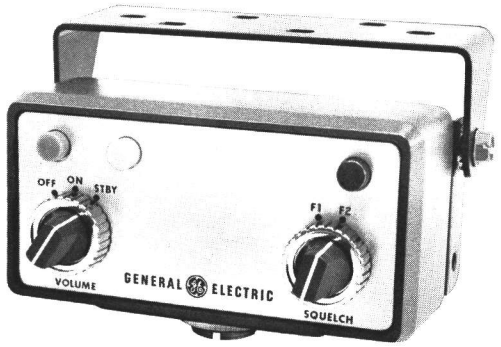
MOBILE RADIO

MASTR® PROGRESS LINE

MOBILE CONTROL UNIT MODELS 4EC59A26-33



SPECIFICATIONS *

MODEL NUMBERS	4EC59A26 through 4EC59A33
USED WITH	MASTR Progress Line 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

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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 frequency selector lights do not light.

Turning the switch to the ON position applies filament voltage to the transmitter, activates the push-to-talk (PTT) circuit, and illuminates a frequency selector light. On multi-frequency units with indicator lights, 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. 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.

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.

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 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 a frequency selector light and supplies transmitter filament voltage. Turning the OFF-ON-STBY switch to OFF removes all power to the Two-Way Radio.

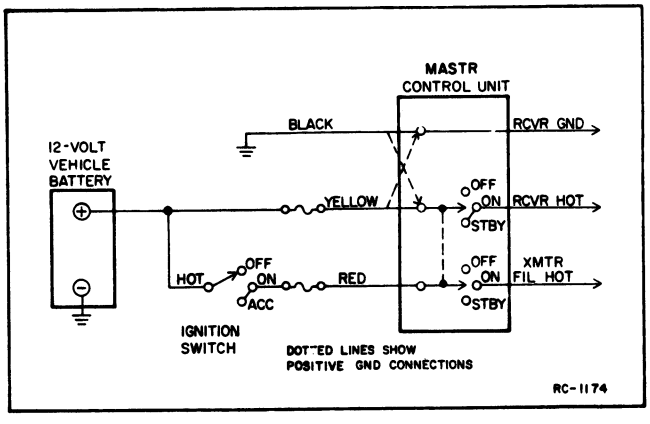


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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 model of operation, depending on the way the two ignition switch cables are connected in the vehicle system. The black cable provides the connection from the relay coil on the fuse assembly to the control head. The yellow fused lead provides the hot connection to operate the relay. The two types of operation are:

1. Ignition Switch Control - For ignition switch control, the yellow fused lead connects to the ON or ACCESSORY terminal of the ignition switch. The transmitter and receiver will operate only when the ignition switch is in the ON or ACCESSORY position. Turning the ignition switch OFF removes all power to the radio.

2. Ignition Switch Bypass - For ignition switch bypass, the yellow fused lead connects to the "hot" side of the ignition switch or vehicle fuse block assembly. Both the transmitter and receiver operate independently of the ignition switch, and can be turned on and off only by the OFF-ON-STBY switch on the MASTR Control Unit.

MAINTENANCE

DISASSEMBLY

In Trunk-Mount installations, access to the inside of the Control Unit is obtained by removing the two Phillips-head screws in the back of the unit and pulling the back panel away from the housing.

In Front-Mount 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.

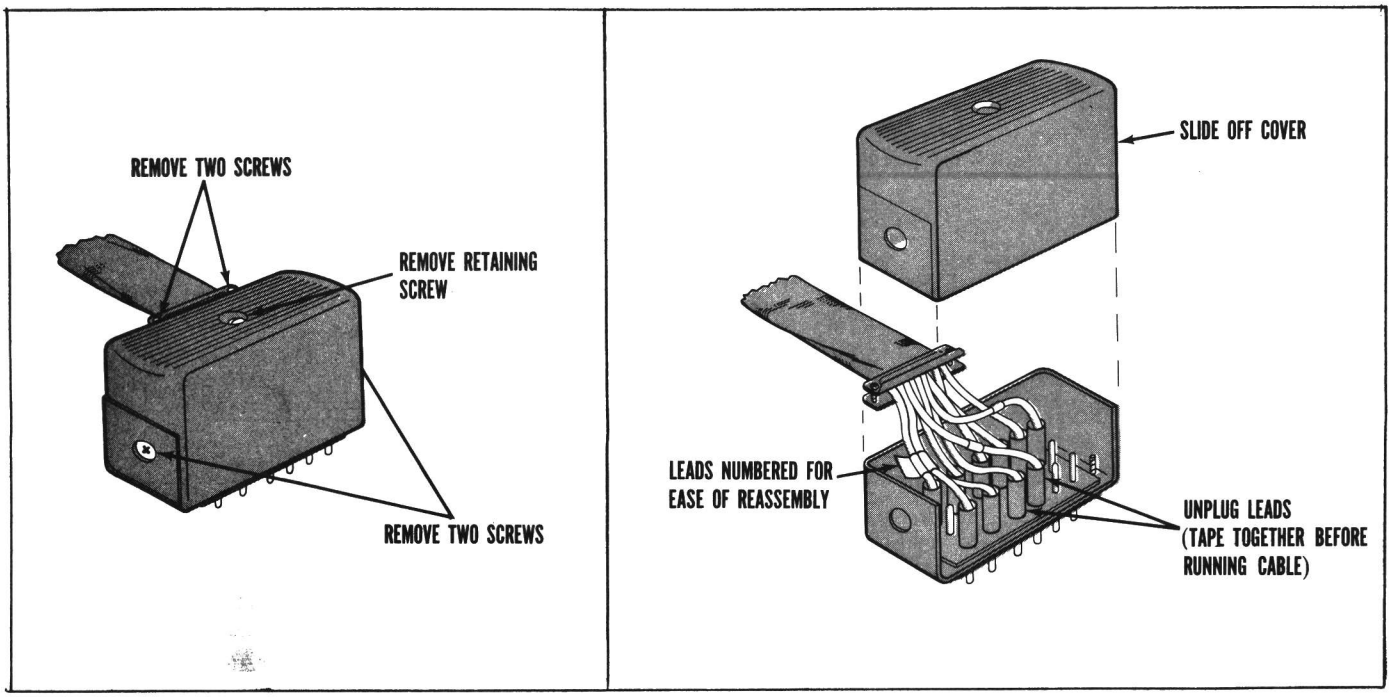
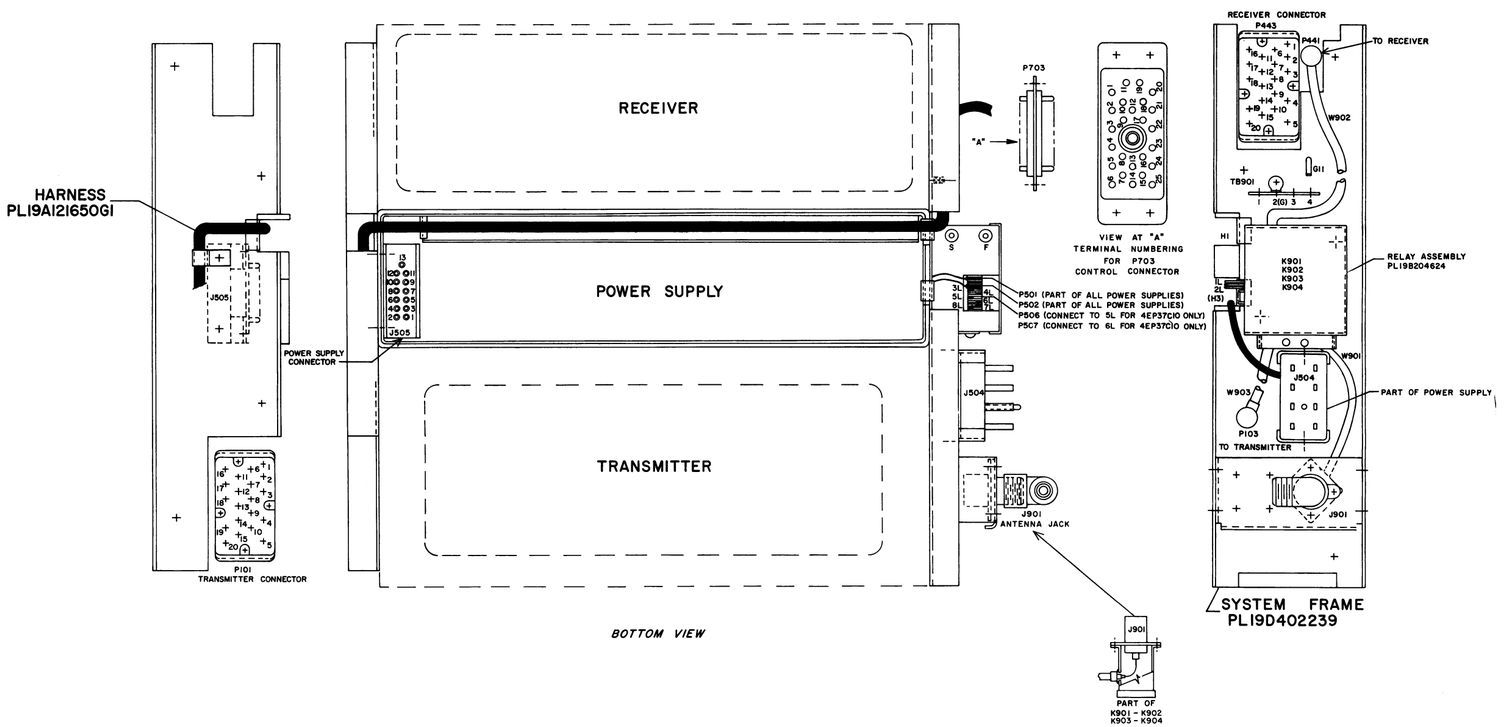


Figure 2 - Disassembly of Control Cable Plug

NOTE

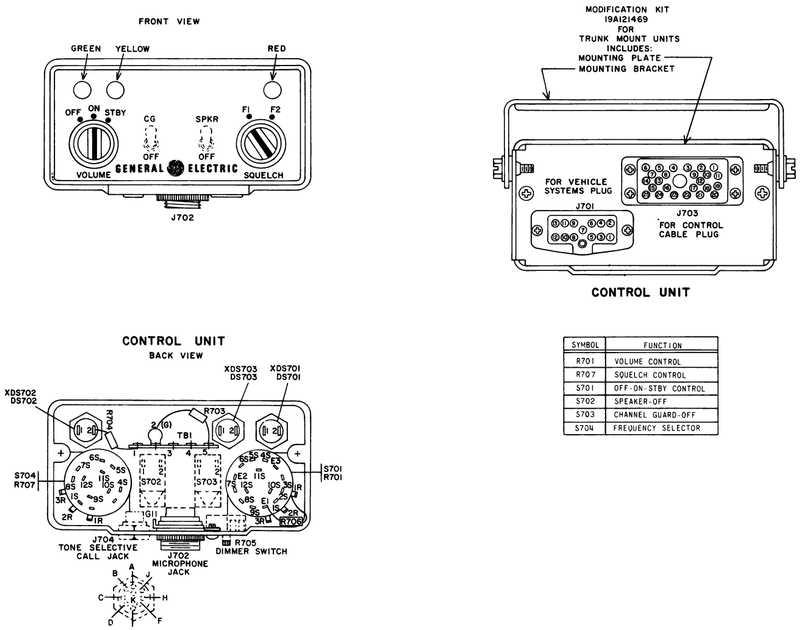
The plus is assembled so that the cable comes out of the top of the plug when connected to the Control Unit. To have the cable come out of the bottom of the plug, remove the remaining two screws and rotate the metal frame 180 degrees.

SYSTEM FRAME AND HARNESS



(19D402582, Rev. 3)

CONTROL UNIT

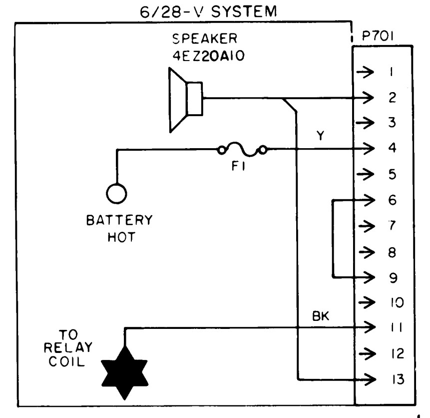


SYMBOL	FUNCTION
R701	VOLUME CONTROL
R707	SQUELCH CONTROL
S701	OFF-ON-STBY CONTROL
S702	SPEAKER-OFF
S703	CHANNEL GUARD-OFF
S704	FREQUENCY SELECTOR

(19C308816, Rev. 2)

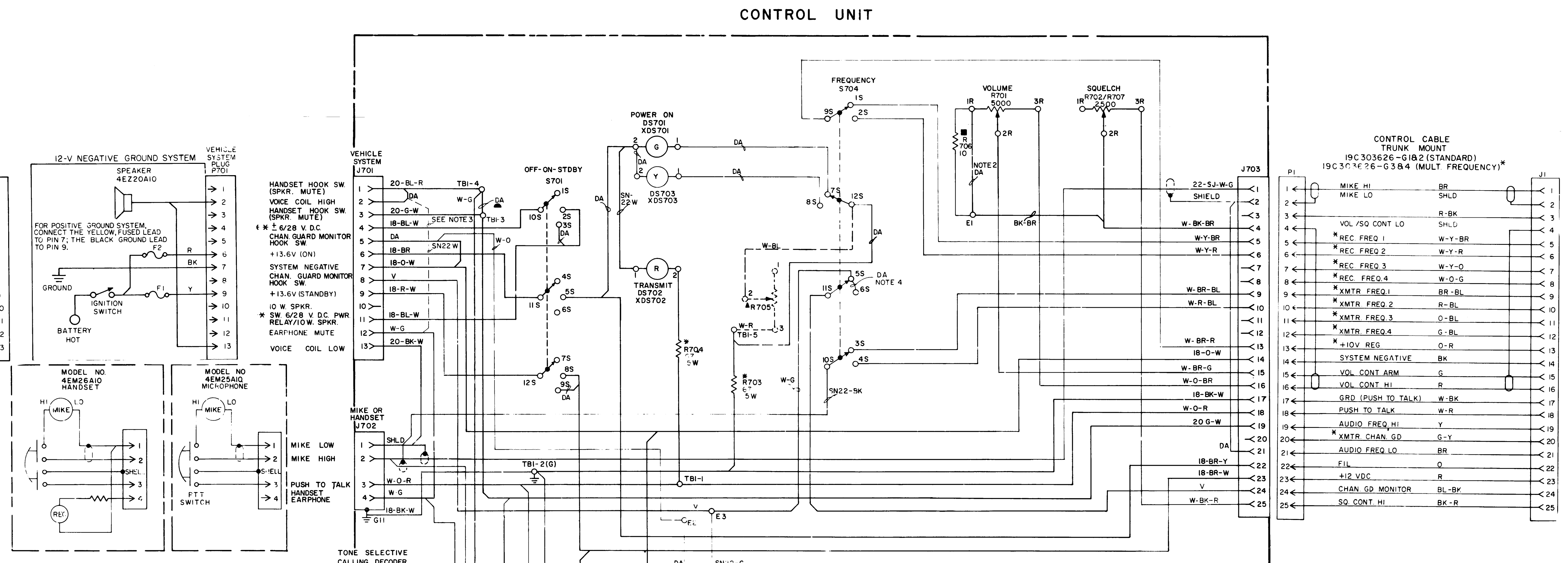
OUTLINE DIAGRAM

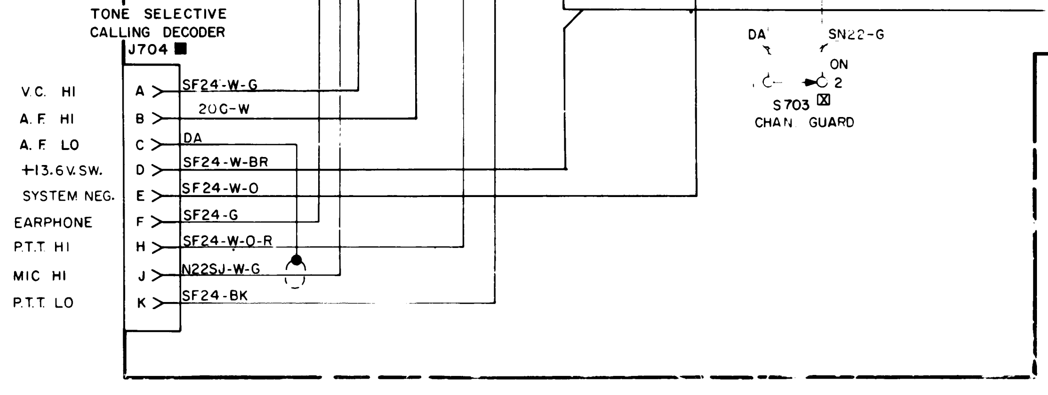
MASTR CONTROL UNIT
MODELS 4EC59A26-33



MODEL NUMBER	REV. LETTER	NO. OF FREQ.	FREQ. INDICATOR LIGHTS	CHANNEL GUARD MONITOR SWITCH		TONE OFF-ON JACK
4EC59A26	F	2	X			
4EC59A27	F	2	X			
4EC59A28	K	2	X			X
4EC59A29	K	2	X			X
4EC59A30	F	2	X	X		
4EC59A31	F	2	X	X		
4EC59A32	K	2	X	X		X
4EC59A33	K	2	X	X		X
4EC59A111	A	2	X			
4EC59A112	B	2	X			X
4EC59A113	A	2	X	X		
4EC59A114	B	2	X	X		X

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





▲ DIMMER CONTROL OPTION
ADD DOTTED CONNECTIONS & OMIT WIRE FROM TB1-5 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.

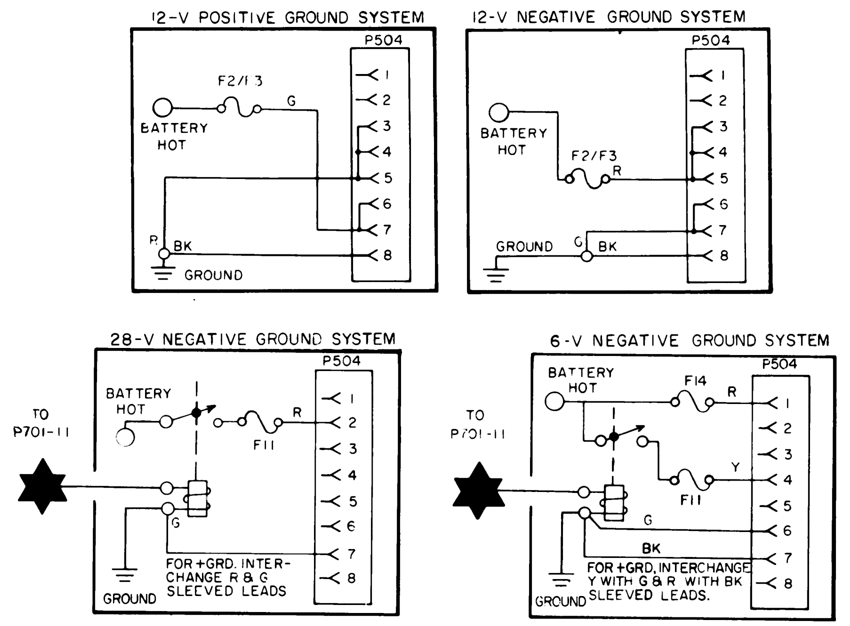
CHANNEL GUARD SWITCH
OMIT IN MODELS 4EC59A26, 27, 28 & 29, 111 & 112

NOTES:
1. ALL WIRES N24 UNLESS OTHERWISE SPECIFIED.
2. OMIT DA WIRE WHEN R706 IS USED
3. ADD W WIRE WHEN PL19B204970C1 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

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.

(19D402413, Rev. 22)



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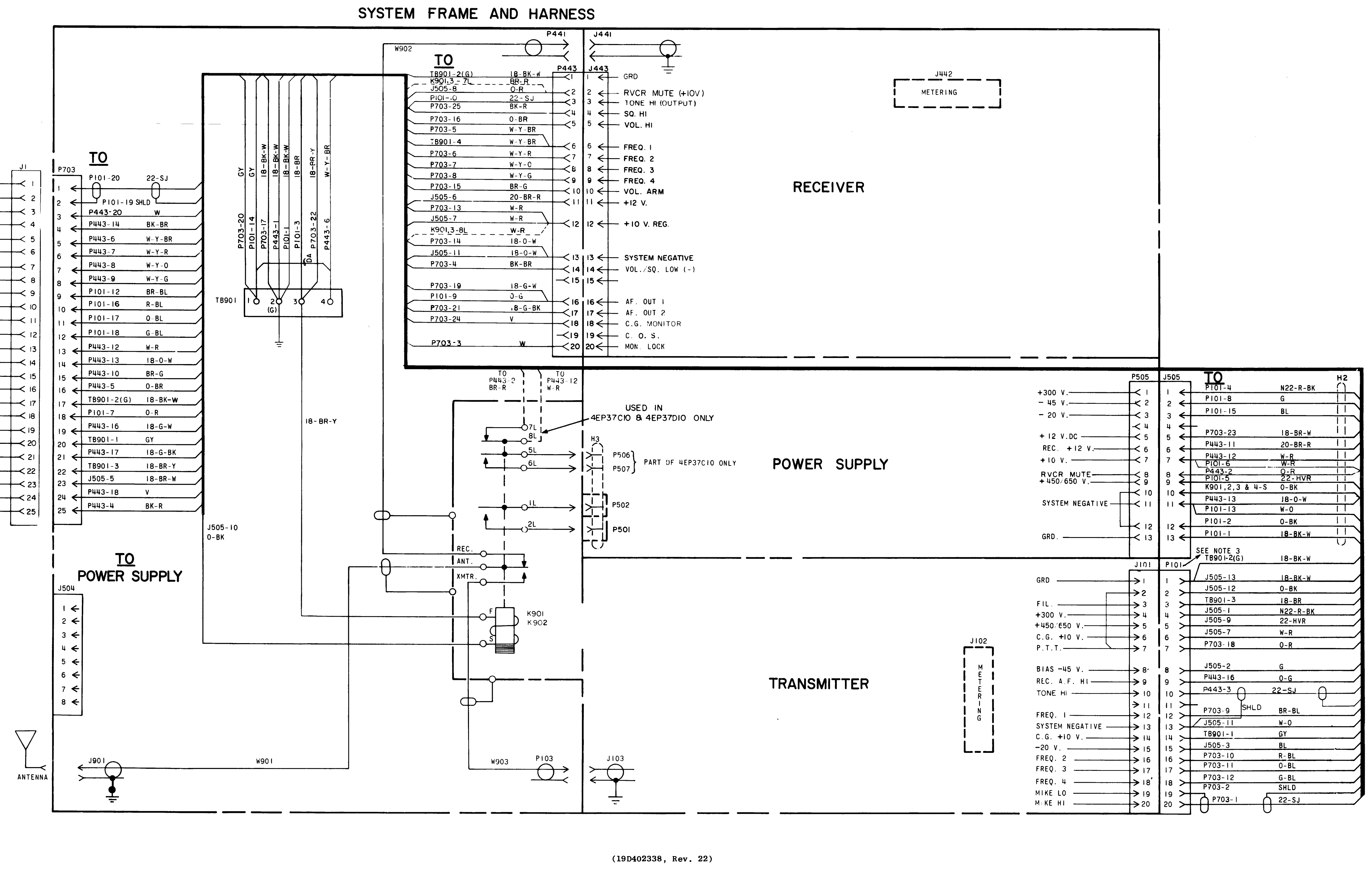


(19D402338, Rev. 22)

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR CONTROL UNIT MODELS 4EC59A26-33

Issue 7

PARTS LIST

LBI-3514E

CONTROL UNIT
MODELS 4EC59A26 - 4EC59A33
19D413054G5
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - INDICATING DEVICES - - - - - -
DS701 thru DS703	19B209112P1	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 81-PM4F-100G.
	19A116061P4	Lockwasher.
	19A116061P5	Nut, knurled.
		In Models 4EC59A20, 27, 30, 31 of REV C; 4EC59A28, 29, 32, 33 of REV E and earlier:
	7117934P2	Connector, chassis: 4 female contact; sim to Amphenol Type 81-PC4F.
J703	19D404038P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	19B216279G1	Jack assembly: 8 female contacts rated at 5 amps at 900 VRMS; sim to Winchester RSS-L8G.
		- - - - - - - - - RESISTORS - - - - - - - -
R701		(Part of S701).
R703 and R704	5493035P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Hamilton Hall Type HH.
R706*	3B779100K	Composition: 10 ohms ±10%, 1/2 w.
		In Models 4EC59A28, 29, 32, 33 earlier than REV B:
	3B779560K	Composition: 56 ohms ±10%, 1/2 w.
		In Models of REV A:
	3B779271K	Composition: 270 ohms ±10%, 1/2 w.
		In Models earlier than REV A:
	3B779230K	Composition: 22 ohms ±10%, 1/2 w.
R707		(Part of S704).
		- - - - - - - - - SWITCHES - - - - - - - - -
S701*	19C307089P19	Switch/Resistor: includes Switch, rotary, 3 poles, 3 positions, non-shorting contacts, 250 ma at 500 VRMS; Resistor (R702), variable, 5000 ohms ±20%, 1/2 w max. In Models 4EC59A20, 27, 30 and 31 earlier than REV B; and in Models 4EC59A28, 29, 32 and 33:
	19C307089P1	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.
S702 and S703	5491899P5	Toggle: DPST, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer 8280E15.
S704	19C307089P22	Switch/Resistor: includes Switch, rotary, 4 pole, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±10%, 1 w max.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1	7775500P9	Phen: 5 terminals.
		- - - - - - - - - SOCKETS - - - - - - - - -
XDS701 thru XDS703	19B201122P2	Lamp, miniature: sim to Drake Series 121.

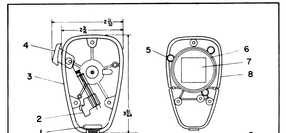
SYMBOL	GE PART NO.	DESCRIPTION
		MECHANICAL PARTS
		CONTROL UNIT MODELS 4EC59A20-33 (SEE RC-1182)
1	8529P19C13	Plug button. (Used in Models 4EC59A26, 27, 30 and 31).
2	8529P9C13	Plug button.
3	19A121521G1	Mounting bracket.
4	19B201122P6	Lens cap: green translucent nylon.
5	19B201122P6	Lens cap; yellow translucent nylon.
6	8P24348L	Nameplate: etched aluminum. (Used in Models 4EC59A26 and 28).
7	8P24347P	Nameplate: etched aluminum. (Used in Models 4EC59A27 and 29).
8	8P24348G	Nameplate: etched aluminum. (Used in Models 4EC59A30 and 32).
9	8P24348Z	Nameplate: etched aluminum. (Used in Models 4EC59A31 and 33).
10	19B201122P4	Lens cap: red translucent nylon.
11	19B204443G1	Knob: gray.
12	19C303413P1	Knob: VOLUME/SQUELCH.
13	19D413010P1	Housing.
14	19B204522P1	Mounting plate.
	19A116773P106	Tap screw, Phillips POZIDRIV®: No. 7-19 x 3/8. (Secures housing to mounting surface).
		ASSOCIATED ASSEMBLIES
	19A121469G1	Control unit modification kit (trunk mount).
	19D402239G1	12 volt vehicle frame.
	19D402239G2	6 and 28 volt vehicle frame.
	19A132444P1	Cover, wire channel (on systems frame).
	19C303453G1	Front casting (Front mount).
	19C303453G2	Front casting (Trunk mount).
	403436D93	Screw: 10-32 x 1-1/8 (Secures Front casting).
	549168P2	Lock: Yale and Towne. (Part of Front casting).
	549168P7	Cam. (Used with lock).
		DIMMER 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-5401-76.
	19D404238P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A111531P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601G1).
	19A116884P1	Cable: 3 conductor, approx 20 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-5401-76.

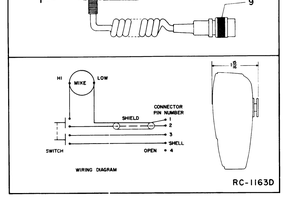
SYMBOL	GE PART NO.	DESCRIPTION
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A111531P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601-G1).
	19A111531P1	Cable: 3 conductor, approx 23 feet long. (Used in 19C303601-G2).
		POWER CABLE ASSEMBLY (6 VOLT FRONT MOUNT) 19C303607G1
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B309189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	716647779P3	Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
	716647779P4	Cable: 2 lengths, approx 9 feet long connected to pins 4 and 6.
		POWER CABLE ASSEMBLY (6 VOLT TRUNK MOUNT) 19C303606G1
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
	19A127581P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	716647779P1	Cable: 2 lengths, approx 22 feet long connected to pins 1 and 7.
	716647779P3	Cable: 2 lengths, approx 22 feet long connected to pins 4 and 6.
		CONTROL CABLE ASSEMBLY 19C303628G1, G2 (1-PRIS) 19C303628G3, G4 (MULTI-PRIS)
		- - - - - - - - - PLUGS - - - - - - - - -
P1	19C303626G5	Plug, male: includes connector 19D402405P2, cap 19C303290P2 and connector retaining screw 19A121444P2.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1	19C303626G6	Plug, female: includes connector 19D402408P1, cap 19C303290P1 and connector retaining screw 19A121444P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19D402408P1	Connector, female phen: 25 contacts rated at 5 amps max.
	19D402408P3	Connector, male phen: 25 contacts rated at 5 amps max.
	19C303290P1	Cap, connector.
	19C303290P2	Cap, connector.
	7139880P11	Cable: 23 conductors. (When ordering specify length). (Used in 19C303639G1 and G2).
	7139880P8	Cable: 13 conductors. (When ordering specify length). (Used in 19C303626G3 and G4).
		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: 12 inch long.
	19A121441G1	Plug: 13 contacts.
	19C303574P1	Cover.

SYMBOL	GE PART NO.	DESCRIPTION
		FUSED LEAD ASSEMBLY 19A121314G1 (19A121454G1, G2) 19A121314G2 (19A121454G3)
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	1B16P8	Cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussmann MTH-5.
	19A115776P2	Fuseholder.
		INTERCONNECTION HARNESS ASSEMBLY 19A121550G1
		- - - - - - - - - JACKS AND RECEPTACLES - - - - -
J505	19B204409G1	Plug, male: 13 pin contacts.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101	19C303506P1	Connector, phen: 20 contacts.
P443	19C303506P1	Connector, phen: 20 contacts.
P703	19D402408P2	Connector, phen: 25 contacts.
		- - - - - - - - - TERMINAL BOARDS - - - - - - - - -
TB901	7775500P10	Phen: 5 terminals.
		12 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445P1
		Includes J901, K901, P103, P441, W901-W903.
		6/12, 12/28 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445P2
		Includes J901, K902, P103, P441, W901-W903.
		FUSE AND RELAY ASSEMBLY 7487953E19 (28 VOLT VEHICLE) 7487953E20 (6 VOLT VEHICLE)
		- - - - - - - - - - FUSES - - - - - - - - - -
F11	1B11P4	Quick blowing: 15 amps, 250 v; sim to Bussman MDX15.
F12	1B11P7	Quick blowing: 30 amps, 250 v; sim to Bussman MDX30. (Used in 7487953G20).
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1	7486515P1	Armature, enclosed: 6 VDC nominal, 26 ohms DPDT coil res, 1 form A contact rated at 15 amps; sim to RIM 60-108013-3. (Used in 7487953G20).
K3	7486515P3	Armature, enclosed: 28 VDC nominal, 300 ohms DPDT coil res, 1 form A contact rated at 15 amps. (Used in 7487953G19).
		12 VOLT FUSE ASSEMBLY 19B216025G4 (Fuses must be ordered separately)
		- - - - - - - - - - FUSES - - - - - - - - - -
F2	1B11P6	Quick blowing: 25 amps, 250 v; sim to Bussman MDX25. (Used with medium power transmitters).
F3	1B11P7	Quick blowing: 30 amps, 250 v; sim to Bussman MDX30. (Used with high power transmitters).
		132-512 MHz ANTENNA 19B209568P2
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LANGE). 007059-122.
		Stud assembly. 068046-001.
		BC58/U Cable, 15 feet. 068115-001.

SYMBOL	GE PART NO.	DESCRIPTION
		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 ASP438XH.
	7102930P9	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4K49A1	Loading coil: 25-33 MHz; sim to Antenna Specialists ASP487.
	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-R&G.
		Horseshoe plate. Newtronics 3323-3.
		Rubber gasket. Newtronics 3320.
		HANDSET MODEL 4EM26A10 MODEL 4EM29C10 19B209100G1 (SEE RC-1394)
1		Self tap screw, bind head: No. 4 x 5/16. Shure Brothers 30C646C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers RP18.
4		Switch. Shure Brothers RP81.
5		Case. Shure Brothers RP49. (Used in 4EM26A10).
		Case. Shure Brothers 21RP8997. (Used in 4EM29C10).
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP81.
8	3B779222K	Resistor, composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A521.
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 RP89).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers RP13.
19		Cable and plug. Shure Brothers RP48. (Used in 4EM26A10).
		Cable and plug. Shure Brothers 21RP738F. (Used in 4EM29C10).
		HOOKSWITCH ASSEMBLY 19B204867G1
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
20	4029851P4	Cable clamp: sim to WEC Kesner 3/16-4.
21	19A121612P1	Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	19A121581G1	Cable: approx 8-1/2 feet long.
23	5493035P10	Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Hamilton Hall Type HH.
24	7775500P55	Terminal board, phen: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
		MILITARY MICROPHONE MODEL 4EM25A10 19D209103G1 (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 RP33.
8		Case (front): plastic. Shure Brother RP67.
9		Cable and plug: approx 6 feet long. Shure Brothers RP14.
		5 WATT SPEAKER 19C320302G1 4EZ20A10
LS2	19A116910P1	Permanent magnet: 5 inch, 3.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 002008.
W1	19A121546G1	Cable assembly: approx 48 inches long, includes (2) 19A121429P1 pins.
	19D416396P3	Speaker housing.
	19C320016P2	Mounting support.
	5490407P3	Neoprene grommet. (Upper)
	19A115470P1	Rubber grommet. (Lower)
	19D210993G3	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 transmitter modulation caused by power supply switching noise. Removed black wire from ground lug TB1-2 (other end connected to R706-1&3) and connected it to microphone jack J702-1.

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

REV. D - Models 4EC59A28, 29, 32, 33
To incorporate sentech with improved reliability. Changed S701.

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

REV. E - Models 4EC59A28, 29, 32, 33
To ground microphone jack, added #18 BK-W wire from TB1-2 (G) to G11 and changed J705.

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

REV. F - Models 4EC59A28, 29, 32, 33

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

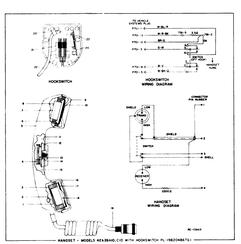
REV. G - Models 4EC59A28, 29, 32, 33
To provide Channel Guard decode function on all channels. Added jumpers from R706-R5 to -R6 and from R706-R5 to -R15.

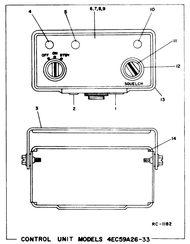
REV. H - Models 4EC59A28, 29, 32, 33
To reduce audio output level at minimum volume control setting. Changed R706.

REV. J - Models 4EC59A28, 29, 32, 33
To add mike Hi, PTT earphone and ground to tone option jack J704.

REV. F - Models A26, A27, A30, A31
Incorporate new housing. Changed housing from 19B216271G1 to 19D413010P1. Changed backplate retaining screw to 19A116773P106.

REV. K - Models A28, A29, A32, A33
Incorporate new housing. Changed housing from 19B216271G1 to 19D413010P1. Changed backplate retaining screw to 19A116773P106.





CONTROL UNIT MODELS 4EC59A26-33

*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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Printed in U.S.A

ECP-824