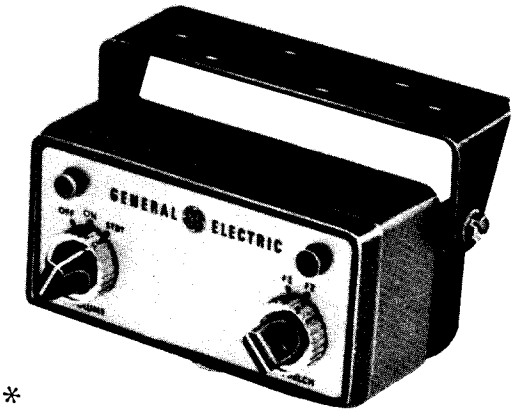
communications

MASTR Progress Line

MOBILE CONTROL UNIT MODELS 4EC59A10-25



SPECIFICATIONS *

MODEL NUMBERS	4EC59A10 through 4EC59A25
USED WITH	MASTR Progress Line 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.

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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.

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.

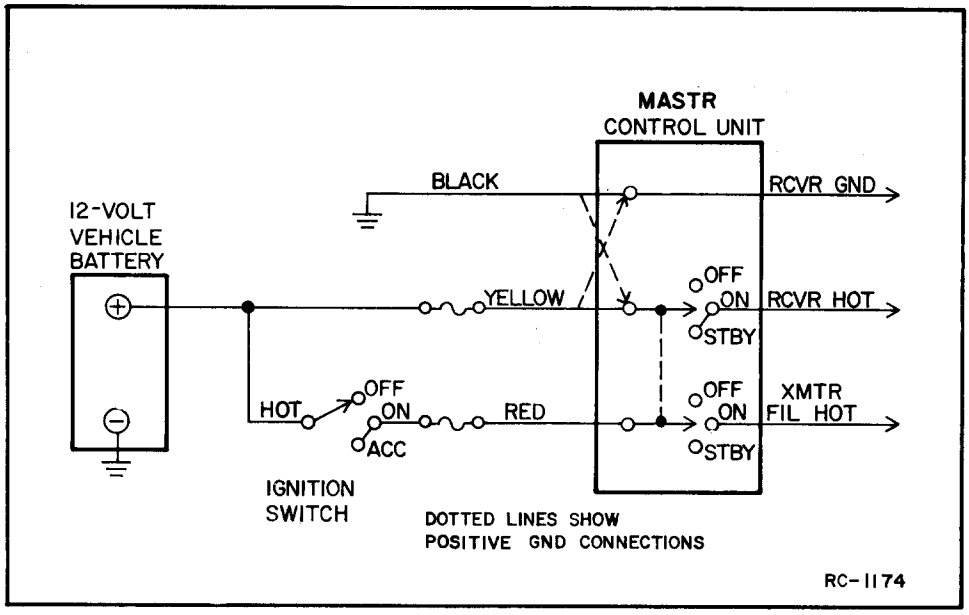


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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 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.

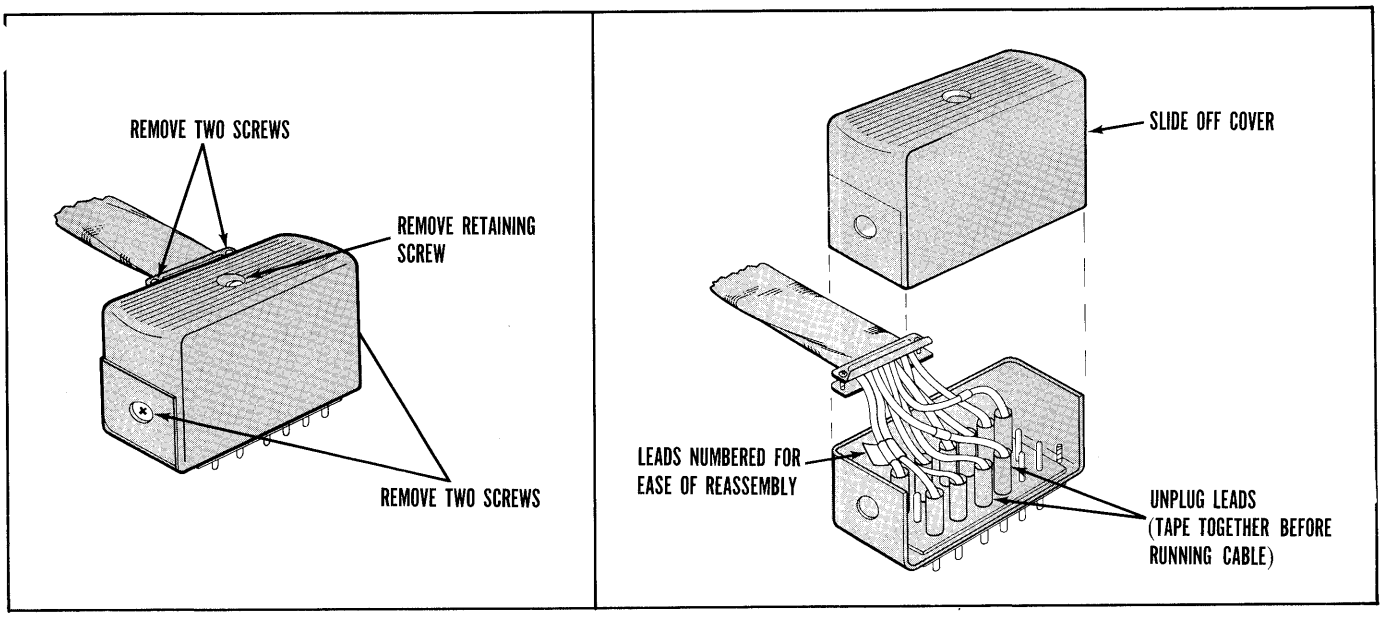
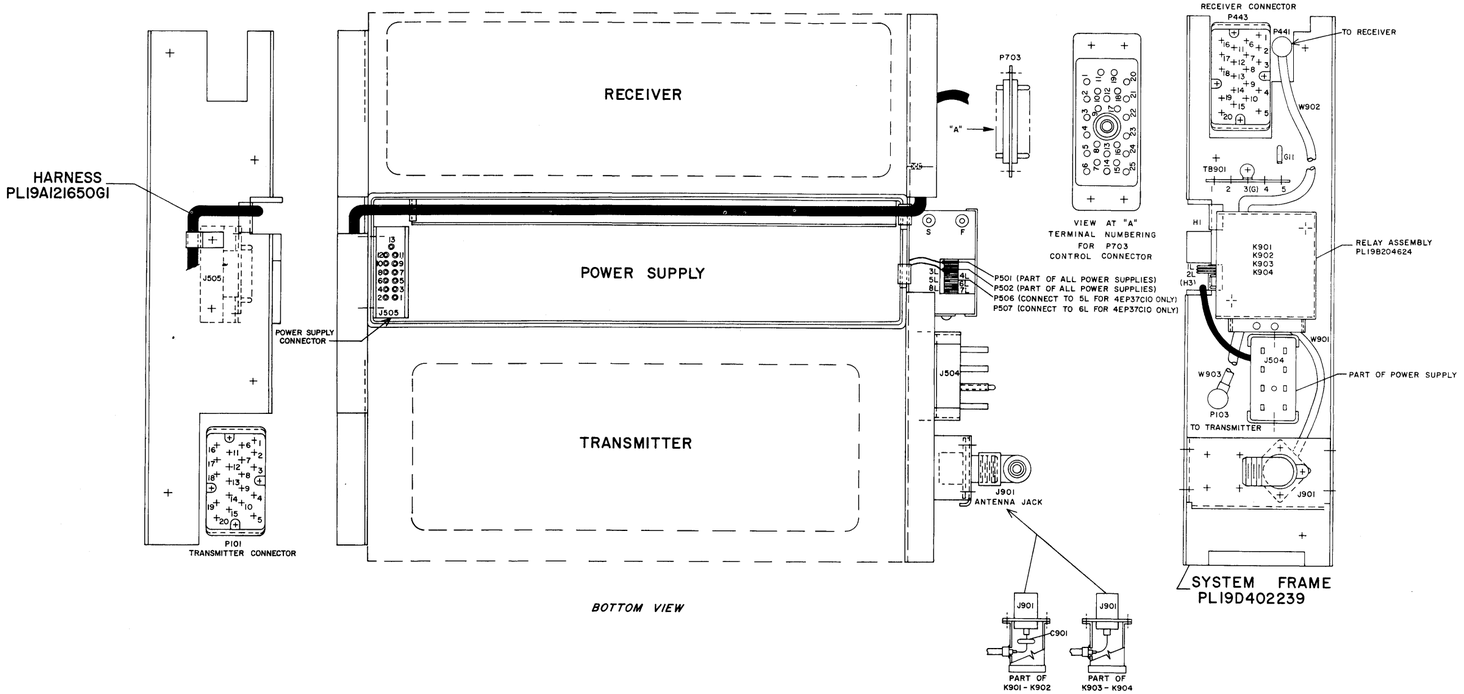


Figure 2 - Disassembly of Control Cable Plug

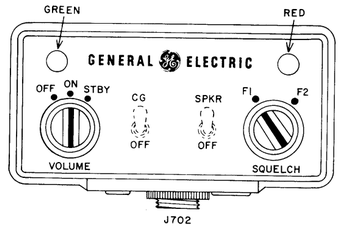
NOTE

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.

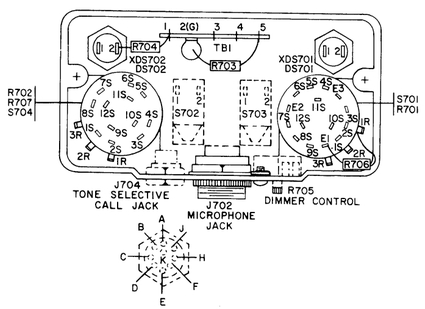
SYSTEM FRAME
AND HARNESS

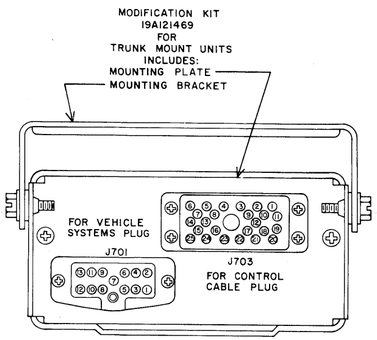


CONTROL UNIT
FRONT VIEW



CONTROL UNIT
BACK VIEW





CONTROL UNIT

SYMBOL	FUNCTION
R701	VOLUME CONTROL
R702	SQUELCH CONTROL
S701	OFF-ON-STBY CONTROL
S702	SPEAKER-OFF
S703	CHANNEL GUARD-OFF
R707	SQUELCH CONTROL-PART OF S704
S704	FREQUENCY SELECTOR

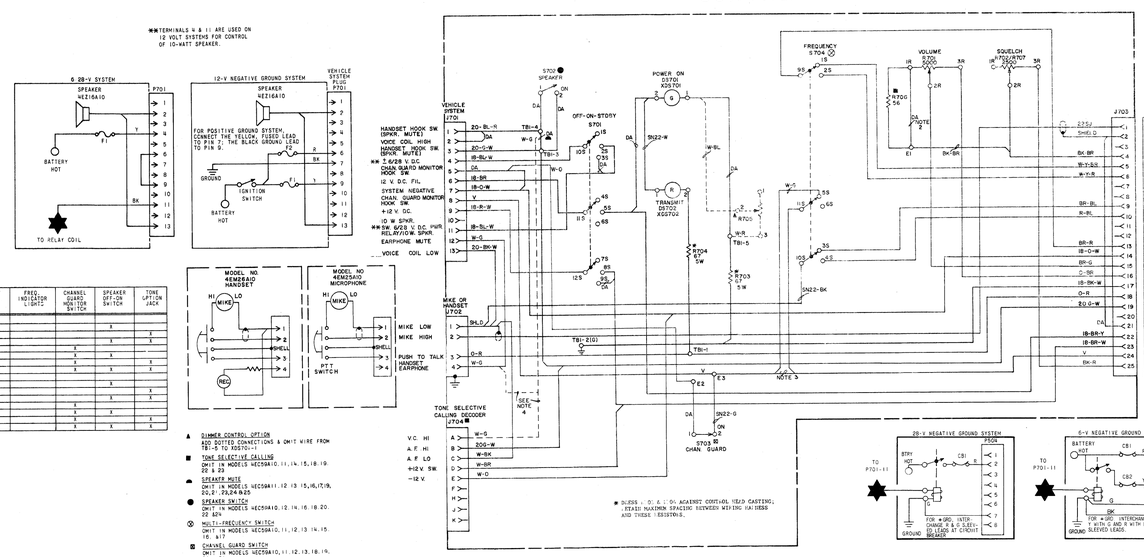
OUTLINE DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A10-25

(19D402582, Rev. 0)

(19C303800, Rev. 0)

CONTROL UNIT



MODEL NUMBER	REV. LETTER	NO. OF FREQ.	FREQ. INDICATOR LIGHT	CHANNEL GUARD MONITOR SWITCH	SPEAKER OFF-ON SWITCH	TONE OPTION JACK
MEC59A10	A	1			X	
MEC59A11	A	1			X	X
MEC59A13	C	1			X	X
MEC59A15	C	1	X	X	X	X
MEC59A25	A	1	X	X	X	X
MEC59A15	C	1	X	X	X	X
MEC59A17	C	1	X	X	X	X
MEC59A18	B	2			X	
MEC59A19	B	2			X	X
MEC59A20	D	2				X
MEC59A21	D	2			X	X
MEC59A22	B	2	X	X	X	
MEC59A23	B	2	X	X	X	X
MEC59A24	D	2	X	X	X	X
MEC59A25	D	2	X	X	X	X

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

■ TONE SELECTIVE CALLING
OMIT IN MODELS MEC59A10, 11, 14, 15, 18, 19, 22 & 23

▰ SPEAKER MUTE
OMIT IN MODELS MEC59A11, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24 & 25

● SPEAKER SWITCH
OMIT IN MODELS MEC59A10, 12, 14, 16, 18, 20, 22 &24

⊗ MULTI-FREQUENCY SWITCH
OMIT IN MODELS MEC59A10, 11, 12, 13, 14, 15, 16, & 17

⊠ CHANNEL GUARD SWITCH
OMIT IN MODELS MEC59A10, 11, 12, 13, 18, 19, 20 & 21

NOTES:
1. ALL WIRES N2H UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R705 IS USED.
3. OMIT CONNECTION WHEN S704 IS USED.
4. ‡ IN MODELS MEC59A12, MEC59A16, MEC59A20 AND MEC59A24 W-G WIRE CONNECTS FROM J704-4 TO J704-6. IN MODELS MEC59A13, MEC59A17, MEC59A21, AND MEC59A25 W-G + PE CONNECTS FROM J704-4 TO J702-4.

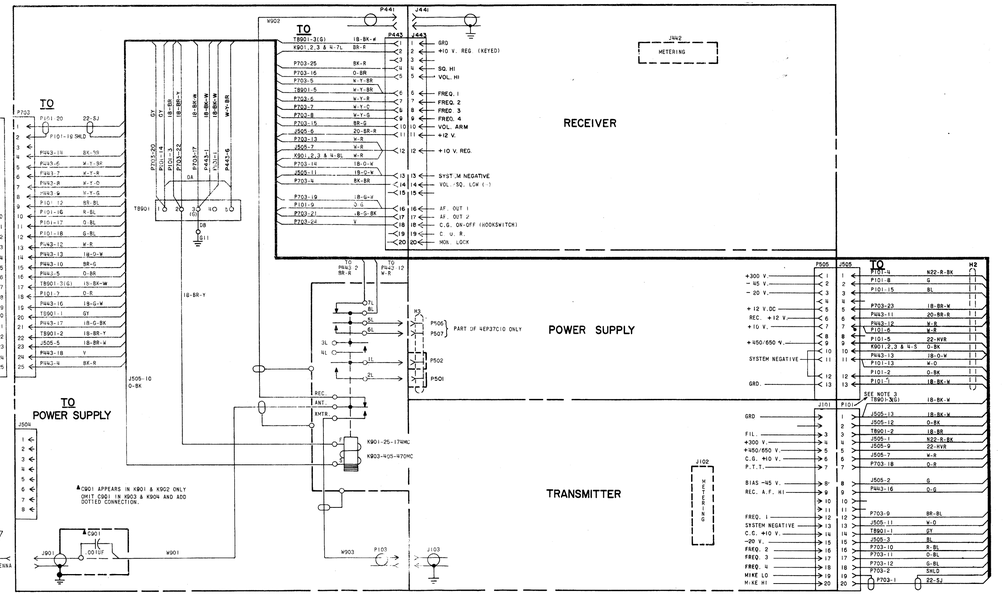
IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS, OR M=1,000,000 OHMS. CAPACITOR VALUES IN MICROFARADS (EQUAL TO MMFD/1000000) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS

(19D402341, Rev. 10)

(RC-1186A)

SYSTEM FRAME & HARNESS



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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.

(19D402338, Rev. 9)

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR CONTROL UNIT, MODELS 4EC59A10-25

Issue 5

PARTS LIST

LBI-3513C

CONTROL UNIT - Nr. 19D402920-G10 - G25
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	G-E PART NO.	DESCRIPTION
		- - - - - - - - INDICATING DEVICES - - - - - - - -
DS701 and DS702	19B201132-P2	Light, indicator: miniature, 6 v; sim to G-E Type 1S8.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - - -
J701	19C305578-P1	Socket, phen: 13 contacts rated at 5 amps max.
J702	7117934-P2	Connector, chassis: 4 female contacts; sim to Bussmann Type HSC-4.
J703	19D403408-P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	7498183-P5	Connector, miniature, melamine: 9 female contacts rated at 5 amps at 500 VRMS; sim to Winchester Type MRA-9F. (Used in 4EC59A12, A13, A16, A17, A20, A21, A24 and A25).
		- - - - - - - - RESISTORS - - - - - - - -
R701		(Part of T701).
R702	19B209134-P1	Variable, carbon film: 2500 ohms ±20%, 1/2 w, linear taper; sim to Mallory LCC2500. (Used in Models 4EC59A10, A11, A12, A13, A14, A15, A18 and A19).
R703 and R704	5493035-P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Tru-Ohm Type X-60.
R706*	3377-P560K	Fixed composition: 56 ohms ±10%, 1/2 w. (Used in Models 4EC59A12, 13, 16, 17, 20, 21, 24 and 25). In Models of REV. A:
	3377-P271K	Fixed composition: 270 ohms ±10%, 1/2 w. (Used in Models 4EC59A12,13,16,17,20,21,24 & 25). In Models earlier than REV. A:
	3377-P220K	Fixed composition: 22 ohms ±10%, 1/2 w. (Used in Models 4EC59A12, 13,16,17,20,21,24 & 25).
R707		(Part of S704).
		- - - - - - - - SWITCHES - - - - - - - -
S701*	19C307089-P19	Switch/Resistor: Includes Switch, rotary 2 poles, 3 positions, momentary shorting contacts, 350 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms 250 w max, mod log taper; sim to Mallory LCZK-2152. In Models 4EC59A10, 11, 14 & 15 earlier than REV A; in Models 4EC59A12, 13, 16 & 17 earlier than REV B; in Models 4EC59A20, 21, & 24 earlier than REV C; and in Models 4EC59A22, 23, & 25 earlier than REV D:
	19C307089-P1	Switch/Resistor: Includes Switch, rotary, 3 poles, 3 positions, non-shorting contacts, 350 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms 250 w max, mod log taper; sim to Mallory LCZK-2352.
S701	19C307089-P1	Switch/Resistor: Includes Switch, rotary 3 poles, 3 positions, non-shorting contacts, 350 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w max, mod log taper; sim to Mallory LCZK-2352.
S702	5491899-P5	Toggle: DPST, 3 amps at 250 VAC or 200 VDC; sim to Cutler-Hammer 8926K15. (Used in Models 4EC59A11, A13, A15, A17, A19, A21, A23 and A25).
S703	3491989-P5	Toggle: DPST, 3 amps at 250 VAC or 200 VDC; sim to Cutler-Hammer 8926K15. (Used in Models 4EC59A10, A12, A14, A16, A18, A20, A22, A24 and A26).
S704	19C307089-P17	Switch/Resistor: Includes Switch, rotary, 4 poles, 2 positions, non-shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±20%, 1 w max, linear taper; sim to Mallory LCZ500-2252. (Used in Models 4EC59A18, A19, A20, A21, A22, A23, A24 and A25).
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500-P9	Phen: 5 terminals.
		- - - - - - - - SOCKET - - - - - - - -
XDS701 and XDS702	19B201132-P2	Lamp, miniature: sim to Drake Series 121.
		- - - - - - - - ASSOCIATED ASSEMBLIES - - - - - - - -
	PL-19A121469-G1	Control unit modification kit (trunk mount).
	PL-19D402239-G1	12 volt vehicle frame.
	PL-19D402239-G2	6 and 28 volt vehicle frame.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

SYMBOL	G-E PART NO	DESCRIPTION
		- - - - - - - - ASSOCIATED ASSEMBLIES(Cont'd) - - - - - - - -
		DIMMER CONTROL MODIFICATION KIT PL-19A121283-G1
		- - - - - - - - RESISTORS - - - - - - - -
R705	19B209114-P1	Variable, wirewound: 75 ohms ±20%, 3 w, linear taper; sim to CTS Series 112.
		POWER CABLE ASSEMBLY PL-19C303801-G1 (12 VOLT FRONT MOUNT) PL-19C303801-G2 (12 VOLT TRUNK MOUNT)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209188-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 PL-19C303601-G1).
	19A115314-P1	Cable: 3 conductor, approx 18 feet long. (Used in PL-19C303601-G3).
		POWER CABLE ASSEMBLY PL-19C303603-G1 (28 VOLT FRONT MOUNT) PL-19C303603-G2 (28 VOLT TRUNK MOUNT)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	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 PL-19C303603-G2).
	19A115313-P1	Cable: 3 conductor, approx 23 feet long. (Used in PL-19C303603-G3).
		POWER CABLE ASSEMBLY (6 VOLT FRONT MOUNT) PL-19C303607-G1
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19B709189-P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438-P1	Cap, connector.
	7126477-P3	Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
	7126477-P4	Cable: 2 lengths, approx 9 feet long connected to pins 4 and 8.
		POWER CABLE ASSEMBLY (6 VOLT TRUNK MOUNT) PL-19C303606-G1
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	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.
	7126477-P3	Cable: 2 lengths, approx 22 feet long connected to pins 1 and 7.
	7126477-P3	Cable: 2 lengths, approx 22 feet long connected to pins 4 and 8.
		CONTROL CABLE ASSEMBLY PL-19C303626-G1, G2 (1-FREQ) PL-19C303828-G3, G4 (MULTI-FREQ)
		- - - - - - - - PLUGS - - - - - - - -
P1	19C303626-G5	Plug, male, includes: connector 19D402408-P3, cap 19C302290-P1.
		- - - - - - -JACKS AND RECEPTACLES- - - - - - -
J1	19C303626-G6	Plug, female, includes connector 19D402408-P1, cap 19C302290-P1.

SYMBOL	G-E PART NO	DESCRIPTION
	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 PL-19C303626-G1).
	19A115437-P1	Cable: approx 23 feet long. (Used in PL-19C303626-G2).
	19A115437-P2	Cable: approx 18 feet long. (Used in PL-19C303626-G3).
	19A115437-P2	Cable: approx 23 feet long. (Used in PL-19C303626-G4).
		VEHICLE SYSTEM CABLE KIT PL-19A121454-G1 (12 VOLT VEHICLES) PL-19A121454-G2 (6/28 VOLT VEHICLES)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19A121324-G1	6/28 volt vehicles jumper. (Used in PL-19A121454-G2).
	19A131429-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 PL-19A121314-G1 (PL-19A121454-G1, G2) PL-19A121314-G2 (PL-19A121454-G3)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	1A16-P6	Fuse, cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
	7134109-P3	Fuseholder: sim to Bussmann Type HDJ-3.
	7112178-P7	Cable: approx 8-3/4 feet long. (Used in PL-19A121314-G1).
	7112178-P4	Cable: approx 8-3/4 feet long. (Used in PL-19A121314-G2).
		INTERCONNECTION HARNESS ASSEMBLY PL-19A121650-G1
J505	PL-19B204609-G1	- - - - - - - - JACKS AND RECEPTACLES - - - - - - - - Plug, male: 13 pin contacts.
P101	19C303506-P1	- - - - - - - - PLUGS - - - - - - - - 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.
TB601	7775500-P11	- - - - - - - - TERMINAL BOARDS - - - - - - - - Phen: 5 terminals.
		RELAY ASSEMBLIES PL-19B204624-G1 & G3 (STANDARD)
C901	19B209141-P1	- - - - - - - - CAPACITORS - - - - - - - - Ceramic disc: axial leads, .001 mf ±10%, 500 VDCW, (Used with K901).
J901	2B22-P3	- - - - - - - - JACKS AND RECEPTACLES - - - - - - - - Receptacle, panel, coaxial: mica-filled insert, UHF contact, Signal Corps MC-239 or sim to Amphenol 83-1R, (Used with W901).

SYMBOL	G-E PART NO	DESCRIPTION
		- - - - - - - - ASSOCIATED ASSEMBLIES(Cont'd) - - - - - - - -
		CONTROL CABLE ASSEMBLY (Cont'd)
K901	19C307107-P1	- - - - - - - - MISCELLANEOUS - - - - - - - - Armature, coaxial-power: 12 VDC nominal, 2.5 w max operating, 40 ohms ±10% coil res, 3 form A, 1 form B and 1 form C coaxial contacts. (Used in PL-19B204624-G1).
K903	19C307107-P3	Armature, coaxial-power: 12 VDC nominal, 2.5 w max operating, 40 ohms ±10% coil res, 3 form A, 1 form B and 1 form C coaxial contacts with connector plug 7136491-P17. (Used in PL-19B204624-G3).
P103		(Part of W903).
P441		(Part of W902).
W901	19B209044-P4	Cable, antenna, RF: 1800 VRMS max, approx 4-1/2 inches long; sim to Amphenol 31-196. (Used with J901).
W902	5491699-P47	Cable, receiver, RF: includes phono type plug (P441), 350 VRMS max, approx 6-3/4 inches long.
W903	5491699-P47	Cable, transmitter, RF: includes phono type plug (P103), 350 VRMS max, approx 6-3/4 inches long.
	2B22-P2	Adapter, right angle, coaxial: polystyrene, UHF contact, Signal Corps M-359; sim to Amphenol 83-1AP. (Used with J901).
		CIRCUIT BREAKER ASSEMBLY PL-7487952-G11 (12 VOLT VEHICLES) PL-7487953-G12 (28 VOLT VEHICLES) PL-7487953-G13 (6 VOLT VEHICLES)
CB1	5491516-P7	- - - - - - - - CIRCUIT BREAKERS - - - - - - - - Thermal disc: 40 amps, 6 to 12 v operating, manual reset; sim to Littelfuse 814040.
CB2	5491516-P7	Thermal disc: 40 amps, 6 to 12 v operating, manual reset; sim to Littelfuse 814040. (Used in PL-7487953-G13).
K1	7486515-P1	- - - - - - - - RELAYS - - - - - - - - Armature, sealed: 6 VDC nominal, 36 ohms ±8% coil res, 1 form A contact rated at 15 amps; sim to RBM 60-109013-2. (Used in PL-7487953-G13).
K3	7486515-P3	Armature, sealed: 28 VDC nominal, 300 ohms ±10% coil res, 1 form A contact rated at 15 amps. (Used in PL-7487952-G11).
		130 - 470 MC ANTENNA MODEL 4ST12413 (5490980-P13)
		- - - - - - - - MISCELLANEOUS - - - - - - - - Antenna: includes stainless steel whip approx 20 inches long with ball tip; whip socket and screw; rubber mounting gasket; cable; cable adapter; PL-259 coaxial plug; sim to Antenna Specialists ASPD9108C or Hamtronics Type PA-23.
	5490980-P4	Whip: stainless steel, approx 20 inches long; ball tip.
	5490999-P5	Socket, whip: with (2) No. 6-32 set screws.
	5490999-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 G-E Dwg 2B22-P3 and G-E Dwg 7150381-P1).
	7150381-P1	Adapter, cable: approx 1 x 7/16 inches dia. Type UG-175/U. (Used with G-E Dwg 2B22-P3 and Type RG-58/U cable).
	2B22-P1	Plug, coaxial: mica-filled insert, UHF contact, Signal Corps M-359; sim to Amphenol 83-1SP. (Used with G-E Dwg 7150381-P1 and Type RG-58/U cable).
		25 - 88 MC ANTENNA
		- - - - - - - - CAPACITORS - - - - - - - - Antenna: includes stainless steel rod approx 36-1/2 inches long; ball tip; lockwasher; No. 10-32 hex socket set screw; sim to Antenna Specialists ASP4350R.
	7491074-P1	Adapter, antenna: approx 2-5/16 inches long. (Used with G-E Dwg 7491074-P1).
	7102930-P3	Antenna package: includes base; adapter spring; cable and plug.
	PL-4033101-G1	Antenna base. (Used in PL-4033101-G1).
	PL-7472880-G5	Adapter spring. (Used in PL-4033101-G1).
	PL-7476632-G4	

SYMBOL	G-E PART NO	DESCRIPTION
		- - - - - - - - ASSOCIATED ASSEMBLIES(Cont'd) - - - - - - - -
	4039101-P1	- - - - - - - - MISCELLANEOUS - - - - - - - - Coil, loading: 25 to 34 megacycles; sim to Antenna Specialists ASPA87,
	PL-19A121577-G1	Antenna hook kit.
	7134726-P1	Antenna hook. (Used in PL-19A121577-G1).
		MECHANICAL PARTS MOUNTING BRACKET ASSEMBLY PL-19C303601-G1 (12 VOLT FRONT MOUNT) PL-19C303601-G2 (12 VOLT TRUNK MOUNT)
1	NS26919C13	Plug button: approx 21/32 inches dia. (Used in Models 4EC59A10, A11, A14, A15, A18, A19, and A22 and A23).
2	NS26925C13	Plug button: approx 13/32 inches dia.
3		Mounting bracket.
4	19B201122-P3	Lens cap: green translucent nylon, approx 3/8 inch dia.
5	RP243423	Nameplate: approx 4-13/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A10 and A12).
6	RP243421	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A11 and A13).
7	RP243436	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A14 and A16).
8	RP243424	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A18 and A20).
9	RP243469	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A19 and A21).
10	RP243425	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A22 and A24).
11	RP243473	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A15 and A17).
12	RP243467	Nameplate: approx 4-15/16 x 2-1/4 inches, etched aluminum. (Used in Models 4EC59A23 and A25).
13	19B201122-P4	Lens cap: red transluscent nylon, approx 3/8 inch dia.
14	PL-19B204443-G1	Knob: gray.
15	19C303413-P1	Knob: VOLUME/SQUELCH.
16	19B204467-P1	Casting: approx 5-7/16 x 2-11/16 x 1-13/16 inches.
17	19B204522-P1	Mounting plate: approx 5-7/16 x 2-1/2 x 1/16 inches thick.
		HANDSET MODEL 4EMC59A10 (PL-19B209100-G1) (SEE EC-1194)
1		Self tap screw, bind head: No. 4 x 5/16, Shure Brothers 30C64C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers 53A341.
4		Switch. Shure Brothers 90A917.
5		Handle. Shure Brothers 90A971.
6		Adapter. Shure Brothers 65A330.
7		Magnetic controlled cartridge. Shure Brothers 99A562.
8	3R77-P222K	Resistor, composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. Shure Brothers 65A1984.
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 65B306A.
15		Flat head screw, socket cap: No. 4-40 x 1/4. Shure Brothers 30C5S7B.
16		Transmitter cap. Shure Brothers 65A197A.
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers 99A56.
19		Cable and plug. Shure Brothers 90A8619.

SYMBOL	G-E PART NO	DESCRIPTION
		MECHANICAL PARTS(Cont'd)
	5493239-P1	Cable, antenna: includes Type RG-58/U cable approx 15 feet long; PL-259 coaxial plug; adapter; PL-258 coaxial coupling. Sim to Antenna Specialists 15467. (Used in PL-4033101-G1).
	2B22-P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps M-359; sim to Amphenol 83-1SP. (Used with G-E Dwg 5493239-P1 in PL-4033101-G1).
		HOOKSWITCH ASSEMBLY PL-19B204587-G1 (SEE EC-1194)
20	4029851-P4	Cable clamp; sim to WECKESSER 3/16-4
21	19A121512-P1	Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	PL-19A121581-G1	Cable: approx 25 inches long, includes five 19A121429-P3 pin.
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 PL-19B209102-G1 (PL-19B209102-G3) (SEE EC-1169)
1		Cable clamp. Shure Brothers 53A532.
2		Switch. Shure Brothers 90D838.
3		Case (back) and mounting button: plastic. Shure Brothers M38B1/A.
4		Switch button: red plastic. Shure Brothers 44A138.
5		Spring. Shure Brothers 44A113.
6		Shield. Shure Brothers 53A341.
7		Magnetic controlled cartridge. Shure Brothers 99A95.
8		Case (front): plastic. Shure Brothers 90A969.
9		Cable and plug: approx 6 feet long. Shure Brothers 90A819.
		TWO-WATT SPEAKER MODEL 4EZ16A11 (PL-19D402449-G2) MODEL 4EZ16A12 (PL-19D402449-G4)
		- - - - - - - - ATTENUATORS - - - - - - - -
AT1	7478301-P48	L-pad, variable, audio: 3.5 ohms rev, 4 w, 40 db att at minimum, 29 at center. (Used in Model 4EZ16A11 only).
		- - - - - - - - CAPACITORS - - - - - - - -
C1	19B209233-P1	Tubular, electrolytic: axial leads, 25 mf 25VDC, 25 VDCW; sim to Sprague D37461.
		- - - - - - - - LOUDSPEAKERS - - - - - - - -
LS1	19B209101-P1	Permanent magnet, 3-inch: 2-3/4 w voice input operating, 385 ohms ±10% resonance, 400 to 4000 cps freq range; sim to Clevtron X10071.
		- - - - - - - - CABLES - - - - - - - -
W2	PL-7484321-G7	Cable assembly with 2 wide tongue terminals, approx 4 feet long.
		MECHANICAL PARTS (SEE EC-1194)
1	19A115470-P1	Rubber grommet: approx 3/4 inch dia; sim to Atlantic Rubber 2279 (without hole).
2	19A121623-P1	Insulator: adhesive back, approx 4 x 1/2 x 1/8 inches thick.
3	PL-19A121521-G1	Mounting support.
4	7160861-P20	Screw pad: sheet spring; sim to Tinnerman CB10-832-4.
5	PL-19A121675-G1	Plastic knob: sim to G-E 8678405-P6. (Used in Model 4EZ16A11).
6	19A12467-P1	Pad: adhesive back, approx 3/4 x 1/8 inches thick.
7	19C303505-P1	Aluminum grille: approx 4-7/8 x 4-1/2 inches.
8	PL-19C303504-G2	Can: approx 5-3/8 x 5 x 2 inches. (Used in Model 4EZ16A11).
9	PL-19C303504-G1	Can: approx 5-3/8 x 5 x 2 inches. (Used in Model 4EZ16A12).
10	4037072-P10	Nylon plug: sim to Fastex 307-102A3-00.
11	PL-19A131559-G1	Speaker cover: approx 5-1/8 x 4-7/8 x 1 inches.
12	5493407-P3	Neoprene grommet: approx 3/4 inches dia.

PRODUCTION CHANGES

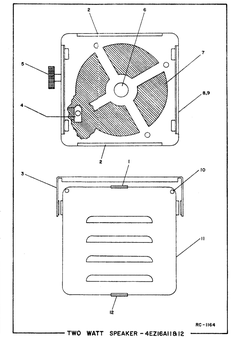
Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

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

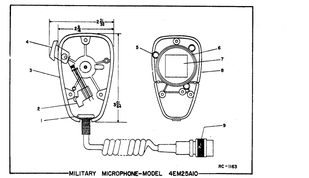
REV. B - Models 4EC59A12,13,16,17,20,21,24 and 25
To reduce speaker minimum audio level when using Universal Selective Calling decodr. Changed R706.

REV. A - Models 4EC59A18,19,22 and 23
REV. C - Models 4EC59A20,21,24 and 25
Added noise filtering coils noise from modulating transmitter. Removed black wire from ground lug TB1-2 (other end connected to S706-1&5) and connected it to microphone jack J702-1.

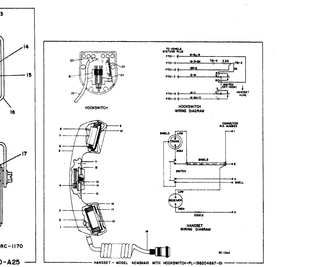
REV. A - Models 4EC59A10,11,14 and 15
REV. B - Models 4EC59A18,19,22 and 23
REV. C - Models 4EC59A12,13,16 and 17
REV. D - Models 4EC59A20,21,24 and 25
To incorporate switch with improved reliability. Changed S701.



TWO WATT SPEAKER - 4EZ16A11/B12



MILITARY MICROPHONE-MODEL 4EM25A10



CONTROL UNIT MODELS 4EC59AIO-A25