.
		ASSOCIATED ASSEMBLIES
	19A121469G1	Control unit modification kit (trunk mount).
	19D402239G1	12 volt vehicles frame.
	19D402239G2	6 and 28 volt vehicles frame.
	19A122444P1	Cover, wire channel (on systems frame).
	19C303452G1	Front casting (Front mount).
	19C303452G2	Front casting (Trunk mount).
	5491682P2	Lock: Yale and Towne. (Part of Front casting).
	5491682P7	Cam. (Used with lock).
		DIMMER CONTROL MODIFICATION KIT 19A121293G1
		- - - - - - - - - - - RESISTORS - - - - - - - - - -
R705	19B209114P1	Variable, wirewound: 75 ohms ±20%, 3 w; sim to CTS Series 112.
		POWER CABLE ASSEMBLY 19C303601G1 (12 VOLT FRONT MOUNT) 19C303601G2 (12 VOLT TRUNK MOUNT)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A115313P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601G1).
	19A115314P1	Cable: 3 conductor, approx 18 feet long. (Used in 19C303601G2).
		POWER CABLE ASSEMBLY 19C303603G1 (28 VOLT FRONT MOUNT) 19C303603G2 (28 VOLT TRUNK MOUNT)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A115313P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303603G1).
	19A115313P1	Cable: 3 conductor, approx 23 feet long. (Used in 19C303603G2).
		POWER CABLE ASSEMBLY (6 VOLT FRONT MOUNT) 19C303607G1
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	7146477P3	Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
	7146477P4	Cable: 2 lengths, approx 9 feet long connected to pins 4 and 6.
		POWER CABLE ASSEMBLY (6 VOLT TRUNK MOUNT) 19C303606G1
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	7146477P1	Cable: 2 lengths, approx 22 feet long connected to pins 1 and 7.
	7146477P3	Cable: 2 lengths, approx 22 feet long connected to pins 4 and 6.
		CONTROL CABLE ASSEMBLY 19C303626G1, G2 (1-FREQ) 19C303626G3, G4 (MULTI-FREQ)
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P1	19C303626G5	Plug, male: includes connector 19D402408P3, cap 19C303290P2 and connector retaining screw 19A121444P2.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J1	19C303626G6	Plug, female: includes connector 19D402408P1, cap 19C303290P1 and connector retaining screw 19A121444P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19D402408P1	Connector, female phen: 25 contacts rated at 5 amps max.
	19D402408P3	Connector, male phen: 25 contacts rated at 5 amps max.
	19C303290P1	Cap, connector. (Used with 19D402408P1 connector).
	19C303290P2	Cap, connector. (Used with 19D402408P3 connector).
	7139880P11	Cable: 23 conductors. (When ordering specify length). (Used in 19C303626G3 and G4).
	7139880P8	Cable: 13 conductors. (When ordering specify length). (Used in 19C303626G1 and G2).
		VEHICLE SYSTEM CABLE KIT 19A121454G1 (12 VOLT VEHICLES) 19A121454G2 (6/28 VOLT VEHICLES)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A121324G1	6/28 volt vehicle jumper. (Used in 19A121454G2).
	19A121429P1	Pin: 1/2 inch long.
	19A121441G1	Plug: 13 contacts.
	19C303574P1	Cover.
		FUSED LEAD ASSEMBLY 19A121314G1 (19A121454G1, G2) 19A121314G2 (19A121454G2)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	1R16P8	Cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussman MTH-5.
	19A115776P2	Fuseholder.
		INTERCONNECTION HARNESS ASSEMBLY 19A121650G1
		- - - - - - - - JACKS AND RECEPTACLES - - - - -
J505	19B204409G1	Plug, male: 13 pin contacts.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P101	19C303506P1	Connector, phen: 20 contacts.
P443	19C303506P1	Connector, phen: 20 contacts.
P703	19D402408P2	Connector, phen: 25 contacts.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - -
TB901	7775500P10	Phen: 4 terminals.
		12 VOLT RELAY ASSEMBLY 25-174 MHz 19B209445P1
		Includes J901, K901, P103, P441, W901-W903.
		6/12, 12/28 VOLT RELAY ASSEMBLY 406-470 MHz 19B209445P2
		Includes J901, K902, P103, P441, W901-W903.
		FUSE AND RELAY ASSEMBLY 7487952G19 (28 VOLT VEHICLE) 7487952G20 (6 VOLT VEHICLE)
		- - - - - - - - - - FUSES - - - - - - - - - - -
F11	1R11P4	Quick blowing: 15 amps, 250 v; sim to Bussman NON15.
F14	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman NON30. (Used in 7487952G20).
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1	7486515P1	Armature, enclosed: 6 VDC nominal, 26 ohms ±8% coil res, 1 form A contact rated at 15 amps; sim to RBM 60-108013-3. (Used in 7487952G20).
K3	7486515P3	Armature, enclosed: 28 VDC nominal, 300 ohms ±10% coil res, 1 form A contact rated at 15 amps. (Used in 7487952G19).
		12 VOLT FUSE ASSEMBLY 19B216021G4
	19D413045P1	Base.
	19D413046P1	Cover.
	19B205950P1	Fuse clip.
		- - - - - - - - - - - FUSES - - - - - - - - - -
F2	1R11P6	Quick blowing: 25 amps, 250 v; sim to Bussman NON25. (Used with medium power transmitters).
F3	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman NON30. (Used with high power transmitters).
		130 - 470 MHz ANTENNA MODEL 4EY12A13 (5490969P13)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
		Antenna: includes stainless steel whip approx 20 inches long; ball tip; whip socket; No. 6-32 set screw; rubber mounting gasket; antenna cable; cable adapter; PL-259 coaxial plug; sim to Antenna Specialists ASPD201GE or Danbury-Knudsen type PA-25.
	5490969P4	Whip: stainless steel, approx 20 inches long; ball tip.
	5490969P5	Socket, whip: with (2) No. 6-32 set screws.
	5490969P6	Whip and whip socket: stainless steel whip approx 20 inches long with ball tip; whip socket with (2) No. 6-32 set screws.
		Cable, antenna: approx 15 feet long. Type RG-58/U. (Used with GE Dwg 2R22P1 and GE Dwg 7105381P1).
	7105381P1	Adapter, cable: approx 1 x 7/16 inches dia. Type UG-175/U. (Used with GE Dwg 2R22P1 and Type RG-58/U cable).
	2R22P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 7105381P1 and Type RG-58/U cable).
		25 - 50 MHz ANTENNA
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	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.
	7102930P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4033101G1	Antenna package: includes base; adapter spring; cable and plug.
	7472880G5	Antenna base.
	7476632G4	Adapter spring.
	5492239P1	Cable, antenna: includes Type RG-58/U cable approx 15 feet long; PL-259 coaxial plug; mounting clip; ring tongue terminal; sim to Antenna Specialists 15A43.
	2R22P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239P1).
	4KY9A1	Coil, loading: 25 to 33 MHz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook.
		HANDSET MODEL 4EM26A10 MODEL 4EM26C10 19B209100G1 (SEE RC-1394)
1		Self tap screw, bind head: No. 4 x 5/16. Shure Brothers 30C640C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers RP19.
4		Switch. Shure Brothers RP81.
5		Case. Shure Brothers RP49. (Used in 4EM26A10).
		Case. Shure Brothers 21RP899F. (Used in 4EM26C10).
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP41.
8	3R77P222K	Composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A321.
11		Escutcheon. Shure Brothers 53A536A.
12		Actuator. Shure Brothers 53A556.
13		Spring. Shure Brothers 44A140.
14		Plunger bar. Shure Brothers RP82.
15		Flat head screw, socket cap: No. 4-40 x 1/4. Shure Brothers 30C557B.
16		Transmitter cap. (Part of RP49).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers RP13.
19		Cable and plug. Shure Brothers RP48. (Used in 4EM26A10).
		Cable and plug. Shure Brothers 21RP738F. (Used in 4EM26C10).
		HOOKSWITCH ASSEMBLY 19B204867G1 (SEE RC-1394)
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
20	4029851P4	Cable clamp; sim to WEC Kesser 3/16-4.
21	19A121612P1	Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	19A121581G1	Cable: approx 8-1/2 feet long.
23	5493035P10	Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
24	7775500P55	Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM25A10 19B209102G1 (SEE RC-1163)
1		Cable clamp. Shure Brothers 53A532.
2		Switch. Shure Brothers RP26.
3		Case (back) and mounting button: plastic. Shure Brothers RP67.
4		Switch button: red plastic. Shure Brothers RP25.
5		Spring. Shure Brothers RP16.
6		Shield. Shure Brothers RP23.
7		Magnetic controlled cartridge. Shure Brothers RP13.
8		Case (front): plastic. Shure Brothers RP67.
9		Cable and plug: approx 6 feet long. Shure Brothers RP14.
		5 WATT SPEAKER 4EZ16A19 19D402449G12
C1	19B209233P1	Electrolytic, non-polorized: 25 µf ±20%, 25 VDCW; sim to Sprague 44DC.
LS3	19B209422P1	Permanent magnet: 5 inch, 3.2 ohms ±10% imp, 2.98 ohms ±15% DC res, 7.5 w max operating.
W1	19A121546G1	Cable assembly: approx 48 inches long, includes (2) 19A121429P1 pins.
		MECHANICAL PARTS
	19B216269G2	Speaker housing.
	19A121550G3	Cover.
	19A121521G1	Mounting support.
	5490407P3	Neoprene grommet. (Upper)
	19A115470P1	Rubber grommet. (Lower)

*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 - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To achieve compatibility with pulse tone decoder, changed R706.

REV. B - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To reduce speaker minimum audio level when using Type 99 Tone Decoder. Changed R706.

REV. A - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. C - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To reduce transmitter modulation caused by power supply switching noise. Removed black wire from ground lug TB-2 (other end connected to S706-14S) and connected it to microphone jack J702-1.

REV. B - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. D - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To incorporate switch with improved reliability. Changed S701.

REV. C - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. E - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To facilitate manufacturing. Changed TB1.

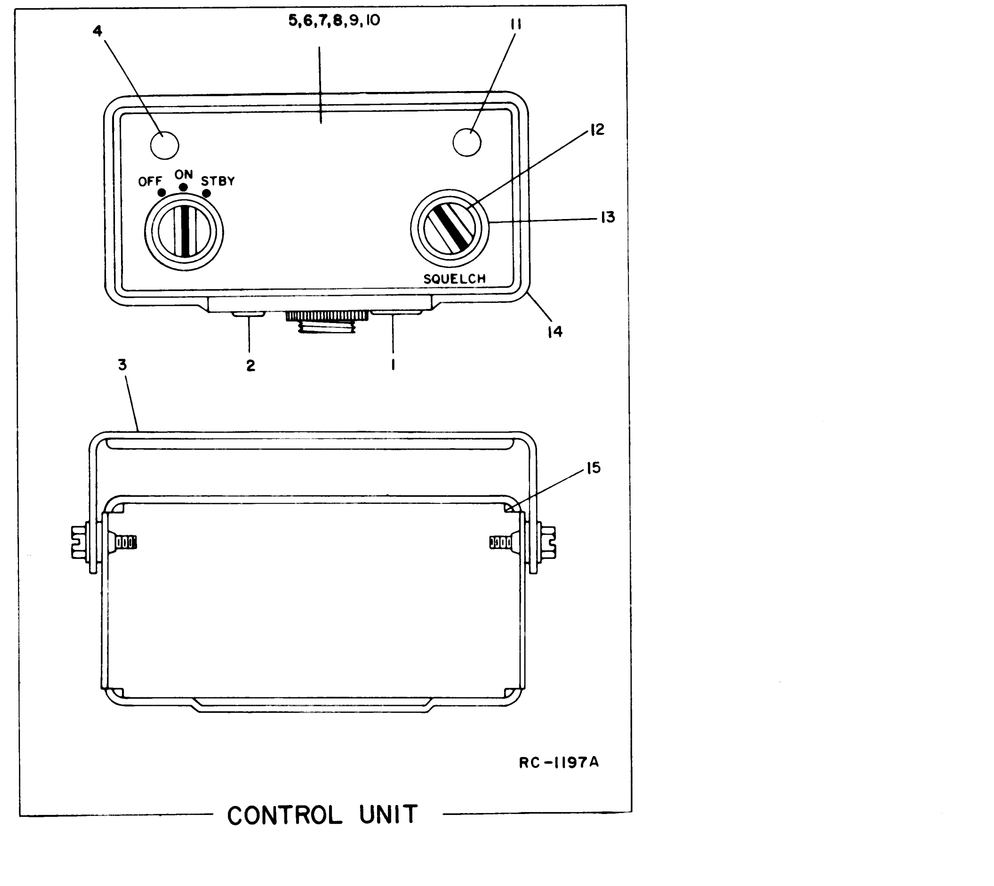
REV. D - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. F - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To ground microphone jack. Added BK-W wire from TB1-2 (G) to G11.

REV. E - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. G - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To incorporate a new control unit housing. Changed housing from metal to Lexan®.

REV. F - Models 4EC59A50, 51, 54, 55, 66, 67, 70, 71
REV. H - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To provide Channel Guard decode function on all channels. Added jumpers from S706-9S to -10S and from S706-10S to -11S.

REV. J - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To reduce audio output level at minimum volume control setting. Changed R706.

REV. K - Models 4EC59A52, 53, 56, 57, 68, 69, 72, 73
To add Mike Hi, PTT, earphone and ground to Tone Option Jack J704.



CONTROL UNIT

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 its 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 contingency 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-3511

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

PRINTED IN U.S.A.

DF-4070