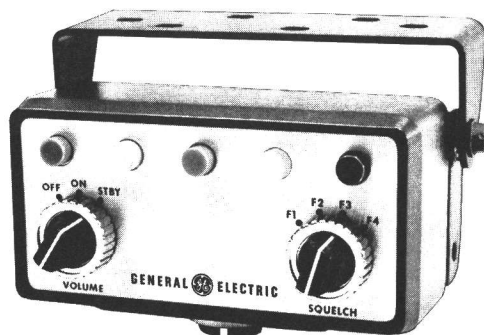


MASTR® Progress Line

MOBILE CONTROL UNIT MODELS 4EC59A58—61 & 4EC59A74—77



SPECIFICATIONS *

MODEL NUMBER	4EC59A58 through 4EC59A61, and 4EC59A74 through 4EC59A77
USED WITH	MASTR Professional Series Mobile Combinations
CONTROLS	<p>VOLUME Control</p> <p>OFF-ON-STBY Switch</p> <p>SQUELCH Control</p> <p>Three or Four-Frequency Selector Switch</p> <p>Dimmer Control for Frequency Indicator Lights (Optional)</p>
INDICATORS	<p>Transmit light: red</p> <p>F1 Frequency Indicator Light: green</p> <p>F2 Frequency Indicator Light: yellow</p> <p>F3 Frequency Indicator Light: blue</p> <p>F4 Frequency Indicator Light: white</p>

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

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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 (S701) 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 indicator 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 indicator light. The position of the Frequency Indicator switch determines which light will glow when the OFF-ON-STBY switch is turned to ON. The multi-frequency indicator light colors are: F1-GREEN, F2-YELLOW, F3-BLUE, F4-WHITE. In three-frequency control, the F4 indicator is not equipped with a lamp. 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.

Three and Four-Frequency Switch (S706)

For three or four-frequency operation, a frequency selector switch selects the channel desired (F1 thru F4) for both transmitting and receiving. For three-frequency operation, the F3 and F4 channels on S706 are jumpered together. 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.

The transmitter and receiver Channel Guard operates only when the frequency selector switch is in the F1 position.

SPEAKER-OFF Switch (S702-Optional)

The SPEAKER-OFF switch is used whenever a telephone handset and hookswitch is used. The switch operates in parallel with the hookswitch and, in the SPEAKER position, overrides the speaker muting circuit in the handset hookswitch. Calls can then be heard from the speaker, regardless of whether the handset is on or off the hookswitch.

With the switch in the OFF position and the handset off the hookswitch, calls are heard only from the handset earpiece. The speaker still operates with the handset hung up.

Dimmer Control (R705) (Optional)

The dimmer control is a rheostat in series with the frequency indicator light. Turning the control dims or brightens the light to the level 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 fused lead provides the hot connections for the transmitter filaments. The three types of operation are:

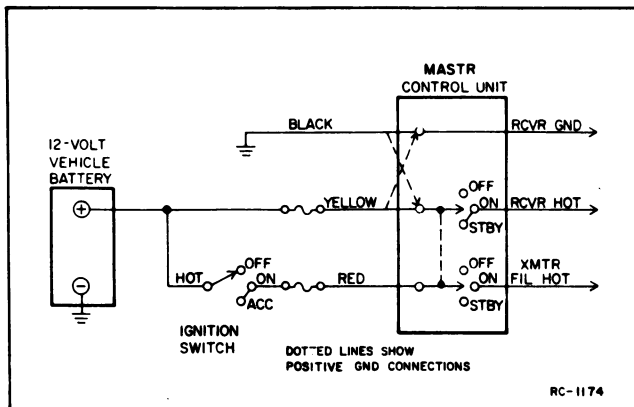


Figure 1 - 12-VDC Connections for Ignition Switch Standby

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.

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

MAINTENANCE

DISASSEMBLY

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

In Front-Mount installations, remove the two Phillips-head screws holding the front casting to the frame and move the casting away from the frame. Next, remove the two screws securing the control cable plug to the inside of the front casting. Then remove the two flat-head screws holding the Control Unit to the front casting.

PILOT LIGHT REPLACEMENT

The pilot lights can be easily replaced without disassembling the Control Unit. First, unscrew the colored lens. Then wrap a small piece of masking tape around the bulb, to give the fingers a firm grip, and unscrew the bulb.

REINSTALLATION

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

Refer to Figure 2 for disassembly of the plug.

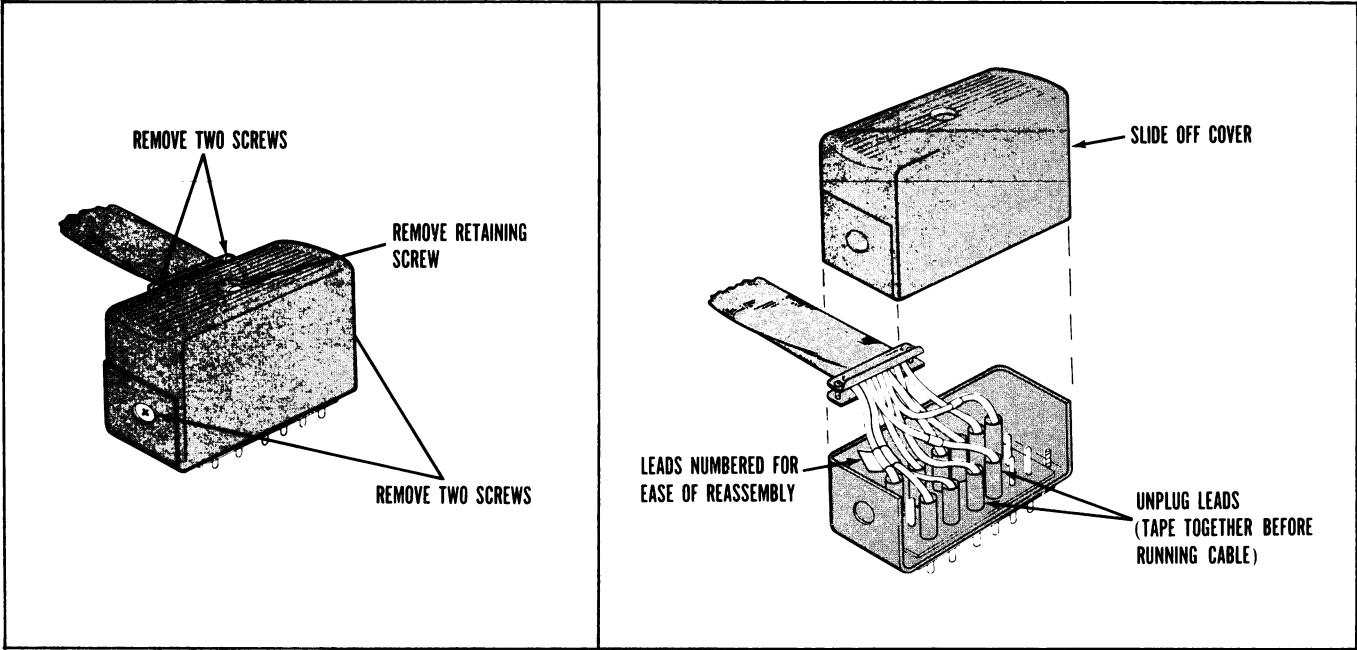


Figure 2 - Disassembly of Control Cable Plug

NOTE

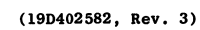
The plug is assembled so that the cable comes out of the top of the plug when connected to the Control Unit. To have the cable come out of the bottom of the plug, remove the remaining two screws and rotate the metal frame 180 degrees.

GENERAL ELECTRIC COMPANY • MOBILE COMMUNICATIONS DIVISION
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

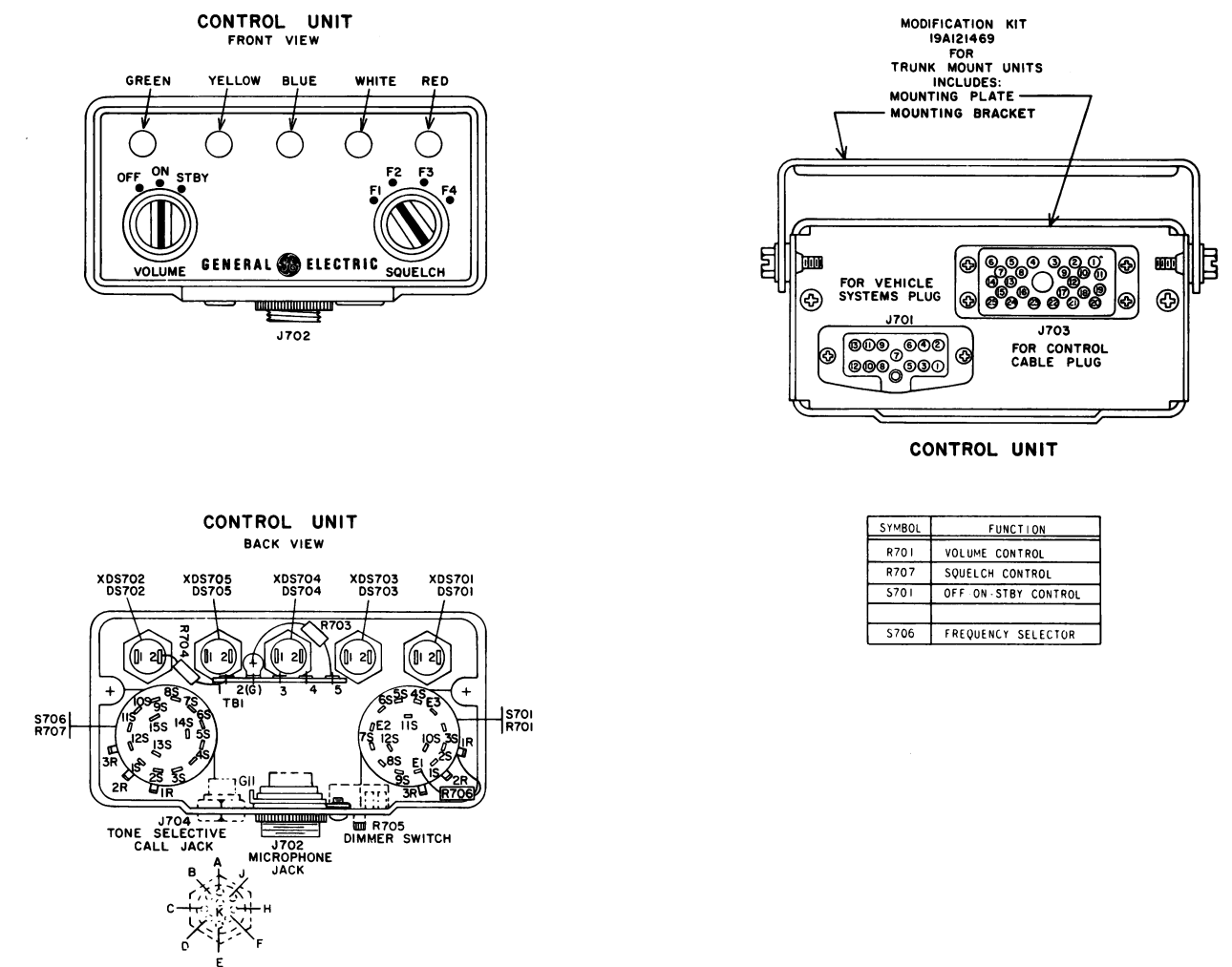


MASTR CONTROL UNIT
MODELS 4EC59A58-61 & 4EC59A74-79

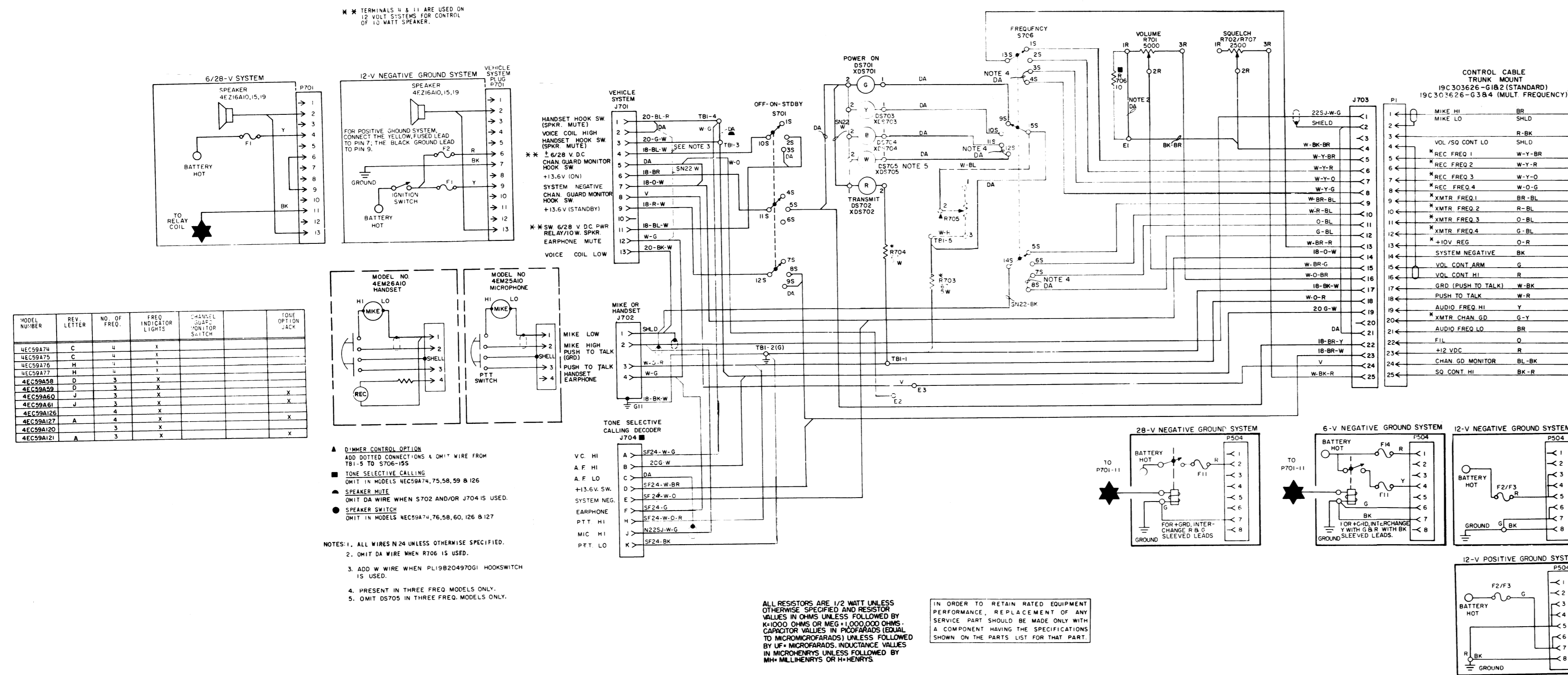
MASTR CONTROL UNIT
MODELS 4EC59A58-61 & 4EC59A74-79



(19C303820, Rev. 3)

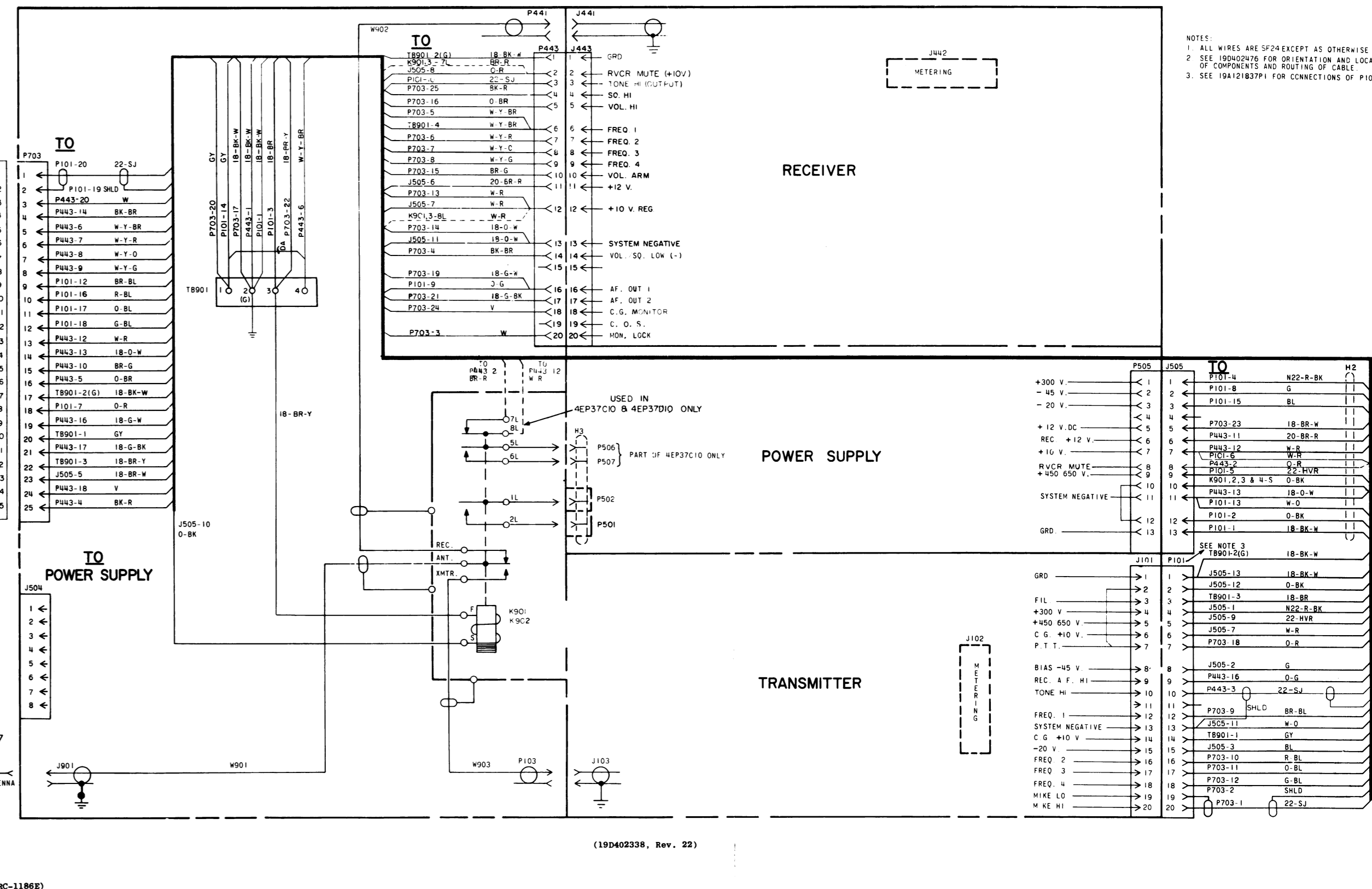


CONTROL UNIT



(19D402418, Rev. 19)

SYSTEM FRAME AND HARNESS



(19D402338, Rev. 22)

(RC-1186E)

SCHEMATIC & INTERCONNECTION DIAGRAM

**MOBILE CONTROL UNIT
MODELS 4EC59A58-61 & 4EC59A74-77**

PARTS LIST		
LBI-3524E		
CONTROL UNIT MODELS 4EC59A58 - 4EC59A61 MODELS 4EC59A74 - 4EC59A77 AND ASSOCIATED ASSEMBLIES		
SYMBOL	GE PART NO.	DESCRIPTION
		CONTROL UNIT 19A11304-G7
		----- INDICATING DEVICES -----
D5701 thru R705	19B201122-P1	Light, indicator: miniature, 6 v; sim to GE Type 1758.
		----- JACKS AND RECEPTACLES -----
J701	19C303576-P1	Socket, phen: 13 contacts rated at 5 amps max.
J702	19A116061-P1	Connector, chassis: 4 female contacts; sim to Amphenol Type 21-PH4F-1000.
J703	19D402408-P1	Connector, phen: 25 contacts rated at 5 amps max.
J704	19B216279-G1	Jack assembly: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester M95-LRN.
		----- RESISTORS -----
R701		(Part of S701).
R703 and R704	5493035-P19	Wirewound, ceramic: 67 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
R706*	3R77-P100K	Composition: 10 ohms ±10%, 1/2 w.
		In Models 4EC59A60 and 61 of REV B thru G: In Models 4EC59A76 and 77 of REV B thru F: Composition: 56 ohms ±10%, 1/2 w.
	3R77-P560K	In Models of REV A: Composition: 270 ohms ±10%, 1/2 w.
	3R77-P271K	In Models earlier than REV A: Composition: 22 ohms ±10%, 1/2 w.
	3R77-P220K	(Part of S706).
R707		----- SWITCHES -----
S701*	19C307089-P19	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, rod log taper; sim to Mallory LC5K-3233.
		In Models 4EC59A58, 59, 74, 75 of REV A and earlier: In Models 4EC59A60, 61, 76, 77 of REV C and earlier:
	19C307089-P1	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; sim to Mallory LC.
S702	5491899-P5	Toggle: SPST, 3 amps at 250 VAC or 250 VDC; sim to Cutler-Hammer 8280K15.
S706	19C307089-P21	Switch/Resistor: includes Switch, rotary, 3 poles, 4 positions, momentary shorting contacts, 250 ma at 500 VRMS; Resistor (R707), variable, 2500 ohms ±10%, 1 w max; sim to Mallory LC.
		----- TERMINAL BOARDS -----
TB1	7775500-P12	Phen: 5 terminals.
		----- SOCKETS -----
XDS701 thru XDS705	19B201122-P2	Lampholder: sim to Drake Series 121.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

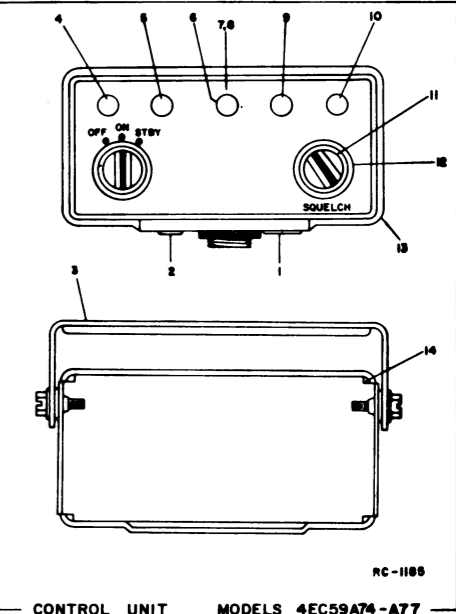
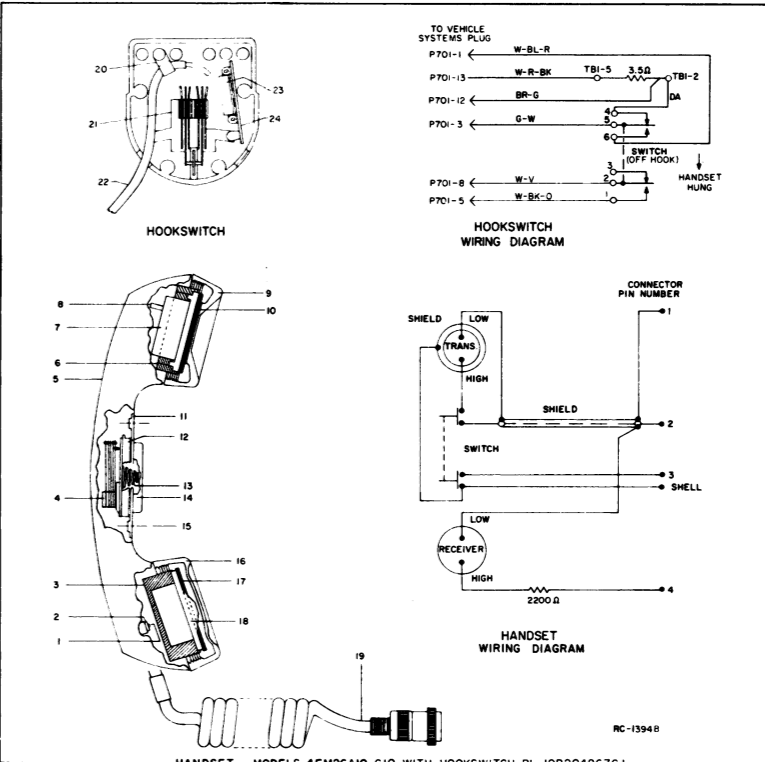
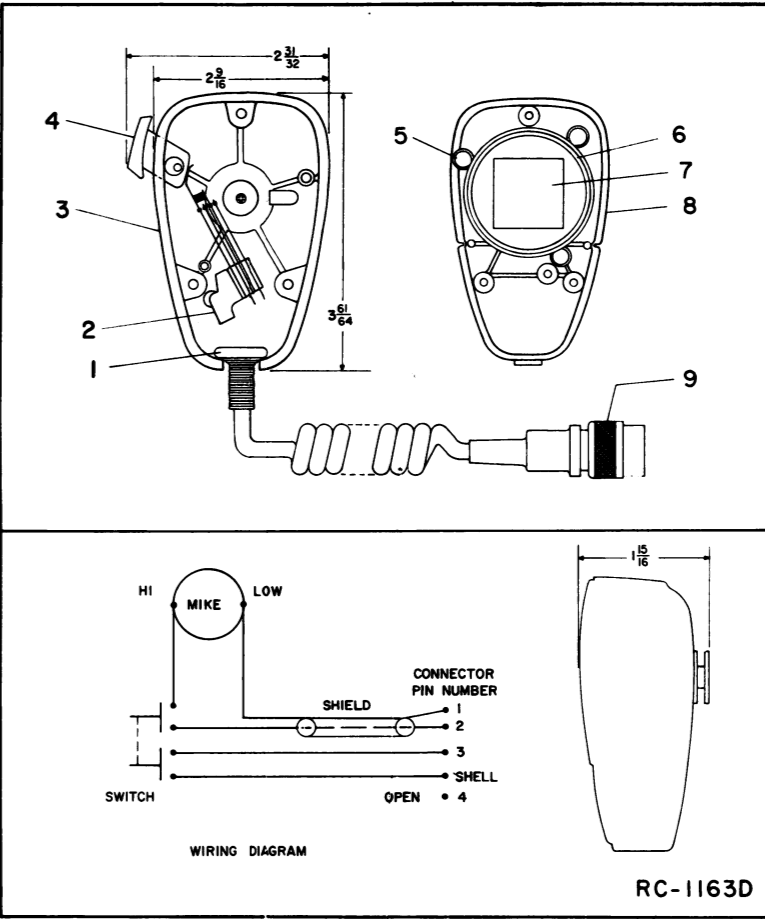
SYMBOL	GE PART NO.	
		MECHANICAL CONTROL UN. MODELS 4EC59A58 - 4EC59A58-u. MODELS 4EC59A74-77 (SEE RC-1185)
1	N529P19C13	Plug button: approx 21/32 inches dia. (Used in Models 42C59A74 and 76).
2	N529P5C13	Plug button.
3	19A121521-G1	Mounting bracket.
4	19B201122-P3	Lens cap: green translucent nylon.
5	19B201122-P6	Lens cap: yellow translucent nylon.
6	19B201122-P5	Lens cap: blue translucent nylon.
7	NP243494	Nameplate: etched aluminum. (Used in Models 4EC59A58, 60, 74 and 76).
8	NP243352	Nameplate: etched aluminum. (Used in Models 4EC59A59, 61, 75 and 77).
9	19B201122-P7	Lens cap: white translucent nylon.
10	19B201122-P4	Lens cap: red translucent nylon.
11	19B204443-G1	Knob: gray.
12	19C303413-P1	Knob: VOLUME/SQUELCH.
13	19B216271-G1	Casting.
14	19B204522-P1	Mounting plate.
		----- ASSOCIATED ASSEMBLIES -----
	19A121469-G1	Control unit modification kit (trunk mount).
	19D402239-G1	12 volt vehicles frame.
	19D402239-G2	6 and 28 volt vehicles frame.
	19A122444-P1	Cover, wire channel (on systems frame).
	19C303452-G1	Front casting (Front mount).
	19C303452-G2	Front casting (Trunk mount).
	5491682-P2	Lock: Yale and Towne. (Part of Front casting).
	5491682-P7	Cam. (Used with lock).
		DIMMER CONTROL MODIFICATION KIT 19A121293-G1
		----- RESISTORS -----
R705	19B209114-P1	Variable, wirewound: 75 ohms ±20%, 3 w; sim to CTS Series 112.
		POWER CABLE ASSEMBLY 19C303601-G1 (12 VOLT FRONT MOUNT) 19C303601-G2 (12 VOLT TRUNK MOUNT)
		----- MISCELLANEOUS -----
19B209189-P1		Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
19D402438-P1		Cap, connector.
19A121444-P2		Connector retaining screw.
19A115313-P1		Cable: 3 conductor, approx 9 feet long. (Used in 19C303601-G1).
19A115314-P1		Cable: 3 conductor, approx 18 feet long. (Used in 19C303601-G2).
		POWER CABLE ASSEMBLY 19C303602-G1 (28 VOLT FRONT MOUNT) 19C303603-G2 (28 VOLT TRUNK MOUNT)
		----- MISCELLANEOUS -----
19B209189-P1		Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
19D402438-P1		Cap, connector.
19A121444-P2		Connector retaining screw.
19A115313-P1		Cable: 3 conductor, approx 9 feet long. (Used in 19C303603-G1).

SYMBOL	GE PART NO.	DESCRIPTION
	19A115314-P1	Cable: 3 conductor, approx 18 feet long. (Used in 19C303603-G2).
		POWER CABLE ASSEMBLY (6 VOLT FRONT MOUNT) 19C303607-G1
		----- MISCELLANEOUS -----
19B209189-P1		Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
19D402438-P1		Cap, connector.
19A121444-P2		Connector retaining screw.
7146477-P3		Cable: 2 lengths, approx 9 feet long connected to pins 1 and 7.
7146477-P4		Cable: 2 lengths, approx 9 feet long connected to pins 4 and 6.
		POWER CABLE ASSEMBLY (8 VOLT TRUNK MOUNT) 19C303606-G1
		----- MISCELLANEOUS -----
19B209189-P1		Connector, phen: 8 contacts rate at 15 amps at 1100 VRMS; sim to Beauchaine and Sons S-5401-76.
19D402438-P1		Cap, connector.
19A121444-P2		Connector retaining screw.
7146477-P1		Cable: 2 lengths, approx 22 feet long connected to pins 1 and 7.
7146477-P3		Cable: 2 lengths, approx 22 feet long connected to pins 4 and 6.
		CONTROL CABLE ASSEMBLY 19C303626-G1, G2 (1-FREQ) 19C303626-G3, G4 (MULTI-FREQ)
		----- PLUGS -----
PI	19C303626-G5	Plug, male: includes connector 19D402408-P3, cap 19C303290-P2 and connector retaining screw 19A121444-P2.
		----- JACKS AND RECEPTACLES -----
J1	19C303626-G6	Plug, female: includes connector 19D402408-P1, cap 19C303290-P1 and connector retaining screw 19A121444-P1.
		----- MISCELLANEOUS -----
19D402408-P1		Connector, female phen: 25 contacts rated at 5 amps max.
19D402408-P3		Connector, male phen: 25 contacts rated at 5 amps max.
19C303290-P1		Cap, connector. (Used with 19D402408-P1 connector).
19C303290-P2		Cap, connector. (Used with 19D402408-P3 connector).
7139880-P11		Cable: 23 conductors. (When ordering specify length). (Used in 19C303626-G3 and G4).
7139880-P8		Cable: 13 conductors. (When ordering specify length). (Used in 19C303626-G1 and G2).
		VEHICLE SYSTEM CABLE KIT 19A121454-G1 (12 VOLT VEHICLES) 19A121454-G2 (6/28 VOLT VEHICLES)
		----- MISCELLANEOUS -----
19A121324-G1		6/28 volt vehicle jumper. (Used in 19A121454-G2).
19A121429-P1		Pin: 1/2 inch long.
19A121441-G1		Plug: 13 contacts.
19C303574-P1		Cover.

SYMBOL	GE PART NO.	DESCRIPTION
		FUSED LEAD ASSEMBLY 19A121314-G1 (19A121454-G1, G2) 19A121314-G2 (19A121454-G2)
		----- MISCELLANEOUS -----
1R16-P8		Cartridge, quick blowing: 5 amps at 250 v; sim to Littelfuse 312005 or Bussman MTU-5.
19A115776-P2		Fuseholder.
		INTERCONNECTION HARNESS ASSEMBLY 19A121650-G1
		----- JACKS AND RECEPTACLES -----
J505	19B204409-G1	Plug, male: 13 pin contacts.
		----- PLUGS -----
P101	19C303506-P1	Connector, phen: 20 contacts.
P443	19C303506-P1	Connector, phen: 20 contacts.
P703	19D402408-P2	Connector, phen: 25 contacts.
		----- TERMINAL BOARDS -----
TB901	7775500-P10	Phen: 4 terminals.
		12 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445-P1
		Includes J901, K901, P103, P441, W901-W903.
		6/12, 12/28 VOLT RELAY ASSEMBLY 25-470 MHz 19B209445-P2
		Includes J901, K902, P103, P441, W901-W903.
		----- MISCELLANEOUS -----
		FUSE AND RELAY ASSEMBLY 7487952-G19 (28 VOLT VEHICLE) 7487952-G20 (6 VOLT VEHICLE)
		----- FUSES -----
F11	1R11-P4	Quick blowing: 15 amps, 250 v; sim to Bussman NOM15.
F14	1R11-P7	Quick blowing: 30 amps, 250 v; sim to Bussman NOM30. (Used in 7487952-G20).
		----- RELAYS -----
K1	7486515-P1	Armature, enclosed: 6 VDC nominal, 26 ohms ±8% coil res, 1 form A contact rated at 15 amps; sim to RBM 60-108013-3. (Used in 7487952-G20).
K3	7486515-P3	Armature, enclosed: 28 VDC nominal, 300 ohms ±10% coil res, 1 form A contact rated at 15 amps. (Used in 7487952-G19).
		12 VOLT FUSE ASSEMBLY 19B216021-G4
		Base.
19D413045-P1		Cover.
19D413046-P1		Fuse clip.
19B205950-P1		
		----- FUSES -----
F2	1R11-P6	Quick blowing: 25 amps, 250 v; sim to Bussman NOM25. (Used with medium power transmitters).

SYMBOL	GE PART NO.	DESCRIPTION
F3	1R11-P7	Quick blowing: 30 amps, 250 v; sim to Bussman NOM30. (Used with high power transmitters).
		130 - 470 MHz ANTENNA MODEL 45V12413 (5490969-P13)
		----- MISCELLANEOUS -----
5490969-P4		Whip: stainless steel, approx 20 inches long; ball tip.
5490969-P5		Socket, whip: with (2) No. 6-32 set screws.
5490969-P6		Whip and whip socket: stainless steel whip approx 20 inches long with ball tip; whip socket with (2) No. 6-32 set screws.
		Cable, antenna: approx 15 feet long. Type RG-58/U. (Used with GE Dwg 2R22-P1 and GE Dwg 7105381-P1).
7105381-P1		Adapter, cable: approx 1 x 7/16 inches dia. Type UG-175/U. (Used with GE Dwg 2R22-P1 and Type RG-58/U cable).
2R22-P1		Plug, coaxial: mica-filled inert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 7105381-P1 and Type RG-58/U cable).
		25 - 50 MHz ANTENNA
		----- MISCELLANEOUS -----
7491074-P1		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.
7102930-P3		Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074-P1).
4033101-G1		Antenna package: includes base; adapter spring; cable and plug.
7472880-G5		Antenna base.
7476632-G4		Adapter spring.
5492239-P1		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.
2R22-P1		Plug, coaxial: mica-filled insert, UHF contact. Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239-P1).
4KY9A1		Coil, loading: 25 to 33 MHz; sm to Antenna Specialists ASPA87.
19A121577-G1		Antenna hook kit.
7134724-P1		Antenna hook.
		HANDSET MODEL 4EM26A10 (19B209100-G1) (SEE RC-1394)
1		Self tap screw, blind head: No. 4 x 5/16. Shure Brothers 30C640C.
2		Cable clamp. Shure Brothers 53A532.
3		Shield. Shure Brothers RP-19.
4		Switch. Shure Brothers RP-81.
5		Handle. Shure Brothers RP-49.
6		Adapter. Shure Brothers 65A230.
7		Magnetic controlled cartridge. Shure Brothers RP-41.
8		Resistor, composition: 2200 ohms ±10%, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A321.

SYMBOL	GE PART NO.	DESCRIPTION
11		Escutcheon. Shure Brothers 53A536A.
12		Actuator. Shure Brothers 53A556.
13		Spring. Shure Brothers 44A140.
14		Plunger bar. Shure Brothers RP-82.
15		Flat head screw, socket cap: No. 4-40 x 1/4. Shure Brothers 30C557B.
16		Transmitter cap. (Part of RP-49).
17		Washer. Shure Brothers 34A309.
18		Magnetic controlled cartridge. Shure Brothers RP-13.
19		Cable and plug. Shure Brothers RP-48.
		HOOKEWITCH ASSEMBLY 19B204867-G1
		----- MISCELLANEOUS -----
4029851-P4		Cable clamp; sim to WEC Kesser 3/16-4.
19A121612-P1		Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
19A121581-G1		Cable: approx 8-1/2 feet long.
5493035-P10		Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Tru-Ona Type X-60.
7775500-P55		Terminal board, phen: 5 terminals.
		MILITARY MICROPHONE MODEL 4EM26A10 19B209102-G1 (SEE RC-1163)
1		Cable clamp. Shure Brothers 53A532.
2		Switch. Shure Brothers RP-26.
3		Case (back) and mounting button: plastic. Shure Brothers RP-67.
4		Switch button: red plastic. Shure Brothers RP-25.
5		Spring. Shure Brothers RP-16.
6		Shield. Shure Brothers RP-23.
7		Magnetic controlled cartridge. Shure Brothers RP-13.
8		Case (front): plastic. Shure Brothers RP-67.
9		Cable and plug: approx 6 feet long. Shure Brothers RP-14.
		5 WATT SPEAKER 4E215A19 19D402449-G12
C1	19B209233-P1	Electrolytic, non-polarized: 25 µf ±20%, 25 VDC; sim to Sprague 44DC.
LS3	19B209422-P1	Permanent magnet: 5 inch, 3.2 ohms ±10% imp, 2.98 ohms ±15% DC res, 7.5 w max operating.
W1	19A121546-G1	Cable assembly: approx 48 inches long, includes (2) 19A121429-P1 pins.
		19B216269-G2
	19A121550-G3	Cover.
	19A121521-G1	Mounting support.
	5490407-P3	Neoprene grommet. (Upper)
	19A115470-P1	Rubber grommet. (Lower)



CONTROL UNIT
MODELS 4EC59A76-A77

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 4EC59A60, 61, 76, 77

To achieve compatibility with pulse tone decoder, changed R706.

REV. B - Models 4EC59A60, 61, 76, 77

To reduce speaker minimum audio level when using Type 99 Tone Decoder. Changed R706.

REV. A - Models 4EC59A58, 59, 74, 75

REV. C - Models 4EC59A60, 61, 76, 77

To reduce transmitter modulation caused by power supply switching noise. Removed black wire from ground lug TB-2 (other end connected to S706-14S) and connected it to microphone jack J702-1.

REV. B - Models 4EC59A58, 59, 74, 75

REV. D - Models 4EC59A60, 61, 76, 77

To incorporate switch with improved reliability. Changes S701.

REV. C - Models 4EC59A58, 59

REV. E - Models 4EC59A60, 61

To facilitate manufacturing. Changed Multi-frequency switch.

REV. C - Models 4EC59A74, 75

REV. D - Models 4EC59A58, 59

REV. E - Models 4EC59A76, 77

REV. F - Models 4EC59A60, 61

To ground microphone jack. Added BK-W wire from TB1-2 (G) to G11.

REV. F - Models 4EC59A76, 77

REV. G - Models 4EC59A60, 61

To incorporate a new control unit housing. Changed housing from metal to Lexan®.

REV. G - Models 4EC59A76, 77

REV. H - Models 4EC59A60, 61

To reduce the audio output level at minimum volume control setting. Changed R706.

REV. J - Models 4EC59A60, 61

REV. H - Models 4EC59A76, 77

To add MIKE HI, PTT, Earphone and ground to Tone Option Jack J704.

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