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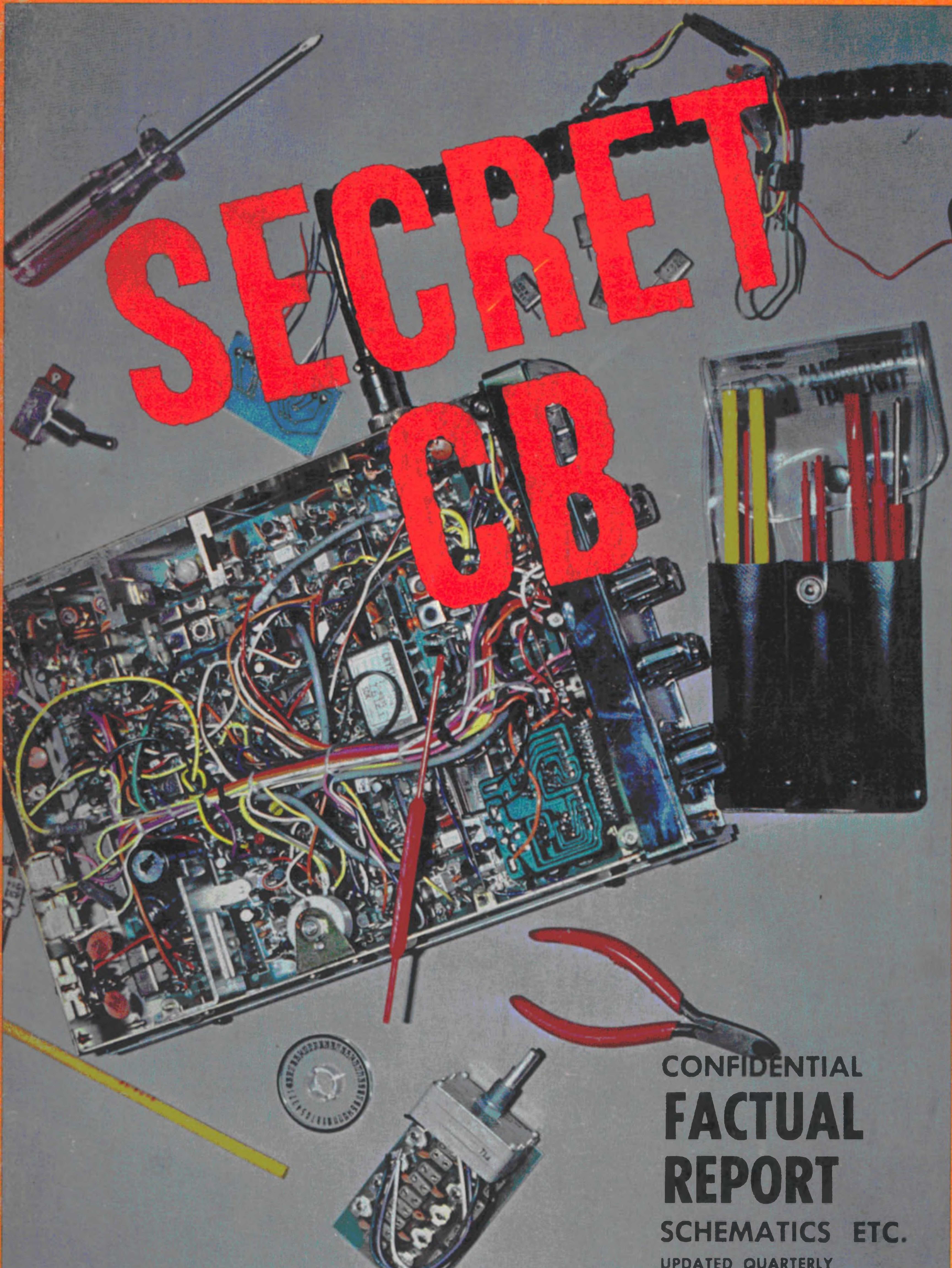
SECRET CB



CONFIDENTIAL

FACTUAL REPORT

SCHEMATICS ETC.

UPDATED QUARTERLY

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SECRET C.B.

This book is dedicated to all of the avid CB'ers, both young and old, in the United States, today, and to those of the future generations.

R.L.

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Volume One

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INTRODUCTION

The information in this book is not to be used to exceed F.C.C. specifications, in any case, as applied to power, modulation, frequency spectrum, etc. It is illegal to do this to any CLASS D RADIO.

This book is a factual report of gathered information, and as such is intended for use on radios FOR EXPORT ONLY.

If you are not familiar with electronics, it is better to check for advise with your local electronics or CB center, as to restrictions, etc., concerning your radio.

More information, on other units will be forthcomming in future issues, to be published on a quarterly basis.

This book will not be found at a book store, but can be obtained through your local CB store or distributor, or by sending $12.95 to:

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WARNING: MODIFICATIONS IN THIS BOOK ARE FOR EXPORT USE ONLY. ILLEGAL ON CLASS D RADIO

Before attempting any repairs or modifications, be sure that you are familiar with the involved tuning techniques and the various involved circuits within the radio. Improper tuning or tuning the wrong circuits can result in serious damage to your radio. If there is any doubt, consult with a qualified technician before proceeding.

A FEW THINGS TO REMEMBER:

Always use the plastic type of tuning tools. Use an "AHHH" sound, when tuning, and avoid any whistling as this will give a false readingTuning for maximum power will sometimes result in backwards modulation, so always keep an eye on the percent of modulation while you are tuning. When attaching external crystal boxes or other similar units, remember that if lead inductance occurs, it may cause an improper frequency to be generated. Keeping leads as short as possible and close to the transmitter section, along with the use of proper test equipment will result in more accurate results. It must also be noted that some types of radios will fail to lock on frequency, when taken to the higher level frequency spectrum. These will require complete re-alignment by a technician. Another point to remember is that the Standing Wave Ratio (SWR) will become more critical and higher as the operating frequency is raised.

MOBILE ANTENNA SECRETS:

Running a whip is definitely recommended for longer range. FRANCES INDUSTRIES makes a whip (98") which has a DB gain. Co-phase is not recommende with this antenna, and 22 ft. of RG-58 coax is required Van Ordt makes an AUDIO KING antenna, which is an OIL FILLED CENTER LOAD. This antenna has shown a DB gain of 4.5 and better signal-to-noise ratio than other antennas.

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CRYSTAL CROSS REFERENCE GUIDE

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BROWNING

Eaglette..........O
LTD...............H
SST...............I
Brownie...........F

CLARICON

Intruder..........P
Pirate............P
Privateer.........P
30850.............P

COBRA

19................J
21................J
20................I
23................Special
24................I
25................I
28................I
28A...............I
29................J
85................F
Cam 89............J
130...............F
131...............F
132(old)..........F
132A..............H
135(old)..........F
135A..............H
138...............B
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98................Q

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(COURIER CON'T)

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674..................A
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130.................L
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Mark VI.............I
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Telstat 100.........K

(LAFAYETTE CON'T)

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Micro 723...........P
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SSB-50..............A
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Telstat 75..........K
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13-796..............P
13-853..............J
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13-863..............P
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13-865..............P
13-866..............J
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13-868..............J
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13-870..............P
13-871..............I
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13-872..............P
13-873..............F
13-875..............J
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(MIDLAND CON'T)

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13-898..............A
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(PEARCE SIMPSON CON'T)

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981-6075..............P
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Range Gain II.........Q

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LB-23.................P
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SX-102................P
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1-602.................P
1-603.................P
1-605.................P
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1-620.................P
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Coronado...............I
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Brute..................P
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SBE 16 Console II......D
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SBE CB 14..............F
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10 CB..................I
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21 CB..................I
22 CB..................P

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XCB-5..............P
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SEPARATE TRANSMIT & RECIEVE CRYSTALS

BROWNING

Eagle Mark III.....V
Eagle Mark III SSB.W
Eagle Mark III SSB.W-1

SPECIAL OSCILLATOR CRYSTALS

BROWNING

Eagle Mark III.....X

TRAM

Diamond 60.........Y&AA&AI

BROWNING

LTD................Z&AA&AI
Crobra 132A,135....Z&AA&AI

HAM CRYSTALS

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Twins..................AC

YAESU

E,EE,EX................AD

TEMPO

One....................AE

HEATHKIT

104....................AF

KENWOOD

TS 520, 820, Twins....AG

COLLINS

KWM 2,2A,3............AH

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LETTER CHART FOR CRYSTAL FREQUENCY CORRELATION

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CRYSTAL FREQUENCY	OPERATING
A	
7.9767	27.605 *
7.9600	27.555 *
7.9434	27.505 *
7.9267	27.455 *
7.9100	27.405
7.8933	27.355
7.8766	27.305
7.8600	27.255
7.8434	27.205
7.8267	27.155
7.8100	27.105
7.7933	27.055
7.7767	27.005
7.7600	26.955 *
7.7433	26.905 *
7.7267	26.855 *
7.7100	26.805 *
7.7083	26.800 *
14.937 & 14.934	RC

CRYSTAL FREQUENCY	OPERATING
B	
8.759	27.605 *
8.709	27.555 *
8.659	27.505 *
8.609	27.455 *
8.559	27.405
8.509	27.355
8.459	27.305
8.409	27.255
8.359	27.205
8.309	27.155
8.259	27.105
8.209	27.055
8.159	27.005
8.109	26.955 *
8.059	26.905 *
8.009	26.855 *
7.959	26.805 *
7.954	26.800 *
11.0335	RC

CRYSTAL FREQUENCY	OPERATING
C	
11.600	27.605 *
11.550	27.555 *
11.500	27.505 *
11.450	27.455 *
11.400	27.405
11.350	27.355
11.300	27.305
11.250	27.255
11.200	27.205
11.150	27.155
11.100	27.105
11.050	27.055
11.000	27.005
10.950	26.955 *
10.900	26.905 *
10.850	26.855 *
10.800	26.805 *
10.795	26.800 *
8.1965 & 8.1935	RC

CRYSTAL FREQUENCY	OPERATING
D	
12.300	27.605 *
12.250	27.555 *
12.200	27.505
12.150	27.455 *
12.100	27.405
12.050	27.355
12.000	27.305
11.950	27.255
11.900	27.205
11.850	27.155
11.800	27.105
11.750	27.055
11.700	27.005
11.650	26.955 *
11.600	26.905 *
11.550	26.855 *
11.500	26.805 *
11.495	26.800 *
7.4925 & 7.4965	RC

The frequencies marked with an asterisk are for reference purposes only, as these would cause your radio to operate above and below the authorized C.B. frequency band, which is prohibited by F.C.C. Rules and Regulations.

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CRYSTAL FREQUENCY	OPERATING	CRYSTAL	OPERATING
E		G	
12.340	27.605 *	12.405	27.605 *
12.290	27.555 *	12.355	27.555 *
12.240	27.505 *	12.305	27.505 *
12.190	27.455 *	12.255	27.455 *
12.140	27.405	12.205	27.405
12.090	27.355	12.155	27.355
12.040	27.305	12.105	27.305
11.990	27.255	12.055	27.255
11.940	27.205	12.005	27.205
11.890	27.155	11.995	27.155
11.840	27.105	11.905	27.105
11.790	27.055	11.855	27.055
11.740	27.005	11.805	27.005
11.690	26.955 *	11.755	26.955 *
11.640	26.905 *	11.705	26.905 *
11.590	26.855 *	11.655	26.855 *
11.540	26.805 *	11.605	26.805 *
11.535	25.800 *	11.600	26.800 *
7.4525	RC *	7.3915 & 7.3885	RC *
F		H	
12.305	27.605 *	16.565	27.605 *
12.255	27.555 *	16.515	27.555 *
12.205	27.505 *	16.465	27.505 *
12.155	27.455 *	16.415	27.455 *
12.105	27.405	16.365	27.405
12.055	27.355	16.315	27.355
12.005	27.305	16.265	27.305
11.955	27.255	16.215	27.255
11.905	27.205	16.165	27.205
11.855	27.155	16.115	27.155
11.805	27.105	16.065	27.105
11.755	27.055	16.015	27.055
11.705	27.005	15.965	27.005
11.655	26.955 *	15.915	26.955 *
11.605	26.905 *	15.865	26.905 *
11.555	26.855 *	15.815	26.855 *
11.505	26.805 *	15.765	26.805 *
11.500	26.800 *	15.760	26.800 *
7.4915 & 7.4885	RC *	6.030	RC *
7.490	RC *		

* - Refer to notation on First Page

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CRYSTAL FREQUENCY	OPERATING
I	
17.465	27.505 *
17.415	27.455 *
17.365	27.405
17.315	27.355
17.265	27.305
17.215	27.255
17.165	27.205
17.065	27.155
17.015	27.055
16.965	27.005
16.915	26.955 *
16.865	26.905 *
16.815	26.855 *
16.765	26.805 *
16.760	26.800 *
9.575	
10.030	RC *
J	
23.790	27.505 *
23.740	27.455 *
23.690	27.405
23.640	27.355
23.590	27.305
23.560	ch 22A
23.540	27.255
23.490	27.205
23.440	27.155
23.390	27.105
23.340	27.055
23.290	27.005
23.240	26.955 *
23.190	26.905 *
23.140	26.855 *
23.090	26.805 *
23.085	26.800 *
14.980	RC *

* - see notation on First Page

CRYSTAL	OPERATING
K	
23.930	27.605 *
23.880	27.555 *
23.830	27.505 *
23.780	27.455 *
23.730	27.405
23.680	27.355
23.630	27.305
23.580	27.255
23.530	27.205
23.480	27.155
23.430	27.105
23.380	27.055
23.330	27.005
23.280	26.955 *
23.230	26.905 *
23.180	26.855 *
23.130	26.805 *
23.125	26.800 *
14.940	RC *
14.937	RC *
L	
33.200	27.505 *
33.150	27.455 *
33.100	27.405
33.050	27.355
33.000	27.305
32.950	27.255
32.900	27.205
32.850	27.155
32.800	27.105
32.750	27.055
32.700	27.005
32.650	26.955 *
32.600	26.905 *
32.550	26.855 *
32.500	26.805 *
32.495	26.800 *
5.705	RC *
6.160	RC *

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CRYSTAL FREQUENCY	OPERATING
M	
33.345	27.505 *
33.295	27.455 *
33.245	27.405
33.195	27.355
33.145	27.305
33.095	27.255
33.045	27.205
32.995	27.155
32.945	27.105
32.895	27.055
32.845	27.005
32.795	26.955 *
32.745	26.905 *
32.695	26.855 *
32.645	26.805 *
32.640	26.800 *
10.150	RC *
N	
33.500	27.505 *
33.450	27.455 *
33.400	27.405
33.350	27.355
33.300	27.305
33.250	27.255
33.200	27.205
33.150	27.155
33.100	27.105
33.050	27.055
33.000	27.005
32.950	26.955 *
32,900	26.905 *
32.850	26.855 *
32.800	26.805 *
32.795	26.800 *
6.460	RC *
6.005	RC *

CRYSTAL	OPERATING
O	
35.471	27.505 *
35.421	27.455 *
35.371	27.405
35.321	27.355
35.271	27.305
35.221	27.255
35.171	27.205
35.121	27.155
35.071	27.105
35.021	27.055
34.971	27.005
34.921	26.955 *
34.871	26.905 *
34.821	26.855 *
34.771	26.805 *
34.766	26.800 *
7.976	RC *
8.431	RC *
P	
38.100	27.505 *
38.050	27.455 *
38.000	27.405
37.950	27.355
37.900	27.305
37.870	ch 22A
37.850	27.255
37.800	27.205
37.750	27.155
37.700	27.105
37.650	27.055
37.600	27.005
37.550	26.955 *
37.500	26.905 *
37.450	26.855 *
37.400	26.805 *
37.395	26.800 *
10.150 & 10.605	RC *
4.605	RC *
11.060	RC *

* - see notation on First Page

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CRYSTAL FREQUENCY	OPERATING
Q	
11.350	27.505 *
11.300	27.455 *
11.250	27.405
11.200	27.355
11.150	27.305
11.100	27.255
11.050	27.205
11.000	27.155
10.950	27.105
10.900	27.055
10.850	27.005
10.800	26.955 *
10.750	26.905 *
10.700	26.855 *
10.650	26.805 *
10.645	26.800 *
8.645	RC *
R	
16.700	27.505 *
16.650	27.455 *
16.600	27.405
16.550	27.355
16.500	27.305
16.450	27.255
16.400	27.205
16.350	27.155
16.300	27.105
16.250	27.055
16.200	27.005
16.150	26.955 *
16.100	26.905 *
16.050	26.855 *
16.000	26.805 *
15.995	26.800 *
4.795	RC *

* - see notation on First Page

CRYSTAL	OPERATING
S	
9.050	27.605 *
9.000	27.555 *
8.950	27.505 *
8.900	27.455 *
8.850	27.405
8.800	27.355
8.750	27.305
8.700	27.255
8.650	27.205
8.600	27.155
8.550	27.105
8.500	27.055
8.450	27.005
8.400	26.955 *
8.350	26.905 *
8.300	26.855 *
8.250	26.805 *
8.245	26.800 *
13.3435	RC *
13.3465	RC *
T	
38.765	27.505 *
38.715	27.455 *
38.665	27.405
38.615	27.355
38.565	27.305
38.515	27.255
38.465	27.205
38.415	27.155
38.365	27.105
38.315	27.055
38.265	27.005
38.215	26.955 *
38.165	26.905 *
38.115	26.855 *
38.065	26.805 *
38.060	26.800 *
11.270	RC *
11.725	RC *

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CRYSTAL FREQUENCY	OPERATING
U	
7.9791	27.605 *
7.9625	27.555 *
7.9458	27.505 *
7.9291	27.455 *
7.9125	27.405
7.8958	27.355
7.8791	27.305
7.8625	27.255
7.8458	27.205
7.8291	27.155
7.8125	27.105
7.7958	27.055
7.7791	27.005
7.7625	26.955 *
7.7458	26.905 *
7.7291	26.855 *
7.7125	26.805 *
14.934 & 14.937	RC *

CRYSTAL FREQUENCY	OPERATING
V	
27.505	27.505 *
27.495	27.495 *
27.485	27.485 *
27.475	27.475 *
27.465	27.465 *
27.455	27.455 *
27.445	27.445 *
27.435	27.435 *
27.425	27.425 *
27.415	27.415 *
27.405	27.405
27.395	27.395
27.385	27.385
27.375	27.375
27.365	27.365
27.355	27.355
27.345	27.345
27.335	27.335
27.325	27.325
27.315	27.315
27.305	27.305
27.295	27.295
27.285	27.285
27.275	27.275
27.265	27.265
27.255	27.255
27.245	27.245
27.235	27.235
26.955	26.955 *
26.945	26.945 *
26.935	26.935 *

CRYSTAL	OPERATING
V con't	
26.925	26.925 *
26.915	26.915 *
26.905	26.905 *
26.895	26.895 #
26.885	26.885 *
26.875	26.875 *
26.865	26.865 *
26.855	26.855 *
26.845	26.845 *
26.840	26.840 *
26.835	26.835 *
26.830	26.830 *
26.825	26.825 *
26.820	26.820 *
26.815	26.815 *
26.810	26.810 *
26.805	26.805 *
26.800	26.800 *

CRYSTAL	OPERATING
W	
16.810	27.505 *
16.800	27.495 *
16.790	27.485 *
16.780	27.475 *
16.770	27.465 *
16.760	27.455 *
16.750	27.445 *
16.740	27.435 *
16.730	27.425 *
16.720	27.415 *
16.710	27.405
16.700	27.395
16.690	27.385
16.680	27.375
16.670	27.365
16.660	27.355
16.650	27.345
16.640	27.335
16.630	27.325
16.620	27.315
16.610	27.305
16.600	27.295
16.590	27.285
16.580	27.275
16.570	27.265
16.560	27.255
16.550	27.245
16.540	27.235
16.530	27.225

* - see notation on First Page

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CRYSTAL FREQUENCY	OPERATING
W-1 EAGLE ALSO	
21.250	27.505 *
21.240	27.495 *
21.230	27.485 *
21.220	27.475 *
21.210	27.465 *
21.200	27.455 *
21.190	27.445 *
21.180	27.435 *
21.170	27.425 *
21.160	27.415 *
21.150	27.405
21.140	27.395
21.130	27.385
21.120	27.375
21.110	27.365
21.100	27.355
21.090	27.345
21.080	27.335
21.070	27.325
21.060	27.315
21.050	27.305
21.040	27.295
21.030	27.285
21.020	27.275
21.010	27.265
20.990	27.245
20.980	27.235
X	
31.720	27.295 to 27.505*
Y	
13.100	27.265 to 27.555*
Z	
13.100	27.265 to 27.555*

* - see notation on First Page

CRYSTAL	OPERATING
AA	
12.500	26.665* to 26.955*
AB	
42.0000	27.500 - 28.000*
41.5000	27.000 - 27.500*
41.0000	26.500 - 27.000*
AC	
38.6000	27.500 - 28.000*
38.1000	27.000 - 27.500*
37.6000	26.500 - 27.000*
AD	
16.02	WWV*
33.52	27.500 - 28.000*
33.02	27.000 - 27.500*
32.52	26.500 - 27.000*
AF AF AF	
36.3950	27.500 - 28.000*
35.8950	27.000 - 27.500*
35.3950	26.500 - 27.000*
AE AE AE	
42.0000	27.500 - 28.000*
41.5000	27.000 - 27.500*
41.0000	26.500 - 27.000*
AG	
36.3950	27.500 - 28.000*
35.8950	27.000 - 27.500*
36.3950	26.500 - 27.000*
AH	
15477.500	27.800 - 28.000*
15377.500	27.600 - 27.800*
15277.500	27.400 - 27.600*
15177.500	27.200 - 27.400*
15077.500	27.000 - 27.200*
14977.500	26.800 - 27.000*
AI	
13.400	27.565* ch-56 to 27.855* ch-85

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SPECIFIC RADIO MODIFICATIONS AND ADJUSTMENTS*

* check and be aware of all F.C.C. regulations concerning adjustments and modifications to Class D radios before proceeding

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SPECIFIC RADIO MODIFICATION

COBRA 138XLR/139XLR

(1) It is possible to obtain 32 extra channels. Refer to modification sheet "A".
(2) This radio will slide 5KHz, by modification to the "VOICE LOCK".
(3) Power/modulation increase:
(a) VR-8, adjust for maximum power on AM, while checking forward modulation.
(b) CT-7, adjust for maximum sideband output.
(c) VR-7, (automatic modulation control, AM) adjust for maximum modulation.
(d) VR-2, controls RF gain level.
(e) VR-3, controls squelch level.
(f) VR-12, TX meter level control.
(g) VR-14, modulation meter level control.

COBRA 139

(1) VR-12, automatic modulation control (AMC), tune for maximum modulation.
(2) VR-15, adjust for maximum power on S.S.B.
(3) Maximum output power on AM may be achieved by tuning the various inductive coils(ie: L-12).

COBRA 29XLR

(1) L-15, L-16, L-17, tune for maximum AM power.
(2) VR-5, tune for maximum modulation.
(3) VR-4, controls RF meter adjustment.
(4) VR-1, controls S- meter adjustment.
(5) VR-6, controls modulation meter adjustment.

COBRA 21XLR

(1) L-15, L-16, L-17, tune for maximum AM power.
(2) RT-4, tune for maximum modulation.
(3) RT-2, controls S-meter adjustment.
(4) RT-5, controls RF meter adjustment.

NOTE: On some models of Cobra radios, such as the Cobra 139, a crystal box capable of 27.800 MHz plus can be attached, for further modifications. Refer to crystal reference charts and various box drawings.

BROWNING MARK IV (GOLDEN EAGLE)

(1) The famous "Screaming Eagle" sound can be added by locating the large capacitor closest to the front panel. This is a 2 Mfd @ 450 volts. Repalce this with a 20 Mfd @ 450 volts, to create the sound.

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BOMAN 910, 920, 930

On the whole, Boman radios exibit that distinct ability to have an increased wattage capability of 10 to 25 watts. Further modifications, on this brand of radio, are at this time being developed and should be forthcoming

(1) VR-2, adjust for maximum modulation (may be over 130%)
(2) Tune the green and yellow inductuve coils for a maximum power output with forward modulation.
NOTE: This radio exibits better adjacent channel rejection than more than 98% of other brand radios.

COMMANDO 2340

For 100% modulation, ground the top of the 47K ohm (yellow, violet, orange) resistor, located near the top of the audio modulation transformer; this is R-80.

COURIER REDBALL

For 100% modulation, clip the limiting diode (D-18) located on the P.C. board.

HYGAIN V-674B

VR-7, adjust modulation for 100%.

JOHNSON 123 A

To increase modulation, clip CR-11, (diode) out of circuit.

REALISTIC TRC-47

(a) R-46, Automatic modulation control. Adjust to increase modulation.
(b) R-55, Adjust to maximun transmitter power output.
(c) R-102, SSB (ALC) automatic level control, adjust for maximum SSB power.

REALISTIC TRC-57

(a) VR-12, AM (AMC) adjust to maximum modulation.
(b) VR-13, adjust for maximum modulation.
(c) Cut diode D31 (also increases modulation)
(d) VR-25, SSB (ALC) adjust for maximum SSB power.
(e) VR-21, AM power (adjust for maximum AM power).

TEABERRY STALKER II
(a) VR-6, AM adjustment for maximum power.
(b) VR-13 AM modulation adjust for maximum modulation.
(c) VR-12, SSB adjust for maximum SSD power.

REALISTIC TRC-452

VR-207, AM AMC adjust for 100% modulation.

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PRESIDENT

PRESIDENT WASHINGTON 40 channel SSB Base.

(a) VR-7, (AMC) adjust for maximum modulation.
(b) VR-8, AM transmit level, adjust for maximum transmit power.
(c) VR-9, transmit frequency adjustment, DO NOT TUNE.
(d) CT7, adjust for maximum SSB power.
(e) Refer to modification sheet "A" for addition of 32 channels.

NOTE: These modifications also apply to the President GRANT.

STANDARD COMMUNICATIONS HORIZON 29

(a) AMC, cut diode D-218 out of circuit for 100% modulation.

XTAL XSSB-10

(a) Jump the cathode of D-2 to ground to increase modulation.

HYGAIN I-A

(a) To obtain additional channels with this radio, locate the I.C. chip (PL-1) and jump pins 1&11 with a switch.
(b) Channels 17-23 will remain normal, the others will be as follows:

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	27.165	9	27.265
2	27.175	10	27.275
3	27.185	11	27.285
4	27.205	12	27.305
5	27.215	13	27.315
6	27.225	14	27.325
7	27.235	15	27.335
8	27.255	16	27.355

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MODIFICATION SHEET "A" (COBRA 138XLR/COBRA 139XLR)
(PRESIDENT WASHINGTON/GRANT)
(ROBYN GT-440D)

(1) Shifting of transmitter frequency, by use of the CLARIFIER/VOICE LOCK control.

The following steps will allow the transmitter frequency to be shifted 1.5 KHz above and below the standard operating frequency:

(a) Eliminate D-30 (1S2473).
(b) Remove R-119 (100 ohm) from the PC board and place it between the cathode side of D-32 (WZ061) and the conjunction position of R-166 and R-169 on the bottom side of the PC board.
(c) By making a short circuit across R-166, the channel frequency will be shifted 1.5 KHz above and 4.5 KHz below.

(2) The adding of 32 extra channels.

(a) Locate the extra switch (transfer circuit) and place it in the on position.
(b) Take a 1N60 diode and place it between the extra switch and pin #21 on IC7 (UPK858C), so that the cathode side of the diode is facing toward the switch.
(c) Cut the island of pin #19, of IC7, and place the register 4.7K ohm betweem the two islands which were seperated.
(d) Connect a lead wire between the empty position on the switch and the seperated island from pin #19.
(e) Realign the transmitter so that there is a minimum differance of RF output power between channels #1 and #40.
(f) Make the same adjustment for receiver sensitivity.
(g) Check the P.L.L. circuit also.
(h) The following are the frequencies of the new channels:

Channel	Freq-(MHz)	Channel	Freq-(MHz)	Ch.	(MHz)
# 8	27.455	# 23	27.655	38	27.785
9	465	24	635	39	795
10	475	25	645	40	805
11	485	26	665		
12	505	27	675		
13	515	28	685		
14	525	29	695		
15	535	30	705		
16	555	31	715		
17	565	32	725		
18	575	33	735		
19	585	34	745		
20	605	35	755		
21	615	36	765		
22	625	37	775		

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ROBYN WV-23
ADDING (A) CHANNELS TO ROBYN UNITS

(1) Remove unit from its cabinet and locate the black wire from the channel selector to the ground foil on the front edge of the board.

(2) Remove the two wires from the ANL switch and solder them together. Tape them up and bend them out of the way.

(3) Solder a 2 in. piece of hookup wire from the bottom of the ANL switch to the ground on the board.

(4) Solder a 2 in. piece of wire to a #4204 Miller coil and mount it as shown.

(5) Solder the black wire from the channel selector to the center of the ANL switch.

(6) Connect the wire from the coil to the top of the ANL switch as shown.

(7) Connect the power and antenna to the unit. Put the channel selector on channel 1 with the ANL switch in the off position, and adjust the coil until channel 2 is received. If a frequency counter is available, adjust the transmit frequency to 26.975.

The unit will now transmit on all of the (A) channels 3A through 23A. When the ANL switch is in the off position the unit will be normal on all channels. With the switch on, the selector can be used on channels 3, 7, 11, 15, 19, 22, and 23, adding seven new channels to the unit.

The unit described here is the WV-23, but this can be done to almost any of the Robyn units with a switch and a little ingenuity.

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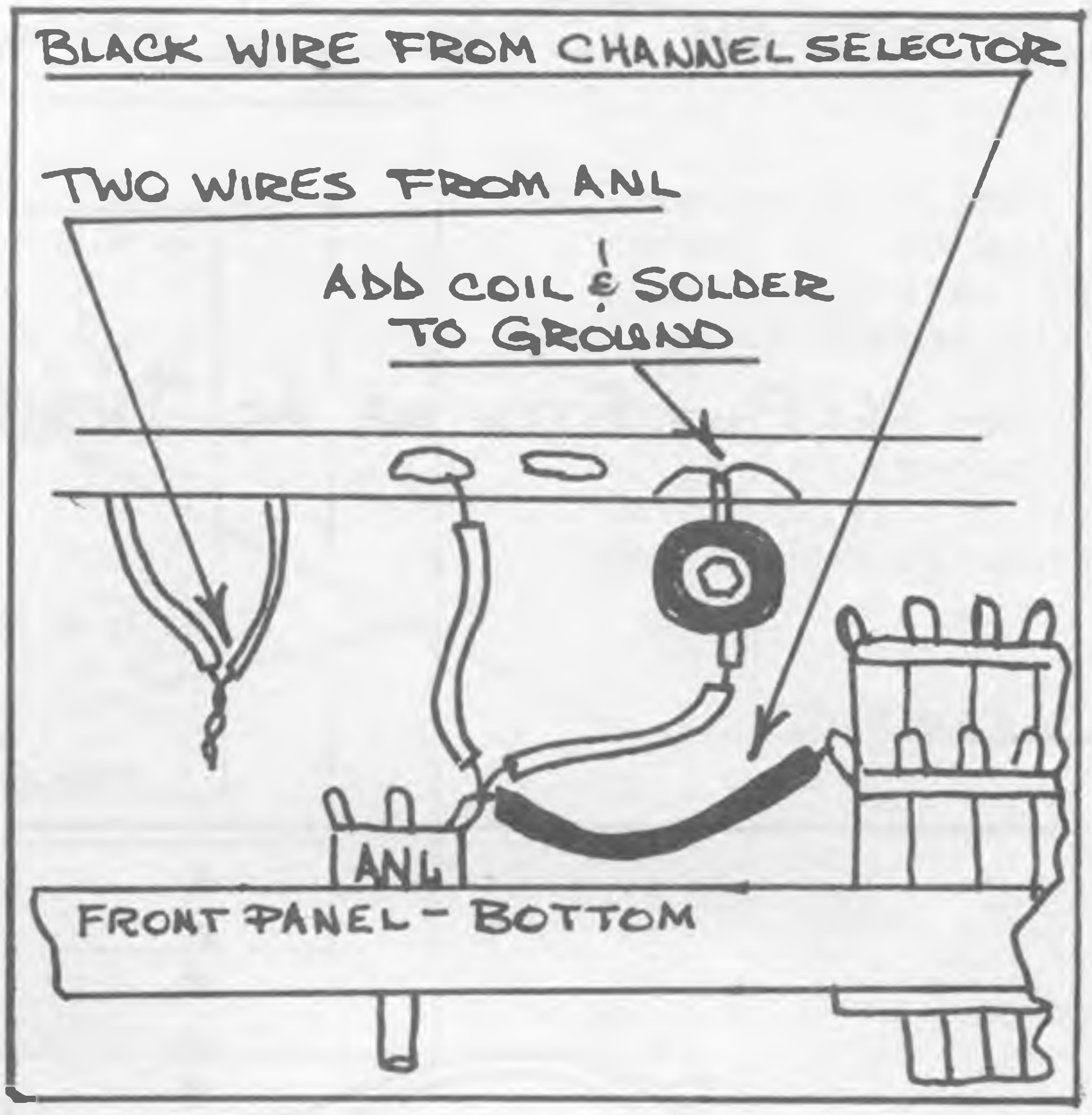
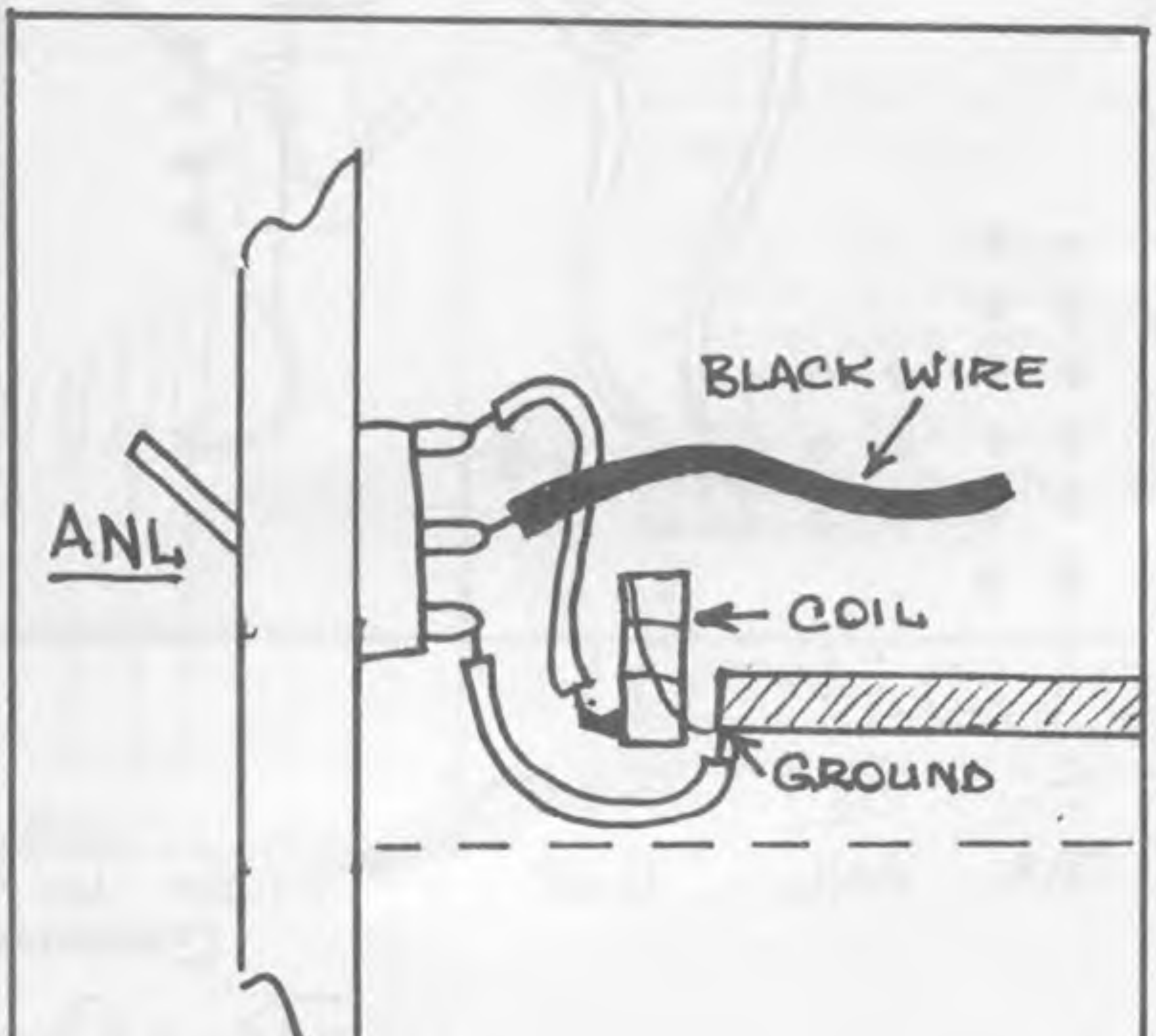
ROBYN WV-23





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ROBYN WV-23
ADDING (A) CHANNELS TO ROBYN UNITS

(1) Remove unit from its cabinet and locate the black wire from the channel selector to the ground foil on the front edge of the board.

(2) Remove the two wires from the ANL switch and solder them together. Tape them up and bend them out of the way.

(3) Solder a 2 in. piece of hookup wire from the bottom of the ANL switch to the ground on the board.

(4) Solder a 2 in. piece of wire to a #4204 Miller coil and mount it as shown.

(5) Solder the black wire from the channel selector to the center of the ANL switch.

(6) Connect the wire from the coil to the top of the ANL switch as shown.

(7) Connect the power and antenna to the unit. Put the channel selector on channel 1 with the ANL switch in the off position, and adjust the coil until channel 2 is received. If a frequency counter is available, adjust the transmit frequency to 26.975.

The unit will now transmit on all of the (A) channels 3A through 23A. When the ANL switch is in the off position the unit will be normal on all channels. With the switch on, the selector can be used on channels 3, 7, 11, 15, 19, 22, and 23, adding seven new channels to the unit.

The unit described here is the WV-23, but this can be done to almost any of the Robyn units with a switch and a little ingenuity.

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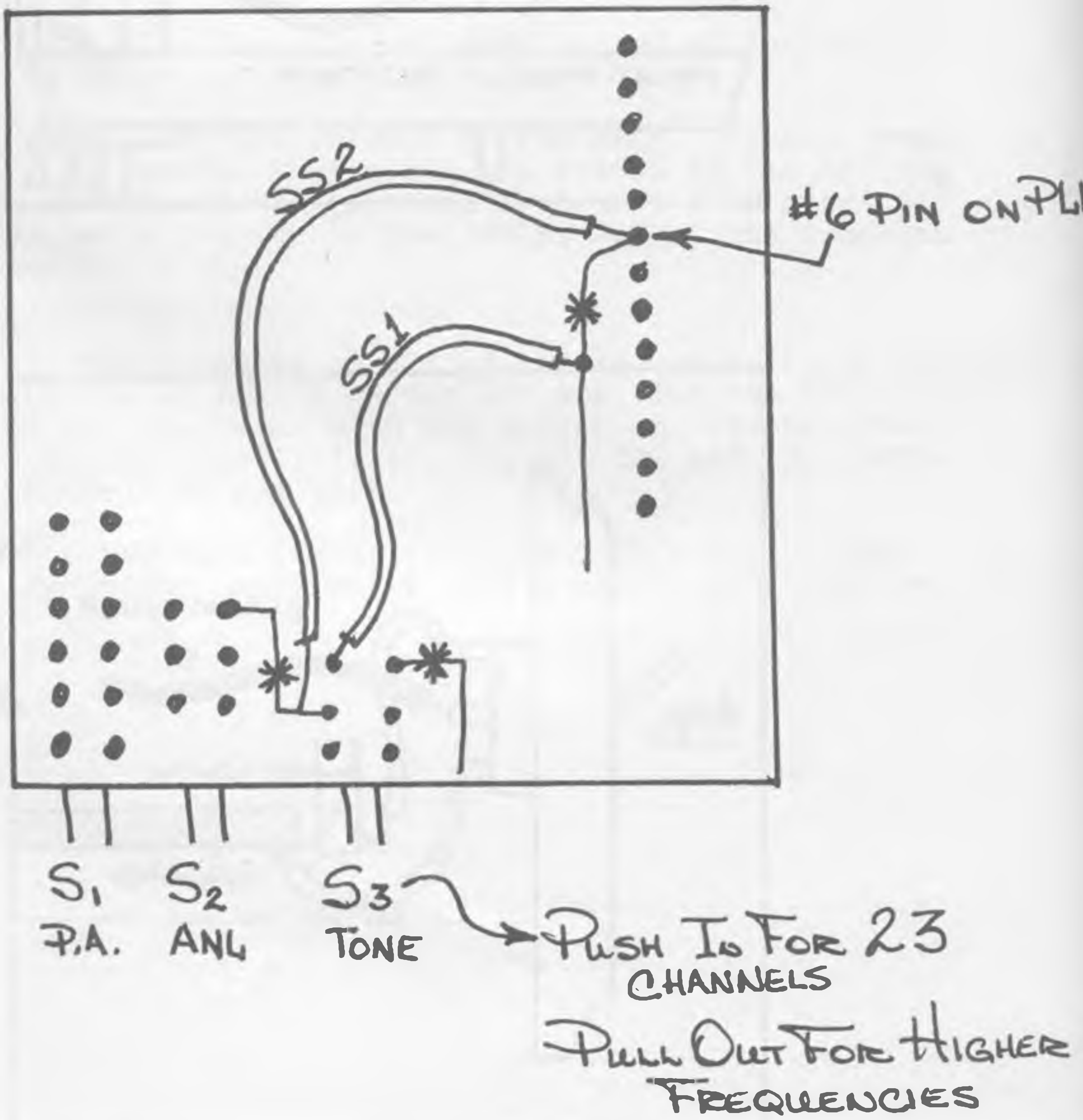
Royce 1-601

Conversion To Higher Frequency

✱= Cut Etching As Indicated



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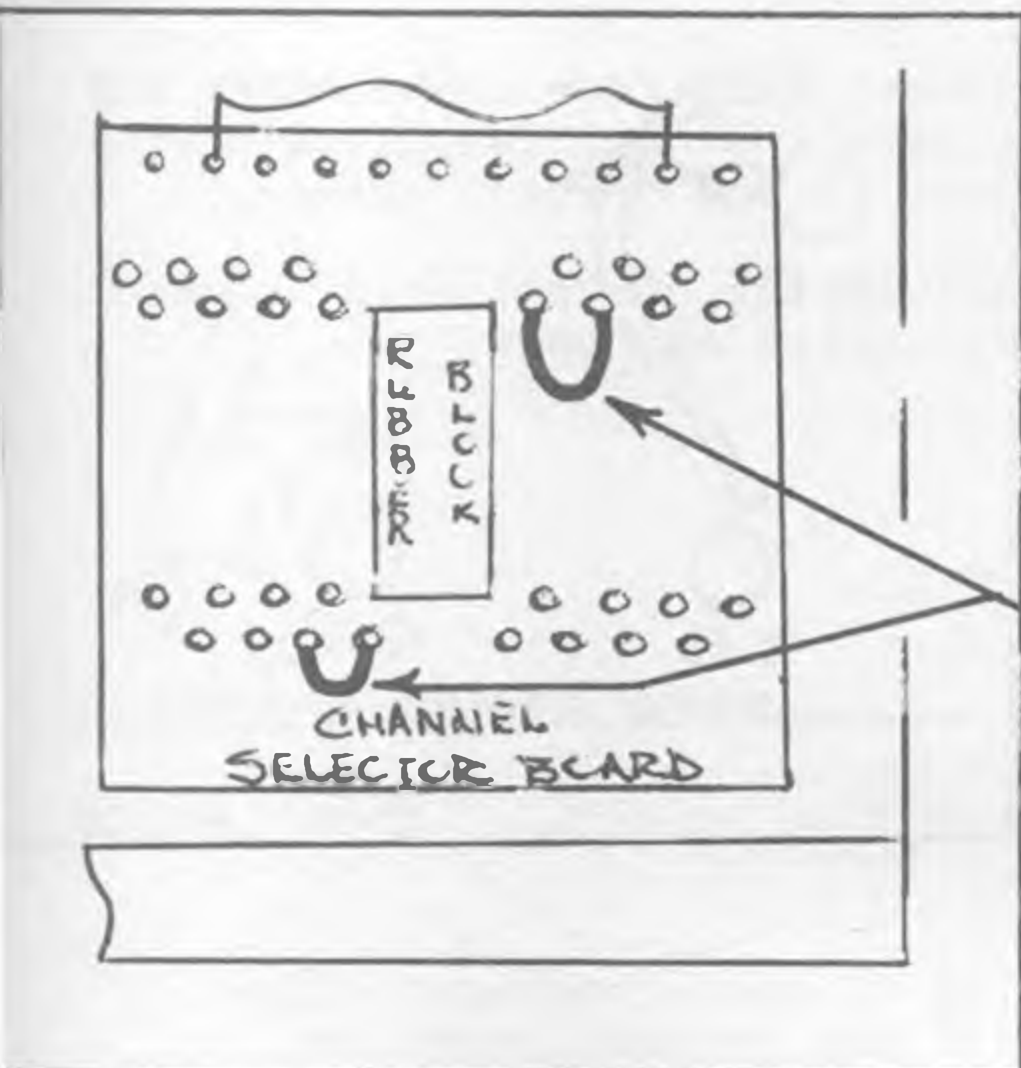
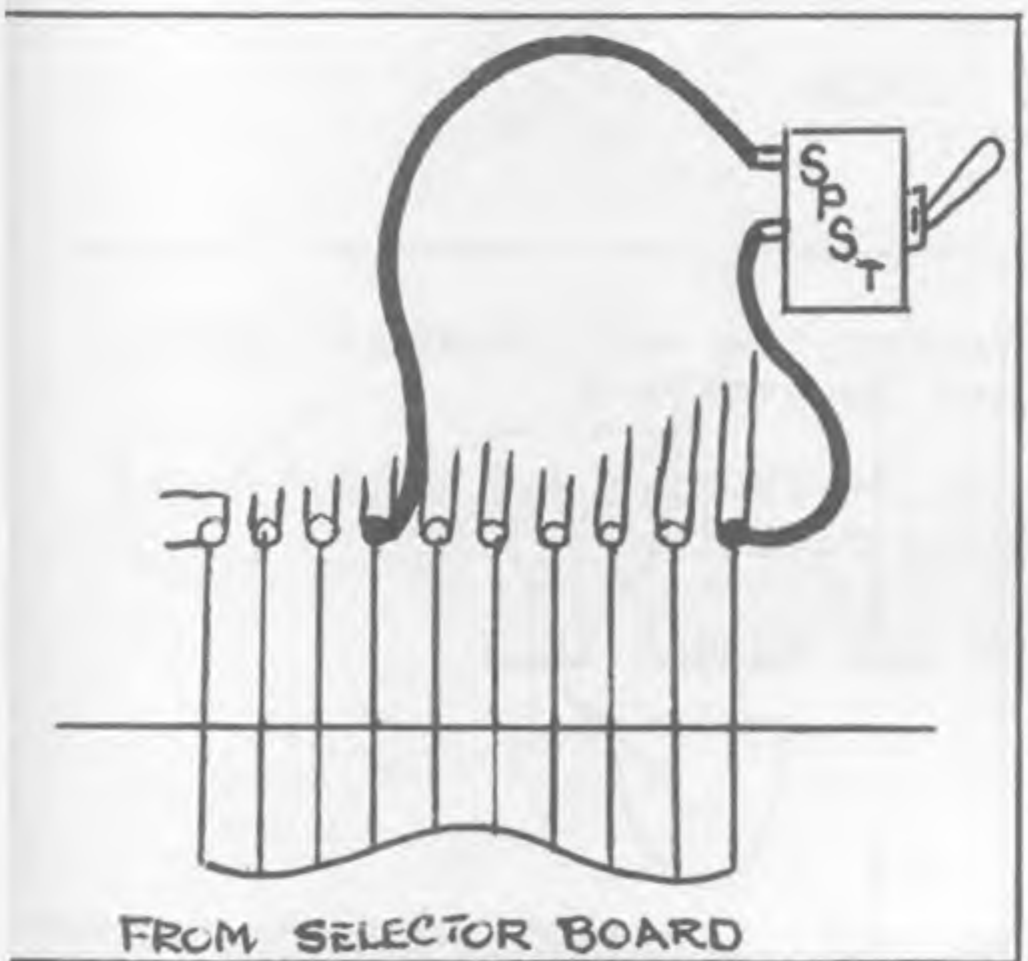


(1) Looking down into the right hand corner of the unit on the channel selector board, locate and solder the two jumper wires as shown.

(2) The unit can now be used on all of the 40 channels with the frequencies and channel readout corresponding correctly.

EXTENDED FREQUENCY COVERAGE



(1) Locate the terminals on the main board as shown.

(2) Solder two pieces of hookup wire to the first and seventh terminal on the main board as also shown.

(3) Mount a SPST switch on the rear panel and solder the two wires to the switch.

(4) The unit will now work on all 40 channels, and with the swith in the on position, will extend upward more than 50 channels.

NOTE: This modification will not extend the channel readout but will not affect the units operation.

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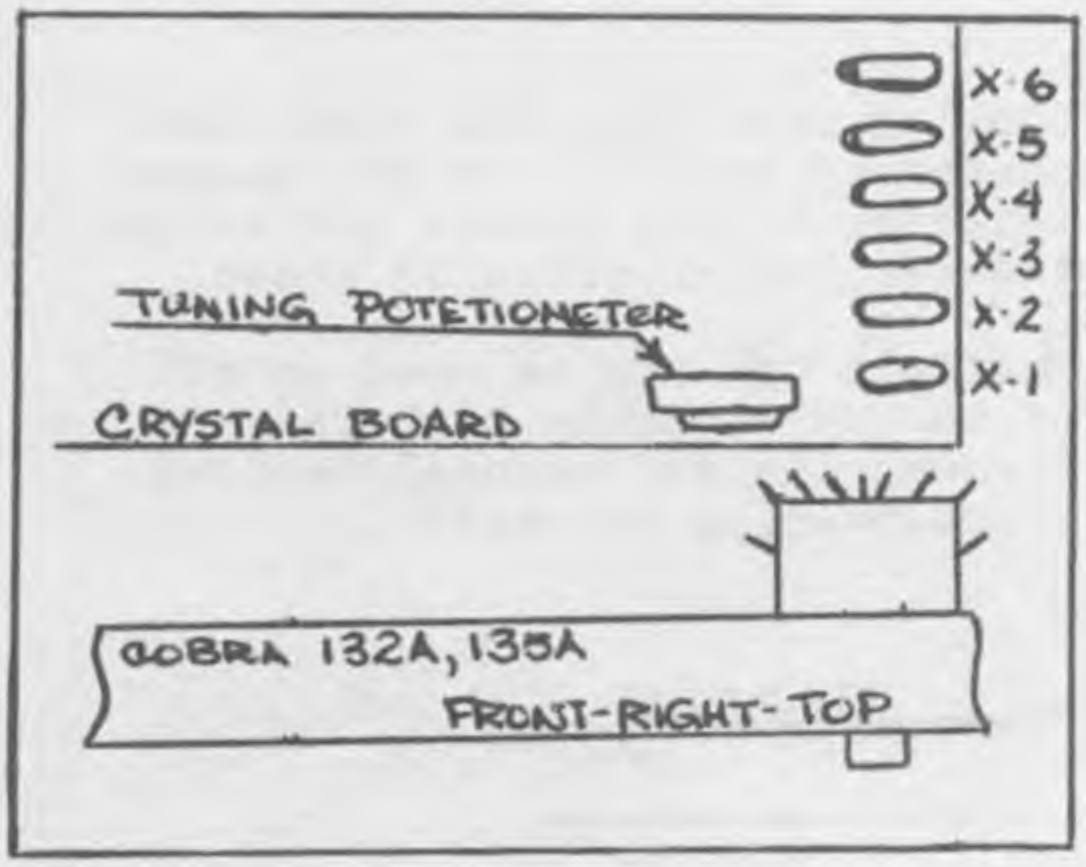
COBRA 132-A, 135-A
15KC SLIDER

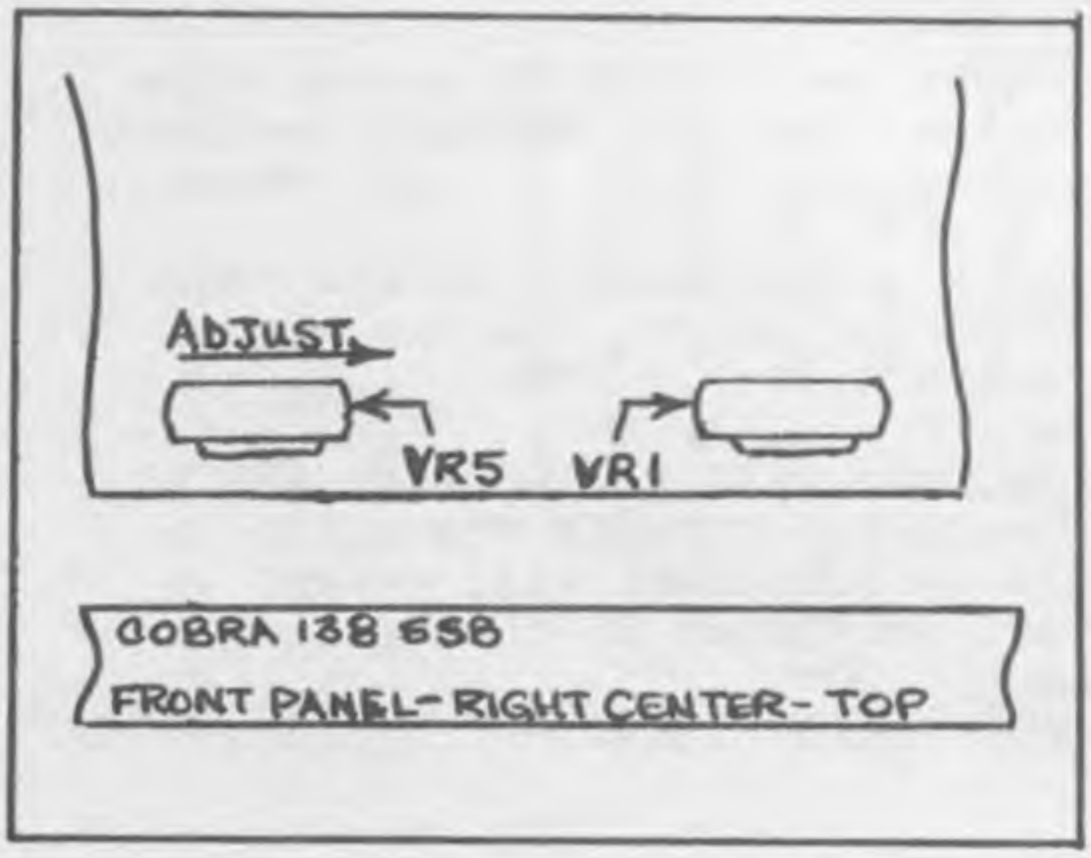


(1) Remove unit from its cabinet and locate the varible potentiometer next to the crvstal bank.

(2) Adjust the control fully counter clockwise as shown.

NOTE: The unit will now move 15 to 20 KC down frequency with adjustment of the clarifier. If the crvstal board is not shown as here the unit is probably a B model. This is shown later in this book.

COBRA 138 13KC SLIDER
(SIDEBAND UNIT)



(1) Remove the unit from its cabinet and locate VR-5.

(2) Adjust VR-5 to its fully clock-wise rotation.

(3) Do not adjust VR-1.

NOTE: The unit will now move frequency with the clarifier control approximately 13 to 15KC.

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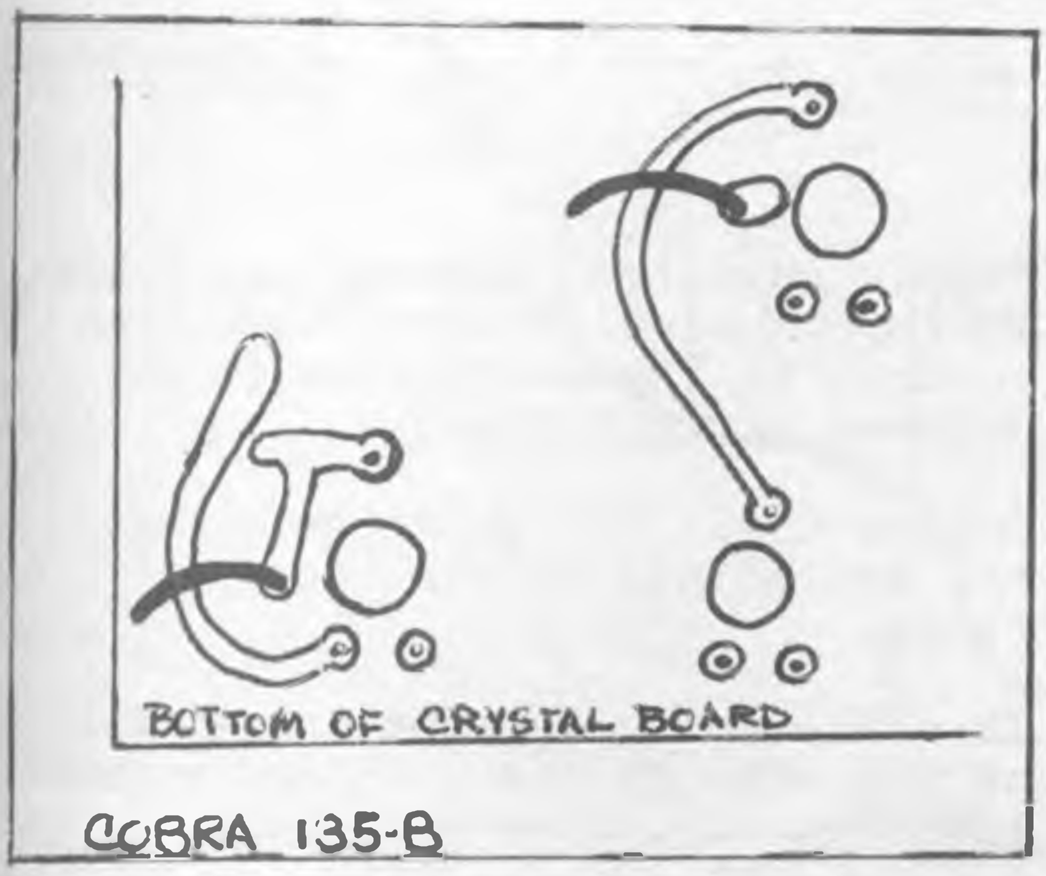
COBRA 135-B
15KC SLIDER

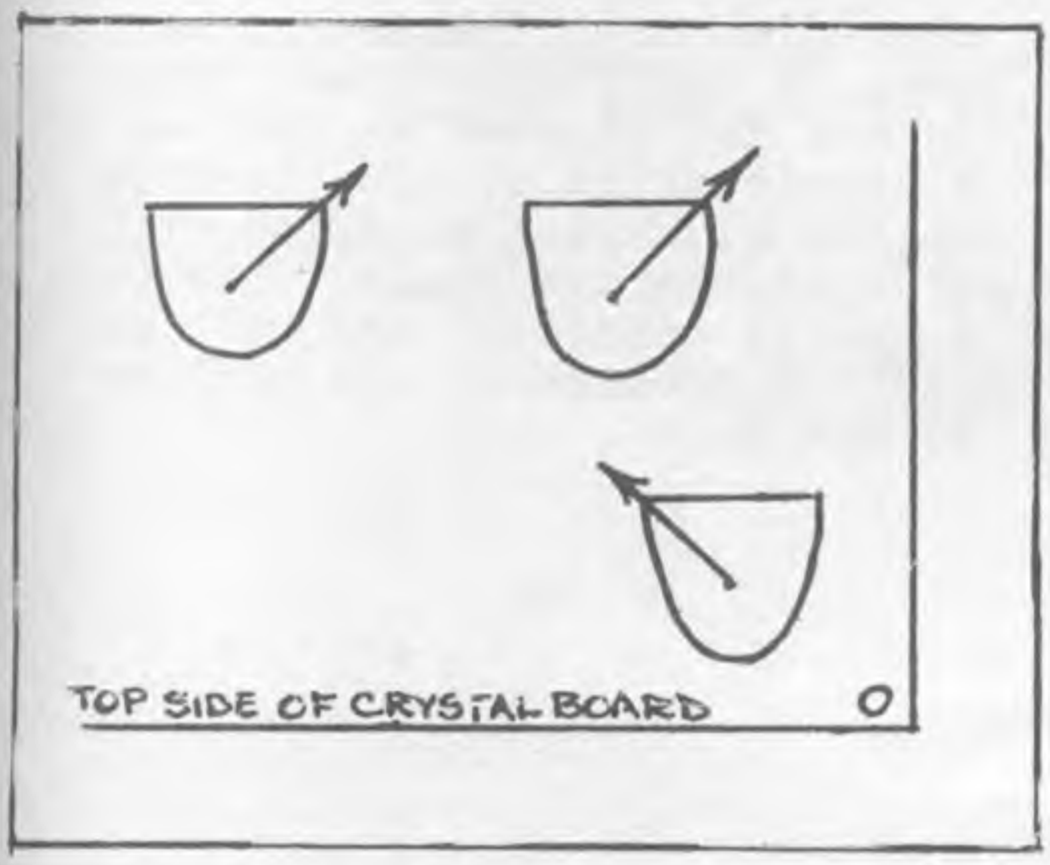


(1) Remove the unit from its cabinet and locate the crystal board and remove the screws holding it.

(2) Carefully turn the unit over and solder a small piece of wire across the points shown.

(3) Re-mount the crystal board back in its place and adjust the three controls on the top of the board as shown.

NOTE: There are many versions of the 135 crystal board due to various design changes. The one shown here is the most common and the others can be changed in the same manner.



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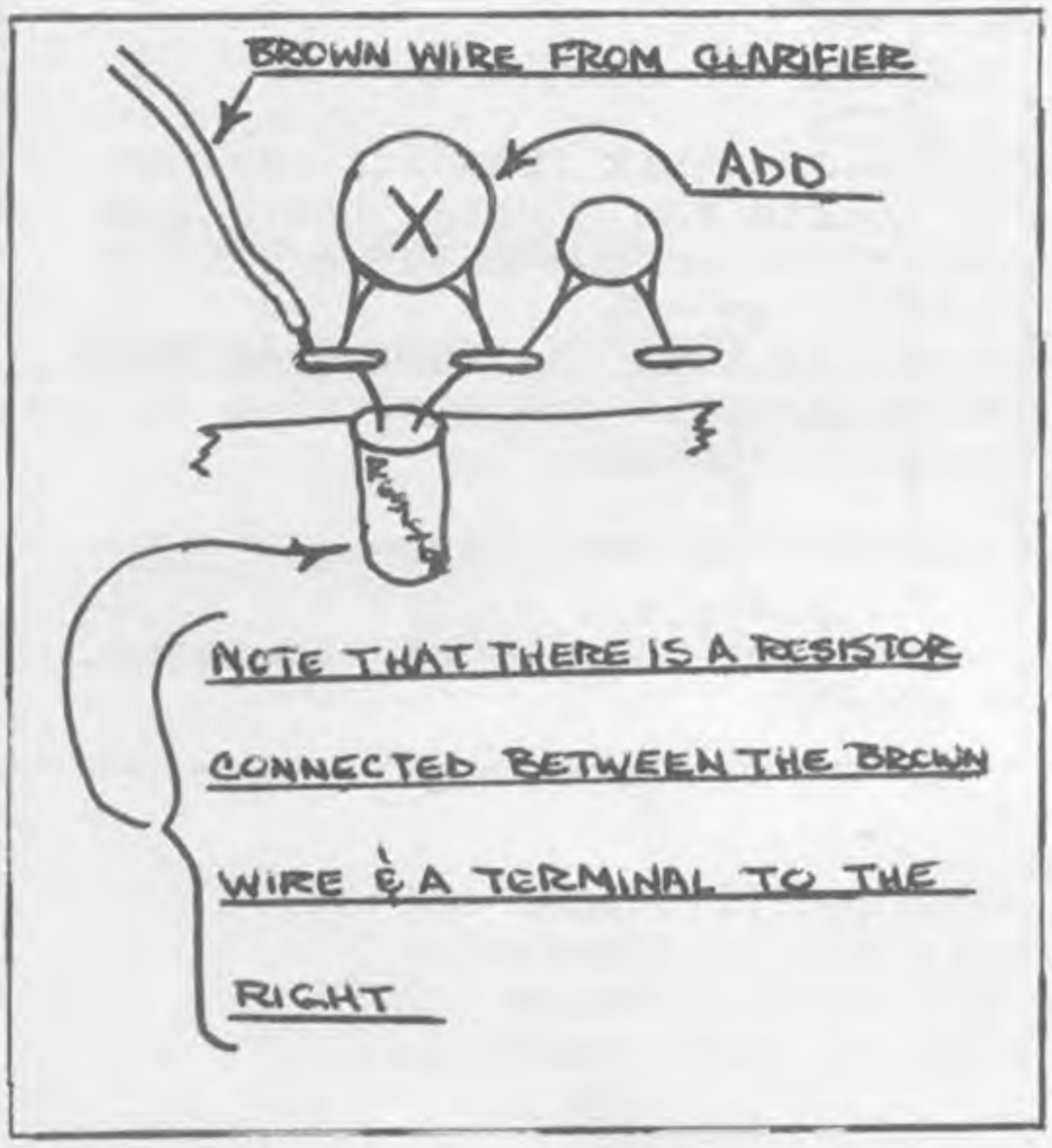
COBRA 139
15KC SLIDER
SIDEBAND BASE



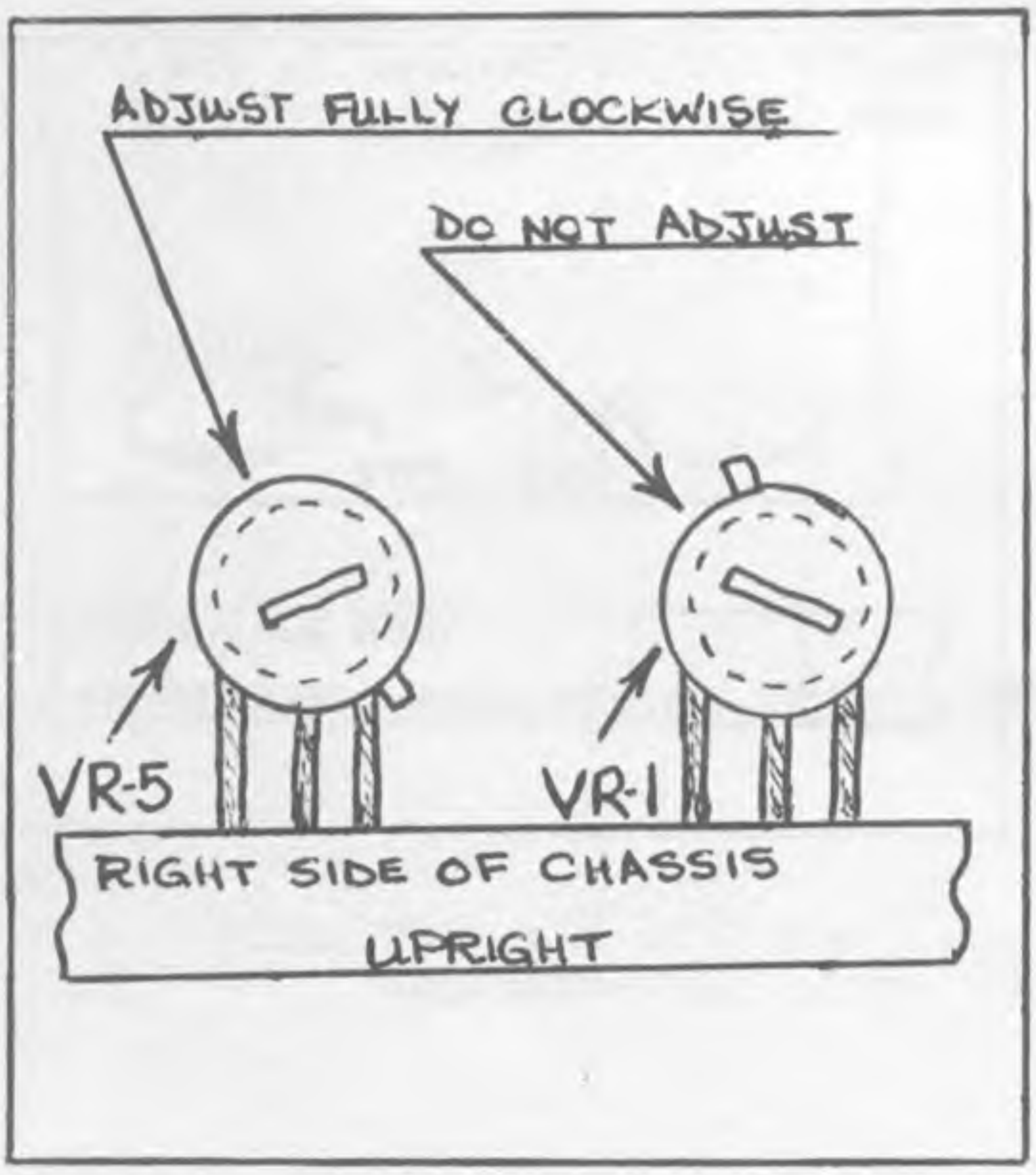
(1) Remove unit from cabinet and trace the brown wire from the clarifier control to its connection on the printed circuit board.

(2) Solder a 3.3 PF capacitor across the two points on the board as shown.

(3) Turn the unit over and locate VR5 on the side of the unit and rotate it fully clockwise as shown.

(4) The unit will now move 15 to 20KC from center by adjusting clarifier. (see note)

NOTE: If the channel selector is changed to a different channel with the clarifier down frequency the receive and transmit will quit. Do not get alarmed at this as a simple shift of the clarifier in the clockwise position will make it operate again. This is a normal condition and will present no problem or unstability to the unit.



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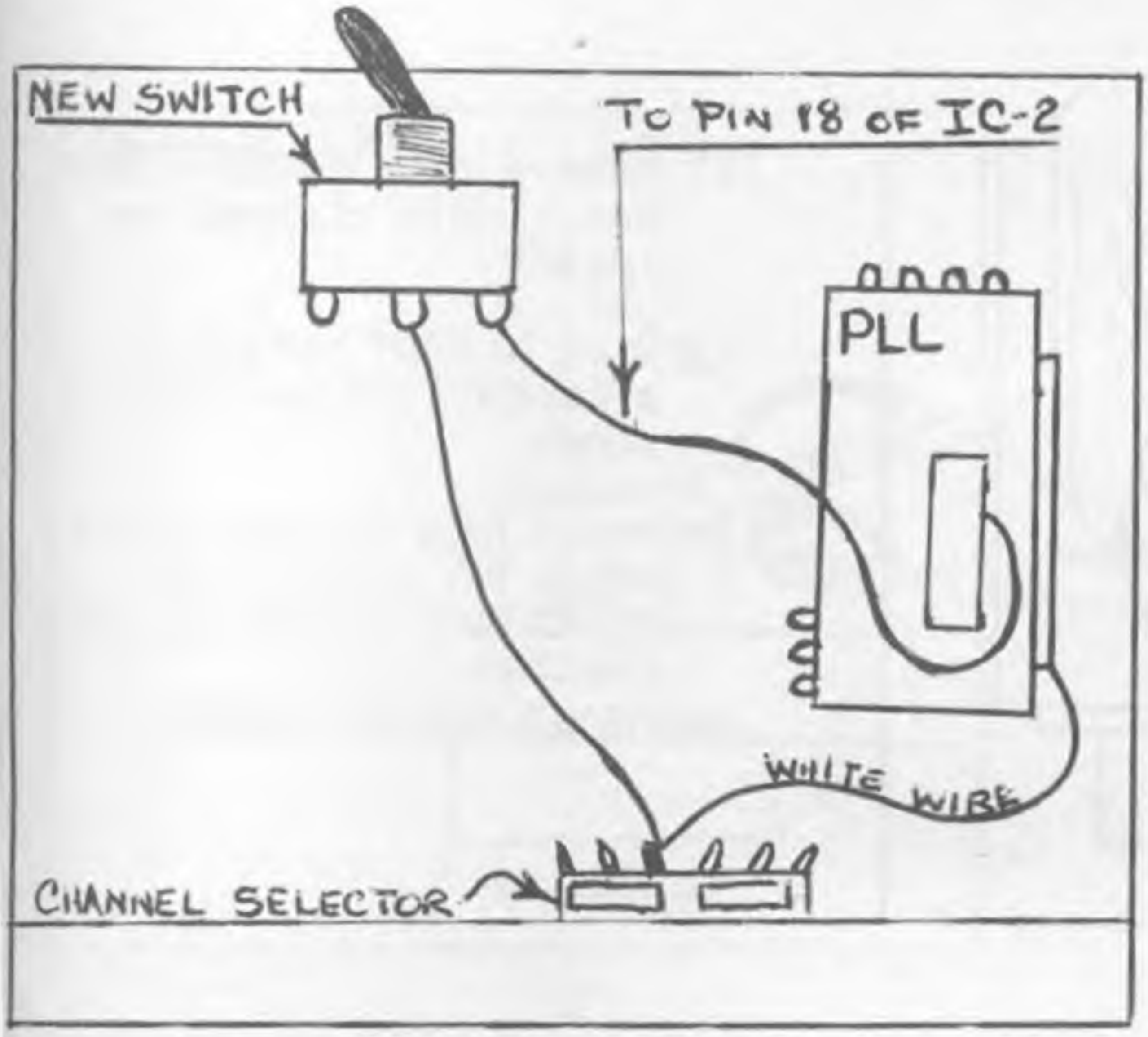
COURIER CENTURION PLL, GLADIATOR PLL
PEARCE SIMPSON SIMBA PLL, CHEETAH PLL
39 CHANNEL MODIFICATION



(1) Remove top cover of unit and locate PLL box to the right side.

(2) Remove the top cover of the PLL box and the rubber block on top of the integrated circuit.

(3) Solder a small piece of wire 8 in. long to Pin 18 of the integrated circuit, this will be the 7th pin back towards the front panel on the right side.

(4) Push the wire through the hole in the left side of the box and re-install the rubber block and cover to the box.

(5) Solder the other end of this wire to a switch and mount the switch to the back panel of the unit.

(6) Solder another piece of wire to the center of the switch and the other end to the white wire connected to the channel selector as shown.

NOTE: Be careful when soldering the wire to the integrated circuit making sure not to short any other pins.

CHANNEL USED	FREQUENCY	CHANNEL USED	FREQUENCY
7	27.435 MHz	15	27.335 MHz
8	27.255 MHz	16	27.355 MHz
9	27.265 MHz	17	27.365 MHz
10	27.275 MHz	18	27.375 MHz
11	27.285 MHZ	19	27.385 MHz
12	27.305 MHz	20	27.405 MHz
13	27.315 MHz	21	27.415 MHz
14	27.325 MHz	22	27.425 MHz

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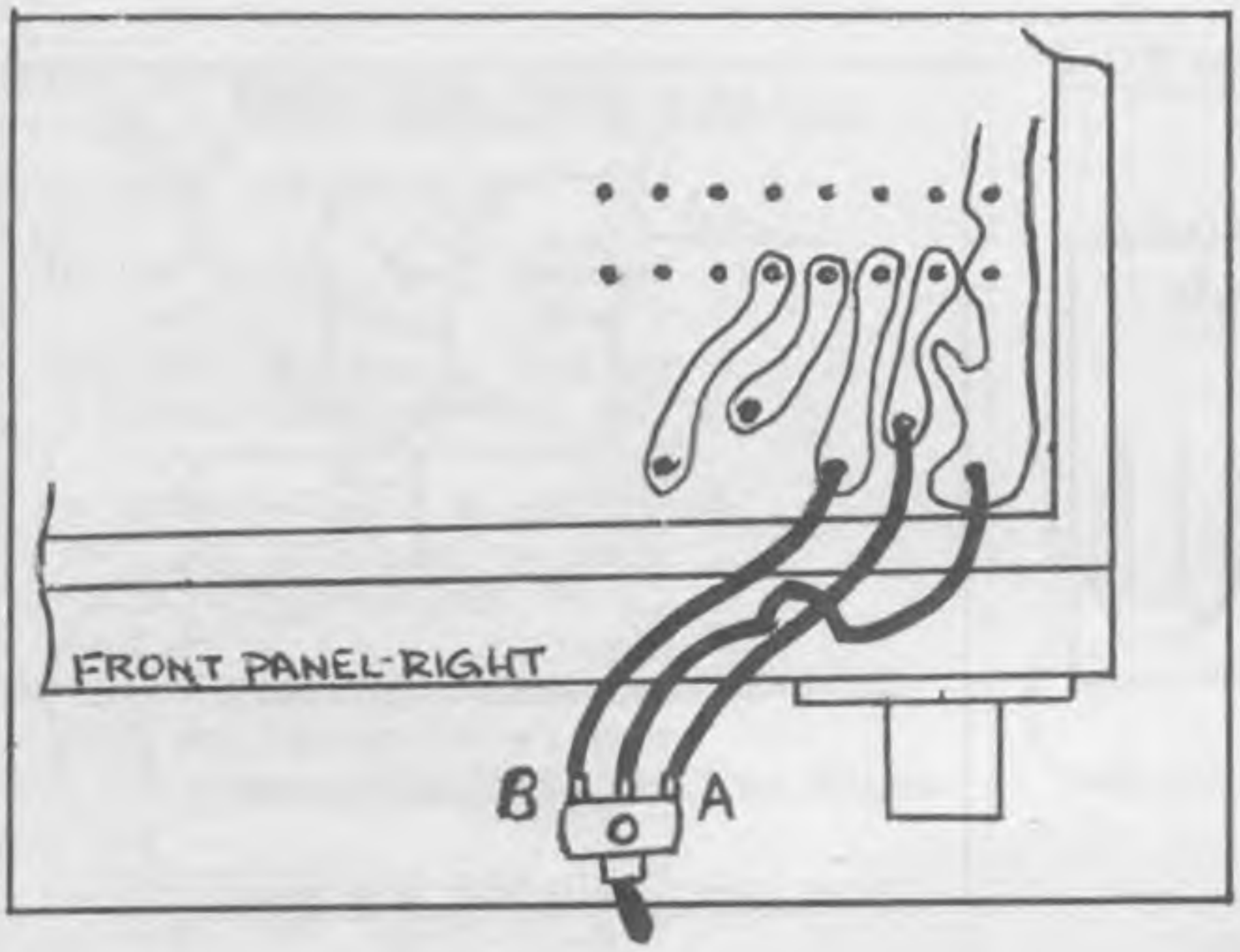
HY-GAIN & PEARCE SIMPSON
INCREASED CHANNEL CAPABILITY
PLL UNITS ONLY



(1) Remove cabinet from unit and locate channel selector.

(2) Wire a SPDT switch with a center off position as shown.

(3) Mount the switch in the small PA speaker jack hole in the rear of the cabinet.

NOTE: These units have been changed so many times the unit may not perform exactly as the chart frequencies. In any case, the frequencies covered are dependent on the integrated circuit used. I have noticed that the units that are labeled 01A in the schematic will go up to 27.425 MHz. The units labeled 02A will only hit 27.275 MHz.

	A			B	
CHANNEL		FREQUENCY	CHANNEL		FREQUENCY
1		27.165 MHz	1		27.365 MHz
2		27.175 MHz	2		27.375 MHz
3		27.185 MHz	3		27.385 MHz
4		27.205 MHz	4		27.405 MHz
5		27.215 MHz	5		27.415 MHz
6		27.225 MHz	6		27.425 MHz
7		27.235 MHz			
8		27.255 MHz			
9		27.265 MHz			
10		27.275 MHz			
11		27.285 MHz			
12		27.305 MHz			
13		27.315 MHz			
14		27.325 MHz			
15		27.335 MHz			
16		27.355 MHz			

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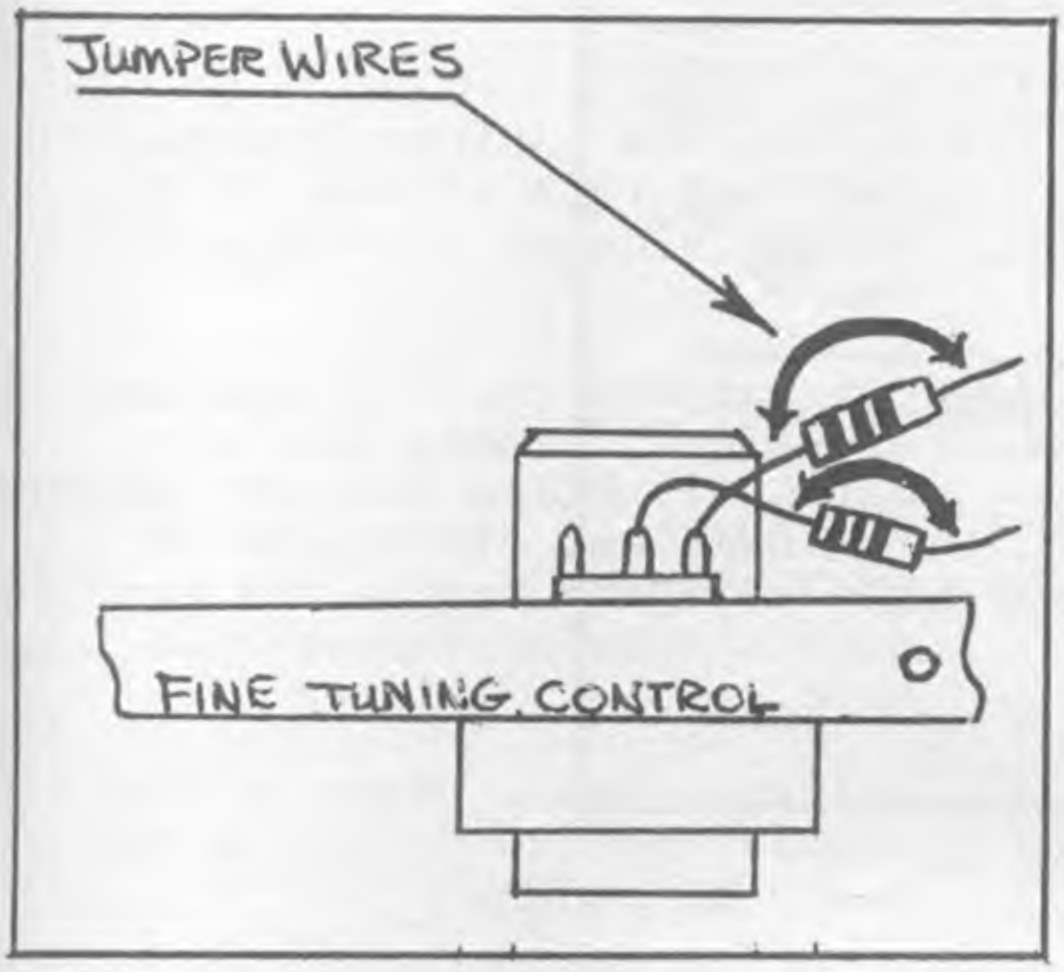
20KC SLIDER AND POWER INCREASE

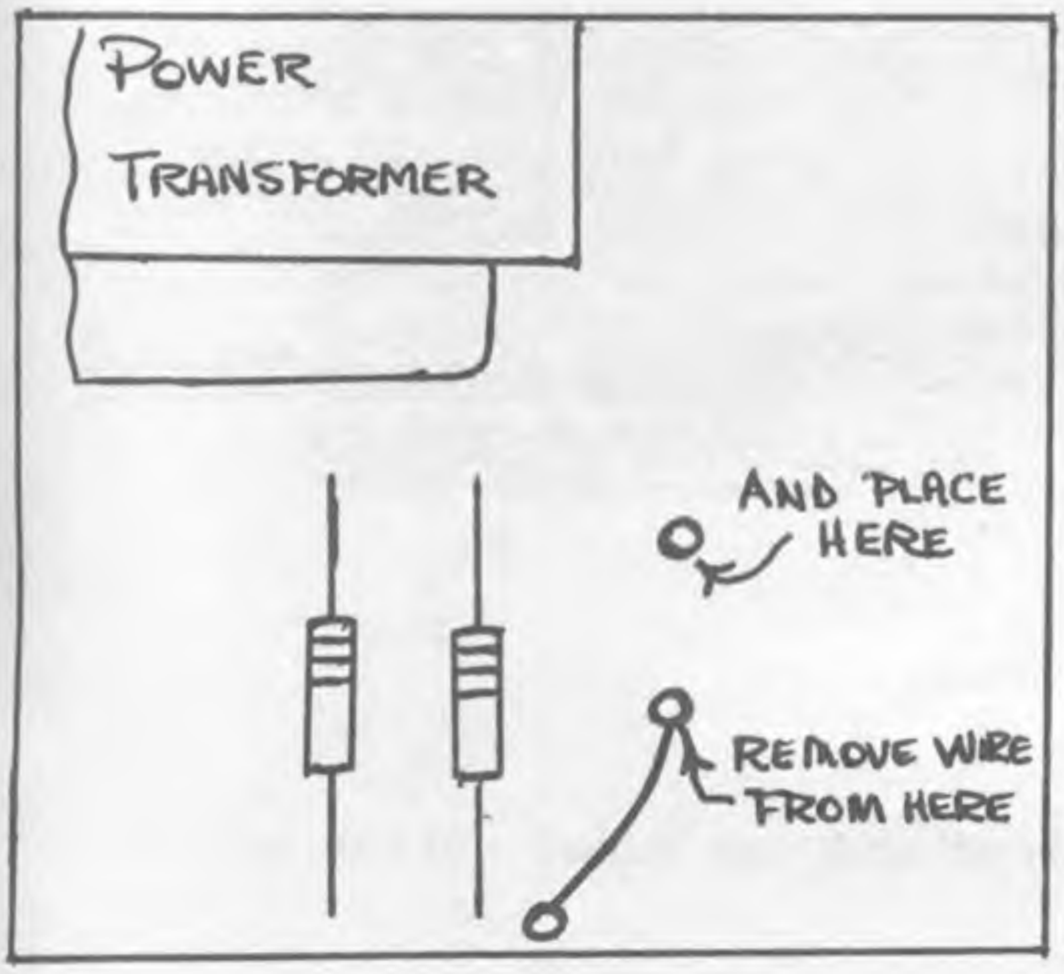


(1) Remove bottom and top cover and locate range limiting resistors on fine tune control.

(2) Solder jumper wires across them as shown.

(3) Locate the wire in front of the power transformer and move it to the empty pin directly behind it, as shown.

NOTE: This modification will result in 20KC coverage of the fine tune control and a power output on SSB of about 20 watts.



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(1) Remove the cabinet from the unit and turn it over to the bottom side of the circuit board.

(2) Cut out the small square and cut a small index card to match it. Place the card against the back and right side of the unit and notice the two points showing through the hole.

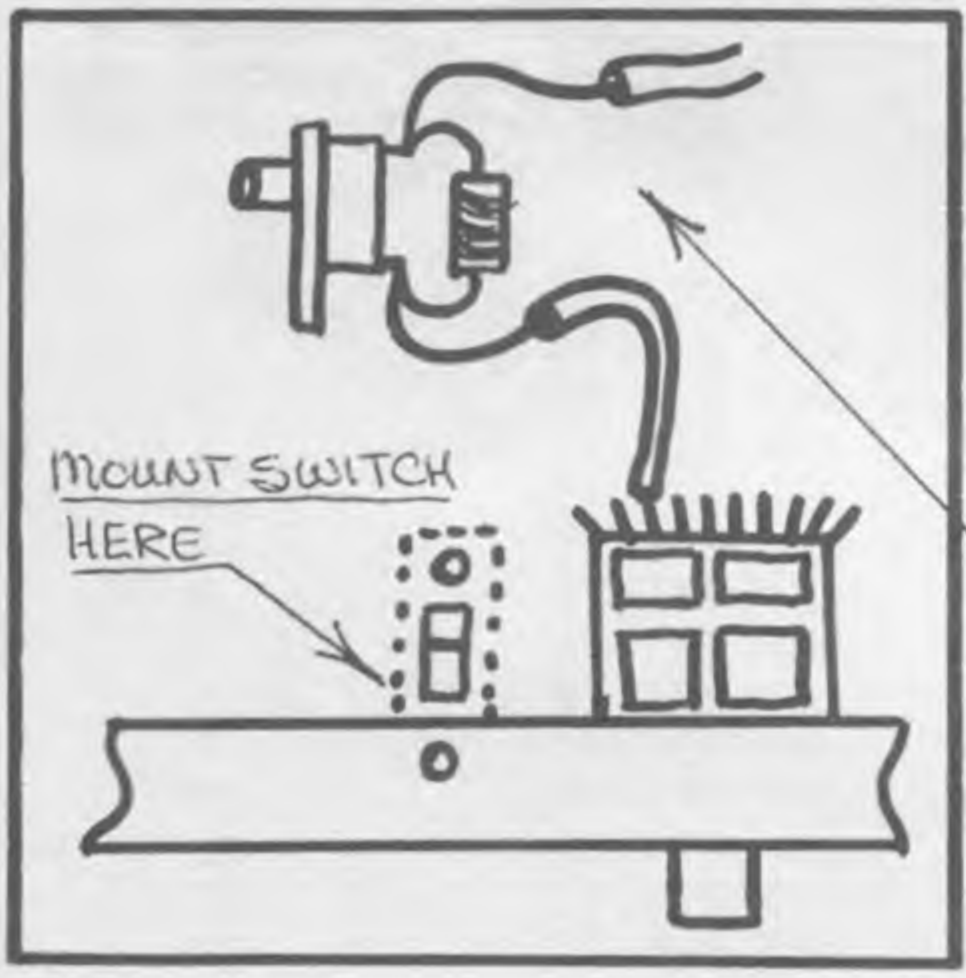
(3) Solder a small piece of wire across the two points on the board as shown.

(4) Obtain a small SPST switch and solder a 10UH RF choke across it as shown.

(5) Cut the purple wire from the channel selector and solder the two ends across the switch.

(6) Drill a small hole in the front panel lip and mount the switch as shown.

(7) Cut a slot in the cover of the cabinet with a nibbling tool or hacksaw, to allow the switch to come through.



CUT PURPLE WIRE & SOLDER
IN SWITCH & SLIDER

NOTE: The CB, PA switch can be rewired and the added switch can be eliminated.

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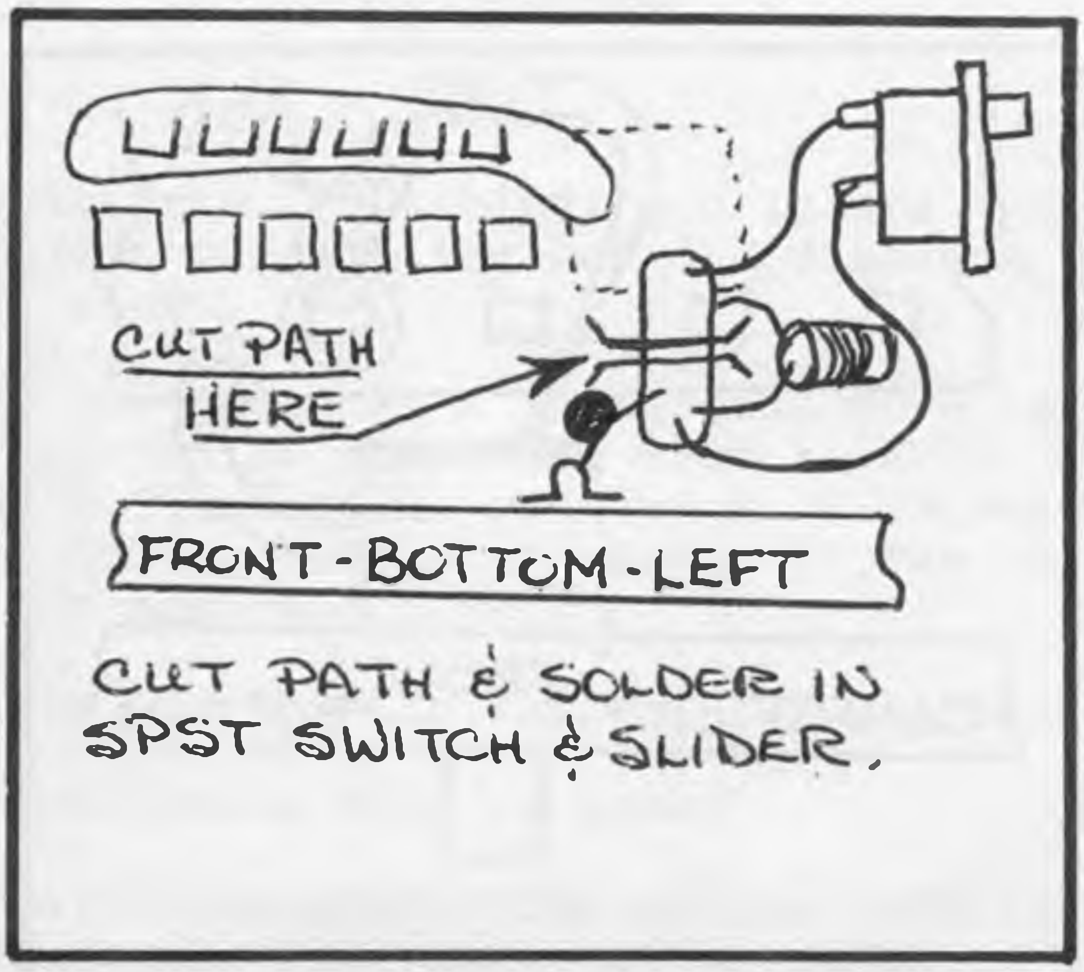
MIDLAND 13-898B
15KC SLIDER



(1) Remove bottom cover and locate the circuit path to the right hand side of the crystal bank just behind the front panel as shown. With an X-ACTO knife or a single edge razor blade, cut the path in the center as also shown.

(2) Solder a Miller #4205 adjustable coil across the two points on the board that have just been cut.

(3) Drill a small hole in the left front edge of the unit and mount a small SPST switch with one screw. A better view of this can be found under SBE Console II later in this book.

(4) Solder two wires across the switch and solder them to the two points across the choke on the board as shown. keep the wires as short as possible.

(5) Turn the rig on and adjust the choke for the frequency coverage desired with the clarifier. The switch on the bottom is utilized because the clarifier will not come back to its original center frequency, in other words, the switch could be labeled varible and normal because in its on position, the clarifier works normal or 1KC up or down.

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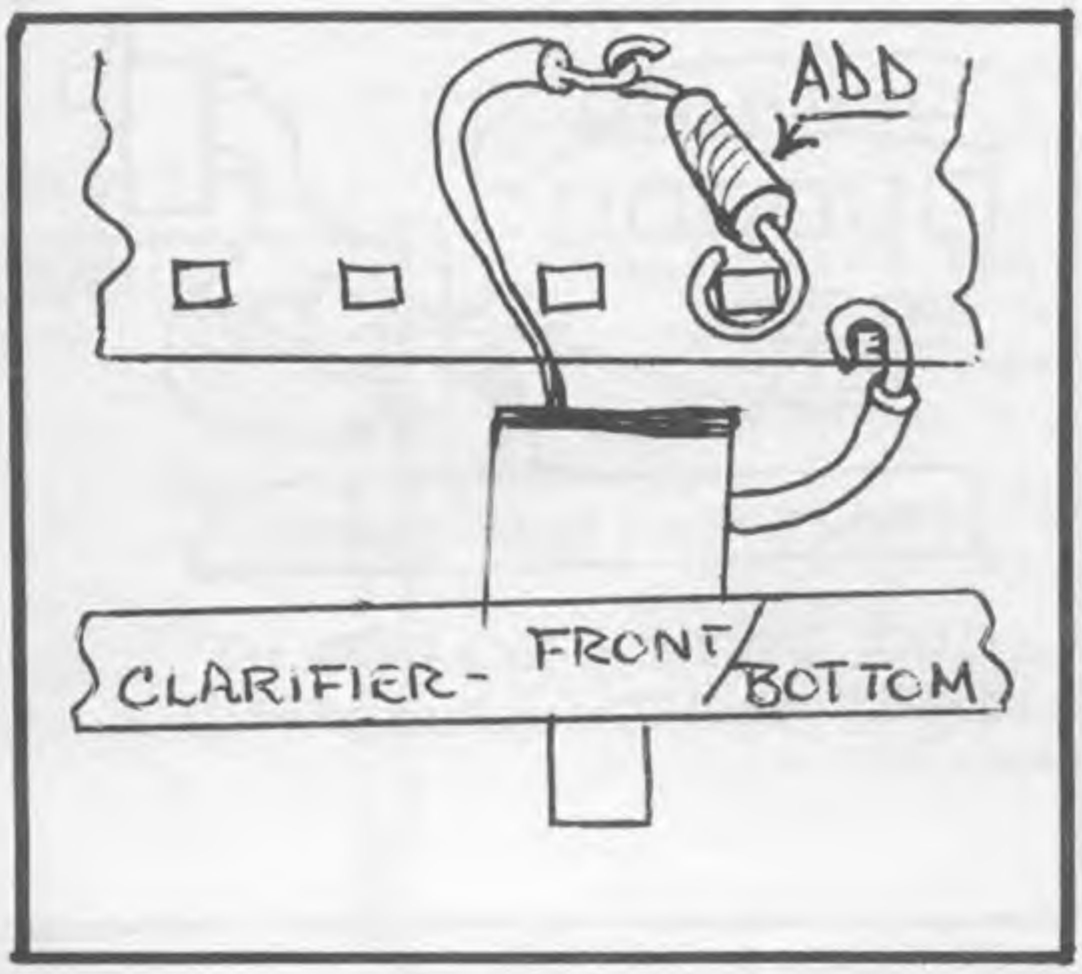
MIDLAND 13-898
15KC SLIDER



(1) Remove the unit from its cabinet and locate the wire to the clarifier from the fourth terminal on the board.

(2) Remove the wire and add a 20 UH RF choke in series with the wire as shown. See note below.

NOTE: The RF choke is made by connecting two 10 UH RF chokes in series or by using a Miller #4205 adjustable coil.

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PACE 1000
SLIDER

(1) Remove unit from its cabinet and locate the metal strip on the bottom side of the board and solder the small wire jumper as shown.

(2) Notice if the unit has a fixed coil or a large adjustable coil on the top of the board next to R225. If the unit has a small fixed coil, add a 6.2 PF capacitor across the two point on the bottom as shown. If the coil is adjustable do not add capacitor.

(3) Adjust R226 and R227 to their fully clockwise position.

(4) Cut out and remove R225 as shown.

(5) The unit will now slide 15KC if the coil is fixed or if it is adjustable the range can be adjusted appropiately.

(6) If it is desired the pink wire from the channel selector can be cut out and removed to make the 22A position active on the channel selector.

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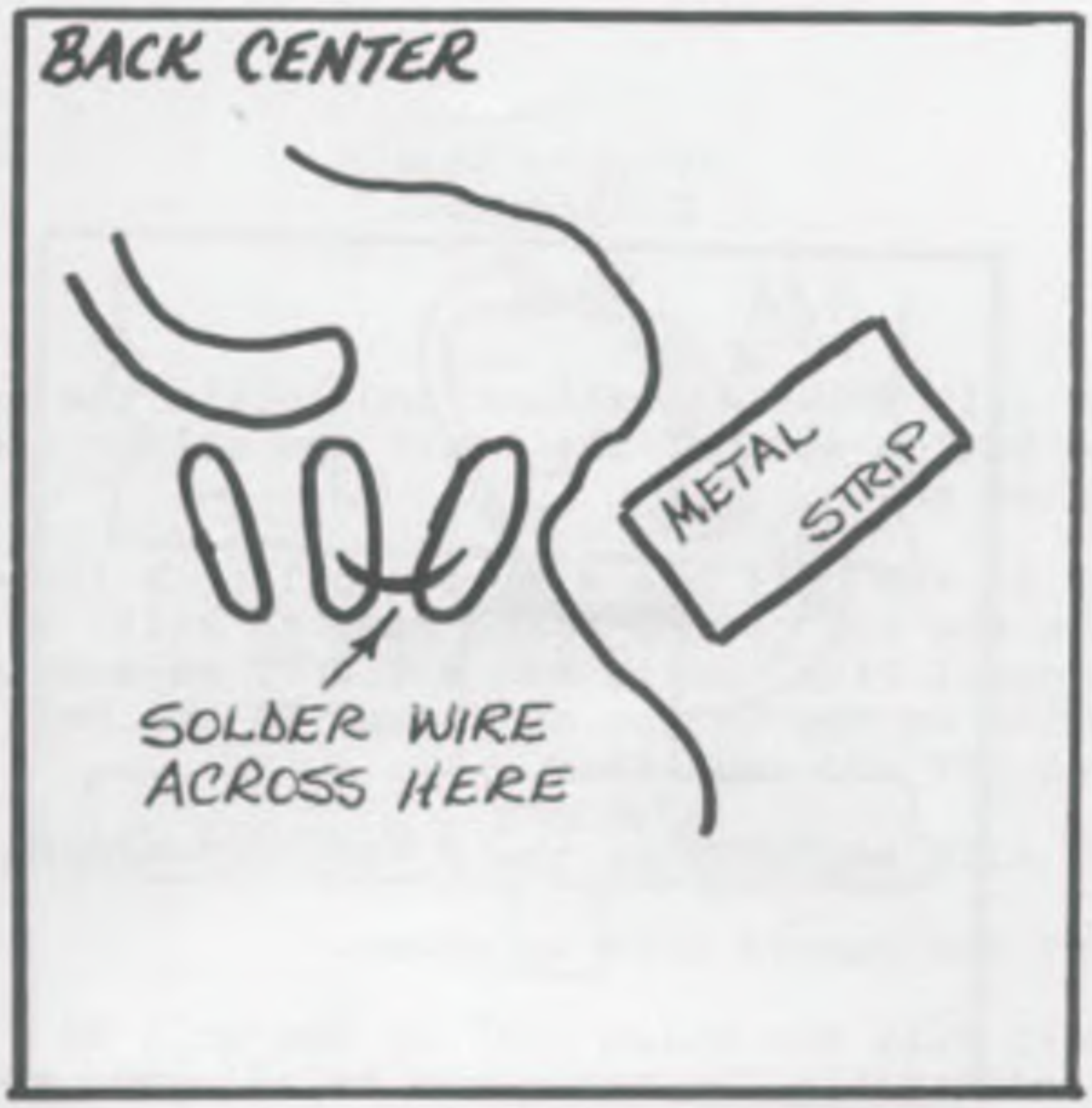
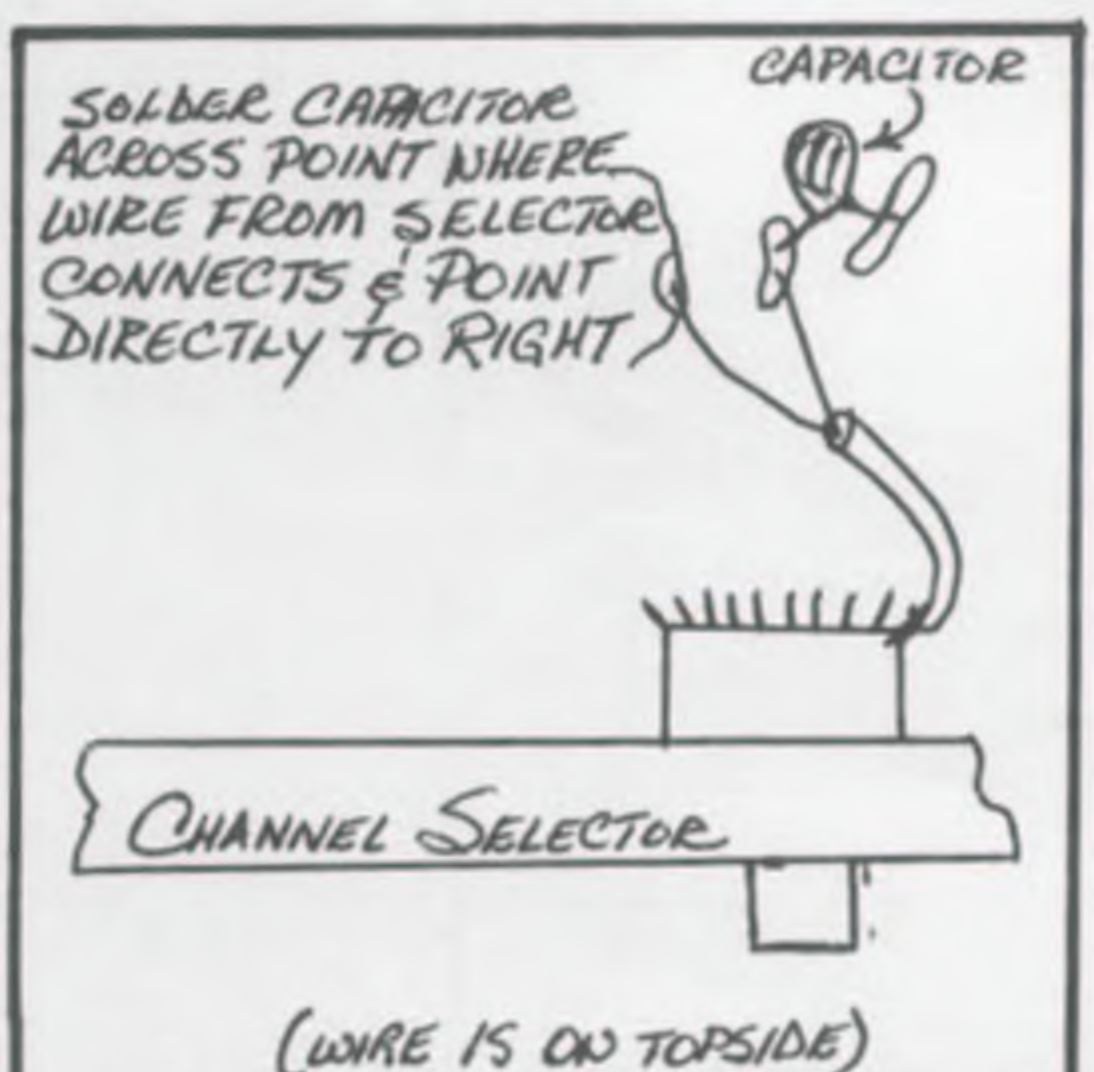
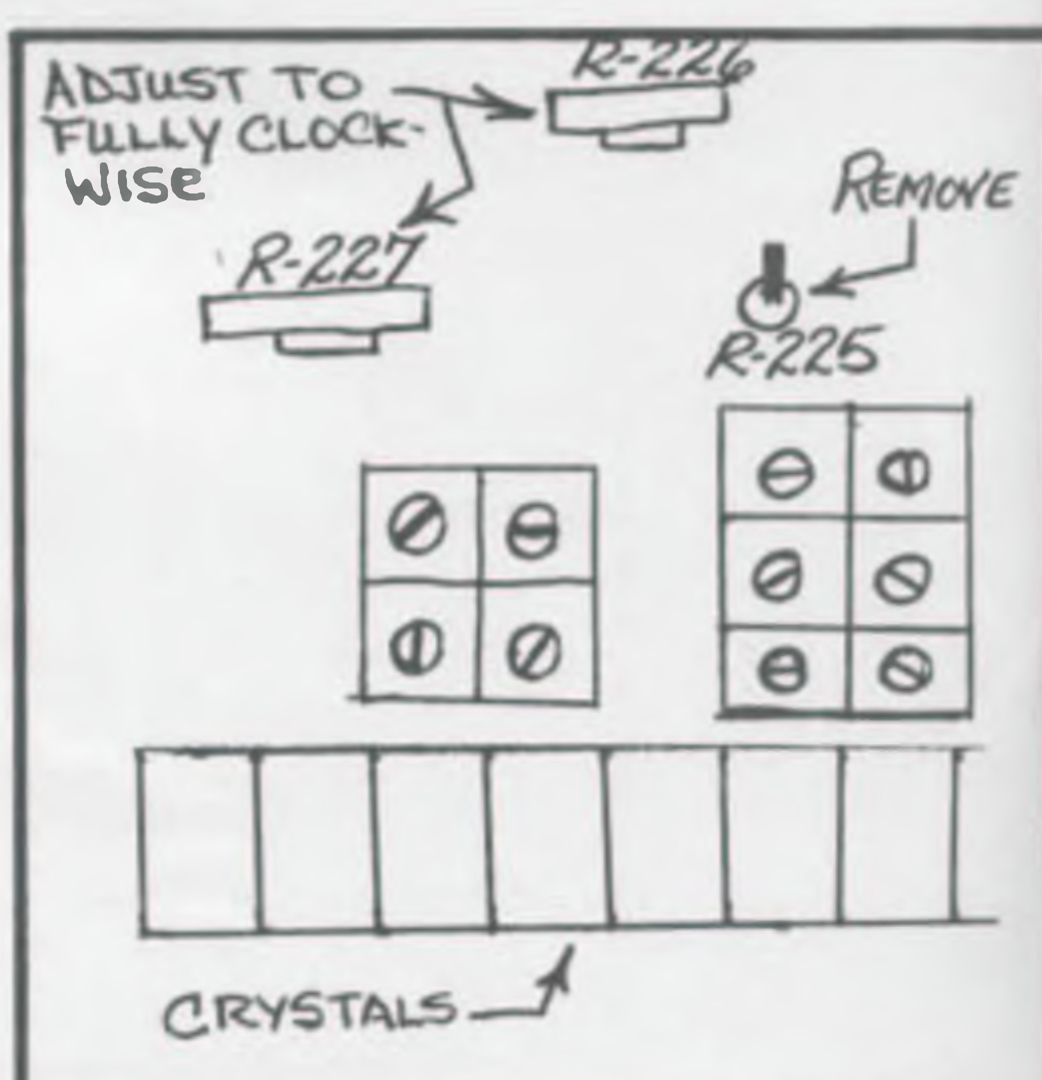


PACE 1000
SLIDER





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PACE DX1023B
20DC SLIDER

(1) Remove unit from its cabinet.

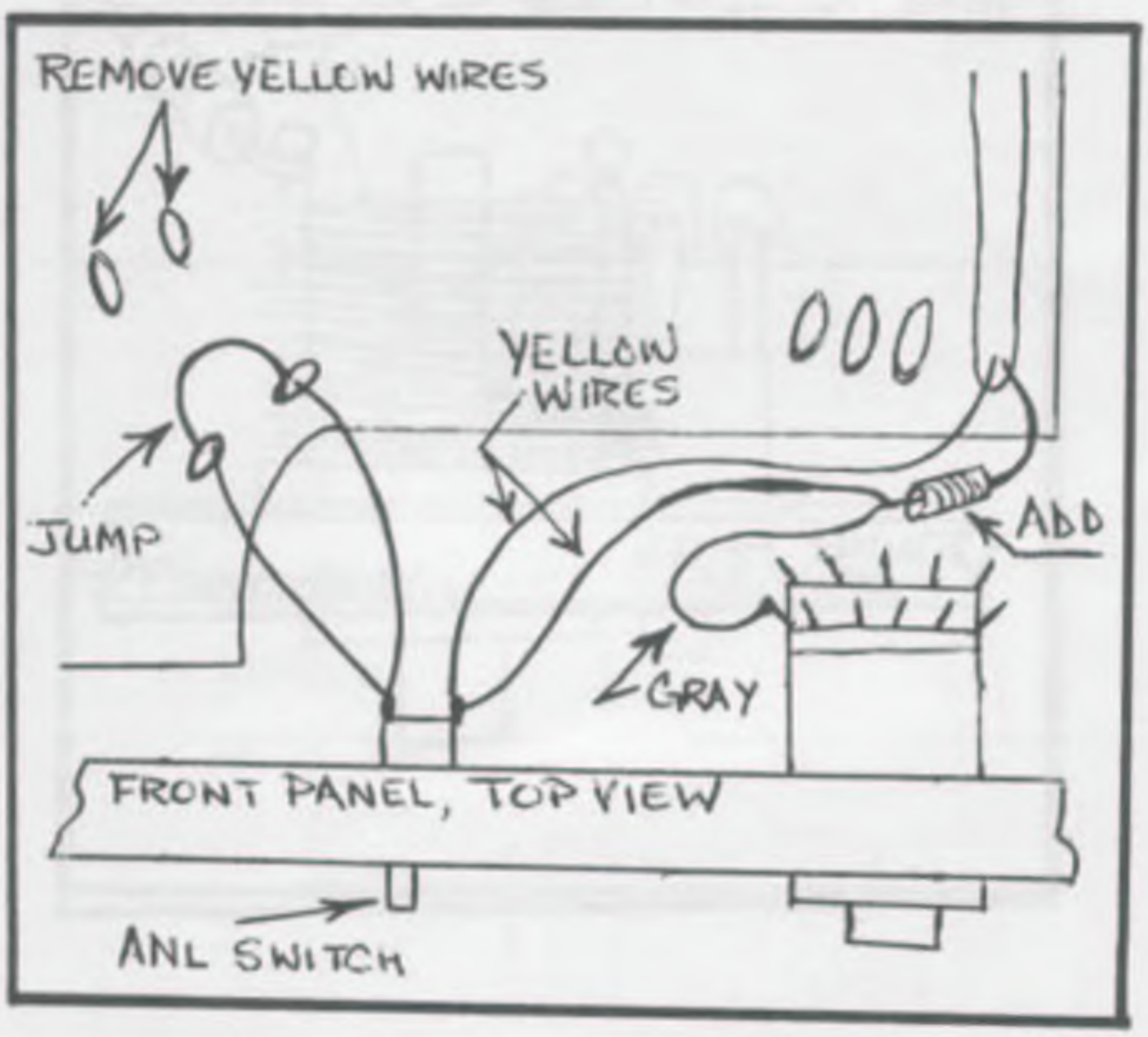
(2) Unsolder the gray wire coming from the channel selector to the board and add a 10UH RF choke in series with it.

(3) Unsolder the two yellow wires from the ANL switch to the two points on the board as shown, and cut them to 3½ in.

(4) Solder a short jumper across the two wires from the ANL switch as also shown.

(5) Solder the two yellow wires across the 10UH RF choke.

NOTE: The ANL will be operational continuously after this modification and the switch will be used as a normal or varible switch for the slider.



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PEARCE SIMPSON CHEETAH, BENGAL, SIMBA
15KC SLIDER

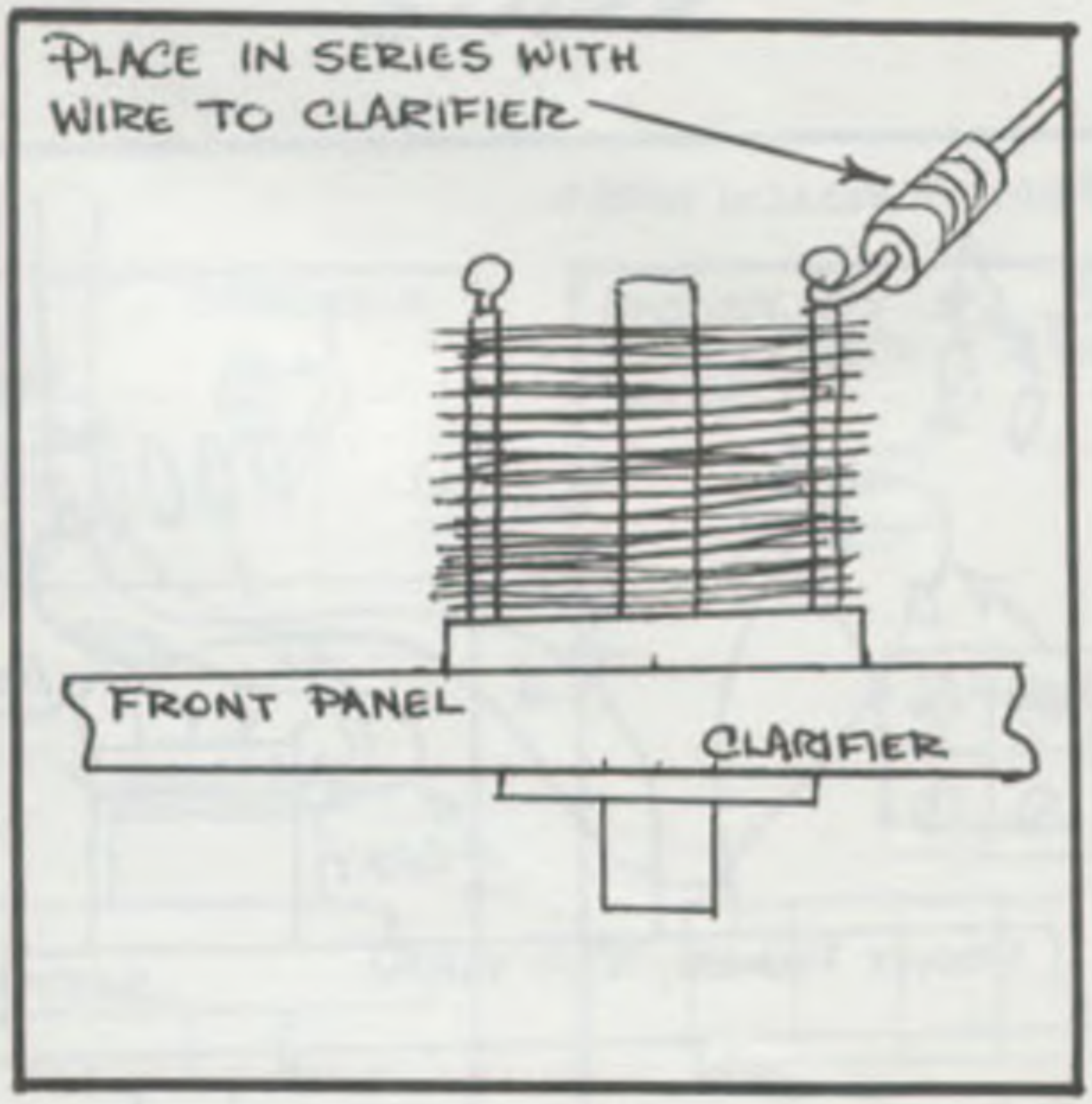
(1) Remove the unit from its cabinet and locate the white wire on the clarifier.

(2) Remove the wire and place an RF choke in series with the wire and capacitor as shown.

(3) The RF choke is made from fixed value RF chokes connected in series. See note below.

NOTE: For the Simba and Cheetah the RF choke is made from a 10 UH and 1 UH connected in series. A Miller #4204 can be used and adjusted.

For the Bengal a varible Miller #4204 can be used or any adjustable coil with a 3 to 15 UH range.



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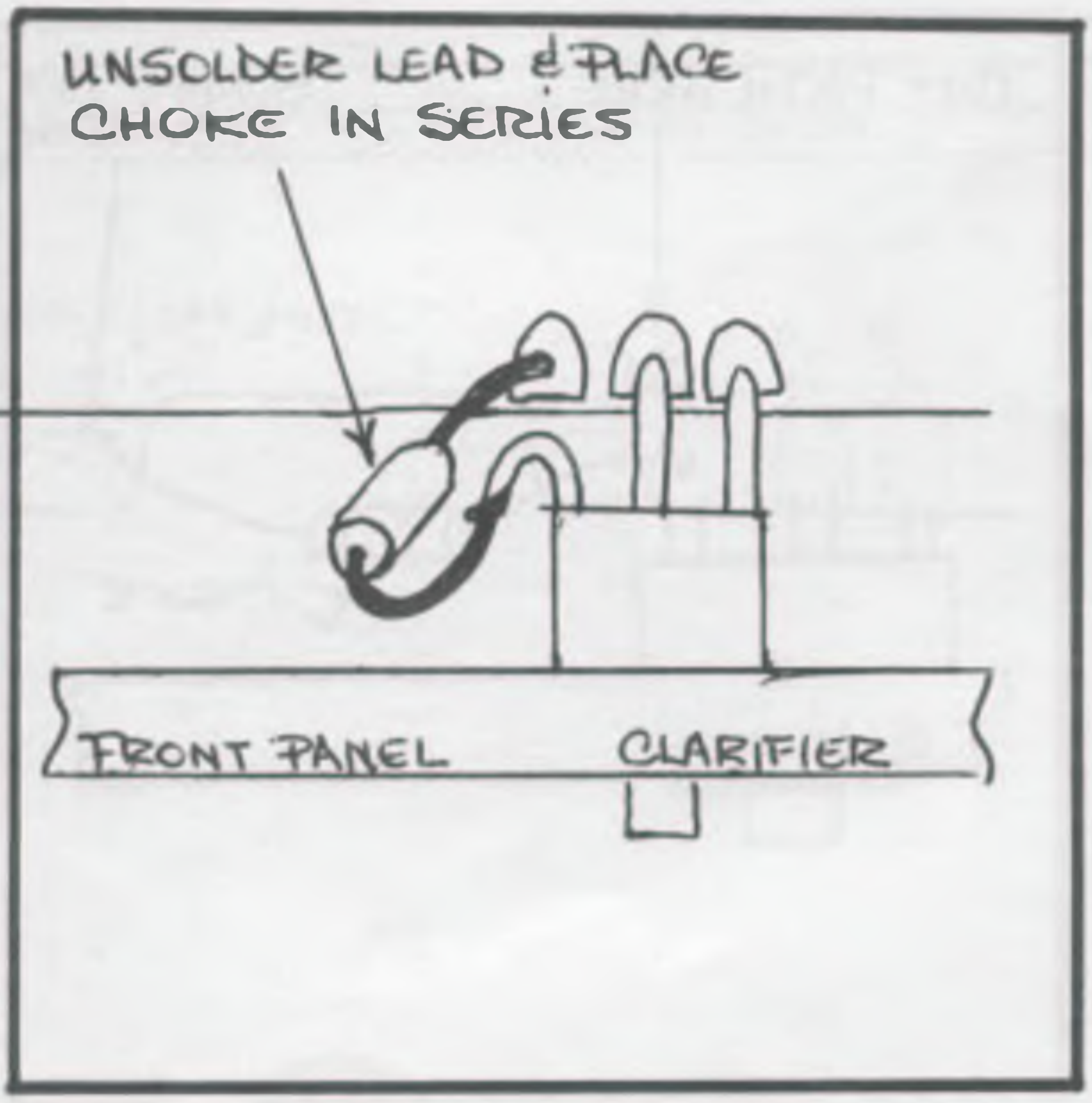
(1) Remove the unit from its cabinet and locate the left terminal on the clarifier control as shown.

(2) Unsolder or cut this wire loose from the board and solder a 3.3 UH RF choke in series with it.

NOTE: The RF choke can be the miniature type as space is limited in this type of unit. If it is desired to slide the AM side, the same procedure can be followed on the right side of the clarifier control.



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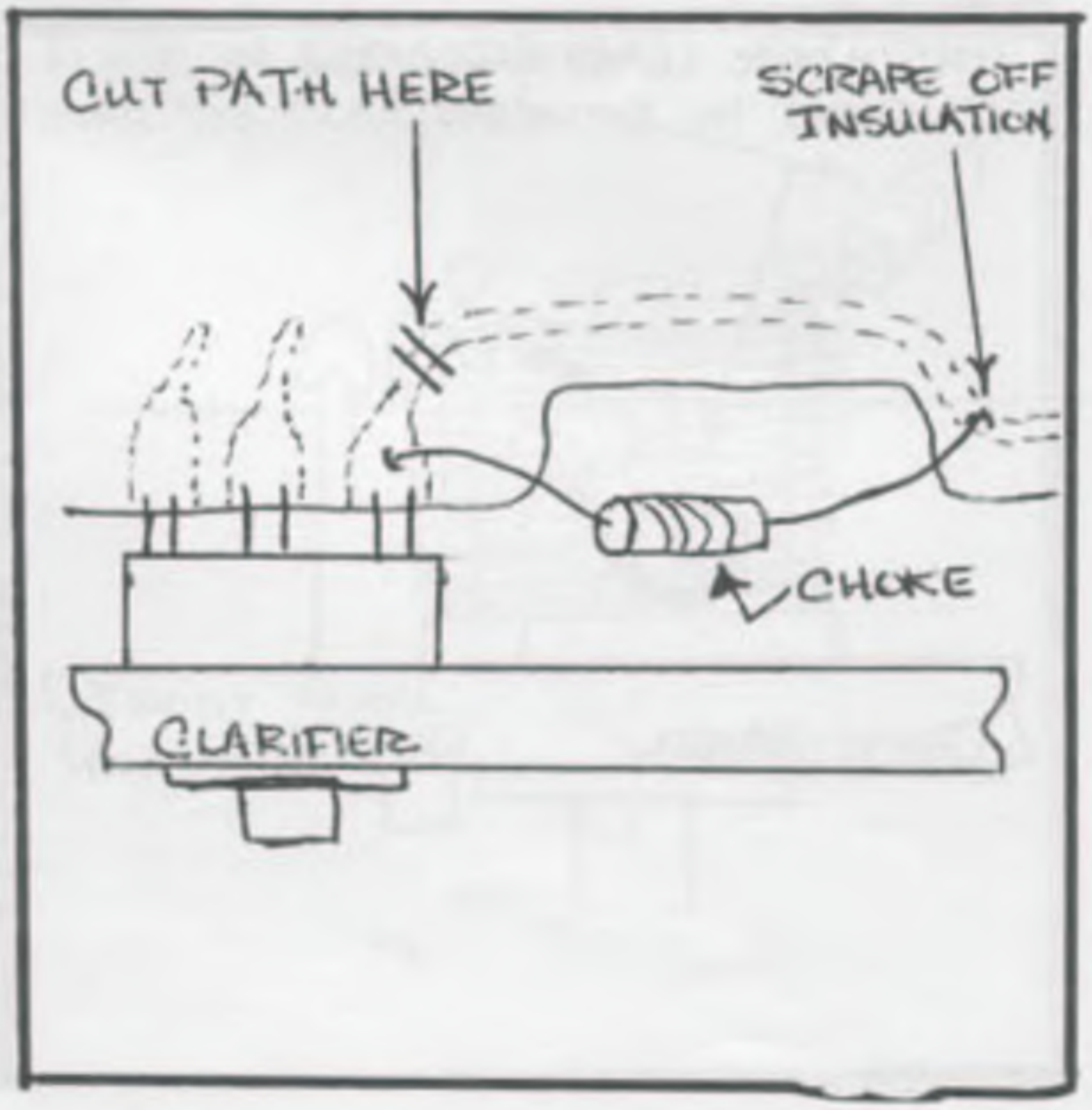
REALISTIC TRC-48
25KC SLIDER FOR SSB

(1) Remove the unit from its cabinet and locate the right hand path of the clarifier control as shown.

(2) Cut the path from the control with a single edge razor blade and solder a 5.6 UH RF choke to the control terminal.

(3) Scrape off the insulation on the cut away path on the opposite side of the indention and solder the other end of the RF choke.

NOTE: To use the slider, the channel selector must be turned to the channel above the one you are using. The clarifier will tune down approximately 25KC on lower sideband only. If it is desired to slide the AM and USB side the same procedure can be followed on the left side of the clarifier control.



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TEABERRY
52 CHANNEL CAPABILITY

CHANNEL	LOW⁻	CENTER°	HIGH⁺
1		Normal	27.285 MHz
2			27.295 MHz
3	(15A) 27.145		27.305 MHz
4			27.325 MHz
5			27.335 MHz
6			27.345 MHz
7	(19A) 27.195		27.355 MHz
8			27.375 MHz
9			27.385 MHz
10	(22A) 27.235		27.395 MHz
11	(22B) 27.245		*27.405 MHz
12	(23A) 27.265		27.425 MHz
13	(23B) 27.275		27.435 MHz
14			27.445 MHz
15			27.455 MHz
16			27.475 MHz
17			27.485 MHz
18			27.495 MHz
19			27.505 MHz
20			27.525 MHz
21			27.535 MHz
22			27.545 MHz
23		Normal	27.575 MHz

* See note on first page.

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SEARS AND PINTO SSB
13KC SLIDER

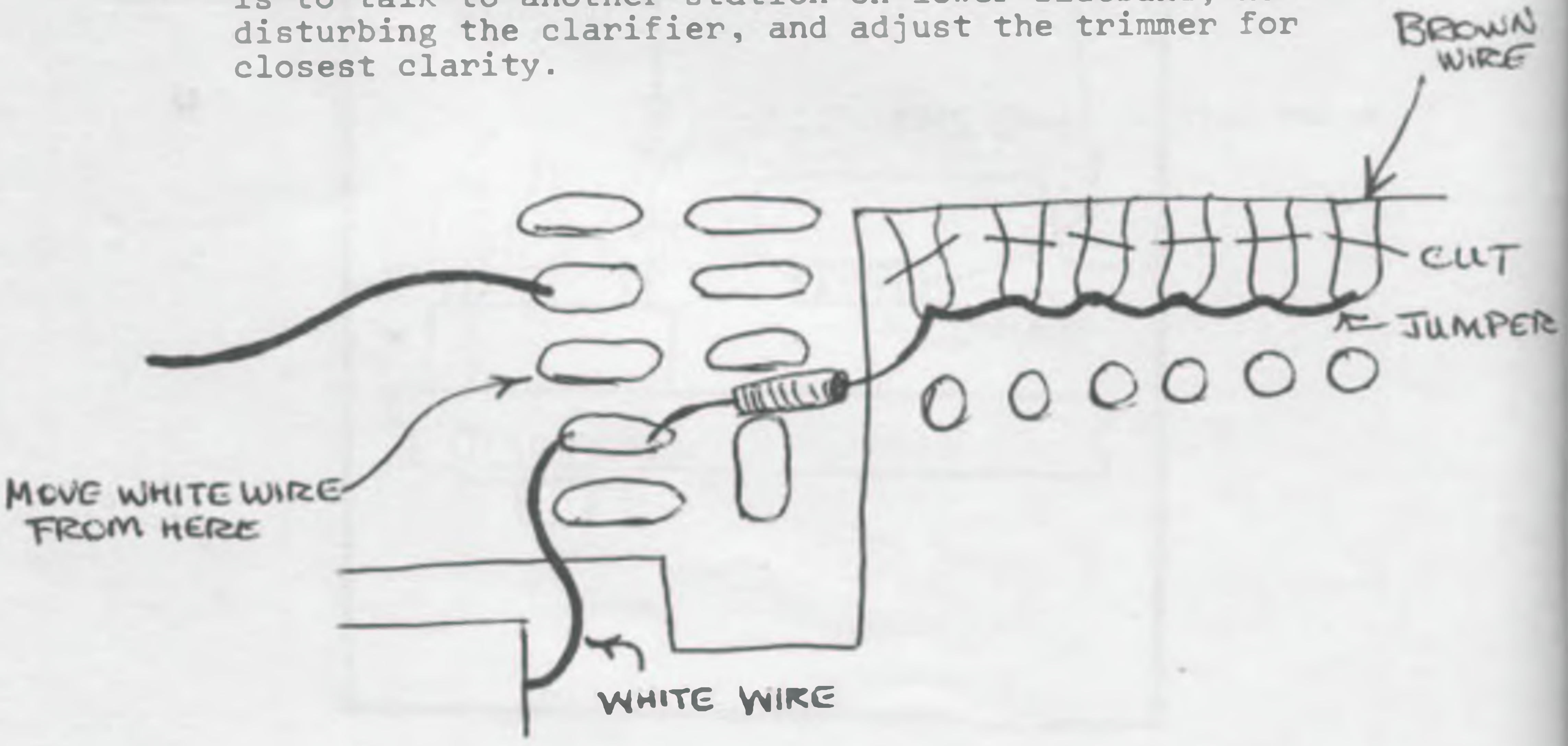
(1) Remove the top and bottom cover and locate the six crystals on the Sub-board.

(2) Cut the circuit paths to each of the six crystals on the top as shown, and solder a jumper wire across all six crystals.

(3) Unsolder the brown wire on the right side of the main board and resolder it to the cut away path of the end crystal to the right side. This path goes to the end trimmer capacitor on the top side and will have to be adjusted later.

(4) Unsolder the white wire and move it down to the unused terminal just below. Solder a 10 UH choke from this point and the other end to the added jumper wire on the sub-board as shown.

NOTE: The unit will now slide down 13 to 15KC on transmit but the receive will not track with the transmit. The trimmer capacitor as mentioned earlier, will now have to be adjusted so that the receive will track exactly with the transmit frequency. The best way to do this is to talk to another station on lower sideband, not disturbing the clarifier, and adjust the trimmer for closest clarity.



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SILTROMIX SSB
12KC SLIDER

(1) Remove unit from cabinet and locate the relay on the bottom.

(2) Remove the 47PF capacitor on the relay.

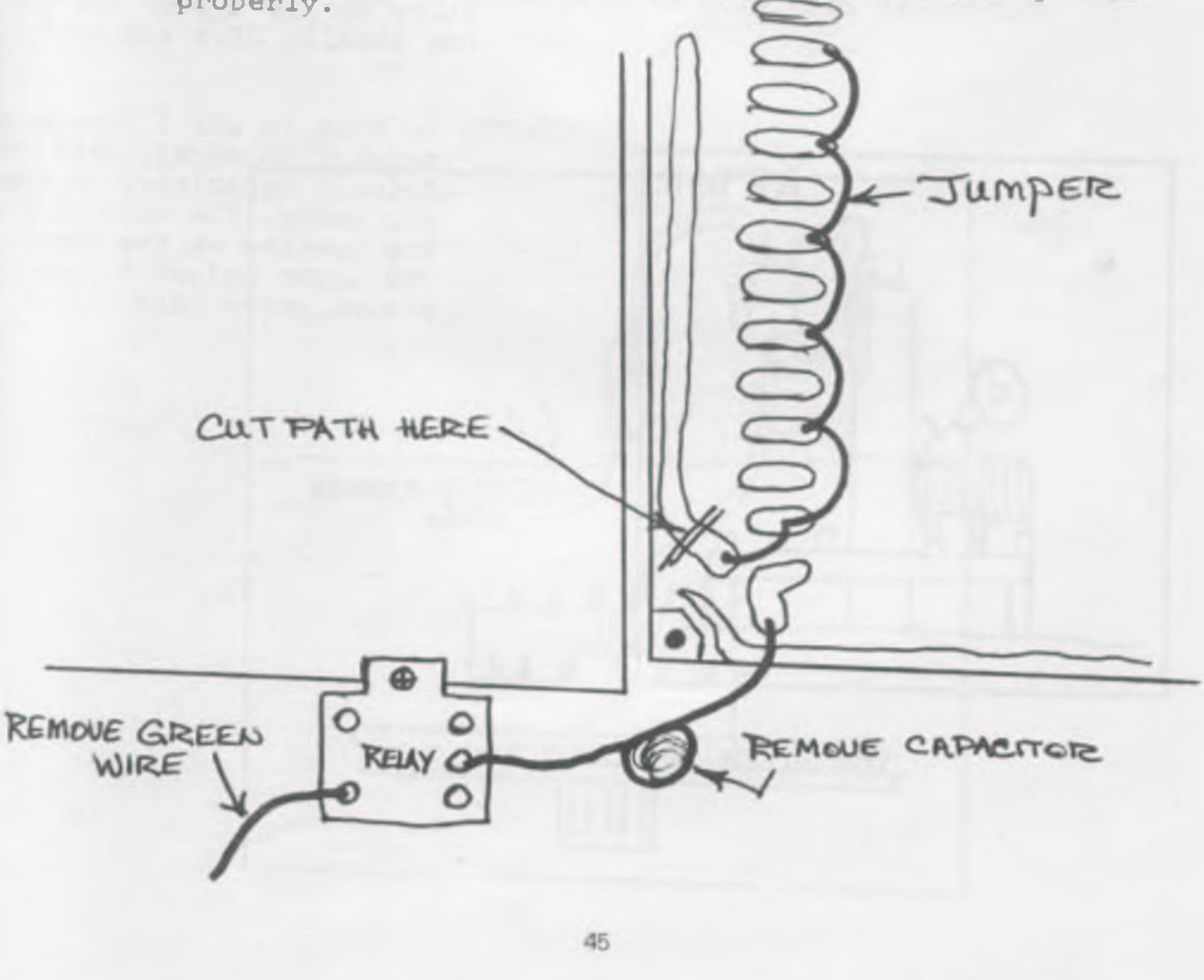
(3) Remove the green wire on the relay and resolder it to the board where the capacitor was removed.

(4) With a single edge razor blade, cut the ground path of the crystal bank as shown.

(5) Solder a piece of bare hookup wire to the cut away path and loop it around to every other point as shown. Starting with the first making 7 commections in all.

(6) L112 on the top side of the board mav have to be adjusted slightly to give the proper range.

NOTE: The unit will stop oscillating if L112 is not adjusted properly.



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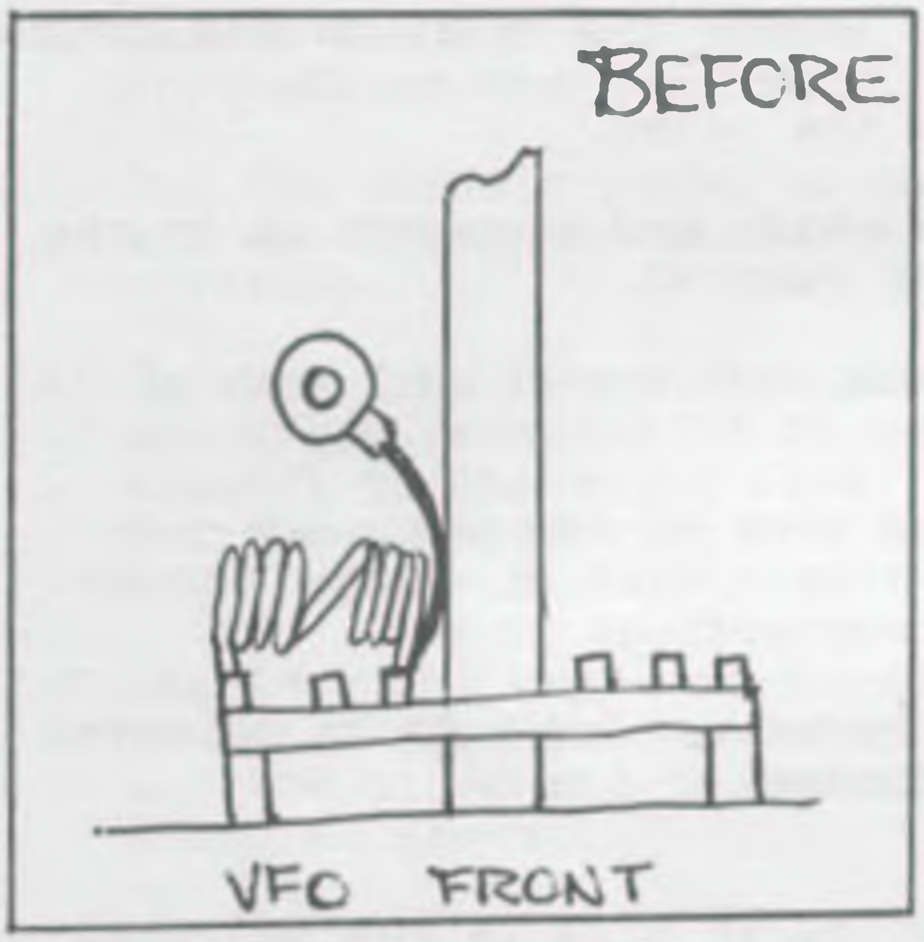

(1) Remove cabinet from unit and remove the screws and cover of the VFO box.

(2) Unsolder the coil and scrape off the insulation from the coil in its center as shown.

(3) Solder a short piece of wire to the center of the coil as shown.

(4) Resolder the coil back into place and connect the wire to the 28.5 MHz position instead of the end as it was.

(5) Replace the VFO cover and calibrate the two ranges by adjusting the trimmer capacitors on the top of the VFO box labeled 27.o and 28.5.

NOTE: Be sure to use a frequency counter to recalibrate the trimmer capacitors on the two bands. The unit will now operate on the lower and upper halves of the eleven meter band.

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(1) Remove the unit from its cabinet and locate the short green wire on the bottom side of the unit as shown.

(2) Remove the green wire making note of the terminal it is removed from.

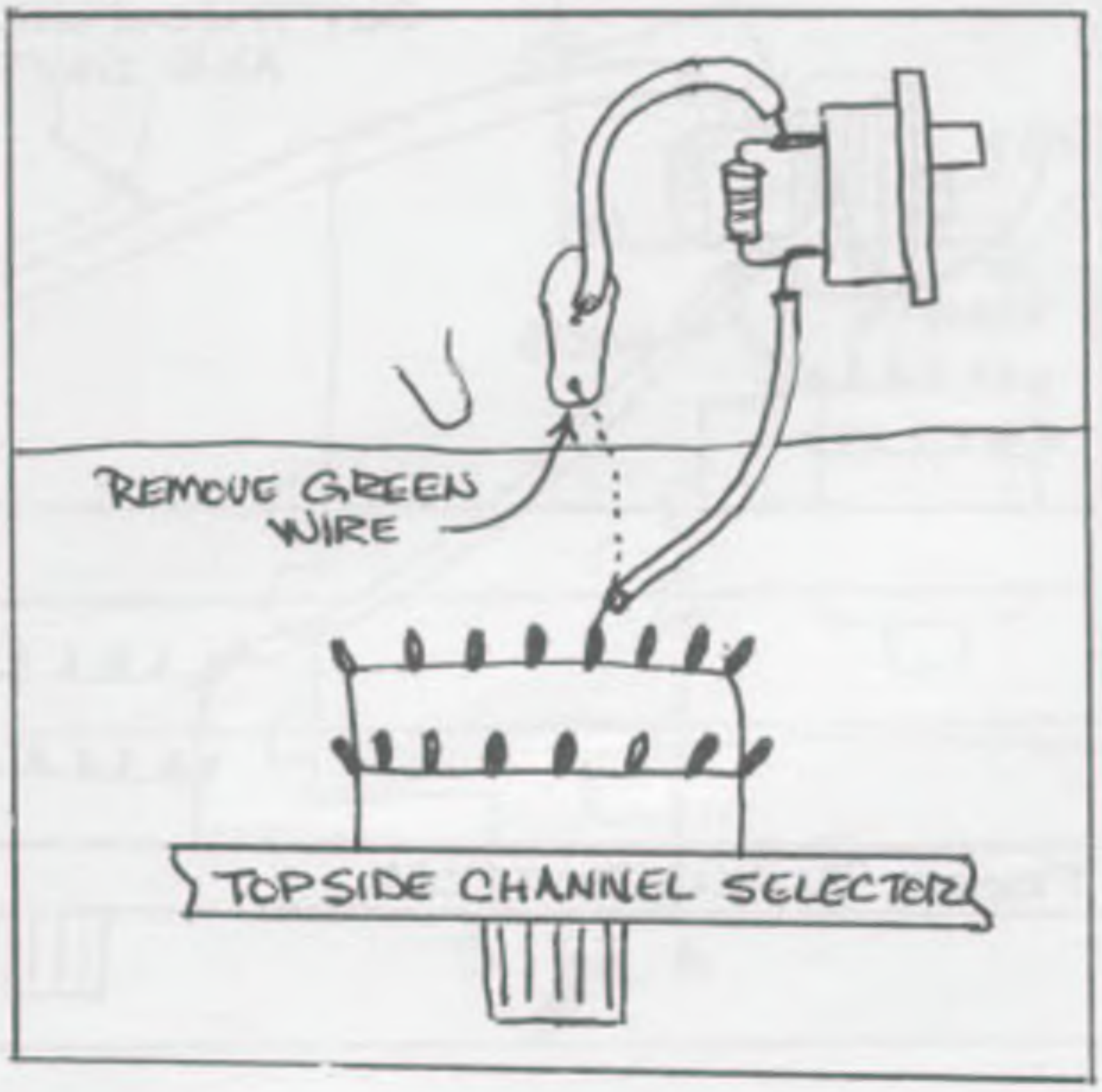
(3) Obtain a small SPST slide switch and solder a 10UH RF choke across it.

(4) Solder two pieces of wire 3½ in. long to each side of the switch and to the two points from which the green wire came.

(5) Mount the switch to the bottom of the front panel by drilling a small hole and inserting a screw.

(6) Cut a slot in the cover of the unit to allow the switch to come through. Making sure to cut the right edge of the cabinet.

NOTE: The switch is used for normal or varible frequency operation and is necessary to come back to center.



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SBE CONSOLE II
15KC SLIDER

(1) Remove the bottom cover of the unit and locate the yellow wire on the left side of the channel selector.

(2) Drill a small hole in the left edge of the chassis approximately 3/4 in. from the front.

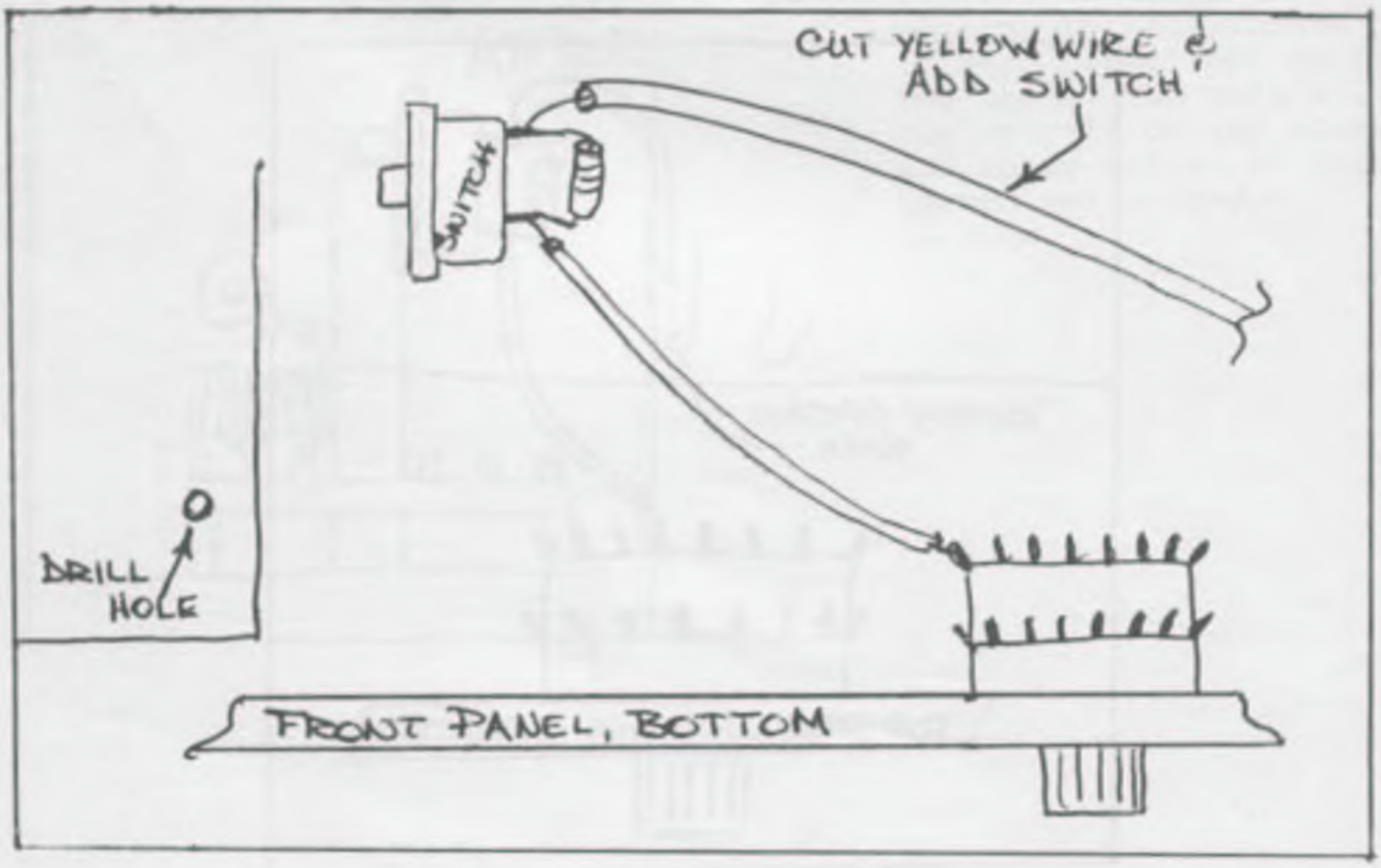
(3) Obtain a small SPST slide switch and solder a 10UH RF choke across the terminals as shown.

(4) Cut the yellow wire and solder the two ends across the switch as also shown.

(5) Mount the switch in the small hole with one screw.

(6) Place the bottom cover over the unit and locate the center of the switch and drill a hole to allow the switch to come through as shown.

NOTE: The switch is used to give the unit normal or varible frequency coverage.



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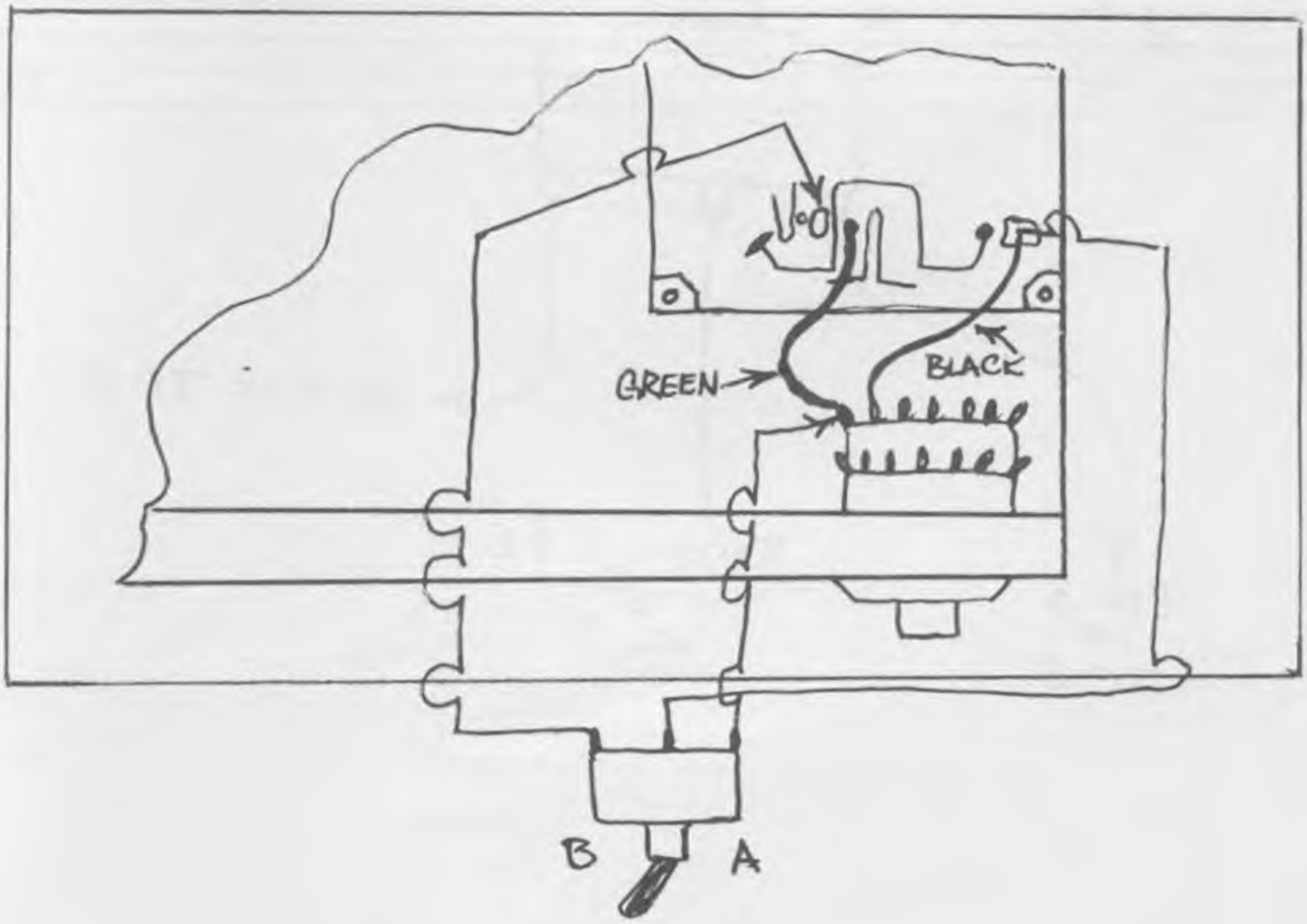
(1) Remove cover from the unit and locate the three points as shown. The green and black wire are connected to the channel selector running to the board. The third point is located just to the left of the green wire on the board.

(2) Mount a SPDT mini switch in the side of the unit by drilling a hole or in the rear by removing the PA speaker jack.

(3) Wire the switch as shown, making sure that the wire to the center pole of the switch goes to the connection with the black wire from the channel selector.

NOTE: The switch must have a center off position to make the unit operate normal. See next page for frequency chart. If it is not desired to add a switch to the unit, remove the two wires to the local distance switch and wire them to the center and B side connections on the board. This will eliminate the A side of the switch but 46 channels will still be obtained.



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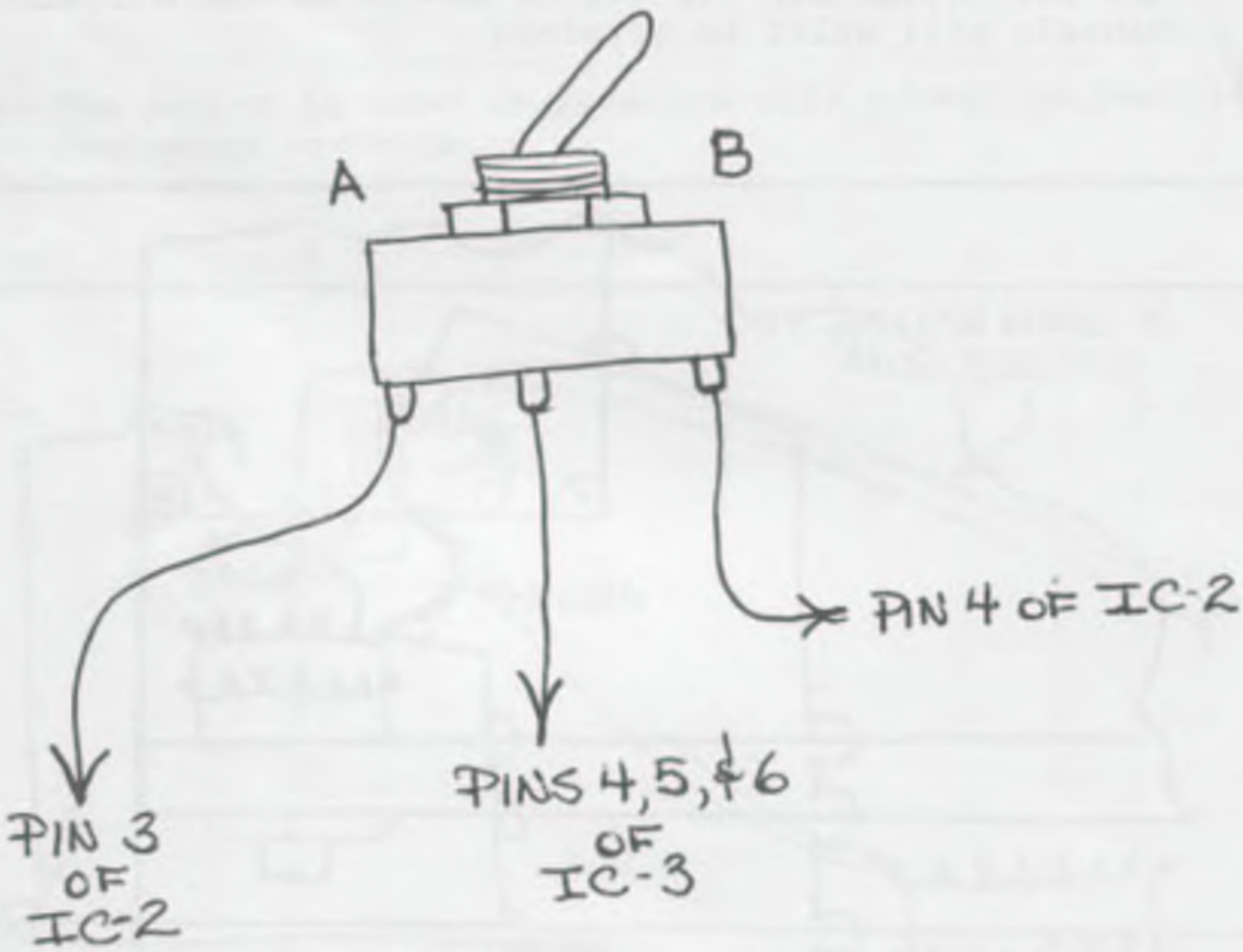
(1) Remove unit from cabinet and locate pins of integrated circuits shown.

(2) Remove PA speaker jack from rear of unit or drill a hole in the side of the chassis and mount the switch.

(3) Solder three wires to the pins of the switch, and wire unit as shown.

NOTE: More information and a better view is shown in this book under Formula D, the basic PLL board is the same. The frequencies can be obtained from the chart.



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SBE FORMULA D AND TOUCH COM
51 CHANNEL CAPABILITY

CHANNEL	CENTER OFF	POSITION 1	POSITION 2
1	26.965 MHz	27.125 MHz	27.285 MHz(28)
2	26.975 MHz	27.135 MHz	27.295 MHz(29)
3	26.985 MHz	27.145 MHz	27.305 MHz(30)
4	27.005 MHz	27.165 MHz	27.325 MHz(32)
5	27.015 MHz	27.175 MHz	27.335 MHz(33)
6	27.025 MHz	27.185 MHz	27.345 MHz(34)
7	27.035 MHz	27.195 MHz	27.355 MHz(35)
8	27.055 MHz	27.215 MHz	27.375 MHz(37)
9	27.065 MHz	27.225 MHz	27.385 MHz(38)
10	27.075 MHz	27.235 MHz(23)	27.395 MHz(39)
11	27.085 MHz	27.245 MHz(24)	27.405 MHz(40)
12	27.105 MHz	27.265 MHz(26)	27.425 MHz
13	27.115 MHz		27.435 MHz
14	27.125 MHz		27.445 MHz
15	27.135 MHz		27.455 MHz
16	27.155 MHz		27.475 MHz
17	27.165 MHz		27.485 MHz
18	27.175 MHz		27.495 MHz
19	27.185 MHz		27.505 MHz
20	27.205 MHz		27.525 MHz
21	27.215 MHz		27.535 MHz
22	27.225 MHz		27.545 MHz
23(25)	27.255 MHz		27.575 MHz

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(1) Remove the unit from its cabinet and locate the three points shown.

(2) Solder the points together with a small piece of wire as also shown.

(3) Adjust the 500r Resistor in the counter clockwise direction until the bottom range desired is reached.

(4) If the range is not desired or will not drop as far as desired, L301, located just to the left of the three pots, can be adjusted clockwise to increase the down range.

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(1) Remove cabinet from unit and unsolder the 12.800 MHz crystal from the synthesizer board at the front of the unit.

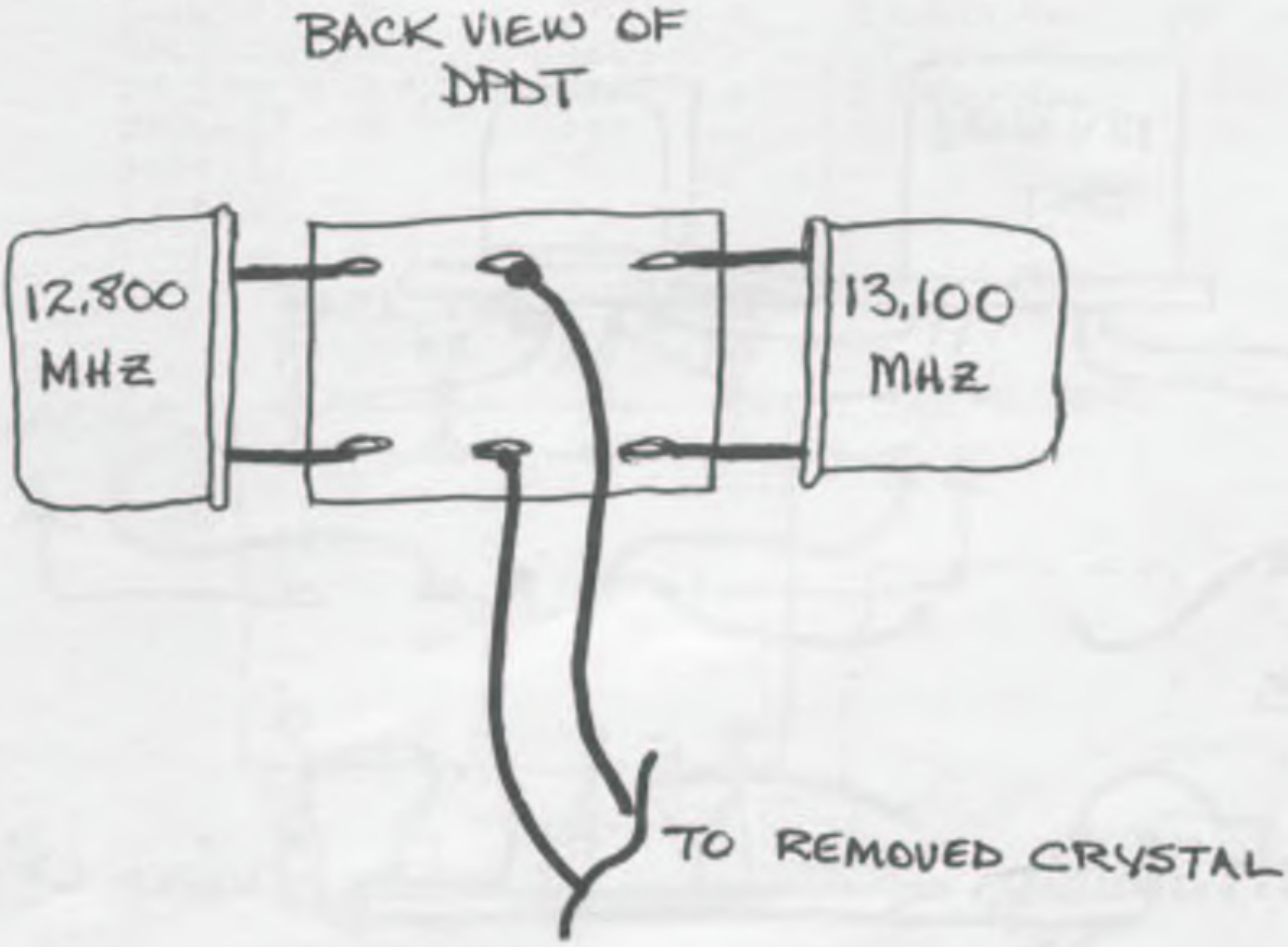
(2) Obtain a DPDT miniature switch and a 13.100 MHz crystal and wire them as shown.

(3) Wire two pieces of insulated wire from the two center posts of the switch and back to the two holes of the removed crystal.

NOTE: The switch can be mounted on the side of the mobile units just behind the channel selector. On the base unit the switch must not be mounted too far away from the board because of the length of the wire.

CRYSTAL ORDERING INFORMATION

The special crystal can be ordered from any crystal manufacturer. Be sure to specify the type of unit it is for, the frequency (13.100 MHz), a frequency tolerance of .005% and a holder type which in this case is HC 18/U.



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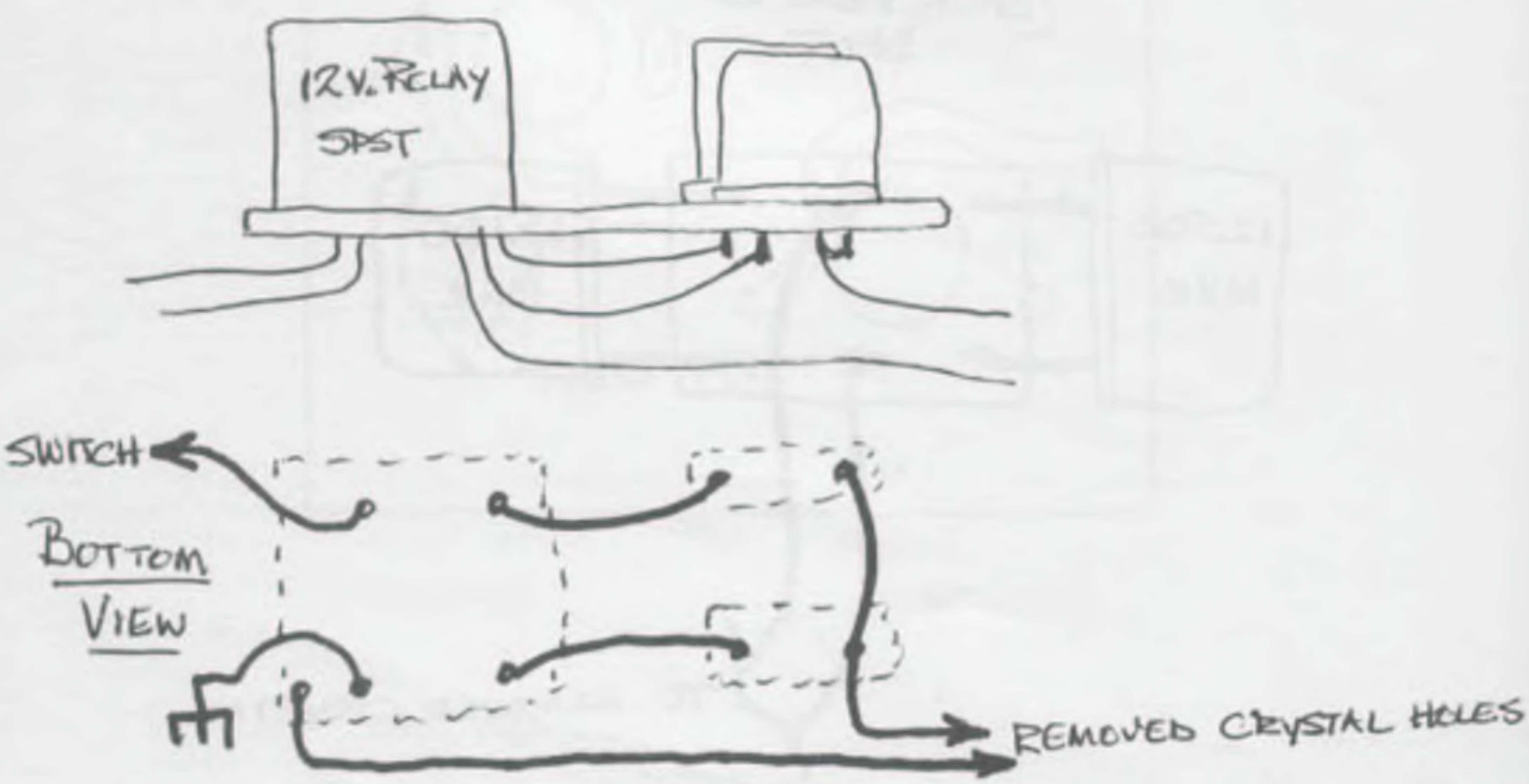
46 CHANNEL ADAPTOR

As most of you know, crystals cannot be switched with long distances of wire because of the capacitance of the wire. In many cases the crystal will either stop oscillating or will be off frequency. This adaptor will switch the crystals with a relay and the switch can be operated with any length of wire desired.

Many crystal synthesizer use what are known as IF crystals. These mix with other crystals in the radio to provide a difference in transmit and receive frequencies. If one of these two crystals were removed, the unit would not transmit on any channel, but would receive. If both were removed the unit would not transmit or receive. If the two crystals were replaced with two crystals 300 KHz lower than the original frequency, the unit would transmit and receive 300 KHz higher that the normal 23 channels. This is the basic idea behind this adaptor. Of course, two of the adaptors will have to be used to switch the two crystals, but the whole thing can be built for less than fifteen bucks including the two special crystals. The adaptor can be made from a Radio Shack mini relay and a piece of small hole vector board.

ORDERING SPECIAL CRYSTALS

Most AM units use two IF crystals, the most common is 11.275 MHz and 11.730 MHz. Therefore, the two special order crystal frequencies will have to be 10.975 MHz and 11.430 MHz respectively. These can be ordered from any crystal manufacturer, but be sure to specify the type of unit it is for, a frequency tolerance of .005%, and the type of holder which is HC25/U in most cases.



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There are many ways of increasing the channel capability of 23 channel radios. The method shown here can be added to almost any CB radio providing there is space enough. Most radios use six master crystals which control transmit and receive for four channels each. In other words, if say X1 were removed, channels one, two, three, and four would drop out. If X1 were changed to a higher frequency, channels one through four would become some other channels. By using this idea and removing the wires from each of the first four master crystals and wiring them to a switch, the original crystals could be switched in, or a new set could be used just by flipping the switch. This would mean that on the other side of the switch, channels one through sixteen would become new channels. All that is needed for this is a four pole double throw switch and four new crystals. The wiring for this is shown in the drawing above.

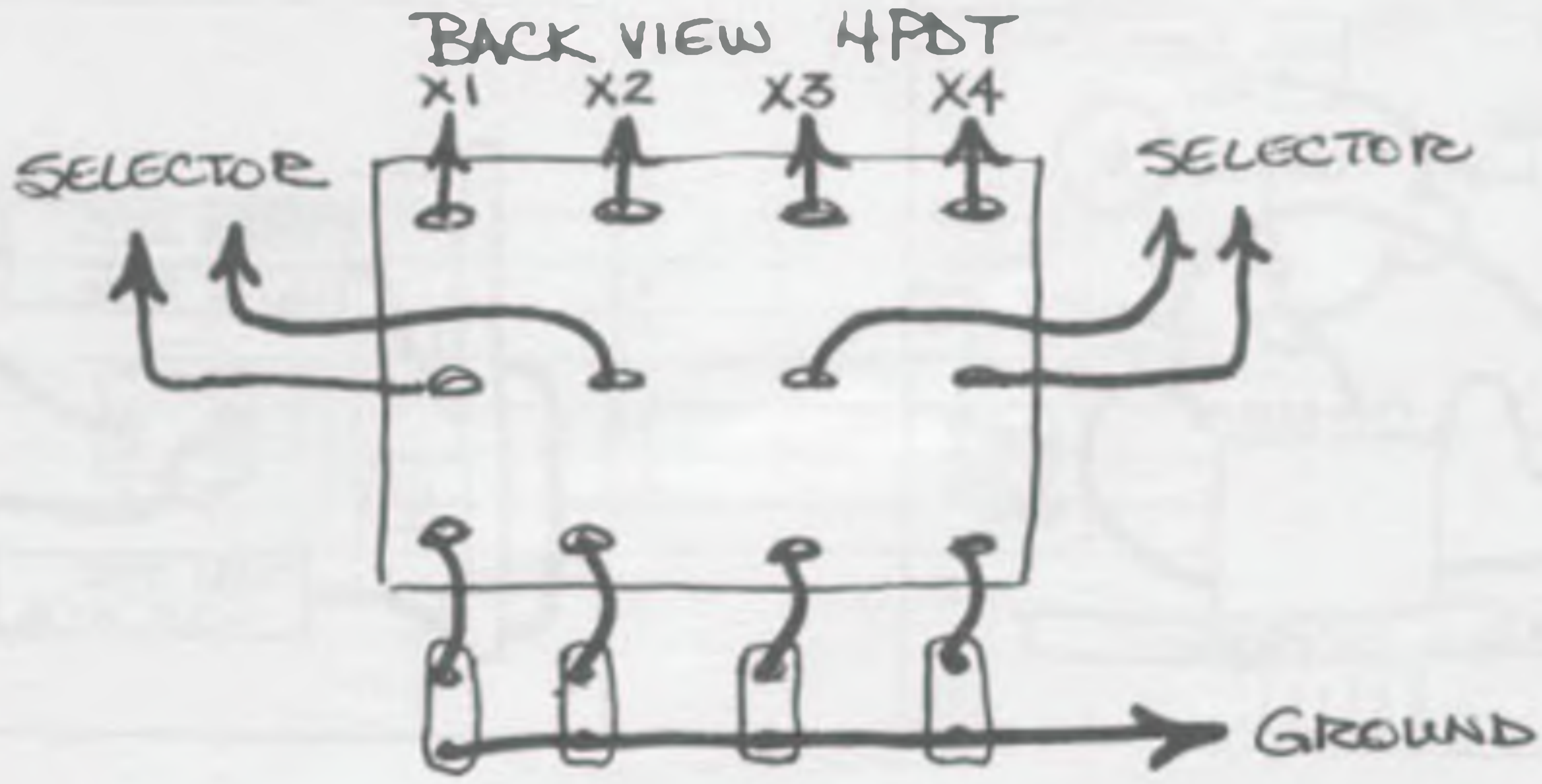
CRYSTAL ORDERING INFORMATION

Due to the numerous frequencies used in different units, it is not possible to give all the frequencies listed, so therefore, I will show you how to figure your own for any set. The information here is for the new 40 channels for 1977.

First find out the frequencies for the six master crystals in your radio from the schematic. By adding the numbers below to the frequency of the crystals, the new frequency can be derived. The added numbers used are the same for all units.

<u>EXAMPLE</u>: Hy-Gain 670

			Add this		New Frequency
X1	23.290	+	.270	=	23.560 MHz
X2	23.340	+	.250	=	23.590 MHz
X3	23.390	+	.250	=	23.640 MHz
X4	23.440	+	.250	=	23.690 MHz
X5	23.490				
X6	23.540				



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TRANSMIT ON THE VARIBLE DIAL AND 15 WATT POWER INREASE

(1) Remove the bottom cover from the unit and locate the two 10 watt power resistors located near the rear of the unit.

(2) Mount a mini SPST switch in one of the holes between the power resistors as shown.

(3) Solder two pieces of hookup wire across the switch and connect the two ends to each of the power resistors as shown.

(4) Raise the top cover of the unit and locate the orange wire coming through a hole in the chassis to the crystal-varible switch.

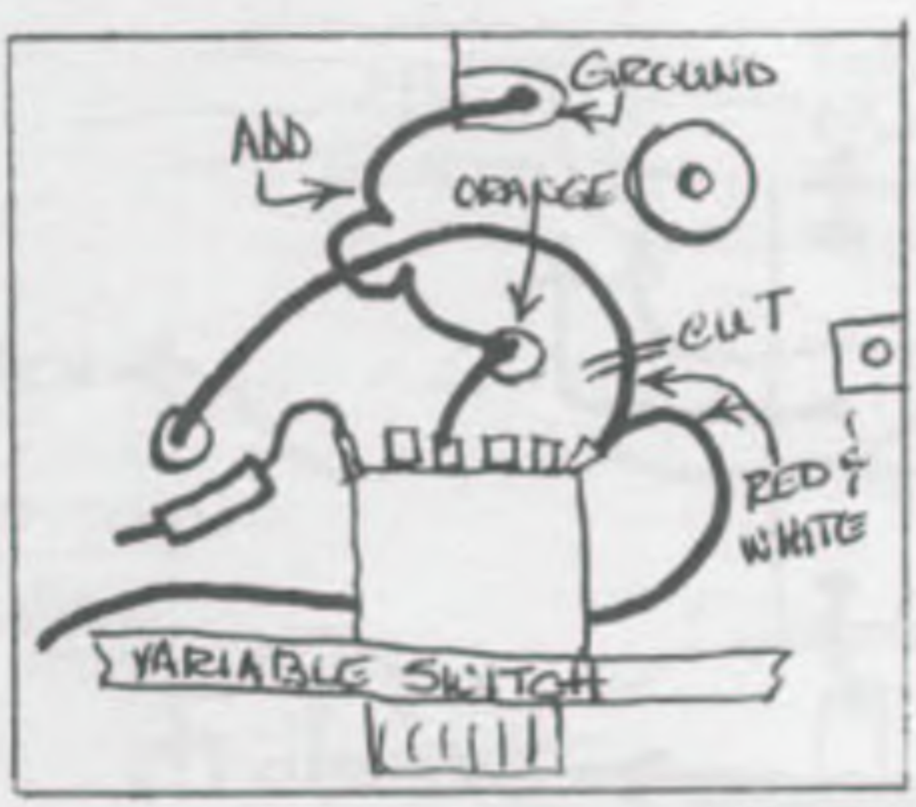
(5) Solder a 4 in. piece of wire to the connection point with the orange wire as shown.

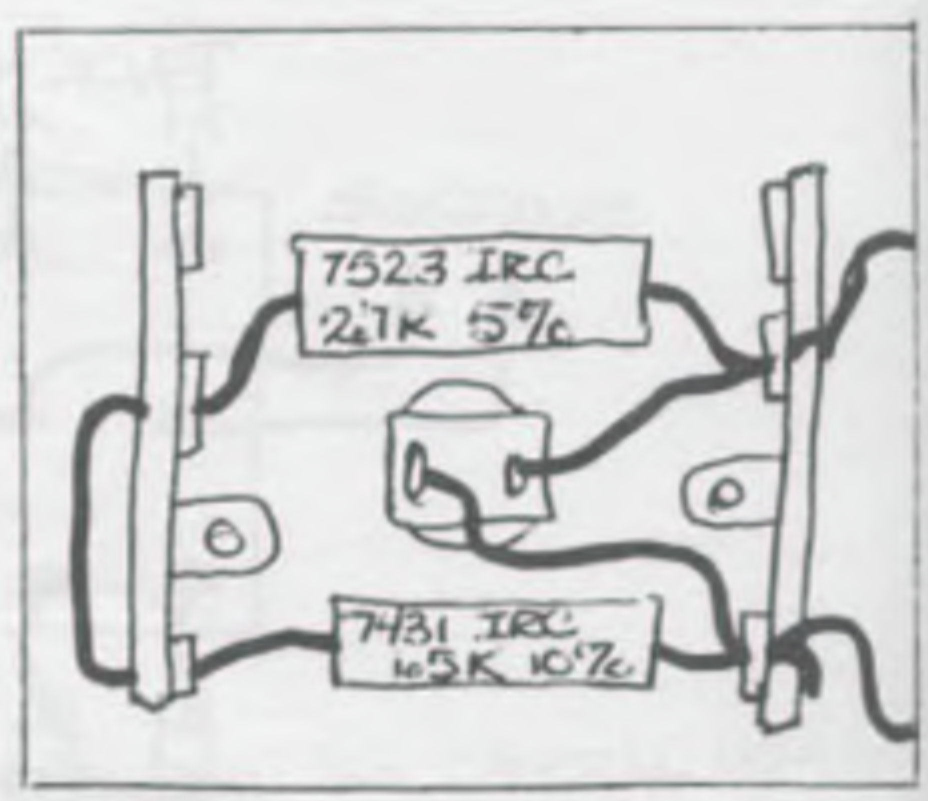
(6) Solder the other end of the wire to the ground lug just behind the switch as also shown.

(7) Locate the two red and white wires on the right side of the switch. Cut and remove the one running around the switch through the hole in the chassis.

NOTE: The channel selector must be on channel 9 when using the varible dial. The power switch is capable of 20 watts output with re-adjustment of the plate and load controls on the rear of the unit. When using SSB, the clarifier control on the unit moves only the transmit when using the varible dial.

The modulation can be increased by adjustment of the limiter control on the bottom of the unit. This is shown in the manual and will greatly improve performance.





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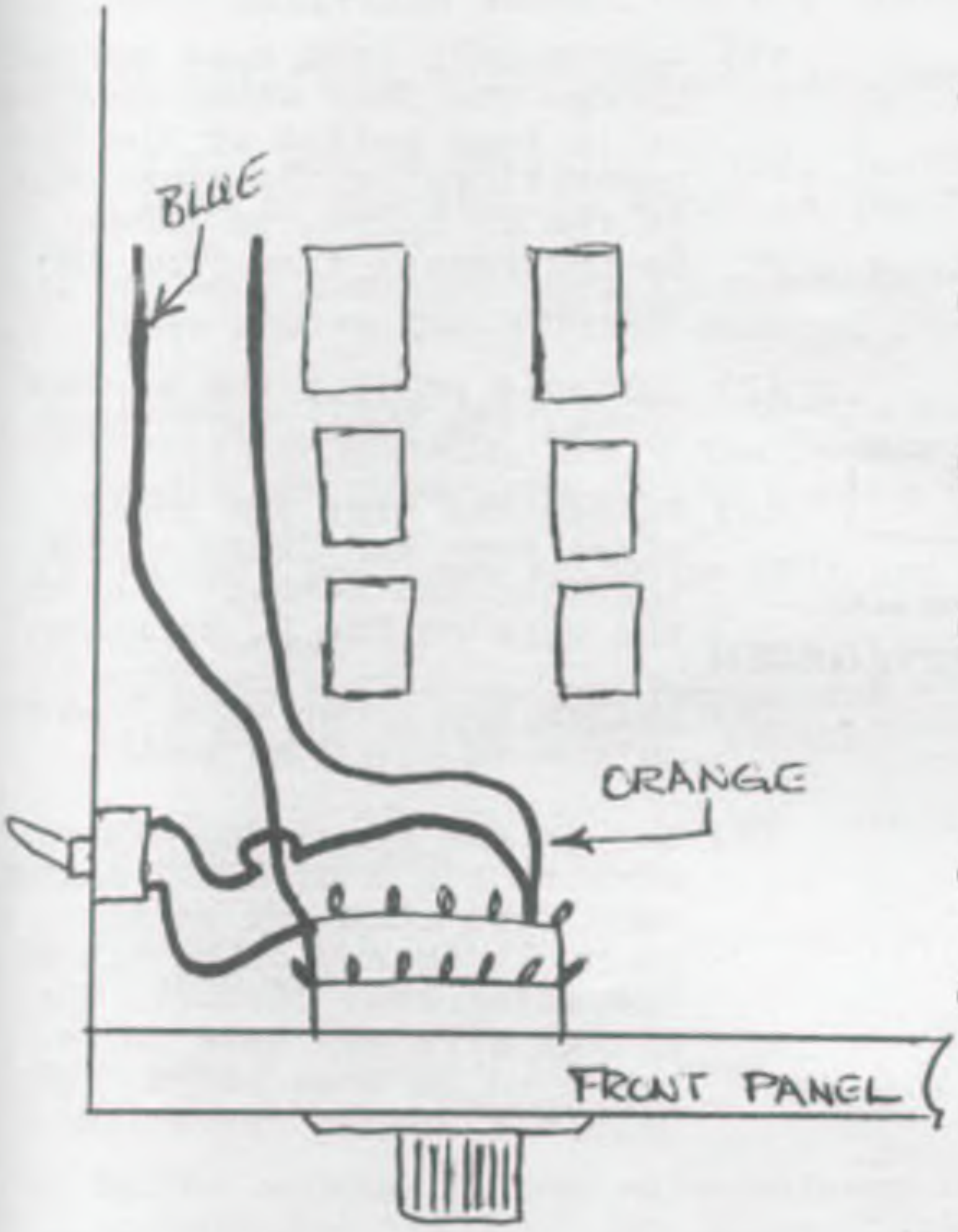
TEABERRY STALKER ONE
37 CHANNEL CAPABILITY



(1) Remove the unit from its cabinet and locate the PLL selector box to the left side behind the channel selector.

(2) Remove the cover from the box by pulling off the tape and prying its edges.

(3) Mount a mini SPST switch in one of the two holes in the left side of the unit.

(4) Solder two wires across the switch and solder one to the blue wire and the other to the orange wire on the channel selector, as shown.

(5) Replace the cover to the box and retape it in place.

(6) Cut out a small slot in the cover of the unit to allow the cover to slide over the switch.

NOTE: Using the switch, the unit can now operate from channel 10 to 23 on 14 new channels. See frequency chart below. This modification may not work on all models especially older sets because of new changes in PLL units.

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
10	27.275	17	27.365
11	27.285	18	27.375
12	27.305	19	27.385
13	27.315	20	27.405
14	27.325	21	27.415
15	27.335	22	27.425
16	27.355	23	27.455

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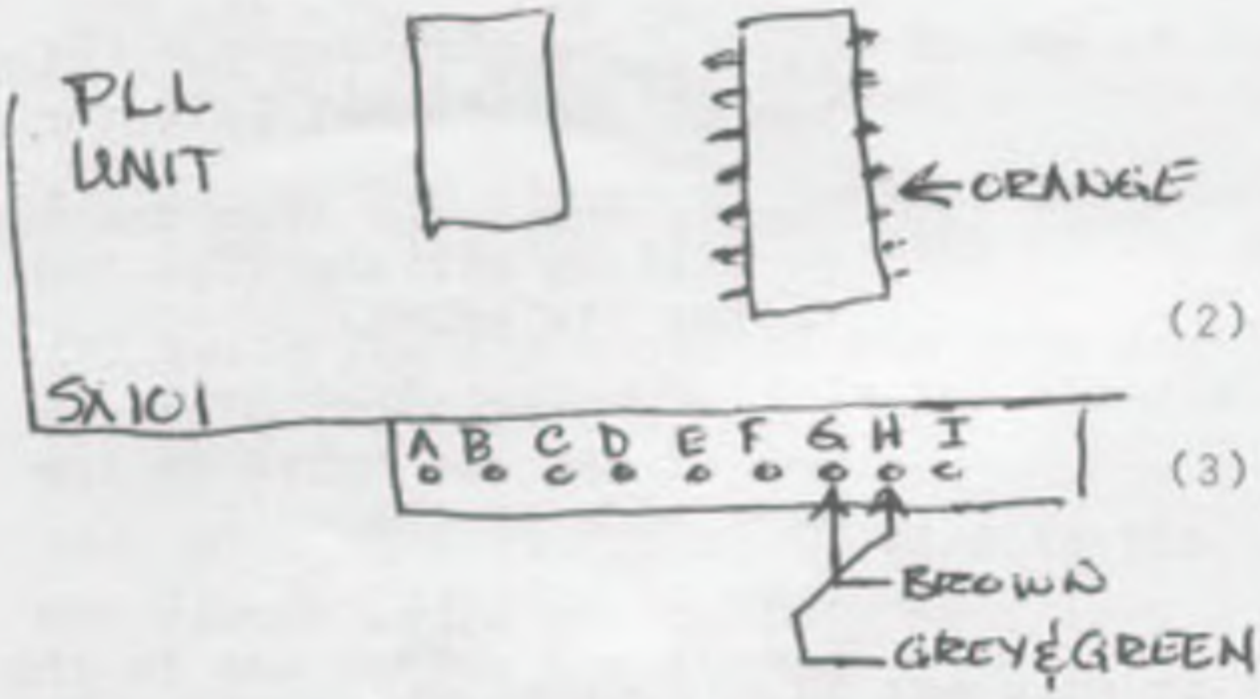
TEABERRY ELECTRONICS RACER "T"
52 CHANNEL CONVERSION



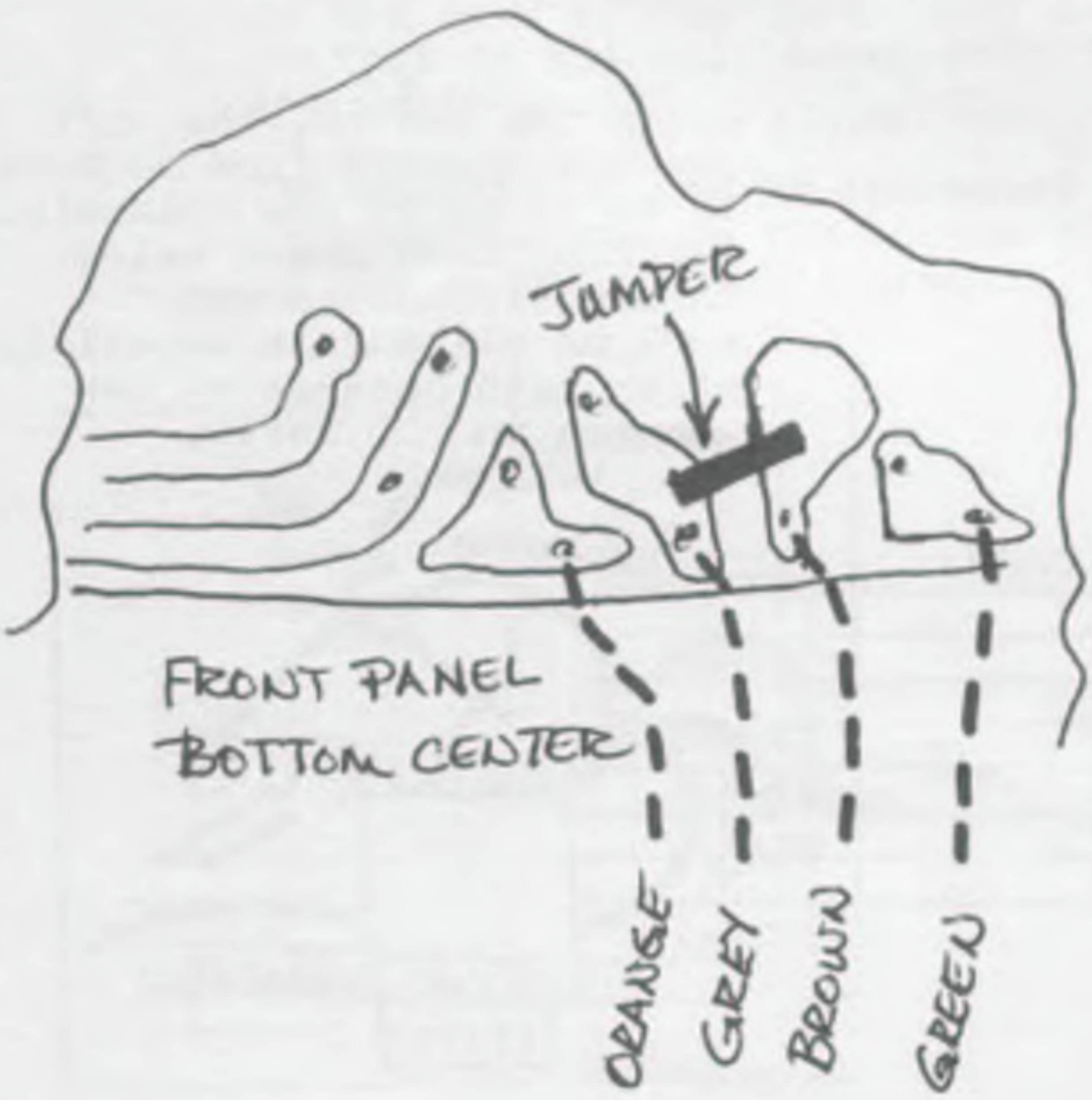
(1) Remove unit from case and unsolder the four wires from the Delta tune switch to the four connections on the front edge of the PC board, as shown. Do not remove them from the switch.

(2) Solder a small piece of wire across the two points shown.

(3) Solder the grav and green wires from the Delta switch together and connect them to the wire on Pin H, as shown.

(4) Solder the brown wire from the switch to Pin G as shown.

(5) Solder the remaining orange wire to Pin 3 of IC802 making very sure that you do not short it to any other pin on the integrated circuit. The orange wire may have to be extended on some units. This will not affect operation.



NOTE: To use the channels properly, see the chart on the next page. Unit may not receive above channel 11 on some units because of extreme frequency coverage.

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PRESIDENT WASHINGTON/GRANT
SLIDER & CHANNEL EXPANSION

SLIDER

1. Remove the unit from its cabinet and locate the metal patittion around the PLL circuit.

2. Cut out diode D-30, located just behind the patittion.

3. Cut the end of resistor R-119, leaving room to solder a wire to the end, as shown in the figure.

4. Solder a two inch wire to the end of R-119 and the other end to the striped side of D-44.

5. Solder a three inch jumper to the end terminal of the clarifier control, where the purple wire is attached. Solder the other end of the jumper to the metal partition.

6. The unit will now slide up 2KHz and down 4KHz.

CHANNEL EXPANSION

1. Turn the unit over and remove the plug just to the left of the noise blanker switch.

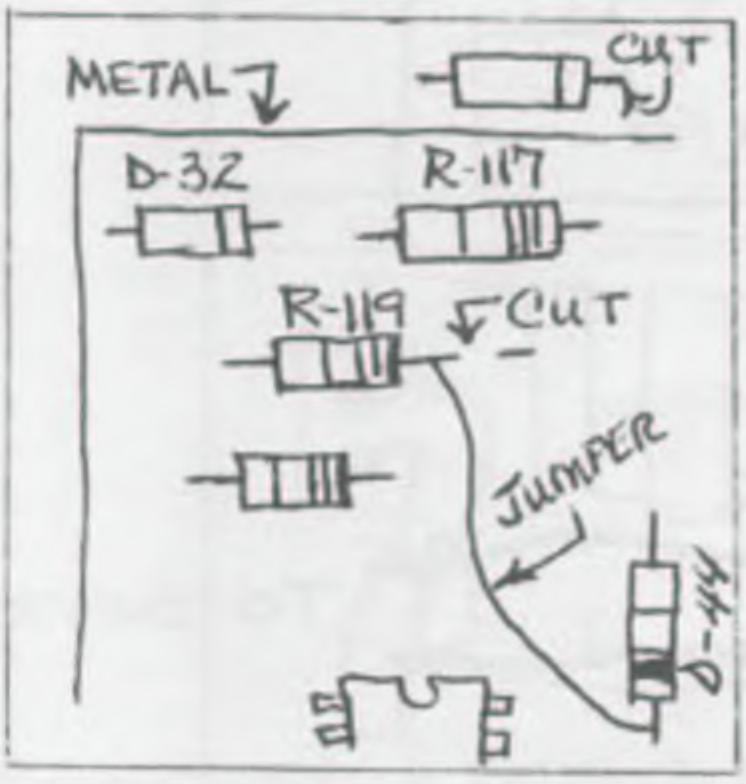
2. Cut pin 19 of the intergrated circuit away from the ground as shown in the figure.

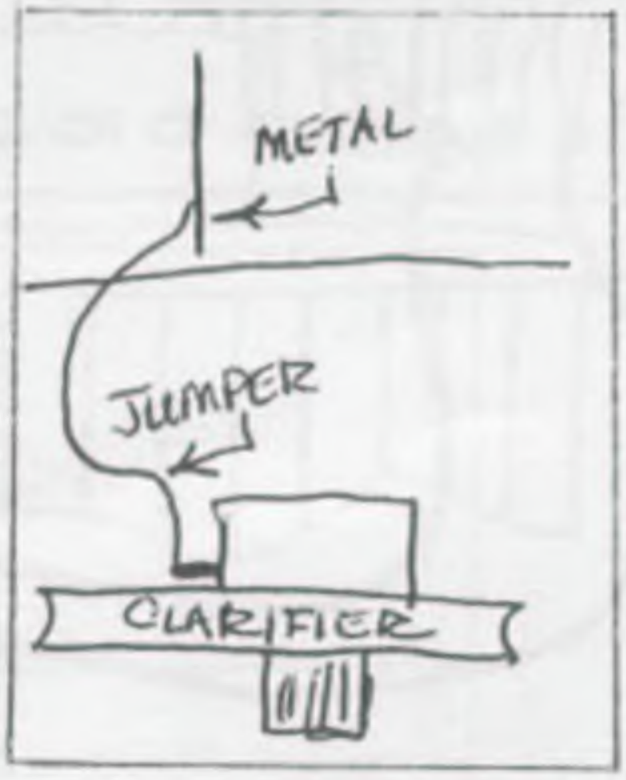
3. Solder a 470 ohm resistor to the pin and the other end to ground.

4. Solder a jumper wire between this same pin and pin 2 on the noise blanker switch.

5. Solder another jumper wire between pin 21 of the intergrated circuit and pin 1 of the noise blanker switch.

6. The unit will now transcieve on 27.455 MHz, beginning on channel 8, and continuing upward to 27.805 MHz.





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PRESIDENT - JOHN Q./HONEST ABE/ZACHARY T./
TEDDY R.
70 PLUS CHANNEL CONVERSION

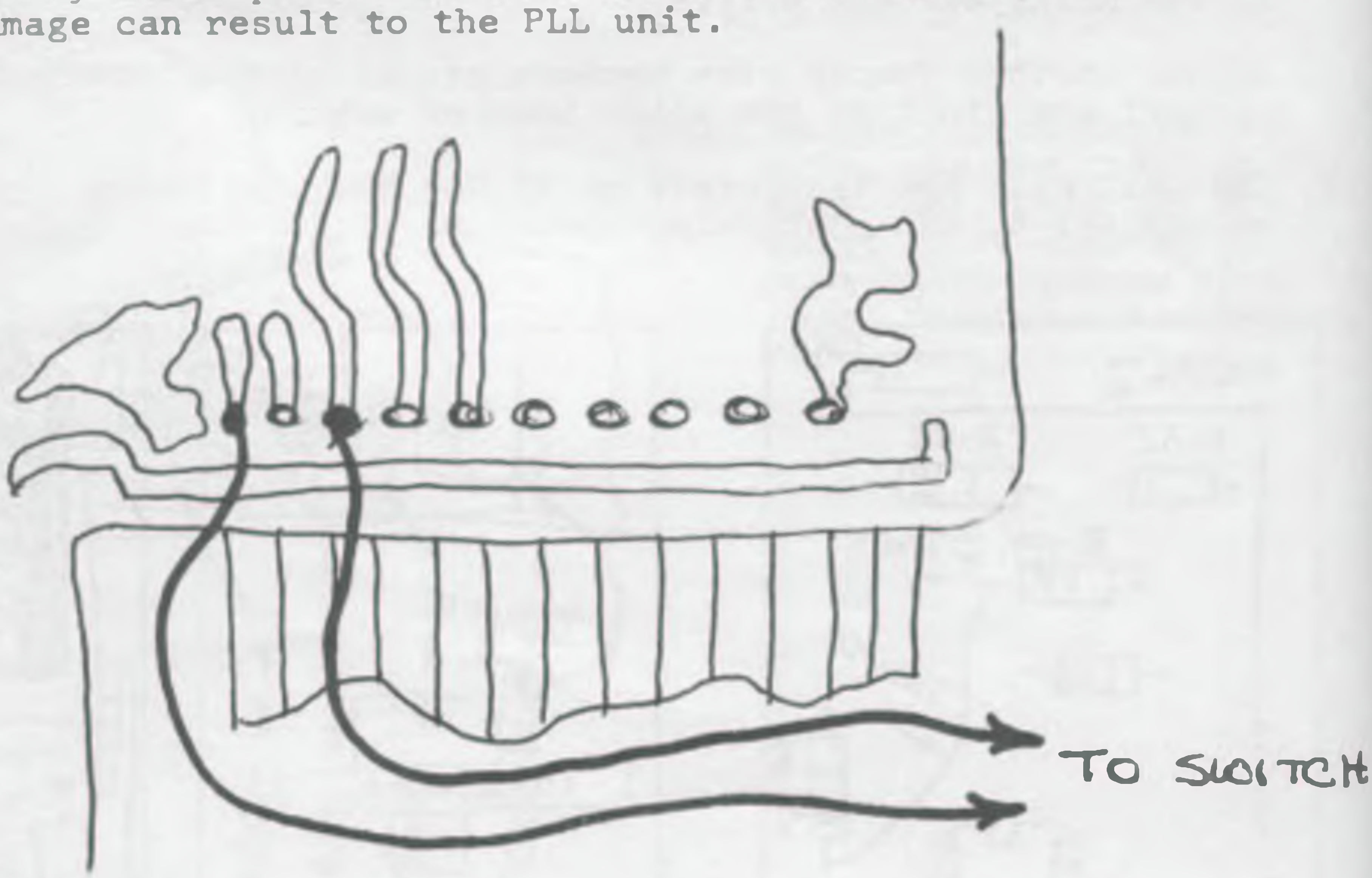
1. Remove the unit from its cabinet and locate the clear ribbon cable from the channel selector. This cable connects to the circuit board as shown in the figure.

2. Mount a SPST switch on the unit in a convenient spot and solder two wires to the switch and the other ends to the two parts as shown in the figure.

3. To use the new channels, flip the switch on and the channel selector to channel 4. This will be channel 40 and continue upwards to the 70's .

MODULATION INCREASE
Turn VR-5 to its fully counter-clockwise position, on all units except the JOHN Q., in which case it is labled as RT-4

*NOTE: When soldering the PLL unit as shown in the figure, make sure that all wiring is correct and not shorting to any other pins BEFORE APPLYING POWER, as very serious damage can result to the PLL unit.



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SLIDER

1. Remove the unit from its cabinet and locate D-39, just behind the PLL circuit and cut it out.

2. Follow the gray wire to its other end and cut it loose from the board as shown in the figure.

3. Solder the cut end of the gray wire to the end terminal on the PLL unit, which also has a green wire attached to it.

4. Solder a small jumper wire between the black wire and the orange wire located on the right side.

5. The clarifier will now slide up 2 KHz and down 5 KHz.

MODULATION

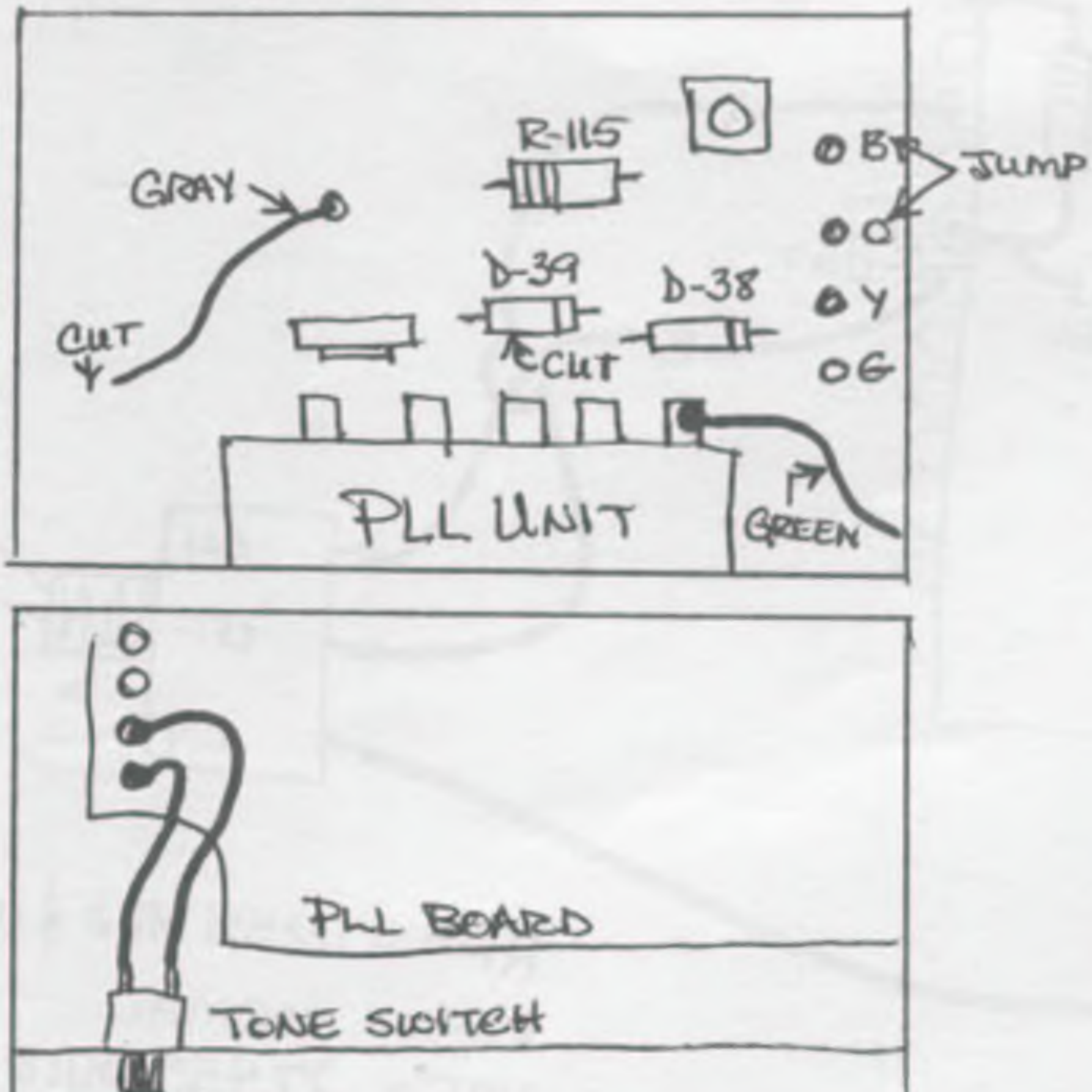
1. Locate C-96 in the far left corner of the circuit board and cut it out, thus removing the limiter and allowing full modulation on both AM and SSB.

27.145 MHz

1. Remove the two wires from the tone switch and tape them out of the way.

2. Solder two wires approximately 4" long to the switch and connect the other ends to the first two terminals on the PLL circuit board as shown.

3. With the switch pulled out, channel 15 becomes 27.145 MHz and channel 16 becomes 27.165 MHz.



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COURIER SPARTAN/GLADIATOR/CENTURION PLL
CHANNEL EXPANSION

1. Remove the top cover of the unit and the PLL circuit cover plate.

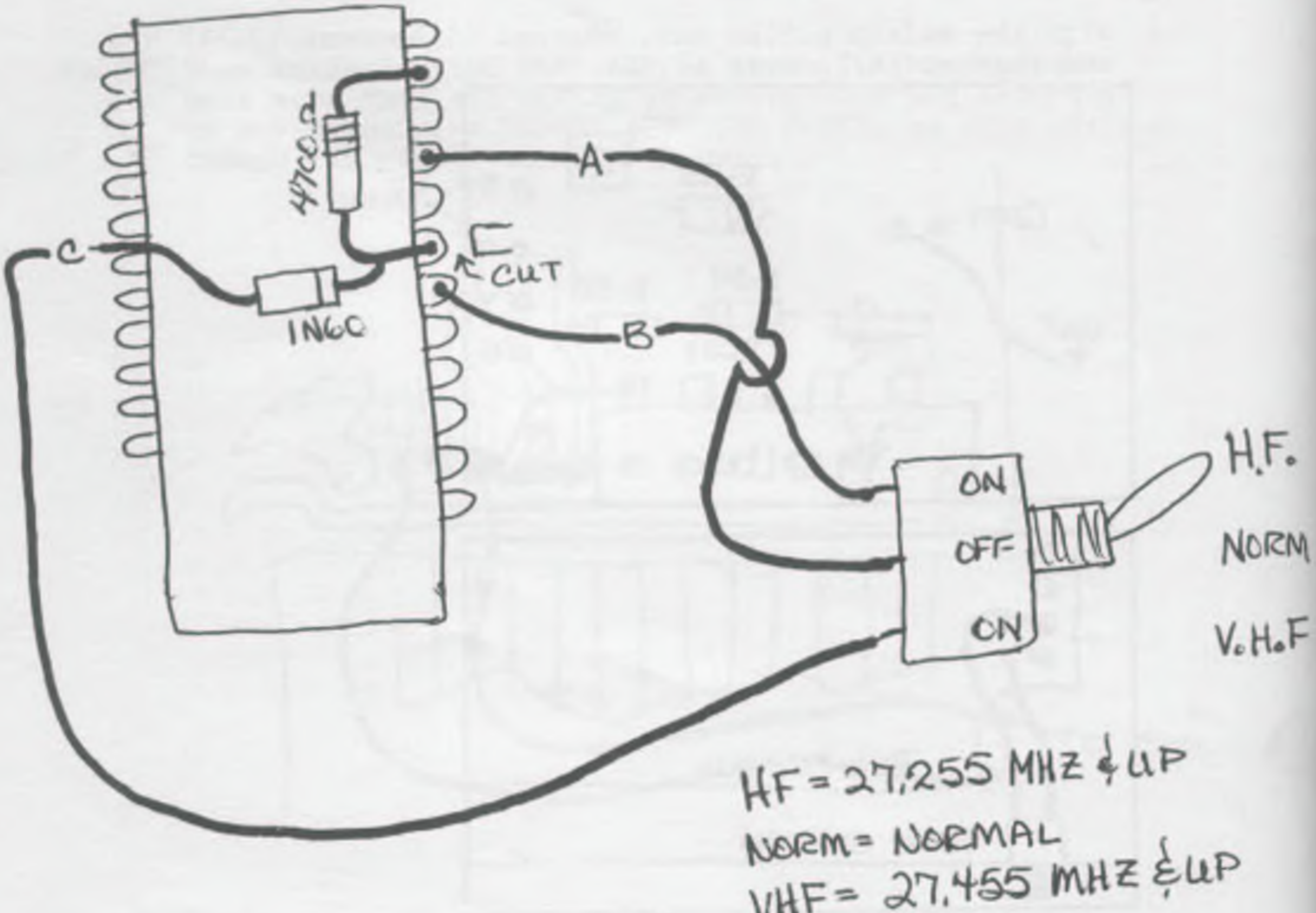
2. Carefully count 6 pins towards the front of the unit and cut the pin as shown in the figure.

3. Obtain a 4700 ohm resistor and a 1N60 diode and solder them to the IC side of the cut pin as shown

4. Mount a SPST switch in a convenient place and wire it up up so as to correspond to the diagram.

5. To use the switch on the 23 channel models, the channel selector must be on channels 8 through 22. On the 40 channel units, it is functional on channel 8 and up.

6. NOTE: if the unit is a 40 channel, do not use wire B on the switch as it is not needed. If the unit is a 23 channel, the switch must have a center off position.



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GENERAL INFORMATION

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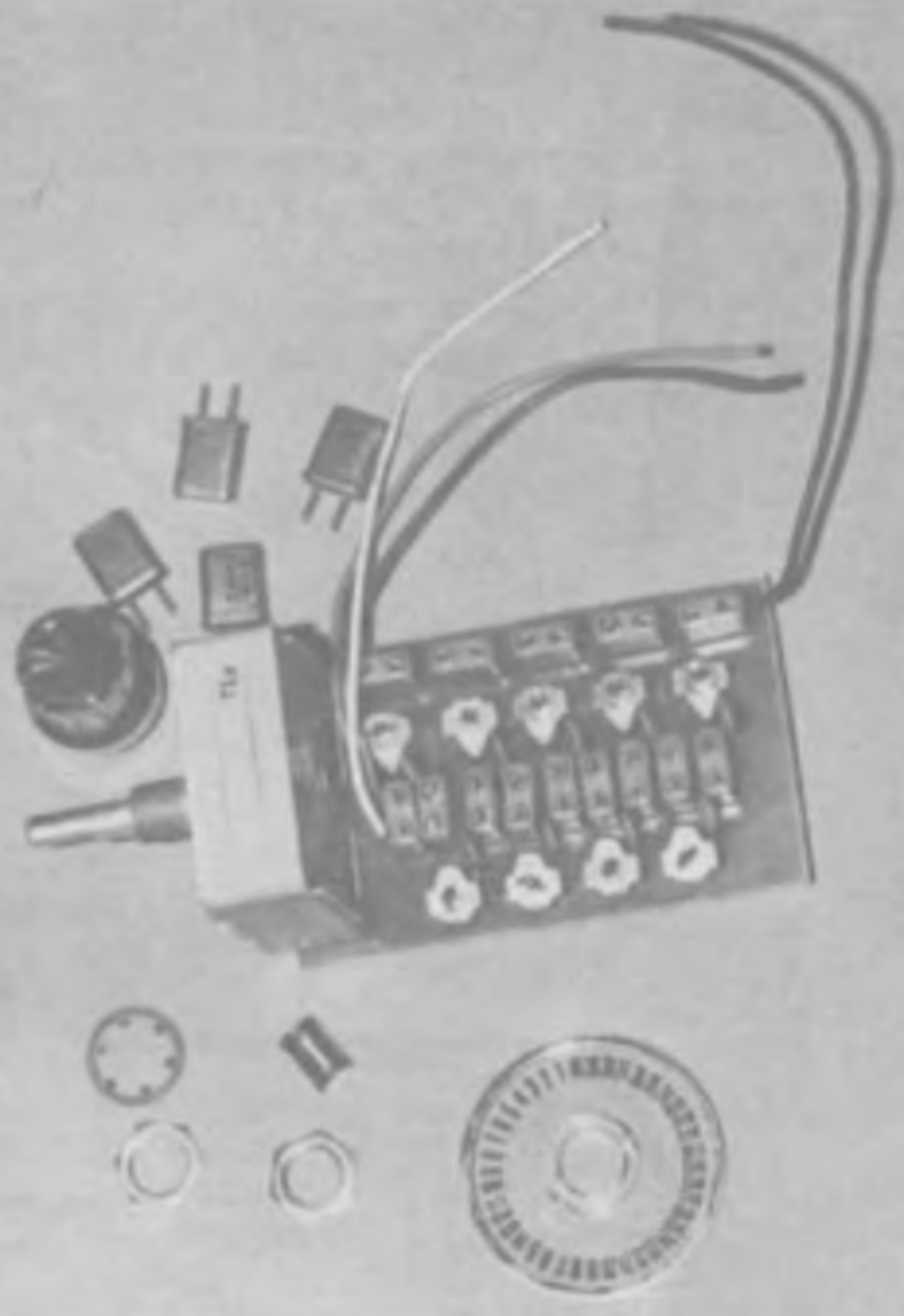

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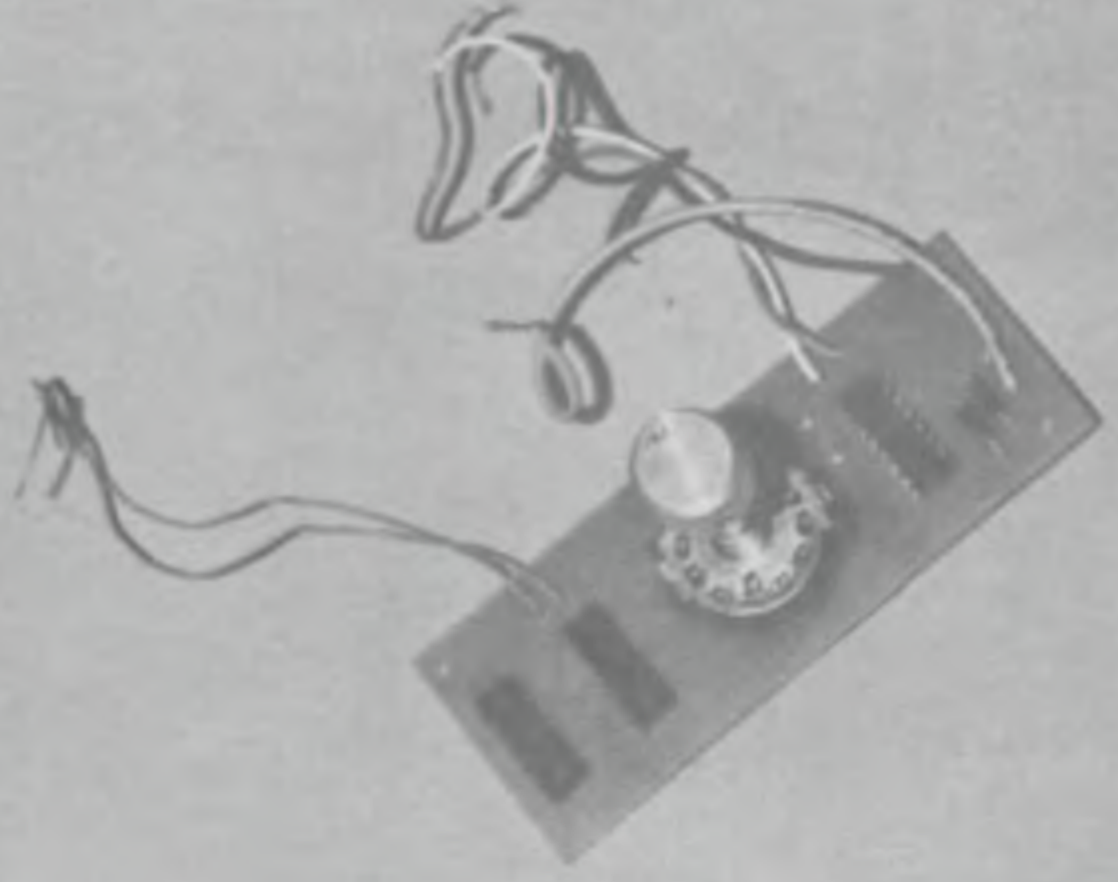

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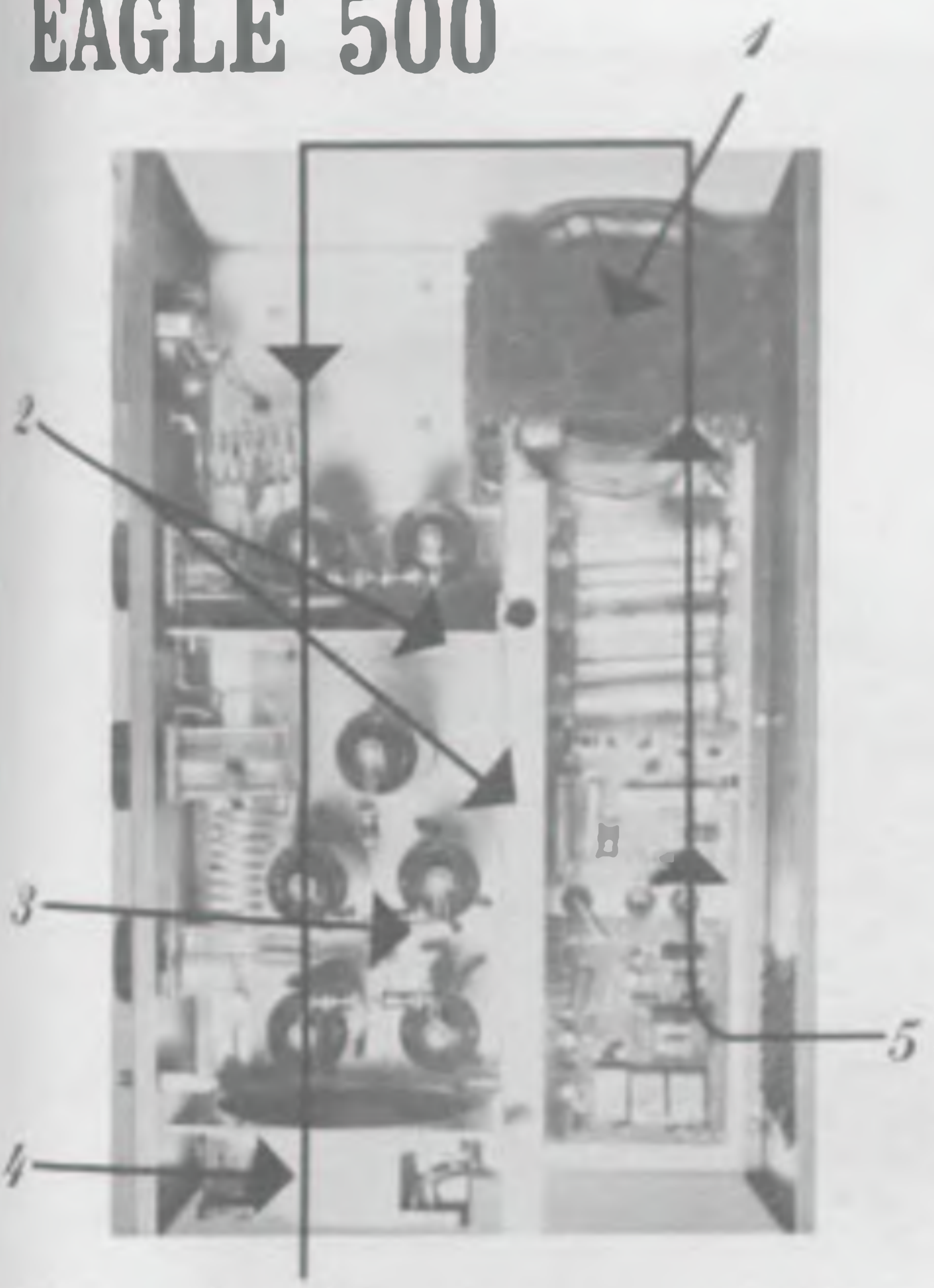

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Bridge power supply for heavier current

Frequency range: 15 Meters

Power requirements: 117 VAC at 10 Amps

500+Watts (CW) carrier power

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90-Day Limited Warranty

P.C. board construction for dependability and serviceability

Meter: Relative watts meter for ease in tuning

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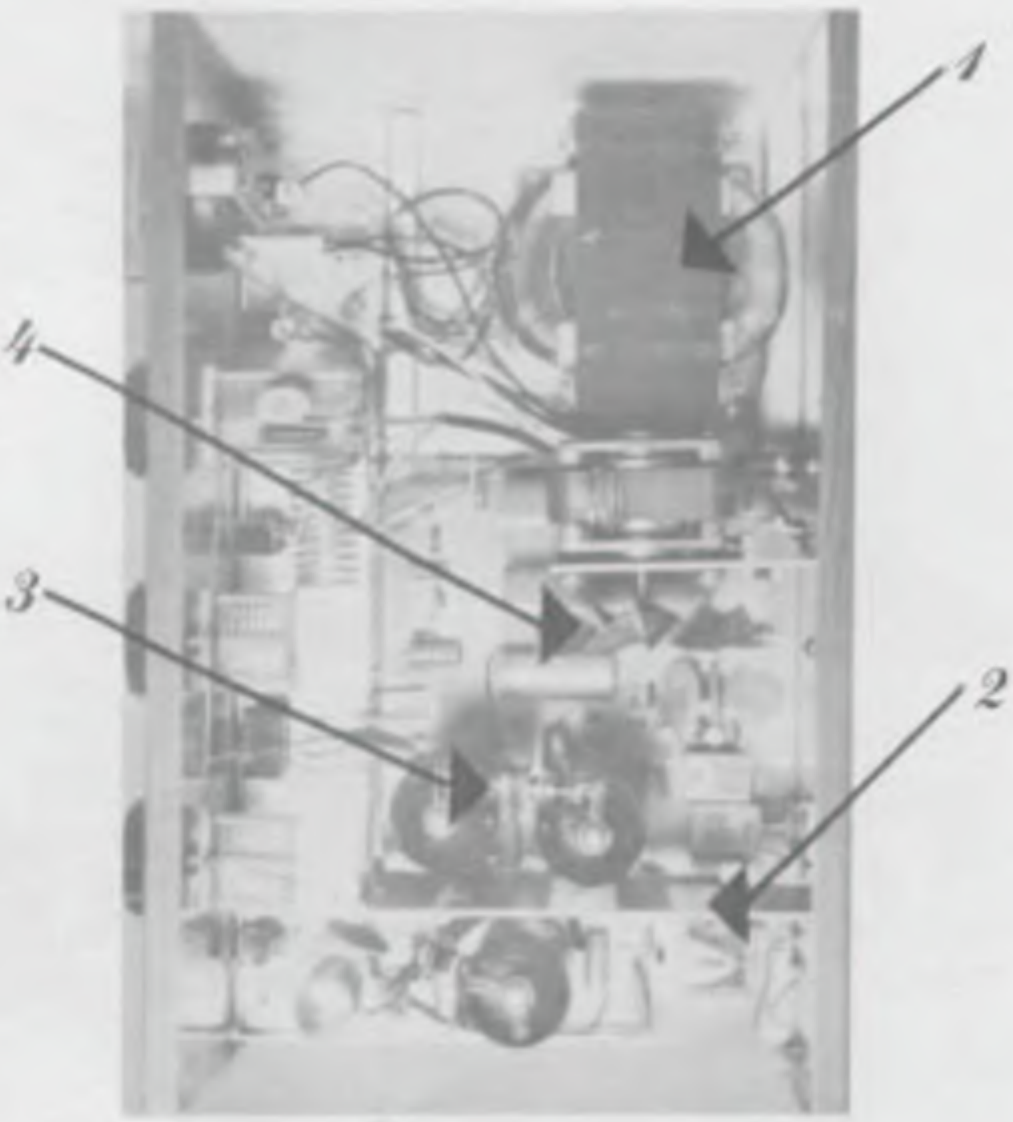

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Operating Modes: AM, SSB, CW

Special shielded input matching transformer

Shield between Driver and Output stages

Raised front for easy switching

Fan-cooled for longer life

Pre-amp gain nominal 18 db., which is operational in both standby and operate modes

RF activated relay switching

Three tube (20LF6) compliment

Bridge power supply for heavier current

Frequency range: 15 Meters

Power requirements: 117 VAC at 5 Amps

200+Watts (CW) carrier power

Drive nominal 2 to 8 Watts

90-Day Limited Warranty

P.C. board construction for dependability and serviceability

Meter: Relative watts meter for ease in tuning

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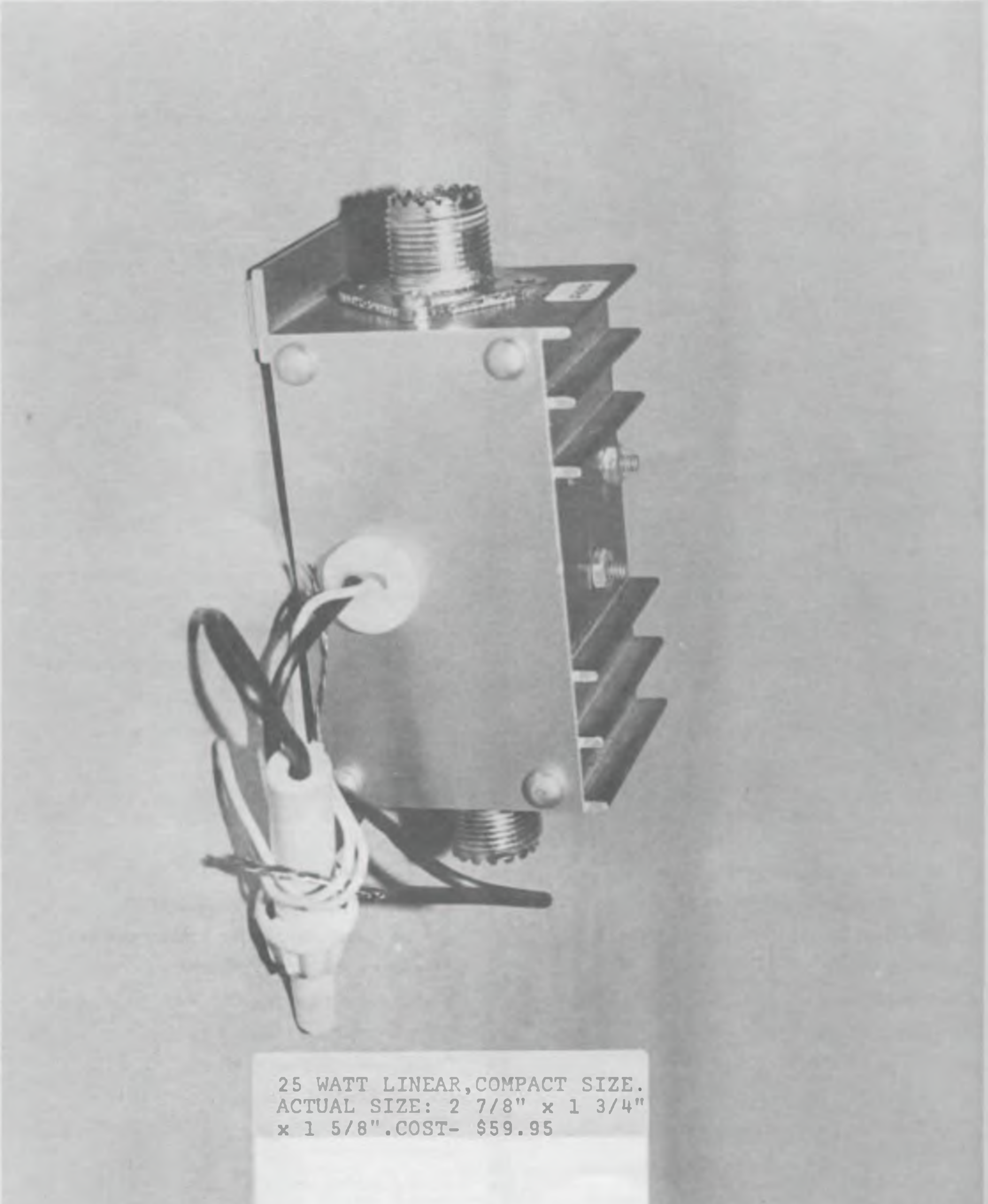

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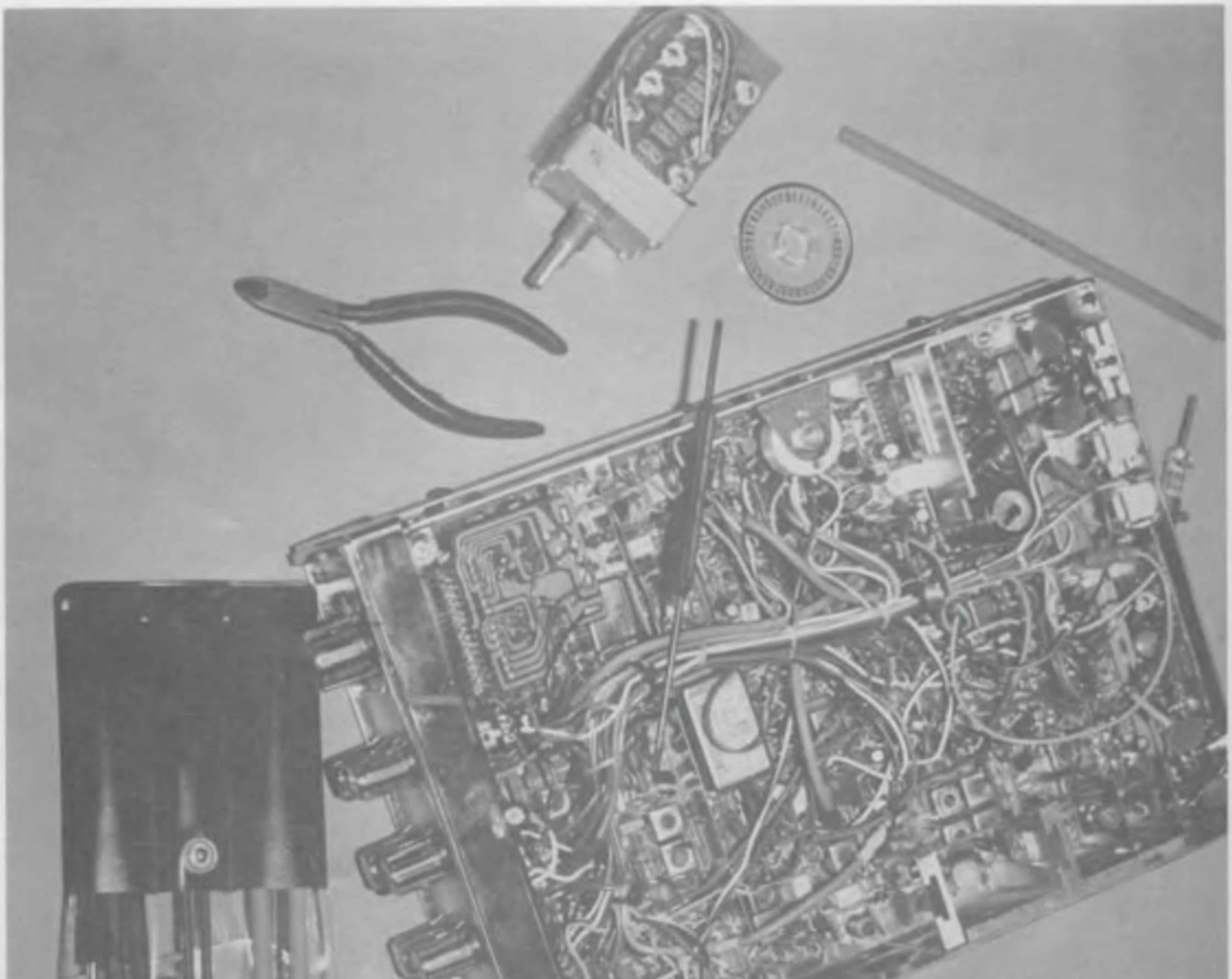

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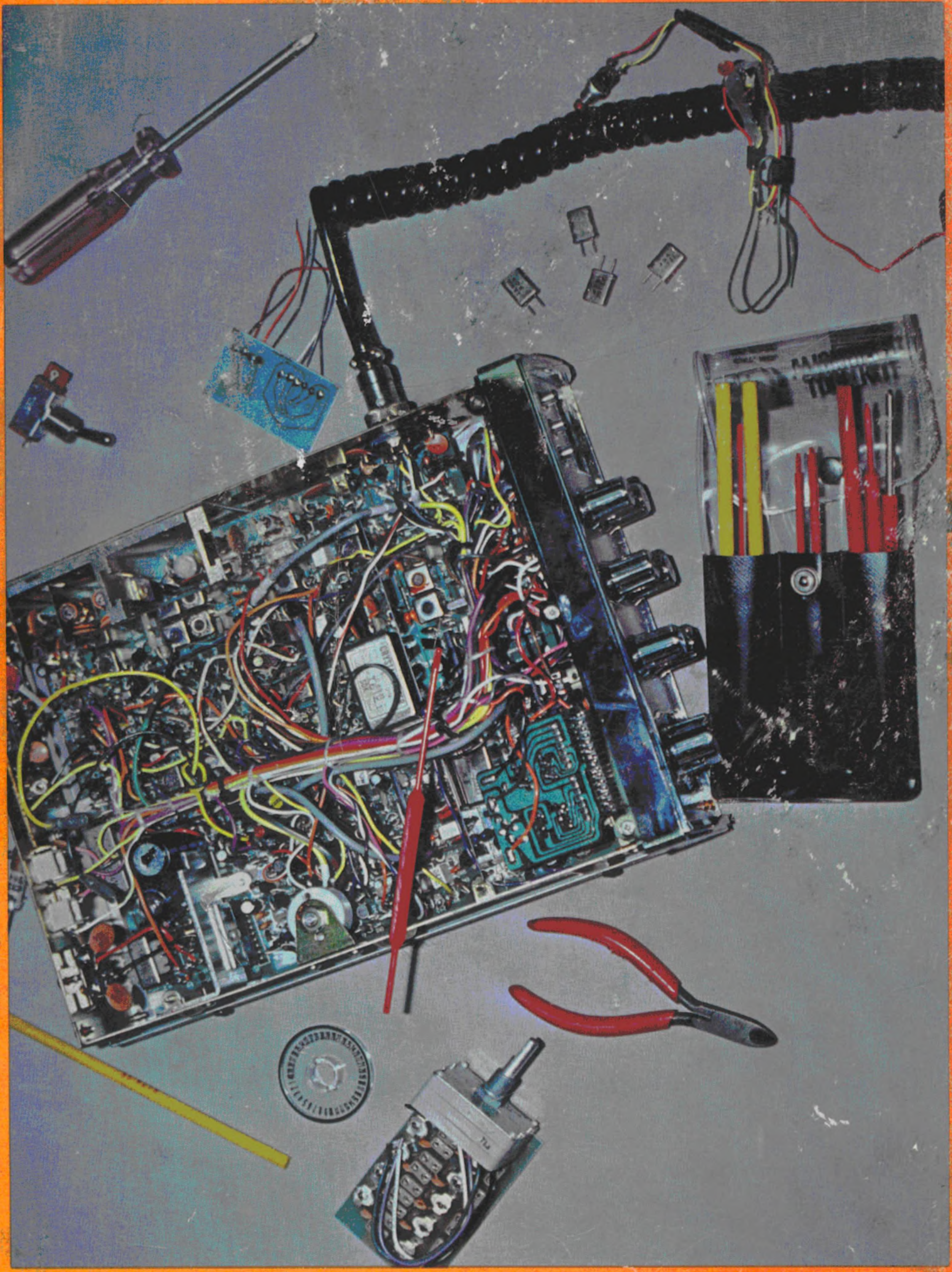

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