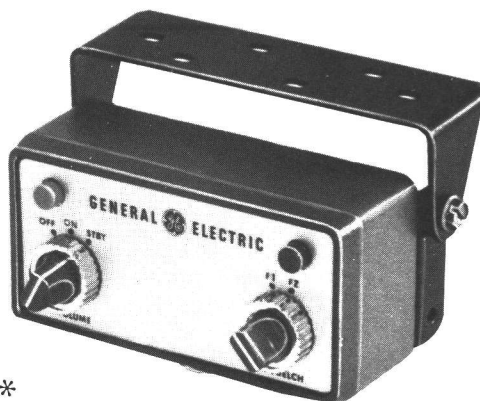


MASTR

Progress Line
MOBILE CONTROL UNIT MODELS 4EC59A10-25



SPECIFICATIONS *

MODEL NUMBERS	4EC59A10 through 4EC59A25
USED WITH	MASTR Professional Series Mobile Combinations
CONTROLS	VOLUME Control OFF-ON-STBY Switch SQUELCH Control Optional Controls Two-Frequency Selector Switch 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.

TABLE OF CONTENTS

	Page
SPECIFICATIONS.....	i
DESCRIPTION.....	1
CIRCUIT ANALYSIS.....	1
Controls.....	1
Two-Frequency Switch.....	1
SPEAKER-OFF Switch.....	1
CHANNEL GUARD-OFF Switch.....	1
Dimmer Control (Optional).....	1
12-Volt Systems.....	1
6- and 28-Volt Systems.....	2
MAINTENANCE.....	2
Disassembly.....	2
Pilot Light Replacement.....	2
Reinstallation.....	2
OUTLINE DIAGRAM.....	4
CONTROL UNIT SCHEMATIC & INTERCONNECTION DIAGRAM.....	5
PARTS LIST.....	6
Control Unit Model 4EC59A10—25	
Power Cables (6-, 12- & 28-Volt)	
Trunk-Mount Control Cables 19C303626-G1— -G4	
Vehicle System Cables 19A121454-G1 & -G2	
Interconnection Harness 19A121650-G1	
Microphone Model 4EM25A10	
Handset Model 4EM26A10	
Dimmer Control Option 19A121293-G1	
Relay Assembly 19B204624-G1	
Five-Watt Speaker 4EZ16A19	
PRODUCTION CHANGES.....	6

ILLUSTRATIONS

Figure 1	12-VDC Connections for Ignition Switch Standby.....	2
Figure 2	Disassembly of Control Cable Plug.....	3

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.

Two-Frequency Switch (S704)

For two-frequency operation, a frequency

selector switch selects the channel desired (F1 or F2) for both transmitting and receiving. 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.

In two-frequency radios, the transmitter and receiver Channel Guard will operate 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 adjusts 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.

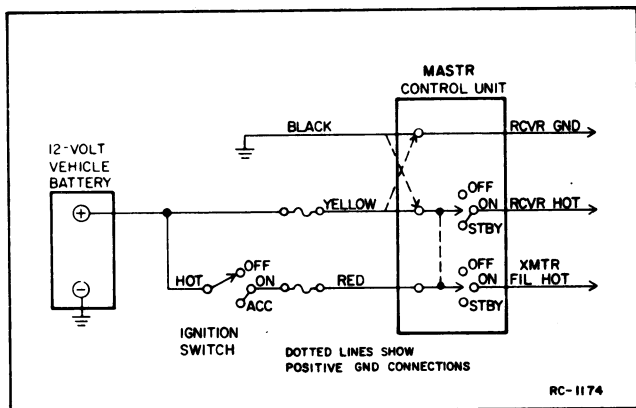


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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 and 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 or vehicle fuse block assembly. Both the transmitter and receiver operate independently of the ignition switch, and can be turned on and off only 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 installation, 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.

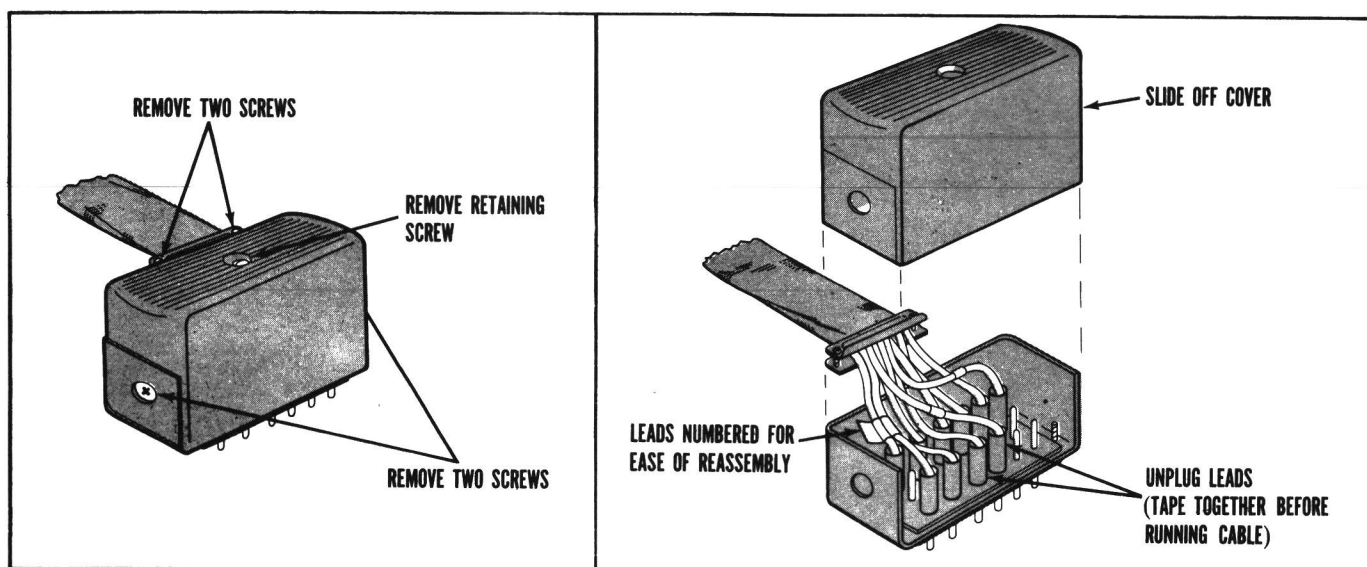
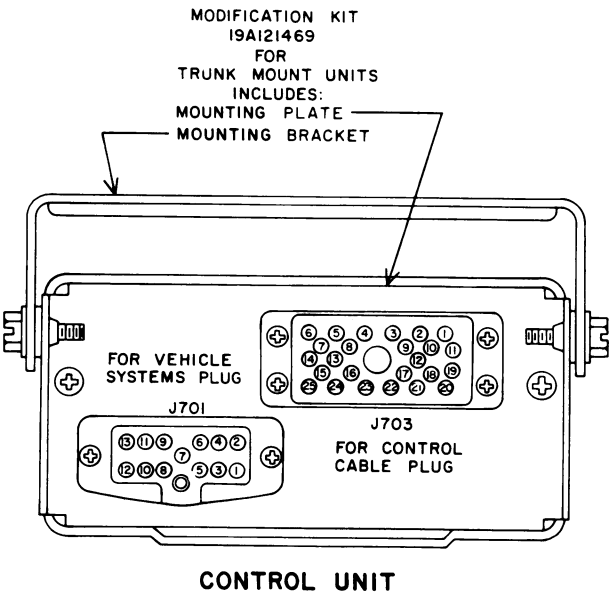
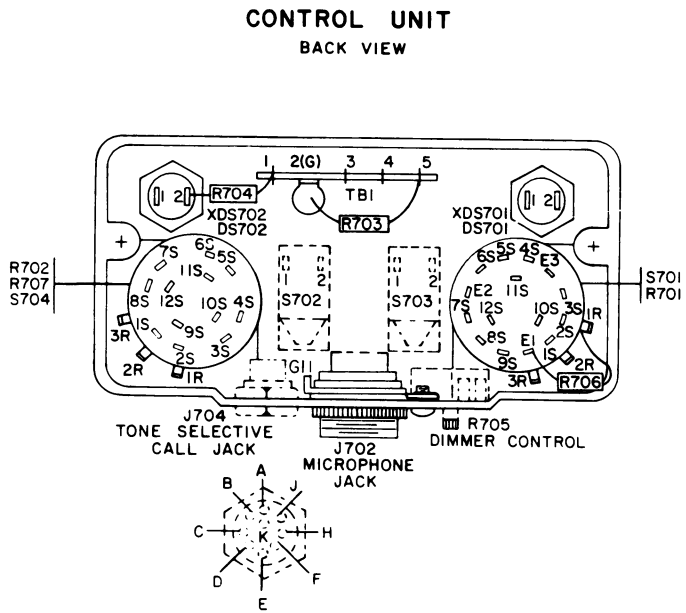
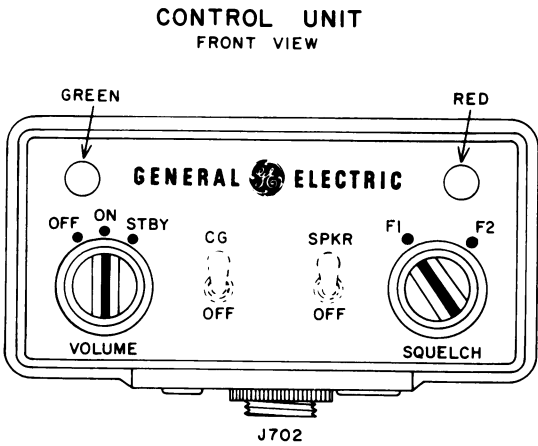
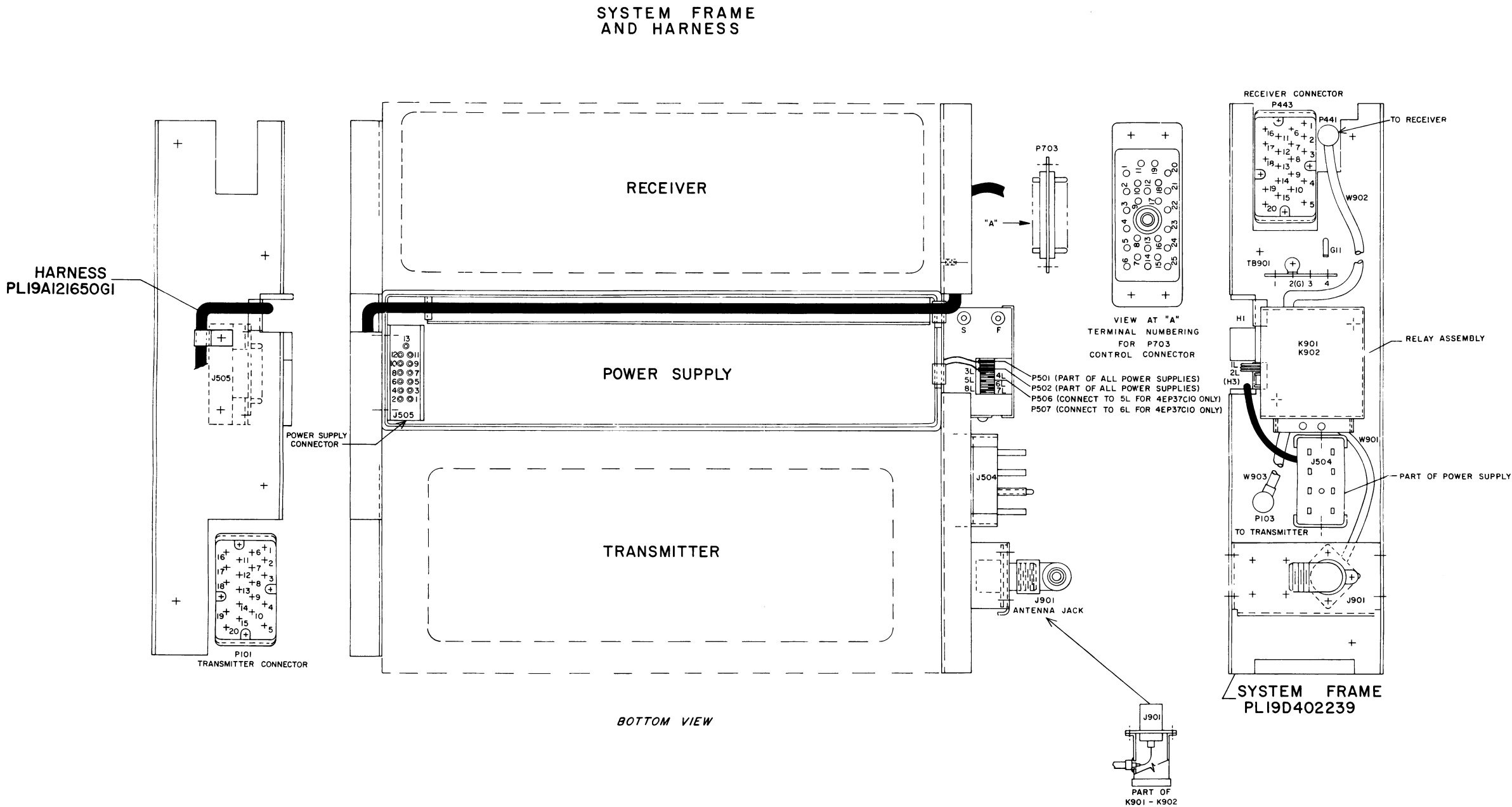


Figure 2 - Disassembly of Control Cable Plug

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 degrees.



SYMBOL	FUNCTION
R701	VOLUME CONTROL
R702	SQUELCH CONTROL
S701	OFF ON-STBY CONTROL
S702	SPEAKER-OFF
S703	CHANNEL GUARD OFF
R704	SQUELCH CONTROL (PART OF STBY)
S704	FREQUENCY SELECTOR

OUTLINE DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A10-25

(19D402582, Rev. 3)

(19C303800, Rev. 1)

SYSTEM FRAME AND HARNESS



PARTS LIST		
LBI-3513J		
CONTROL UNIT		
MODELS 4EC59A10,11,14,15,18,19,22,23 STANDARD		
MODELS 4EC59A12,13,16,17,20,21,24,25 SELECTIVE CALL		
AND		
ASSOCIATED ASSEMBLIES		

SYMBOL	GE PART NO.	DESCRIPTION
CONTROL UNIT		
19D402203G10-25		
----- 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. In Models 4EC59A10, 11, 14, 15 earlier than REV B: In Models 4EC59A12, 13, 16, 17 earlier than REV D: In Models 4EC59A18, 19, 22, 23 earlier than REV C: In Models 4EC59A20, 21, 24, 25 earlier than REV E:
J703	7117934P2	Connector, chassis: 4 female contacts; sim to Ampenol Type 91-PC4F.
J704	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 MS-LSM.
----- RESISTORS -----		
R701		(Part of S701).
R702	19B209124P3	Variable, carbon film: 2500 ohms $\pm 10\%$, 1/2 w; sim to Mallory LC2500.
R703	5493035P19	Wirewound, ceramic: 87 ohms $\pm 5\%$, 5 w; sim to Hamilton Ball Type BB.
R704		
R706*	3R77P100K	Composition: 10 ohms $\pm 10\%$, 1/2 w. In Models 4EC59A12, 13, 16, 17 earlier than REV F and Models 4EC59A20-25 earlier than REV E:
	3R77P560K	Composition: 56 ohms $\pm 10\%$, 1/2 w.
	3R77P271K	In Models of REV A:
	3R77P220K	Composition: 270 ohms $\pm 10\%$, 1/2 w. In Models earlier than REV A:
R707		Composition: 22 ohms $\pm 10\%$, 1/2 w. (Part of S704).
----- SWITCHES -----		
S701*	19C307089P19	Switch/Resistor: includes Switch, rotary, 3 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (S701), variable, 5000 ohms $\pm 20\%$, 1/2 w max; sim to Mallory LC5K.
	19C307089P1	In Models 4EC59A10, 11, 14, 15 earlier than REV A: In Models 4EC59A18, 19, 22, 23 earlier than REV B: In Models 4EC59A12, 13, 16, 17 earlier than REV C: In Models 4EC59A20, 21 and 25 earlier than REV D:
S702 and S703	5491899P5	Switch/Resistor: includes Switch, rotary, 3 poles, 3 positions, non-shorting contacts, 250 ma at 500 VRMS; Resistor (S701), variable, 5000 ohms $\pm 20\%$, 1/2 w max; sim to Mallory LC5K.
S704	19C307089P22	Toggle: SPDT, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer S280K15.
		Switch/Resistor: includes Switch, rotary, 4 poles, 2 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (S707), variable, 2500 ohms $\pm 10\%$, 1 w max; sim to Mallory LC2500.
----- TERMINAL BOARDS -----		
TB1	7775500P9	Phen: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
----- SOCKETS -----		
XD5701 and XD5702	19B201122P2	Lamp, miniature: sim to Drake Series 121.
MECHANICAL PARTS (SEE RC-1170)		
1	N529P19C13	Plug button. (Used in Models 4EC59A10, A11, A14, A15, A18, A19, A22 and A23).
2	N529P5C13	Plug button.
3	19A121521G1	Mounting bracket.
4	19B201122P3	Lens cap: green translucent nylon.
5	NP243423	Nameplate: etched aluminum. (Used in Models 4EC59A10 and A12).
6	NP243421	Nameplate: etched aluminum. (Used in Models 4EC59A11 and A13).
7	NP243426	Nameplate: etched aluminum. (Used in Models 4EC59A14 and A16).
8	NP243424	Nameplate: etched aluminum. (Used in Models 4EC59A18 and A20).
9	NP243469	Nameplate: etched aluminum. (Used in Models 4EC59A19 and A21).
10	NP243425	Nameplate: etched aluminum. (Used in Models 4EC59A22 and A24).
11	NP243473	Nameplate: etched aluminum. (Used in Models 4EC59A18 and A17).
12	NP243467	Nameplate: etched aluminum. (Used in Models 4EC59A23 and A25).
13	19B201122P4	Lens cap: red translucent nylon.
14	19B204443G1	Knob: gray.
15	19C303413P1	Knob: VOLUME/SQUELCH.
16	19B216271G1	Casting.
17	19B204522P1	Mounting plate.
ASSOCIATED ASSEMBLIES		
	19A121469G1	Control unit modification kit (trunk mount).
	19D402239G1	12 volt vehicle frame.
	19D402239G2	6 and 28 volt vehicle frame.
	19A122444P1	Cover, wire channel (on systems frame).
	19C303452G1	Front casting (Trunk mount).
	19C303452G2	Front casting (Front mount).
	4034260P3	Screw: 10-32 x 1-1/8 (Secures Front casting).
	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 $\pm 20\%$, 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. (When ordering specify length). (Used in 19C303626G1 and G2).
	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).

SYMBOL	GE PART NO.	DESCRIPTION
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.
	19A127581P1	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)		
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.
	19C303290P2	Cap, connector.
	7139880P1	Cable: 23 conductors. (When ordering specify length). (Used in 19C303626G1 and G2).
	7139880P8	Cable: 13 conductors. (When ordering specify length). (Used in 19C303626G3 and G4).
12 VOLT FUSE ASSEMBLY 19B216021G4		
	19D413045P1	Base.
	19D413046P1	Cover.
	19B205950P1	Fuse clip.

SYMBOL	GE PART NO.	DESCRIPTION
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 -----		
	1B16P8	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: 5 terminals.
12 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445P1		
		Includes J901, K901, P103, P441, W901-W903.
6/12, 12/28 VOLT RELAY ASSEMBLY 25-470 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 NCM15.
F12	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman NCM30. (Used in 7487952G20).
----- RELAYS -----		
K1	7486515P1	Armature, enclosed: 6 VDC nominal, 26 ohms $\pm 8\%$ coil res, 1 form A contact rated at 15 amps; sim to RHM 60-108013-3. (Used in 7487952G20).
K3	7486515P3	Armature, enclosed: 28 VDC nominal, 300 ohms $\pm 10\%$ coil res, 1 form A contact rated at 15 amps. (Used in 7487952G19).
	19D413045P1	Base.
	19D413046P1	Cover.
	19B205950P1	Fuse clip.

SYMBOL	GE PART NO.	DESCRIPTION
----- FUSES -----		
F2	1R11P6	Quick blowing: 25 amps, 250 v; sim to Bussman NCM25. (Used with medium power transmitters).
F3	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman NCM30. (Used with high power transmitters).
		130 - 150.8, 406 - 420, 450 - 470 MHz ANTENNA MODEL 4E7121A13 (5490969P13)
----- MISCELLANEOUS -----		
	5490969P4	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 ASP2010E or Danbury-Knudsen Type PA-35.
	5490969P5	Whip, stainless steel, approx 20 inches long; ball tip.
	5490969P6	Socket, whip: with (2) No. 6-32 set screws.
		Whip and whip socket: stainless steel whip approx 20 inches long with ball tip; whip socket with (2) No. 6-32 set screws.
	7105381P1	Cable, antenna: approx 15 feet long. Type RG-58/U. (Used with GE Dwg 2R22P1 and GE Dwg 7105381P1).
	2R22P1	Adapter, cable: approx 1 x 7/16 inches dia. Type UC-175/U. (Used with GE Dwg 2R22P1 and Type RG-58/U cable).
	4029851P4	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Ampenol 83-1SP. (Used with GE Dwg 7105381P1 and Type RG-58/U cable).
	19A121581G1	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 ASPA3BG8.
	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 15A49.
	2R22P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Ampenol 83-1SP. (Used with GE Dwg 5492239P1).
	4KY9A1	Coil, loading: 25 to 33 MHz; sim to Antenna Specialists ASPA7.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook.
HANDSET MODEL 4EM26A10 MODEL 4EM26C10 19B209100G1 (SEE RC-1394)		
1		Self tap screw, blind head: No. 4 x 5/16. Shure Brothers 30C840C.
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).

SYMBOL	GE PART NO.	DESCRIPTION
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP41.
8	3R77P222K	Composition: 2200 ohms $\pm 10\%$, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A321.
11		Ecutcheon. 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		
----- MISCELLANEOUS -----		
20	4029851P4	Cable clamp: sim to WEC Kessner 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 $\pm 5\%$, 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 4E216A19 19D402449G12		
C1	19B209233P1	Electrolytic, non-polarized: 25 μ $\pm 20\%$, 25 VDC; sim to Sprague 440C.
LS3	19B209422P1	Permanent magnet: 5 inch, 3.2 ohms $\pm 10\%$ imp, 2.98 ohms $\pm 15\%$ DC res, 7.5 w max operating.
W1	19A121546G1	Cable assembly: approx 48 inches long, includes (2) 19A121426P1 pins.
MECHANICAL PARTS		
	19B216269G2	Speaker housing.
	19A121550G3	Cover.
	19A121521G1	Mounting support.
	5490407P3	Neoprene grommet. (Upper)
	19A115470P1	Rubber grommet. (Lower)

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 4EC59A12, 13, 16, 17, 20, 21, 24 and 25
To make compatible with Universal Selective Calling decoder. Changed R706.

REV. B - Models 4EC59A12, 13, 16, 17, 20, 21, 24 and 25
To reduce speaker minimum audio level when using Universal Selective Calling decoder. Changed R706.

REV. A - Models 4EC59A18, 19, 22 and 23
REV. C - Models 4EC59A20, 21, 24 and 25
To reduce power supply switching noise from modulating transmitter. Removed black wire from ground lug TB1-2 (other end connected to S706-14S) and connected it to microphone jack J702-1.

REV. A - Models 4EC59A10, 11, 14 and 15
REV. B - Models 4EC59A18, 19, 22 and 23
REV. C - Models 4EC59A12, 13, 16 and 17
REV. D - Models 4EC59A20, 21, 24 and 25
To incorporate switch with improved reliability. Changed S701.

REV. B - Models 4EC59A10, 11, 14, 15
REV. C - Models 4EC59A18, 19, 22, 23
REV. D - Models 4EC59A12, 13, 16, 17
REV. E - Models 4EC59A20, 21, 24, 25
To ground microphone jack, added #18 BK-W wire from TB1-2 (G) to G11 and changed J702.

REV. C - Models 4EC59A10, 11, 14, 15
REV. D - Models 4EC59A18, 19, 22, 23
REV. E - Models 4EC59A12, 13, 16, 17
REV. F - Models 4EC59A20, 21, 24, 25
Changed control unit housing from metal to LEXAN®.

REV. E - Models 4EC59A18, 19, 22, 23
REV. G - Models 4EC59A20, 21, 24, 25
To provide Channel Guard decode function on all channels. Added jumpers from S706-9S to -10S and from S706-10S to -11S.

REV. H - Models 4EC59A20, 21, 24, 25
REV. F - Models 4EC59A12, 13, 16, 17
To reduce audio output level at minimum volume control setting. Changed R706.

REV. G - Models 4EC59A12, 13, 16, 17
Added mike hi, PTT, earphone and ground to Tone Option Jack J704.

REV. J - Models 4EC59A20, 21, 24, 25
Added mike hi, PTT, earphone and ground to Tone Option Jack J704.

Schematic

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 Communications Equipment Sales Office of the General Electric Company.

MAINTENANCE MANUAL

LBI-3505

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502



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