MOBILE RADIO

MASTR Progress Line

MOBILE CONTROL UNIT MODELS 4EC59A26-33

Maintenance Manual LBI-3942C

Dec. 1968

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SPECIFICATIONS *

MODEL NUMBERS	4EC59A26 through 4EC59A33
USED WITH	MASTR Royal Professional Mobile Combinations
CONTROLS	VOLUME Control
	OFF-ON-STBY Switch
	SQUELCH Control
	Two-Frequency Selector Switch
	Optional Controls
	CHANNEL GUARD Monitor Switch
	Dimmer Control for Frequency Selector Lights
INDICATORS	Transmit light: red
	F1 Frequency Selector light: green
	F2 Frequency Selector light: yellow

*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 premitted to handle any portion of the equipment that is supplied with voltage of RF power; 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 frequency selector lights do not light.

Turning the switch to the ON position enables the push-to-talk (PTT) circuit, lights a frequency indicator light, and applies +12 volts to the receiver and power regulator. The position of the Frequency Indicator switch determines which light will glow when the OFF-ON-STBY switch is turned to ON. The frequency selector lights are F1-GREEN and F2-YELLOW.

Pushing the PTT button on the microphone lights the red pilot light, energizes the antenna changeover relay, and applies a keyed voltage to the transmitter and power regulator. They keyed voltage also mutes the receiver audio stages.

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 Schematic 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.

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 frequency indicator lights. Turning the control dims or brightens the light as desired by the operator. The dimmer control has no effect on the RED Transmit light.

VEHICLE IGNITION SWITCH CONNECTIONS

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 +12 volts for the power regulator. The three types of operation are:

1. Ignition Switch Standby

For this type of operation, the red fused lead (power regulator 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 power regulator voltage. Turning the OFF-ON-STBY switch to OFF removes all power to the Two-Way Radio.

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.

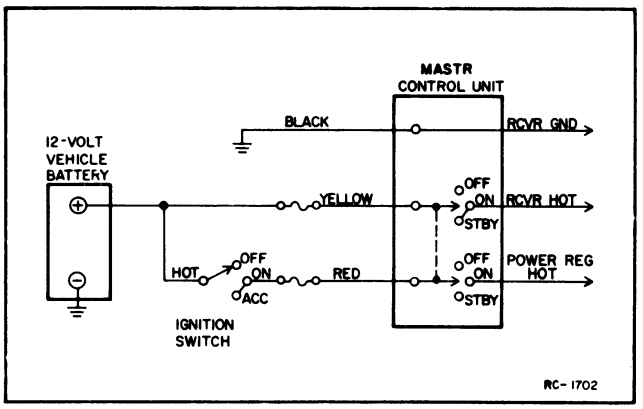


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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 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

The Royal Professional mobile combination operates in 12-volt, negative ground vehicle systems only! If the radio is ever moved to a different vehicle, always check the battery polarity and voltage of the new system before installing the radio.

CAUTION

Do not install the Royal Professional in a vehicle system using a circuit breaker. The radio must be operated in a system protected by a 15-amp quick blow fuse (similar to GE Fuse Assembly 19B216021-G4 and fuse 1R11-P4).

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 degrees.

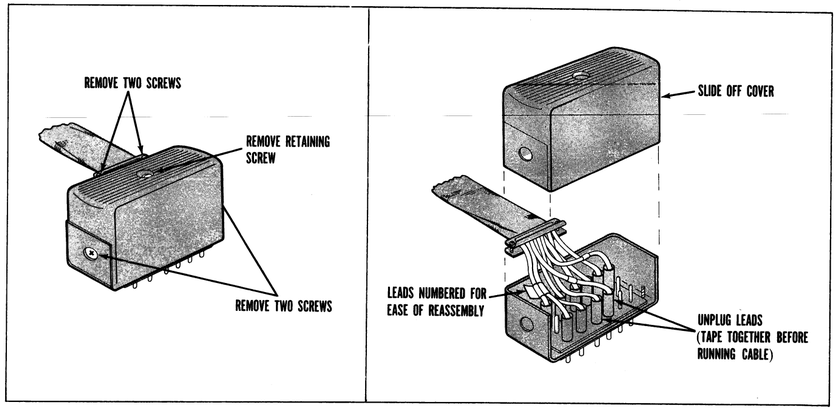
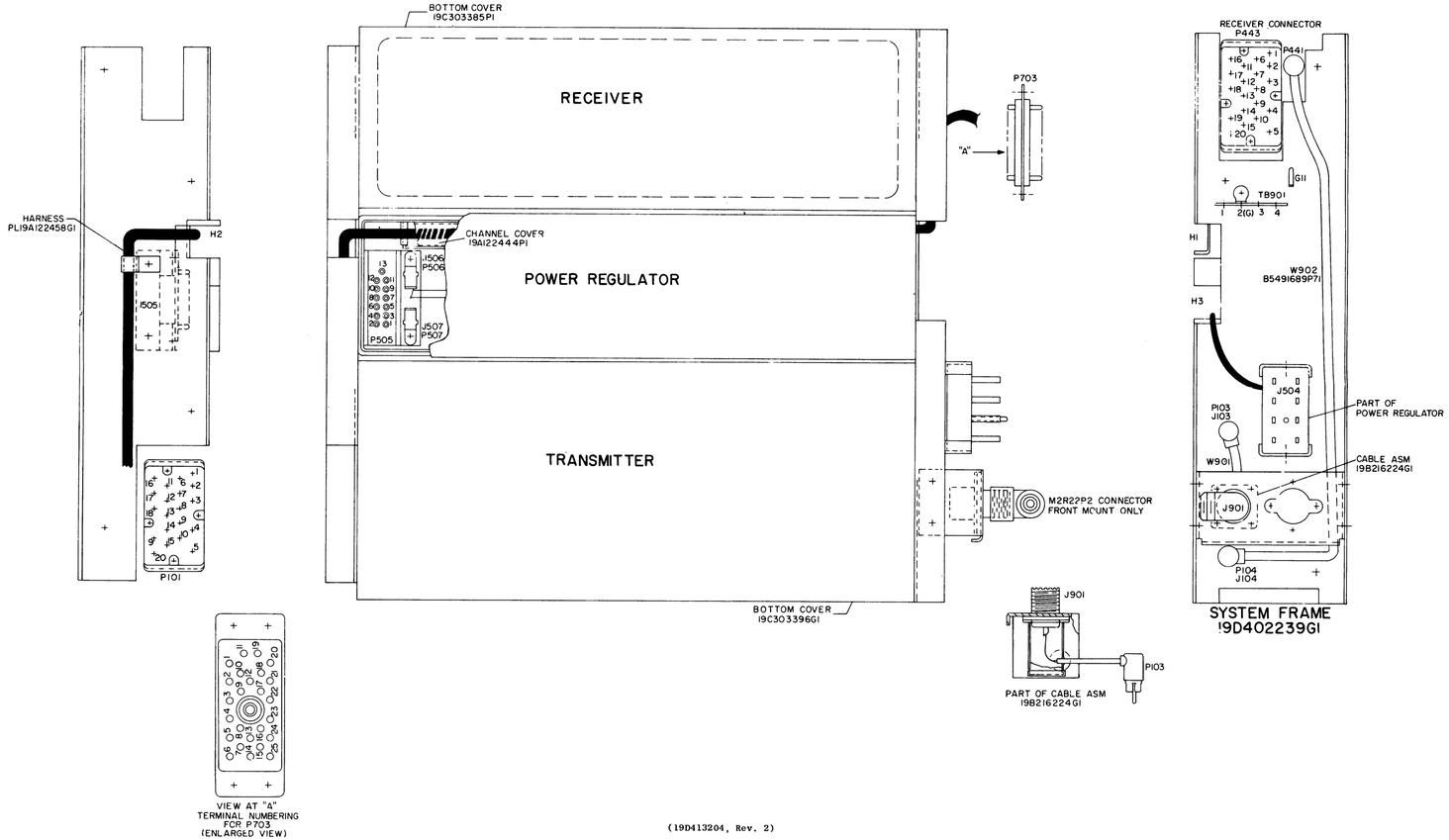


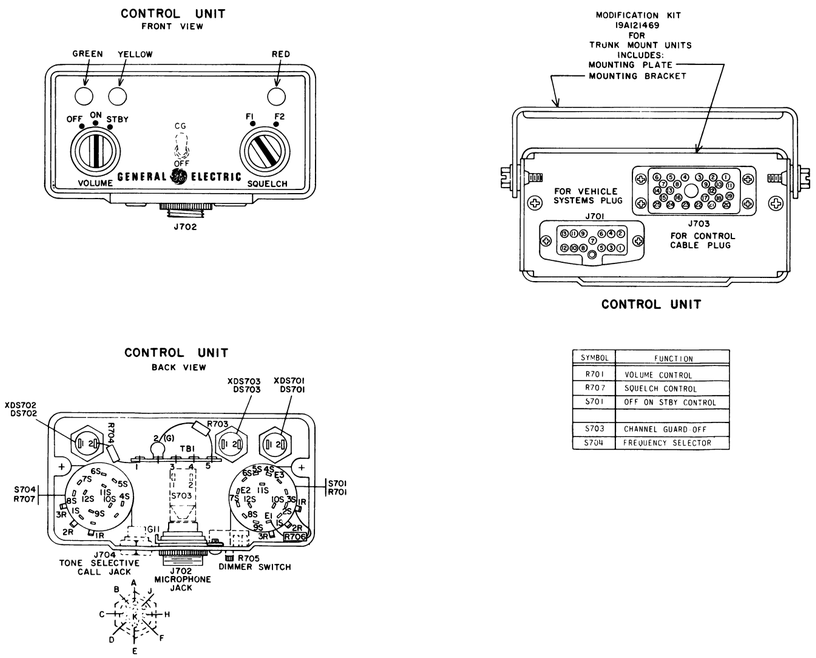
Figure 2 - Disassembly of Control Cable Plug

SYSTEM FRAME AND HARNESS



(19D413204, Rev. 2)

CONTROL UNIT



SYMBOL	FUNCTION
R701	VOLUME CONTROL
R707	SQUELCH CONTROL
S701	OFF ON STBY CONTROL
S703	CHANNEL GUARD OFF
S704	FREQUENCY SELECTOR

(19C303816, Rev. 3)

OUTLINE DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A26-33

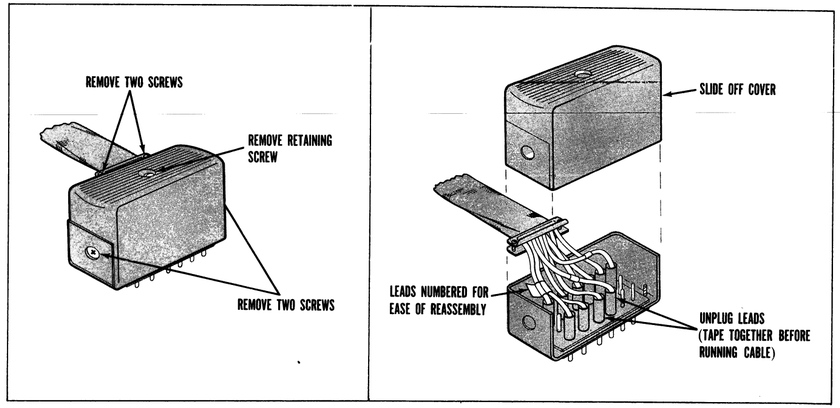


Figure 2 - Disassembly of Control Cable Plug

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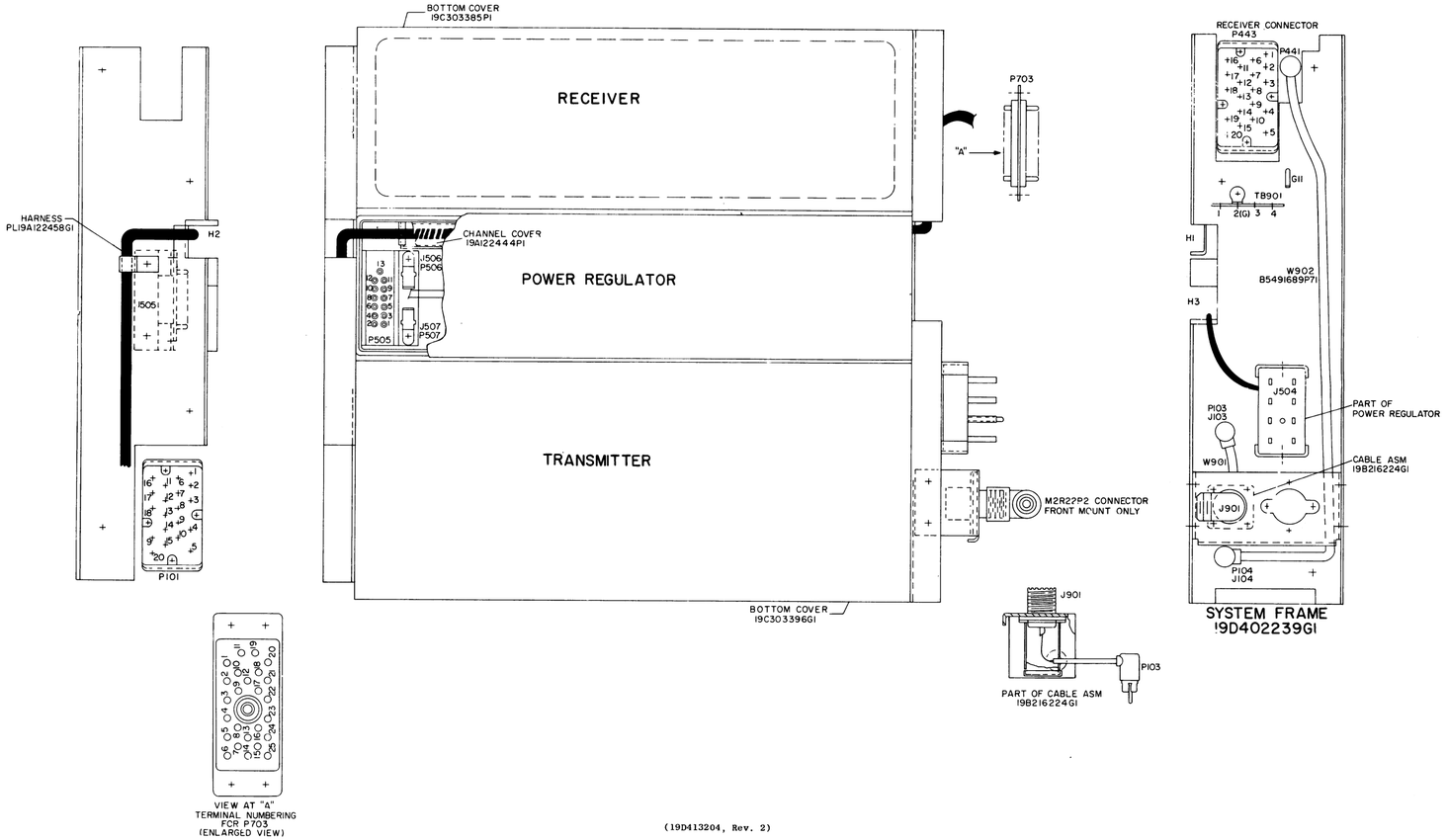
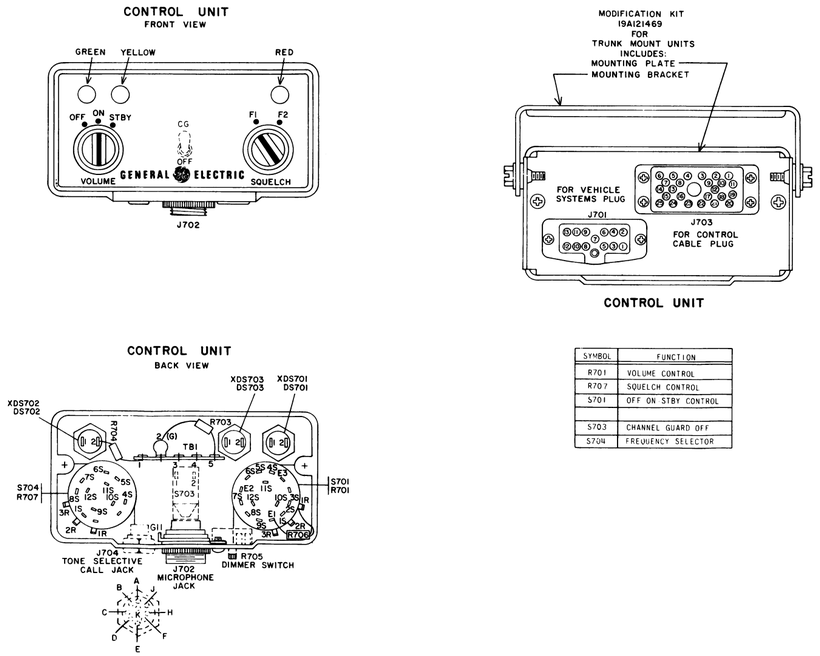


(19D413204, Rev. 2)

CONTROL UNIT



SYMBOL	FUNCTION
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(19C303816, Rev. 3)

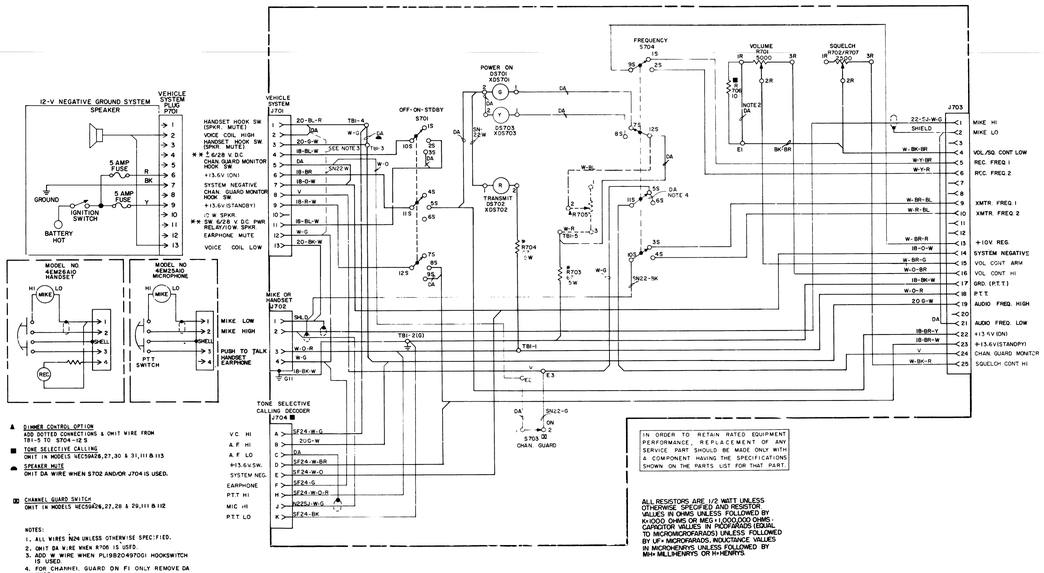
OUTLINE DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A26-33

MODEL NUMBER	REV. LETTER	NO. OF FREQ.	FREQ. INDICATOR LIGHTS	CHANNEL GUARD MONITOR SWITCH		TONE OPTION JACK
4EC59A26	F	2	X			
4EC59A27	F	2	X			
4EC59A28	K	2	X			X
4EC59A29	K	2	X			X
4EC59A30	F	2	X			
4EC59A31	F	2	X	X		
4EC59A32	K	2	X	X		X
4EC59A33	K	2	X	X		X

** TERMINALS 4 & 11 ARE USED ON 12 VOLT SYSTEMS FOR CONTROL OF 10-WATT SPEAKER.

CONTROL UNIT



▲ JUMPER CONTROL OPTION
ADD DOTTED CONNECTIONS & OMIT WIRE FROM TBI-5 TO S704-12 'S

■ TONE SELECTIVE CALLING
OMIT IN MODELS 4EC59A26,27,30 & 31,111 & 113

▲ SPEAKER MUTE
OMIT DA WIRE WHEN S702 AND/OR J704 IS USED.

⊠ CHANNEL GUARD SWITCH
OMIT IN MODELS 4EC59A26,27,28 & 29,111 & 112

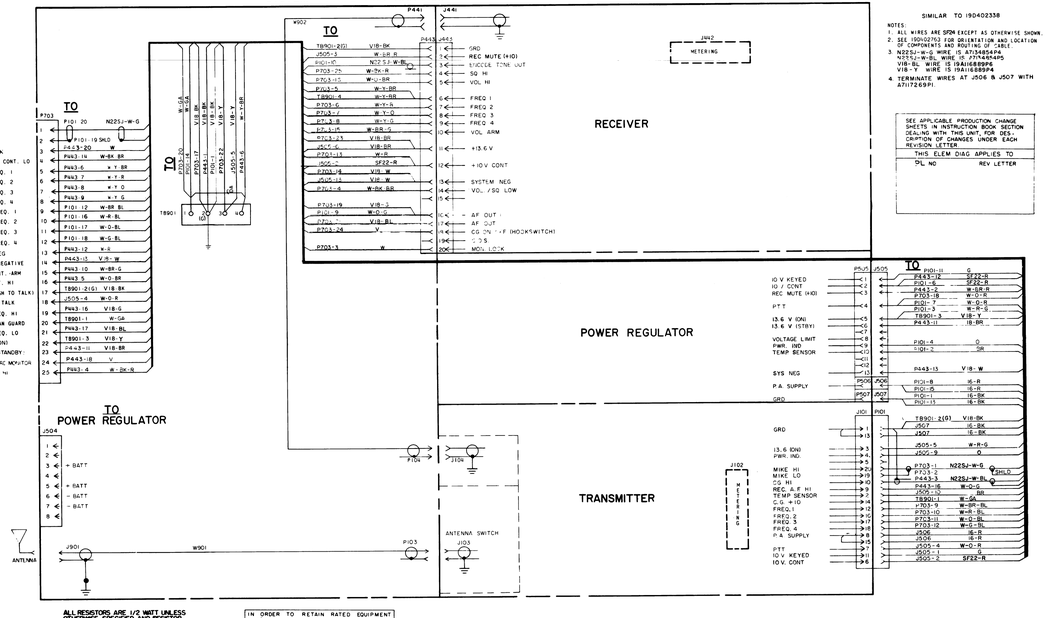
NOTES:
1. ALL WIRES N24 UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R708 IS USED.
3. ADD W WIRE WHEN PL19B204970G1 HOOKSWITCH IS USED.
4. FOR CHANNEL GUARD ON F1 ONLY REMOVE DA WIRE.
5. IN ENCODE ONLY APPLICATIONS, DA JUMPER FROM TBI-3 TO TBI-4 MUST BE PRESENT.

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 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.

(19D402413, Rev. 22)

SYSTEM FRAME AND HARNESS



SIMILAR TO 19D402338

NOTES:
1. ALL WIRES ARE SPKR EXCEPT AS OTHERWISE SHOWN.
2. SEE 19D402703 FOR ORIENTATION AND LOCATION OF COMPONENTS AND ROUTING OF CABLE.
3. N22SJ-W-G WIRE IS A7J3485494
N22SJ-W-BL WIRE IS A7J7446548
VIR-BL WIRE IS 19A116889P6
VIR-Y WIRE IS 19A116889P4
4. TERMINATE WIRES AT J506 & J507 WITH A7J7269P1

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO	
DL NO.	REV. LETTER

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.

(19D402766, Rev. 10)

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR CONTROL UNIT MODELS 4EC59A26-33

Issue 4

PARTS LIST

LBI-3951B

CONTROL UNIT MODELS 4EC59A26-33
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		CONTROL UNIT 19D413054G6
		- - - - - - - INDICATING DEVICES - - - - - - -
DS701 thru DS703	19B301122P1	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		Connector. Includes:
	19A116061P2	Receptacle: 4 female contacts; sim to Amphenol Type 91-PR4F-1000.
	19A116061P4	Lockwasher.
	19A116061P5	Nut, knurled.
J703	19D402608P1	Receptacle: 25 contacts rated at 5 amps max.
J704	19B216279G1	Jack assembly: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester H9S-LRN.
		- - - - - - - - - - RESISTORS - - - - - - - -
R701		(Part of S701).
R703 thru R704	5493035P19	Wirewound: 67 ohms ±5%, 5 w; sim to Hamilton Ball Type HR.
R706*	3R779Y100E	Composition: 10 ohms ±10%, 1/2 w.
		In Models 4EC59A28, 29, 32, 33 of REV B thru G:
	3R779Y560E	Composition: 56 ohms ±10%, 1/2 w.
		In Models 4EC59A28, 29, 32, 33 of REV A:
	3R779Y271E	Composition: 270 ohms ±10%, 1/2 w.
		In Models 4EC59A28, 29, 32, 33 earlier than REV A:
	3R779Y230E	Composition: 23 ohms ±10%, 1/2 w.
R707		(Part of S704).
		- - - - - - - - - - SWITCHES - - - - - - - - -
S701*	19C307089P19	Switch/Resistor: includes Switch, rotary, 1 section, 2 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w max; sim to Mallory LC56-3133.
		In Models 4EC59A28, 29, 32, 33 earlier than REV B; and in Models 4EC59A28, 29, 32 and 33:
	19C307089P1	Switch/Resistor: includes Switch, rotary, 1 section, 2 poles, 3 positions, momentary shorting contacts, 200 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w max; sim to Mallory LC56-3233.
S702 and S703	5491899P5	Toggle: SPDT, 3 amps at 250 VAC/VDC; sim to Cutler-Hammer 8326K15.
S704	19C307089P22	Switch/Resistor: includes Switch, rotary, 1 section, 4 poles, 2 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±10%, 1 w max; sim to Mallory LC2500-3143.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500P12	Phen: 5 terminals.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XDS701 thru XDS703	19B301122P2	Lampholder: sim to Drake Mfg 121 Series.

SYMBOL	GE PART NO.	DESCRIPTION
		MECHANICAL PARTS (SEE RC-1162)
1	8529P19C13	Plug button: approx 21/32 inches dia. (Used in Models 4EC59A28, 27, 30 and 31).
2	8529P5C13	Plug button: approx 13/32 inches dia.
3	19A121531G1	Mounting bracket.
4	19B301122P3	Lens cap: green translucent nylon, approx 3/8 inch dia.
5	19B301122P6	Lens cap: yellow translucent nylon, approx 3/8 inch dia.
6	XP243481	Nameplate: (Used with Standard Models).
7	XP243479	(Not Used)
8	XP243480	Nameplate: (Used with Channel Guard Models).
9	XP243482	(Not Used)
10	19B301122P4	Lens cap: red translucent nylon, approx 3/8 inch dia.
11	19B304443G1	Knob: gray.
12	19C303413P1	Knob: VOLUME/SQUELCH.
13	19B216271G1	Housing.
14	19B204522P1	Mounting plate.
		ASSOCIATED ASSEMBLIES
	19A121469G2	Control unit modification kit (trunk mount).
	19D402239G1	12 volt vehicles frame.
	19A122444P1	Cover, wire channel (on systems frame).
	19C304653G1	Front casting (Front mount).
	19C304653G2	Front casting (Trunk mount).
	5491682P2	Lock: Yale and Towne. (Part of Front casting).
	5491682P7	Cam. (Used with lock).
		POWER CABLE ASSEMBLY 19C303601G1 (12 VOLT FRONT MOUNT) 19C303601G2 (12 VOLT TRUNK MOUNT)
	19B209189P1	Connector, phen: 8 contacts rated at 15 amps at 1100 VRMS; sim to Beauchaine and Sons B-5401-76.
	19D402438P1	Cap, connector.
	19A115313P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601G1).
	19A115314P1	Cable: 3 conductor, approx 18 feet long. (Used in 19C303601G2).
		CONTROL CABLE ASSEMBLY 19C303626G1, G2 (SINGLE FREQ) 19C303626G3, G4 (MULTI-FREQ)
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1	19C303626G5	Plug, male, includes: connector 19D402608P2, cap 19C303290P2.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J1	19C303626G6	Plug, female, includes: connector 19D402608P1, cap 19C303290P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19D402608P1	Receptacle: 25 female contacts rated at 5 amps max.
	19D402608P3	Connector, male phen: 25 contacts rated at 5 amps max.
	19C303290P1	Cap, connector. (Used with 19D402608P1 connector).
	19C303290P2	Cap, connector. (Used with 19D402608P3 connector).
	7139888P8	Cable, single freq: 13 conductors, approx 18 feet long. (Specify length when ordering).
	7139888P8	Cable, single freq: 13 conductors, approx 23 feet long. (Specify length when ordering).

SYMBOL	GE PART NO.	DESCRIPTION
	7139880P11	Cable, multi freq: 23 conductors, approx 18 feet long. (Specify length when ordering).
	7139880P11	Cable, multi freq: 23 conductors, approx 23 feet long. (Specify length when ordering).
		VEHICLE SYSTEM CABLE KIT 19A121454G1 (12 VOLT VEHICLES)
	19A121429P1	Pin: 1/2 inch long.
	19A121441G1	Plug: 13 contacts.
	19C303574P1	Cover.
		FUSED LEAD ASSEMBLY 19A121334G1 (19A121454G1)
	1R16P8	Fuse, cartridge, quick blowing: 8 amps at 250 v; sim to Littelfuse 312008 or Bussmann MTH-8.
	19A115776P2	Fuseholder: sim to Bussmann Type HBJ-B.
		INTERCONNECTION HARNESS ASSEMBLY 19A122458G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J505	19A122683G1	Plug, male: 13 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101	19C303506P1	Connector, phen: 20 contacts rated at 5 amps max at 600 VDC.
P443	19C303506P1	Connector, phen: 20 contacts rated at 5 amps max at 600 VDC.
P703	19D402408P2	Connector, phen: 25 contacts rated at 5 amps max.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB901	7775500P10	Phen: 4 terminals.
		ANTENNA CABLE ASSEMBLY 19B216224G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J901	2B22P3	Receptacle: coaxial; micarfilled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1R.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P103		(Part of W901).
		- - - - - - - - - - CABLES - - - - - - - - - -
W901	5491689P56	Cable, RF: coaxial, approx 12 inches long. Includes phono type plug (P103).
	2B22P2	Adapter, right angle, coaxial: polytetrene, UHF contact. Signal Corps M-359; sim to Amphenol 83-1AP. (Front mount only) (Connect to J901).
		RECEIVER RF CABLE ASSEMBLY
		- - - - - - - - - - PLUGS - - - - - - - - - -
P104		(Part of W902).
P441		(Part of W902).
		- - - - - - - - - - CABLES - - - - - - - - - -
W902	5491689P71	Cable, Receiver, RF: includes two phono type plugs (P104 and P441), 350 VRMS max, approx 12 inches long.
		12 VOLT FUSEHOLDER 19B316031G4 (Fuses must be ordered separately)
		- - - - - - - - - - FUSES - - - - - - - - - -
1R11P4		Quick blowing: 15 amps, 250 v; sim to Bussmann MDR15. (transmitter).

SYMBOL	GE PART NO.	DESCRIPTION
		130 - 470 MHz ANTENNA MODEL 4ET12A19 (5480969P23)
		Antenna: includes stainless steel whip approx 20 inches long; ball tip; whip socket; No. 8-32 set screw; rubber mounting gasket; antenna cable; cable adapter, PL-259 coaxial plug; sim to Antenna Specialists ASP201GK or Danbury-Knudsen Type PA-25.
	5480969P4	Whip: stainless steel, approx 20 inches long; ball tip.
	5480969P5	Socket, whip: with (2) No. 6-32 set screws.
	5480969P6	Whip and whip socket: stainless steel whip approx 20 inches long; 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 2B22P1 and GE Dwg 7105381P1).
	7105381P1	Adapter, cable, Type UG-175/U. (Used with GE Dwg 2B22P1 and Type RG-58/U cable).
	2B22P1	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
	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 ASPA38GE.
	7102930P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4033101G1	Antenna package: includes base; adapter spring; cable and plug.
	7472888G5	Antenna base. (Used in 4033101G1).
	7476632G4	Adapter spring. (Used in 4033101G1).
	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 19A43. (Used in 4033101G1).
	2B22P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239P1 in 4033101G1).
	4A79A1	Coil, loading: 25 to 33 MHz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook. (Used in 19A121577G1).
		HANDSET MODEL 4EM28A1C (19B209100G1) (SEE RC-1084)
1		Self tap screw, bind head: No. 4 x 5/16. Shure Brothers 30C540C.
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 RP81.
8	3R779Y22E	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.

SYMBOL	GE PART NO.	DESCRIPTION
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.
		HOOKSWITCH ASSEMBLY 19B204487G1
		- - - - - - - - MISCELLANEOUS - - - - - - - - -
20	4029851P4	Cable clamp: sim to WEC Keeser 3/8-4.
21	19A121613P1	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 Ball Type HR.
24	7775500P55	Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM25A1O (19B209415G1) (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 19C320302G2 4EZ20A1O
LS3	19A116910P1	Permanent magnet: 5 inch, 3.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 002009.
W1	19A121546G1	Cable assembly: approx 48 inches long, includes (2) 19A121429P1 pins.
	19D416396P3	Speaker housing.
	19C320016P2	Mounting support.
	5480407P3	Neoprene grommet. (Upper)
	19A115470P1	Rubber grommet. (Lower)
	19B216692G3	Grille.
	19A116985P1	Screw, hex head-slotted: double lead thread, with internal tooth washer, No. 13-16 x 3/4. (Secures housing to mounting bracket).

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 4EC59A28, 29, 32, 33
To achieve compatibility with pulse tone decoder. Changed R706.

REV. B - Models 4EC59A28, 29, 32, 33
To reduce speaker minimum audio level when using Type 99 tone decoders. Changed R706.

REV. A - Models 4EC59A26, 27, 30, 31
REV. C - Models 4EC59A28, 29, 32, 33
To reduce microphone modulation caused by power supply switching noises. Removed black wire from ground lug TB1-2 (other end connected to S706-14G) and connected it to microphone jack J702-1.

REV. B - Models 4EC59A26, 27, 30, 31
REV. D - Models 4EC59A28, 29, 32, 33
To incorporate switch with improved reliability. Changed S701.

REV. C - Models 4EC59A26, 27, 30, 31
REV. E - Models 4EC59A28, 29, 32, 33
To ground microphone jack. Added 8K-W wire from TB1-2(G) to G11.

REV. D - Models 4EC59A26, 27, 30, 31
REV. F - Models 4EC59A28, 29, 32, 33
To incorporate a new control unit housing. Changed housing from metal to Lexan.

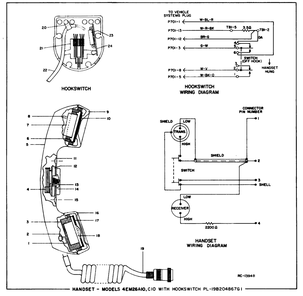
REV. E - Models 4EC59A26, 27, 30, 31
REV. G - Models 4EC59A28, 29, 32, 33
To provide Channel Guard decode function on all channels. Added jumpers from S706-9S to -10S and from S706-10S to -11S.

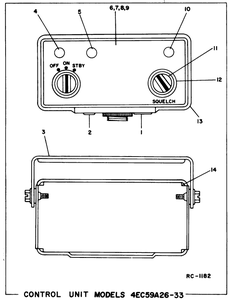
REV. H - Models 4EC59A28, 29, 32, 33
To reduce audio output level at minimum volume control setting. Changed R706.

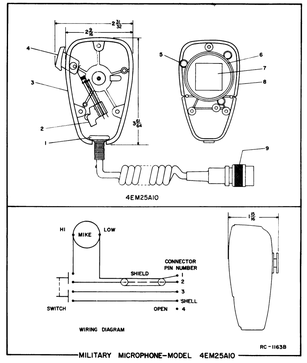
REV. J - Models 4EC59A28, 29, 32, 33
Added mike hi, PTT, earphone and ground to Tone Option Jack J704.

REV. F - Models 4EC59A26, 27, 30, 31.

REV. K - Models 4EC59A28, 29, 32, 33.
Incorporate new housing. Changed housing from 19B216271G1 to 19D413010P1. Changed backplate retaining screw to 19A115773P106.







*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

ORDERING SERVICE PARTS

Each component appearing on the schematic diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number, followed by 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-3942

DF-4080

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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