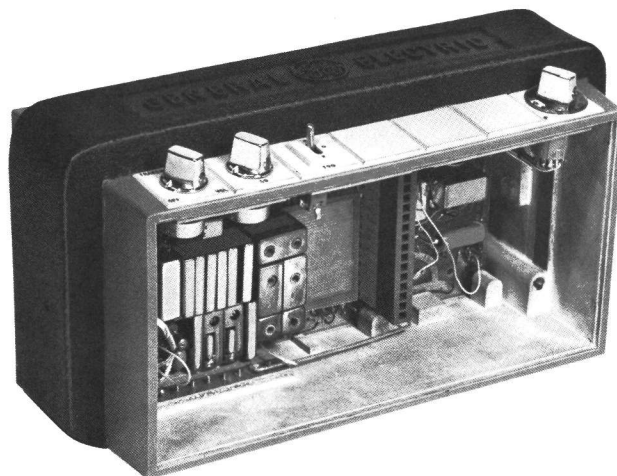


Porta-Mobile II™

MOTORCYCLE

SYSTEMS BOARD AND CASE ASSEMBLY 19D423076G3



SPECIFICATIONS *

CONTROLS:

- Volume ON-OFF Switch
- Squelch Control
- Frequency Selector Switch (for Multi-Frequency operation)
- Option Control Switch(es)

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

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WARNING

Although the highest DC voltage in Porta•Mobil II™ Equipment is supplied by a portable or vehicular battery, high currents may be drawn under short circuit conditions. These currents can possibly heat metal objects such as tools, rings, watchbands, etc., enough to cause burns. Be careful when working near energized circuits! High-level RF energy in the transmitter Power Amplifier assembly can cause RF burns upon contact. Keep away from these circuits when the transmitter is energized!

DESCRIPTION

Porta•Mobile II™ system board A703 is mounted in the center of a Lexan® case assembly and provides interconnections between the transmitter, receiver, audio power amplifier, tone and control options, twelve-position frequency selector switch, squelch control, volume control power OFF-ON switch, microphone and vehicle battery. Mounted on the system board is a standard two-frequency or dual front end receiver, ten receiver oscillator modules, system relay and a tone disable switch.

CIRCUIT ANALYSIS

The 13.8VDC vehicular battery connects through the ignition noise filter to J703 on the bottom of the case assembly. See Figure 1. DC voltage is applied through J703 to the transmitter power control circuit through J708-3, receiver audio power amplifier through J706-5 and to POWER OFF-ON switch S701 through J72. When S701 is in the ON position 13.8 Volts is connected through J16 and fuse F1 to the transmitter power control circuit at J708-2, 7.5 Volt regulator on the receiver audio power amplifier at J706-12 and system relay K1-2. Continuous 7.5 Volts from 7.5 Volt regulator is connected through J706-15 to K1-5

and is applied to the receiver through J706-15 and P722-6. When the Push-To-Talk (PTT) switch is pushed, activating K1, regulated 7.5 Volts is applied to the transmitter exciter through K1-8 and J708-18. Regulated 7.5 Volts is also connected through R3 to LED indicator CR701 and to 5.4 Volt regulator circuit R2 and zener diode VR2. R2 and VR2 provides voltage for tone and control options. A keyed 7.5 Volts is applied to the transmitter power amplifier through J706-13 and J708-4.

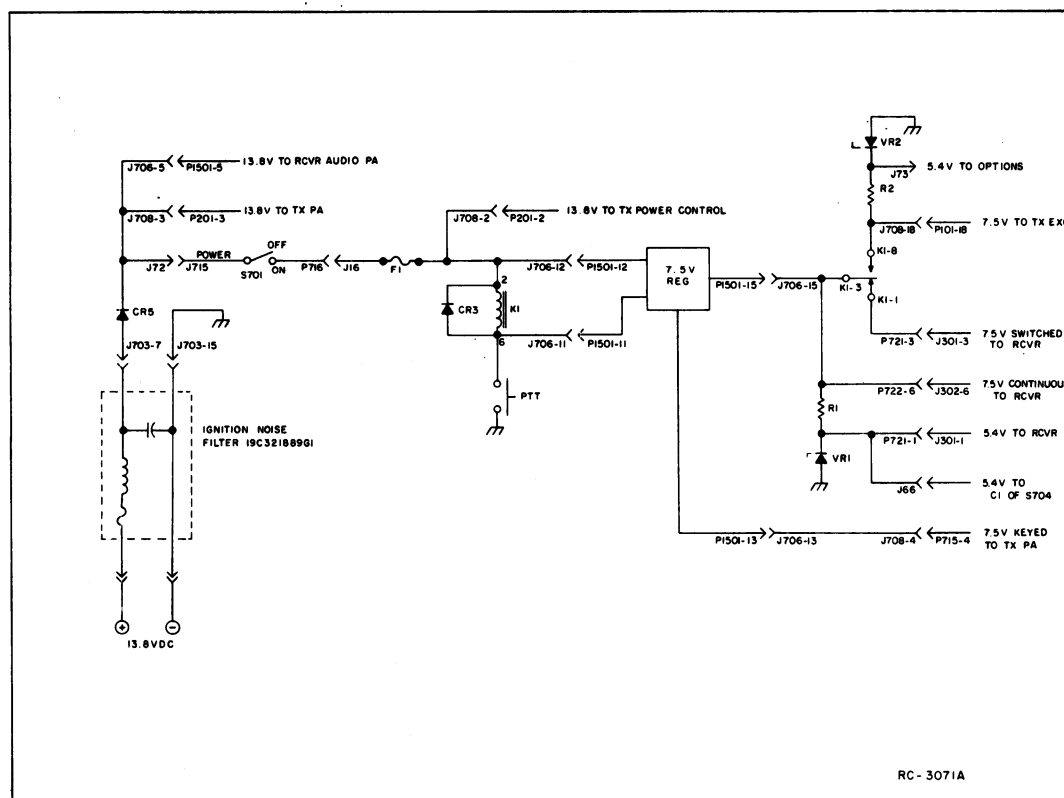
Frequency Switching

To switch from one operating frequency to another operating frequency, 5.4 Volts is switched at Pin 2 of both transmitter and receiver oscillator modules.

A continuous 7.5 Volts is applied to 5.4 Volt regulator circuit R1 and zener diode VR1 through J706-15.

For single frequency operation the regulated 5.4 Volts is connected directly to the receiver oscillator module through P722-2 and directly to the transmitter oscillator module through J708-17.

For two frequency operation the jumper between H39 and H78 is removed and the regulated 5.4 Volts is connected to the cent-



er pole of a two position toggle switch through J66. The 5.4 Volts is switched to receiver oscillator module F1 through J31 and P722-2 and receiver oscillator module F2 through J30 and P22-3. The 5.4 Volts is switched to transmitter oscillator module F1 through J30 and J708-17 and transmitter oscillator module F2 through J31 and J708-16.

For multi-frequency operation the jumper between H39 and H78 is removed and the regulated 5.4 Volts is connected through J66 to C1 of rotary switch S704. S704 switches the 5.4 Volts to oscillator modules F1 through F12 for both the transmitter and receiver.

RF Switching

RF power is connected from the transmitter RF power amplifier to P701 of the system board. P701 is connected to K1-4. RF input to the receiver is connected from K1-5 to J709. The antenna is connected from J702 to K1-7. When the PTT is pushed, keying the transmitter and activating K1, the antenna is switched from the receiver input to the transmitter output.

Tone Disable Switch

When in the receiver mode, regulated 7.5 Volts is applied through K1-3 and K1-1

to the emitter of tone disable transistor Q1. When a tone option control switch places a ground on the base of Q1 through J61 and R6, Q1 will conduct and 7 Volts will be on the collector. The 7 Volts on the collector of Q1 disables the tone option and any incoming signal is monitored by the receiver.

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 frequency selector 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 2.

Complete instructions for multi-frequency modifications are contained in the Multi-Frequency Modifications Diagrams (see Table of Contents).

For radios equipped with Channel Guard, Type 90 Encoders/Decoders or Type 99 Decoder, repeating Oscillator Modules also permits 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.

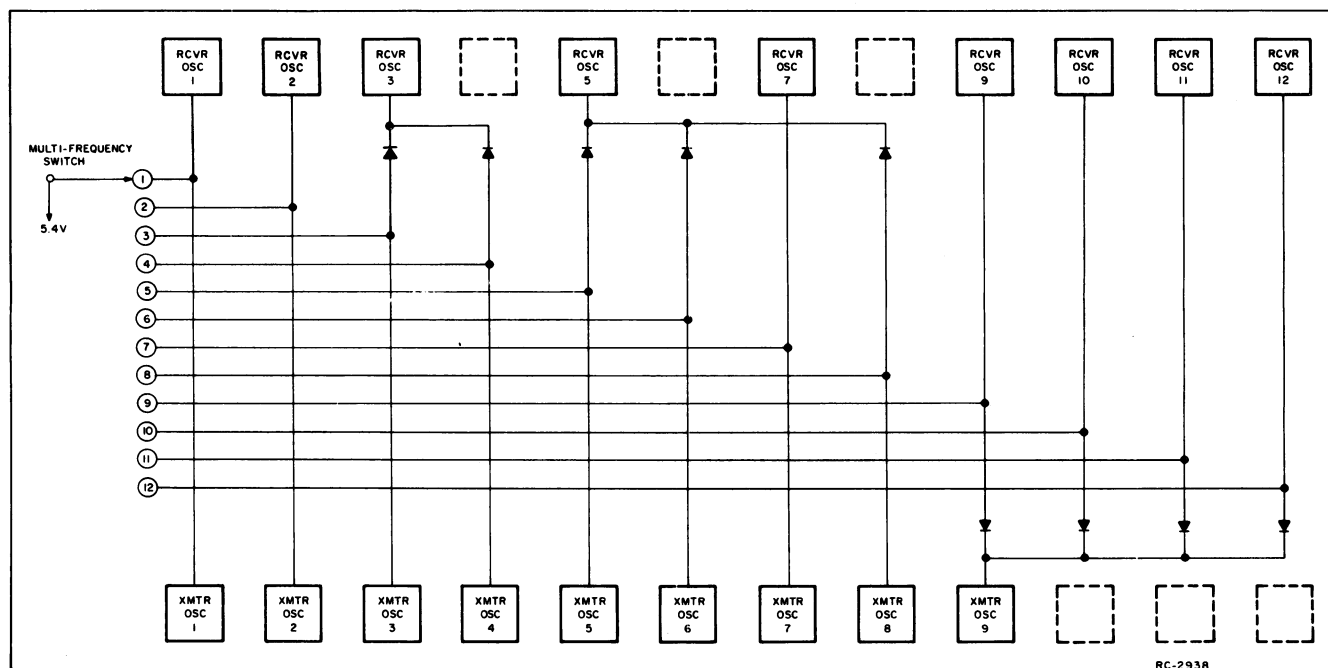


Figure 2 - Repeating Oscillator Modules

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WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

GENERAL ELECTRIC

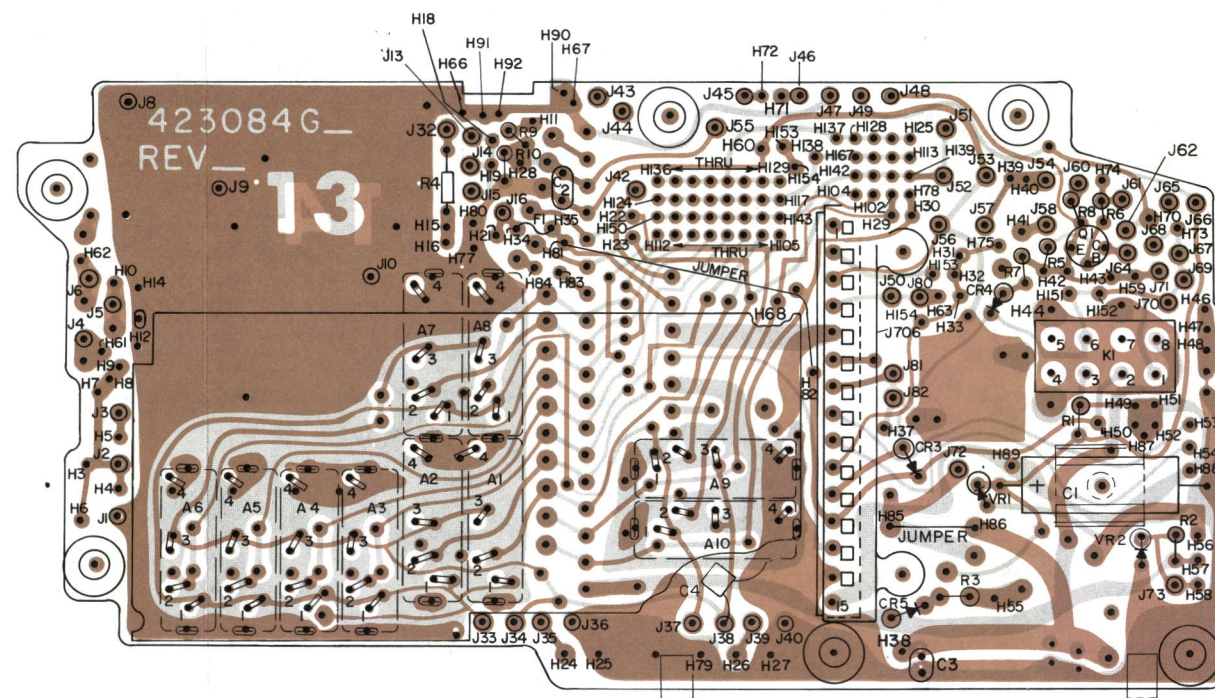
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OUTLINE DIAGRAM

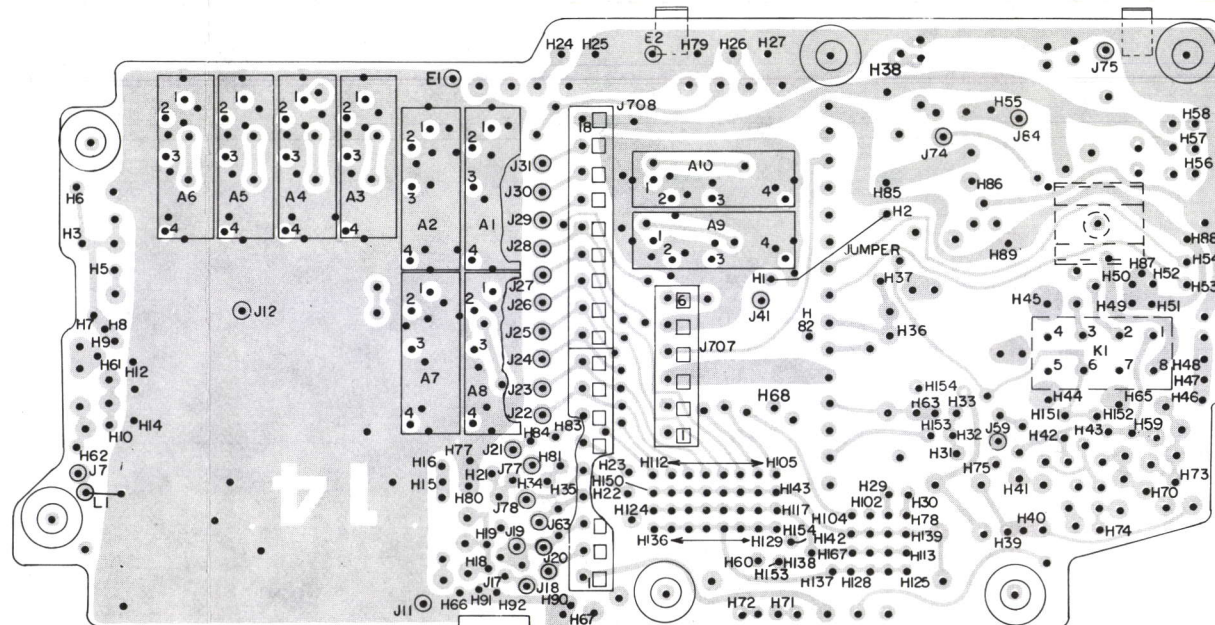
SYSTEM BOARD & CASE ASSEMBLY
19D423076G3

COMPONENT SIDE



(19D423054, Sh. 2, Rev. 14)
(19D423054, Sh. 3, Rev. 13)

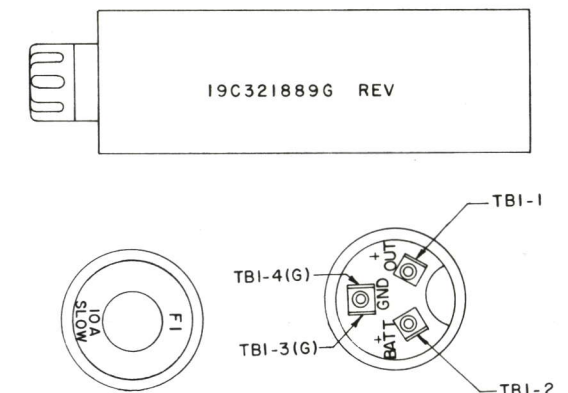
SOLDER SIDE



(19D423054, Sh. 2, Rev. 14)

(19D424526, Rev. 7)

IGNITION NOISE FILTER



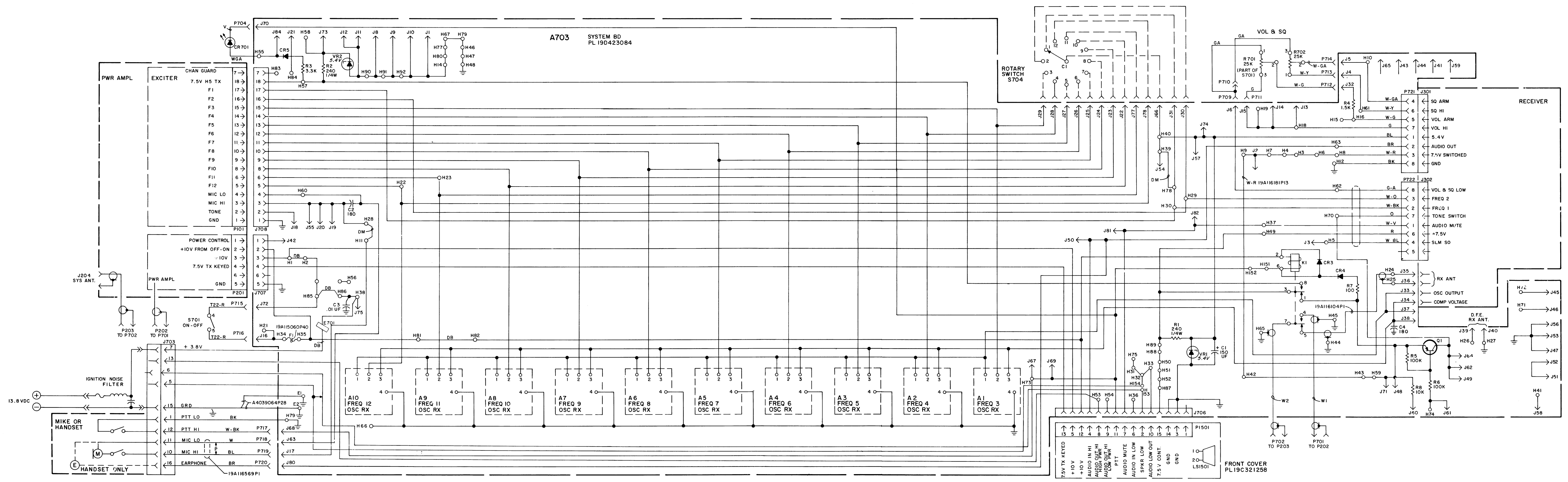
(19B227794, Rev. 0)

LEAD IDENTIFICATION
FOR Q1



TOP VIEW

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



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.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PL 19D423076G3	B
PL 19D423084G4	C

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

NOTE: ALL WIRES SFT-28, UNLESS OTHERWISE SPECIFIED.

SCHEMATIC DIAGRAM

SYSTEM BOARD & CASE ASSEMBLY
19D423076G3

LB130285

PARTS LIST

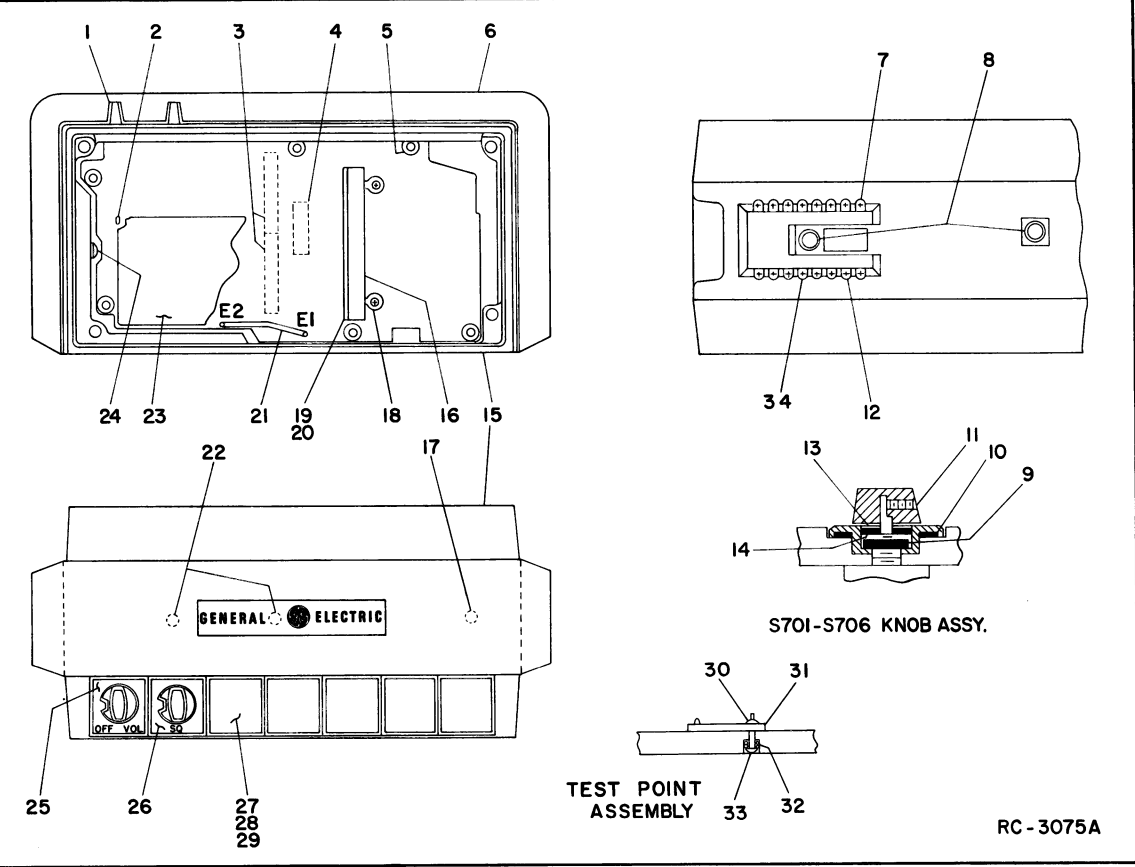
SYSTEM BOARD AND CASE ASSEMBLY
19D423076G3

SYMBOL	GE PART NO.	DESCRIPTION
A703		COMPONENT BOARD 19D423084G4
A1 thru A10		Receiver Module. (NOT PART OF A703- Refer to Receiver Manual for complete information).
C1	5496267P12	Tantalum: 150 μ f \pm 20%, 15 VDCW; sim to Sprague Type 150D.
C2	19A116114P10073	Ceramic: 180 pf \pm 10%, 100 VDCW; temp coef -3300 PPM.
C3	19A1161092P1	Ceramic: 0.01 μ f \pm 20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C4*	19A116114P10073	Ceramic: 180 pf \pm 10%, 100 VDCW; temp coef -3300 PPM. Added by REV A.
CR3 and CR4	19A115100P1	Silicon; sim to Type 1N458A.
CR5*	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV. Added by REV B.
	19A116783P1	Silicon, NPN. Deleted by REV A.
F1	19A127884G1	Fuse Kit.
J1 thru J75		(Part of printed board 19B226658G1).
J77 thru J82		(Part of printed board 19B226658G1).
J84		(Part of printed board 19B226658G1).
J706		Connector. Includes:
	19C321289P1	Shell.
	19A130856G3	Connector: 15 contacts.
J707	19A130856G1	Connector: 6 contacts.
J708	19A130856G2	Connector: 9 contacts. (Quantity 2).
J709 thru J716		(Part of printed board 19B226658G1).
K1	19B209558P1	Hermetic sealed: 180 to 341 ohms coil res, 2 form C contacts, 8.0 to 16.3 VDC; sim to GE 38A1760A2.
L1	19B209420P114	Coil, RF: 1.20 μ h \pm 10%, 0.18 ohms DC res max; sim to Jeffers 4438-1K.
P701		(Part of W1).
P702		(Part of W2).
P721 and P722	19A127569G1	Plug: 8 contacts.
Q1	19A129187P1	Silicon, PNP.

SYMBOL	GE PART NO.	DESCRIPTION
R1 and R2	3R152P241J	Composition: 240 ohms \pm 5%, 1/4 w.
R3	3R151P332K	Composition: 3.3K ohms \pm 10%, 1/8 w.
R4	3R151P152J	Composition: 1.5K ohms \pm 5%, 1/8 w.
R5 and R6	3R151P104K	Composition: 100K ohms \pm 10%, 1/8 w.
R7	3R151P101K	Composition: 100 ohms \pm 10%, 1/8 w.
R8	3R151P103K	Composition: 10K ohms \pm 10%, 1/8 w.
VR1 and VR2	4036687P5	Voltage regulators Zener: 500 mW, 5.4 v. nominal.
W1	19A130432G1	Cable assembly, RF: coaxial; sim to Solitron/Microwave 8120-0003. (Includes P701).
W2	19A130432G3	Cable assembly, RF: coaxial; sim to Solitron/Microwave 8100-0003. (Includes P702).
CR701	19A130470G1	Diode, optoelectronic: red light emitting.
E701*	19A115700P2	Core, toroidal: sim to Fair-Rite SL207. Added by REV A.
J703		Connector. Includes:
	19B226392P1	Contact. (Quantity 1).
	19B226392P3	Contact. (Quantity 15).
P704	19A115834P4	Contact, electrical: sim to AMP 2-332070-9.
P709 thru P716	19A115834P4	Contact, electrical: sim to AMP 2-332070-9.
P717	19A115834P4	Contact, electrical: sim to AMP 2-332070-9. (Quantity 4).
R702	19A134073P2	Variable, carbon film: 25K ohms \pm 10%, 1/10 w.
S701	19A134073P1	Resistor/switch: includes Resistor, variable, 25K ohms \pm 20%, 1/10 w; Switch, rotary, SPST, 1 amp at 125 VAC.
S703	19B226809G9	Switch, toggle: SPDT; sim to C and K Components 7101SDG. (2 FREQ).
S704	19B226809G10	Switch, rotary: 1 pole, 1 section, 2 to 12 adj positions, non-shorting; sim to Grayhill 51MD30-01-1-AJN. (MULTI-FREQ).
S705	19B226809G16	Switch, rotary: 1 pole, 1 section, 2 to 12 adj stop positions, non-shorting; sim to Grayhill 51MD30-01-1-AJN. (12 FREQ Rx).
S706	19B226809G17	Switch, rotary: 1 pole, 1 section, 2 to 12 adj stop positions, non-shorting; sim to Grayhill 51MD30-01-1-AJN. (12 FREQ Tx).
C1 thru C5	19A115680P10	Electrolytic: 200 μ f \pm 150% -10%, 18 VDCW; sim to Mallory Type TTX.

SYMBOL	GE PART NO.	DESCRIPTION
F1	19B227148G1	Fuse cap. (Includes XF1 and 7102673P3 fuse cartridge).
L1	19A134283P1	Coil, RF: 1.10 mH \pm 20% ind., 0.110 ohms DC res; sim to Arted 8736.
TB1	19B227149G1	Terminal board: 3 terminals.
XF1		Terminal boards (Part of F1).
	4038831P4	Alignment tool. Fork tip.
	19B219079G1	Alignment tool. Allen tip.
		MOUNTING HARDWARE KIT 19A137329G1
	4037064P21	Washer, non-metallic. (Secures microphone/power connector to bottom of radio).
	19A134297P1	Lockwasher; sim to Shakespeare 2079-14-00. (Secures microphone/power connector to bottom of radio).
	N22EP21022C6	Cap screw. (Secures microphone/power connector to bottom of radio).
	7488373P4	Clip loop. (Used with power cable at bottom of radio).
	N80P21008C6	Machine screw, phillips: No. 1/4-20 x 3/8. (Secures power cable to bottom of radio).
	N405P41C6	Lockwasher, spring type: No. 1/4. (Secures power cable to bottom of radio & radio to mounting bracket).
	19A137321P1	Support. (Secures UHF antenna to rear of radio).
	4029851P3	Clip loop. (Secures UHF antenna to rear of radio).
	N80P9006C6	Machine screw, phillips: No. 4-40 x 3/8. (Secures UHF antenna to rear of radio).
	N404P11C6	Lockwasher, internal tooth: No. 4. (Secures UHF antenna to rear of radio).
	19A134342P2	Retainer strap: sim to Richco CH-3P. (Secures high band antenna to wind screen).
	19A134089P2	Solderless terminal. (Connects filter to radio).
	19A134090P3	Connector, plug: sim to AMP 480054-5. (Connects filter to radio).
	19B208260P28	Terminal, solderless: sim to AMP 33642 LOOSE PC. (Connects filter to battery).
	19A116890P2	Cable, stranded, red: No. 14 AWG. (Located between battery and ignition noise filter).
	19A116890P10	Cable, stranded, black: No. 14 AWG. (Located between battery and ignition noise filter).
	N22P21010C6	Cap screw: No. 1/4-20 x 5/8. (Secures radio to mounting bracket).
	N402P41C6	Flatwasher: No. 1/4. (Secures radio to mounting bracket).
	19A115185P2	Retainer strap: sim to Thomas & Betts No. TY-525M. (Mounts power cable to motorcycle frame).
	7121139P13	Clip loop. (Secures filter to motorcycle frame).
	7488373P2	Clip loop: sim to Thomas Assoc. TA717-885. (Used on front mount antenna cable).
		MECHANICAL PARTS (SEE RC3075)
1	19A130426G2	Knob assembly.
2	N503P308C13	Cotter pin. (Not Used).
3	19A130856G2	Connector, 9 contacts. (Quantity 2- J708).
4	19A130856G1	Connector, 6 contacts. (J707).

SYMBOL	GE PART NO.	DESCRIPTION
5	19B201806P1	Insert, threaded.
6	19C321779G1	Bumper.
7	19B226392P3	Contact. (Quantity 13).
8	19A116719P5	Insert, threaded.
9	19A127319P1	Nut: No. 1/4-32.
10	19A130151P1	Gasket.
11	N70P703C6	Set screw: No. 3-48 x 3/16.
12	19B226392P1	Contact. (Quantity 1).
13	4035630P1	Washer, teflon.
14	4037064P18	Washer, non-metallic: .125 dia.
15	19C321275G3	Housing.
16	19A136847P1	Insulator. (Used with J706).
17	N187P9012C	Machine screw: No. 4-40 x 3/4.
18	N136P904C	Tap screw: No. 4-24 x 1/4.
19	19C321289P1	Shell: lexan. (Part of J706).
20	19A130856G3	Connector: 15 contacts. (Part of J706).
21	4039064P28	Strap. (Located between E1 and E2).
22	N187P9006C	Machine screw: No. 4-40 x 3/8.
23	19B226716G1	Insulator.
24	N187P9010C	Machine screw: No. 4-40 x 5/8.
25	19A130780G2	Module.
26	19A130780G1	Module.
27	19C320931P1	Module.
28	N509P608C	Pin spring.
29	19A130151P1	Gasket.
30	19A142659G1	Push clip. (Part of test point).
31	19A142708P1	Strap. (Part of test point).
32	19A137625P1	Spring. (Part of test point).
33	19B226392P4	Contact. (Part of test point).
34	19B226392P2	Contact. (Quantity 1- Located in position 5).



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 included all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - System Board 19D423084G4
To improve low voltage and low temperature operation of current control circuit. Deleted CR5, added jumper between H85 and H86.

REV. B - To improve operation of LED CR701. Added CR5.

REV. A - System Board and Case Assembly 19D423076G3.

REV. C - System Board 19D423084G4
To improve radio performance with Channel Guard. Added spring finger contact. Added C4. Added E701 between J703-7 and H38.

REV. B - System Board and Case Assembly
To provide manufacturing a way to externally disable the audio output to the internal speaker.
Added external test point J703-5,6 and 13.

MULTI-FREQUENCY MODIFICATIONS

(19D423754, Sh. 1, Rev. 8)
(19D423754, Sh. 2, Rev. 3)
(19D423769, Sh. 1, Rev. 5)

The multi-frequency modifications include instructions for adjusting the stop post on multi-frequency switches S704 or S705 and S706, for adding oscillator modules, for repeating frequencies.

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 holes as shown in the following chart.

NO. OF FREQ.	MUVE ADJUSTABLE STOP FROM	MUVE ADJUSTABLE STOP TO
2	H10	H2
3	H10	H3
4	H10	H4
5	H10	H5
6	H10	H6
7	H10	H7
8	H10	H8
9	H10	H9
10	H10	H10
11	H10	H11
12	H10	REMOVE NOT USED

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

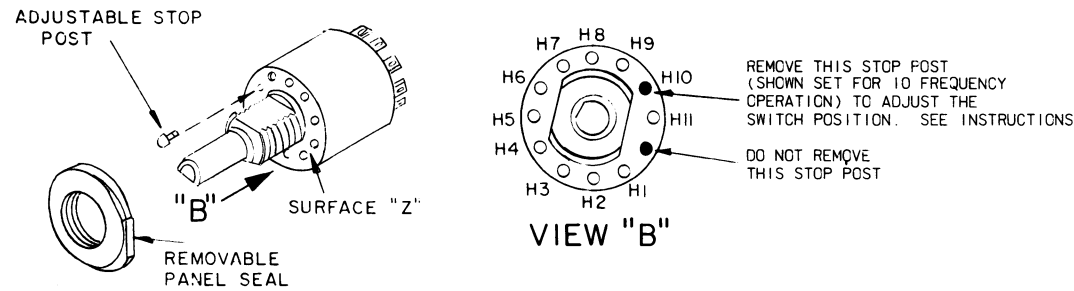


Figure 1 - Stop Post Adjustment

ADDING OSCILLATOR MODULES

1. After completing the stop post adjustment, connect the leads from multi-frequency switch S704 or S705 and S706 as shown in the following charts (see appropriate Outline Diagram). Tape back all unused leads.

FROM	TO	WIRE - COLOR
S704 - P1	A701,A702,A703-J66	T28 - W-R
- P2	- J31	- BK
- P3	- J30	- BR
- P4	- J29	- R
- P5	- J28	- O
- P6	- J27	- Y
- P7	- J26	- G
- P8	- J25	- BL
- P9	- J24	- V
- P10	- J23	- GA
- P11	- J22	- W
- P12	- J77	- W-BK
S704 - P13	A701,A702,A703-J78	T28 - W-BR

FROM	TO	WIRE - COLOR
S705 - P1	A701,A702,A703-J66	T28 - W-R
- 1	- H155	- BK
- 2	- H68	- BR
- P2	- J29	- R
- P3	- J28	- O
- P4	- J27	- Y
- P5	- J26	- G
- P6	- J25	- BL
- P7	- J24	- V
- P8	- J23	- GA
- P9	- J22	- W
- 11	- H23	- W-BK
S705 - 12	A701,A702,A703-H22	T28 - W-BR

FROM	TO	WIRE - COLOR
S706 - P1	A701,A702,A703-J66	T28 - W-R
- P2	- J31	- BK
- P3	- J30	- BR
- 3	- H99	- R
- 4	- H20	- O
- 5	- H93	- Y
- 6	- H94	- G
- 7	- H95	- BL
- 8	- H96	- V
- 9	- H97	- GA
- 10	- H98	- W
- P5	- J77	- W-BK
S706 - P6	A701,A702,A703-J78	T28 - W-BR

NOTE

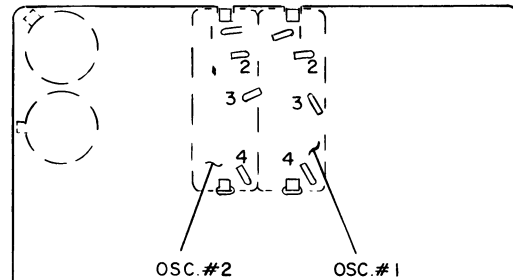
ALL WIRE AND JUMPER CONNECTION UNLESS OTHERWISE SPECIFIED SHOULD BE MADE WITH WIRE 18A115060P30 AND SLEEVED WITH 4038993P4.

2. Place the oscillator module(s) in the proper holes (see Figure 2). Then bend over tabs on the can and tack solder to pattern.
3. Bend the leads of the oscillator module as shown in Figure 2 (or appropriate Outline Diagram) and solder to the adjacent pads.

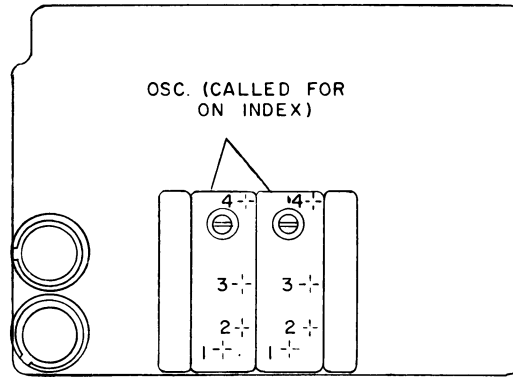
REPEATING FREQUENCIES

For repeating both transmitter and receiver frequencies without adding additional oscillator modules, add a sleeved jumper (#28 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 S704-1 and S704-5.

RCVR. BOARD

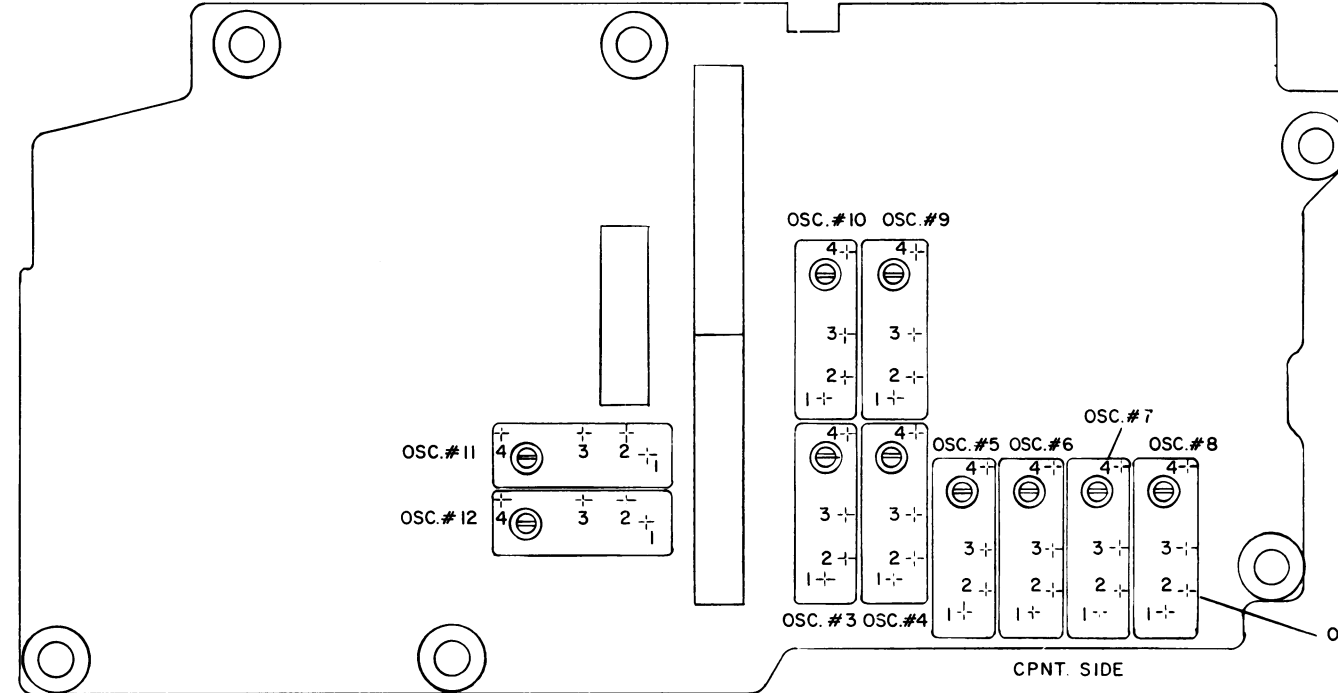


SOLDER SIDE

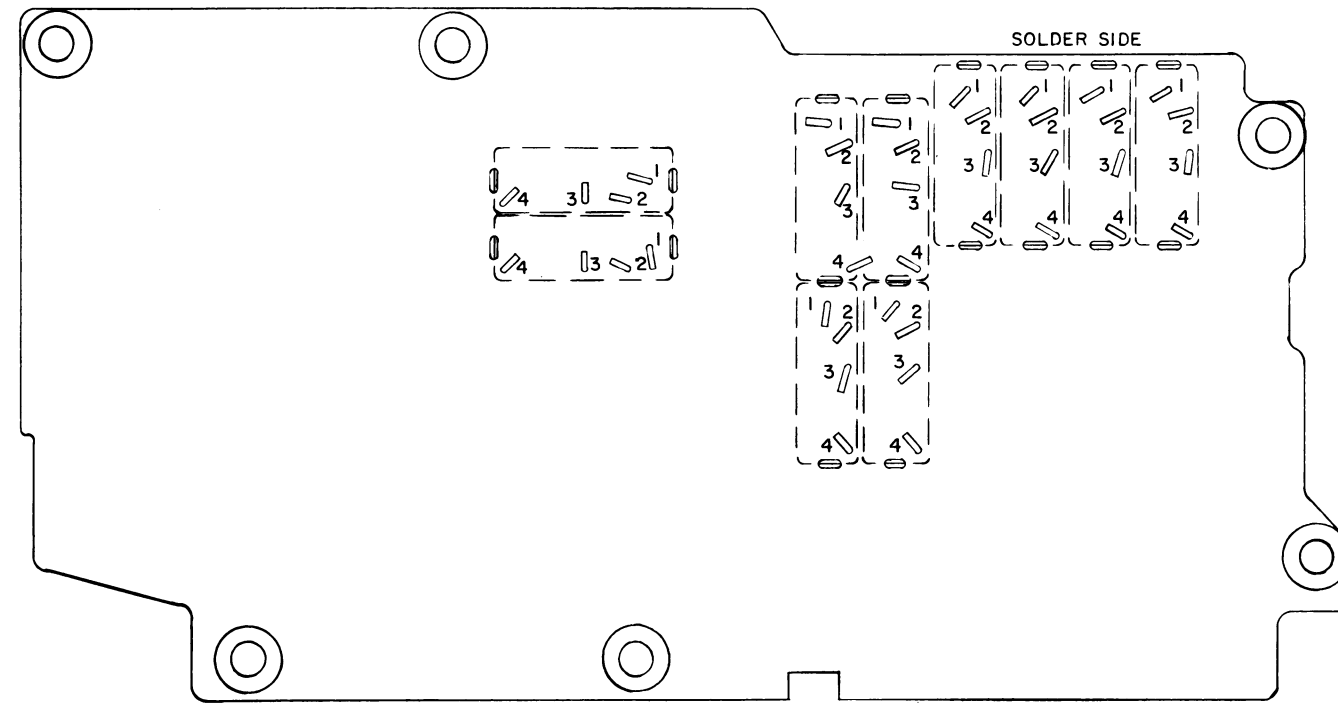


CPNT SIDE

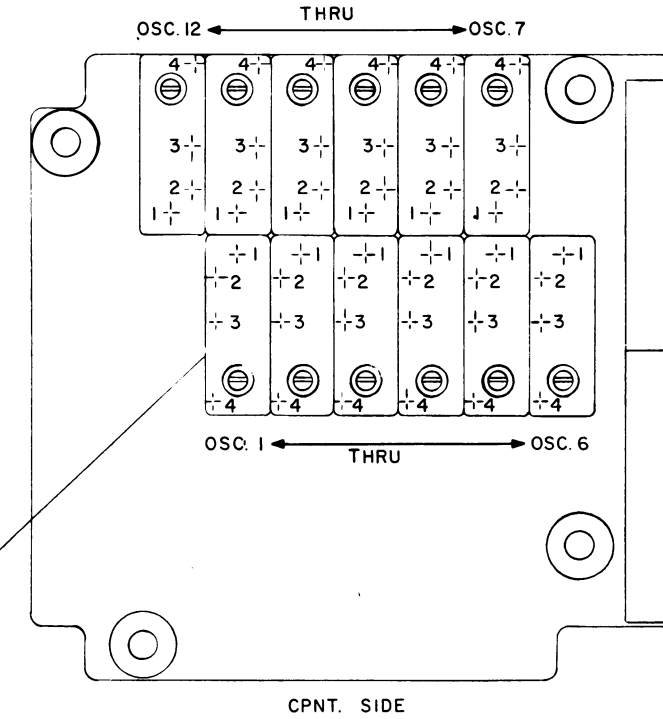
SYSTEMS BOARD



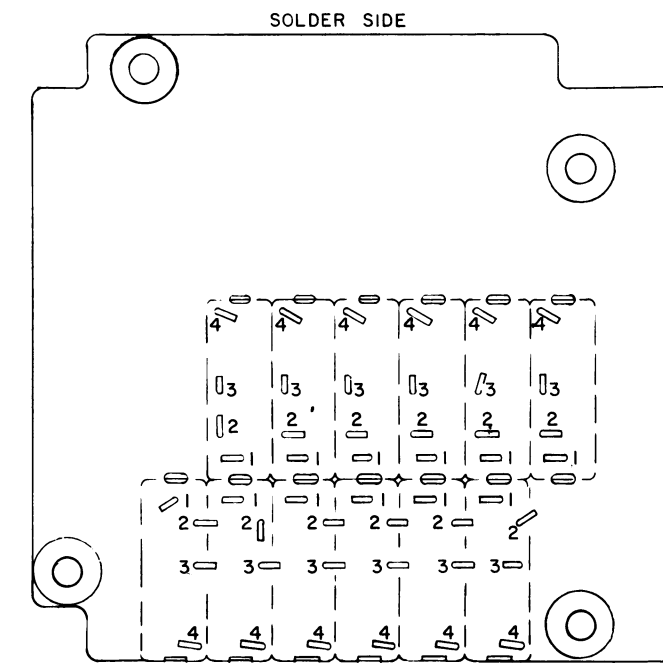
SYSTEMS BOARD



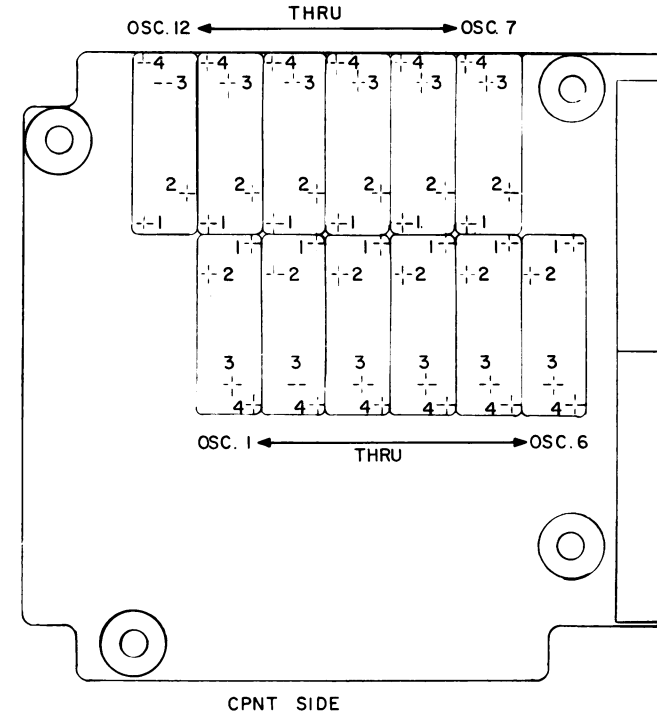
UHF, VHF & MID BAND EXCITER BOARD



UHF, VHF & MID BAND EXCITER BOARD



LOW BAND EXCITER BOARD



LOW BAND EXCITER BOARD

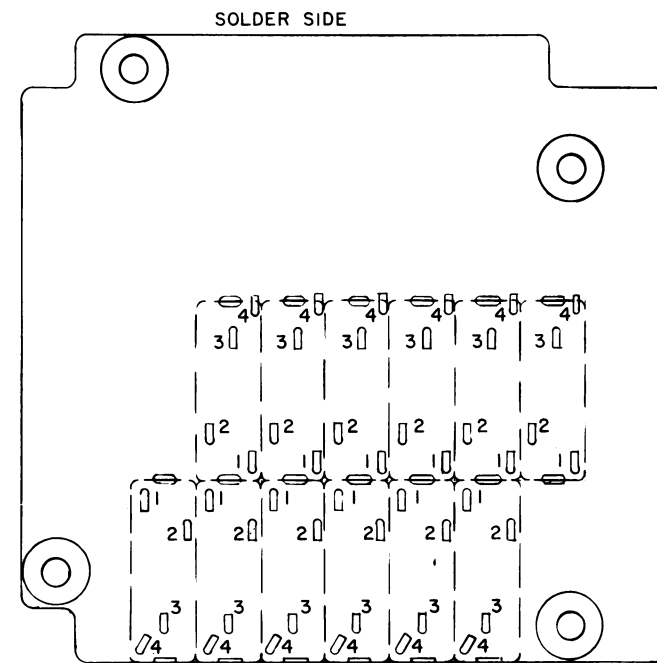


Figure 2 - Oscillator Module Installation

REPEATING OSCILLATOR MODULES

(19D423761 Sheet 1, Rev. 2)

frequencies for the transmitter only or the receiver can be used in place of oscillator modules. Instructions cover installation of Repeat Frequency Option

front and rear cover if present.

ons for repeating frequencies on Tx only or Rx only. Slicoms on the Rx not be repeated on the system board; another slicoms time frequency has to be used.

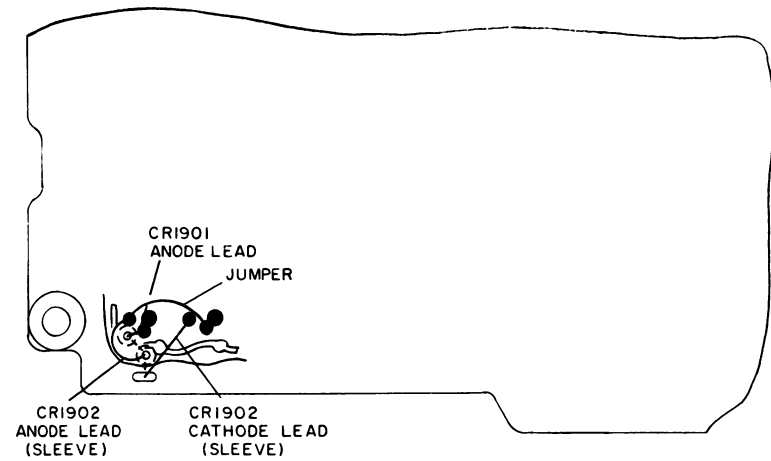
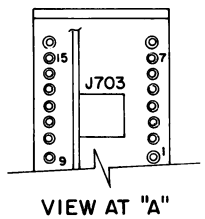
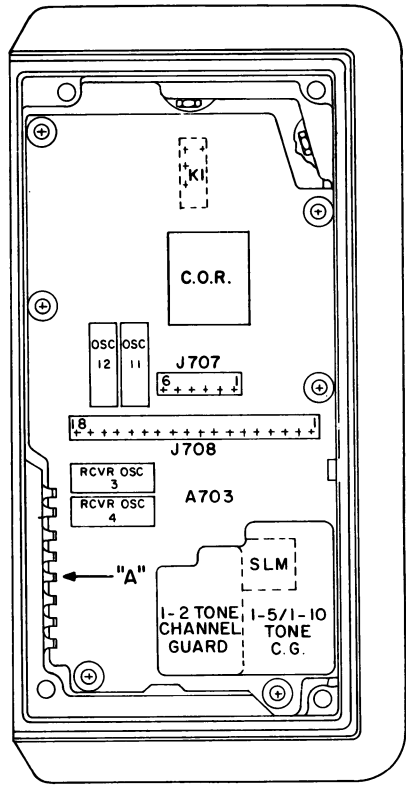
the Channel that a frequency is being repeated, assemble CR1901, part of kit PL19A130980G1 in the space intended for the Sicom by putting the anode lead in number 2 hole, bending it over and soldering to where the #2 lead would have gone. The cathode lead of the will be terminated later.

able a second diode CR1902, part of kit PL19A130980G1 in number 1 hole (anode lead) bending it over and solder it to the empty pad beside the number 2 lead, sleeve if required sleeving part of kit PL19A130980G1. Then run jumper this pad to the related Sicom key pad, and the related key lead is connected to the empty pad.

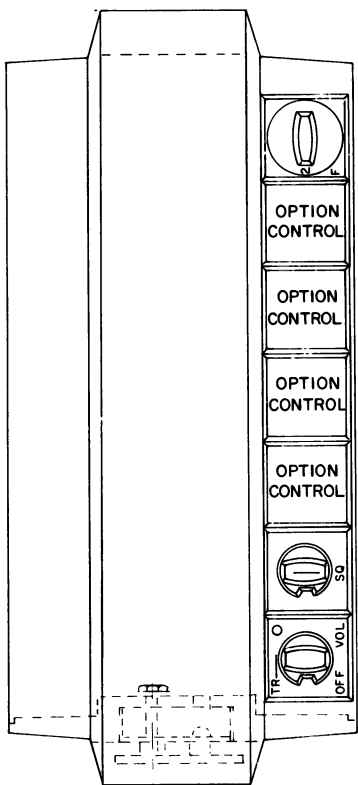
a cathode end of the diodes shall be connected together mid air connections. The connection will be made and wire, part of kit PL19A130980G1 run down the side of the along the component side of the board, sleeve lead sleeving part of kit PL19A130980G1, to the next diode on until all diodes are connected. This wire should be connected to give the shortest connections. Next, connect jumper to the cathode of the diode that is closest to the related Sicom and run this lead down the side of the diode through any empty hole or slot to the soldered side of and connect it to the empty pad with the 2 lead of the diode. Sleeve the diodes with sleeving, part of kit PL19A130980G1, as shown.

front and back covers if required.

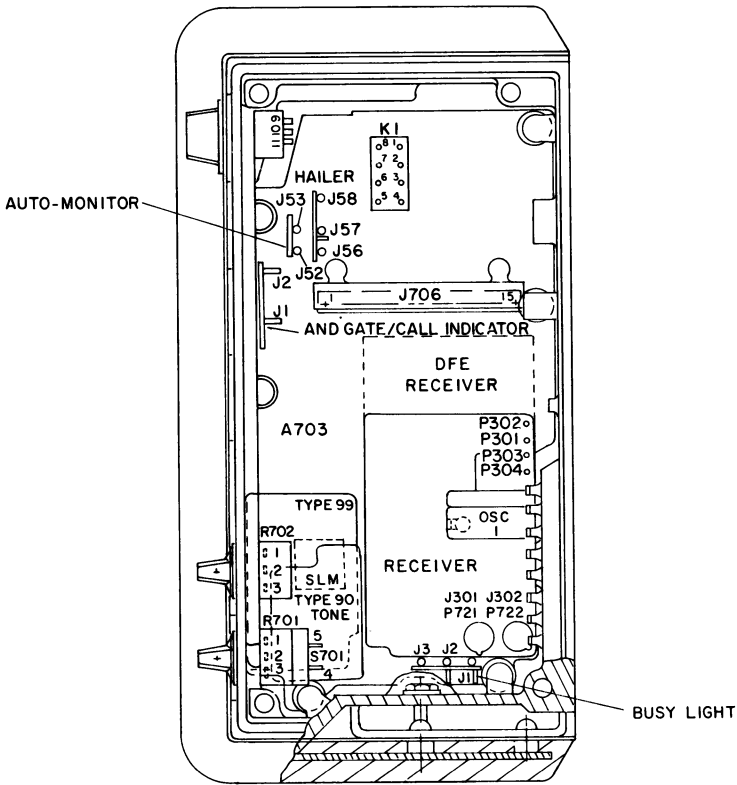
he 10 Receiver Oscillator Modules on the System Board repeated with diodes.



SYSTEMS BD.
CPNT SIDE

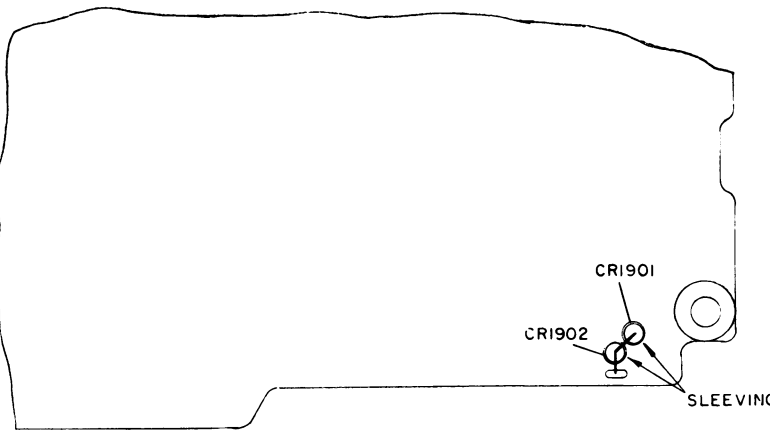


(19D424016, Sh. 3 Rev. 1)



AUTO-MONITOR

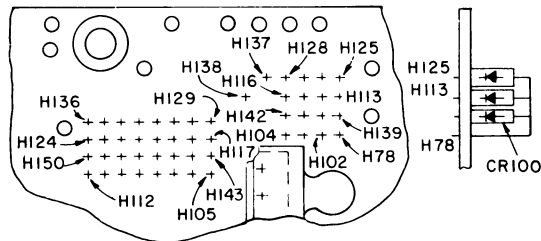
BUSY LIGHT

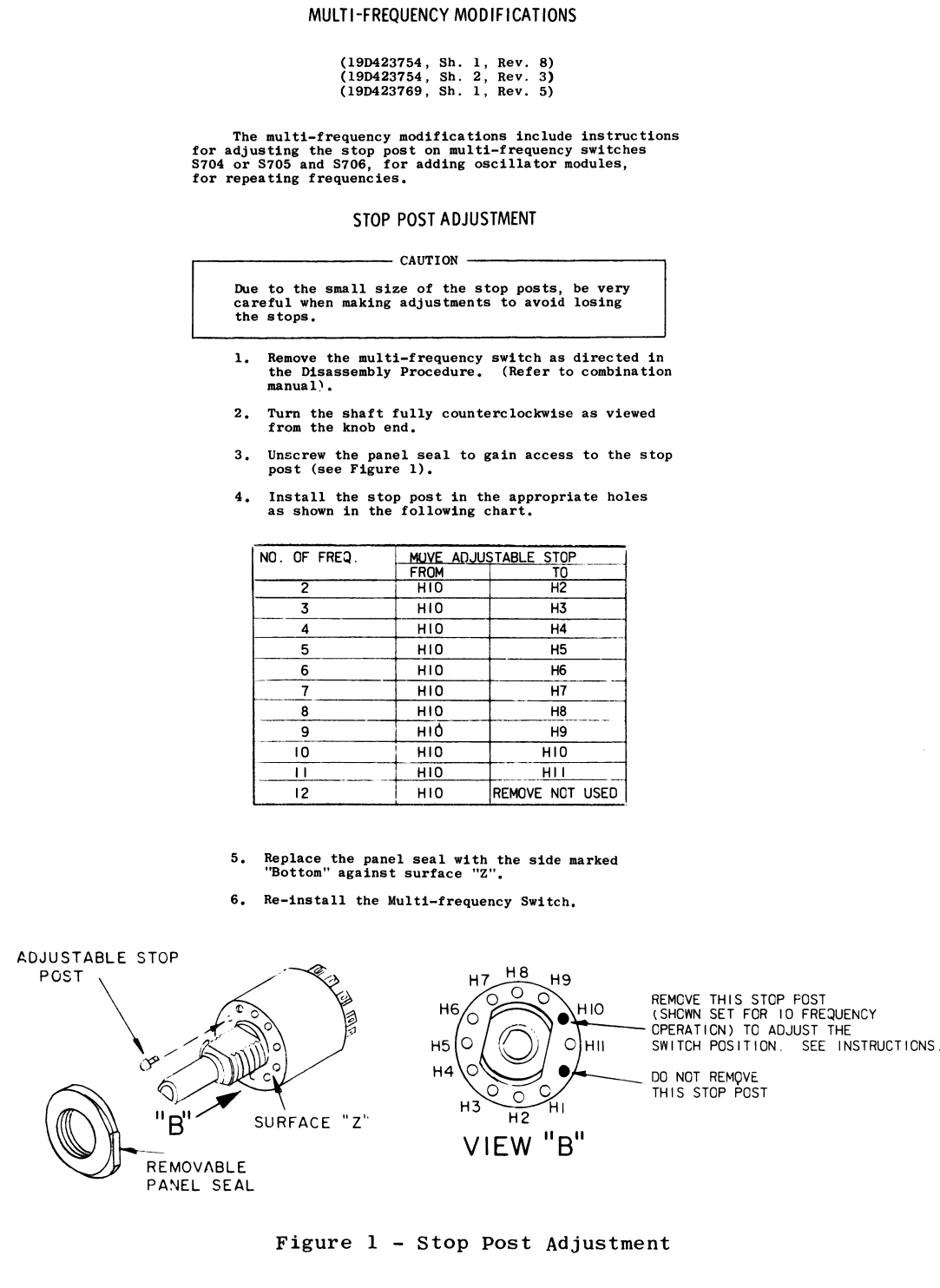


SYSTEMS BD.
SOLDER SIDE

SELECTING CHANNEL GUARD TONE CHANNELS
AND AUTOMATIC MONITOR WITH
MULTI-FREQUENCY SELECTOR SWITCH

CHANNEL OSCILLATOR											
OSC 1 H78	OSC 2 H102	OSC 3 H105	OSC 4 H107	OSC 5 H107	OSC 6 H108	OSC 7 H112	OSC 8 H111	OSC 9 H109	OSC 10 H110	OSC 11 H104	OSC 12 H103
CR103	CR100	CR1025	CR1014	CR1002	CR1026	CR1017	CR1015	CR1029	CR1008	CR1007	CR1003
CR1013	CR1001	CR1025	CR1014	CR1002	CR1026	CR1017	CR1015	CR1029	CR1008	CR1007	CR1003
H113											H125
H114											H126
H117											H129
H118											H130
H119											H131
H120											H132
H124											H136
H123											H135
H121											H133
H122											H134
H116											H128
H115											H127
A	M	B	A	M	B	A	M	B	A	M	B
H 139	H 140	H 143	H 144	H 145	H 146	H 150	H 149	H 147	H 148	H 142	H 141
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
TONE CHANNEL											





ADDING OSCILLATOR MODULES

- After completing the stop post adjustment, connect the leads from multi-frequency switch S704 or S705 and S706 as shown in the following charts (see appropriate Outline Diagram). Tape back all unused leads.

CONNECTIONS CHART		
FROM	TO	WIRE - COLOR
S704 - P1	A701,A702,A703-J66	T28 - W-R
- P2	- J31	- BK
- P3	- J30	- BR
- P4	- J29	- R
- P5	- J28	- O
- P6	- J27	- Y
- P7	- J26	- G
- P8	- J25	- BL
- P9	- J24	- V
- P10	- J23	- GA
- P11	- J22	- W
- P12	- J77	- W-BK
S704 - P13	A701,A702,A703-J78	T28 - W-BR

CONNECTIONS CHART - S705 /RX		
FROM	TO	WIRE - COLOR
S705 - P1	A701,A702,A703-J66	T28 - W-R
- 1	- H155	- BK
- 2	- H68	- BR
- P2	- J29	- R
- P3	- J28	- O
- P4	- J27	- Y
- P5	- J26	- G
- P6	- J25	- BL
- P7	- J24	- V
- P8	- J23	- GA
- P9	- J22	- W
- 11	- H23	- W-BK
S705 - 12	A701,A702,A703-H22	T28 - W-BR

CONNECTIONS CHART - S706 / TX		
FROM	TO	WIRE - COLOR
S706 - P1	A701,A702,A703-J66	T28 - W-R
- P2	- J31	- BK
- P3	- J30	- BR
- 3	- H99	- R
- 4	- H20	- O
- 5	- H93	- Y
- 6	- H94	- G
- 7	- H95	- BL
- 8	- H96	- V
- 9	- H97	- GA
- 10	- H98	- W
- P5	- J77	- W-BK
S706 - P6	A701,A702,A703-J78	T28 - W-BR

NOTE

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

- Place the oscillator module(s) in the proper holes (see Figure 2). Then bend over tabs on the can and tack solder to pattern.
- Bend the leads of the oscillator module as shown in Figure 2 (or appropriate Outline Diagram) and solder to the adjacent pads.

REPEATING FREQUENCIES

For repeating both transmitter and receiver frequencies without adding additional oscillator modules, add a sleeved jumper (#28 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 S704-1 and S704-5.

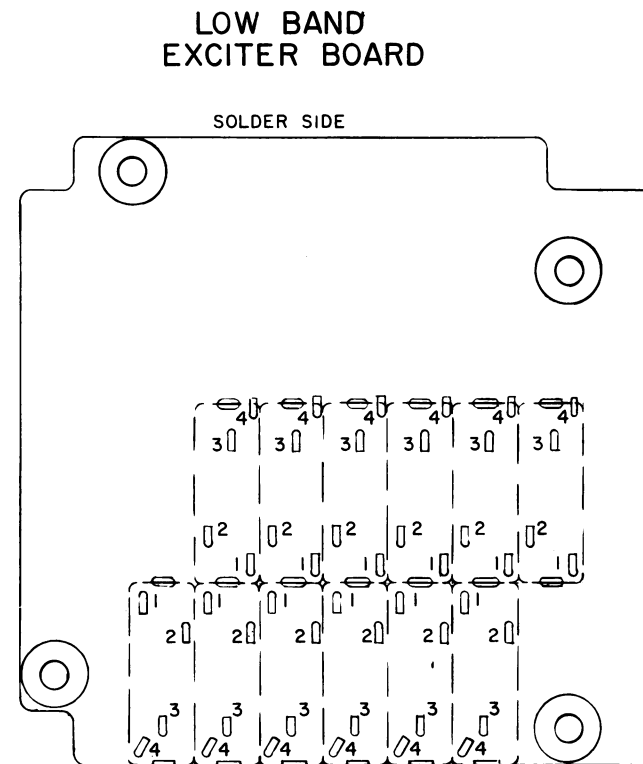
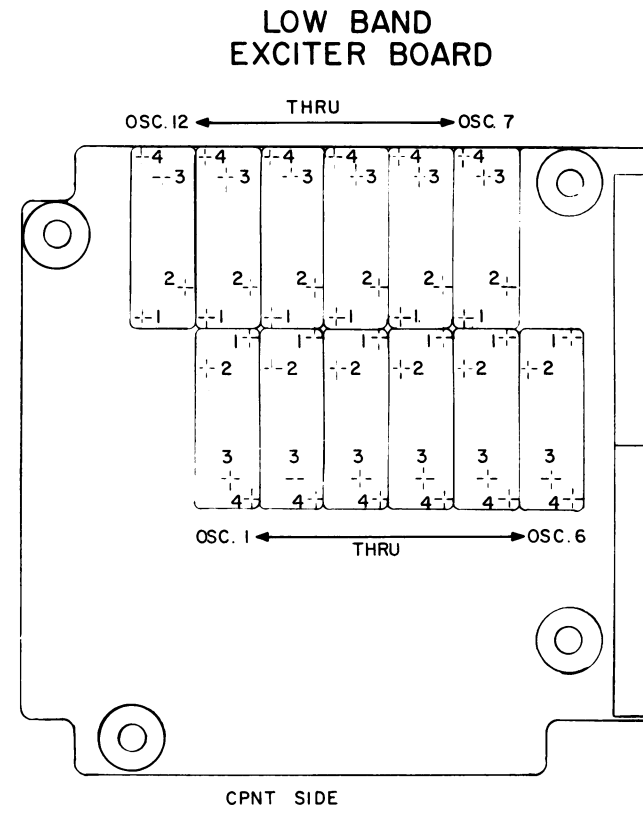
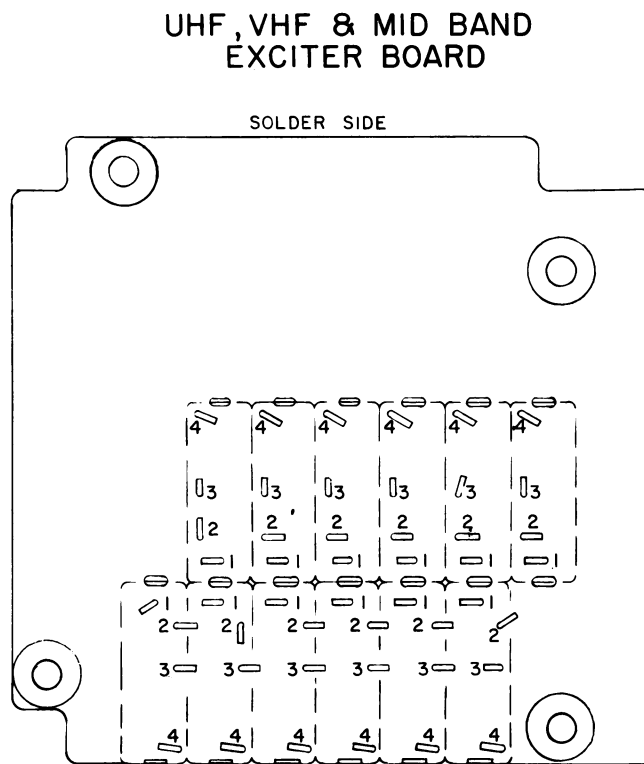
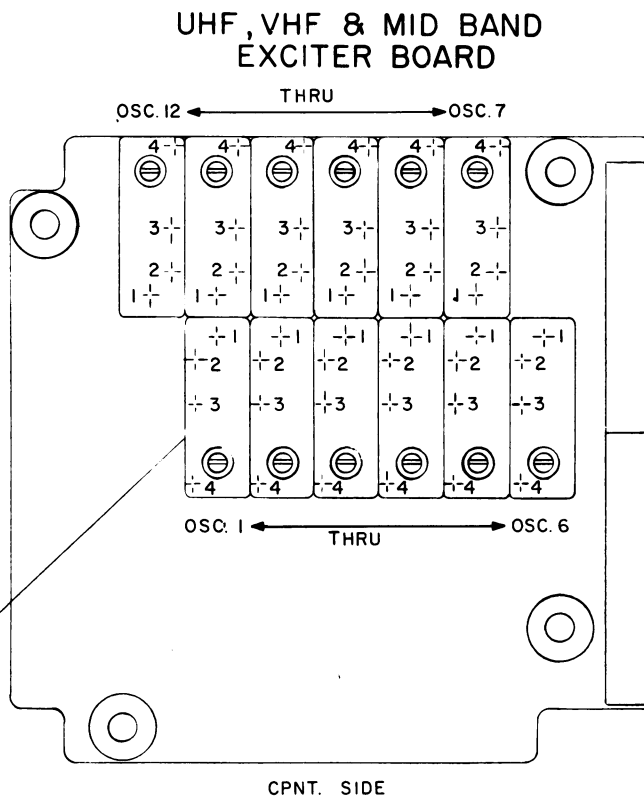
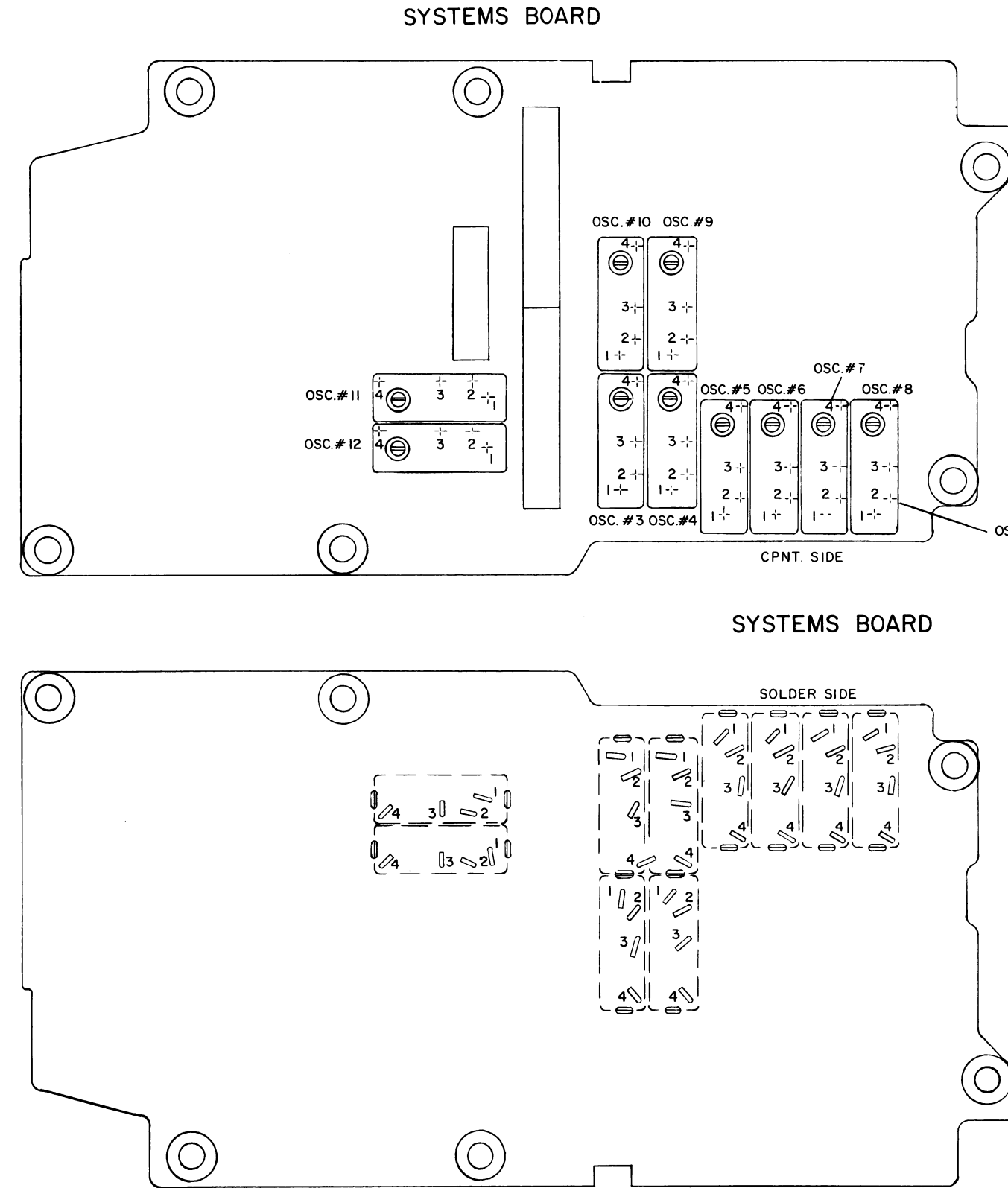
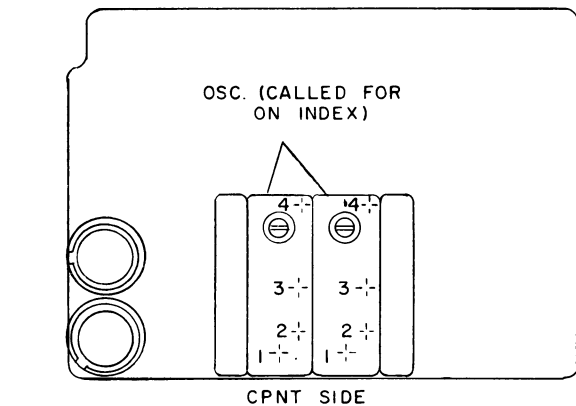
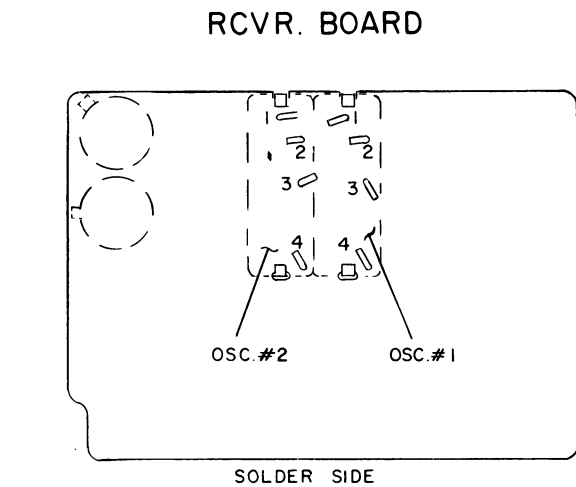


Figure 2 - Oscillator Module Installation

REPEATING OSCILLATOR MODULES

(19D423761 Sheet 1, Rev. 2)

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

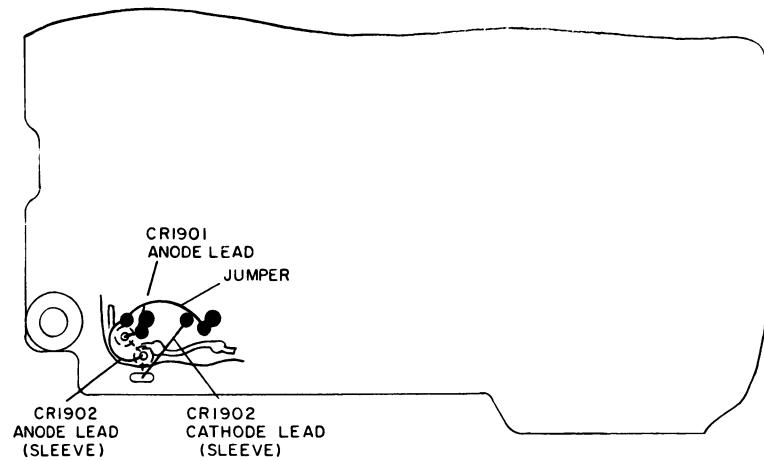
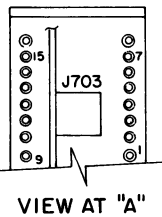
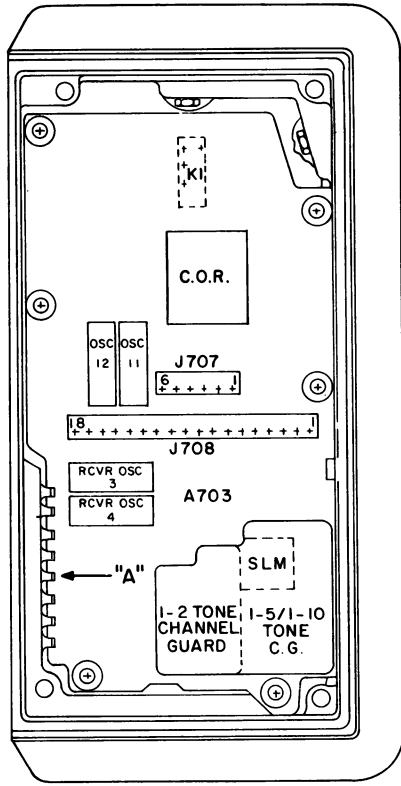
These instructions cover installation of Repeat Frequency Option 19A130980G1.

INSTRUCTIONS:

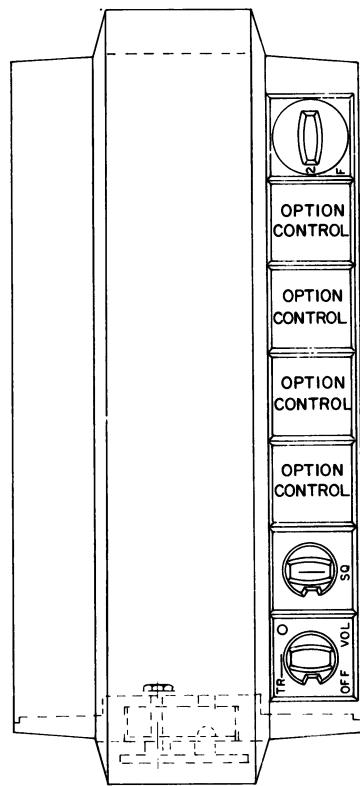
- Remove front and rear cover if present.
- Instructions for repeating frequencies on Tx only or Rx only where diodes are used in place of sicoms. Sicoms on the Rx board can not be repeated on the system board; another sicoms on the same frequency has to be used.
 - For the Channel that a frequency is being repeated, assemble a diode CR1901, part of kit PL19A130980G1 in the space normally intended for the Sicom by putting the anode lead in the number 2 hole, bending it over and soldering to where the Sicom's #2 lead would have gone. The cathode lead of the diode will be terminated later.
 - Assemble a second diode CR1902, part of kit PL19A130980G1 in the number 1 hole (anode lead) bending it over and solder it to the empty pad beside the number 2 lead, sleeve if required using sleeving part of kit PL19A130980G1. Then run jumper from this pad to the related Sicom key pad, and the related Sicom key lead is connected to the empty pad.
 - The cathode end of the diodes shall be connected together using mid air connections. The connection will be made and the wire, part of kit PL19A130980G1 run down the side of the diode along the component side of the board, sleeve lead using sleeving part of kit PL19A130980G1, to the next diode and so on until all diodes are connected. This wire should be routed to give the shortest connections. Next, connect a jumper to the cathode of the diode that is closest to the repeated Sicom and run this lead down the side of the diode and through any empty hole or slot to the soldered side of board and connect it to the empty pad with the 2 lead of the Sicom. Sleeve the diodes with sleeving, part of kit PL19A130980G1, as shown.

- Assemble front and back covers if required.

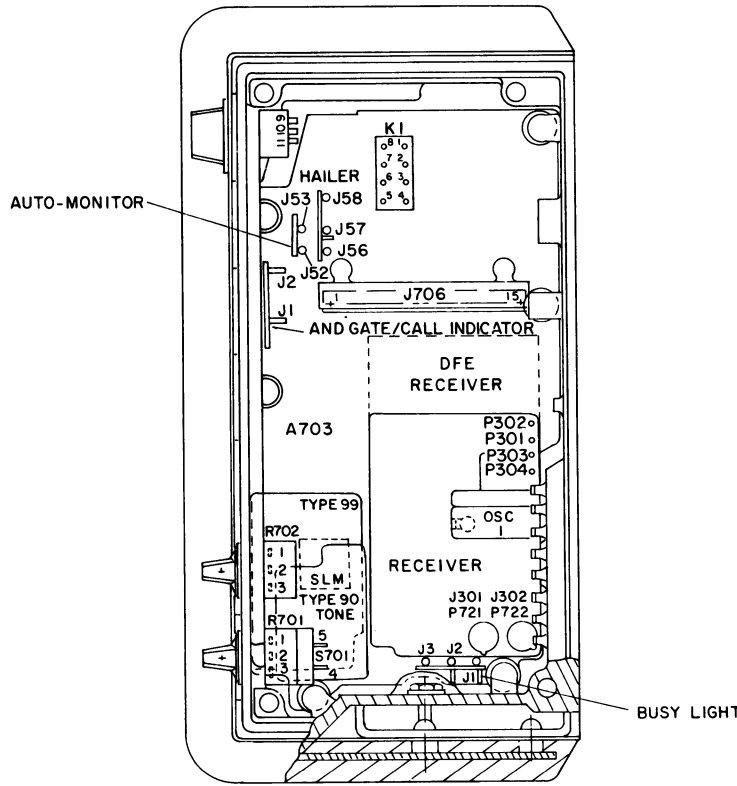
NOTE: Only the 10 Receiver Oscillator Modules on the System Board can be repeated with diodes.



SYSTEMS BD.
CPNT. SIDE

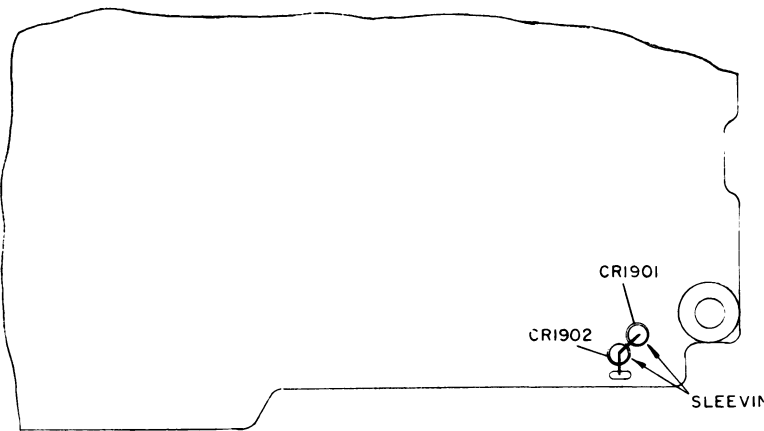


(19D424016, Sh. 3 Rev. 1)



AUTO-MONITOR

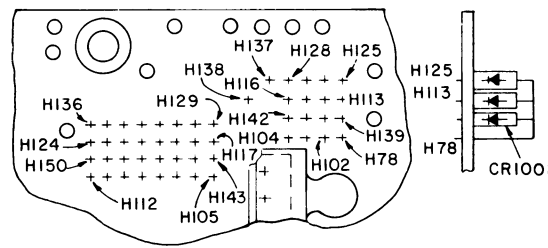
BUSY LIGHT



SYSTEMS BD.
SOLDER SIDE

SELECTING CHANNEL GUARD TONE CHANNELS
AND AUTOMATIC MONITOR WITH
MULTI-FREQUENCY SELECTOR SWITCH

		CHANNEL OSCILLATOR													
		OSC 1 H78	OSC 2 H102	OSC 3 H105	OSC 4 H116	OSC 5 H107	OSC 6 H108	OSC 7 H112	OSC 8 H111	OSC 9 H109	OSC 10 H110	OSC 11 H104	OSC 12 H103		
		CR1013 H78	CR1001 H102	CR1025 H105	CR1014 H116	CR1002 H107	CR1026 H108	CR1017 H112	CR1017 H111	CR1024 H109	CR1024 H110	CR1024 H104	CR1024 H103		
H113														H125	
H114														H126	
H117														H129	
H118														H130	
H119														H131	
H120														H132	
H124														H136	
H123														H135	
H121														H133	
H122														H134	
H116														H128	
H115														H127	
		A	M	B	A	M	B	A	M	B	A	M	B	A	M
		H 139	H 140	H 143	H 144	H 145	H 146	H 150	H 149	H 147	H 148	H 142	H 141		
		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF		
		TONE CHANNEL													



SYSTEMS BOARD
(TYP ASM FOR DIODES)

USE THE ABOVE CHART TO ASSEMBLE DIODES ON SYSTEM BOARD WHEN SELECTING TONE CHANNELS WITH THE SELECTOR SWITCH.
SAMPLE: IF TONE A IS TO BE USED ON OSC 4, FIND OSC 4 ON CHART. GO DOWN COLUMN UNTIL YOU FIND A DIODE. THE DIODE IN COLUMN A GIVE THE HOLE NUMBERS AND DIRECTION THE DIODE SHOULD BE ASSEMBLED. THE DIODE IN THE SAMPLE IS CONNECTED BETWEEN H106 AND H118.



DIODES ARE PART OF KIT 19A130977G1 THROUGH 07

(19D423758, Sh. 8, Rev. 3)

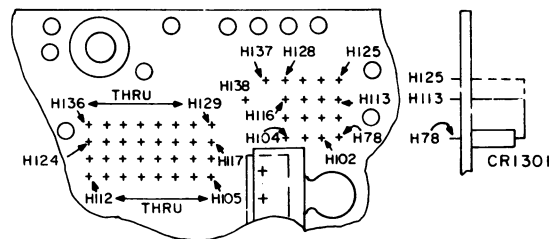
SELECTING TYPE 90 TONE CHANNELS
WITH MULTI-FREQUENCY SELECTOR SWITCH

		TRANSMITTER CONTROL													
		CR1301 OSC 1 H78	CR1302 OSC 2 H102	CR1303 OSC 3 H105	CR1304 OSC 4 H106	CR1305 OSC 5 H107	CR1306 OSC 6 H108	CR1307 OSC 7 H112	CR1308 OSC 8 H111	CR1309 OSC 9 H109	CR1310 OSC 10 H110	CR1311 OSC 11 H104	CR1312 OSC 12 H103		
H113														H125	
H114														H126	
H117														H129	
H118														H130	
H119														H131	
H120														H132	
H124														H136	
H123														H135	
H121														H133	
H122														H134	
H116														H128	
H115														H127	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B
		TONE CONTROL													

USE THE ABOVE CHART FOR ASSEMBLING DIODES ON SYSTEMS BOARD FOR SELECTING TONE CHANNEL WITH FREQ. SELECTOR SWITCH.
SAMPLE: IF TONE 'B' IS TO BE USED ON OSC 3, THEN FIND OSC 3 ON CHART. GO DOWN COLUMN UNTIL YOU FIND A DIODE. THE DIODE IN COLUMN 'B' GIVES THE HOLE NUMBER & DIRECTION THE DIODE SHOULD BE ASSEMBLED. THE DIODE IN THE SAMPLE IS CONNECTED FROM H105 TO H129.



DIODES ARE PART OF KIT 19A130969G3



SYSTEMS BOARD
(TYP ASM FOR CR1301-CR1312)

(19D423750, Sh. 2, Rev. 4)

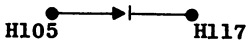
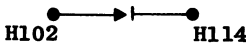
SELECTING TYPE 99 TONE
AUTOMATIC MONITOR CHANNELS
WITH MULTI-FREQUENCY SELECTOR SWITCH

CHANNEL OSCILLATOR											
OSC 1	OSC 2	OSC 3	OSC 4	OSC 5	OSC 6	OSC 7	OSC 8	OSC 9	OSC 10	OSC 11	OSC 12
H78 CRI401	H102 CRI402	H105 CRI405	H106 CRI406	H107 CRI407	H108 CRI408	H112 CRI412	H111 CRI411	H109 CRI409	H110 CRI410	H104 CRI404	H103 CRI403
H113	H114	H117	H118	H119	H120	H124	H123	H121	H122	H116	H115
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

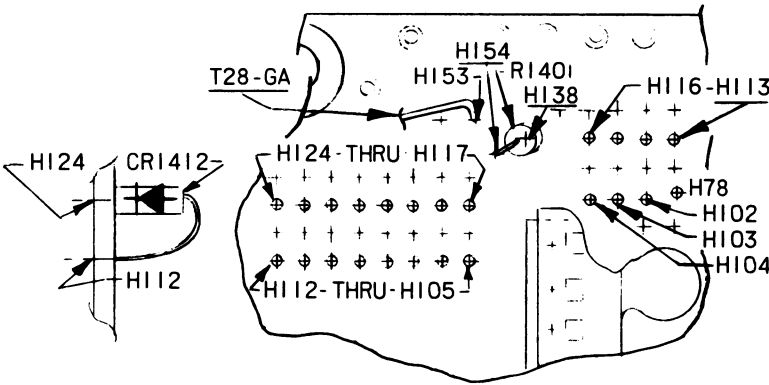
TYPE 99, 2 & 4 TONE

USE THE ABOVE CHART TO ASSEMBLE DIODES ON SYSTEM BOARD FOR SELECTING TYPE 99 AUTOMATIC MONITOR CHANNELS WITH MULTI-FREQUENCY SELECTOR SWITCH.

SAMPLE: IF TYPE 99 TONE IS NOT TO BE USED ON OSCILLATOR CHANNELS 2 AND 3, FIND OSC 2 ON THE CHART. IN THE COLUMN YOU WILL FIND A DIODE. THE DIODE GIVES THE HOLE NUMBERS AND THE DIRECTION THE DIODE SHOULD BE ASSEMBLED. DIODES IN SAMPLE ARE CONNECTED FROM H102 TO H114 AND H105 TO H117.



DIODES ARE PART OF KIT 19A136888G1



SYSTEM BOARD
(TYP ASM FOR CRI401 - CRI403)

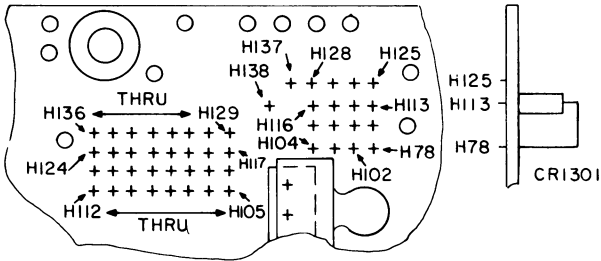
(19B227726, Rev. 2)

SELECTING RECEIVER FRONT ENDS
WITH MULTI-FREQUENCY SELECTOR SWITCH

FREQ. CONTROL																							
CRI301		CRI302		CRI303		CRI304		CRI305		CRI306		CRI307		CRI308		CRI309		CRI310		CRI311		CRI312	
OSC 1 H78		OSC 2 H102		OSC 3 H105		OSC 4 H106		OSC 5 H107		OSC 6 H108		OSC 7 H112		OSC 8 H111		OSC 9 H109		OSC 10 H110		OSC 11 H104		OSC 12 H103	
H113																							H125
H114																							H126
H117																							H129
H118																							H130
H119																							H131
H120																							H132
H124																							H136
H123																							H135
H121																							H133
H122																							H134
H116																							H128
H115																							H127
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
RCVR. FRONT END																							

USE THE ABOVE CHART FOR ASSEMBLING DIODES ON SYSTEMS BOARD FOR SELECTING RECEIVER FRONT ENDS WITH FREQ. SELECTOR SWITCH.
SAMPLE: IF OSC 1 & OSC 3 IS TO BE ON FRONT END 1 AND OSC 2 & OSC 4 ON FRONT END 2. FIND THE DIODE IN THE COLUMN FOR THE FRONT END REQUIRED.

OSC 1 H78
OSC 3 H105
OSC 2 H102
OSC 4 H106



SYSTEMS BOARD
TYP. ASM. FOR CRI301 - CRI312

(19D423760, Sh. 2, Rev. 4)

MULTI-FREQUENCY MODIFICATIONS

MODIFICATIONS

1. Modify the system board according to the chart labeled MODIFICATIONS FOR SYSTEMS BOARD. Also, refer to Figure 1 - Outline Diagram.

MODIFICATIONS FOR SYSTEMS BOARD			
FROM	TO	WIRE	REMARKS
H24	K1-5	COAXIAL CABLE CENTER COND	REMOVE FROM H24
K1-5	H26	COAXIAL CABLE CENTER COND	ADD
H25	H44	COAXIAL CABLE SHIELD	REMOVE FROM H25
H44	H27	COAXIAL CABLE SHIELD	ADD
J33		JACK	CLIP JACK FLUSH WITH SYSTEMS BD
J34		JACK	
J35		JACK	
H138	DFE RCVR J303	T28-BL	ITEM 6
H137	DFE RCVR J304	T28-G	ITEM 5
	SYSTEMS BD	J85	ADD
H68	DFE RCVR J305	T28-BR	ITEM 8

2. Assemble diodes CR1301 through CR1312 according to the chart on Selecting

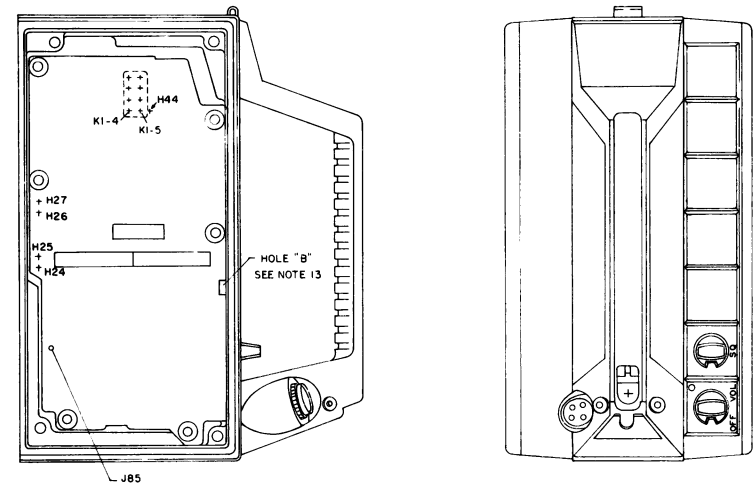


Figure 1 - Outline Diagram

Receiver Front Ends with Multi-Frequency Selector Switch. Refer to the Table of Contents for MULTI-FREQUENCY MODIFICATIONS.

3. Assemble oscillators #3 through #12 on the system board according to Figure 2, Oscillator Module Installation. Refer to the Table of Contents for MULTI-FREQUENCY MODIFICATIONS.

NOTE: Oscillator #1 must go with receiver front end #1 and oscillator #2 must go with receiver front end #2. The rest of the oscillators can be divided up with either front end.

4. Figure 2 - Block Diagram shows how the oscillators are connected to the front ends. In the standard Multi-Frequency Option F1 selects oscillator #1 and F12 selects oscillator #12. F1 or any of the frequency positions can be re-connected to any of the oscillators positions by plugging the plug from the

desired frequency position onto the jack of the desired oscillator position.

Example: 3 oscillators on front end #1 and 4 on front end #2, then oscillator #1, #3 and #4 would be on front end #1 and the run on the systems board between oscillator #4 and #5 would be cut. Therefore oscillator #2, #5, #6 and #7 would be on front end #2. See Figure 3 - PW Pattern.

5. Assemble Dual Front RCVR to J36, J37, J38, J39, J40 and J85 of systems board as shown in Figure 1.
6. Solder all electrical connections.
7. Assemble Multi-Frequency Switch S704 according to the MULTI-FREQUENCY MODIFICATIONS. Refer to the Maintenance Manual Table of Contents.
8. Wires joined between each side of board A701, 702, 703 to be routed thru hole "B". Assemble pressure sensitive pad (part of kit PL-19A130979) to side of RCVR.

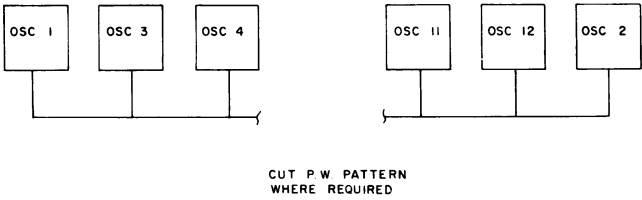


Figure 2 - Block Diagram

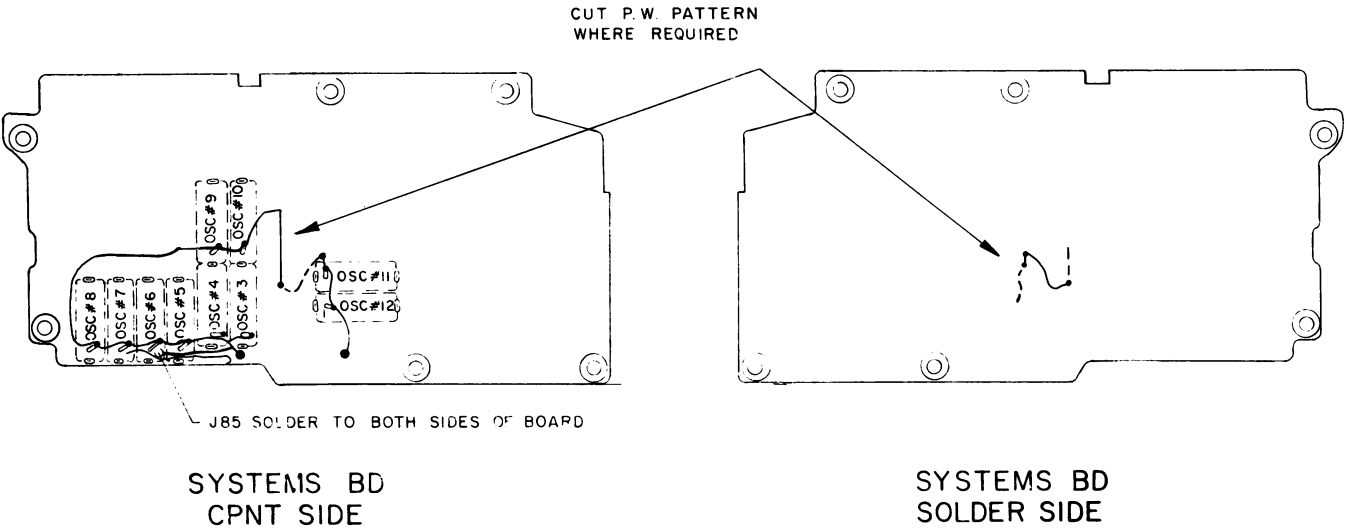
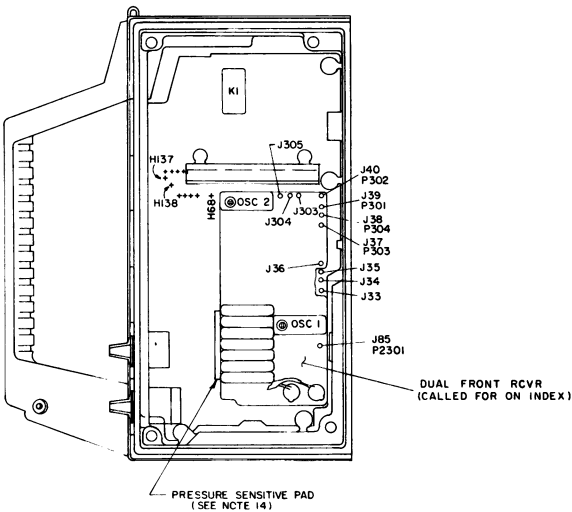


Figure 3 - PW Pattern

MODIFICATIONS FOR DUAL FRONT END RECEIVER APPLICATIONS