MOBILE RADIO

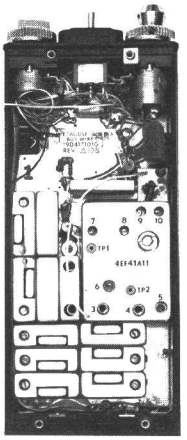
MASTR Personal Series

PROGRESS LINE

PE MODELS

SYSTEMS BOARD AND CASE ASSEMBLY 19D417330G2, G3

FOR RECEIVERS WITH DUAL FRONT END



SYSTEM BOARD AND CASE ASSEMBLY 19D417330G2, G3

SPECIFICATIONS *

MODEL NUMBERS

19D417330G2, G3

CONTROLS:

450-512 MHz

Volume ON-OFF Switch

Squelch Control

Multi-Frequency Switch
PTT Switch
Tone Option Switch

Accessory Jack
Collapsible Antenna

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

GENERAL ELECTRIC

TABLE OF CONTENTS

ILLUSTRATIONS

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage; or to connect any external apparatus to the units while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS.

DESCRIPTION

Dual Front End (DFE) system board A702/A703 provides system interconnections for the transmitter, receiver, tone options and operating controls. In addition to the transmitter and receiver oscillator modules, the system board contains the system relay, and the audio and DC switching circuitry.

Jacks J702 and J703 are connected to the system board and provide contacts for an external antenna, speaker, and microphone. J702 provides contacts for the external antenna and speaker, and J703 provides contacts for an external microphone. Placing the radio into the vehicular charger automatically connects the jack contacts to the external circuitry. The radio is also connected to the external antenna when placed in the desk charger.

CIRCUIT ANALYSIS

AUDIO SWITCHING

Audio switching for the Speaker/Microphone LS1 is controlled by diode CR5 as shown in Figure 1.

Pressing PTT switch S701 forward biases diode CR5, permitting audio from LS1 to be applied to transmitter audio module A1.

Keying the external microphone permits audio to be applied directly to the Transmitter audio module.

DC SWITCHING

Operation of system relay K1 is controlled by diode CR2 (see Figure 2).

Pressing S701 forward biases CR2, completing the relay path to ground. This energizes relay K1, and switches the battery voltage to the transmitter audio and regulator modules. Energizing K1 also connects the transmitter output to the antenna.

Keying the external microphone directly energizes relay K1.

REPEATING OSCILLATOR MODULES

Both the transmitter and receiver can be adapted to repeat the use of the same frequency without the use of additional oscillator modules. The oscillator module is replaced by a diode, allowing the multi-frequency switch to have the same frequency on one or more switch positions even though only one oscillator module is used for each of the repeated channels. A typical diagram with repeated oscillator modules is shown in Figure 3.

Complete instructions for multi-frequency modifications are contained in the Multi-Frequency Modification diagram (see Table of Contents). Transmit oscillator modules may be repeated exclusively. Unless Search Lock Monitor (SLM) is provided, receive oscillator modules F1 and F2 may be repeated and F3, F4 and F5 may be repeated.

When SLM is provided receive oscillator modules F1, F2 and F4 may be repeated. The maximum number of receive frequencies is four.

For radios equipped with Channel Guard and Type 90 or Type 99 Encoders/Decoders, repeating Oscillator Modules also permit switching or disabling tones on the same RF frequency with the multi-frequency switch. Also the tone and RF frequency can be changed at the same time.

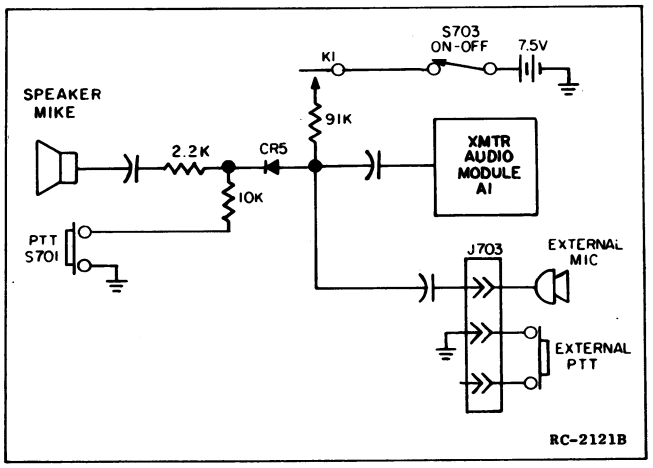


Figure 1 - Audio Switching Circuit

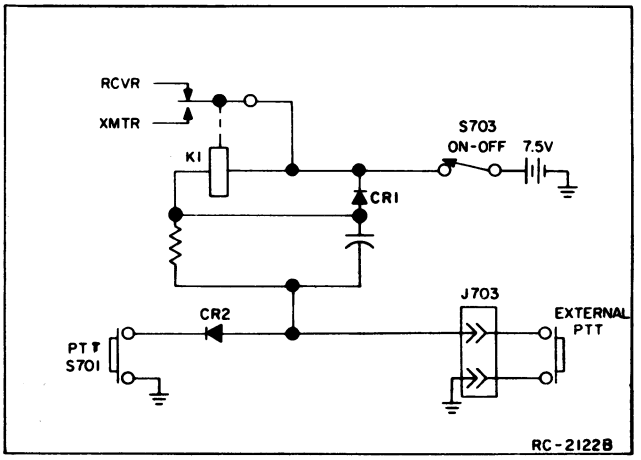


Figure 2 - DC Switching Circuit

MULTI-FREQUENCY SWITCH

Multi-frequency switch S1 simultaneously selects the transmit/receive oscillator modules and the correct receiver front end. A maximum of fine transmit and receive frequencies may be provided. (A sixth receive frequency can be provided as a special option.) Five transmit oscillators and three receive oscillator modules are located on the systems board; the remaining two receive oscillators are located on the receiver and interconnected to the systems board via P705 and J18 and J19.

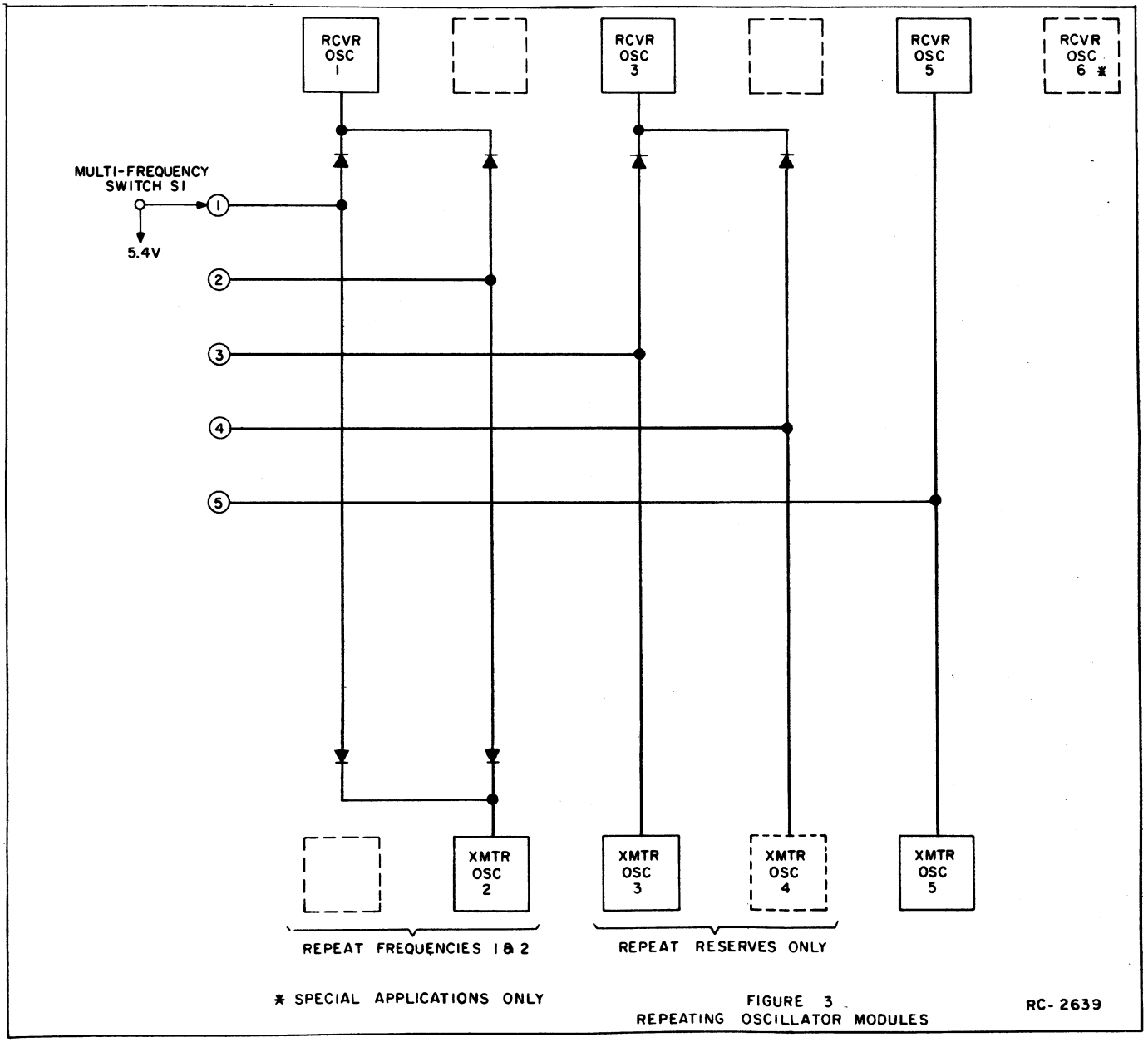
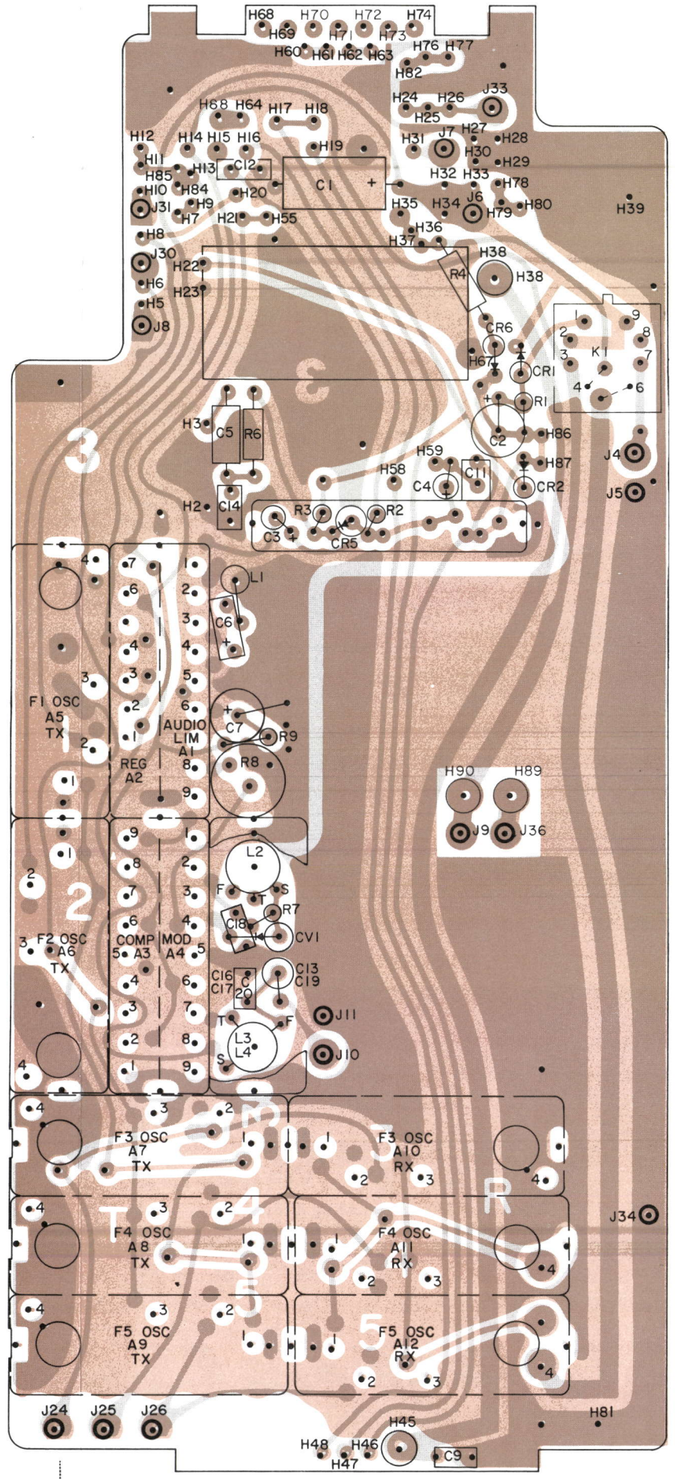
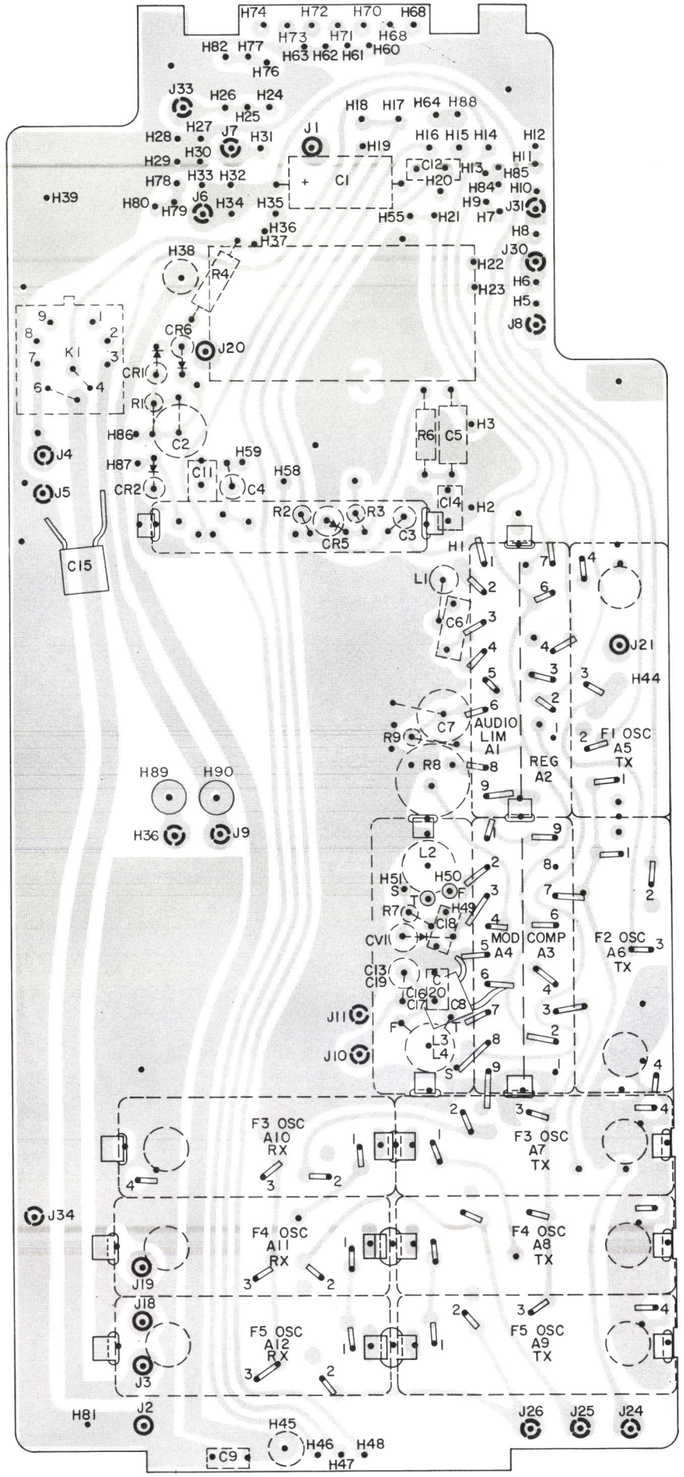


Figure 3 - Repeating Oscillator Modules

COMPONENT SIDE



SOLDER SIDE



RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE

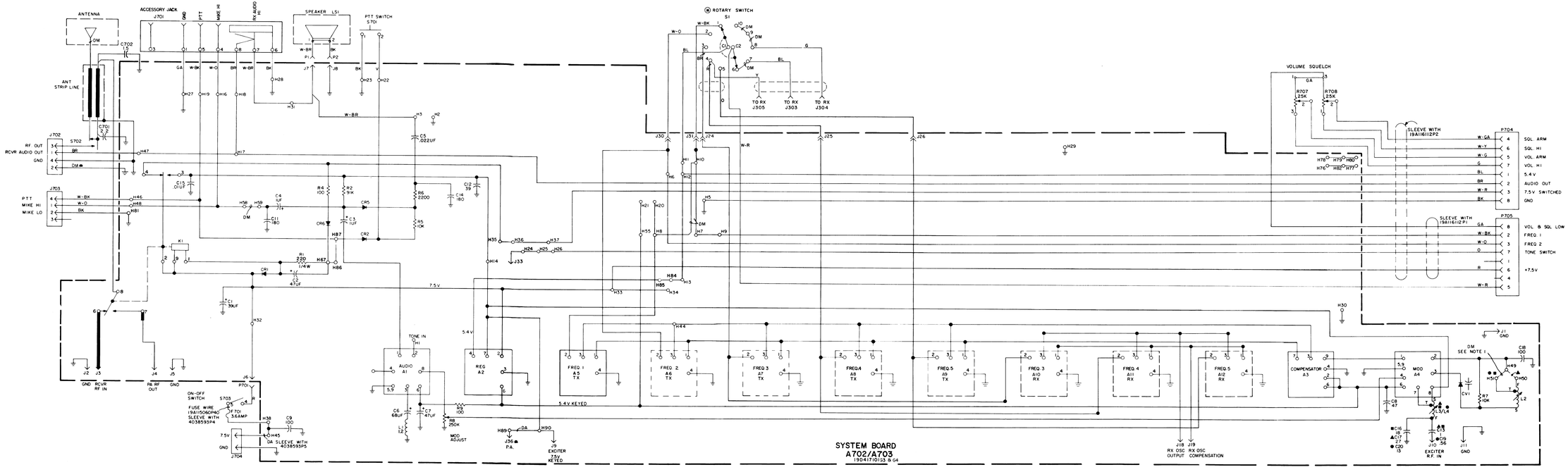
OUTLINE DIAGRAM

450—512 MHz SYSTEM BOARD

(19D417006, Sh. 2, Rev. 3)
(19D417006, Sh. 3, Rev. 3)

(19D417965, Rev. 1)

(19D417006, Sh. 2, Rev. 3)



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
PLI9041710G3	A
PLI9041710G4	A
PLI9041733G02	A
PLI9041733G03	A

ALL RESISTORS ARE 1/8 WATT UNLESS OTHERWISE SPECIFIED. RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG =1000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (DELOW) TO MICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS, INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

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

NOTES:
1. ●USED IN HI POWER UNITS ONLY
■USED IN 450 EXT 470-512 MHZ
▲USED IN LOW SPLIT 406-420 MHZ
◆USED IN HI SPLIT 400-470 MHZ
2. DA - #22AWG
3. ⓉTHESE ITEMS ARE PART OF KIT 19A129890G1
4. DM - #26AWG

SCHEMATIC DIAGRAM

450—512 MHz SYSTEM BOARD

PARTS LIST

LBI-4765

SYSTEM BOARD/CAGE ASSEMBLY
19D417230G02 HIAL FRONT END
19D417230G3 HIAL FRONT END EXT.
AND
ASSOCIATED ASSEMBLIES

SYMBOL	GE PART NO.	DESCRIPTION
		SYSTEM BOARD A702 19D417101G3 DPE A703 19D417101G4 DPE EXT.
A1	19C330062G1	Transmitter Audio Module.
A2	19C311905G2	Regulator Module.
A3	19C330060G1	Oscillator Compensator Module.
A4	19C320084G1	Modulator Module.
		NOTE: When reordering A5, A6, A7-A8 give GE Part Number and exact crystal frequency. Crystal Freq= Operating Freq. 24
A5 thru A9	4EG27A11	Transmitter Oscillator.
		NOTE: When reordering A10-A12, give GE Part Number and exact crystal frequency.
		450-512 MHz crystal Freq= Fo-20 31
A10 thru A13	4EG28A13	Receiver/DPE Oscillator. (450-512 MHz).
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	5491674P30	Tantalum: 39 pf ±20%, 10 VDCW; sim to Sprague Type 162D.
C2	5491674P42	Tantalum: 47 pf ±20%, 6 VDCW; sim to Sprague Type 162D.
C3 and C4	5491674P1	Tantalum: 1.0 pf +40-20%, 10 VDCW; sim to Sprague Type 162D.
C5	19A116264P2	Ceramic: 0.022 pf ±20%, 50 VDCW.
C6	19C907102P19	Tantalum: 68 pf ±20%, 4 VDCW.
C7	5491674P42	Tantalum: 47 pf ±20%, 6 VDCW; sim to Sprague Type 162D.
C8	19A116114P7053	Ceramic: 47 pf ±5%, 100 VDCW; temp coef -750 PPM.
C9	19A116114P7065	Ceramic: 100 pf ±5%, 100 VDCW; temp coef -150 PPM.
C11	19A116114P10073	Ceramic: 180 pf ±10%, 100 VDCW; temp coef -3300 PPM.
C12	19A116114P3049	Ceramic: 39 pf ±10%, 100 VDCW; temp coef -80 PPM.
C13	5491601P130	Phenolic: 1.0 pf ±5%, 500 VDCW.
C14	19A116114P10073	Ceramic: 180 pf ±10%, 100 VDCW; temp coef -3300 PPM.
C15	19A116192P1	Ceramic: 0.01 pf ±20%, 50 VDCW; sim to Erie 8121-000-X5R.
C18	19A116114P8065	Ceramic: 100 pf ±5%, 100 VDCW; temp coef -1500 PPM.
C19	5491601P115	Phenolic: 0.56 pf ±5%, 500 VDCW.
C30	19A116114P2035	Ceramic: 13 pf ±5%, 100 VDCW; temp coef -80 PPM.
		- - - - - - - - - DIODES AND RECTIFIERS - - - - - - - - -
CR1	19A115250P1	Silicon.
CR2	5485922P1	Silicon; sim to Type 1N1200A.
CR5	5485922P1	Silicon; sim to Type 1N1200A.
CR6	19A115250P1	Silicon.
CY1	5485769P9	Silicon, capacitive.

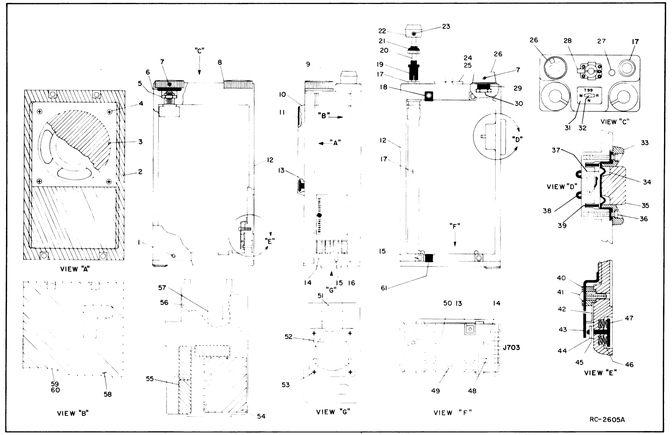
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - JACKS AND RECEPTACLES - - - - - - - - -
J1 thru J5	19A116366P4	Contact, electrical: sim to Concord 10-891-1.
J6 thru J8	19A116366P2	Contact, electrical: sim to Cambion 3233-1.
J9 thru J11	19A116366P4	Contact, electrical: sim to Concord 10-891-1.
J18 and J19	19A116366P4	Contact, electrical: sim to Concord 10-891-1.
J24 thru J26	19A116366P4	Contact, electrical: sim to Concord 10-891-1.
J30 and J31	19A116360P4	Contact, electrical: sim to Concord 10-891-1.
J33 and J34	19A116366P2	Contact, electrical: sim to Cambion 3233-1.
J36	19A116366P4	Contact, electrical: sim to Concord 10-891-1.
		- - - - - - - - - - RELAYS - - - - - - - - - -
K1	19B209562P1	Hermetic sealed: 98 ohms ±10%, 2 form C contacts, 8.0 VDC nominal, 1.0 w max operating sim to Wabco 93430101-96.
L1	19B209420P114	Coil, RF: 1.30 uh ±10%, 0.18 ohms DC res max; sim to Jeffers 4434-1.
L2	19A127798G1	Coil: 6.05-6.9 ph.
L3	19B219537G1	Coil.
L4	19B219537G3	Coil.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	3R152P221J	Composition: 220 ohms ±5%, 1/4 w.
R2	3R151P913J	Composition: 91,000 ohms ±5%, 1/8 w.
R4	3R151P101K	Composition: 100 ohms ±10%, 1/8 w.
R5	3R151P103J	Composition: 10,000 ohms ±5%, 1/8 w.
R6	3R151P222J	Composition: 2200 ohms ±5%, 1/8 w.
R7	3R151P103J	Composition: 10,000 ohms ±5%, 1/8 w.
R8	19A116412P4	Variable, cermet: 250,000 ohms ±10%, 1/2 w; sim to Bolipot Model 63 2P.
R9	3R151P101K	Composition: 100 ohms ±10%, 1/8 w.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C701	19A116114P2007	Ceramic: 2.2 pf ±5%, 100 VDCW; temp coef -80 PPM.
C702	19A116114P4	Ceramic: 1.5 pf ±5%, 100 VDCW; temp coef 0 PPM.
		- - - - - - - - - - FUSES - - - - - - - - - -
F701	19A127884G1	Fuse Kit.
		- - - - - - - - - JACKS AND RECEPTACLES - - - - - - - - -
J701	19B216594G2	Connector, female: 6 contacts.
J702		See Mechanical Parts RC-2605 items 14, 16.
J703		See Mechanical Parts RC-2605 items 14, 48.
J704		See Mechanical Parts RC-2605 items 51-53.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P701	19A115834P4	Contact, electrical: sim to AMP 2-332070-9.
P704 and P705	19A127569P1	Plug: 8 contacts.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R707	19A116227P1	Resistor/Switch: variable, carbon film, 25,000 ohms ±20%, 1/8 w, (Includes S703), SPST, 3 amps at 125 VAC.
R708	19A116227P2	Variable, carbon film: 25,000 ohms ±20%, 1/8 w.
R709	3R151P152K	Composition: 1500 ohms ±10%, 1/8 w.
R710	3R151P103K	Composition: 10,000 ohms ±10%, 1/8 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S701		See Mechanical Parts RC-2605 items 33-39.
S702		See Mechanical Parts RC-2605 items 40-47.
S703		(Part of R707).
		FRONT END 19C317295G6 450-470 MHz 19C317295G7 470-512 MHz
A6 and A11		CONVERSION BOARD A6 19C317445G4 450-470 MHz A11 19C317445G5 470-512 MHz
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C5	5485323P13	Ceramic: .001 pf ±100% -20%, 75 VDCW.
C6 and C7	19A116114P4059	Ceramic: 68 pf ±5%, 100 VDCW; temp coef -220 PPM.
C8	19A116114P6038	Ceramic: 18 pf ±5%, 100 VDCW; temp coef -470 PPM.
C10	19A116114P2014	Ceramic: 4 pf ±5%, 100 VDCW; temp coef -80 PPM.
C11	19A116114P2033	Ceramic: 13 pf ±5%, 100 VDCW; temp coef -80 PPM.
C12	19A116114P2012	Ceramic: 3.3 pf ±5%, 100 VDCW; temp coef -80 PPM.
C13	19A116114P2020	Ceramic: 6 pf ±5%, 100 VDCW; temp coef -80 PPM.
C14	19A116264P1	Ceramic: 0.0047 pf ±20%, 50 VDCW.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L2	19B219648G1	Coil.
L3	19A128005G1	Coil. Includes:
	19B209436P1	Tuning slug.
L4	19A128005G3	Coil. Includes:
	19B209436P1	Tuning slug.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 and Q2	19A116159P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R4	3R151P304J	Composition: 0.30 megohm ±5%, 1/8 w.
R5	3R151P101J	Composition: 100 ohms ±5%, 1/8 w.
R6	3R151P562J	Composition: 5600 ohms ±5%, 1/8 w.
R7	3R151P103J	Composition: 10,000 ohms ±5%, 1/8 w.
R8	3R151P223J	Composition: 22,000 ohms ±5%, 1/8 w.
R9	3R151P682J	Composition: 6800 ohms ±5%, 1/8 w.
R10	3R151P183J	Composition: 1800 ohms ±5%, 1/8 w.
R11	3R151P223J	Composition: 22,000 ohms ±5%, 1/8 w.
R12	3R151P682J	Composition: 6800 ohms ±5%, 1/8 w.
R13	3R151P393J	Composition: 3900 ohms ±5%, 1/8 w.
R14	3R151P103J	Composition: 10,000 ohms ±5%, 1/8 w.
R15	3R151P103J	Composition: 1000 ohms ±5%, 1/8 w.
R16	3R151P333J	Composition: 33,000 ohms ±5%, 1/8 w.
A10		MULTIPLIER BOARD 19C311873G7
		- - - - - - - - - CAPACITORS - - - - - - - - -
C3	5485323P12	Ceramic: .001 pf +100% -20%, 75 VDCW.

SYMBOL	GE PART NO.	DESCRIPTION
C13	19A116114P2038	Ceramic: 18 pf ±5%, 100 VDCW; temp coef -80 PPM.
C14	19A116114P2054	Ceramic: 51 pf ±5%, 100 VDCW; temp coef -80 PPM.
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR2	19A116809P1	Silicon.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L3	19B216296P3	Coil.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R7	3R151P562J	Composition: 5600 ohms ±5%, 1/8 w.
R8	3R151P586J	Composition: 5.6 ohms ±5%, 1/8 w.
R10	3R151P562J	Composition: 5600 ohms ±5%, 1/8 w.
A11		(See A6).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L16	19B216439G7	Helical resonator. Includes:
	19C311750P1	Tuning slug.
L17	19B216439G2	Helical resonator. Includes:
	19C311750P1	Tuning slug.
L18	19B216439G1	Helical resonator. Includes:
	19C311750P1	Tuning slug.
L19	19B216439G4	Helical resonator. Includes:
	19C311750P1	Tuning slug.
L20	19B216439G3	Helical resonator. Includes:
	19C311750P1	Tuning slug.
L21	19B216439G16	Helical resonator. Includes:
	19C311727P1	Tuning slug.
L22	19B216439G12	Helical resonator. Includes:
	19C311727P1	Tuning slug.
L23	19B216439G13	Helical resonator. Includes:
	19C311727P1	Tuning slug.
L24	19B216439G15	Helical resonator. Includes:
	19C311727P1	Tuning slug.
L25	19B216439G14	Helical resonator. Includes:
	19C311727P1	Tuning slug.
		- - - - - - - - - - NETWORKS - - - - - - - - - -
Z16		Consists of L16 and can 19D413132P24.
Z17		Consists of L17 and can 19D413132P9.
Z18		Consists of L18 and can 19D413132P25.
Z19		Consists of L19 and can 19D413132P19.
Z20		Consists of L20 and can 19D413132P20.
Z21		Consists of L21 and can 19D413132P24.
Z22		Consists of L22 and can 19D413132P3.
Z23		Consists of L23 and can 19D413132P25.
Z24		Consists of L24 and can 19D413132P18.
Z25		Consists of L25 and can 19D413132P20.
		ASSOCIATED ASSEMBLIES
		FRONT COVER ASSEMBLY 19C317416G2
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS1	19A116090P1	Permanent magnet: 2.00 inch, 8 ohms ±10% voice coil imp, 450 Hz ±112 Hz resonant; freq range 400 to 3000 Hz.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1 and P2	19A115834P4	Contact, electrical: sim to AMP 2-332070-9.
		MULTI-FREQUENCY MODIFICATION KIT 19A128980G1 STD 19A128980G2 SLM 19A128980G3 1 RX FREQ on RX BOARD
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19B226086G1	Switch Assembly. STD
S1	19B226086G2	Switch Assembly. SLM
S1	19B226086G3	Switch Assembly. 1 RX FREQ on RX BOARD
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
	5484922P1	Diode, silicon; sim to Hughes 1N456. (Used for repeated frequencies only).
		- - - - - - - - - - MISCELLANEOUS - - - - - - - - - -
	19B216897G3	Rear Cover Assembly. (See RC-2605, items 58, 59).
	19B216897G4	Rear Cover Assembly. Clip type. (See RC-2605, items 58, 60).
	19B219953G4	Antenna Assembly. (See RC-2605, items 19-23).
	19D413522G1	Battery, rechargeable. Nickel Cadmium.
	19A127884G1	Fuse Kit.
	4033831P4	Alignment tool. Fork tip.
	19B219079G1	Alignment tool. Allen tip.
		MECHANICAL PARTS (SEE RC-2605)
1	19A116543P1	Cap screw, socket head: No. 2-56 x 1/4.
2	19C317394P4	Gasket.
3	19B204327P2	Graticule: No. 2 inches dia.
4	9661P5003C13	Screw, phillips head: No. 2-56 x 1/8.
5	19A127319P1	Nut: No. 1/4-32.
6	19A115983P5	Seal, "O" ring: sim to Parker Seal 2-13.
7	R70P702C13	Set screw: No. 3-48 x 1/8.
8	19C317065P1	Knob. (SQUELCH, ON-OFF-VOLUME).
9	19B219953G4	Antenna assembly. (Includes items 19-23).
10	19D413531P2	Spirile.
11	NP270290P2	Nameplate. (GE monogram).
12	19D413542G2	Case assembly. (Includes items 14, 15, 18, 27, 33-39, 48, 49).
13	19B216858P1	Insert.
14	19A127753P1	Contact. (Part of J702 and J703).
15	19A116719P1	Insert, screw thread: No. 2-56.
16	19B216862P2	Contact. (Part of J702).
17	19A127779G3	Antenna tube.
18	19B216875P1	Support.
19	19C329353P1	Bushing (Part of item 9).
20	19B219650P1	Antenna rod. (Part of item 9).
21	19A129652P1	Nut, knurled: thd size 7/16-40. (Part of item 9).
22	19A129646P1	Antenna Cap. (Part of item 9).
23	R70P703C13	Set screw: No. 3-48 x 3/16. (Part of item 9).
24	19C317050P1	Protective Cover.
25	19A129390P1	Disc.
26	19C311888P2	Knob.

SYMBOL	GE PART NO.	DESCRIPTION
27	19A129723P1	Rivet.
28	19B219540P1	Catch.
29	19B216520P4	Washer, nylon: 1/4 inch.
30	19A127319P2	Nut: No. 1/4-28.
31	19B216926P8	Decorative cap. (TYPE 99).
32	19C330721P1	Seal. (Used with TYPE 99 Switch).
33	19C330559P1	Collar. (Part of S701).
34	19C330558P1	Diaphragm. (Part of S701).
35	19C330560P1	Button. (Part of S701).
36	R41P1004	Screw, slotted, steel: No. 0-80 x 1/4. (Part of S701).
37	19A129733P1	Contact plate. (Part of S701).
38	19B219961G1	Contact. (Part of S701).
39	19A129734P1	Spring. (Part of S701).
40	19B216865P1	Insulator (Part of S702).
41	R64P5004C	Cap screw: 2-56 x 1/4. (Part of S702).
42	19B216864P1	Contact (Part of S702).
43	19B216863P1	Spring contact. (Part of S702).
44	9910P9C13	Retaining ring. (Part of S702).
45	19A129734P1	Gasket (Part of S702).
46	19A127755P1	Spring (Part of S702).
47	19B216862P1	Contact (Part of S702).
48	R330P605F22	Eyelet, brass: 1/16 x 5/32.
49	R330P602F22	Eyelet, brass: 1/16 x 1/16.
50	19A127729P1	Strap.
51	19B216891G1	Spring assembly. (Part of J704).
52	19D413467P1	Fastener (Part of J704).
53	R83P5005E	Flat head screw: brass, 2-56 x 5/16. (Part of J704).
54	19B219443P1	Insulator, pressure sensitive.
55	19C311491P3	Can. (Used with Regulator, Oscillator Compensator, and Compressor Circuits).
56	19B219510P1	Insulator. (Located between System and Receiver Boards).
57	19A116270P1	Tape, pressure sensitive. (Specify length).
58	19C317394P6	Gasket.
59	19B216897G3	Rear Cover Assembly (without clip).
60	19B216897G4	Rear Cover Assembly (with clip).
61	19A130397P1	Strap.



*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

MULTI-FREQUENCY MODIFICATIONS

(19D417349, Sh. 1, Rev. 1 & Sh. 2, Rev. 1)

The multi-frequency modifications include instructions for adjusting the stop post on multi-frequency switch S1, for adding oscillator modules, for repeating frequencies, and repeating oscillator modules.

1- STOP POST ADJUSTMENT

CAUTION

Due to the small size of the stop posts, be very careful when making adjustments to avoid losing the stops.

1. Remove the multi-frequency switch as directed in the Disassembly Procedure. (Refer to combination manual).
2. Turn the shaft fully counterclockwise as viewed from the knob end.
3. Unscrew the panel seal to gain access to the stop post (see Figure 1).
4. Install the stop post in the appropriate hole as shown in the following chart.

NO. OF FREQ.	MOVE ADJUSTABLE STOP	
	FROM	TO
2	H5	H2
3	H5	H3
4	H5	H4

5. Replace the panel seal with the side marked "Bottom" against surface "Z".
6. Re-install the Multi-frequency Switch.

2- ADDING OSCILLATOR MODULES

1. After completing the stop post adjustment, connect the leads from multi-frequency switch S1 as shown in the following chart (see Figure 2 for connection points). Tape back all unused leads.

CONNECTION CHART		
FROM	TO	WIRE COLOR
S1-C1	H11	SPT-BL
S1-1	J31	SPT-W-BK
S1-2	J30	SPT-W-O
S1-3	J24	BR
S1-4	J25	R
S1-5	J26	G
S1-C2	P705-5	SPT-W-R
S1-7	J303	BL
S1-8	J304	C
S1-9	J305	Y

* These connections not made in radios equipped with SLM.

NOTE

ALL WIRE AND JUMPER CONNECTION UNLESS OTHERWISE SPECIFIED SHOULD BE MADE WITH WIRE 19A115060P30 AND SLEEVED WITH 4038993P4.

2. Place the oscillator module(s) in the proper holes (see Figure 2). Then bend over tabs on the can in direction shown and solder to the adjacent pads (see Figure 3).
3. Bend the leads of the oscillator module as shown in Figure 3 (or appropriate Outline Diagram) and solder to the adjacent pads.
4. For two or more transmitter frequencies and one receiver frequency, remove the jumper from H7 to H10 and add a sleeved jumper (#26 AWG) from H7 to H13 on the Systems Board.
5. For two or more receiver frequencies and one transmitter frequency, remove the jumper from H8 to H10 and add a sleeved jumper (#26 AWG) from H20 and H21 on the Systems Board.

3- REPEATING FREQUENCIES

For repeating both transmitter and receiver frequencies without adding additional oscillator modules, add a sleeved jumper (#26 AWG) between the frequencies to be repeated. For example, if transmitter and receiver channels 1 and 5 are to be repeated, add the jumper from S1-1 to S1-5.

4- REPEATING OSCILLATOR MODULES

To repeat frequencies for the trapsmitter only or the receiver only, diodes can be used in place of oscillator modules.

NOTE

Transmitters may share oscillators exclusively. Receiver oscillators are restricted as follows: receiver oscillators 1 and 2 (on Rx board) may share oscillators and receiver oscillators 3, 4 and 5 (on system board) may share oscillators.

In radios equipped with SLM receiver oscillators 1, 2 and 4 (on receiver board) may share oscillators. Receive oscillators 4 and 5 on system board are replaced by SLM module.

1. Set the stop on S1 and install the oscillator modules whose frequencies are not to be repeated as directed in Section I and II.
2. Install the oscillator(s) whose frequencies are to be repeated as directed above except solder the Number 2 pin to the "E" pad instead of the "P" pad (see Figure 3).
3. For every channel that a frequency is being repeated, assemble a diode (5494922P1) in the space normally intended for the oscillator module by putting the anode lead in the Number 2 hole, bending it over and soldering to the "P" pad. The cathode lead will be terminated later.
3. For each different frequency that is repeated, an additional diode (5494922P1) is to be assembled in respective channel closest to the oscillator module being repeated. Assemble the diode in the Number 1 hole, anode lead down and sleeved, and connect to the associated "E" pad. Then run the jumper from this pad to the "P" pad of related oscillator module.

The cathode end of the diodes should be connected together using mid air connections. Make the connection and run the wire down the side of the diode along the component side of the board to the next diode, and so on until all cathodes are connected together. Route these wires to give the shortest connections. Now connect a lead to the cathode of the diode that is closest to the repeated oscillator module and run this lead down the side of the diode and through any empty hole or slot to the solder side of the board, and connect the lead to the "E" pad of the oscillator module. Next sleeve the diodes as shown in Figure 4.

Example: Channel 3 and 4 to be same as Channel 1.
Channel 1 and 5 to be same as Channel 2.

NOTE

This example applies to transmitter frequencies only.

1. Assemble the oscillator module in Channels 1 and 2 as normal except connect the Number 4 lead to the "E" pad instead of "P" pad.
2. Assemble (1) diode in the Number 4 hole, anode lead down, in each of Channels 1, 3, 4, 5, and solder to "P" pads.
3. Since two frequencies are being repeated, two additional diodes will be required, one in the Number 3 hole of Channel 3 and the other in the Number 3 hole of Channel 5. Sleeve, bend, and solder leads to the "E" pad. Connect jumper between the "E" pad of the Number 3 Channel and "P" pad of oscillator module Number 1. Connect a jumper between the "E" pad of Number 5 Channel and "P" pad of oscillator module Number 2.
4. Connect the top lead (cathode) of diodes (3) in Channel 3 and 4 to each other by soldering jumper wire to leads, dressing the wire down the side of the diodes and along the board. Connect a jumper from the top of diode in the Number 1 hole of Channel 3 to the "E" pad of oscillator module Number 1. Run the wire down through the board using any available hole or slot to the solder side. Connect the jumper from the diode in Channel Number 5 to oscillator module Number 2 in the same manner.

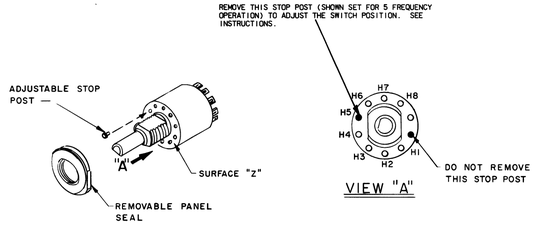
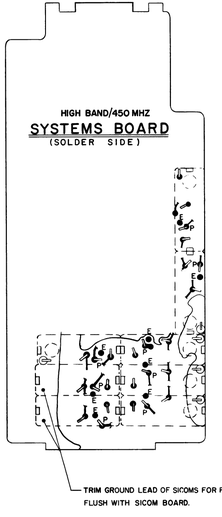
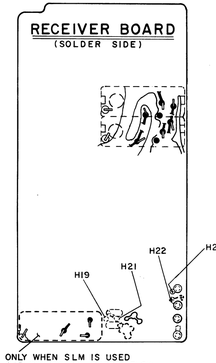


Figure 1 - Stop Post Adjustment





SLM CONNECTION CHART			
FROM	TO	WIRE	COMMENTS
H19	H20	DM	SLEEVE WITH A4038593P4
H21	H22	DM	SLEEVE WITH A4038593P4

(19D417349, Sh. 2, Rev. 1)

Figure 2 - Oscillator Module and Diode Installation

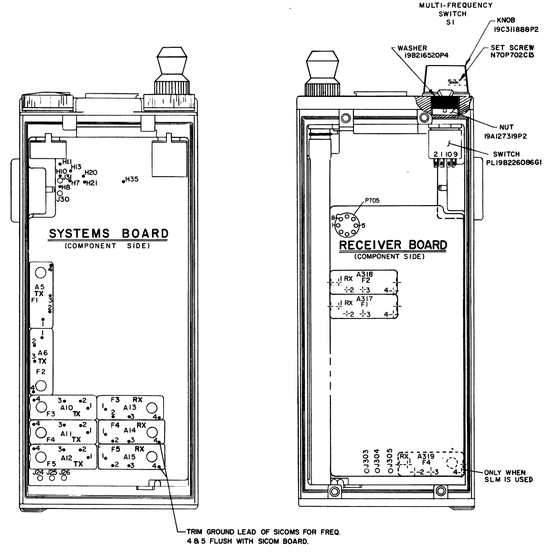
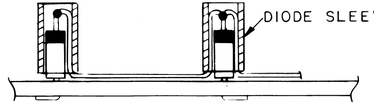


Figure 3 - Oscillator Mounting Positions & S1 Connection Points

(19D417349, Sh. 1, Rev. 1)



TYPICAL DIODE MOUNTING

Figure 4 - Typical Diode Mounting

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 description and GE Part Number.

Service parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number for component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired, or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

PRINTED IN U.S.A.