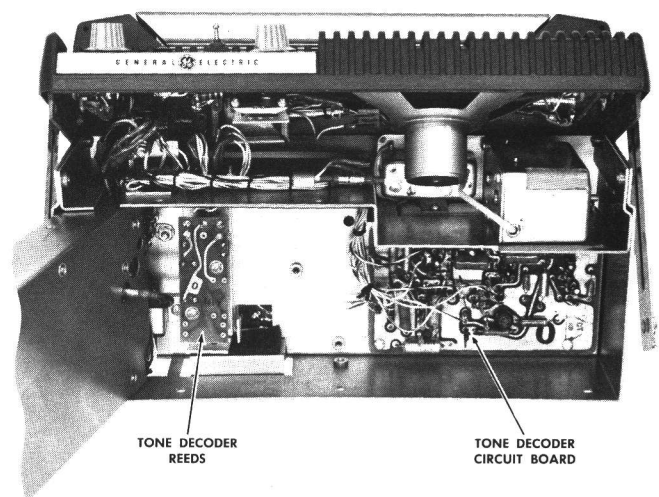


# MAINTENANCE MANUAL

PORTA•MOBIL TYPE 99 TONE DECODERS  
(Models 4EJ19A10 & 11)

Maintenance Manual LBI-4047B  
DF-5025



## SPECIFICATIONS \*

### POWER REQUIREMENTS:

Decoder will operate over a voltage range of 11.0 volts to 16.6 volts DC.

### MULTIVIBRATOR TIMING:

Beep sounds in speaker constitute distinctive calling; these tones are approximately 180 ms. long with 180 ms. intervals between beeps. These times may vary  $\pm 20$  ms. depending on reed frequency.

### TONE FREQUENCIES

517.5 to 997.5 Hz

### TEMPERATURE:

-30°C to +60°C. (-22°F to 144°F)

\*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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## DESCRIPTION

PORTA-MOBIL Type 99 Tone Decoders, Models 4EJ19A10 & A11, provide selective paging for PORTA-MOBIL Combinations. The decoders respond to tone dispatchers generating two-tone sequential signaling. These include the General Electric 100, 400 and 900 Call Dispatchers, the Command Terminal and Dial-Paging Terminal.

When a signal modulated by the proper combination of two sequential tones is received, the PORTA-MOBIL receiver audio is turned on and off several times during reception of the second tone. A "beep" tone is reproduced in the speaker of the portable to alert the operator that a call is being received. After completion of the second tone transmission, the PORTA-MOBIL audio circuits are unmuted and the message is received.

Electromechanical reeds (resonant to the desired tone frequencies) are utilized in the Tone Decoders. Two reeds are used in Model 4EJ19A10 providing Individual Call only. Four reeds are used in Model 4EJ19A11 providing Individual Call and All Call or Group Call. Removal of CR3, CR5, Q8 & Q9, as indicated on the Schematic Diagram for Model 4EJ19A11, permits Individual Call, All Call and two Group Calls.

## OPERATION

To initiate a call, the operator removes the microphone from its bracket on the Control Unit. This action automatically closes the monitor switch, permitting the operator to monitor the channel before placing the call. When Control Unit Models 4EC60A18 and A21 (handset) are used, a special MONITOR-RESET toggle switch (S706) is provided on the control unit. This switch must be moved to the MONITOR position to monitor the channel.

Upon completion of a call, the RESET switch (S707 on Control Unit 4EC60A14, A15, A26, A27; S706 on microphone-equipped Control Units 4EC60A18, A21) must be operated to the RESET position to restore audio muting. On Control Unit Models 4EC66A12, A13, A16, A17, switch S703 must be turned to NORMAL.

## CIRCUIT ANALYSIS

Audio is coupled from the PORTA-MOBIL discriminator to the base of audio amplifier Q1 through coupling capacitor C1. The amplified signal is then RC coupled to amplifier-limiter stage Q2. This stage drives the reed decoders. CR1 and CR2 serve to limit the tone amplitude. A zener regulator VR1 holds the supply voltage constant to the amplifier. Thus, a constant drive voltage is applied across the reeds.

### TWO-REED DECODER

Model 4EJ19A10 is a two-reed decoder which responds to one combination of sequential tones. When the first tone of a two-tone sequential call is received, reed FL1 responds. (The reed is an electromechanical device resonant only to the desired first tone of the selective-calling code). The contacts of FL1 close, charging C7 from the positive supply and turning Q3 off.

After Q3 turns off, C8 charges from the positive supply voltage through R16 and contacts of FL1. In approximately 500 milliseconds, the positive charge on C8 is sufficient to turn Q4 on. Current flow in the collector circuit of Q4 produces a forward bias on the base of Q5 allowing it to conduct and clamp the base of Q6 to positive. Capacitor C9 charges in a negative direction through R21, CR7 and Q4, but Q6 is held at cut-off by the positive voltage applied to its base through Q5.

When the first tone is removed, contacts of FL1 open. C7 discharges through R13, forward biasing Q3 allowing it to conduct. This turns Q4 and Q5 off. When Q5 turns off, the positive voltage is removed from the base of Q6 and the negative charge on C9 turns Q6 on.

The charge on C9 keeps Q6 on for approximately 1-second, holding the base of Q7 negative. If the second tone is received during this time interval, the positive supply is connected through contacts of FL2 to the emitter of Q7 and this transistor conducts. The output from Q7 operates silicon-controlled switch SCS1 and multivibrator Q10 & Q11.

SCS1 is normally turned off. In this case, positive voltage is connected from the control unit to the noise amplifier in the receiver to hold the receiver audio circuits off (see Figure 1). When Q7 is turned on by contacts of the second-tone reed, SCS1 operates. This removes the positive voltage from the noise amplifier to unmute the receiver audio circuits. SCS1 continues to conduct until the RESET switch is operated to open the supply lead to the switch.

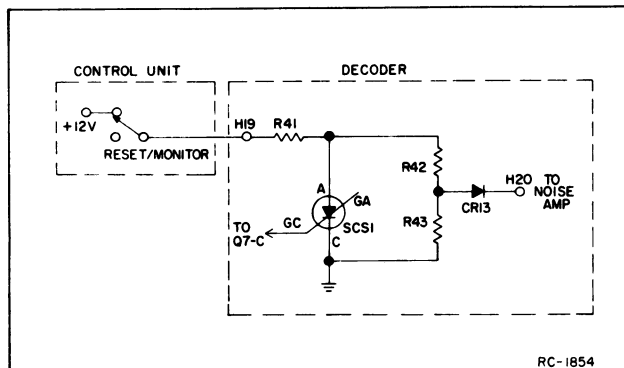


Figure 1 - Silicon-Controlled Switch Circuit

During the reception of the second tone in the two-tone sequence, the output from Q7 operates multivibrator Q10 and Q11. The square wave output of this circuit turns the receiver audio circuits on and off during this period, resulting in a series of "beep" tones in the loudspeaker.

These "beeps" are 180 milliseconds in duration with a 180-millisecond interval between each beep. Both of these time periods may vary as much as  $\pm 20$  milliseconds, depending on the reed frequency. The result is 4 to 6 beeps during the second tone interval. If the VOLUME control is turned all the way down, the operator will still hear a click at the end of each beep.

#### FOUR-REED DECODER

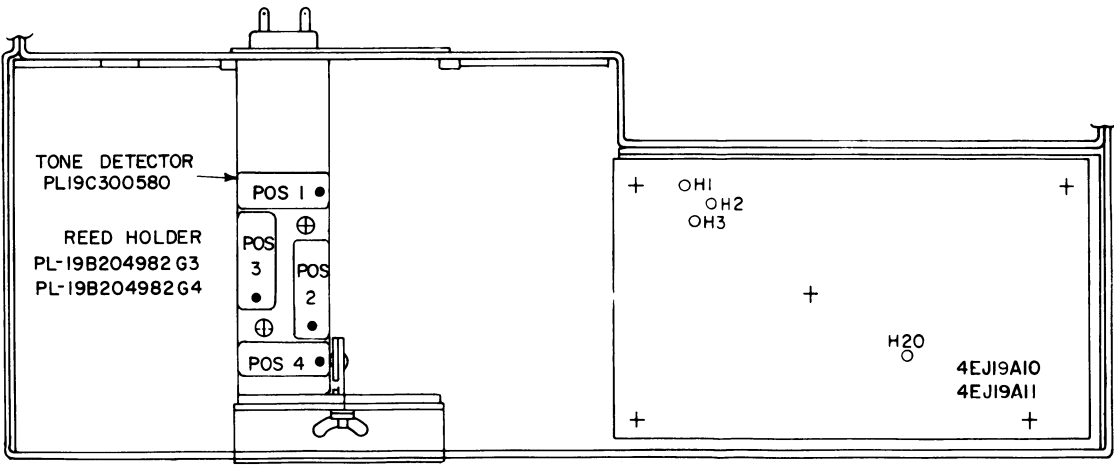
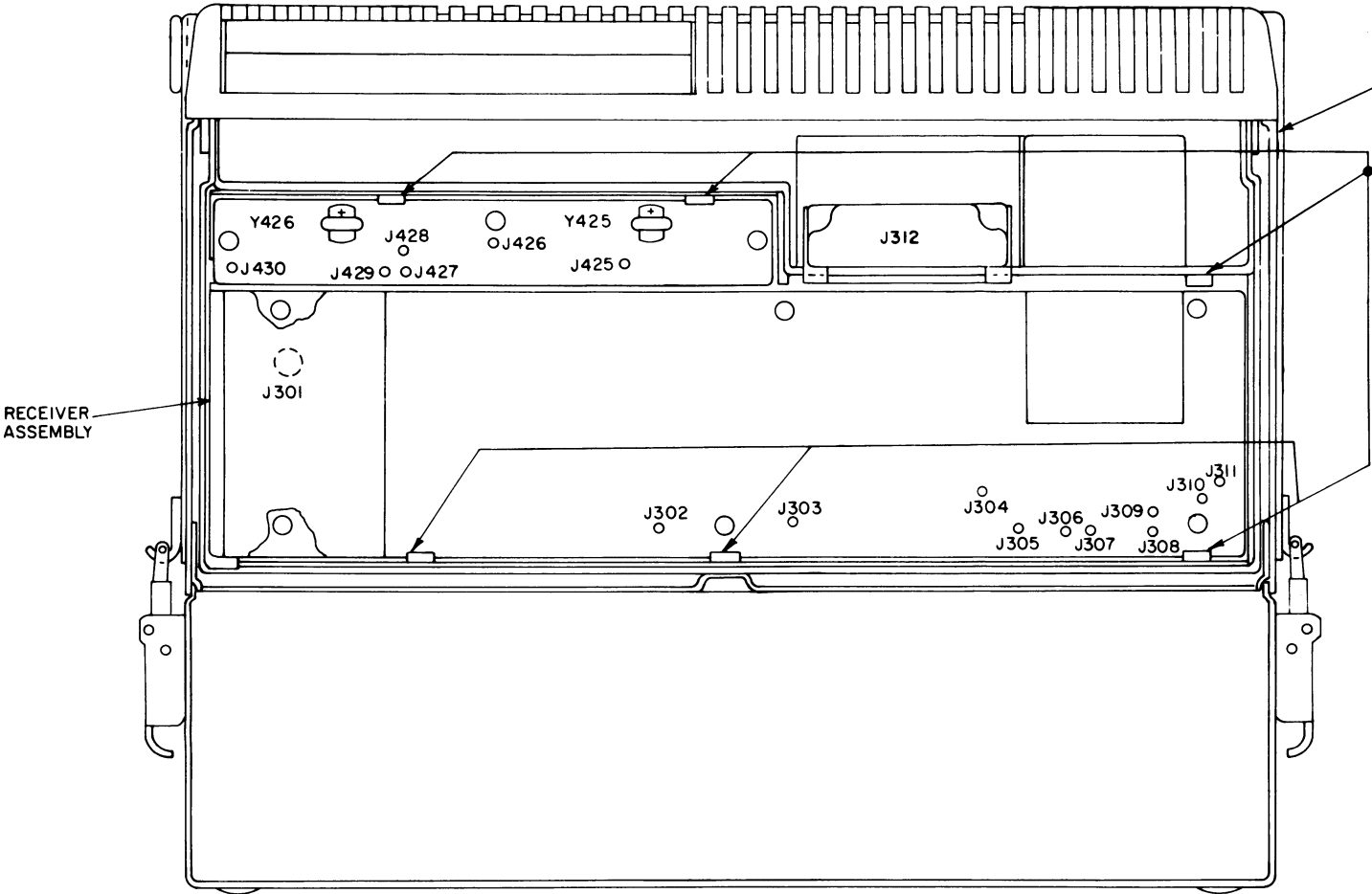
Model 4EJ19A11 is a four-reed decoder, which can respond to more than one combination of sequential tones. Its operation is similar to the two-reed decoder, except for a bistable multivibrator circuit (Q8 & Q9) which prevents the decoder from responding to an incorrect code. The four-reed decoder is designed so that FL1 operates with FL2 and FL3 operates with FL4.

If the first tone of a two-tone sequential code operates FL1, Q8 of the multivibrator conducts. A negative potential is connected through Q8 to the reed terminal of FL4, disabling this reed circuit. Thus, the second tone of this particular sequence must operate FL2 before the decoder can respond.

If FL3 responds to the first tone, Q9 operates and disables the FL2 reed circuit. Now FL4 must respond to the second tone of this particular sequence before the decoder can operate.

DISASSEMBLY INSTRUCTIONS

1. REMOVE SCREWS AND HINGE BACK CONTROL UNIT AS INDICATED.
2. REMOVE SIX #6-32 X 1/4 SCREWS & LOCKWASHERS HOLDING RECEIVER ASSEMBLY.
3. DISCONNECT IN-LINE CONNECTORS P304 AND P305. SWING RECEIVER ASSEMBLY TO LEFT, EXPOSING SELECTIVE CALLING COMPONENTS

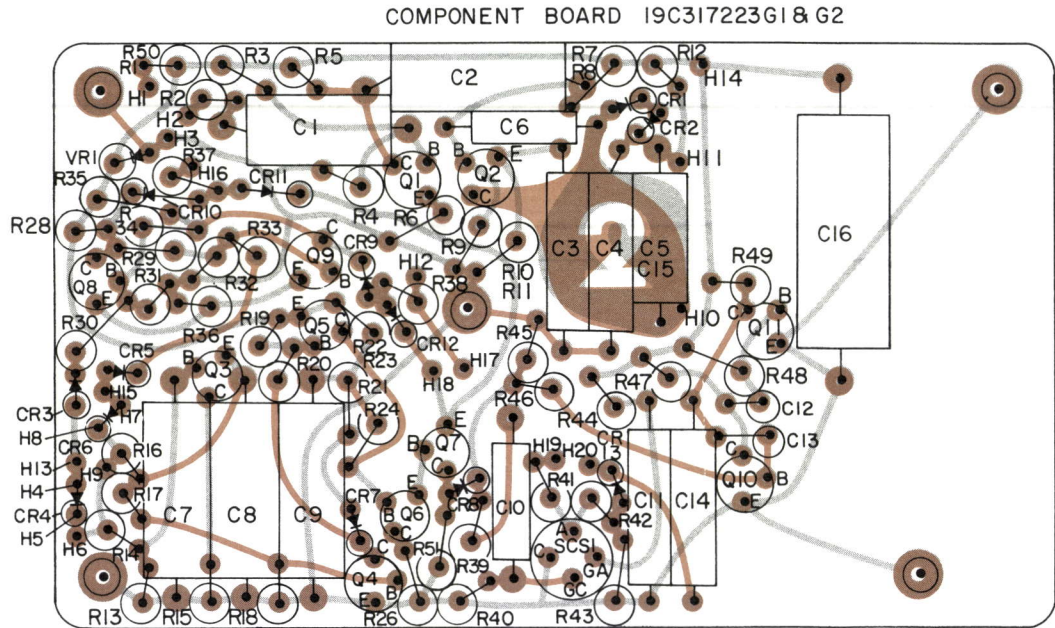


DISASSEMBLY INSTRUCTIONS

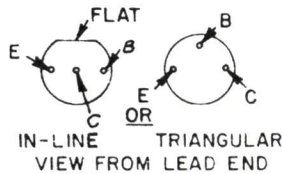
TYPE 99 TONE DECODERS  
MODELS 4EJ19A10 & 11

(RC-1853)

OUTLINE DIAGRAM

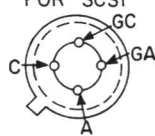


LEAD IDENTIFICATION



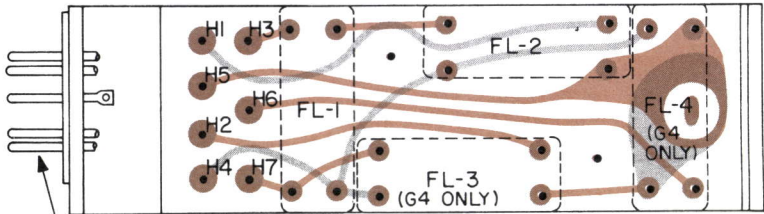
NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

LEAD IDENTIFICATION FOR SCS1

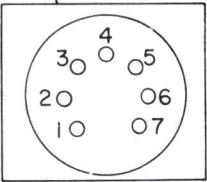


(19B216652, Sh. 1, Rev. 2)  
(19B216652, Sh. 2, Rev. 2)

REED HOLDER 19B204982G3 & G4



(19B216654, Sh. 1, Rev. 0)  
(19B216654, Sh. 2, Rev. 0)



TERMINAL VIEW

SERVICE SHEET

TYPE 99 TONE DECODERS  
MODELS 4EJ19A10 & 11

PARTS LIST

LBI-4048B  
TYPE 99 TONE DECODER  
MODELS 4EJ19A10 AND 11

SYMBOL	GE PART NO.	DESCRIPTION
C1 and C2	19C307099P23	Polyester: 0.1 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 192P10402.
C3 and C4	5496267P14	Tantalum: 15 $\mu$ f $\pm$ 20%, 20 VDCW; sim to Sprague Type 150D.
C5	19C307099P6	Polyester: .033 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 192P33392.
C6	19C307099P1	Polyester: .0047 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 192P47202.
C7	5496267P17	Tantalum: 1.0 $\mu$ f $\pm$ 35%, 35 VDCW; sim to Sprague Type 150D.
C8 and C9	19A115680P8	Electrolytic: 10 $\mu$ f +150% -10%, 25 VDCW; sim to Mallory Type TT.
C10	19C307099P3	Polyester: .01 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 192P10302.
C11	5496267P18	Tantalum: 6.8 $\mu$ f $\pm$ 35%, 35 VDCW; sim to Sprague Type 150D.
C12	5496267P13	Tantalum: 2.2 $\mu$ f $\pm$ 20%, 20 VDCW; sim to Sprague Type 150D.
C13	5496267P17	Tantalum: 1.0 $\mu$ f $\pm$ 20%, 35 VDCW; sim to Sprague Type 150D.
C14	5496267P14	Tantalum: 15 $\mu$ f $\pm$ 20%, 20 VDCW; sim to Sprague Type 150D.
C15	19C307099P23	Polyester: 0.1 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 192P10402.
C16*	19A115680P4	Electrolytic: 50 $\mu$ f +150% -10%, 25 VDCW; sim to Mallory Type TT. Added by REV A.
CR1 thru CR13	19A115250P1	Silicon.
Q1 and Q2	19A115123P1	Silicon, NPN; sim to Type 2N2712.
Q3	19A115768P1	Silicon, PNP; sim to Type 2N3702.
Q4	19A115123P1	Silicon, NPN; sim to Type 2N2712.
Q5 thru Q7	19A115768P1	Silicon, PNP; sim to Type 2N3702.
Q8 thru Q11	19A115123P1	Silicon, NPN; sim to Type 2N2712.
R1	3R77P271K	Composition: 270 ohms $\pm$ 10%, 1/2 w.
R2	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R3	3R77P114J	Composition: 0.11 megohms $\pm$ 5%, 1/2 w.
R4	3R77P912J	Composition: 9100 ohms $\pm$ 5%, 1/2 w.
R5	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R6	3R77P221K	Composition: 220 ohms $\pm$ 10%, 1/2 w.
R7	3R77P622J	Composition: 6200 ohms $\pm$ 5%, 1/2 w.
R8	3R77P822K	Composition: 8200 ohms $\pm$ 10%, 1/2 w.
R9	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R10	3R77P432J	Composition: 4300 ohms $\pm$ 5%, 1/2 w.

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

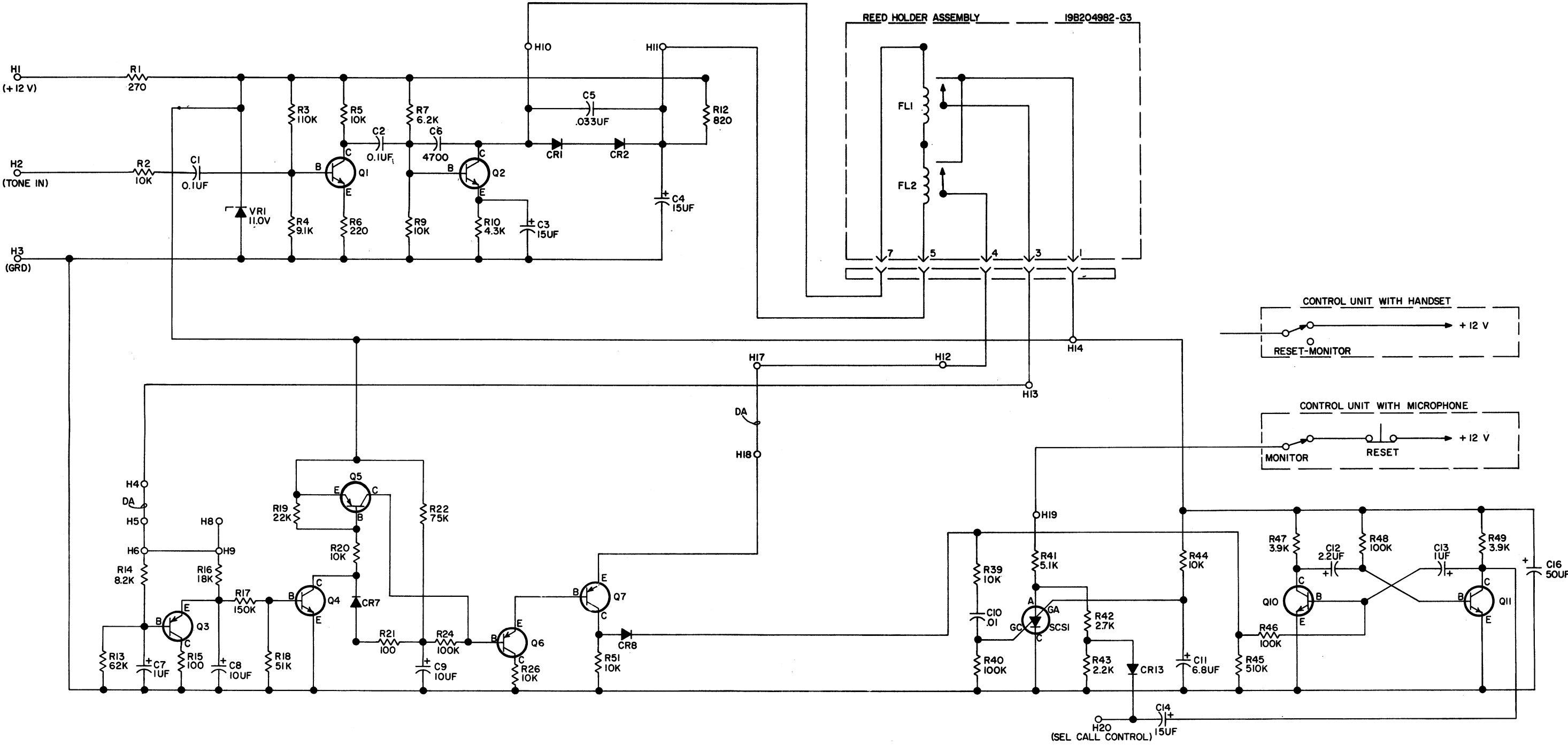
SYMBOL	GE PART NO.	DESCRIPTION
R11	3R77P222K	Composition: 2200 ohms $\pm$ 10%, 1/2 w.
R12	3R77P821K	Composition: 820 ohms $\pm$ 10%, 1/2 w.
R13	3R77P623J	Composition: 62,000 ohms $\pm$ 5%, 1/2 w.
R14*	3R77P822K	Composition: 8200 ohms $\pm$ 10%, 1/2 w.
		Earlier than REV A:
	3R77P102K	Composition: 1000 ohms $\pm$ 10%, 1/2 w.
R15	3R77P101K	Composition: 100 ohms $\pm$ 10%, 1/2 w.
R16	3R77P183J	Composition: 18,000 ohms $\pm$ 5%, 1/2 w.
R17	3R77P154K	Composition: 0.15 megohm $\pm$ 10%, 1/2 w.
R18	3R77P513J	Composition: 51,000 ohms $\pm$ 5%, 1/2 w.
R19	3R77P223K	Composition: 22,000 ohms $\pm$ 10%, 1/2 w.
R20	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R21	3R77P101K	Composition: 100 ohms $\pm$ 10%, 1/2 w.
R22	3R77P753J	Composition: 75,000 ohms $\pm$ 5%, 1/2 w.
R23	3R77P823K	Composition: 82,000 ohms $\pm$ 10%, 1/2 w.
R24	3R77P104K	Composition: 0.1 megohms $\pm$ 10%, 1/2 w.
R26	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R28	3R77P102K	Composition: 1000 ohms $\pm$ 10%, 1/2 w.
R29 and R30	3R77P303J	Composition: 30,000 ohms $\pm$ 5%, 1/2 w.
R31 and R32	3R77P223K	Composition: 22,000 ohms $\pm$ 10%, 1/2 w.
R33 and R34	3R77P303J	Composition: 30,000 ohms $\pm$ 5%, 1/2 w.
R35	3R77P102K	Composition: 1000 ohms $\pm$ 10%, 1/2 w.
R36	3R77P101K	Composition: 100 ohms $\pm$ 10%, 1/2 w.
R37 and R38	3R77P102K	Composition: 1000 ohms $\pm$ 10%, 1/2 w.
R39	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R40	3R77P104K	Composition: 0.1 megohm $\pm$ 10%, 1/2 w.
R41	3R77P512J	Composition: 5100 ohms $\pm$ 5%, 1/2 w.
R42	3R77P272K	Composition: 2700 ohms $\pm$ 10%, 1/2 w.
R43	3R77P222K	Composition: 2200 ohms $\pm$ 10%, 1/2 w.
R44	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
R45	3R77P514J	Composition: 0.51 megohm $\pm$ 5%, 1/2 w.
R46	3R77P104K	Composition: 0.1 megohm $\pm$ 10%, 1/2 w.
R47	3R77P392K	Composition: 3900 ohms $\pm$ 10%, 1/2 w.
R48	3R77P104K	Composition: 0.1 megohm $\pm$ 10%, 1/2 w.
R49	3R77P392K	Composition: 3900 ohms $\pm$ 10%, 1/2 w.
R50	3R77P121K	Composition: 120 ohms $\pm$ 10%, 1/2 w.
R51	3R77P103K	Composition: 10,000 ohms $\pm$ 10%, 1/2 w.
		----- SWITCHES -----
SCS1	19A115198P1	Silicon, controlled. 300 mw.
		----- VOLTAGE REGULATORS -----
VR1	4036887P8	Silicon, Zener.
		----- MISCELLANEOUS -----
	4036555P1	Insulator, washer: nylon. (Used with SCS1).

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 description of parts affected by these revisions.

REV. A - Models 4EJ19A10 & 11

To eliminate multivibrator falsing causing a popping in the speaker. Add C16 and change R14.



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

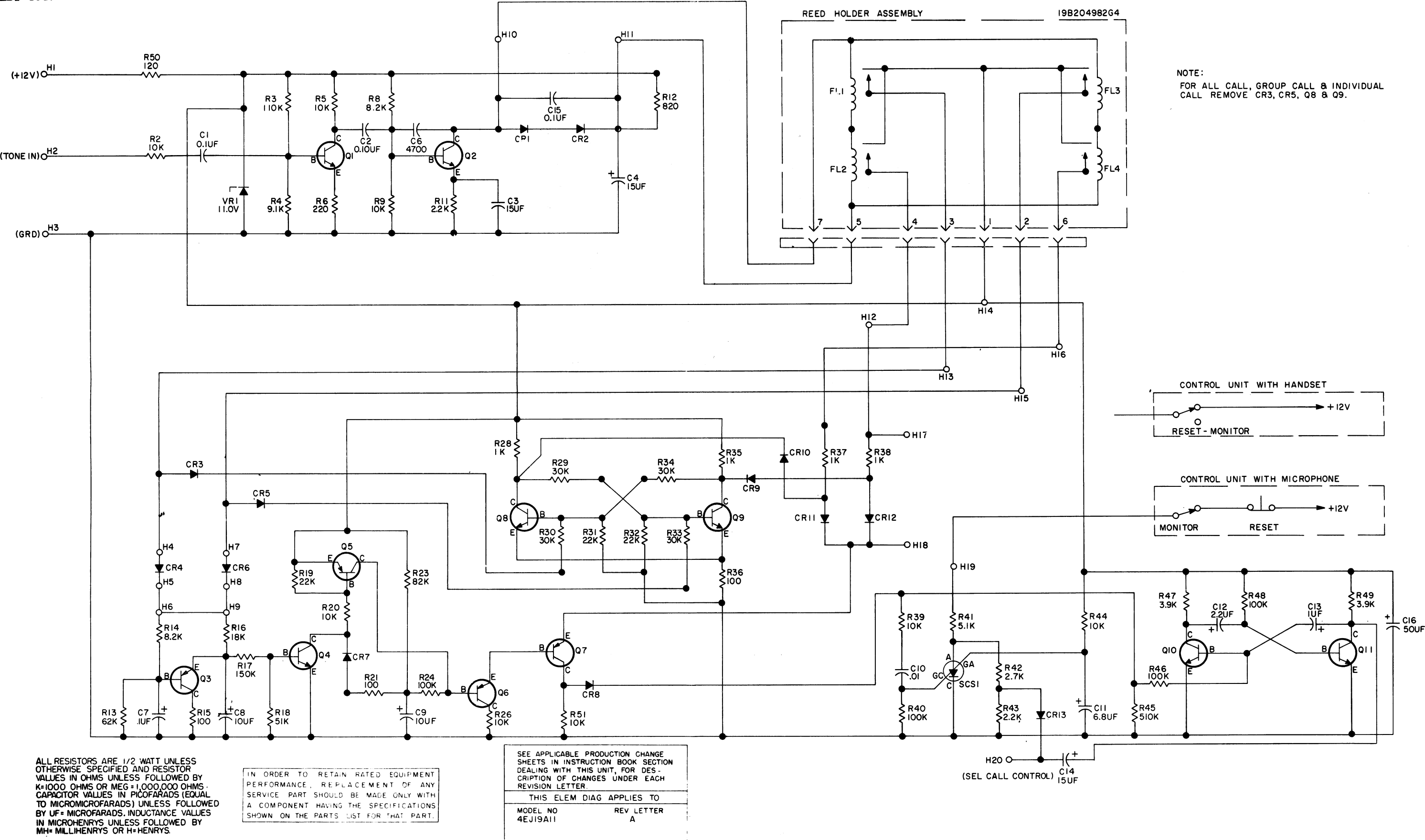
IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

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	
MODEL NO	REV LETTER
4EJ19A10	A

(19D413339, Rev. 2)

SERVICE SHEET

TYPE 99 TONE DECODER  
MODELS 4EJ19A10



SERVICE SHEET

TYPE 99 TONE DECODER  
MODEL 4EJ19A11

(19D413338, Rev. 2)

## MODELS 4EC60A14 & 4EC60A15

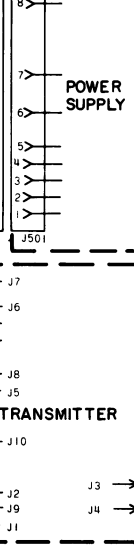
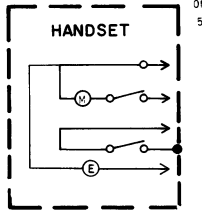
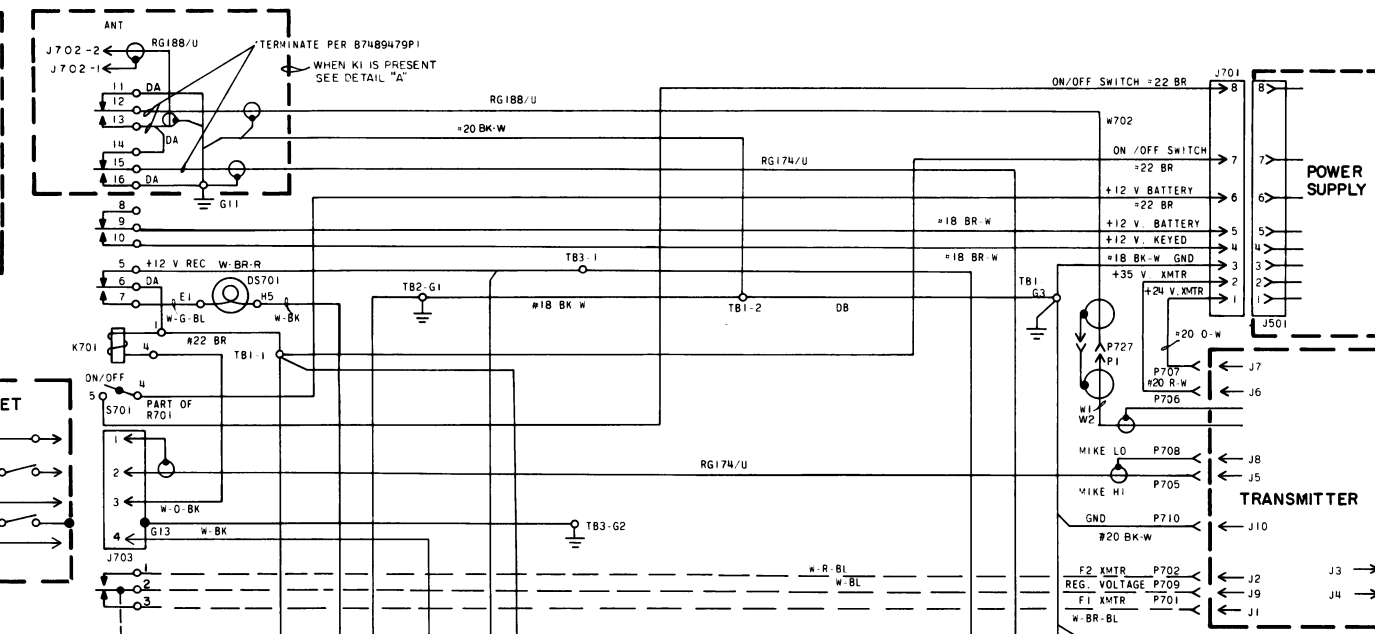
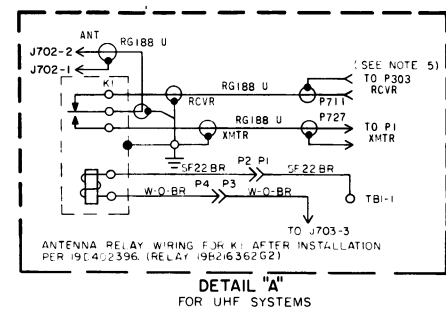
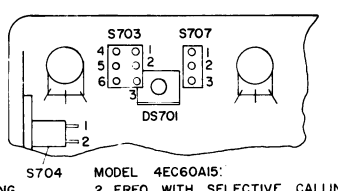
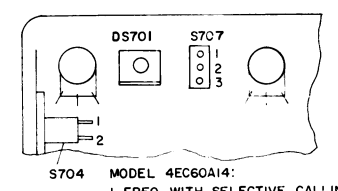
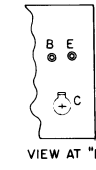
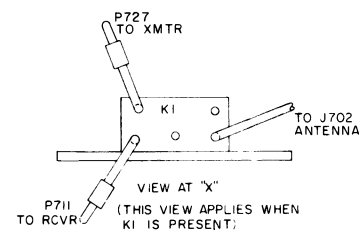
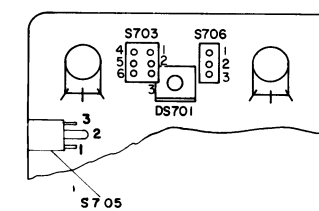
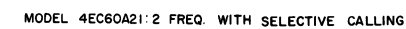
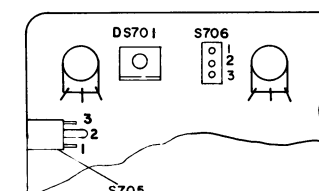
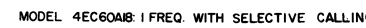
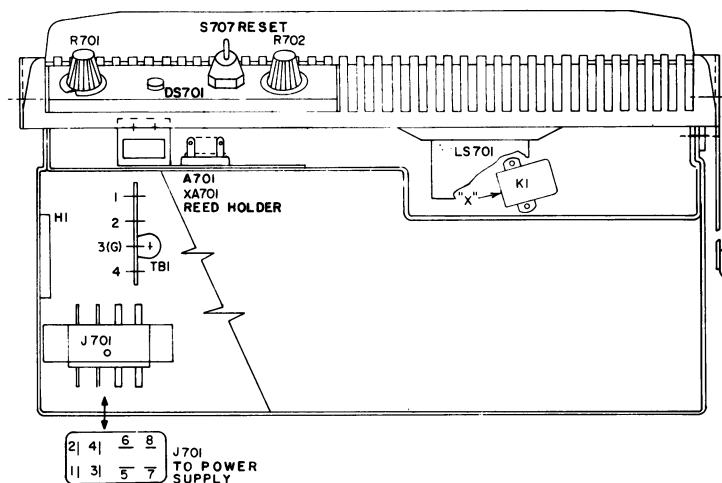
### OUTLINE DIAGRAM

**MODELS 4EC60A14 & 4EC60A15**  
**SCHEMATIC DIAGRAM**

**MICROPHONE WITH SELECTIVE CALLING**

**NOTES:**

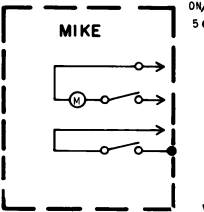
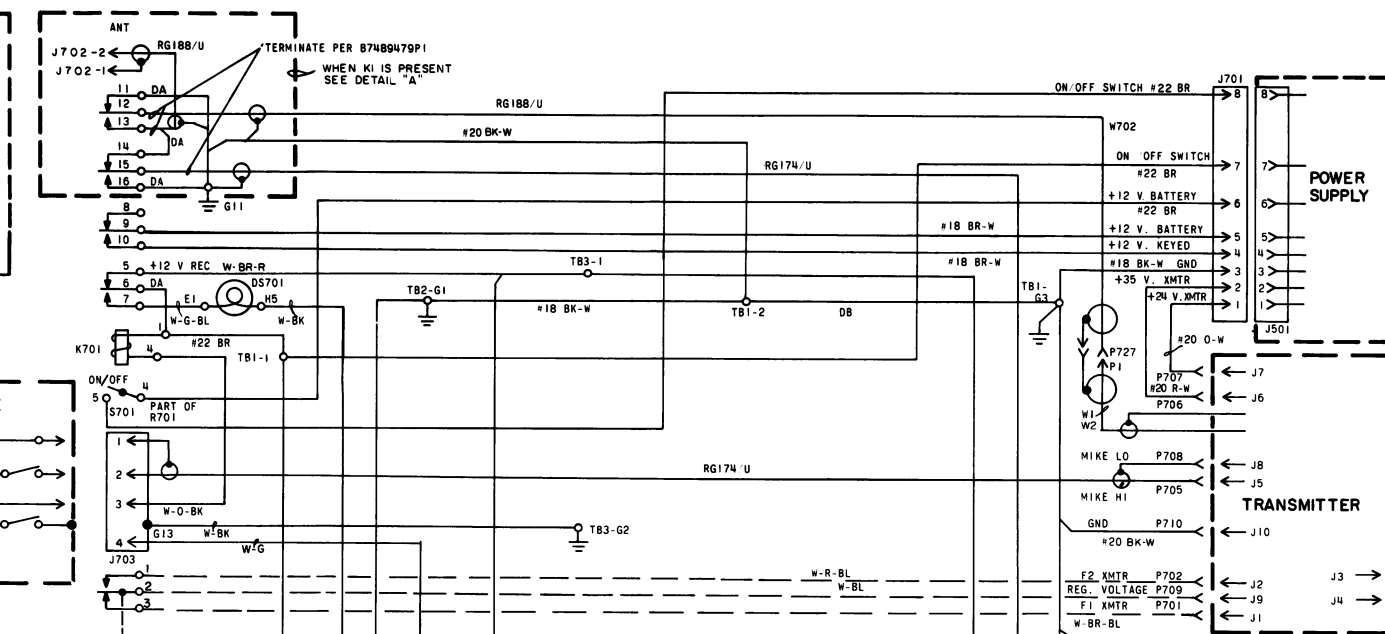
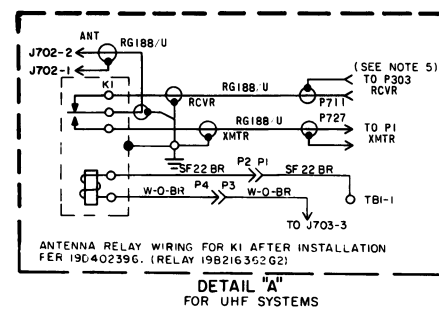
1. ALL WIRES ARE SF24 EXCEPT AS NOTED.
2. ALL DASHED LINES ARE OPTION.
3. SLEEVE CONNECTIONS TO J701, XK701, XA701, XRD702 AND P701-P726.
4. CONNECTIONS BETWEEN RECEIVER AND OSCILLATOR DO NOT EXIST ON UHF RECEIVERS.
5. P303 - UHF SYSTEMS



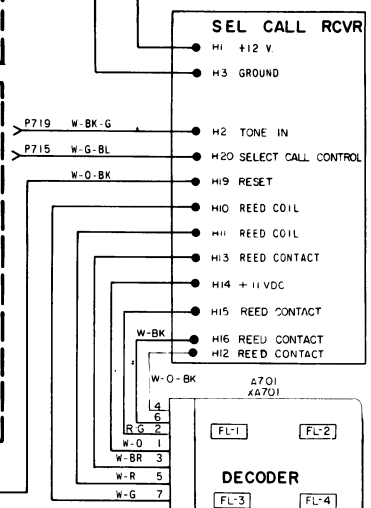
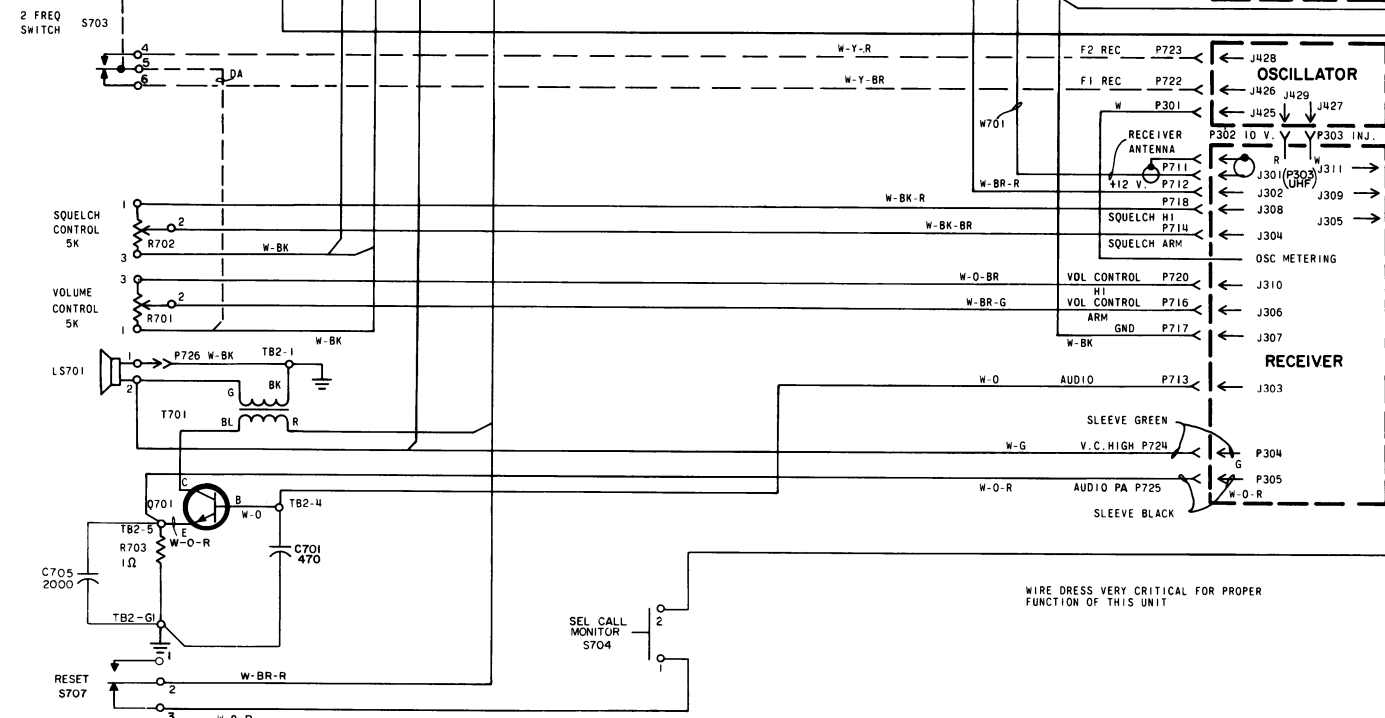
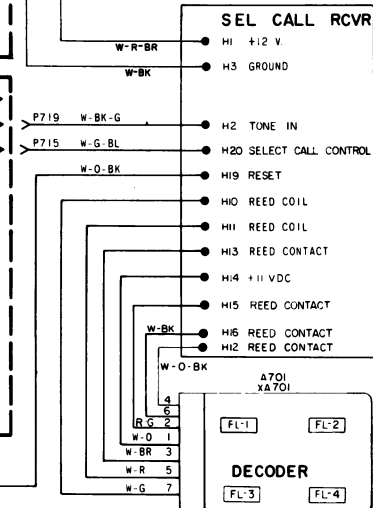
**HANDSET WITH SELECTIVE CALLING**

**NOTES:**

1. ALL WIRES ARE SF24 EXCEPT AS NOTED
2. ALL DASHED LINES ARE OPTION.
3. SLEEVE CONNECTIONS TO J701, XK701, XA701, XRD702 AND P701 P226.
4. CONNECTIONS BETWEEN RECEIVER OSCILLATOR DO NOT EXIST ON UHF RECEIVERS.
5. P303 - UHF SYSTEMS



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	
MODEL NO	REV LETTER
4EC60A14,15	H



**SERVICE SHEET**  
CONTROL UNIT  
DELS 4EC60A14,15,18 & 21  
Issue 3 7

PARTS LIST		
LBI-4051B		
CONTROL UNIT		
MODEL 4EC60A14 19D402279G5 (Single Frequency)		
MODEL 4EC60A15 19D402279G6 (Two Frequency)		
MODEL 4EC60A18 19D402279G9 (Single Frequency)		
MODEL 4EC60A21 19D402279G12 (Two Frequency)		
SYMBOL	GE PART NO.	DESCRIPTION
A701	19B204982G3	REED HOLDER ASSEMBLY (Used with 4EJ19A10 Decoder)
	19B204982G4	(Used with 4EJ19A11 Decoder)
----- TONE NETWORKS -----		
FL1 thru FL4	19C300580	Tone Detector. (Check group numbers for desired frequency).
	G1	517.5 Hz
	G2	532.5 Hz
	G3	547.5 Hz
	G4	562.5 Hz
	G5	577.5 Hz
	G6	592.5 Hz
	G7	607.5 Hz
	G8	622.5 Hz
	G9	637.5 Hz
	G10	652.5 Hz
	G11	667.5 Hz
	G12	682.5 Hz
	G13	697.5 Hz
	G14	712.5 Hz
	G15	727.5 Hz
	G16	742.5 Hz
	G17	757.5 Hz
	G18	772.5 Hz
	G19	787.5 Hz
	G20	802.5 Hz
	G21	817.5 Hz
	G22	832.5 Hz
	G23	847.5 Hz
	G24	862.5 Hz
	G25	877.5 Hz
	G26	892.5 Hz
	G27	907.5 Hz
	G28	922.5 Hz
	G29	937.5 Hz
	G30	952.5 Hz
	G31	967.5 Hz
	G32	982.5 Hz
	G33	997.5 Hz
----- CAPACITORS -----		
C701*	5494481P7	Ceramic disc: 470 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. Added by REV B.
C705*	5494481P14	Ceramic disc: 2000 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap. Added by REV E.
----- INDICATING DEVICES -----		
DS701	4034664P1	Lamp, incandescent: 28 v, .04 amp; sim to GE 2148.
----- JACKS AND RECEPTACLES -----		
J701	7473192P31	Connector: 8 terminals, phenolic; sim to HB Jones 261-31-02-000.
J702	19A116550P1	Connector, coaxial: sim to Gold Line GLC-88.
J703	19B209201P1	Connector: 4 contacts; sim to Switchcraft 3C-1088.
----- RELAYS -----		
K701*	19C307010P18	Armature: 12 VDC nominal, 130 ohms res ±10% at 25°C, 4 form C contacts; sim to Allied Control T154-X-976A.
	19C307010P5	In Models of REV C and earlier:
		Armature: 12 VDC nominal, 130 ohms res ±10% at 25°C, 4 form C contacts; sim to Allied Control T154-X-413.
----- LOUDSPEAKERS -----		
LS701	19C307094P1	Permanent magnet: 3.2 ohms ±10% voice coil imp., 3 w input, 325 ±50 Hz resonance; sim to Oaktron 87473.

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

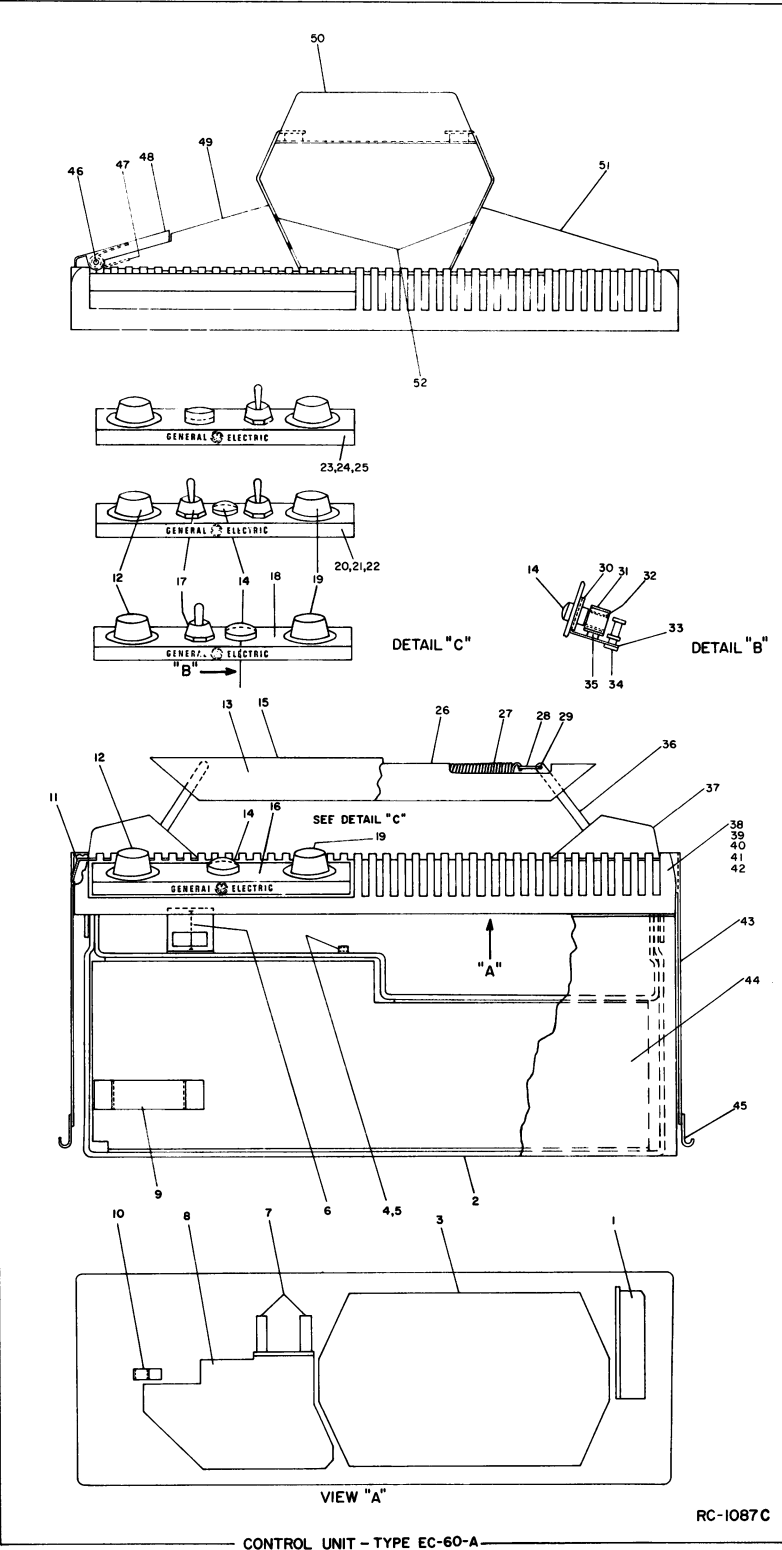
SYMBOL	GE PART NO.	DESCRIPTION
S707*	19A116877P2	Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components Series Type 7108G.
	4036949P3	In 4EC60A14, 15, of REV G and earlier:
		Toggle: SPDT, momentary contacts, 100 µa at 5 VDC; sim to Arrow-Hart and Hegeman TM-3.
----- TRANSFORMERS -----		
T701	19B209079P1	Audio freq: freq range 0.3-3 KHz, operating 275 MADC.
		Pr1 1: 55 ohms ±10% imp at 1 w, 0.895 ohm ±10% DC res.
		Sec 1: 3.2 ohms ±10% at 1 w, 0.168 ohm max DC res.
----- TERMINAL BOARDS -----		
TB1	7775500P8	Phenolic: 4 terminals.
TB2	7775500P55	Phenolic: 5 terminals.
TB3	7775500P44	Phenolic: 2 terminals.
		(Used in Models 4EC60A14 and 4EC60A15 only).
TB3	7775500P7	Phenolic: 3 terminals.
		(Used in Models 4EC60A18 and 4EC60A21 only).
----- CABLES -----		
W701		CABLE ASSEMBLY MODEL 4EM3C10 (19B209306P1)
----- PLUGS -----		
P711	5496078P1	Connector, push-on: Teflon, sim to FRX 27-1.
----- MISCELLANEOUS -----		
W702	19B209044P11	Cable, RF: 5.75 inches long. Type RG-174/U.
----- RESISTORS -----		
R701	19C300097P10	Resistor/switch: includes Resistor, variable, carbon film, 5000 ohms ±20%, 1/8 w. (S701)
		Switch, 2 amps at 125 VAC; sim to Mallory Type MLC.
R702	19C300009P9	Variable, carbon film: 5000 ohms ±20%, 1/4 w; sim to Mallory Type MLC.
R703	19B209022P115	Wirewound: 1 ohms ±10%, 2 w; sim to IRC Type BWH.
R704*	19B209022P135	Wirewound: 6.8 ohms ±5%, 2 w; sim to IRC Type BWH. Deleted by REV F.
	19B209022P38	In Models earlier than REV A:
		Wirewound: 9.1 ohms ±5%, 2 w; sim to IRC Type BWH.
R705	19B209022P131	Wirewound: 4.7 ohms ±10%, 2 w; sim to IRC Type BWH.
R706	3R777241J	Composition: 240 ohms ±5%, 1/2 w.
----- SWITCHES -----		
S701		POWER CABLE - 12 VOLT 19C303640G3
S702*	19B209040P1	Slide: DPDT, 0.5 amp at 125 v; sim to Continental Wirt 126. Deleted by REV F.
S703*	19A116877P6	Toggle: DPDT, 1 ma at 6 VDC; sim to C and K Components Series Type 7201G.
	4034405-P3	In 4EC60A15 of REV G and earlier:
	19A115776P2	In 4EC60A21 of REV F and earlier:
	4036949P2	Toggle: DPDT, 100 µa at 5 VDC; sim to Arrow-Hart and Hegeman TS-6.
S704	7481654P10	Pushbutton (red): SP normally open, 1 amp at 115 VAC; sim to Grayhill 30-15.
S705	19B209239P1	Pushbutton (red): SPDT, 250 ma at 115 VAC or 25 VDC; sim to Switchcraft 923.
S706*	19A116877P1	Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components Series Type 7101G.
	4034405P3	In 4EC60A18 of REV G and earlier:
	19A115776P2	In 4EC60A21 of REV F and earlier:
	7484390P3	Toggle: SPDT, 100 µa at 5 VDC; sim to Arrow-Hart and Hegeman TS.
	4036949P1	

SYMBOL	GE PART NO.	DESCRIPTION
		POWER CABLE - 24/36 VOLT 19B205422G1
----- MISCELLANEOUS -----		
4034405P3		Connector, plug.
19A115776P2		Fuseholder.
1R16P7		Fuse, cartridge.
19A115776P4		Contact, electrical. (Used with 19A115776P2 fuseholder).
POWER SUPPLY EXTENSION CABLE ASSEMBLY 19B204289G1		
----- MISCELLANEOUS -----		
7473192P19		Socket, phenolic: 8 terminals, cable clamp in cap; sim to HB Jones 261-32-08-030.
7473192P26		Plug, phenolic: 8 terminals, cable clamp in cap; sim to HB Jones 261-31-08-030.
7162441P23		Tubing, flexible, plastic: 3 feet long.
MICROPHONE MODEL 4EM3C10 (19B209306P1)		
----- MISCELLANEOUS -----		
		Switch. Shure Brothers RP35.
		Cable and plug: approx 5 feet. Shure Brothers RP35.
		Button: red plastic. Shure Brothers RP34.
		Cartridge, magnetic controlled. Shure Brothers RP32.
		Case, mounting button and nameplate: plastic. Shure Brothers RP40.
		Shield. Shure Brothers RP36.
MICROPHONE MODEL 4EM3D10 (19B20198P3)		
		Switch: moisture proof. Shure Brothers RP33.
		Cable and Plug: approx 80 inches. Shure Brothers RP35.
		Button: red plastic. Shure Brothers RP34.
		Cartridge, magnetic controlled. Shure Brothers RP32.
		Case, mounting button and nameplate: plastic Shure Brothers RP31.
		Shield. Shure Brothers RP36.
HANDSET MODEL 4EM3A10 (19B209198P1)		
----- MISCELLANEOUS -----		
4034405-P3		Connector, plug.
19A115776P2		Fuseholder.
7484390P4		Fuse, cartridge.
19A115776P4		Contact, electrical. (Used with 19A115776P2 fuseholder).
POWER CABLE - 6 VOLT 19C303640G4		
----- MISCELLANEOUS -----		
4034405P3		Connector, plug.
19A115776P2		Fuseholder.
7484390P3		Fuse cartridge.
19A115776P4		Contact, electrical. (Used with 19A115776P2 fuseholder).

SYMBOL	GE PART NO.	DESCRIPTION
		PORTABLE AND INDUSTRIAL ANTENNA MODELS 4EY18A10-15 (LOW BAND)
----- MISCELLANEOUS -----		
19C303707P1		Model 4EY18A10, 25-29 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-431-GE.
19C303707P2		Model 4EY18A11, 29-33 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-A431-GE.
19C303707P3		Model 4EY18A12, 33-36 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-B431-GE.
19C303707P4		Model 4EY18A13, 36-42 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-C431-GE.
19C303707P5		Model 4EY18A14, 42-48 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-D-431-GE.
19C303707P6		Model 4EY18A15, 48-54 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-E431-GE.
2R22P2		Adapter, UHF: right angle. Signal Corps M-359; sim to Amphenol 83-1AP. (Used in Models 4EY18A10-15).
MOBILE ANTENNA (LOW BAND)		
----- MISCELLANEOUS -----		
7491074P1		Antenna: includes 96-1/2 inch stainless steel rod; sim to Antenna Specialists ASPA38GE.
7102930P3		Adapter, antenna: (Used with GE Dwg 7491074P1).
4033101G1		Antenna package: includes base, adapter spring cable and plug.
7472880G5		Antenna base. (Used in 4044101G1).
5492239P1		Adapter spring. (Used in 4033101G1).
2R22P1		Cable, antenna: includes Type RG-58/U cable approx 15 feet, PL-259 plug, terminal; sim to Antenna Specialists 15A43. (Used in 4033101G1).
4KY9A1		Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239P1 in 4033101G1).
19A121577G1		Coil, loading: 25-33 MHz; sim to Antenna Specialists ASPA87.
7134724P1		Antenna hook kit.
		Antenna hook. (Used in 19A121577G1).
PORTABLE AND INDUSTRIAL ANTENNA MODELS 4EY19C10-15 (HIGH BAND AND UHF)		
----- MISCELLANEOUS -----		
		Model 4EY19C10 130-150.8 MHz
		Model 4EY19C11 150.8-162 MHz
		Model 4EY19C12 162-166 MHz
		Model 4EY19C13 166-174 MHz
		Model 4EY19C14 406-420 MHz
		Model 4EY19C15 450-470 MHz
MOBILE ANTENNA MODEL 4EY12A13 (HIGH BAND AND UHF)		
----- MISCELLANEOUS -----		
		Antenna: includes 20-inch stainless steel whip, whip socket, antenna cable, cable adapter, PL-259 plug; sim to Antenna Specialists ASPD201GE or Danbury-Knudsen Type PA-25.
5490969P4		Whip: 20-inch stainless steel.
5490969P5		Socket, whip.
5490969P6		Whip and whip socket: 20-inch stainless steel whip, whip socket.

SYMBOL	GE PART NO.	DESCRIPTION
		Cable, antenna: approx 15 feet. Type RG-58/U. (Used with GE Dwg 2R22P1 and GE Dwg 7105381P1).
7105381P1		Adapter, cable: Type UG-175/U. (Used with GE Dwg 2R22P1 and Type RG-58/U cable).
2R22P1		Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 7105281P1 and Type RG-58/U cable).
AUTO GUTTER MOUNT ANTENNA MODEL 4EY20A10 (HIGH BAND)		
----- MISCELLANEOUS -----		
19C303620P1		Antenna Assembly. Includes: plastic ball tip; 19.5 50.25 inch stainless steel whip; socket; insulators; adapter: RG-58A/U cable; PL-259 plug; clip; 2-set screws; rubber pad; sim to Antenna Specialists ASP157.
19C303620P2		Replacement Whip Assembly. Includes: plastic ball tip; 19.5 50.25 inch stainless steel whip; socket; insulators; sim to Antenna Specialists 19A804-1.
MECHANICAL PARTS (SEE RC-1087)		
1	19A121154P1	Support: (Used with Q701).
2	19B204532G1	Chassis Assembly.
3	19B204527P1	Diaphragm:
4		(Used in Models 4EC60A10, 12, 16 and 19 only).
5	7763541P4	Clip:
6	5491595P9	Spring, retainer: wire; sim to Allied Control 30040-2. (Used with K701).
7	7142162P98	(Not Used).
8	19A121174G1	Chassis Assembly.
9	19A121178P1	Support: (Used with J701).
10	19A121199P1	Clip:
11	19A121215P1	Spring: (Used in Models 4EC60A14 and 4EC60A15 only).
12	19B204639G1	Knob Assembly:
13	19C303537G1	Handle Assembly: (Includes items 15, 26, 27, 28, 29 and 36). (Used in Models 4EC60A14 and 4EC60A15 only).
14	19B204949P1	Jewel: red plastic; sim to Rohm and Haas 2444 Flexiglas.
15	19B204492P1	Extrusion: (Part of Handle Assembly, 19C303537G1)
16		(Used in Model 4EC60A11 only).
17	5490135P3	Boot, dust and moisture seal: silicon rubber; sim to APM-Hexseal N-5032-B.
18		(Used in Models 4EC60A12, 13 and 19 only).
19	19B204639G1	Knob Assembly: (Used with R702).
20		(Used in Model 4EC60A20 only).
21	NP243618	Nameplate: etched aluminum. (Used in Model 4EC60A15 only).
22	NP243619	Nameplate: etched aluminum. (Used in Model 4EC60A21 only).
23	NP243616	Nameplate: etched aluminum. (Used in Model 4EC60A14 only).
24		(Used in Model 4EC60A17 only).
25	NP243620	Nameplate: etched aluminum. (Used in Model 4EC60A18 only).
26	19C303538P1	Handle: (Part of Handle Assembly, 19C303537G1).
27	19A121363P1	Spring: (Part of Handle Assembly, 19C303537G1).
28	19A121173P1	Retainer: (Part of Handle Assembly, 19C303537G1).
29	N533P1308	Pin, dowel: (Part of Handle Assembly 19C303537G1).
30	4031053P7	Nut, speed: sim to Tinnerman C120046017-67.

SYMBOL	GE PART NO.	DESCRIPTION
31	4035711P4	Clip, spring tension: sim to Augat Brothers 6007-8-CT.
32	7150727P116	Sleeving, insulation: 30 inches long.
33	19A121730P1	Bracket.
34	4034512P3	Terminal, feed-thru: sim to Sealectro RST-M-10-TUR.
35	7142162P96	Spacer.
36	19A121343G1	Support Assembly: (Part of Handle Assembly, 19C303537G1).
37	19C303427P1	Casting: (Used in Models 4EC60A14 and 4EC60A15 only).
38		(Used in Model 4EC60A12 only).
39		(Used in Model 4EC60A10 only).
40		(Used in Models 4EC60A11 and 4EC60A16 only).
41	19C303457P4	Casting: (Used in Model 4EC60A14 and 4EC60A18 only).
42	19C303457P6	Casting: (Used in Model 4EC60A15 and 4EC60A21 only).
43	19A121169G1	Support Assembly.
44	19B204501G1	Case Assembly.
45	4029994P1	Strike: chrome plated steel.
46	N509P1912C	Pin, dowel: (Used in Models 4EC60A18 and 4EC60A21 only).
47	19A121741P1	Spring: (Used in Models 4EC60A18 and 4EC60A21 only).
48	19B204963P1	Lever: (Used in Models 4EC60A18 and 4EC60A21 only).
49	19C303679P1	Casting: (Used in Models 4EC60A18 and 4EC60A21 only).
50	19A127584G1	Handle Assembly: (Used in Models 4EC60A18 and 4EC60A21 only).
51	19C303679P2	Casting: (Used in Models 4EC60A18 and 4EC60A21 only).
52	N648P9004	Screw: cap. (Used for mounting handle).
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 - To incorporate an improved output transistor. Changed Q701 and R704.		
REV. B - To reduce high frequency audio gain. Added C701.		
REV. C - (Models 4EC60A18 and A21 only) To keep the receiver unmutated while receiving messages until unit is manually reset. Removed W-BR-R wire from S-706-2 to TB3-1 and added a W-BR-R wire from S706-2 to TB1-1.		
REV. C - (Models 4EC60A14 and 15 only) To provide audio to microphone jack. Added W-G wire from LS701-2 to J703-4.		
REV. D - To incorporate an improved relay. Changed K701.		
REV. E - To eliminate instability of the receiver PA caused by the use of a higher gain PA transistor. Added C705 from the emitter of Q701 to the chassis.		
REV. F - Models 4EC60A14, A15 and A18 To eliminate audio LO switch and associated resistors. Deleted S702 and R704.		
REV. F - Models 4EC60A21 To incorporate a new transistor. Changed Q701		
REV. G - Models 4EC60A14, A15 and A18 To incorporate a new transistor. Changed Q701		
REV. G - Model 4EC60A21 To incorporate a new switch. Changed S703 and S706		
REV. H - Models 4EC60A14 and A15 To incorporate a new switch. Changed S703 and S707.		
REV. H - Model 4EC60A18 To incorporate a new switch. Changed S703 and S706.		





SYMBOL	GE PART NO.	DESCRIPTION
PARTS LIST		
LBI-40528		
MODEL 4EC60A26 CONTROL UNIT (Single Frequency)		
MODEL 4EC60A27 19D402278017 (Two Frequency)		
19D402279G18 (Two Frequency)		
A701	19C300580	REED HOLDER ASSEMBLY (Used with 4EJ19A10 Decoder)
		19B204982G3 (Used with 4EJ19A11 Decoder)
		19B204982G4 (Used with 4EJ19A11 Decoder)
		----- TONE NETWORKS -----
		Tone Detector. (Check group numbers for desired frequency).
		G1 517.5 Hz
		G2 532.5 Hz
		G3 547.5 Hz
		G4 562.5 Hz
		G5 577.5 Hz
		G6 592.5 Hz
		G7 607.5 Hz
		G8 622.5 Hz
		G9 637.5 Hz
		G10 652.5 Hz
		G11 667.5 Hz
		G12 682.5 Hz
		G13 697.5 Hz
		G14 712.5 Hz
		G15 727.5 Hz
		G16 742.5 Hz
		G17 757.5 Hz
		G18 772.5 Hz
		G19 787.5 Hz
		G20 802.5 Hz
		G21 817.5 Hz
		G22 832.5 Hz
		G23 847.5 Hz
		G24 862.5 Hz
		G25 877.5 Hz
		G26 892.5 Hz
		G27 907.5 Hz
		G28 922.5 Hz
		G29 937.5 Hz
		G30 952.5 Hz
		G31 967.5 Hz
		G32 982.5 Hz
		G33 997.5 Hz
C701	5494481P7	----- CAPACITORS -----
		Ceramic disc: 470 pf $\pm 20\%$ , 1000 VDCW; sim to RMC Type JF Discap.
		C705* 5494481P14 Ceramic disc: 2000 pf $\pm 10\%$ , 1000 VDCW; sim to RMC Type JF Discap. Added by REV C.
D8701	4034664P1	----- INDICATING DEVICES -----
		Lamp, incandescent: 28 v, .04 amp; sim to GE 2148.
		----- JACKS AND RECEPTACLES -----
J701	7473192P31	Connector: 8 terminals, phenolic; sim to HB Jones 261-51-02-000.
J702	19A116550P1	Connector, coaxial: sim to Gold Line GLC-88.
J703	19B209201P1	Connector: 4 contacts; sim to Switchcraft 3C-1088.
J704	7489183P5	Connector: 9 contacts; sim to Winchester M98-LWN.
K701*	19C307010P18	----- RELAYS -----
		Armature: 12 VDC nominal, 130 ohms res $\pm 10\%$ at 25°C, 4 form C contacts; sim to Allied Control T194-X-976A.
		In Models of REV A and earlier:
19C307010P5	19C307010P5	Armature: 12 VDC nominal, 130 ohms res $\pm 10\%$ at 25°C, 4 form C contacts; sim to Allied Control T194-X-413.
		----- LOUSPEAKERS -----
		Permanent magnet: 3.2 ohms $\pm 10\%$ voice coil imp., 3 w input, 325 $\pm 50$ Hz resonance; sim to Oaktron 57473.

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\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	GE PART NO.	DESCRIPTION
P701 and P702	4029840P2	----- PLUGS -----
		Contact, electrical: taper pin; sim to AMP 42827-2.
		----- MISCELLANEOUS -----
P705	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P706 thru P708	4029840P1	Contact, electrical: taper pin; sim to AMP 41854.
P709	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P710	4029840P1	Contact, electrical: taper pin; sim to AMP 41854.
P712 thru P720	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P722 and P723	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P724 and P725	7147199P2	Connector: 1 female contact; sim to Winchester Electronics 21804.
P726	4036634P1	Receptacle, pin: sim to Amp 42428-2.
Q701*	19A116118P3	----- TRANSISTORS -----
		Silicon, NPN.
		In REV D and earlier:
19A115527P1	19A115527P1	Silicon, NPN.
		----- RESISTORS -----
		Resistor/switch: Includes Resistor, variable, carbon film, 5000 ohms $\pm 20\%$ , 1/8 w; (3701) Switch, 2 amps at 125 VAC; sim to Mallory Type MLC.
R701	19C300097P10	Variable, carbon film: 5000 ohms $\pm 20\%$ , 1/4 w; sim to Mallory Type MLC.
R702	19C300097P9	Wirewound: 1 ohms $\pm 10\%$ , 2 w; sim to IRC Type BWH.
R703	19B209022P115	Wirewound: 6.8 ohms $\pm 5\%$ , 2 w; sim to IRC Type BWH. Deleted by REV D.
R704*	19B209022P135	Wirewound: 6.8 ohms $\pm 5\%$ , 2 w; sim to IRC Type BWH. Deleted by REV D.
S701	19B209040P1	----- SWITCHES -----
		(Part of R701).
		Slide: DPDT, 0.5 amp at 125 v; sim to Continental Wirt 126. Deleted by REV D.
S702*	19A116877P6	Toggle: DPDT, 1 ma at 6 VDC; sim to C and K Components 7201G.
4036949P2	4036949P2	In REV E and earlier:
		Toggle: DPDT, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman T5-6.
		Pushbutton (red): SP normally open, 1 amp at 115 VAC; sim to Grayhill 30-15.
S704	7481654P10	Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components 71080.
S707*	19A116877P2	Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components 71080.
4036949P3	4036949P3	In REV E and earlier:
		Toggle: SPDT, momentary contacts, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman TM-3.
		----- TRANSFORMERS -----
T701	19B209079P1	Audio freq: freq range 0.3-3 KHz, operating 275 MADC.
TB1	7775500P8	Pr1 1: 35 ohms $\pm 10\%$ imp at 1 w, 0.895 ohm $\pm 10\%$ DC res.
		Sec 1: 3.2 ohms $\pm 10\%$ at 1 w, 0.168 ohm max DC res.
		----- TERMINAL BOARDS -----
TB1	7775500P8	Phenolic: 4 terminals.
TB3	7775500P44	Phenolic: 2 terminals.
TB4	7775500P11	Phenolic: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
W701	19A121176G1	----- CABLES -----
		CABLE ASSEMBLY
		19A121176G1
P711	5496078P1	----- PLUGS -----
		Connector, push-on: Teflon, sim to FXR 27-1.
		----- MISCELLANEOUS -----
19B209044P11	19B209044P11	Cable, RF: 5.75 inches long. Type RG-174/U.
		----- CABLE ASSEMBLY -----
		19A121176G2
P712 thru P720	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P722 and P723	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P724 and P725	7147199P2	Connector: 1 female contact; sim to Winchester Electronics 21804.
P726	4036634P1	Receptacle, pin: sim to Amp 42428-2.
XA701	19B209065P2	----- SOCKETS -----
		Tube: 7 contacts, phenolic; sim to Alcon Metal Products 524M-2.
		----- ANTENNA RELAY KIT -----
XK701	5491595P5	19B216362G2 (Includes J702 and K1)
		POWER CABLE - 12 VOLT
		19C303640G3
4034405P3	19A115776P2	----- MISCELLANEOUS -----
		Connector, plug.
		Fuseholder.
7484390P4	19A115776P4	Fuse, cartridge.
		Contact, electrical. (Used with 19A115776P2 fuseholder).
		(Part of R701).
4034405P3	19A115776P2	Slide: DPDT, 0.5 amp at 125 v; sim to Continental Wirt 126. Deleted by REV D.
		Toggle: DPDT, 1 ma at 6 VDC; sim to C and K Components 7201G.
		In REV E and earlier:
19A115776P2	19A115776P2	Toggle: DPDT, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman T5-6.
		Pushbutton (red): SP normally open, 1 amp at 115 VAC; sim to Grayhill 30-15.
		Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components 71080.
4036949P3	4036949P3	In REV E and earlier:
		Toggle: SPDT, momentary contacts, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman TM-3.
		----- TRANSFORMERS -----
T701	19B209079P1	Audio freq: freq range 0.3-3 KHz, operating 275 MADC.
TB1	7775500P8	Pr1 1: 35 ohms $\pm 10\%$ imp at 1 w, 0.895 ohm $\pm 10\%$ DC res.
		Sec 1: 3.2 ohms $\pm 10\%$ at 1 w, 0.168 ohm max DC res.
		----- TERMINAL BOARDS -----
TB1	7775500P8	Phenolic: 4 terminals.
TB3	7775500P44	Phenolic: 2 terminals.
TB4	7775500P11	Phenolic: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
W701	19A121176G1	----- CABLES -----
		CABLE ASSEMBLY
		19A121176G1
P711	5496078P1	----- PLUGS -----
		Connector, push-on: Teflon, sim to FXR 27-1.
		----- MISCELLANEOUS -----
19B209044P11	19B209044P11	Cable, RF: 5.75 inches long. Type RG-174/U.
		----- CABLE ASSEMBLY -----
		19A121176G2
P712 thru P720	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P722 and P723	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P724 and P725	7147199P2	Connector: 1 female contact; sim to Winchester Electronics 21804.
P726	4036634P1	Receptacle, pin: sim to Amp 42428-2.
XA701	19B209065P2	----- SOCKETS -----
		Tube: 7 contacts, phenolic; sim to Alcon Metal Products 524M-2.
		----- ANTENNA RELAY KIT -----
XK701	5491595P5	19B216362G2 (Includes J702 and K1)
		POWER CABLE - 12 VOLT
		19C303640G3
4034405P3	19A115776P2	----- MISCELLANEOUS -----
		Connector, plug.
		Fuseholder.
7484390P4	19A115776P4	Fuse, cartridge.
		Contact, electrical. (Used with 19A115776P2 fuseholder).
		(Part of R701).
19A115776P2	19A115776P2	Slide: DPDT, 0.5 amp at 125 v; sim to Continental Wirt 126. Deleted by REV D.
		Toggle: DPDT, 1 ma at 6 VDC; sim to C and K Components 7201G.
		In REV E and earlier:
4036949P3	4036949P3	Toggle: DPDT, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman T5-6.
		Pushbutton (red): SP normally open, 1 amp at 115 VAC; sim to Grayhill 30-15.
		Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components 71080.
19A115776P2	19A115776P2	In REV E and earlier:
		Toggle: SPDT, momentary contacts, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman TM-3.
		----- TRANSFORMERS -----
T701	19B209079P1	Audio freq: freq range 0.3-3 KHz, operating 275 MADC.
TB1	7775500P8	Pr1 1: 35 ohms $\pm 10\%$ imp at 1 w, 0.895 ohm $\pm 10\%$ DC res.
		Sec 1: 3.2 ohms $\pm 10\%$ at 1 w, 0.168 ohm max DC res.
		----- TERMINAL BOARDS -----
TB1	7775500P8	Phenolic: 4 terminals.
TB3	7775500P44	Phenolic: 2 terminals.
TB4	7775500P11	Phenolic: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
W701	19A121176G1	----- CABLES -----
		CABLE ASSEMBLY
		19A121176G1
P711	5496078P1	----- PLUGS -----
		Connector, push-on: Teflon, sim to FXR 27-1.
		----- MISCELLANEOUS -----
19B209044P11	19B209044P11	Cable, RF: 5.75 inches long. Type RG-174/U.
		----- CABLE ASSEMBLY -----
		19A121176G2
P712 thru P720	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P722 and P723	4029840P2	Contact, electrical: taper pin; sim to AMP 42827-2.
P724 and P725	7147199P2	Connector: 1 female contact; sim to Winchester Electronics 21804.
P726	4036634P1	Receptacle, pin: sim to Amp 42428-2.
XA701	19B209065P2	----- SOCKETS -----
		Tube: 7 contacts, phenolic; sim to Alcon Metal Products 524M-2.
		----- ANTENNA RELAY KIT -----
XK701	5491595P5	19B216362G2 (Includes J702 and K1)
		POWER CABLE - 12 VOLT
		19C303640G3
4034405P3	19A115776P2	----- MISCELLANEOUS -----
		Connector, plug.
		Fuseholder.
7484390P4	19A115776P4	Fuse, cartridge.
		Contact, electrical. (Used with 19A115776P2 fuseholder).
		(Part of R701).
19A115776P2	19A115776P2	Slide: DPDT, 0.5 amp at 125 v; sim to Continental Wirt 126. Deleted by REV D.
		Toggle: DPDT, 1 ma at 6 VDC; sim to C and K Components 7201G.
		In REV E and earlier:
4036949P3	4036949P3	Toggle: DPDT, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman T5-6.
		Pushbutton (red): SP normally open, 1 amp at 115 VAC; sim to Grayhill 30-15.
		Toggle: SPDT, 1 ma at 6 VDC; sim to C and K Components 71080.
19A115776P2	19A115776P2	In REV E and earlier:
		Toggle: SPDT, momentary contacts, 100 $\mu$ a at 5 VDC; sim to Arrow-Hart and Hegeman TM-3.
		----- TRANSFORMERS -----
T701	19B209079P1	Audio freq: freq range 0.3-3 KHz, operating 275 MADC.
TB1	7775500P8	Pr1 1: 35 ohms $\pm 10\%$ imp at 1 w, 0.895 ohm $\pm 10\%$ DC res.
		Sec 1: 3.2 ohms $\pm 10\%$ at 1 w, 0.168 ohm max DC res.
		----- TERMINAL BOARDS -----
TB1	7775500P8	Phenolic: 4 terminals.
TB3	7775500P44	Phenolic: 2 terminals.
TB4	7775500P11	Phenolic: 5 terminals.

SYMBOL	GE PART NO.	DESCRIPTION
14	19B204949P1	Jewel: red plastic; sim to Rohm and Haas 2444 Plexiglas.
15	19B204492P1	Extrusion: (Part of Handle Assembly, 19C303537G1)
16		(Not Used).
17	5490135P3	Boot, dust and moisture seal: silicon rubber; sim to APW-Rexseal N-5032-B.
18		(Not Used).
19	19B204639G1	Knob Assembly: (Used with R702).
20		(Not Used).
21	NP243618	Nameplate: etched aluminum. (Used in Model 4EC80A27 only).
22		(Not Used).
23	NP243616	Nameplate: etched aluminum. (Used in Model 4EC80A26 only).
24		(Not Used).
25		(Not Used).
26	19C303538P1	Handle: (Part of Handle Assembly, 19C303537G1).
27	19A121363P1	Spring: (Part of Handle Assembly, 19C303537G1).
28	19A121173P1	Retainer: (Part of Handle Assembly 19C303537G1).
29	N533P1308	Pin, dowel: (Part of Handle Assembly 19C303537G1)
30	4031053P7	Nut, speed: sim to Tinnerman C120046017-67.
31	4035711P4	Clip, spring tension: sim to Augat Brothers 6007-8-CT.
32	7150727P116	Sleeving, insulation: 30 inches long.
33	19A121730P1	Bracket.
34	4034512P3	Terminal, feed-thru: sim to Sealectro RST-MM-10-TUR.
35	7142162P96	Spacer.
36	19A121343G1	Support Assembly: (Part of Handle Assembly, 19C303537G1).
37	19C303427P1	Casting: (Used in Models 4EC80A14 and 4EC80A15 only).
38		(Not Used).
39		(Not Used).
40		(Not Used).
41	19C303457P10	Casting: (Used in Model 4EC80A26 only).
42	19C303457P11	Casting: (Used in Model 4EC80A27 only).
43	19A121169G1	Support Assembly.
44	19B204501G1	Case Assembly.
45	4029994P1	Strike: chrome plated steel.

**PARTS LIST**  
LBI-4053B  
CONTROL UNIT MODEL 4EC66A12 (19D402603G3) SINGLE FREQUENCY  
CONTROL UNIT MODEL 4EC66A13 (19D402603G4) TWO FREQUENCY  
CONTROL UNIT MODEL 4EC66A16 (19D402603G7) SINGLE FREQUENCY WITH ACCESSORY JACK OPTION  
CONTROL UNIT MODEL 4EC66A17 (19D402603G8) TWO FREQUENCY WITH ACCESSORY JACK OPTION  
TRANSMITTER-RECEIVER TOP PANEL 19D402599G3  
AND  
ASSOCIATED ASSEMBLIES

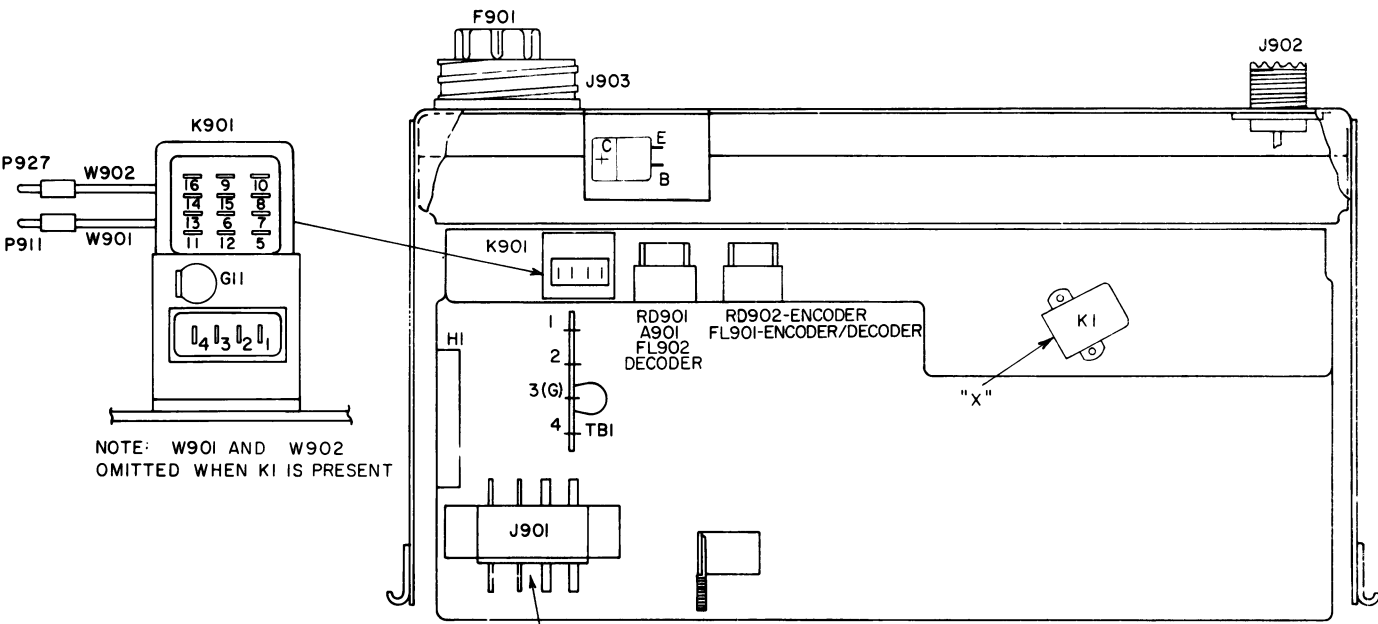
SYMBOL	GE PART NO.	DESCRIPTION
----- INDICATING DEVICES -----		
DS701	19C307037P4	Lamp, incandescent: 14 v $\pm$ 0.1 v; sim to GE 1815.
----- JACKS AND RECEPTACLES -----		
J701	7489183P5	Connector: 9 contacts; sim to Winchester M9S-LRN.
----- LOUDSPEAKERS -----		
LS701	5491260P7	Permanent magnet, 5-inch: 3.2 ohms $\pm$ 10% voice coil imp, 15 w max operating, 385 Hz $\pm$ 15% resonance; sim to Jensen Model P5-VAS12761.
----- RESISTORS -----		
R701	19B209256P2	Resistor/switch: includes Resistor, variable, 5000 ohms $\pm$ 20%, 0.25 w; Switch (S701), rotary, SPST, 15 amps at 10 v; sim to CTS Series 45.
R702	19B209256P1	Variable, carbon film: 5000 ohms $\pm$ 20%, 0.5 w; sim to CTS Series 45.
----- SWITCHES -----		
S701		(Part of R701).
S702	5491899P6	Toggle: DPDT, 3 amps at 250 v; sim to Cutler-Hammer 8363K7.
S703	5491899P7	Toggle: SPST, 3 amps at 125 v; sim to Cutler-Hammer 8280K16.
----- TERMINAL BOARDS -----		
TB701	19B205152G1	Terminal board: 25 contacts.
----- SOCKETS -----		
XDS701	7141855P15	Lamp: sim to Dialight 95-410-975 (modified).
HARNESSE ASSEMBLY 19D402603G11 (4EC66A12) 19D402603G12 (4EC66A13) 19D402603G15 (4EC66A16) 19D402603G16 (4EC66A17) (Includes TB701)		
MECHANICAL PARTS (SEE RC-1340)		
1	19A122065P1	Bushing: 3/4-14; sim to Pyle-National DB-1191690 (modified).
2	19A122066P1	Bushing: 1/4-18; sim to Pyle-National DB-44516 (modified).
3	4031457P1	Support. (Used with microphone).
4	4031458P1	Spring. (Used with microphone).
5	4032574P2	Gasket, cover, neoprene: approx 27-3/4 inches.
6	19D402601P3	Casting. (Used in Model 4EC66A12).
7	19D402601P4	Casting. (Used in Model 4EC66A13).
8	19D402601P7	Casting. (Used in Model 4EC66A16).
9	19D402601P8	Casting. (Used in Model 4EC66A17).
10	19B205162P1	Diaphragm: approx 2-3/8 inches dia.
11	19A121990P1	Spacer: 3/4 inch hex. (Used with TB701).
12	5490135P4	Boot: sim to APM-Hexseal N-1030-B. (Used with S702 in Models 4EC66A13, 17, S703).
13	NP248842	Nameplate.
14	4039182G1	Knob. (Used with R701, 702).

SYMBOL	G-E PART NO	DESCRIPTION
15	19A115040P9	Lens, panel light: red lens; sim to Dialight 81-331. (Used with DS701).
16	NP248843	Nameplate. (Used in Models 4EC66A13, 17).
17	NP248844	Nameplate. (Used in Models 4EC66A12, 16).
TRANSMITTER-RECEIVER TOP PANEL 19D402599G3		
REED HOLDER ASSEMBLY 19B204982G3 (Used with 4EJ19A10 Decoder) 19B204982G4 (Used with 4EJ19A11 Decoder)		
----- TONE NETWORKS -----		
FL1 thru FL4	19C300580	Tone Detector. (Check group numbers for desired frequency).
	G1	517.5 Hz
	G2	532.5 Hz
	G3	547.5 Hz
	G4	562.5 Hz
	G5	577.5 Hz
	G6	592.5 Hz
	G7	607.5 Hz
	G8	622.5 Hz
	G9	637.5 Hz
	G10	652.5 Hz
	G11	667.5 Hz
	G12	682.5 Hz
	G13	697.5 Hz
	G14	712.5 Hz
	G15	727.5 Hz
	G16	742.5 Hz
	G17	757.5 Hz
	G18	772.5 Hz
	G19	787.5 Hz
	G20	802.5 Hz
	G21	817.5 Hz
	G22	832.5 Hz
	G23	847.5 Hz
	G24	862.5 Hz
	G25	877.5 Hz
	G26	892.5 Hz
	G27	907.5 Hz
	G28	922.5 Hz
	G29	937.5 Hz
	G30	952.5 Hz
	G31	967.5 Hz
	G32	982.5 Hz
	G33	997.5 Hz
----- CAPACITORS -----		
C901	7489162P39	Silver mica: 330 pf $\pm$ 5%, 500 VDCW; sim to Electro Motive Type DM-15.
C902	5494481P7	Ceramic disc: 470 pf $\pm$ 20%, 1000 VDCW; sim to RMC Type JF Discap.
----- FUSES -----		
F901	7102673P2	Quick blowing: 15 amps at 32 v; sim to Littell-fuse 311015 or Bussmann AGC-G15.
----- JACKS AND RECEPTACLES -----		
J901	7473192P31	Connector, phen: 8 terminals; sim to HB Jones 261-31-08-000.
J902	4029493P1	Receptacle, coaxial: sim to Amphenol 83-798 or Equiv. Military SO-239A.
J903	19B200010P2	Receptacle: 23 contacts; sim to Cannon Electric NK-L23-32S.
----- RELAYS -----		
K901*	19C307010P18	Armature: 12 VDC nominal, 130 ohms $\pm$ 10% coil res, 4 form C contacts; sim to Allied Control T154-X-976A.  In 19D402599G3 earlier than REV A:
	19C307010P5	Armature: 12 VDE nominal, 130 ohms $\pm$ 10% coil res, 4 form C contacts; sim to Allied Control T154-X-413.
----- PLUGS -----		
P901 and P902	4029840P2	Contact, electrical: sim to AMP 42827-2.
P905	4029840P2	Contact, electrical: sim to AMP 42827-2.

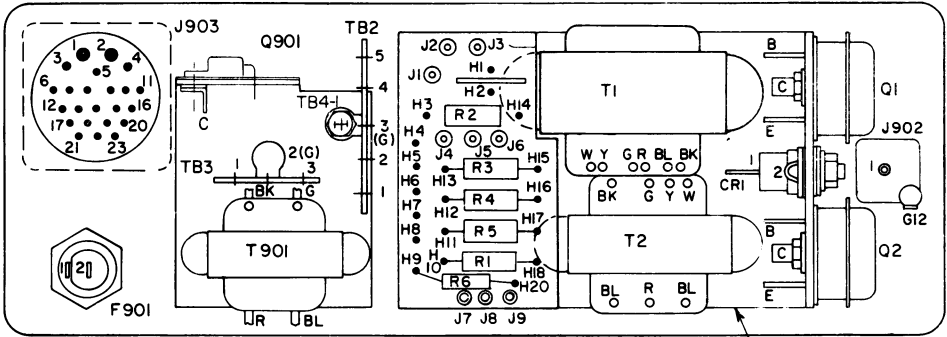
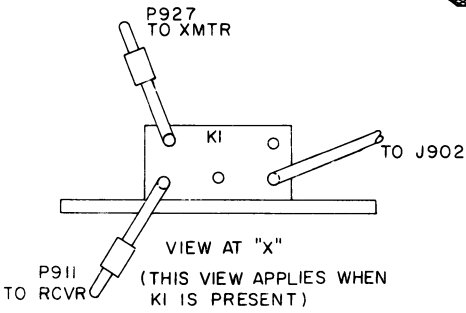
SYMBOL	G-E PART NO	DESCRIPTION
P906 thru P908	4029840P1	Contact, electrical: sim to AMP 41854.
P909	4029840P2	Contact, electrical: sim to AMP 42827-2.
P910	4029840P1	Contact, electrical: sim to AMP 41854.
P912 thru P914	4029840P2	Contact, electrical: sim to AMP 42827-2.
P916 thru P918	4029840P2	Contact, electrical: sim to AMP 42827-2.
P920	4029840P2	Contact, electrical: sim to AMP 42827-2.
P922 and P923	4029840P2	Contact, electrical: sim to AMP 42827-2.
P924 and P925	7147199P2	Connector: female contact; sim to Winchester Electronics 21804.
P926	4029840P2	Contact, electrical: sim to AMP 42827-2.
----- TRANSISTORS -----		
Q901*	19A116118P3	Silicon, NPN.
	19A115527P1	In REV A and earlier: Silicon, NPN.
----- RESISTORS -----		
R901	19B209022P115	Wirewound: 1 ohm $\pm$ 10%, 2 w; sim to IRC Type BWH.
R902	3R77P473K	Composition: 47,000 ohms $\pm$ 10%, 1/2 w.
----- TRANSFORMERS -----		
T901	19B209079P1	Audio freq: 0.3-3 KHz freq range, Pri: 55 ohms $\pm$ 10% imp, 0.895 ohm $\pm$ 10% DC res, Sec: 3.2 ohms imp, 0.168 ohm DC res.
----- TERMINAL BOARDS -----		
TB1	7775500P8	Phen: 4 terminals.
TB2	7775500P11	Phen: 5 terminals.
TB3	7775500P7	Phen: 3 terminals.
----- CABLES -----		
W901		CABLE 19A121176G1
----- PLUGS -----		
P911	5496078P1	Push-on, coaxial: sim to FXR 27-1.
----- MISCELLANEOUS -----		
	19B209044P11	Cable, RF: approx 6 inches; sim to Amphenol 21-598.
W902		CABLE 19A121176G2
----- PLUGS -----		
P927	5496078P2	Jack, coaxial: sim to FXR 27-2.
----- MISCELLANEOUS -----		
	19B209044P13	Cable, RF: approx 4 inches; sim to Amphenol 421-105.
----- SOCKETS -----		
XA901	19B209065P2	Tube, phen: 7 contacts; sim to Alcon Metal Products 524M-2.
XF901	19B209265P3	Fuseholder: 15 amps at 250 v; sim to Littelfuse 342006.
XK901	5491595P5	Relay: 16 contacts; sim to Allied Control 30054-2.

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

OUTLINE DIAGRAM

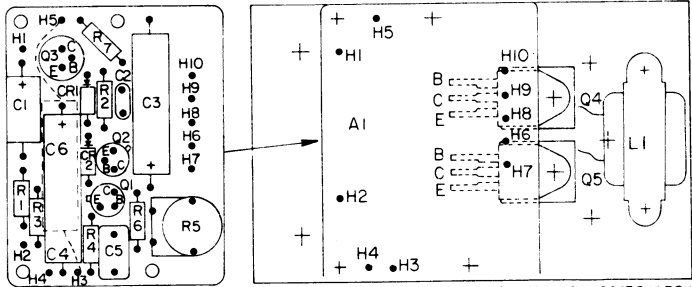


SIDE VIEW-TOP PANEL

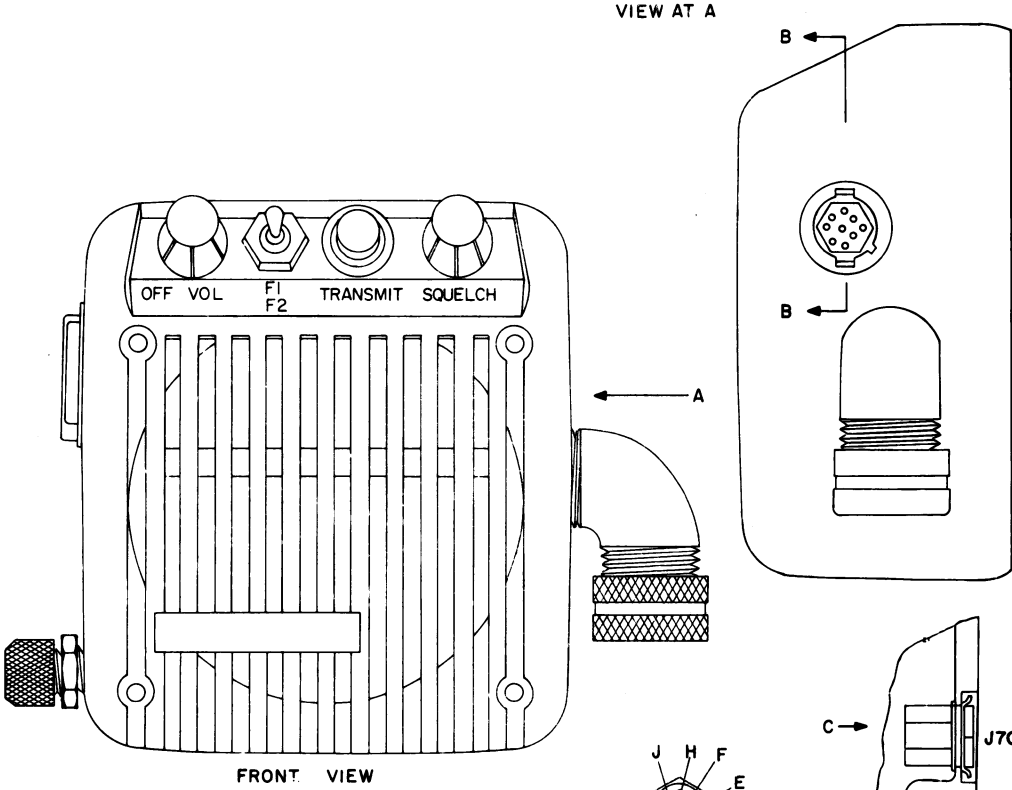


COMPONENT VIEW-TOP COVER PANEL

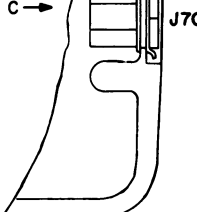
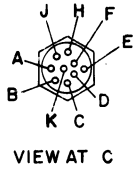
10-WATT AUDIO AMPLIFIER (USED WITH 6/12V POWER SUPPLY)



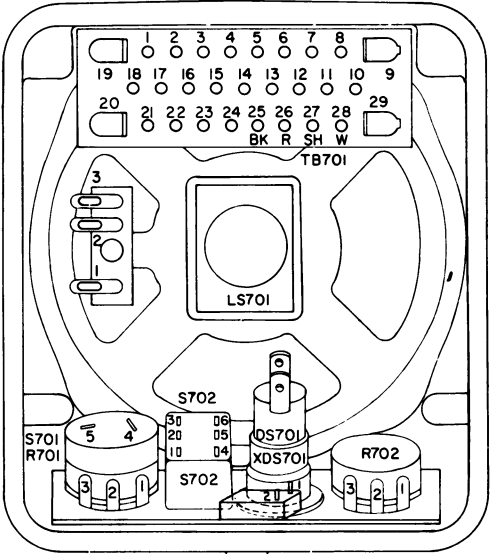
10-WATT AUDIO AMPLIFIER (USED WITH 24/36 V POWER SUPPLY)



FRONT VIEW



- NOTES:
1. S703 USED ONLY IN MODELS 4EC66A12, 13.
  2. S702 USED ONLY IN MODELS 4EC66A11, 13.
  3. J701 USED ONLY IN MODELS 4EC66A14-17.

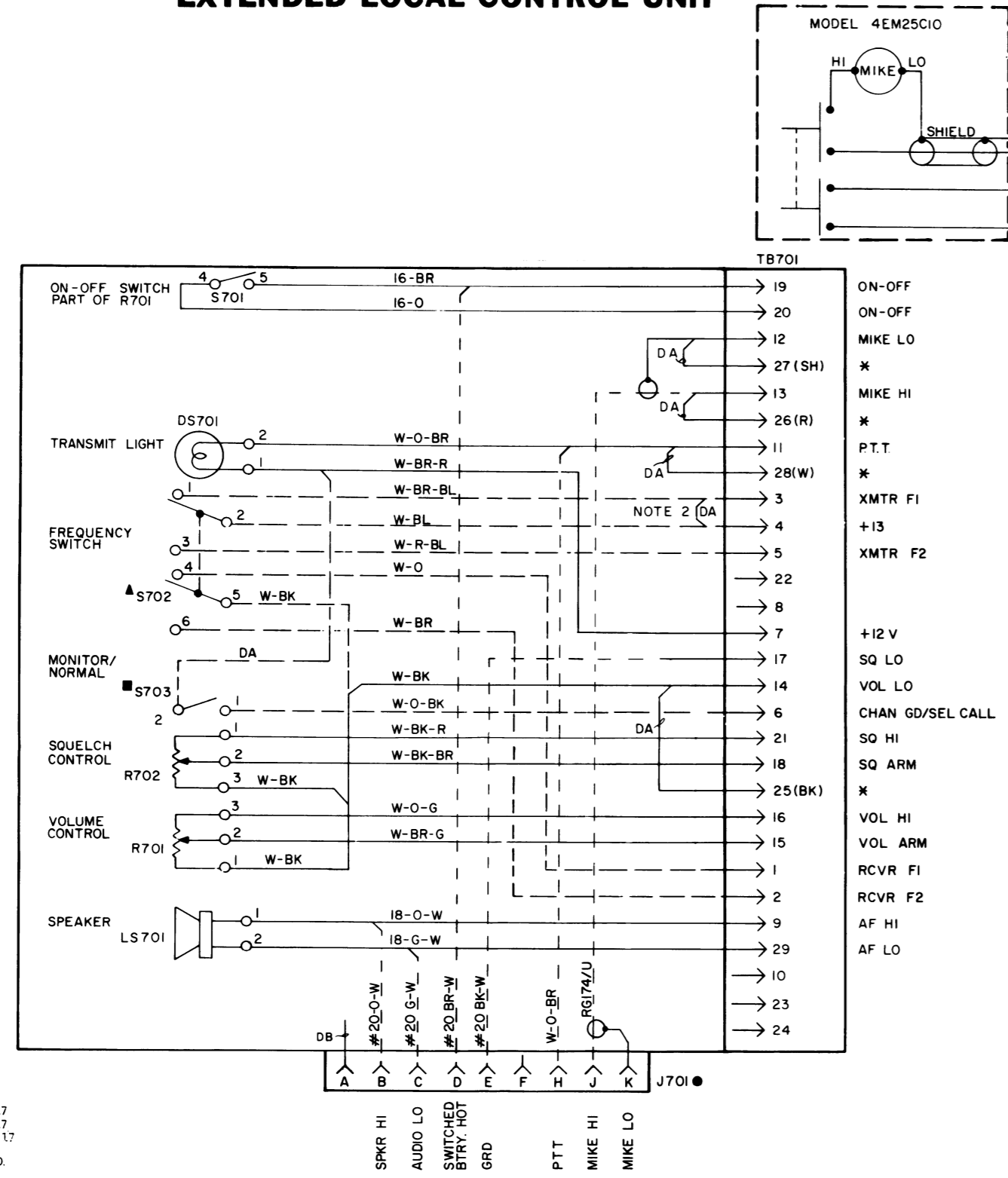


BACK VIEW  
EXTENDED LOCAL CONTROL UNIT

SERVICE SHEET

EXTENDED LOCAL CONTROL UNIT  
MODELS 4EC66A12, 13, 16 & 17  
WITH TRANSMITTER-RECEIVER TOP PANEL  
PL-19D402599-G3 (Used with 6/12-Volt  
Power Supplies)

## EXTENDED LOCAL CONTROL UNIT



(19C303826, Rev. 5

\* MICROPHONE CONNECTIONS

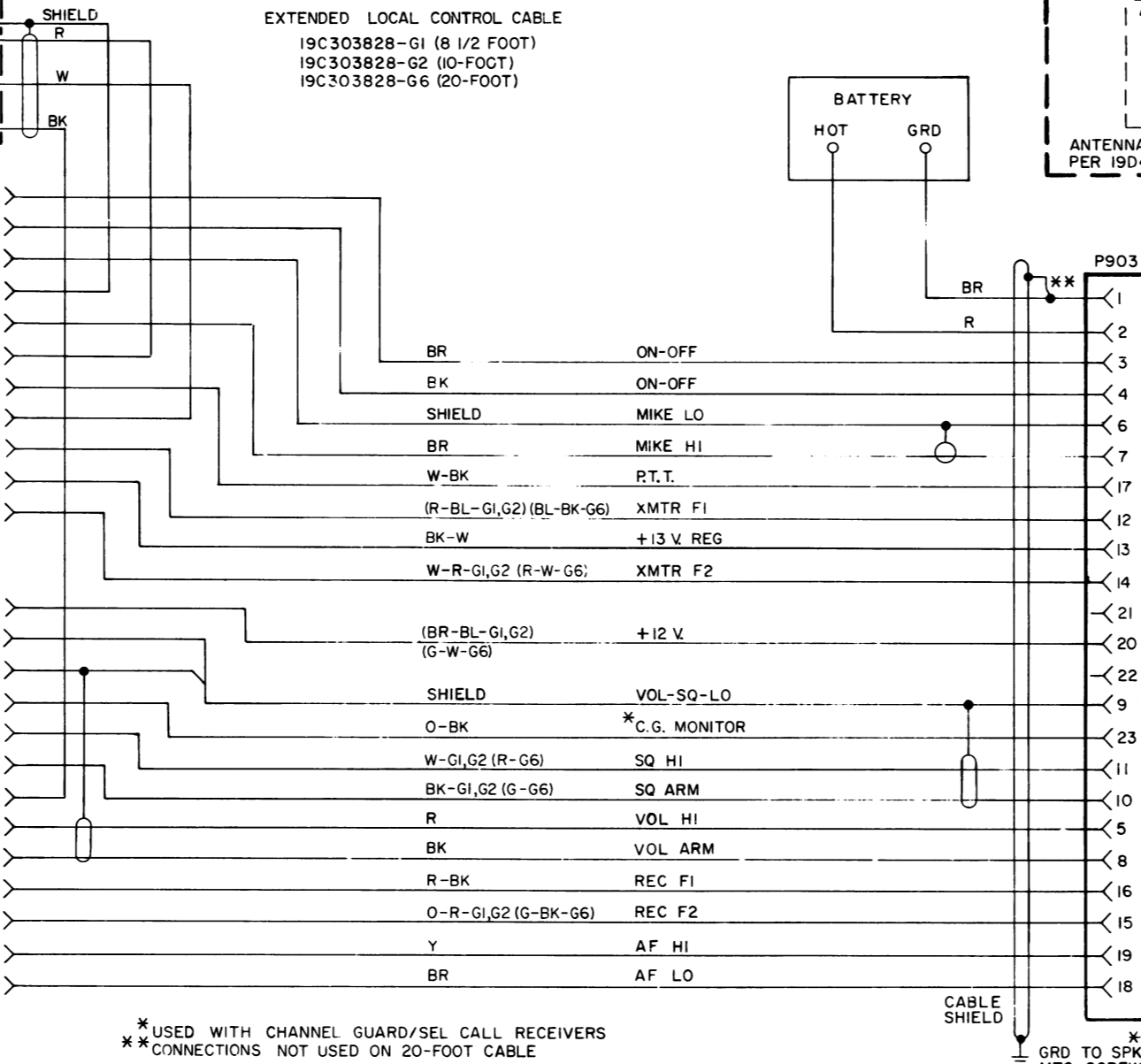
TB701-28	PTI (W)
TB701-27	MIKE LO (SH)
TB701-26	MIKE HI (R)
TB701-25	GROUND (BK)

▲ S703 USED ONLY IN MODELS 4EC66A11, 13, 15 & 17  
● S703 USED ONLY IN MODELS 4EC66A12, 13, 16 & 17  
● J701 USED ONLY IN MODELS 4EC66A14, 15, 16, 17

NOTES:

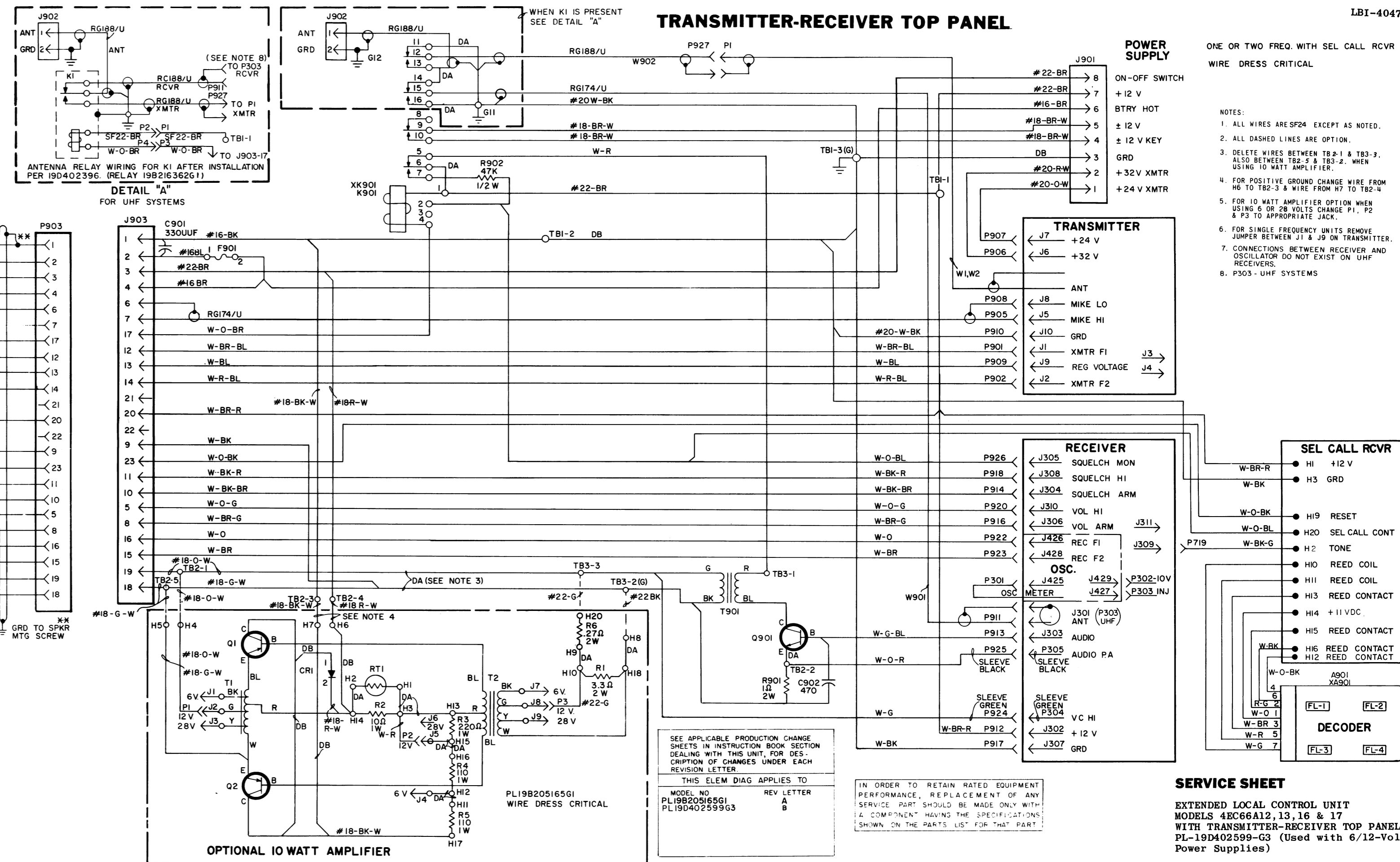
1. ALL WIRES SF24 UNLESS OTHERWISE SPECIFIED.
2. DELETE IN MODELS 4EC66A11, 13, 15 & 17

## CONTROL CABLE



(RC-1262C

## TRANSMITTER-RECEIVER TOP PANEL



(19D402606, Rev. 15)

## SERVICE SHEET

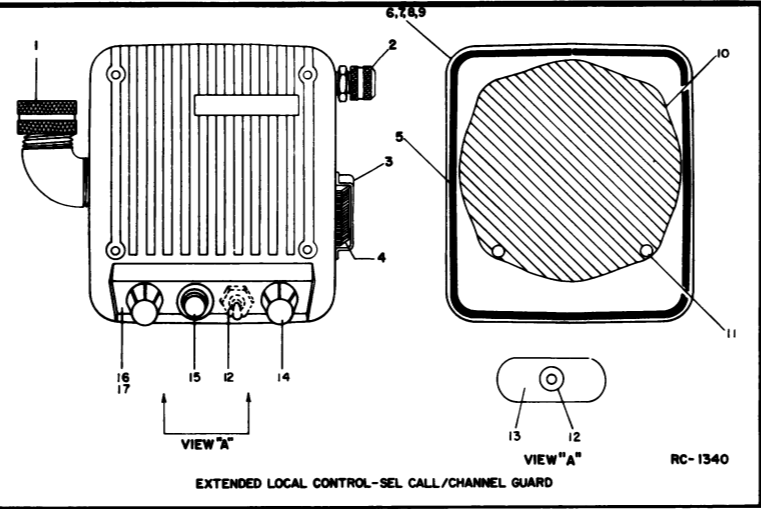
EXTENDED LOCAL CONTROL UNIT  
MODELS 4EC66A12,13,16 & 17  
WITH TRANSMITTER-RECEIVER TOP PANEL  
PL-19D402599-G3 (Used with 6/12-Volt  
Power Supplies)

(RC-1858B, Sheet 2)

SYMBOL	G-E PART NO	DESCRIPTION
		<b>HARNESS ASSEMBLY</b> 19D402599G11 (Includes C901, J901, J903, P901, P902, P905-P910, P912-P914, P916-P918, P920, P922-P926, H902, T91, W901, W902, XK901)
		<b>MECHANICAL PARTS</b>
19B205128G1		Cover. (Mounts J902, 903).
19B205127P1		Support: (Mounts locking latch).
7147306P2		Insulator, bushing. (Used with Q901).
19A116023P1		Insulator, plate. (Used with Q901).
4029994P1		Catch, pull-down. (Mates with catch on power supply to keep unit intact).
4037158P7		Channel, rubber: sim to Atlantic India Rubber X661. (Located above J901).
4032574P2		Gasket, cover, neoprene.
19A121981G1		Chassis. (Mounts T901, TB2, 3).
7763541P5		Clip, cable. (Located between P901 and J903).
19A121178P1		Support. (Used with J901).
5491595P9		Clip, relay: sim to Allied Control 30040-2. (Used with K901).
5491595P10		Clip, relay: sim to Allied Control 30052-1. (Used with K901).
7763541P4		Clip, cable. (Located by XK901).
19B204532G1		Chassis.
19A122071P2		Grommet: (Located by K901).
19A122010G2		Control Mounting Kit.
		<b>ANTENNA RELAY KIT</b> 19B216562G1 (Includes J902 and K1)
		<b>PORTABLE AND INDUSTRIAL ANTENNA</b> MODELS 4EY18A10-15 (LOW BAND)
19C303707P1		Model 4EY18A10, 25-29 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-A431-GE.
19C303707P2		Model 4EY18A11, 29-33 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-A431-GE.
19C303707P3		Model 4EY18A12, 33-36 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-B431-GE.
19C303707P4		Model 4EY18A13, 36-42 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-C431-GE.
19C303707P5		Model 4EY18A14, 42-48 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-D431-GE.
19C303707P6		Model 4EY18A15, 48-54 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-E431-GE.
2R22P2		Adapter, UHF: right angle. Signal Corps M-359; sim to Amphenol 83-LAP. (Used in Models 4EY18A10-15).
		<b>MOBILE ANTENNA</b> (LOW BAND)
7491074P1		Antenna: includes 96-1/2 inch stainless steel rod; sim to Antenna Specialists ASPA39BE.

SYMBOL	G-E PART NO	DESCRIPTION
	7102930P3	Adapter, antenna: (Used with GE Dwg 7491074P1).
	4033101G1	Antenna package: includes base, adapter spring, cable and plug.
	7472880G5	Antenna base. (Used in 4033101G1).
	7476632G4	Adapter spring. (Used in 4033101G1).
	5492239P1	Cable, antenna: includes Type RG-58/U cable approx 15 feet, PL-259 plug, terminal; sim to Antenna Specialists 15A43. (Used in 4033101G1).
	2R22P1	Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-LSP. (Used with GE Dwg 5492239P1 in 4033101G1).
	4039101P1	Coil, loading: 25-54 megahertz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook. (Used in 19A121577G1).
		<b>PORTABLE AND INDUSTRIAL ANTENNA</b> MODELS 4EY19C10-15 (HIGH BAND AND UHF)
		MODEL 4EY19C10 130-150.8 MHz MODEL 4EY19C11 150.8-162 MHz MODEL 4EY19C12 162-166 MHz MODEL 4EY19C13 166-174 MHz MODEL 4EY19C14 408-420 MHz MODEL 4EY19C15 450-470 MHz
		<b>MOBILE ANTENNA</b> MODEL 4EY12A13 (HIGH BAND AND UHF)
		<b>MISCELLANEOUS</b>
		Antenna: includes 20-inch stainless steel whip, whip socket, antenna cable, cable adapter, PL-259 plug; sim to Antenna Specialists ASP7201GE or Danbury-Knudsen Type PA-25.
	5490969P4	Whip: 20-inch stainless steel.
	5490969P5	Socket, whip.
	5490969P6	Whip and whip socket: 20-inch stainless steel whip, whip socket.
	7105381P1	Cable, antenna: approx 15 feet. Type RG-58/U. (Used with GE Dwg 2R22-P1 and GE Dwg 7105381P1).
	2R22P1	Adapter, cable: Type UG-175/U. (Used with GE Dwg 2R22P1 and TypeRG-58/U cable).
		Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-LSP. (Used with GE Dwg 7105281P1 and Type RG-58/U cable).
		<b>AUTO CUTTER MOUNT ANTENNA</b> MODEL 4EY20A10 (HIGH BAND)
	19C303620P1	Antenna. Includes 19-1/2 inch stainless steel whip, socket, insulators, adapter, RG-58A/U cable, PL-259 plug, clip; sim to Antenna Specialists ASP-157.
	19C303620P2	Replacement whip. Includes 19-1/2 inch stainless steel whip, socket, insulators; sim to Antenna Specialists 19A904-1.
		<b>MICROPHONE</b> MODEL 4EY25C10
1		Cable clamp. Shure Brothers RP21. (Includes parts 3 and 8).
2		Switch. Shure Brothers RP26.
3		Case (back) and mounting button: plastic. Shure Brothers RP21. (Includes parts 1 and 8).
4		Switch button: red plastic. Shure Brothers RP25.
5		Spring. Shure Brothers RP16. (includes miscellaneous hardware).
6		Shield. Shure Brothers RP23.
7		Cartridge, magnetic controlled.
8		Case (front): plastic. Shure Brothers RP21. (Includes parts 1 and 3).
9		Cable: approx 6 feet.

SYMBOL	G-E PART NO	DESCRIPTION
		<b>POWER CONTROL CABLE</b> 19C303628G2
19A115067P1		<b>MISCELLANEOUS</b>
19B200010P3		Cable, 2-conductor: approx 10 feet; sim to Belden 31713.
		Plug: 23 contacts; sim to Cannon Electric KE-L23-23C-3/4.
		<b>POWER CONTROL CABLE</b> 19C303628G6
19A115067P3		<b>MISCELLANEOUS</b>
19B200010P3		Cable, 2-conductor: approx 23 feet; sim to Belden 7721.
		Plug: 23 contacts; sim to Cannon Electric KE-L23-23C-3/4.
		<b>POWER SUPPLY EXTENSION CABLE</b> 19B204289G1
7473192P19		<b>MISCELLANEOUS</b>
7473192P26		Receptacle: 8 terminals; sim to HB Jones 261-32-08-030.
7162441P23		Plug: 8 terminals; sim to HB Jones 261-31-08-030.
		Sleeving, electrical.
		<b>POWER CABLE</b> 19B205422G1
19A115067P1		<b>MISCELLANEOUS</b>
19A115776P2		Cable, 2 conductor: approx 10 feet; sim to Belden 31713.
1R16P7		Phenolic: sim to Bussman Type HWJ.
4034405P3		Quick blowing: 4 amps at 250 v; sim to Littelfuse 312004 or Bussman MYH-4.
		Plug: 3 sockets; sim to Cannon Electric XLR-3-11C.
		<b>POWER CABLE</b> 19B205422G2
19A115067P1		<b>MISCELLANEOUS</b>
19A115776P2		Cable, 2-conductor: approx 23 feet; sim to Belden 31713.
1R16P7		Phenolic: sim to Bussman Type HWJ.
4034405P3		Cartridge, quick blowing: 4 amps at 250 v; sim to Littelfuse 312004 or Bussman MYH-4.
		Plug: 3 sockets; sim to Cannon Electric XLR-3-11C.
		<b>AC CHARGING CABLE</b> 5492570G2
C1	7489159P16	<b>MISCELLANEOUS</b>
4034403P1		Capacitor, metallized plastic: 4 $\mu$ f $\pm$ 20%, 200 VDCW; sim to Sprague 118P4050284.
7160478P1		Plug: sim to GE 4304-3.
4034405P5		Cable, 2-conductor: approx 87 inches; sim to Birnbach 789.
		Plug: 5 sockets: sim to Cannon Electric XLR-5-11C.



PARTS LIST		
LBI-3669D 10-WATT POWER AMPLIFIER 19B205165-G1 REV A		
SYMBOL	GE PART NO.	DESCRIPTION
CR1	19A115617-P1	<b>DIODES AND RECTIFIERS</b> Silicon.
J1 thru J9	4033513-P4	<b>JACKS AND RECEPTACLES</b> Contact, electrical: sim to Bead Chain L93-3.
P1 thru P3	4029840-P2	<b>PLUGS</b> Contact, electrical: sim to AMP 42827-2.
Q1 and Q2	5490810-P1	<b>TRANSISTORS</b> Germanium, PNP.
R1*	19B209022-P27 19B209022-P137	<b>RESISTORS</b> Wirewound, phen: 3.3 ohms $\pm$ 5%, 2 w; sim to IRC Type BWH. In Models earlier than Rev A: Wirewound: 8.2 ohms $\pm$ 10%, 2 w; sim to IRC BWH.
R2	3R78-P100J	Composition: 10 ohms $\pm$ 5%, 1 w.
R3	3R78-P221J	Composition: 220 ohms $\pm$ 5%, 1 w.
R4 and R5	3R78-P111J	Composition: 110 ohms $\pm$ 5%, 1 w.
R6*	19B209022-P1	Wirewound: 0.27 ohms $\pm$ 5%, 2 w; sim to IRC Type BWH. (Added by REV A).
RT1	19C300048-P3	<b>THERMISTORS</b> Disc: 1 ohm $\pm$ 10% res at 25°C.
T1	19B209218-P1	<b>TRANSFORMERS</b> Audio freq: 0.3-3 KHz freq range nominal, 0.3 ohm DC res max.
T2	19B209220-P1	Audio freq: 0.3-3 KHz freq range nominal, Pri: 0.17 ohm DC res max, Sec: 5.5 ohms DC res max.
		<b>MECHANICAL PARTS</b> (SEE RC-1280)
1	4031291-P1	Insulator, disc.
2	19B205142-G1	Chassis.
3	4034225-P1	Flat washer. (For 10-32 screw).
4	4032596-P1	Nut: 10-32.
5	4036835-P1	Terminal, solder: sim to Shakeproof 2118-10-01-2520N.
6	19A115221-P3	Washer, mica: approx 9/16 inch dia.
7	4034215-P1	Bushing.

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 - 10-Watt Power Amplifier 19B205165-G1  
To improve audio response. Changed R1 and added R6.

REV. A - Transmitter-Receiver Top Panel 19D402599-G3  
To incorporate an improved relay. Changed K901.

REV. A - Control Unit (Models 4EC6A12, 13, 16 & 17  
To eliminate noise in receiver. Deleted jumper between TB701-14 & TB701-17 and Jumper between TB701-1 & TB701-17.

REV. B - Transmitter-Receiver Top Panel 19D402599-G3  
To incorporate a new transistor. Changed Q901.

TRANSISTOR MOUNT

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

## PARTS LIST

LBI-4054B  
 CONTROL UNIT WITH SELECTIVE CALLING  
 MODEL 4EC66A12 (19D402603G3) (1 Frequency)  
 MODEL 4EC66A13 (19D402603G4) (2 Frequency)  
 MODEL 4EC66A16 (19D402603G5) (2 Frequency with ACCESSORY JACK OPTION)  
 MODEL 4EC66A17 (19D402603G6) (2 Frequency with ACCESSORY JACK OPTION)  
 TRANSMITTER-RECEIVER TOP PANEL 19D402599G6  
 AND  
 ASSOCIATED ASSEMBLIES

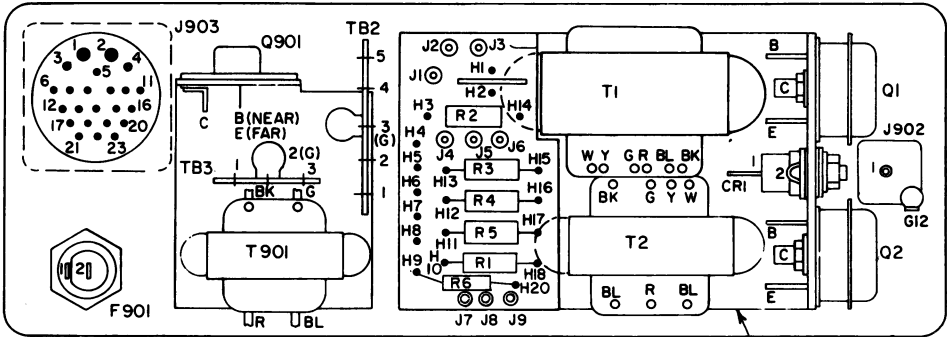
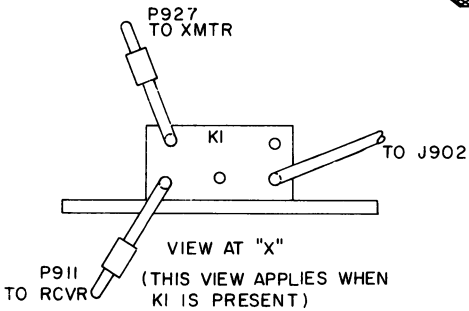
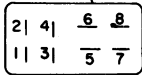
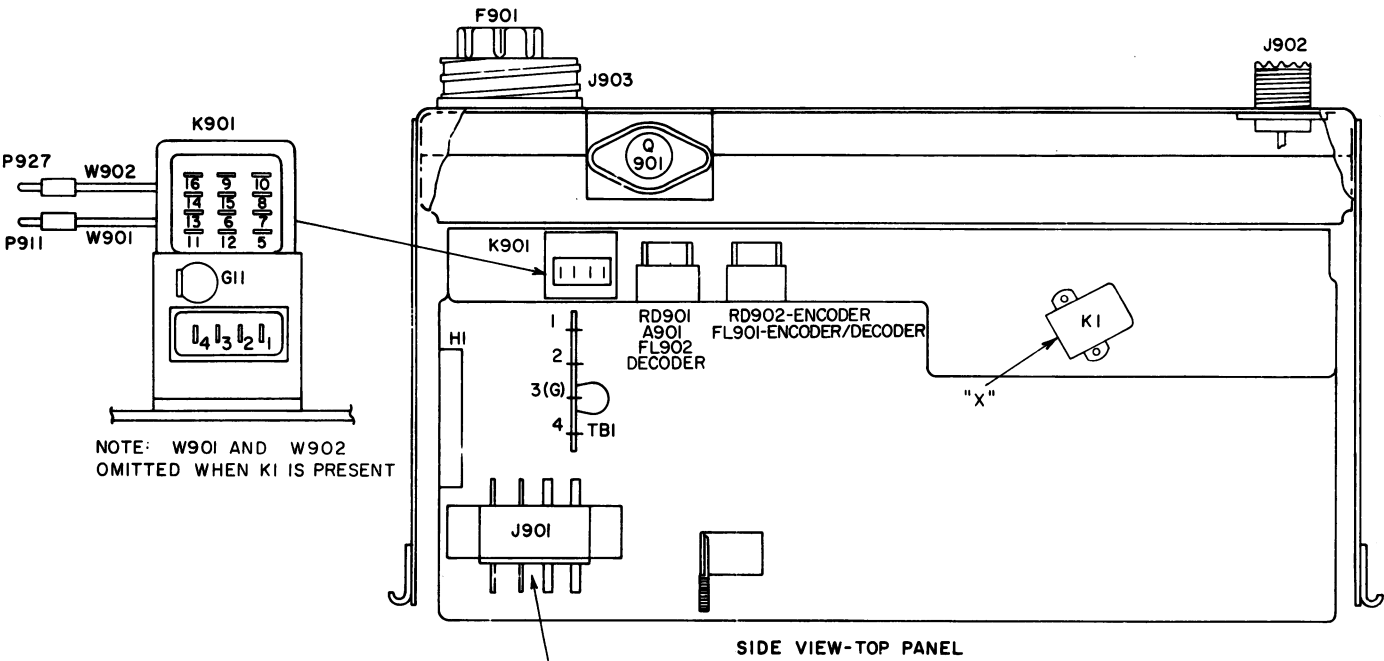
SYMBOL	GE PART NO.	DESCRIPTION
DS701	19C307037P4	<p>----- INDICATING DEVICES -----</p> <p>Lamp, incandescent: 14 v <math>\pm</math>.01 v; sim to GE 1815.</p>
J701	7489183P5	<p>----- JACKS AND RECEPTACLES -----</p> <p>Connector: 9 contacts; sim to Winchester M9S-LRN.</p>
LS701	5491260P7	<p>----- LOUDSPEAKERS -----</p> <p>Permanent magnet, 5-inch: 3.2 ohms <math>\pm</math>10% voice coil imp, 15 w max operating, 385 Hz <math>\pm</math>15% resonance; sim to Jensen Model P5-VAS12761.</p>
R701	19B209256P2	<p>----- RESISTORS -----</p> <p>Resistor/switch: includes Resistor, variable, 5000 ohms <math>\pm</math>20%, 0.25 w; Switch (S701), rotary, SPST, 15 amps at 10 v; sim to CTS Series 45.</p>
R702	19B209256P1	<p>Variable, carbon film: 5000 ohms <math>\pm</math>20%, 0.5 w; sim to CTS Series 45.</p>
S701		<p>----- SWITCHES -----</p> <p>(Part of R701).</p>
S702	5491899P6	<p>Toggle: DPDT, 3 amps at 250 v; sim to Cutler-Hammer 8363K7.</p>
S703	5491899P7	<p>Toggle: SPST, 3 amps at 125 v; sim to Cutler-Hammer 8280K16.</p>
TB701	19B205152G1	<p>----- TERMINAL BOARDS -----</p> <p>Terminal board: 25 contacts.</p>
XDS701	7141855P15	<p>----- SOCKETS -----</p> <p>Lamp: sim to Dialight 95-410-975 (modified).</p>
		<p>HARNESS ASSEMBLY</p> <p>19D402603G11 (4EC66A12)</p> <p>19D402603G12 (4EC66A13)</p> <p>19D402603G15 (4EC66A16)</p> <p>19D402603G16 (4EC66A17)</p> <p>(Includes TB701)</p>
		<p>MECHANICAL PARTS</p> <p>(SEE RC-1340)</p>
1	19A122065P1	Bushing: 3/4-14; sim to Pyle-National DB-1191690 (modified).
2	19A122066P1	Bushing: 1/4-18; sim to Pyle-National DB-44516 (modified).
3	4031457P1	Support. (Used with microphone).
4	4031458P1	Spring. (Used with microphone).
5	4032574P2	Gasket, cover, neoprene: approx 27-3/4 inches.
6	19D402601P3	Casting. (Used in Model 4EC66A12).
7	19D402601P4	Casting. (Used in Model 4EC66A13).
8	19D402601P7	Casting. (Used in Model 4EC66A16).
9	19D402601P8	Casting. (Used in Model 4EC66A17).
10	19B205162P1	Diaphragm: approx 2-3/8 inches dia.
11	19A121990P1	Spacer: 3/4 inch hex. (Used with TB701).
12	5490135P4	<p>Boot: sim to APM-Hexseal N-1030-B.</p> <p>(Used with S702 in Models 4EC66A13, 17, S703).</p>
13	NP248842	Nameplate.
14	4039182G1	Knob. (Used with R701, 702).

SYMBOL	G-E PART NO	DESCRIPTION
15	19A115040P9	Lens, panel light: red lens; sim to Dialight 81-331. (Used with D8701).
16	NP248843	Nameplate. (Used in Models 4EC66A13, 17).
17	NP248844	Nameplate. (Used in Models 4EC66A12, 16).
		TRANSMITTER-RECEIVER TOP PANEL 19D402599G6
A901		REED HOLDER ASSEMBLY 19B204982G3 (Used with 4EJ19A10 Decoder) 19B204982G4 (Used with 4EJ19A11 Decoder)
		----- TONE NETWORKS -----
FL1 thru FL4	19C300580	Tone Detector. (Check group numbers for desired frequency).
	G1	517.5 Hz
	G2	532.5 Hz
	G3	547.5 Hz
	G4	562.5 Hz
	G5	577.5 Hz
	G6	592.5 Hz
	G7	607.5 Hz
	G8	622.5 Hz
	G9	637.5 Hz
	G10	652.5 Hz
	G11	667.5 Hz
	G12	682.5 Hz
	G13	697.5 Hz
	G14	712.5 Hz
	G15	727.5 Hz
	G16	742.5 Hz
	G17	757.5 Hz
	G18	772.5 Hz
	G19	787.5 Hz
	G20	802.5 Hz
	G21	817.5 Hz
	G22	832.5 Hz
	G23	847.5 Hz
	G24	862.5 Hz
	G25	877.5 Hz
	G26	892.5 Hz
	G27	907.5 Hz
	G28	922.5 Hz
	G29	937.5 Hz
	G30	952.5 Hz
	G31	967.5 Hz
	G32	982.5 Hz
	G33	997.5 Hz
		----- CAPACITORS -----
C902	5494481P7	Ceramic disc: 470 pf $\pm 20\%$ , 1000 VDCW; sim to RMC Type JF Discap.
		----- JACKS AND RECEPTACLES -----
J901	7473192P31	Connector, phen: 8 terminals; sim to HB Jones 261-31-08-000.
J902	4029493P1	Receptacle, coaxial; sim to Amphenol 83-798 or Equiv. Military 50-239A.
J903	19B200010P2	Receptacle: 23 contacts; sim to Cannon Electric NK-L23-32S.
		----- RELAYS -----
K901*	19C307010P18	Armature: 12 VDC nominal, 130 ohms $\pm 10\%$ coil res, 4 form C contacts; sim to Allied Control T154-X-976A.  In 19D402599G3 earlier than REV A:
	19C307010P5	Armature: 12 VDE nominal, 130 ohms $\pm 10\%$ coil res, 4 form C contacts; sim to Allied Control T154-X-413.
		----- PLUGS -----
P901 and P902	4029840P2	Contact, electrical: sim to AMP 42827-2.
P905	4029840P2	Contact, electrical: sim to AMP 42827-2.
P906 thru P908	4029840P1	Contact, electrical: sim to AMP 41854.
P909	4029840P2	Contact, electrical: sim to AMP 42827-2.
P910	4029840P1	Contact, electrical: sim to AMP 41854.

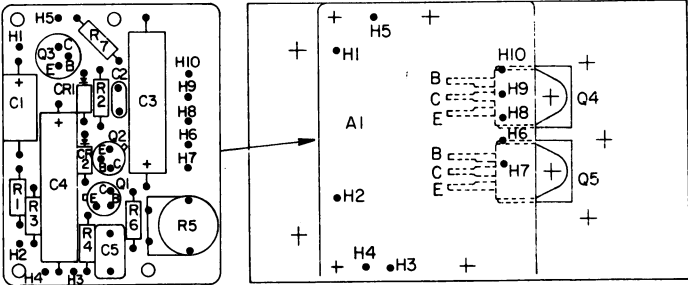
SYMBOL	G-E PART NO	DESCRIPTION
P912 thru P914	4029840P2	Contact, electrical: sim to AMP 42827-2.
P916 thru P918	4029840P2	Contact, electrical: sim to AMP 42827-2.
P920	4029840P2	Contact, electrical: sim to AMP 42827-2.
P922 and P923	4029840P2	Contact, electrical: sim to AMP 42827-2.
P924 and P925	7147199P2	Connector: female contact; sim to Winchester Electronics 21804.
P926	4029840P2	Contact, electrical: sim to AMP 42827-2.
- - - - - TRANSISTORS - - - - -		
Q901*	19A116118P3	Silicon, NPN.
		In REV A and earlier:
	19A115527P1	Silicon, NPN.
- - - - - RESISTORS - - - - -		
R901	19B209022P115	Wirewound: 1 ohm $\pm 10\%$ , 2 w; sim to IRC Type BWH.
R902	3R77P473K	Composition: 47,000 ohms $\pm 10\%$ , 1/2 w.
- - - - - TRANSFORMERS - - - - -		
T901	19B209079P1	Audio freq: 0.3-3 KHz freq range, Pri: 55 ohms $\pm 10\%$ imp, 0.895 ohm $\pm 10\%$ DC res, Sec: 3.2 ohms imp, 0.168 ohm DC res.
- - - - - TERMINAL BOARDS - - - - -		
TB1	7775500P8	Phen: 4 terminals.
TB2	7775500P11	Phen: 5 terminals.
TB3	7775500P7	Phen: 3 terminals.
- - - - - CABLES - - - - -		
W901		CABLE 19A121176G1
- - - - - PLUGS - - - - -		
P911	5496078P1	Push-on, coaxial: sim to FXR 27-1.
- - - - - MISCELLANEOUS - - - - -		
	19B209044P11	Cable, RF: approx 6 inches; sim to Amphenol 21-598.
W902		CABLE 19A121176G2
- - - - - PLUGS - - - - -		
P927	5496078P2	Jack, coaxial: sim to FXR 27-2.
- - - - - MISCELLANEOUS - - - - -		
	19B209044P13	Cable, RF: approx 4 inches; sim to Amphenol 421-105.
- - - - - SOCKETS - - - - -		
XA901	19B209065P2	Tube, phen: 7 contacts; sim to Alcon Metal Products 524M-2.
XK901	5491595P5	Relay: 16 contacts; sim to Allied Control 30054-2.
HARNESS ASSEMBLY 19D402599G14 (Includes J901, J903, P901, P902, P905-P910, P912-P914, P916-P918, P920, P922-P926, R902, TB1, W901, W902, XK901)		
MECHANICAL PARTS		
	7147306P2	Insulator, bushing. (Used with Q901).
	19A116023P1	Insulator, plate. (Used with Q901).

**\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES**

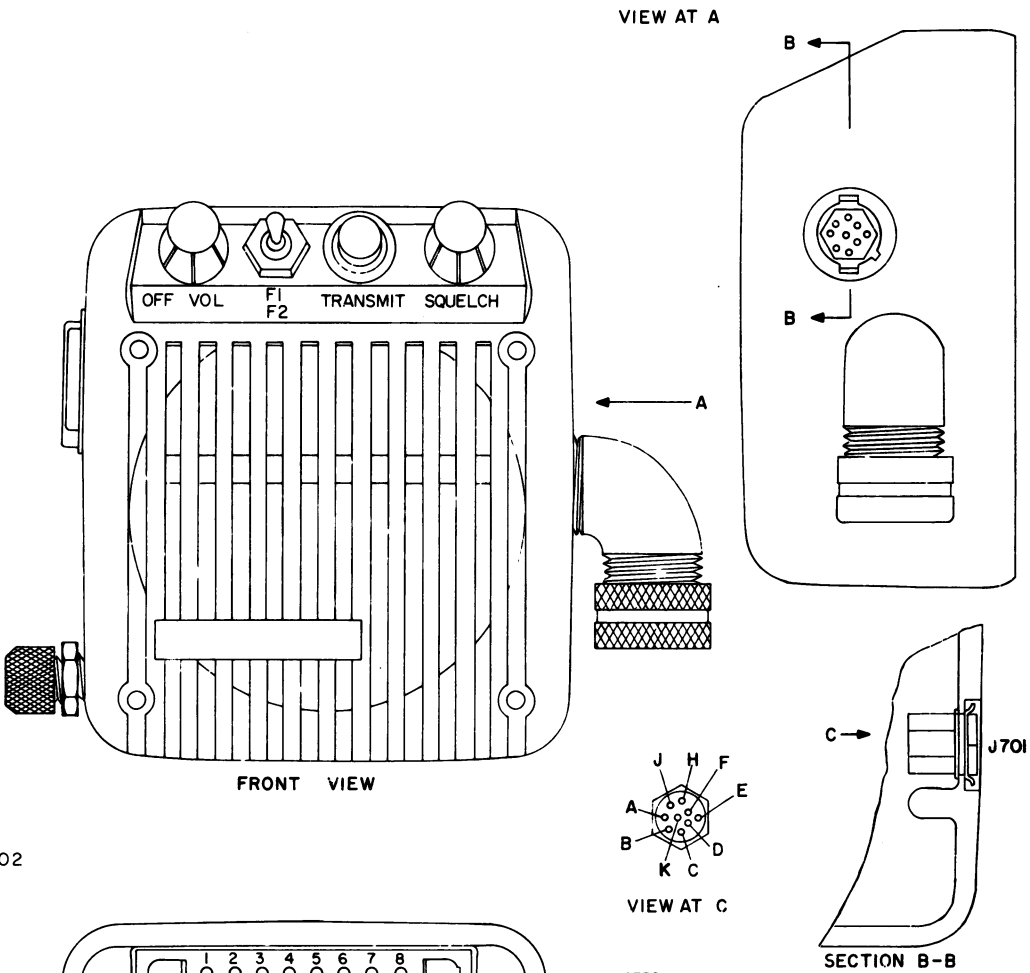
OUTLINE DIAGRAM



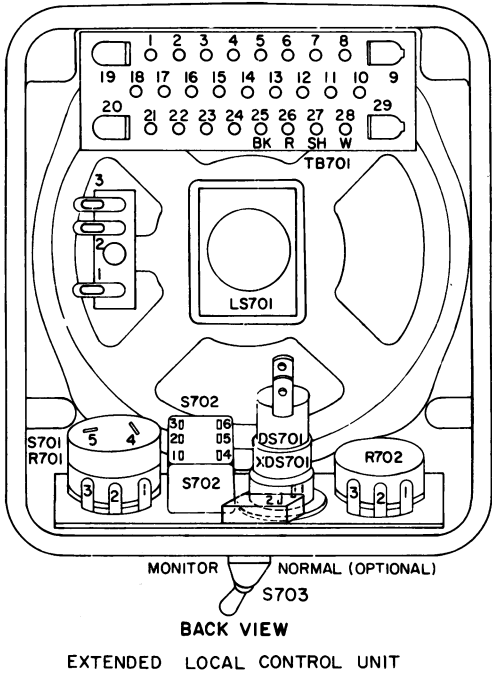
10-WATT AUDIO AMPLIFIER (USED WITH 6/12V POWER SUPPLY)



10-WATT AUDIO AMPLIFIER (USED WITH 24/36 V POWER SUPPLY)



- NOTES:
- 1. S703 USED ONLY IN MODELS 4EC66A12,13.
  - 2. S702 USED ONLY IN MODELS 4EC66A11,13.
  - 3. J701 USED ONLY IN MODELS 4EC66A14-17.



SERVICE SHEET

EXTENDED LOCAL CONTROL UNIT  
MODELS 4EC66A12,13,16 & 17  
WITH TRANSMITTER-RECEIVER TOP PANEL  
PL-19D402599-G6 (Used with 24/36-Volt  
Power Supply)

(19D413760, Rev. 0)

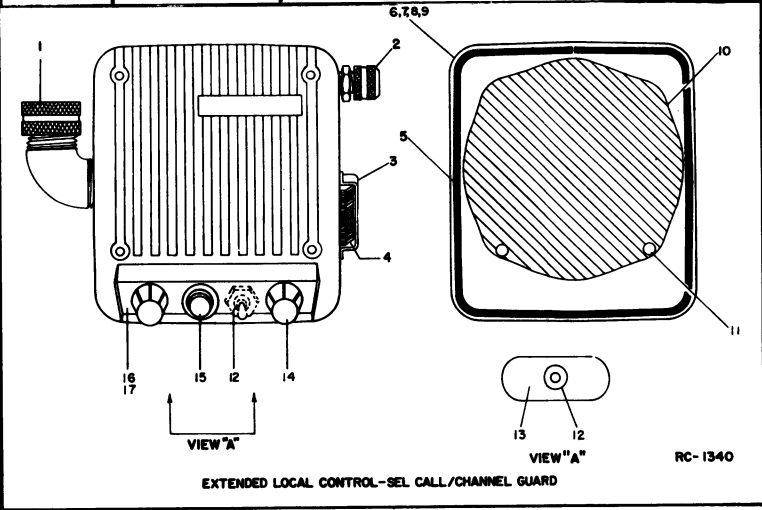
## CONTROL CABLE

## LBI-4047



SYMBOL	G-E PART NO	DESCRIPTION	SYMBOL	G-E PART NO	DESCRIPTION
	19B205129G2	Cover. (Mounts J902, 903).		2R22P1	Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 5492239P1 in 4033101G1).
	19B205127P1	Support: (Mounts locking latch).		4039101P1	Coil, loading: 25-54 megahertz; sim to Antenna Specialists ASPA87.
	4029994P1	Catch, pull-down. (Mates with catch on power supply to keep unit intact).		19A121577G1	Antenna hook kit.
	4037158P7	Channel, rubber: sim to Atlantic India Rubber X661. (Located above J901).		7134724P1	Antenna hook. (Used in 19A121577G1).
	4032574P2	Gasket, cover, neoprene.			PORTABLE AND INDUSTRIAL ANTENNA MODELS 4EY19C10-15 (HIGH BAND AND UHF)  MODEL 4EY19C10 130-150.8 MHz MODEL 4EY19C11 150.8-162 MHz MODEL 4EY19C12 162-166 MHz MODEL 4EY19C13 166-174 MHz MODEL 4EY19C14 406-430 MHz MODEL 4EY19C15 450-470 MHz
	19A121981G1	Chassis. (Mounts T901, TB2, 3).			MOBILE ANTENNA MODEL 4EY12A13 (HIGH BAND AND UHF)
	7763541P5	Clip, cable. (Located between F901 and J903).			MISCELLANEOUS
	19A121178P1	Support. (Used with J901).			Antenna: includes 20-inch stainless steel whip, whip socket, antenna cable, cable adapter, PL-259 plug; sim to Antenna Specialists ASPD501GE or Danbury-Knudsen Type PA-25.
	5491595P9	Clip, relay: sim to Allied Control 30040-2. (Used with K901).		5490969P4	Whip: 20-inch stainless steel.
	5491595P10	Clip, relay: sim to Allied Control 30052-1. (Used with XK901).		5490969P5	Socket, whip.
	7763541P4	Clip, cable. (Located by XK901).		5490969P6	Whip and whip socket: 20-inch stainless steel whip, whip socket.
	19B204532G1	Chassis.			Cable, antenna: approx 15 feet. Type RG-58/U. (Used with GE Dwg 2R22P1 and GE Dwg 7105381P1).
	19A122071P2	Grommet: (Located by K901).		7105381P1	Adapter, cable: Type UG-175/U. (Used with GE Dwg 2R22P1 and Type RG-58/U cable).
		----- ASSOCIATED ASSEMBLIES -----		2R22P1	Plug, coaxial: Signal Corps PL-259; sim to Amphenol 83-1SP. (Used with GE Dwg 7105381P1 and Type RG-58/U cable).
	19A122010G2	Control Mounting Kit.			AUTO GUTTER MOUNT ANTENNA MODEL 4EY20A10 (HIGH BAND)
		ANTENNA RELAY KIT 19B216362G1 (Includes J902 and K1)			MISCELLANEOUS
		PORTABLE AND INDUSTRIAL ANTENNA MODELS 4EY18A10-15 (LOW BAND)			Antenna. Includes 19-1/2 inch stainless steel whip, socket, insulators, adapter, RG-58A/U cable, PL-259 plug, clip; sim to Antenna Specialists ASP-157.
		----- MISCELLANEOUS -----		19C303620P1	Replacement whip. Includes 19-1/2 inch stainless steel whip, socket, insulators; sim to Antenna Specialists 19A904-1.
	19C303707P1	Model 4EY18A10, 25-29 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-431-GE.		19C303620P2	MICROPHONE MODEL 48E25C10
	19C303707P2	Model 4EY18A11, 29-33 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-431-GE.	1		Cable clamp. Shure Brothers RP21. (Includes parts 3 and 8).
	19C303707P3	Model 4EY18A12, 33-36 MHz Antenna. Includes 48-1/4 inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-431-GE.	2		Switch. Shure Brothers RP26.
	19C303707P4	Model 4EY18A13, 36-42 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-C431-GE.	3		Case (back) and mounting button: plastic. Shure Brothers RP21. (Includes parts 1 and 8).
	19C303707P5	Model 4EY18A14, 42-48 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-D431-GE.	4		Switch button: red plastic. Shure Brothers RP25.
	19C303707P6	Model 4EY18A15, 48-54 MHz Antenna. Includes 38-inch stainless steel rod, tuning screw, rubber O-ring weather seal; sim to Antenna Specialists ASP-E431-GE.	5		Spring. Shure Brothers RP16. (includes miscellaneous hardware).
	2R22P2	Adapter, UHF: right angle. Signal Corps M-359; sim to Amphenol 83-1AP. (Used in Models 4EY18A10-15).	6		Shield. Shure Brothers RP23.
		MOBILE ANTENNA (LOW BAND)	7		Cartridge, magnetic controlled.
		----- MISCELLANEOUS -----	8		Case (front): plastic. Shure Brothers RP21. (Includes parts 1 and 3).
	7491074P1	Antenna: includes 96-1/2 inch stainless steel rod; sim to Antenna Specialists ASPA3BGE.	9		Cable: approx 6 feet.
	7102930P3	Adapter, antenna: (Used with GE Dwg 7491074P1).			POWER CONTROL CABLE 19C303828G4
	4033101G1	Antenna package: includes base, adapter spring, cable and plug.			MISCELLANEOUS
	7472880G5	Antenna base. (Used in 4033101G1).			Plug, 23 contacts; sim to Cannon Electric NE-L23-23C-3/4.
	7476632G4	Adapter spring. (Used in 4033101G1).			
	5492239P1	Cable, antenna: includes Type RG-58/U cable approx 15 feet, PL-259 plug, terminal; sim to Antenna Specialists 19A45. (Used in 4033101G1).		19B200010P3	

SYMBOL	G-E PART NO	DESCRIPTION
		POWER CONTROL CABLE 19C303828G7
		MISCELLANEOUS
	7139880P10	Cable, special purpose: approx 20 feet.
	19B200010P3	Plug: 23 contacts; sim to Cannon Electric NE-L23-23C-3/4.
		POWER CABLE 19B205422G1
		MISCELLANEOUS
	19A115067P1	Cable, 2 conductor: approx 10 feet; sim to Belden 31713.
	19A115776P2	Phenolic: sim to Bussman Type HW.
	1R16P7	Quick blowing: 4 amps at 250 v; sim to Littlefuse 312004 or Bussman MTH-4.
	4034405P3	Plug: 3 sockets; sim to Cannon Electric XLR-3-11C.
		POWER CABLE 19B205422G2
		MISCELLANEOUS
	19A115067P1	Cable, 2-conductor: approx 23 feet; sim to Belden 31713.
	19A115776P2	Phenolic: sim to Bussman Type HW.
	1R16P7	Cartridge, quick blowing: 4 amps at 250 v; sim to Littlefuse 312004 or Bussman MTH-4.
	4034405P3	Plug: 3 sockets; sim to Cannon Electric XLR-3-11C.
		POWER SUPPLY EXTENSION CABLE 19B204289G1
		MISCELLANEOUS
	7473192P19	Receptacle: 8 terminals; sim to HB Jones 261-32-08-030.
	7473192P26	Plug: 8 terminals; sim to HB Jones 261-31-08-030.
	7162441P23	Sleeving, electrical.



PARTS LIST		
LBI-4187B		
10-WATT AMPLIFIER 19C317598G1		
SYMBOL	GE PART NO.	DESCRIPTION
A1		AMPLIFIER BOARD 19B219085G1
		CAPACITORS
C1	19A115680P3	Electrolytic: 20 $\mu$ f +150% -10%, 25 VDCW; sim to Mallory Type TT.
C2	5496219P47	Ceramic disc: 22 pf $\pm$ 5%, 500 VDCW, temp coef 0 PPM.
C3	19A115680P10	Electrolytic: 200 $\mu$ f +150% -10%, 18 VDCW; sim to Mallory Type TT.
C4	19A115680P9	Electrolytic: 120 $\mu$ f +150% -10%, 26 VDCW; sim to Mallory Type TT.
C5	19A115680P109	Electrolytic: 120 $\mu$ f +150% -10%, 26 VDCW; sim to Mallory Type TT.
C6*	19A115680P6	Electrolytic: 50 $\mu$ f +150% -10%, 50 VDCW; sim to Mallory Type TT. Added by REV A.
CR1 and CR2	4037822P1	DIODES AND RECTIFIERS Silicon.
R1	3R77P222K	RESISTORS Composition: 2200 ohms $\pm$ 10%, 1/2 w.
R2	3R77P563K	Composition: 56,000 ohms $\pm$ 10%, 1/2 w.
R3	3R77P153K	Composition: 15,000 ohms $\pm$ 10%, 1/2 w.
R4	3R77P391K	Composition: 390 ohms $\pm$ 10%, 1/2 w.
R5	19B209358P8	Variable, carbon film: approx 100 to 50,000 ohms $\pm$ 20%, 0.25 w; sim to CTS Type U-301.
R6	3R77P220K	Composition: 22 ohms $\pm$ 10%, 1/2 w.
R7	3R77P682K	Composition: 6800 ohms $\pm$ 10%, 1/2 w.
		TRANSISTORS
Q1	19A115300P1	Silicon, NPN; sim to Type 2N3053.
Q2	19A115562P1	Silicon, PNP.
Q3	19A115300P1	Silicon, NPN; sim to Type 2N3053.
		INDUCTORS
L1*	19A115688P1	Reactor: 2.5 mh ind, 0.5 ohm DC res max, 20 VDC operating. Added by REV A.
		TRANSISTORS
Q4 and Q5	19A116203P3	Silicon, NPN.
		MISCELLANEOUS
	19A115222P3	Insulator, bushing. (Used with Q4 and Q5).
	19A116023P2	Insulator, plate. (Used with Q4 and Q5).
	4038555P1	Insulator, disc: nylon. (Used with Q1-Q3).
	4035439P1	Heat Sink. (Used with Q3).

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. - Transmitter-Receiver Top Panel 19D402599-G6

To incorporate an improved relay. Changed K901.

REV. A. - Control Unit (Models 48C68A12, 13, 16 & 17

To eliminate noise in receiver. Deleted jumper between TB701-14 & TB701-17 and jumper between TB701-17.

REV. A - 10 Watt Amplifier Board 19C317598G1

To add filtering. Added C6 and L1.

REV. B - Transmitter-Receiver Top Panel 19D402599-G6

To incorporate a new transistor. Changed Q901.

\*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

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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.

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# **MAINTENANCE MANUAL**

LBI-4047

DF-5025

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MOBILE RADIO DEPARTMENT  
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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