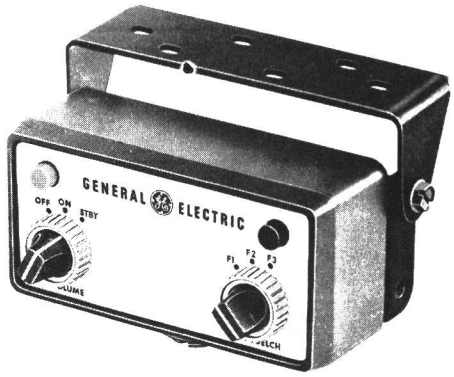
communications

MASTR Progress Line

MOBILE CONTROL UNIT MODELS 4EC59A50-57

Maintenance Manual LBI-3509
DF-4070



EC-59-A

SPECIFICATIONS *

MODEL NUMBERS	4EC59A50 through 4EC59A57
USED WITH	MASTR Progress Line Mobile Combinations
CONTROLS	VOLUME Control OFF-ON-STBY Switch SQUELCH Control Three-Frequency Selector Switch Optional Controls CHANNEL GUARD Monitor Switch SPEAKER-OFF Monitor Switch Dimmer Control for green Pilot Light
INDICATORS	Transmit light: red Transmitter filament ON light: green

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

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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-Frequency Switch (S705)

For three-frequency operation, a frequency selector switch selects the channel desired (F1, F2 or F3) 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 three-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.

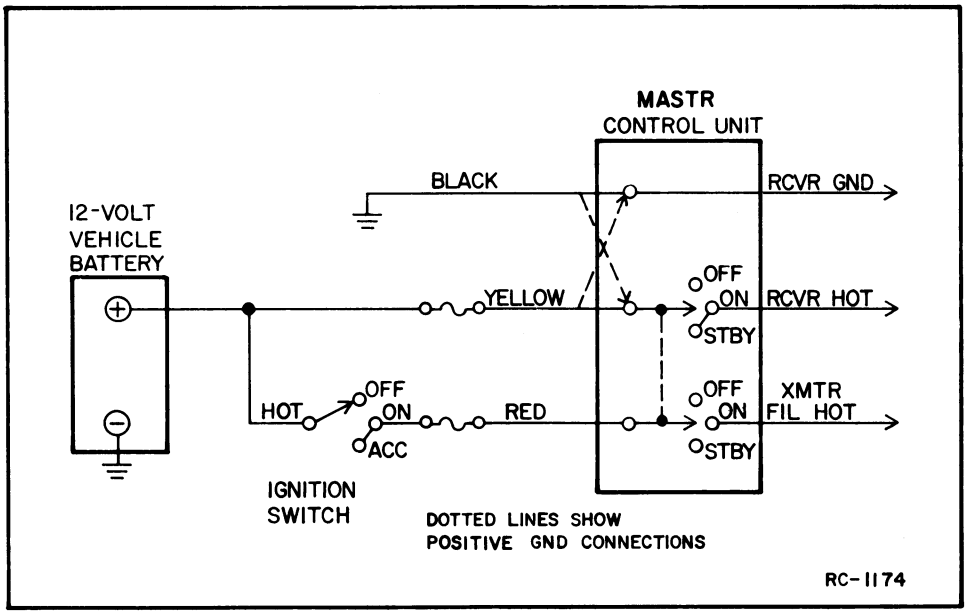


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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 circuit breaker 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 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.

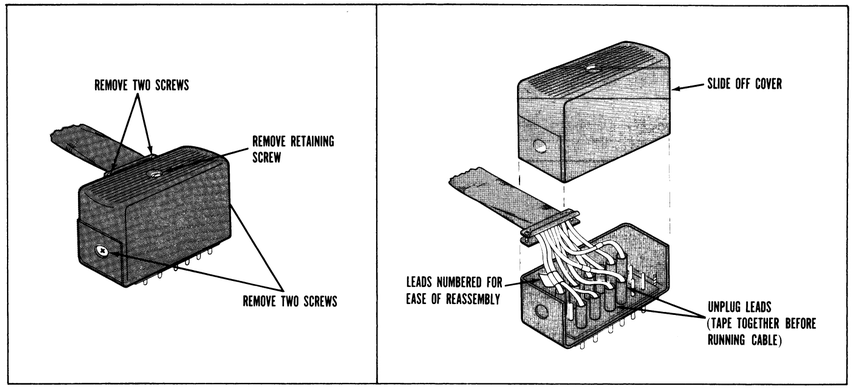
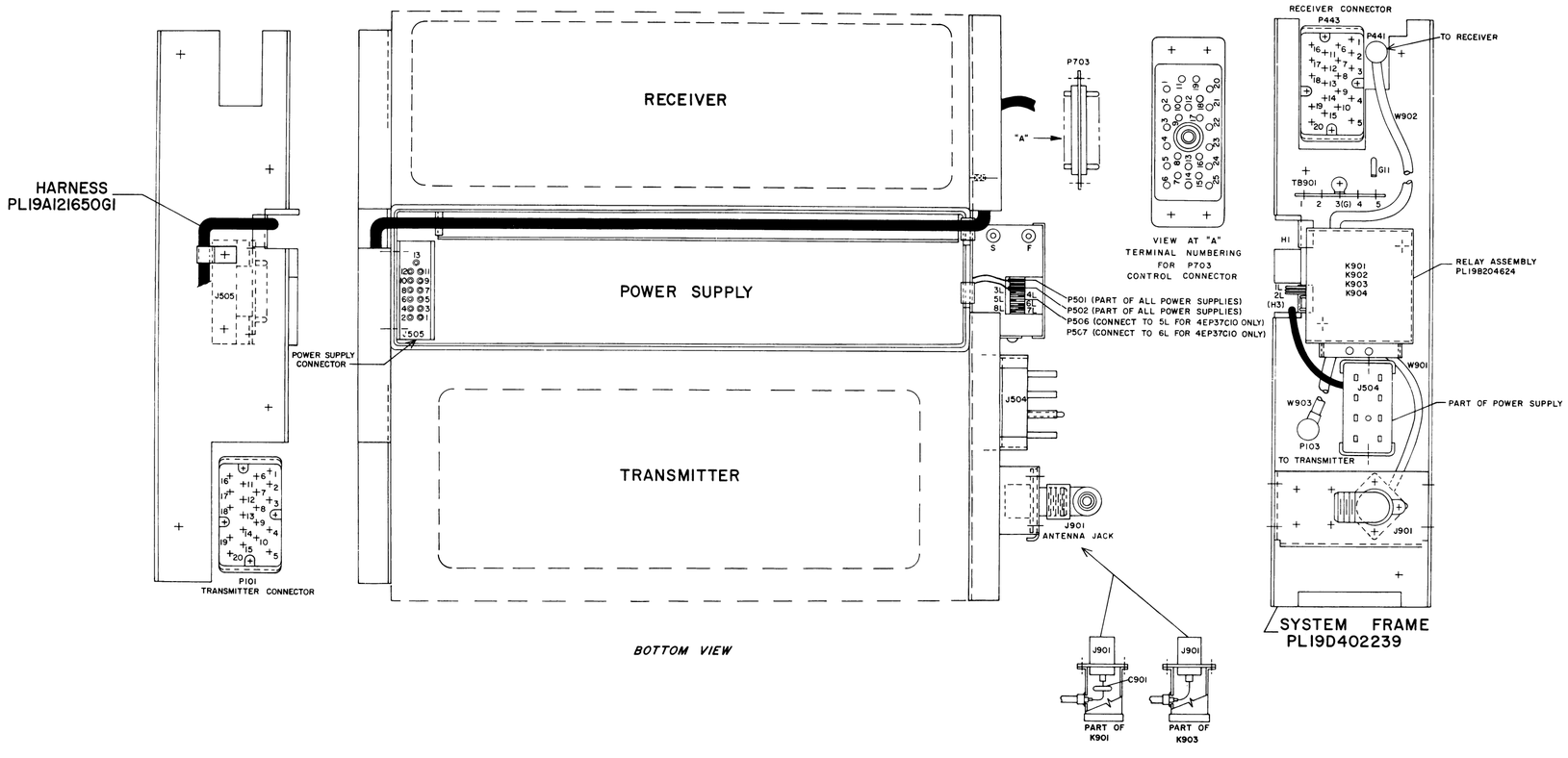


Figure 2 - Disassembly of Control Cable Plug

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.

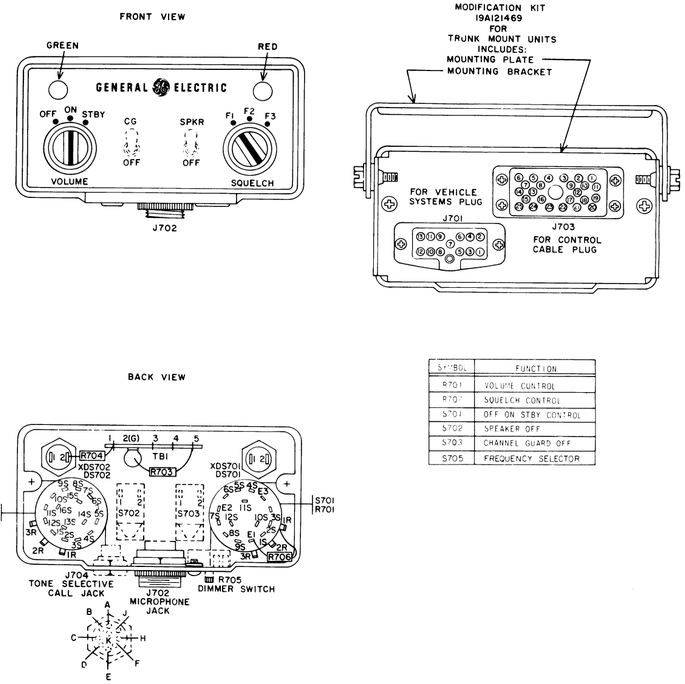
SYSTEM FRAME AND HARNESS



BOTTOM VIEW

(19D402582, Rev. 0)

CONTROL UNIT



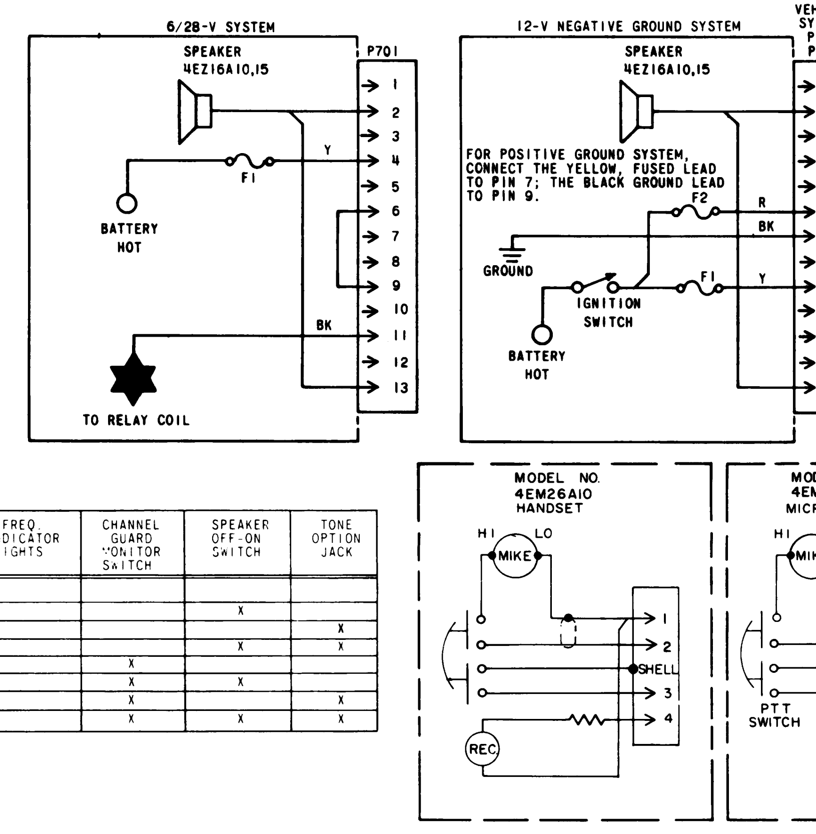
SYMBOL	FUNCTION
R701	VOLUME CONTROL
R702	SQUELCH CONTROL
S701	OFF ON STBY CONTROL
S702	SPEAKER OFF
S703	CHANNEL GUARD OFF
S705	FREQUENCY SELECTOR

(19C303830, Rev. 1)

OUTLINE DIAGRAM

MASTR CONTROL
MODELS 4EC59A50-57

** TERMINALS K & 11 ARE USED ON 12 VOLT SYSTEMS FOR CONTROL OF 10-WATT SPEAKER.



MODEL NUMBER	REV. LETTER	NO. OF FREQ.	FREQ. INDICATOR LIGHTS	CHANNEL GUARD MONITOR SWITCH	SPEAKER OFF-ON SWITCH	TONE OPTION JACK
4EC59A50	B	3				
4EC59A51	B	3			X	
4EC59A52	D	3				X
4EC59A53	D	3			X	X
4EC59A54	B	3		X		
4EC59A55	B	3		X	X	
4EC59A56	D	3		X		X
4EC59A57	D	3		X	X	X

▲ DIMMER CONTROL OPTION
ADD DOTTED CONNECTIONS & OMIT WIRE FROM TB1-5 TO XDS701-1

■ TONE SELECTIVE CALLING
OMIT IN MODELS 4EC59A50.51.54 &55

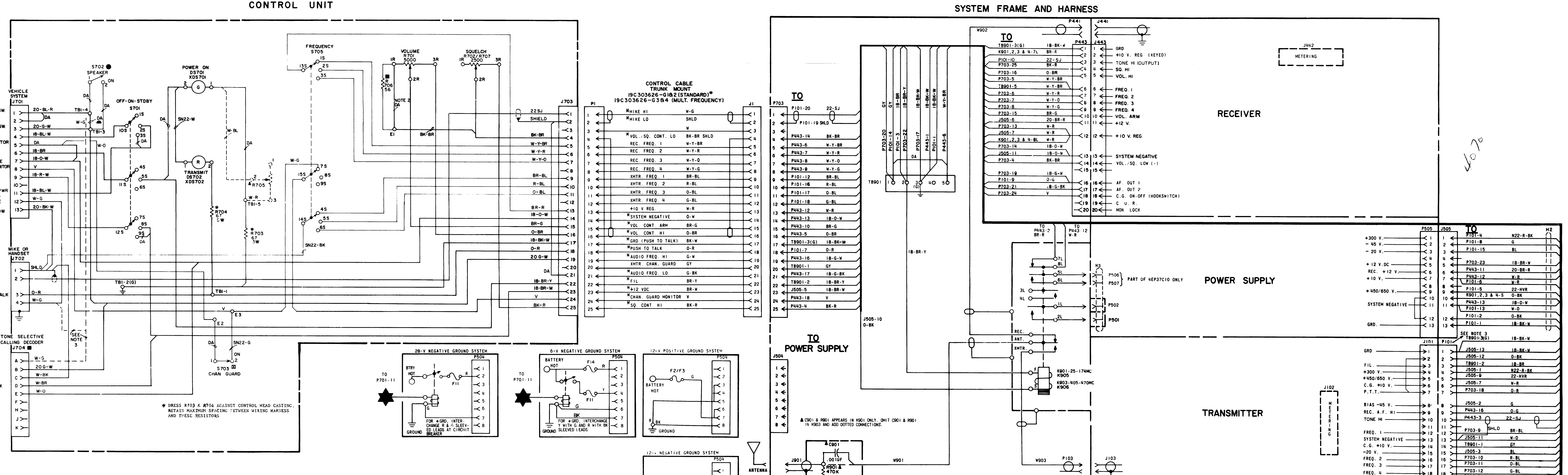
SPEAKER MUTE
OMIT IN MODELS 4EC59A51.52.53 55,56 & 57

● SPEAKER SWITCH
OMIT IN MODELS 4EC59A50 52.54 & 56

☒ CHANNEL GUARD SWITCH
OMIT IN MODELS 4EC59A50 51 52 & 53

NOTES.

1. ALL WIRES N24 UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R706 IS USED
3. IN MODELS 4EC59A52 AND 4EC59A56 W-G WIRE CONNECTS FROM J704-A TO TB1-4. IN MODELS 4EC59A53 AND 4EC59A57 W-G WIRE CONNECTS FROM J704-A TO J702-4.



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.

(19D402416, Rev. 10)

SCHEMATIC & INTERCONNECTION DIAGRAM

MOBILE CONTROL UNIT MODELS 4EC59A50-57

Issue 3

PARTS LIST

LBI-3521B

CONTROL UNIT
MODELS 4EC59A50 - 4EC59A57
(19C402303 G50-57)
AND
ASSOCIATED ASSEMBLIES

SYMBOL	G-E PART NO.	DESCRIPTION
		- - - - - - - - - INDICATING DEVICES - - - - - -
DS701 and DS702	19B201122-P1	Light, indicator: miniature, 6 v; sim to GE Type 1768.
		- - - - - - - - JACKS AND RECEPTACLES - - - - -
J701	19C303576-P1	Socket, phen: 13 contacts rated at 5 amps max.
J702	7117934-P2	Connector, chassis: 4 female contacts; sim to Amphenol Type 91-PC4F.
J703	19D402408-P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	7489183-P5	Connector, miniature, melamine: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester M9S-LRN.
		- - - - - - - - - - - RESISTORS - - - - - - - -
R701		(Part of S701).
R703 and R704	5493035-P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Tru-Ohm Type X-60.
R706*	3R77-P560K	Composition: 56 ohms ±10%, 1/2 w.
	3R77-P271K	In Models of Rev A: Composition: 270 ohms ±10%, 1/2 w.
	3R77-P220K	In Models earlier than Rev A: Composition: 22 ohms ±10%, 1/2 w. (Used
R707		(Part of S705).
		- - - - - - - - - - - SWITCHES - - - - - - - -
S701*	19C307089-P19	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 max; sim to Mallory Type LC.
	19C307089-P1	In Models 4EC59A52,53,56 and 57 earlier than Rev A: In Models 4EC59A50,51,54 and 55 earlier than Rev D: 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 max; sim to Mallory Type LC.
S702 and S703	5491899-P5	Toggle: SPST, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer 8280K15.
S705	19C307089-P20	Switch/Resistor: includes Switch, rotary, 4 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±20%, 1 w max; sim to Mallory Type LC.
		- - - - - - - - - TERMINAL BOARDS - - - - - - -
TB1	7775500-P9	Phen: 5 terminals.
		- - - - - - - - - - - SOCKETS - - - - - - - - -
XDS701 and XDS702	19B201122-P2	Lamp, miniature: sim to Drake Series 121.
		- - - - - - - ASSOCIATED ASSEMBLIES - - - - -
	19A121469-G1	Control unit modification kit (trunk mount).
	19D402239-G1	12 volt vehicle frame.
	19D402239-G2	6 and 28 volt vehicle frame.
		DIMMER CONTROL MODIFICATION KIT 19A121293-G1
R705	19B209114-P1	Variable, wirewound: 75 ohms ±20%, 3 w; sim to CTS Series 112.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

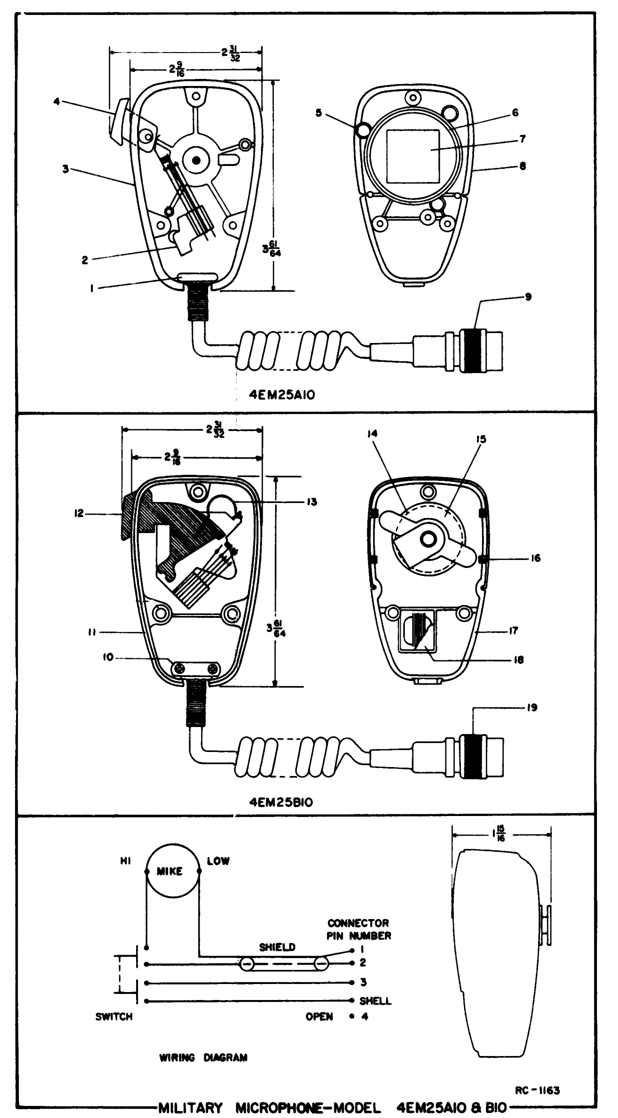
SYMBOL	G-E PART NO	DESCRIPTION
		POWER CABLE ASSEMBLY 19C303601-G1 (12 VOLT FRONT MOUNT) 19C303601-G2 (12 VOLT TRUNK MOUNT)
	19B209189-P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438-P1	Cap, connector.
	19A115313-P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601-G1).
	19A115314-P1	Cable: 3 conductor, approx 18 feet long. (Used in 19C303601-G2).
		POWER CABLE ASSEMBLY 19C303603-G1 (28 VOLT FRONT MOUNT) 19C303603-G2 (28 VOLT TRUNK MOUNT)
	19B209189-P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438-P1	Cap, connector.
	19A115313-P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303603-G1).
	19A115313-P1	Cable: 3 conductor, approx 23 feet long. (Used in 19C303603-G2).
		POWER CABLE ASSEMBLY (6 VOLT FRONT MOUNT) 19C303607-G1
	19B209189-P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438-P1	Cap, connector.
	7146477-P3	Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
	7146477-P4	Cable: 2 lengths, approx 9 feet long connected to pins 4 and 6.
		POWER CABLE ASSEMBLY (6 VOLT TRUNK MOUNT) 19C303606-G1
	19B209189-P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438-P1	Cap, connector.
	7146477-P1	Cable: 2 lengths, approx 22 feet long connected to pins 1 and 7.
	7146477-P3	Cable: 2 lengths, approx 22 feet long connected to pins 4 and 6.
		CONTROL CABLE ASSEMBLY 19C303626-G1, G2 (1-FREQ) 19C303626-G3, G4 (MULTI-FREQ)
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P1	19C303626-G5	Plug, male, includes: connector 19D402408-P3, cap 19C303290-P2.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1	19C303626-G6	Plug, female, includes: connector 19D402408-P1, cap 19C303290-P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19D402408-P1	Connector, female phen: 25 contacts rated at 5 amps max.
	19D402408-P3	Connector, male phen: 25 contacts rated at 5 amps max.
	19C303290-P1	Cap, connector.
	19C303290-P2	Cap, connector.
	19A115437-P1	Cable: approx 18 feet long. (Used in 19C303626-G1).
	19A115437-P1	Cable: approx 23 feet long. (Used in 19C303626-G2).
	19A115437-P2	Cable: approx 18 feet long. (Used in 19C303626-G3).
	19A115437-P2	Cable: approx 23 feet long. (Used in 19C303626-G4).

SYMBOL	G-E PART NO	DESCRIPTION
		VEHICLE SYSTEM CABLE KIT 19A121454-G1 (12 VOLT VEHICLES) 19A121454-G2 (6/28 VOLT VEHICLES)
	19A121324-G1	6/28 volt vehicles jumper. (Used in 19A121454-G2).
	19A121249-P1	Pin: 1/2 inch long.
	19A121441-G1	Plug: 13 contacts.
	19C303574-P1	Cover: approx 1-13/16 x 1 x 1/32 inches.
		FUSED LEAD ASSEMBLY 19A121314-G1 (19A121454-G1, G2) 19A121314-G2 (19A121454-G2)
	1R16-P8	Fuse, cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
	7124109-P3	Fuseholder: sim to Bussmann Type HDJ-B.
	7112178-P7	Cable: approx 8-3/4 feet long. (Used in 19A121314-G1).
	7112178-P4	Cable: approx 8-3/4 feet long. (Used in 19A121314-G2).
		INTERCONNECTION HARNESS ASSEMBLY 19A121650-G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J505	19B204409-G1	Plug, male: 13 pin contacts.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P101	19C303506-P1	Connector, phen: 20 contacts rated at 5 amps max at 600 VDC.
P443	19C303506-P1	Connector, phen: 20 contacts rated at 5 amps max at 600 VDC.
P703	19D402408-P2	Connector, phen: 25 contacts rated at 5 amps max.
		- - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB901	7775500-P11	Phen: 5 terminals.
		RELAY ASSEMBLIES 19B204624-G1, G3 (STANDARD)
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C901	19B209141-P1	Ceramic disc: .001 µf ±10%, 500 VDCW. (Used with K901).
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J901	2R22-P3	Receptacle, panel, coaxial: mica-filled insert, UHF contact. Signal Corps SO-239 or sim to Amphenol 83-1R. (Used with W901).
		- - - - - - - - - - - RELAYS - - - - - - - - - -
K901	19C307107-P1	Armature, coaxial-power: 12 VDC nominal, 2.5 w max operating, 80 ohms ±10% coil res, 3 form A, 1 form B and 1 form C coaxial contacts. (Used in 19B204624-G1).
K903	19C307107-P3	Armature, coaxial-power: 12 VDC nominal, 2.5 w max operating, 80 ohms ±10% coil res, 3 form A, 1 form B and 1 form C coaxial contacts with connector plug 7104941-P17. (Used in 19B204624-G3).
P103		(Part of W903).
P441		(Part of W902).
W901	19B209044-P4	Cable, antenna, RF: 1900 VRMS max, approx 4-1/2 inches long; sim to Amphenol 21-199.
W902	5491689-P47	Cable, receiver, RF: includes phono type plug (P441), 350 VRMS max, approx 6-3/4 inches long.
W903	5491689-P47	Cable, transmitter, RF: includes phono type plug (P103), 350 VRMS max, approx 6-3/4 inches long.
	2R22-P2	Adapter, right angle, coaxial: polystyrene, UHF contact. Signal Corps M-359; sim to Amphenol 83-1AP.

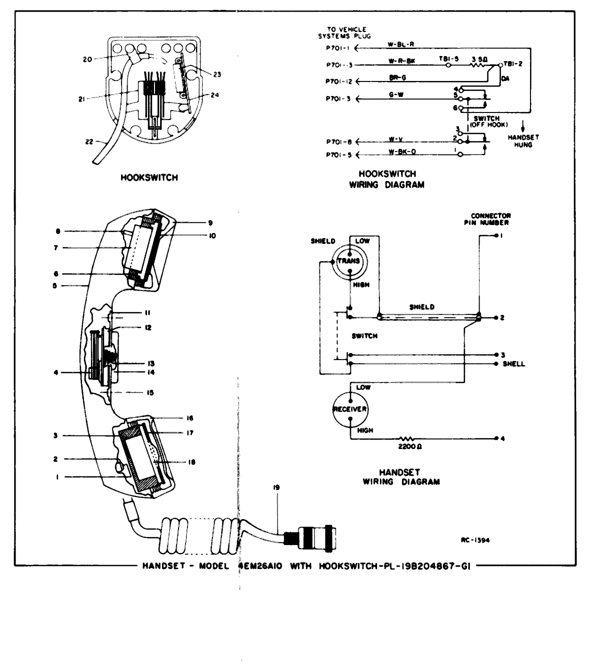
SYMBOL	G-E PART NO	DESCRIPTION
		FUSE AND RELAY ASSEMBLY 7487952-G19 (28 VOLT VEHICLES) 7487952-G20 (6 VOLT VEHICLES)
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F11	1R11-P4	Quick blowing: 15 amps, 250 v; sim to Bussman NON15.
F12	1R11-P7	Quick blowing: 30 amps, 250 v; sim to Bussman NON30. (Used in 7487952-G20).
		- - - - - - - - - - - RELAYS - - - - - - - - - -
K1	7486515-P1	Armature, enclosed: 6 VDC nominal, 36 ohms ±8% coil res, 1 form A contact rated at 15 amps; sim to RBM 60-108013-3. (Used in PL-7487952-G20).
K3	7486515-P3	Armature, enclosed: 28 VDC nominal, 300 ohms ±10% coil res, 1 form A contact rated at 15 amps. (Used in 7487952-G19).
		12 VOLT FUSEHOLDER 19B216021-G4
	19D413045-P1	Base.
	19D413046-P1	Cover.
	19B205950-P1	Fuse clip.
		- - - - - - - - - - - FUSES - - - - - - - - - - -
F2	1R11-P6	Quick blowing: 25 amps, 250 v; sim to Bussmann NON25. (Used with medium power transmitters).
F3	1R11-P7	Quick blowing: 30 amps, 250 v; sim to Bussman NON30. (Used with high power transmitters).
		130 - 470 MHz ANTENNA MODEL 4EY12A13 (5490969-P13)
		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.
	5490969-P4	Whip: stainless steel, approx 20 inches long; ball tip.
	5490969-P5	Socket, whip: with (2) No. 6-32 set screws.
	5490969-P6	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 2R22-P1 and GE Dwg 7105381-P1).
	7105381-P1	Adapter, cable: approx 1 x 7/16 inches dia. Type UG-175/U. (Used with GE Dwg 2R22-P1 and Type RG-58/U cable).
	2R22-P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 7105381-P1 and Type RG-58/U cable).
		25 - 88 MHz ANTENNA
	7491074-P1	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.
	7102930-P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074-P1).
	4033101-G1	Antenna package: includes base; adapter spring; cable and plug.
	7472880-G5	Antenna base. (Used in 4033101-G1).
	7476632-G4	Adapter spring. (Used in 4033101-G1).
	5492239-P1	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. (Used in 4033101-G1).

SYMBOL	G-E PART NO	DESCRIPTION
	2R22-P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239-P1 in 4033101-G1).
	4KY19A1	Coil, loading: 25 to 33 MHz; sim to Antenna Specialists ASPA87.
	19A121577-G1	Antenna hook kit.
	7134724-P1	Antenna hook. (Used in 19A121577-G1).
		MECHANICAL PARTS
		CONTROL UNIT MODELS 4EC59A50 - A57 (19D402303-G50 - G57) (SEE RC-1196)
1	N529P19C13	Plug button: approx 21/32 inches dia. (Used in Models 4EC59A50, 51, 54 and 55).
2	N529P5C13	Plug button: approx 13/32 inches dia.
3	19A121521-G1	Mounting bracket.
4	19B201122-P3	Lens cap: green translucent nylon, approx 3/8 inch dia.
5	NP243478	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A50 and 52).
6	NP243490	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A51 and 53).
7	NP243491	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A54 and 56).
8	NP243492	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A55 and 57).
9	19B201122-P4	Lens cap: red translucent nylon, approx 3/8 inch dia.
10	19B204443-G1	Knob: gray.
11	19C303413-P1	Knob: VOLUME/SQUELCH.
12	19B204467-P1	Casting: approx 5-7/16 x 2-11/16 x 1-13/16 inches.
13	19B204522-P1	Mounting plate: approx 5-7/16 x 2-1/2 x 1/16 inches thick.
		HANDSET MODEL 4EM26A10 (19B209100-G1) (SEE RC-1158)
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		Handle. Shure Brothers RP49.
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP41.
8	3R77-P222K	Resistor, composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. Shure Brothers 65A199A. (Part of RP49).
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. Shure Brothers 65A197A. (Part of RP49).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers RP13.
19		Cable and plug. Shure Brothers RP48.

SYMBOL	G-E PART NO	DESCRIPTION
		HOOKSWITCH ASSEMBLY 19B204867-G1 (See RC-1394)
20	4029851-P4	Cable clamp; sim to Weckesser 3/16-4.
21	19A121612-P1	Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	19A121581-G1	Cable: approx 25 inches long, includes five 19A121429-P1 pins.
23	5493035-P10	Resistor, wirewound ceramic: 3.5 ohms ±5%, 5 w; sim to Tru-Ohm Type X-60.
24	7775500-P55	Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM25A10 19B209102-G1 (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 44A113.
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 4EZ16A15 19D402449-G8
C1	19B209233-P2	Electrolytic, non-polorized: 25 µf ±20%, 25 VDCW; sim to Sprague 44DC.
LS3	19B209422-P1	Permanent magnet: 5 inch, 3.2 ohms ±10% imp, 2.98 ohms ±15% DC res, 7.5 w max operating.
W1	19A121546-G1	Cable assembly: approx 48 inches long, includes (2) 19A121429-P1 pins.
		MECHANICAL PARTS
	19C303504-G1	Speaker housing.
	19A121550-G1	Cover.
	19C303500-P1	Grille, aluminum.
	19A121521-G1	Mounting support.
	5490407-P3	Neoprene grommet. (Upper)
	19A115470-P1	Rubber grommet. (Lower)



MILITARY MICROPHONE-MODEL 4EM25A10 & B10



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 - For Models 4EC59A52, 53, 56 and 57

To make compatible with pulse tone decoder, changed R706.

REV. B - Models 4EC59A52, 53, 56 and 57.

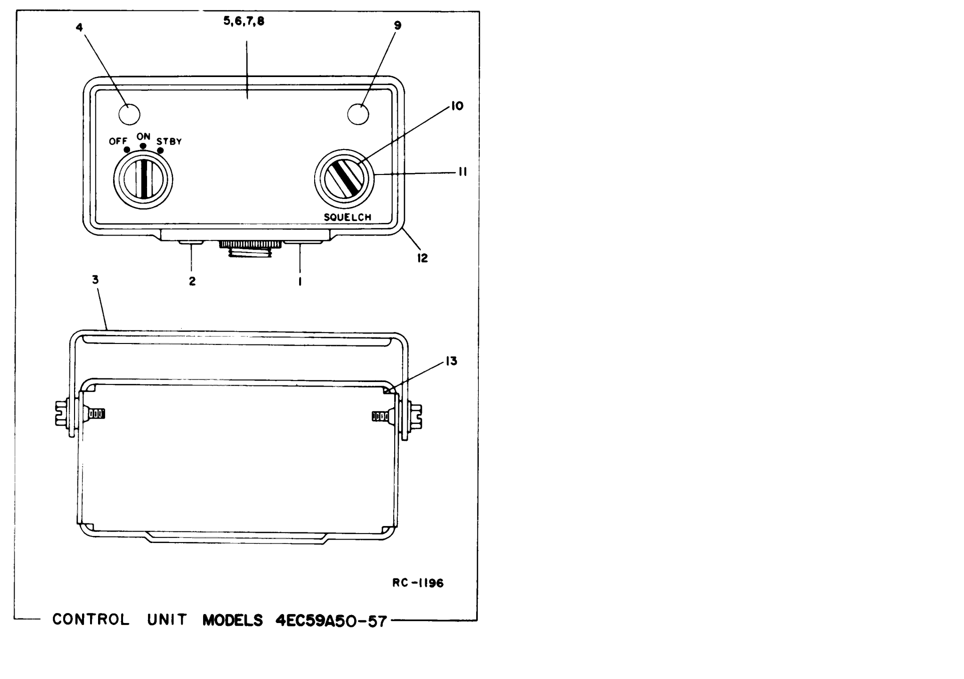
To reduce speaker minimum audio level when using Selective Calling decoder. Changed R706.

REV. A - Models 4EC59A50, 51, 54 and 55.
REV. C - Models 4EC59A52, 53, 56 and 57.

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. B - Models 4EC59A50, 51, 54 and 55.
REV. D - Models 4EC59A52, 53, 56 and 57.

To incorporate switch with improved reliability. Changed S701.



CONTROL UNIT MODELS 4EC59A50-57

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 G-E Part Number.

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

1. G-E 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-3509

DF-4070

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