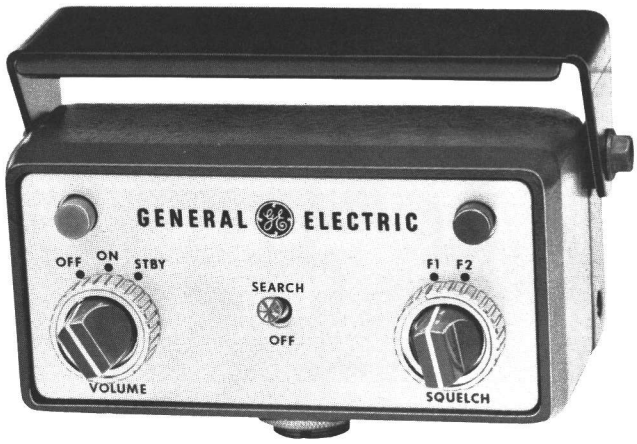
MOBILE RADIO

MAINTENANCE MANUAL

MOBILE CONTROL UNIT MODELS 4EC59A84, 86, 88 & 90

Maintenance Manual LBI-4196C
DATAFILE FOLDER - DF-4070**********



SPECIFICATIONS *

MODEL NUMBERS	4EC59A84, 86, 88 & 90
USED WITH	MASTR® Professional Series Mobile Combinations with Search-Lock Monitor
CONTROLS	VOLUME Control OFF-ON-STBY Switch SQUELCH Control F1 - F2 Selector Switch SEARCH-OFF Switch Dimmer Control for Pilot Lights
INDICATORS	Transmitter filament-on light: green Transmit light: red

EC-59-A

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

GENERAL ELECTRIC

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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 Models 4EC59A84, 86, 88 and 4EC59A90 are used with MASTR mobile combinations that are equipped with the Search-Lock Monitor (SLM) option. They are compact, highly functional control units designed for either Trunk-Mount or Front-Mount 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

CONTROLS

In addition to VOLUME and SQUELCH controls, the control units are provided with the controls described in the following paragraphs.

OFF-ON-STBY Switch (S701)

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.

F1-F2 Frequency Selector Switch (S704)

The frequency selector switch selects the desired channel (F1 or F2) for both transmitting and receiving. However, frequency selection is affected by the position of SEARCH-OFF switch S710.

SEARCH-OFF Switch (S710)

With the SEARCH-OFF switch in the OFF position, +10 volts is applied through the frequency selector switch to the selected receiver oscillator, over-riding the SLM. The frequency selector switch also connects the transmitter oscillator to ground, so that the radio will operate on the frequency determined by the selected transmitter and receiver oscillator.

When the SEARCH-OFF switch in the SEARCH position, no voltage is applied through the frequency selector switch to either receiver crystal-switching diode, permitting the Search-Lock Monitor circuit to operate. The SLM then provides two-channel sequential monitoring by alternately switching +10 volts between the receiver crystal-switching diodes at a rate of approximately eight times per second.

When a signal is received on either channel, the SLM will "lock" on that channel for the duration of the signal.

NOTE

On mobile combinations with Channel Guard, the Channel Guard normally operates in both the F1 and F2 position. For Channel Guard operation on F1 only, remove the jumper connected between S704-5S and S704-6S.

Dimmer Control (R705)

The dimmer control is a rheostat in series with the power-on and frequency indicator lights. Turning the control adjusts the amount of light that is given off by the lamps.

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.

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

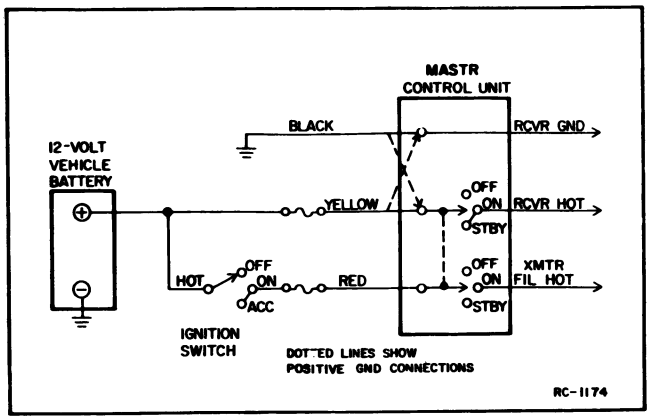


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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.

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 in 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.

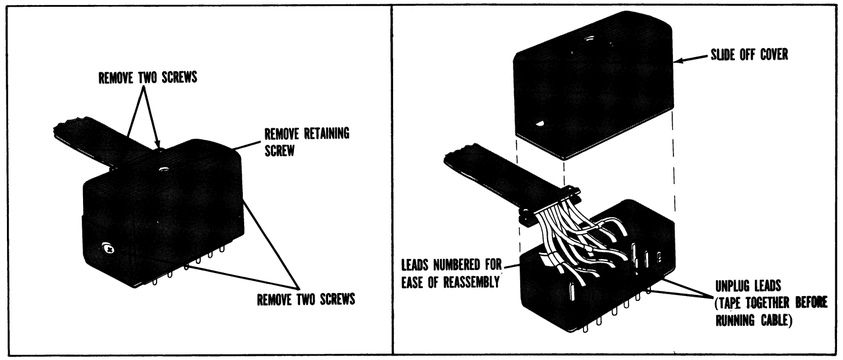
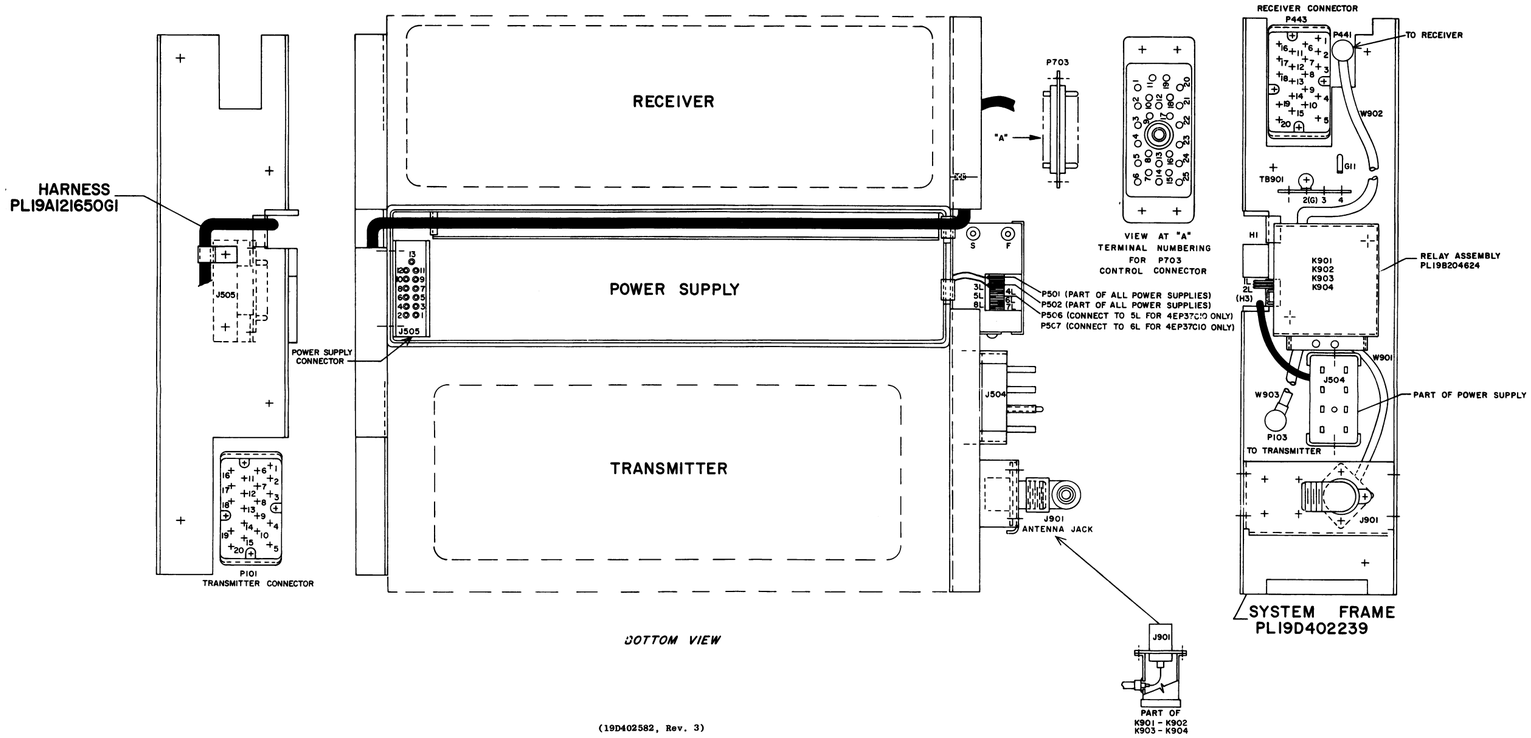


Figure 2 - Disassembly of Control Cable Plug

NOTE

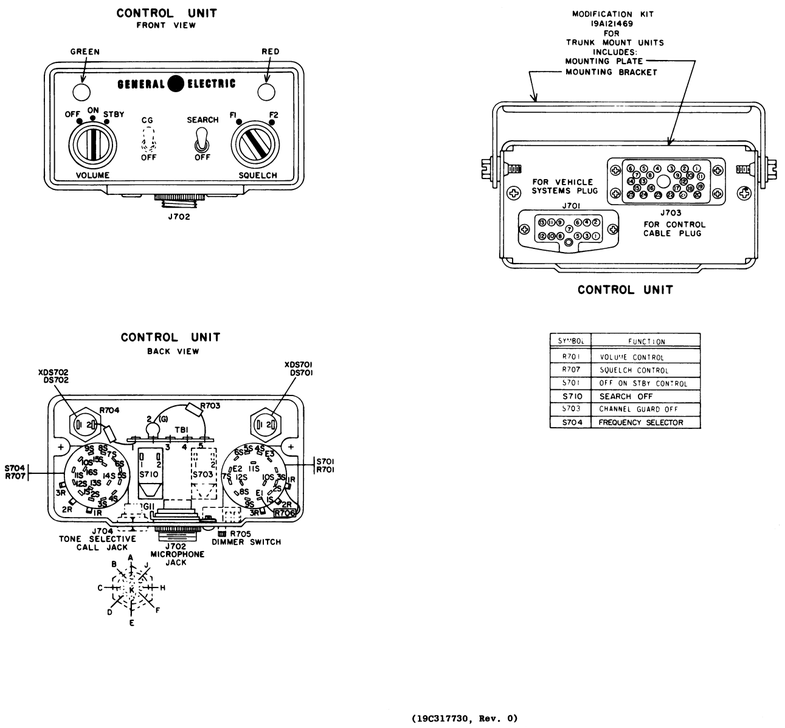
The plug is assembled so that the cable comes out of the top of the plug when connected to the Control Unit. To have the cable come out of the bottom of the plug, remove the remaining two screws and rotate the metal frame 180 degrees.

SYSTEM FRAME AND HARNESS



(19D402582, Rev. 3)

CONTROL UNIT



SYMBOL	FUNCTION
R701	VOLUME CONTROL
R707	SQUELCH CONTROL
S701	OFF ON STBY CONTROL
S710	SEARCH OFF
S703	CHANNEL GUARD OFF
S704	FREQUENCY SELECTOR

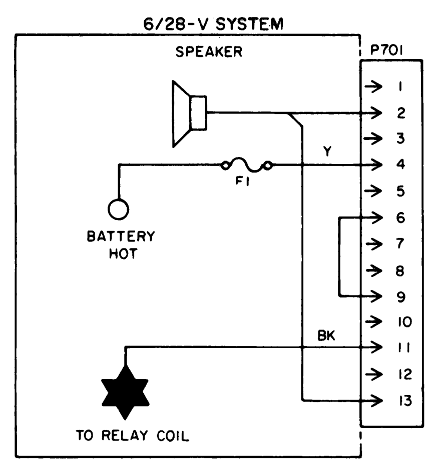
(19C317730, Rev. 0)

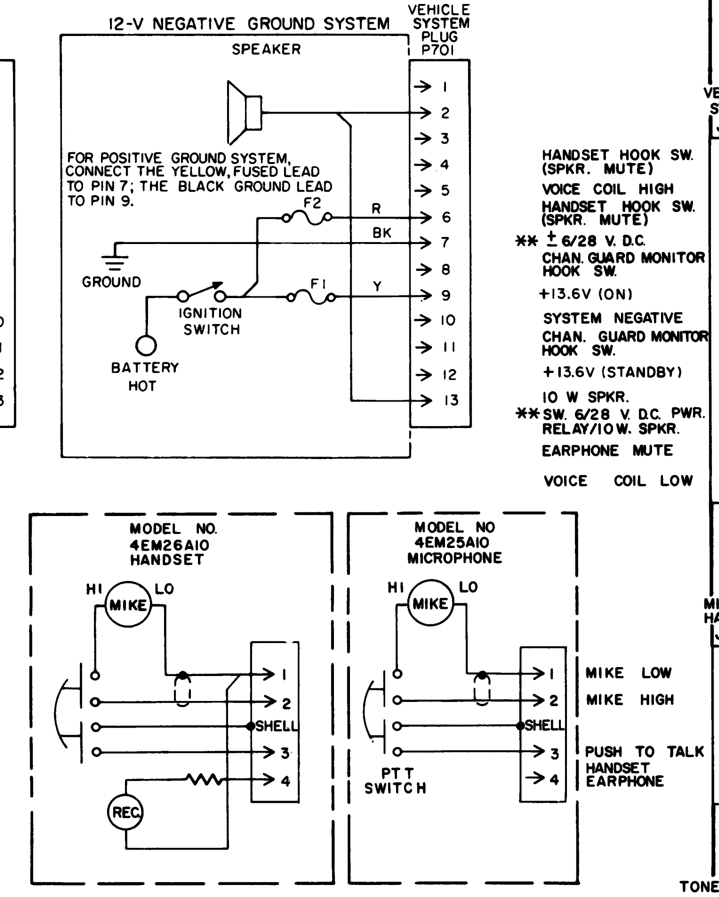
OUTLINE DIAGRAM

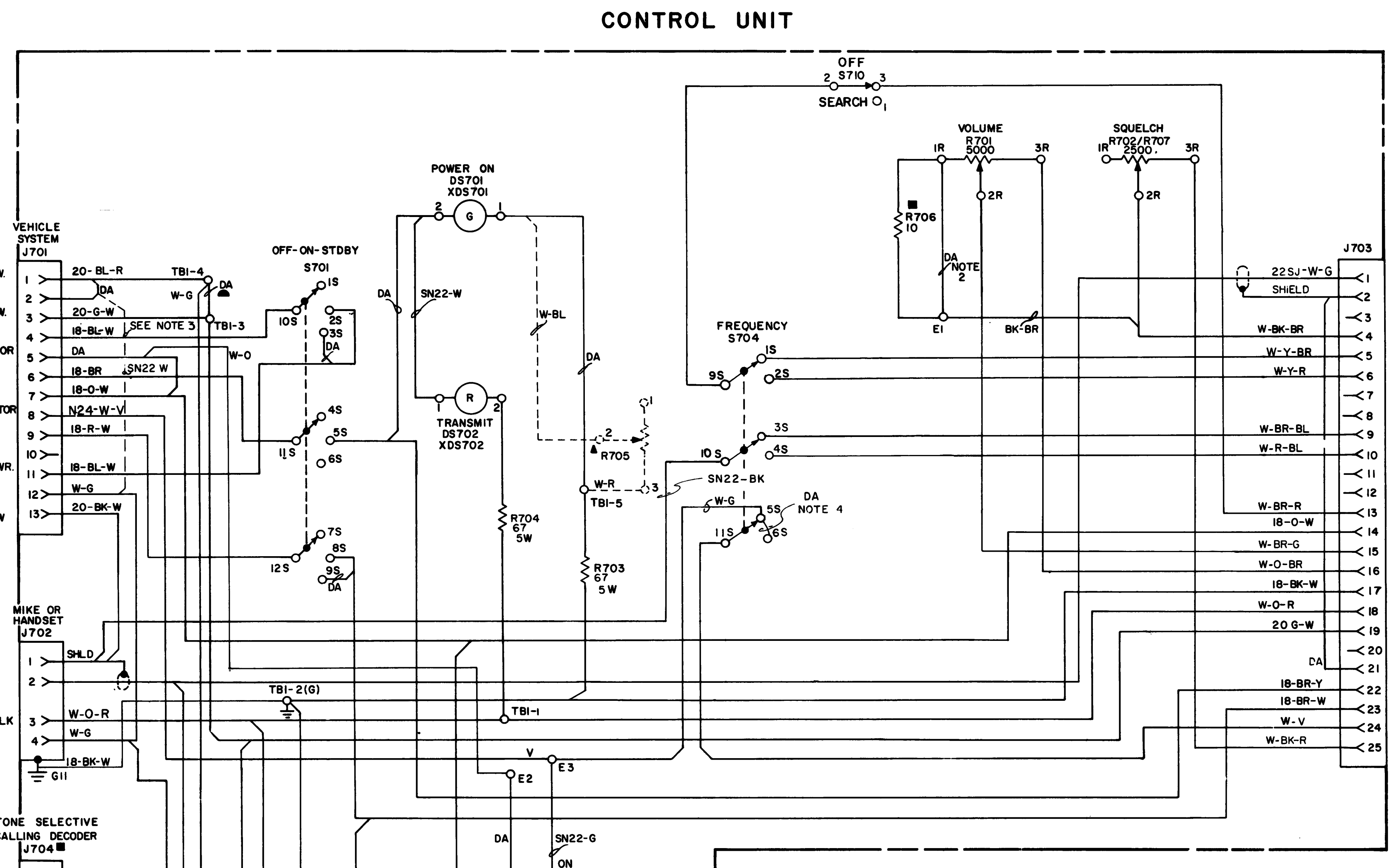
MASTR CONTROL UNIT
MODELS 4EC59A84, 86, 88 & 90

MODEL NUMBER	REV. LETTER	NO. OF FREQ.	BASIC	CHANNEL GUARD MONITOR SWITCH	TONE OPTION JACK	TONE OPTION & CHANNEL GUARD
4EC59A84	A	2	X			
4EC59A86	B	2			X	
4EC59A88	A	2		X		
4EC59A90	B	2				X
4EC59A128	A	2	X			
4EC59A129	B	2			X	
4EC59A130	A	2		X		
4EC59A131	A	2				X

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







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 PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

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

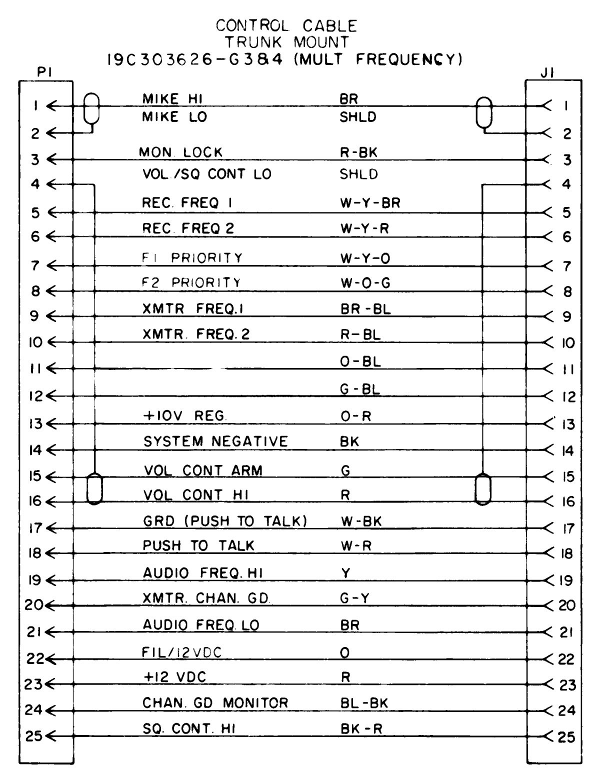
■ TONE SELECTIVE CALLING
OPTIONAL

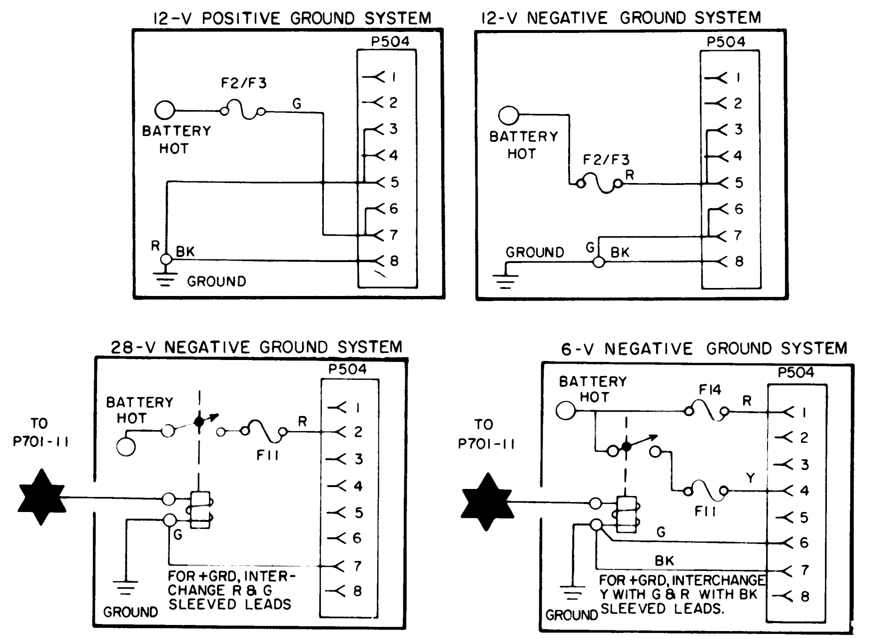
SPEAKER MUTE
OMIT DA WIRE WHEN J704 IS USED.

☒ CHANNEL GUARD SWITCH
OMIT IN MODEL 4EC59A84

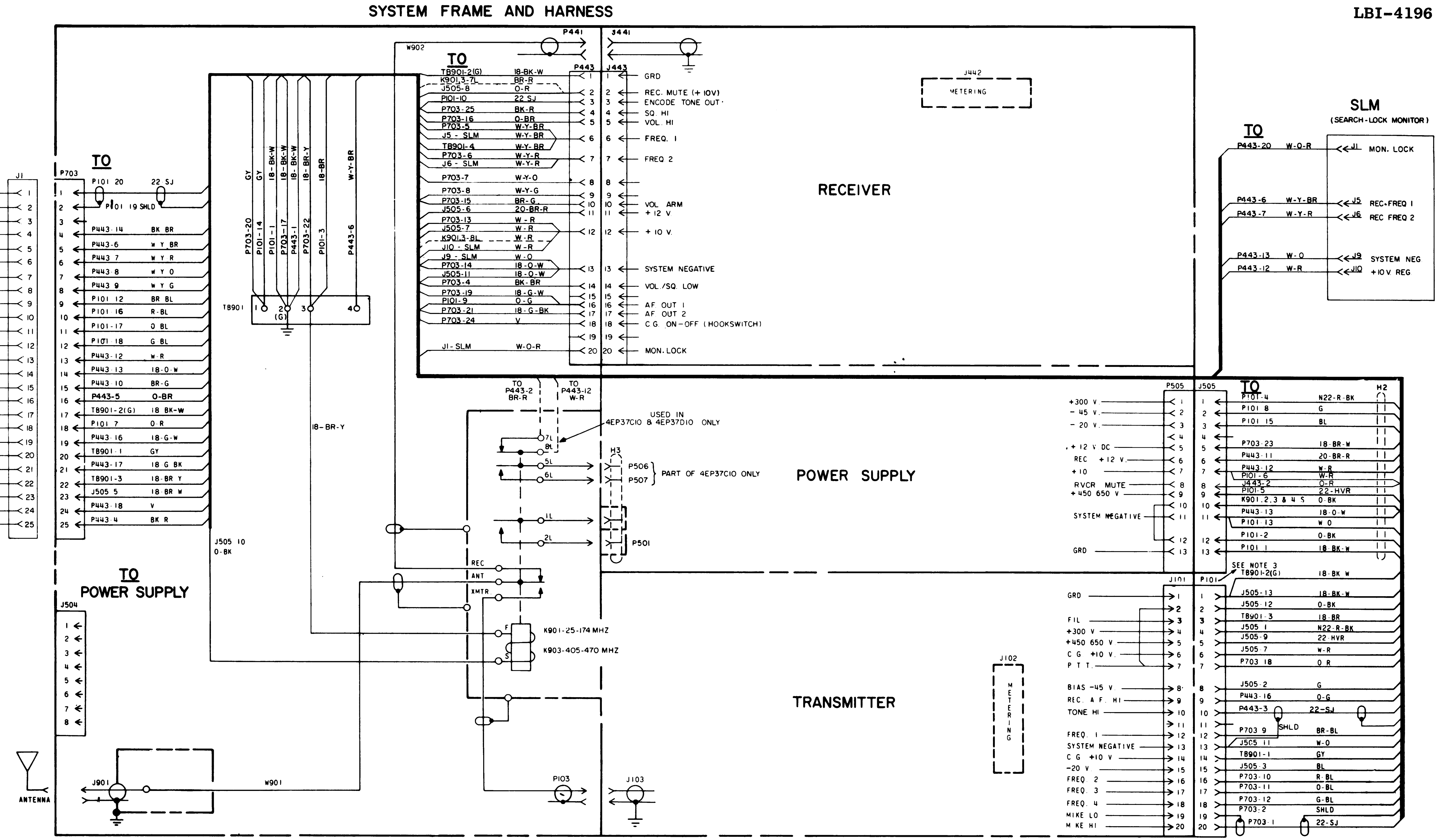
NOTES:
1. ALL WIRES N24 UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R706 IS USED.
3. ADD W WIRE WHEN PL19B204970G1 HOOKSWITCH IS USED.
4. FOR CHANNEL GUARD ON F1 ONLY REMOVE DA WIRE.
5. IN ENCODE ONLY APPLICATIONS, DA JUMPER FROM TB1-3 TO TB1-4 MUST BE PRESENT.

(19D413694, Rev. 9)





RC-1870A



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.

NOTES:
1. ALL WIRES ARE SF24 EXCEPT AS OTHERWISE SHOWN.
2. SEE 19D402476 FOR ORIENTATION AND LOCATION OF COMPONENTS AND ROUTING OF CABLE.
3. SEE 19A121837P1 FOR CONNECTIONS OF P101.

(19D413900, Rev. 0)

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR CONTROL UNIT
MODELS 4EC59A84, 86, 88 & 90

Issue 4

PARTS LIST

LBI-4194B

CONTROL UNIT
MODELS 4EM26A10, A50, A8, 90
19D413054G10
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		CONTROL UNIT 19D413054G10
		- - - - - - - - - - INDICATORS - - - - - - - - - -
DS701 and DS702	19B200122P1	Lamp, indicator: 6 v; sim to GE 1768.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - - -
J701	19C303576P1	Socket, phen: 13 contacts rated at 5 amps max.
J702	19A116061P2	Receptacle: 4 contacts; sim to Amphenol 91-PM4F-1000.
	19A116061P4	Lockwasher, internal tooth.
	19A116061P5	Nut, knurled: No. 13/16 -27N-2.
	19A116064P1	Solderless terminal.
J703	19D402408P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	19B216279G1	Jack assembly: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester RSS-L2B.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R701		(Part of S701).
R703 and R704	5493035P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
R706	3B77P100K	Composition: 10 ohms ±10%, 1/2 w.
R707		(Part of S704).
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S701	19C307089P19	Switch/Resistor: includes Switch, rotary, 3 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R701), variable, 5000 ohms ±20%, 1/2 w max; sim to Mallory LC5K.
S703	5491899P5	Toggle: DPDT, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer 8280K15.
S704	19C307089P22	Switch/Resistor: includes Switch, rotary, 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.
S710	5491899P4	Toggle: DPDT, 6 amps at 125 VAC/VDC; sim to Cutler-Hammer 8373K8.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500P9	Phen: 5 terminals.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XDS701 and XDS702	19B201122P2	Lampholder: sim to Drake Series 121.
		MECHANICAL PARTS (SEE RC-2031)
1	19A115495P1	Screw, hex head: 1/4- 20 x 5/8.
2	19A121521G1	Mounting Bracket.
3	19B201122P3	Lens cap; green translucent nylon.
4	NP257934	Nameplate; etched aluminum. (Used with standard models).
5	NP270332	Nameplate; etched aluminum. (Used with Channel Guard Models).
6	19B201122P4	Lens cap; red translucent nylon.

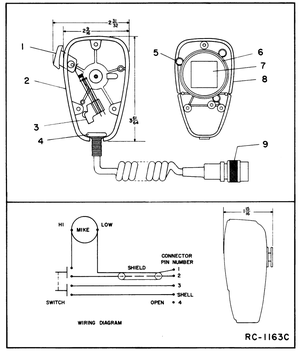
SYMBOL	GE PART NO.	DESCRIPTION
7	19B200443G1	Knob, gray: ON-OFF/FREQUENCY SELECT.
8	19C303413P1	Knob: VOLUME/SQUELCH.
9	19D413010P1	Housing.
10	19B200452P1	Mounting plate.
	19A116773P106	Tap screw, Phillips PCHDIRIV*: No. 7-19 x 3/8.
		ASSOCIATED ASSEMBLIES
	19A121469G1	Control unit modification kit (trunk mount). Includes:
	19D602239G1	12 volt vehicles frame.
	19D602239G2	6 and 28 volt vehicles frame.
	19A122444P1	Cover, wire channel (on systems frame).
	19C303453G1	Front casting (Front mount).
	19C303453G2	Front casting (Trunk mount).
	5491682P2	Lock: Yale and Towne. (Part of Front casting).
	5491682P7	Cam. (Used with lock).
		DINNER CONTROL MODIFICATION KIT 19A121293G1
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R705	19B209114P1	Variable, wirewound: 75 ohms ±20%, 3 w; sim to CTS Series 112.
		POWER CABLE ASSEMBLY 19C303601G1 (12 VOLT FRONT MOUNT) 19C303601G2 (12 VOLT TRUNK MOUNT)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-70.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A115313P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601G1).
	19A115314P1	Cable: 3 conductor, approx 18 feet long. (Used in 19C303601G2).
		POWER CABLE ASSEMBLY 19C303603G1 (28 VOLT FRONT MOUNT) 19C303603G2 (28 VOLT TRUNK MOUNT)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-70.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A115313P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303603G1).
	19A115314P1	Cable: 3 conductor, approx 18 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-5401-70.
	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.

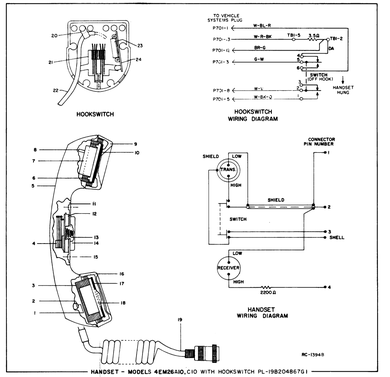
SYMBOL	GE PART NO.	DESCRIPTION
		POWER CABLE ASSEMBLY (6 VOLT TRUNK MOUNT) 19C303606G1
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-70.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	7146477P1	Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
	7146477P2	Cable: 2 lengths, approx 9 feet long connected to pins 4 and 6.
		CONTROL CABLE ASSEMBLY 19C303636G1, G2 (1-FREQ) 19C303626G3, G4 (MULTI-FREQ)
		- - - - - - - - PLUGS - - - - - - - -
P1	19C303626G5	Plug, male: includes connector 19D402408P2, 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.
	19D402408P2	Connector, male phen: 25 contacts rated at 5 amps max.
	19C303290P1	Cap, connector. (Used with 19D402408P1 connector).
	19C303290P2	Cap, connector. (Used with 19D402408P2 connector).
	7139880P11	Cable: 23 conductors. (When ordering specify length). (Used in 19C303626GD and G4).
	7139880P8	Cable: 13 conductors. (When ordering specify length). (Used in 19C303626G1 and G2).
		VEHICLE SYSTEM CABLE KIT 19A121454G1 (12 VOLT VEHICLES) 19A121454G2 (6/28 VOLT VEHICLES)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	19A121324G1	6/28 volt vehicle jumper, (Used in 19A121454G2).
	19A121429P1	Pin: 1/2 inch long.
	19A121441G1	Plug: 13 contacts.
	19C303574P1	Cover.
		FUSED LEAD ASSEMBLY 19A121314G1 (19A121454G1, G2) 19A121314G2 (19A121454G2)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
	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.

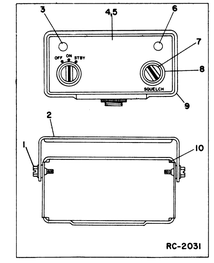
SYMBOL	GE PART NO.	DESCRIPTION
TB901	7775500P10	- - - - - - - - TERMINAL BOARDS - - - - - - - -
		Phen: 5 terminals.
		12 VOLT RELAY ASSEMBLY 25-470 MHz 19B204445P1
		Includes J901, K901, P103, P441, W901-W903.
		6/12, 12/28 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445P2
		Includes J901, K902, P103, P441, W901-W903.
		FUSE AND RELAY ASSEMBLY 7487953G19 (28 VOLT VEHICLE) 7487953G20 (6 VOLT VEHICLE)
		- - - - - - - - - - FUSES - - - - - - - - - -
F11	1R11P4	Quick blowing: 15 amps, 250 v; sim to Bussman RGM15.
F14	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman RGM30. (Used in 7487953G20).
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1	7486515P1	Armature, enclosed: 6 VDC nominal, 26 ohms ±8% coil res, 1 form A contact rated at 15 amps; sim to NIM 60-108013-3. (Used in 7487953G20).
K3	7486515P3	Armature, enclosed: 28 VDC nominal, 300 ohms ±10% coil res, 1 form A contact rated at 15 amps. (Used in 7487953G19).
		12 VOLT FUSE ASSEMBLY 19B210603G4 (Fuses must be ordered separately)
		- - - - - - - - - - FUSES - - - - - - - - - -
F2	1R11P6	Quick blowing: 25 amps, 250 v; sim to Bussman RGM25. (Used with medium power transmitters).
F3	1R11P7	Quick blowing: 30 amps, 250 v; sim to Bussman RGM30. (Used with high power transmitters).
		25 - 50 MHz ANTENNA
	7491074P1	Antenna: includes stainless steel rod approx 40-1/2 inches long; ball tip; lockwasher; No. 10-32 hex socket set screw; sim to Antenna Specialists ASPA36HL.
	7102930P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4X791A1	Loading coil: 25-33 MHz; sim to Antenna Specialists ASPA8T.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook.
	19C307172P1	Antenna Package: Includes base and ball assembly, adapter spring assembly, cable assembly, horseshoe plate, and rubber gasket.
		Base and ball assembly. Newtronics 5495.
		Adapter spring assembly. Newtronics 3327.
		Cable assembly. Newtronics 183-RAG.
		Horseshoe plate. Newtronics 3323-3.
		Rubber gasket. Newtronics 3320.
		132-512 MHz ANTENNA 19B209568P1
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LARGE). 007059-122.
		Stud assembly. 068046-001.
		RC58/U Cable, 15 feet. 068115-001.

SYMBOL	GE PART NO.	DESCRIPTION
		HANDSET MODEL 4EM26A10 MODEL 4EM26C10 19B209100G1 (SEE RC-1364)
1		Self tap screw, bind head: No. 4 x 5/16. Shure Brothers 30C640C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers RP29.
4		Switch. Shure Brothers RP81.
5		Case. Shure Brothers RP49. (Used in 4EM26A10).
		Case. Shure Brothers 21RP099F. (Used in 4EM26C10).
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP41.
8	3B77P222K	Resistor, composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A321.
11		Escutcheon. Shure Brothers 53A536A.
12		Actuator. Shure Brothers 53A556.
13		Spring. Shure Brothers 44A140.
14		Plunger bar. Shure Brothers RP82.
15		Flat head screw, socket cap: No. 4-40 x 1/4. Shure Brothers 30C557B.
16		Transmitter cap. (Part of RP49).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers RP31.
19		Cable and plug. Shure Brothers RP48. (Used in 4EM26A10).
		Cable and plug. Shure Brothers 21RP738F. (Used in 4EM26C10).
		HOOKSWITCH ASSEMBLY 19B204867G1 (SEE RC-1394)
		- - - - - - - - MISCELLANEOUS - - - - - - - -
20	4029851P4	Cable clamp: sim to WEC Kessler 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	5493033P10	Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
24	7775500P95	Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM35A10 19B209152G1 (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.

SYMBOL	GE PART NO.	DESCRIPTION
		5 WATT SPEAKER 19C320036G3 4EZ20A10
LS2	19A116910P1	Permanent magnet: 5 inch, 3.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 003009.
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)
	19B219092G3	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 4EC59A86, A90
Added Mike Hi, Pvt, earphone and ground to Tone Option jack J704.

REV. A - Models 4EC59A84, A88
REV. B - Models 4EC59A86, A90
To incorporate new housing. Changed housing 19B216271G1 to 19D413010P1. Changed backplate retaining screw to 19A116775P106.

*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.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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