MOBILE RADIO

MASTR *Imperial*

MOBILE CONTROL UNIT MODELS 4EC59A132 & 133

SPECIFICATIONS *

MODEL NUMBERS	4EC59A132 AND 4EC59A133
USED WITH	MASTR Imperial Mobile Combinations with Priority Search Lock Monitor
CONTROLS	VOLUME Control
	OFF-ON-STBY Switch
	SQUELCH Control
	F1 - F2 Selector Switch
	CHANNEL GUARD-OFF Switch
	SEARCH-OFF Switch
INDICATORS	On light: green
	Transmit light: red
	Receive F1 light: white
	Receive F2 light: yellow

*These 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 Imperial Control Units Models 4EC59A132 and 133 are used with MASTR mobile combinations that are equipped with the Priority Search-Lock Monitor 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.

An automatic pilot light dimmer has been incorporated in these control units. This dimmer uses a photo-resistor to sense ambient light and adjust the lamp regulator to provide the proper lamp current to the pilot lamps for the existing ambient light conditions. The intensity of the green power on lamp and the two channel lamps are controlled by this automatic pilot light dimmer. The red transmit lamp intensity is not adjustable. The lamps are extinguished when the combination is in STANDBY.

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 (S709)

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 the SEARCH-OFF switch (S708) as follows:

When the SEARCH-OFF switch is OFF, the frequency selector switch connects +10 Volts to the selected receiver oscillator switching diode and connects the transmitter oscillator switching diode to ground. This permits the unit to operate on the frequency determined by each of the crystal-controlled oscillators.

When SEARCH is selected, the frequency selector switch connects the transmitter oscillator switching diode to ground and determines which receiver channel has priority. The +10 Volts is applied to the receiver oscillator from the Priority Search-Lock Monitor circuits.

CHANNEL GUARD-OFF Switch (S703)

When the CHANNEL GUARD-OFF switch is in the CHANNEL GUARD position, all signals are locked out except those from transmitters that are continuously tone coded for positive identification by the receiver. Placing the CHANNEL GUARD-OFF switch in the OFF position opens the emitter circuit of Q4 on printed wire board A702 and instantly disables the Channel Guard Operation so that all calls on the channel can be heard. When the hookswitch option is used, lifting the microphone from its hanger disables the Channel Guard Circuit.

SEARCH-OFF Switch (S708)

When switch S708 is in the SEARCH position, Priority Search-Lock Monitor operation is selected, giving priority to the channel selected by the frequency selector switch. The OFF position of S708 disables the Priority Search-Lock. In this case, the position of the frequency selector switch determines which channel is monitored.

NOTE

The priority channel may be locked on either F1 or F2 by changing a connection to the PSLM board. When connected for this mode of operation, the priority channel can not be changed by the frequency selector switch.

INDICATOR LIGHT CONTROL CIRCUITS

Turning the OFF-ON-STBY switch to the ON position, completes the collector circuit

of Q701 on printed circuit board A703. This turns on Q701 and lights the green power-on light. Current through Q701 is controlled by the conduction of Q1, whose base is controlled by the setting of adjustable potentiometer R4 and the series resistance of photo-resistor V701. The resistance of V701 is determined by the ambient light falling on its photosensitive surface.

The frequency indicator lights are controlled by transistors Q1 thru Q3 on printed wire board A702. Transistors Q1 thru Q3 are actually Integrated Circuit Modules, having the equivalent circuit of a Darlington Amplifier. Depending on the frequency being received, +10 Volts is applied to the base of Q1 or Q2 causing the transistor to conduct through its associated frequency indicator light.

When the receiver is squelched, a positive voltage is applied to the base of Q5 on printed circuit board A703. Conduction of Q5 turns off Q3, keeping the emitters of Q1 - Q2 open and the frequency indicator lights off. When the receiver is unsquelched, Q5 does not conduct. The emitters of Q1 - Q2 are grounded through Q3 and the selected frequency indicator light turns on.

The base of Q4, on printed wire board A702, is connected to the base of Q1 through CR1 and to the base of Q2 through CR2. When the proper tone coded signal is received Q4 conducts, disabling the Channel Guard so the call can be heard. CR1 or CR2 may be removed for single frequency Channel Guard only. See Note 3 of Schematic 19D416069.

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.

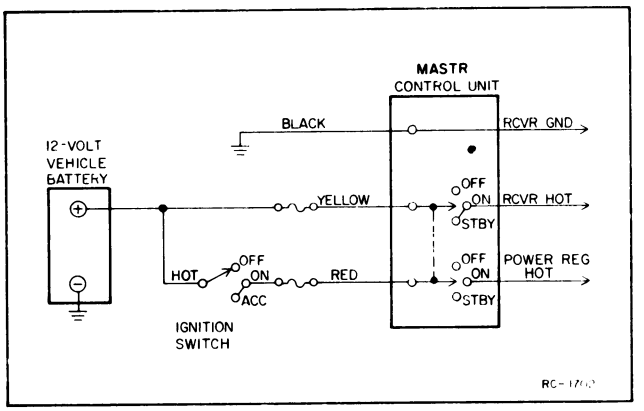


Figure 1 — 12-VDC Connections for Ignition Switch Standby

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.

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.

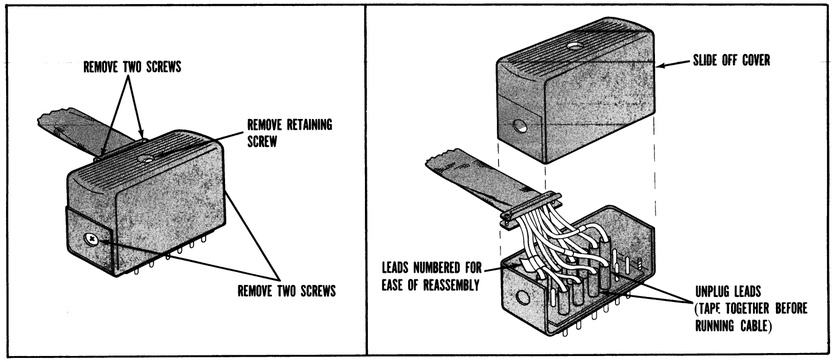


Figure 2 - Disassembly of Control Cable Plug

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.

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

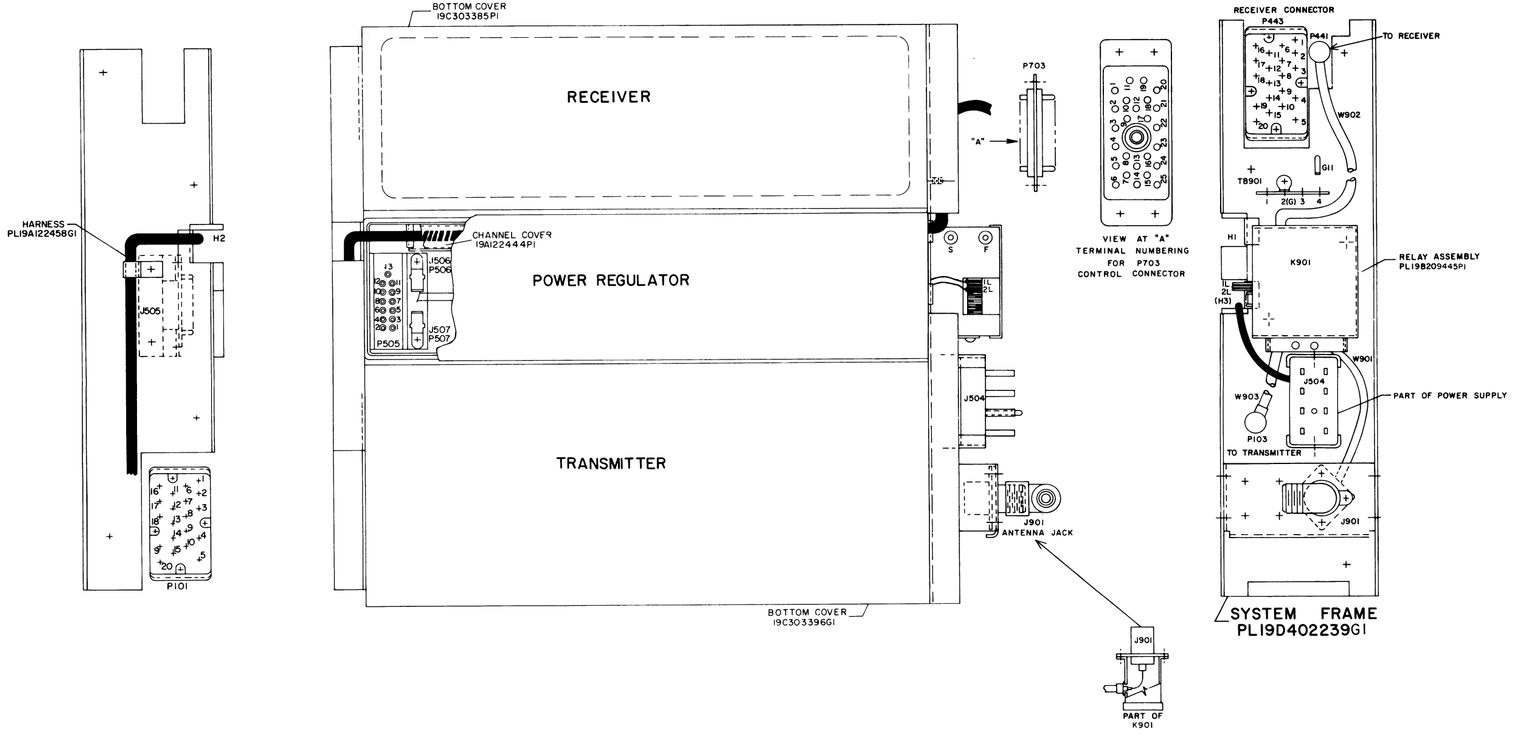
The MASTR Imperial mobile combination operates in 12-Volt, negative ground vehicle systems only. If the radio is ever moved to a different vehicle, always check the battery polarity and voltage of the new system before using the radio.

CAUTION

Do not install the MASTR Imperial 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).

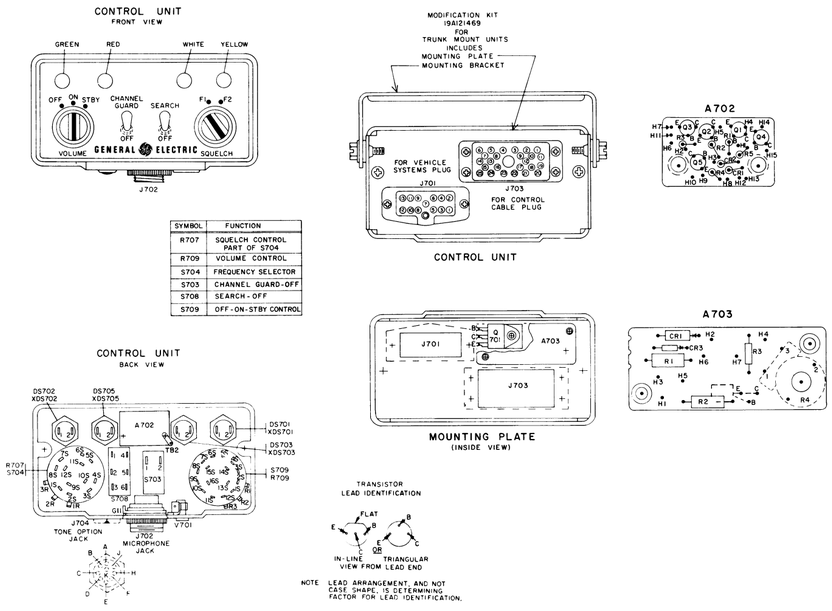
If it becomes necessary to move the Two-Way Radio and Control Unit to another vehicle, the 25-pin control cable plug may need to be disassembled. Refer to Figure 2 for disassembly of the plug.

SYSTEM FRAME AND HARNESS



(19D416968, Rev. 1)

CONTROL UNIT



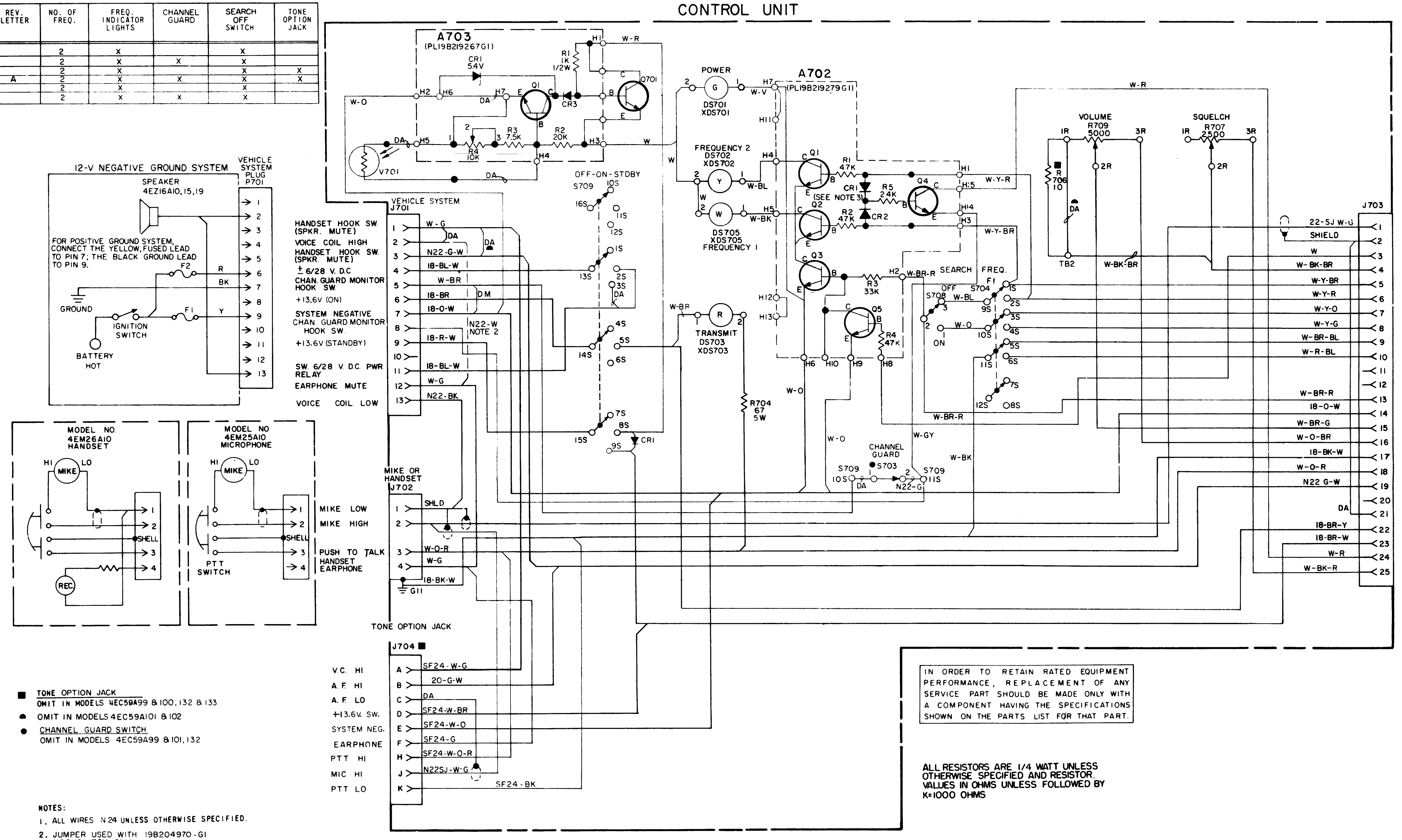
SYMBOL	FUNCTION
R707	SQUELCH CONTROL PART OF S704
R709	VOLUME CONTROL
S704	FREQUENCY SELECTOR
S703	CHANNEL GUARD-OFF
S708	SEARCH-OFF
S709	OFF-ON-STBY CONTROL

(19C320356, Rev. 1)

OUTLINE DIAGRAM

MASTR IMPERIAL UNIT
MODELS 4EC59A132&133

MODEL NUMBER	REV. LETTER	NO. OF FREQ.	FREQ. INDICATOR LIGHTS	CHANNEL GUARD	SEARCH OFF SWITCH	TONE OPTION JACK
4EC59A99		2	X		X	
4EC59A100		2	X	X	X	
4EC59A101		2	X		X	X
4EC59A102	A	2	X	X	X	X
4EC59A132		2	X		X	
4EC59A133		2	X	X	X	



■ TONE OPTION JACK
OMIT IN MODELS 4EC59A99 & 100, 132 & 133

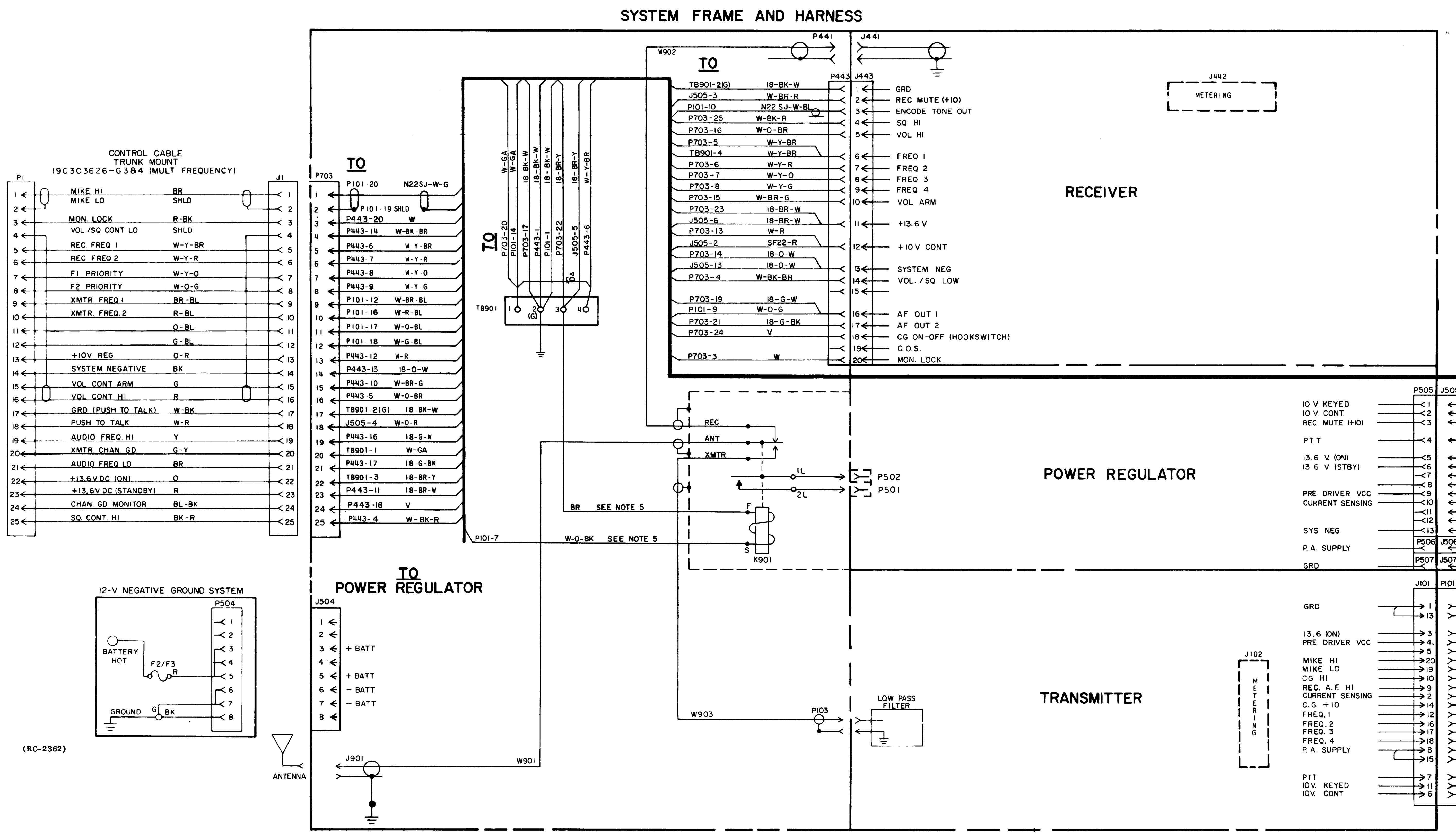
● OMIT IN MODELS 4EC59A101 & 102

● CHANNEL GUARD SWITCH
OMIT IN MODELS 4EC59A99 & 101, 132

NOTES:

1. ALL WIRES N 24 UNLESS OTHERWISE SPECIFIED.
2. JUMPER USED WITH 19B204970-G1 HOOKSWITCH ONLY.
3. REMOVE CR1 FOR CHANNEL GUARD ON RECEIVE CHANNEL ONE ONLY. REMOVE CR2 FOR CHANNEL GUARD ON RECEIVE CHANNEL TWO ONLY.

(19D416069, Rev. 6)



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.

(19D416412, Rev. 2)

NOTES:

1. ALL WIRES ARE SF24 EXCEPT AS OTHERWISE SHOWN.
2. SEE 19D416414 FOR ORIENTATION AND LOCATION OF COMPONENTS AND ROUTING OF CABLE.
3. N22SJ-W-G WIRE IS A7134854P4
   N22SJ-W-BL WIRE IS A7134854P5
   18-G-BK WIRE IS A4035028P9
   18-BR-Y WIRE IS A4035028P11
4. TERMINATE WIRES AT J506 & J507 WITH A7117269P1.
5. PART OF HARDWARE KIT PL19A121456G6.

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	
PL NO	REV LETTER

SCHEMATIC & INTERCONNECTION DIAGRAM

MASTR IMPERIAL CONTROL UNIT MODELS 4EC59A132&133

Issue 2

PARTS LIST

LBI-4402A

CONTROL UNIT - 19D413054G21
MODELS 4EC09A132, A133
AND
ASSOCIATED ASSEMBLIES

SYMBOL	G-E PART NO.	DESCRIPTION
		CONTROL UNIT 19D413054G21
A702		COMPONENT BOARD 19B219279G1
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1 and CR2	19A115250P1	Silicon.
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1 thru Q3	19A116272P1	Integrated circuit, monolithic, linear: sim to Type 2N5305.
Q4 and Q5	19A115123P1	Silicon, NPN; sim to Type 2N2712.
		- - - - - - - - - RESISTORS - - - - - - - - -
R1 and R2	3B152P473J	Composition: 47,000 ohms ±5%, 1/4 w.
R3	3B152P333J	Composition: 33,000 ohms ±5%, 1/4 w.
R4	3B152P473J	Composition: 47,000 ohms ±5%, 1/4 w.
R5	3B152P243J	Composition: 24,000 ohms ±5%, 1/4 w.
A703		COMPONENT BOARD 19B219267G1
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1	4036887P5	Silicon, Zener.
CR3	19A115250P1	Silicon.
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1	19A115123P1	Silicon, NPN; sim to Type 2N2712.
		- - - - - - - - - RESISTORS - - - - - - - - -
R1	3B77P103J	Composition: 1000 ohms ±5%, 1/2 w.
R2	3B77P203J	Composition: 20,000 ohms ±5%, 1/2 w.
R3	3B152P753J	Composition: 7500 ohms ±5%, 1/4 w.
R4	19B209358P6	Variable, carbon film: approx 75 to 10,000 ohms ±20%, 0.25 w; sim to CTS Type X-201.
		- - - - - - - INDICATING DEVICES - - - - - - -
DS701 thru DS703	19B201122P1	Lamp, incandescent: 6.0 v; sim to GE 1768.
DS705	19B201122P1	Lamp, incandescent: 6.0 v; sim to GE 1768.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J701	19C303576P1	Receptacle: 13 contacts rated at 5 amps.
J702		Receptacle, Includes:
	19A116061P2	Receptacle: 4 contacts; sim to Amphenol Type 91-PS4F-1000.
	19A116061P4	Lockwasher, internal tooth.
	19A116061P5	Nut, knurled: No. 13/16-27N-2.
	19A116048P1	Solderless terminal.
J703	19D403408P1	Receptacle: 25 contacts rated at 5 amps.

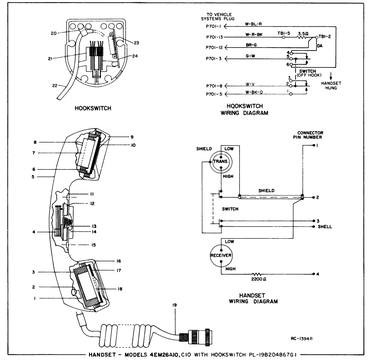
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q701	19A116203P3	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R704	5493035P19	Wirewound: 67 ohms ±5%, 5 w; sim to Hamilton Hall Type RH.
R707		(Part of S704).
R709		(Part of S709).
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S703	549189995	Toggle: SPST, 3 amps at 250 VAC/VDC; sim to Cutler-Hammer 280A13.
S704	19C307089P22	Switch/Resistor: includes Switch, rotary, 4 poles, 2 positions, momentary shorting contacts, 250 ma at 500 VDEC Resistor (R707), variable, 2500 ohms ±20%, 1 w max; sim to Mallory Type LC.
S708	549189994	Toggle: DPDT, 6 amps at 125 VAC/VDC; sim to Cutler-Hammer 8373X8.
S709	19C307089P24	Switch/Resistor: includes Switch, rotary, 4 poles, 3 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R709), variable, 2500 ohms ±20%, 1/2 w max; sim to Mallory Type LC.
		- - - - - - - - TERMINAL BOARDS - - - - - - -
TB2	403699491	Terminal, solder: sim to Zierick Mfg Corp 505.
		- - - - - - - - PHOTO RESISTORS - - - - - - -
V701	19A115994P1	Photoconductive, cell: 60 v, 75 ma at 25°C; sim to Clairex Co. CL605L.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XD6701 thru XD6703	19B201122P2	Lampholder, sim to Drake Mfg. Co, 121 Series.
XD8705	19B201122P2	Lampholder, sim to Drake Mfg. Co, 121 Series.
		MECHANICAL PARTS CONTROL UNIT (SEE MC-2302)
1	19B201122P3	Lens cap: green translucent nylon. (Used with D8701).
2	19B201122P4	Lens cap: red translucent nylon. (Used with D8703).
3	NP276151	Nameplate, etched aluminum. (Used with 4EC59A132).
4	NP276159	Nameplate, etched aluminum. (Used with 4EC59A133).
5	19B201122P7	Lens cap: white translucent nylon. (Used with D8705).
6	19B201122P6	Lens cap: yellow translucent nylon. (Used with D8702).
7	19B204443G3	Knob, brown. (ON-OFF-STBY, F1-F2).
8	19C303413P1	Knob. (VOLUME/SQUELCH).
9	19B216271G3	Housing: brown.
10	19C320479P22	Mounting Plate.
11	19A115495P1	Screw, hexhead: No. 1/4-20 x 5/8.
12	19A116023P1	Insulator, plate. (Used with Q701).
13	19A116022P1	Insulating bushing. (Used with Q701).
14	3H09900C6	Screw, phillips: panhead, No. 4-40 x 3/8. (Used with Q701).
15	19A121521G1	Mounting bracket.
16	19B204896P2	Jewel: red plastic.
17	19A129045G1	Support. (Secures V701).
18	R529P19C13	Plug button.
		ASSOCIATED ASSEMBLIES
	19A121469G1	Control unit modification kit (trunk mount).
	19D602239G1	12 volt vehicle frame.

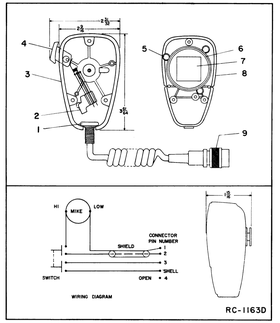
SYMBOL	GE PART NO.	DESCRIPTION
	19A122444P1	Cover, wire channel (on systems frame).
	19C303452G1	Front casting (Front mount).
	19C303452G2	Front casting (Trunk mount).
	403420GP3	Screw: 10-32 x 1-1/8 (Secures Front casting).
	5491683P2	Lock: Yale and Towne. (Part of Front casting).
	5491682P7	Cam. (Used with lock).
		DIMMER CONTROL MODIFICATION KIT 19A123936G1
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R705	19B209114P1	Variable, wirewound: 75 ohm ±20%, 3 w; sim to CTS Series 112.
		POWER CABLE ASSEMBLY 19C303601G1 (12 VOLT FRONT MOUNT) 19C303601G2 (12 VOLT TRUNK MOUNT)
	19B209189P1	Connector, phen: 8 contacts rate at 15 amps at 1100 VERS; sim to Beauchaine and Sons S-5401-76.
	19D402438P1	Cap, connector.
	19A121444P2	Connector retaining screw.
	19A115314P1	Cable: 3 conductor, approx 9 feet long. (Used in 19C303601G1).
		Cable: 3 conductor, approx 18 feet long. (Used in 19C303601G2).
		CONTROL CABLE ASSEMBLY 19C303629G1, G2 (1-FREQ) 19C303629G3, G4 (MULTI-FREQ)
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1	19C303626G5	Plug, male: includes connector 19D402608P3, cap 19C303280P2 and connector retaining screw 19A121444P2.
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1	19C303626G6	Plug, female: includes connector 19D402608P1, cap 19C303280P1 and connector retaining screw 19A121444P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19D402608P1	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 19C303626G1 and G2).
	7139880P8	Cable: 13 conductors. (When ordering specify length). (Used in 19C303626G3 and G4).
		VEHICLE SYSTEM CABLE KIT 19A121454G1 (12 VOLT VEHICLES)
	19A121429P1	Pin: 1/2 inch long.
	19A121441G1	Plug: 13 contacts.
	19C303574P1	Cover: approx 1-13/16 x 1 x 1/32 inches.
		FUSED LEAD ASSEMBLY 19A121314G1 (19A121454G1)
	1B16P8	Fuse, cartridge, quick blowing: 5 amps at 250 v; sim to LittelFuse 312005 or Bussmann MTH-5.
	7124109P3	Fuseholder: sim to Bussmann Type HLD-X.
	7112178P7	Cable: approx 8-3/4 feet long.
		INTERCONNECTION HARNESS ASSEMBLY 19A122458G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J505	19B204409G1	Plug, male: 13 pin contacts.

SYMBOL	G-E PART NO	DESCRIPTION
		- - - - - - - - - - PLUGS - - - - - - - - - -
P101	19C303506P1	Connector, phen: 20 contacts.
P443	19C303506P1	Connector, phen: 20 contacts.
P703	19D402408P2	Connector, phen: 25 contacts rated at 5 amp max.
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB901	7775500P11	Phen: 5 terminals.
	19A122444P1	Channel Cover.
		ANTENNA RELAY ASSEMBLY 19B209445P1 Includes J901, K901, P103, P441, W901-W903.
		POWER CABLE ASSEMBLY 19C303601G1 (12 VOLT FRONT MOUNT) 19C303601G2 (12 VOLT TRUNK MOUNT)
		12 VOLT FUSEHOLDER 19B216031G4 (Fuses must be ordered separately)
		- - - - - - - - - - FUSES - - - - - - - - - -
	1A1IP4	Quick blowing: 15 amps, 250 v; sim to Bussman MDX15. (transmitters).
		130 - 470 MHz ANTENNA MODEL 4EY12A13 (5490969P13)
		Antenna: includes stainless steel whip approx 20 inches long; ball tip; whip socket: No. 6-32 set screw; rubber mounting gasket; antenna cable; cable adapter; PL-259 coaxial plug; sim to Antenna Specialists ASPD2018E or Danbury-Knudsen Type PA-35.
	5490969P4	Whip: stainless steel, approx 20 inches long; ball tip.
	5490969P5	Socket, whip: with (2) No. 6-32 set screws.
	5490969P6	Whip and whip socket: stainless steel whip approx 20 inches long with ball tip; whip socket with (2) No. 6-32 set screws.
		Cable, antenna: approx 15 feet long. Type RG-58/U. (Used with GE Dwg 28Z2P1 and GE Dwg 7105381P1).
	7105381P1	Adapter, cable: approx 1 x 7/16 inches dia, Type UG-175/U. (Used with GE Dwg 28Z2P1 and Type RG-58/U cable).
	28Z2P1	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 ASP43M3K.
	710293G93	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	403310lG1	Antenna gasket: includes base; adapter spring; cable and plug.
	7472880G5	Antenna base. (Used in 403310lG1).
	747663G96	Adapter spring. (Used in 403310lG1).
	5492239P5	Cable, antenna: includes Type RG-58/U cable approx 15 feet long; PL-259 coaxial plug; mounting clip; ring tongue terminal; sim to Antenna Specialists 15A43. (Used in 403310lG1).
	28Z2P1	Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239P5 in 403310lG1).
	4K19A1	Coil, loading: 25 to 33 MHz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook. (Used in 19A121577G1).

SYMBOL	G-E PART NO	DESCRIPTION
		HANDSET MODEL 4EM26A10 MODEL 4EM30C10 (SEE MC-1394)
1		Self tap screw, bind head: No. 4 x 5/16, Shure Brothers 30C540C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers BP18.
4		Switch. Shure Brothers BP81.
5		Case. Shure Brothers BP49. (Used in 4EM26A10).
		Case. Shure Brothers 21BP099F. (Used in 4EM26C10).
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers BP81.
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 BP82.
15		Flat head screw, socket cap: No. 4-40 x 1/4, Shure Brothers 30C557B.
16		Transmitter cap. Shure Brothers 65A197A. (Part of item 5).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers BP13.
19		Cable and plug. Shure Brothers BP48. (Used in 4EM26A10).
		Cable and plug. Shure Brothers 21BP738F. (Used in 4EM26C10).
		HOOKSWITCH ASSEMBLY 19B204867G1 (SEE MC-1394)
20	4029851P4	Cable clamp; sim to HKC Kesser 3/16-4.
21	19A121612P1	Solder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	19A121581G1	Cable: approx 8-1/2 feet long, includes five 19A121429P1 pins.
23	5493035P10	Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Hamilton Hall Type RH.
24	7775500P55	Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM23M10 19B209102P6 (SEE MC-1163)
1		Cable clamp. Shure Brothers 53A532.
2		Switch. Shure Brothers BP26.
3		Case (back) and mounting button: plastic, Shure Brothers BP100.
4		Switch button: red plastic. Shure Brothers BP25.
5		Spring. Shure Brothers BP16.
6		Shield. Shure Brothers BP23.
7		Magnetic controlled cartridge. Shure Brothers BP13.
8		Case (front): plastic. Shure Brothers BP100.
9		Cable and plug: approx 6 feet long. Shure Brothers BP14.
		5 WATT SPEAKER 4EZ30A12 19C303030G4
LS2	19A116010P1	Permanent magnet: 5 inch, 2.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 002009.

SYMBOL	G-E PART NO	DESCRIPTION
W3	19A121546G1	Cable assembly: approx 48 inches long, includes (2) 19A121429P1 pins.
		MECHANICAL PARTS
	19D416396P1	Speaker housing.
	19C320016P2	Mounting support.
	19A116985P1	Screw, hex head-slotted: double lead thread, with internal tooth washer, No. 13-16 x 3/4. (Secures housing to mounting bracket).
	19B216092G1	Grille.





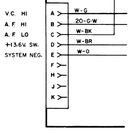
PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number on 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 - 4EC59A132

To add WIC HI, PTT, earphone and ground to Tone Option Jack J704

Diagram was



*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 Communications Equipment Sales Office of the General Electric Company.

MAINTENANCE MANUAL

LBI-4403

DF-4087

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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