

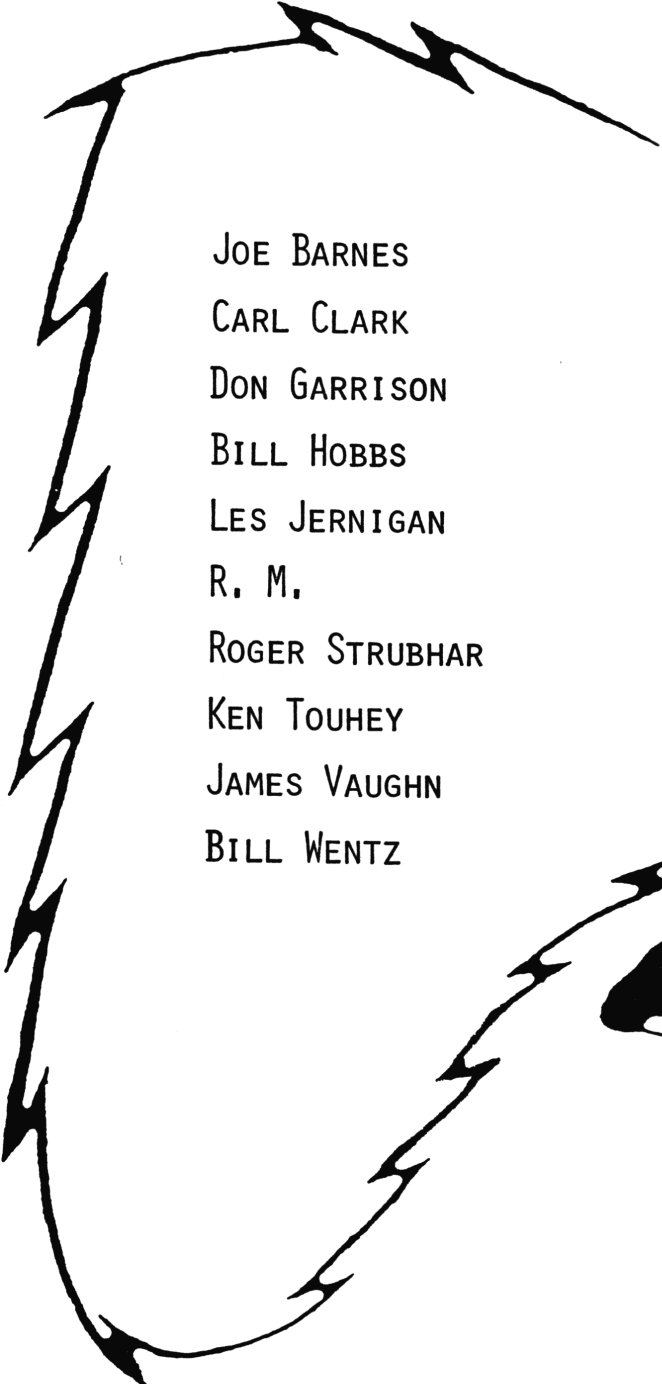
SECRET CB[®]



CONFIDENTIAL
**FACTUAL
REPORT**
SCHEMATICS ETC.

ACKNOWLEDGEMENTS

SECRET CB WISHES TO GRATEFULLY ACKNOWLEDGE THE FOLLOWING PEOPLE FOR THEIR HELP AND CONTRIBUTIONS TOWARD GETTING VOLUME 22 IN PRINT. THEIR ENCOURAGEMENT AND CONTRIBUTION OF MATERIAL HAS BEEN INVALUABLE.



JOE BARNES
CARL CLARK
DON GARRISON
BILL HOBBS
LES JERNIGAN
R. M.
ROGER STRUBHAR
KEN TOUHEY
JAMES VAUGHN
BILL WENTZ

WANTED

NEW MODIFICATIONS
NEW CONVERSIONS
TECHNICAL TIPS
PROJECT PLANS
ETC. ETC. ETC.



DORIS SAYS "THANKS" AND A FREE BOOK TO THE ABOVE PEOPLE.

I N T R O D U C T I O N

WE HAVE SUCCEEDED IN MAKING "SECRET CB" VOLUME 22
AS INTERESTING AND INFORMATIVE AS ALL THE REST.

WE WISH TO THANK ALL OF OUR READERS FAR AND NEAR,
HERE AND THERE, AND EVERYWHERE.

ENJOY!

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CORRECTIONS IN THIS VOLUME ON PAGE 6:

- VOL. 15, PAGE 48 - ROYCE 1-639, PACE 8093 (CCI-3001)
- VOL. 21, PAGE 18 - 10 KHz JUMP MOD.
- VOL. 21, PAGE 35 - RE: TRC-86/208/214
- VOL. 12, PAGE 40 - PRESIDENT AR-7
- EXCALIBUR BASE OWNER'S MANUAL

CBE-2006



ECHO & ROGER BEEP POWER BASE STATION MIC

SPECIFICATIONS

TYPE:	Electret Condenser Power Microphone built-in Roger Beep and Echo BBD Circuit
FREQUENCY RESPONSE:	250-8,000Hz
ECHO FREQUENCY RESPONSE:	200-3,000Hz
OUTPUT LEVEL:	-30dB at 1,000Hz
MAXIMUM OUTPUT:	1.5V
IMPEDANCE:	1,000 ohms at 1,000Hz
DIRECTIVITY:	Omni-Directional
AMPLIFIER GAIN:	0-30dB
BATTERY OPTIONAL:	9 volt (006P or PP3)
BATTERY LIFE:	45 Hours (Continuous operation)
CABLE LENGTH:	1.8m Coiled Cord
ROGER BEEP SYSTEM:	Output level 200mV at Maximum Power Volume. Oscillation Frequency about 2,600Hz
ECHO TIME:	60m Second

Howdy!

Since I have been receiving a 'few' items to work with for a change - Vol. 22 came out sooner than expected! Nothing like getting radio's to play with - no holds barred!

Have put in this issue a request for a multitude of Service Manuals/schematics; if these materialize will start on Vol. 23; by the 15th of August.

Yes, we do need more information on 'Domestic-(FCC Type) C.B.'s'. These are listed also, along with scanners.

If information submitted by you was not utilized, is usually because of the following reasons: re-hash of prior information; incomplete-(mis/no labels); unable to decipher; previously copywrited material from another source. Don't get mad at me, but get tired of people calling about errors. Put it on paper, print, and label all schematics; I am not a mind reader. **NO TELEPHONE INFORMATION IS BEING ACCEPTED FOR PUBLICATION.**

Look for up-coming articles on how to make a AM unit, become an AM/SSB. Also how to make a CB transmit without DC power source hooked up! - - - AH!, those screwdriver jocks',,, good for a laugh all the time. To answer some questions-below:

Seriously now, do you really think SCB needs a centerfold? I do know that 99.99% of all 'distributors' need to know how to find and identify a PLL chip. (I taught a little 10 yr. old to in 15 minutes.). It doesn't make sense to have people selling who know absolutely nothing about electronics, except the light switch on the wall.

Later, going fishin'



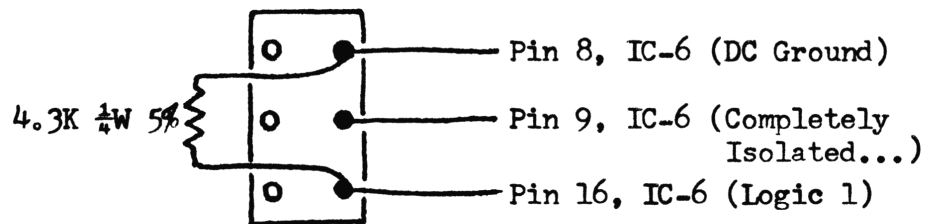
CORRECTIONS

SCB Vol. 15, pg 48: Royce 1-639, Page 8093 (CCI-3001)
"Slider" #6.....**CHANGE**, 'the middle'
to read - unused.

SCB Vol. 21, pg 35: Reference to TRC-86/208/214....
* * See page 48 for Fo Mod. Notes.
Change to read page 20.

Excalibur SSB: Owner's Manual line-up procedure....
Step 5. G, 2: correct the frequency to
read 26.495MHz.

SCB Vol. 21, pg 18: 10KHz Jump Mod. Add....
ADD.... solder 4.3K $\frac{1}{4}$ W 5% resistor from
pin 8 to pin 9 of IC-6. OR add at the
switch modification as shown below.



SCB Vol. 12, pg 40: RE: Specific Tune-up on President AR-7.
"Remove TR17, AMC Limiter"- **WRONG...**
CHANGE TO READ: Remove D8, AMC Limiter.



H E L P I N G H A N D

COPY & USE

To help people find needed CB and Scanner SAMS use the form below,

PRINT ALL INFORMATION.....

Name

Address

Phone (Hrs.)

Price each, + shipping. State if NEW or USED (marked up, frayed).

FILL OUT CHART PER INSTRUCTIONS: Circle those numbers needed....

Darken out all that are not for sale.....

SAMS CB MANUALS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98
99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154
155	156	157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180	181	182
183	184	185	186	187	188	189	190	191	192	193	194	195	196
197	198	199	200	201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220	221	222	223	224
225	226	227	228	229	230	231	232	233	234	235	236	237	238
239	240	241	242	243	244	245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260	261	262	263	264	265	266
267	268	269	270	271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290	291	292	293	

SAMS SCANNER MANUALS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----

PC77/MC430 (LC7131-PLL)

'Rough' Alignment Procedure

PLL: A. TP1, Ch. 40, TX; adjust L9 for 3.5VDC.

RECEIVE: A. Peak for max audio using Sig Gen at Ch. 20;
L8, L7, L5, L10, L4, and L3.

B. Sig Gen at Ch. 20 Fo, unit to Ch. 19; adjust
L1 and L2 for max voltage at TP4.

C. VR1 - RX Mtr., VR2 - Sq Rng.

TRANSMIT: A. Peak for max RF at Ch. 20; L19, L18, L17, L16,
and L13.

B. VR3 - TX Mtr., VR5 - Modulation Meter Calibrate*
(* , calibrate against an external standard.)

C. Connect 220 ohm 10W resistor across antenna jack.
TX, adjust VR4 so that the ANT LED just comes on.

D. AMC defeat, D15.

PC33/PC55 (TC9106BP-PLL)

'Rough' Alignment Procedure

PLL: A. TP1, Ch. 40, TX; adjust L13 for 4.0VDC.

RECEIVE: A. Peak for max audio using Sig Gen at Ch. 20;
L5, L4, and L2. (Also L3 on PC55)....

B. VR1 - RX lights, VR2 - Sq. Rng.

TRANSMIT: A. Peak for max RF at Ch. 20: L12, L14, L15, L11,
and L8.

B. VR3 - TX lights.

C. AMC defeat is D13 (both units.)

??? Palomar VC-100 ???

Same old stuff; guess that they couldn't justify the high
price of the ZEST VC-100. SO....., changed the name to Palomar.

Same unit..... \$ \$ \$

AX43/Seahawk 40/PC43 (TC9106B-PLL)

'Rough' Alignment Procedure

PLL: A. TP1, Ch. 40, TX; adjust L5 for 3.5VDC.

B. TP2 (R10), Ch. 40, RX; adjust L6 for max scope indication.

RECEIVE: A. Adjust for max audio using Sig Gen at Ch. 20; L1, L2, L3, and L4.

B. VR1 - RX Mtr., VR2 - Sq Rng.

TRANSMIT: A. Peak for max RF at Ch. 20; L7, L8, L9, and L12.

B. VR3 - TX Mtr.

* * * * * WEATHER SECTION - RX ALIGNMENT * * * * *

A. WX mode to WX3; scope and counter to TP201. Adjust L202 for max scope indication, then adjust CCW two (2) rotations. Freq. should be 50.593MHz (+/- 2KHz).

B. WX1; check for 50.618MHz.

C. WX2; check for 50.568MHz.

D. WX3, Sig Gen to Ant Jack with 162.475MHz, scope to TP202.

E. Adjust L203, L204, L205 and L207 for max scope indication.

F. VR201 full turn CW, adjust L208 for max audio.

G. VR201, adjust for no audio signal.

AX44/PC66 (TC9106BP-PLL)

'Rough' Alignment Procedure

PLL: A. TP2 (Pin 7, IC3), TX, Ch. 40; adjust L15 for 3.0VDC.

B. TP3 (secondary of L16), TX, Ch. 40; adjust L16 for max scope indication.

RECEIVE: A. Peak for max audio using Sig Gen at Ch. 20; L1, L2, L3, L4, L5, L6, and L7.

B. Set Sig Gen output level to 0.4_mV.; adjust VR2 for 2V audio.

C. VR4 - Sq Rng., VR1 - S Mtr.

TRANSMIT: A. Peak for max RF at Ch. 20; L17, L18, L10, and L14.

B. VR5 - AMC (defeat is C70), VR3 - TX Mtr.

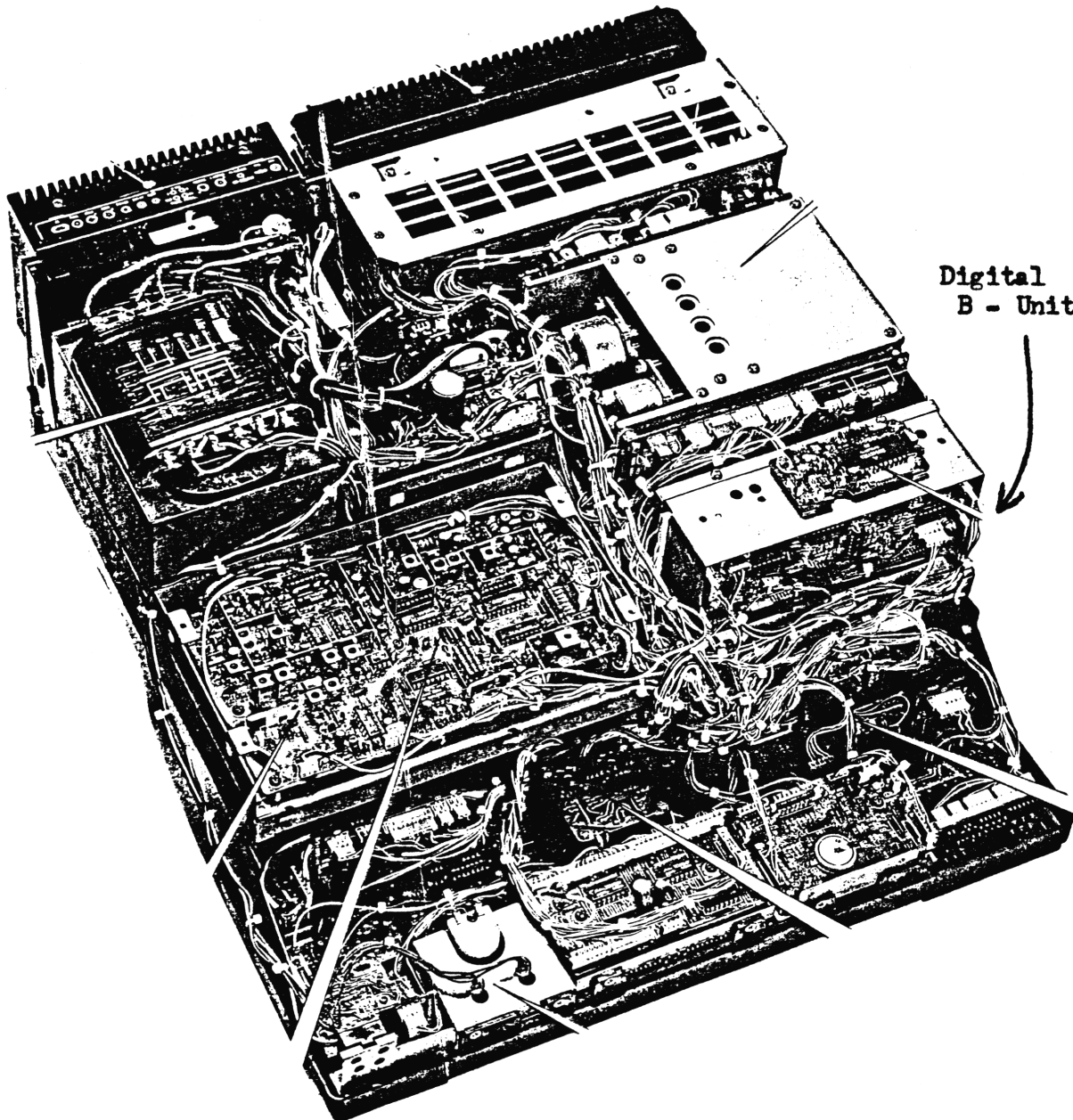
'Rough' Alignment Procedure

- PLL: A. Ch. 40, AM, RX, Clarifier Mid; adjust L13 for max RF voltage at TP4.
- B. Adjust L14 for a reading of approximately 4.5VDC at TP2.
- C. Ch. 19, USB, RX; adjust L15 for max RF voltage at TP3.
- D. Adjust L17 to read 16.4925MHz at TP3.
- E. AM; adjust L16 to read 16.4900MHz at TP3.
- F. LSB; adjust L18 to read 16.4875MHz at TP3.
- G. USB, TX; adjust VR3 to read 16.4875MHz at TP3.
(NOTE: if unit has a "modified clarifier" circuit, omit.)
- H. USB, RX; adjust L20 for 10.6925MHz at TP5.
- I. LSB, RX; adjust L21 for 10.6975 at TP5.
- J. Disconnect 'bar' (TP6, TP7, TP8), AM, TX; adjust L19 for 10.6950MHz... reconnect the bar...
- RECEIVE: A. Peak for Max. Audio using Sig Gen in USB, Ch. 19; L3, L4, L5, L6, L7, L8, L9, and L10.
- B. Mode to AM, peak L3 for max audio.
- C. VR1 - RX Mtr, VR2 - Sq Rng.
- D. Leave Sig Gen at Ch. 19 setting; unit to Ch. 18. Adjust L1 and L2 for max DC Volts at TP1.
- TRANSMIT: A. Ch. 19, USB, TX (No mod.); adjust VR9 to read 10ma between TP8 (+) and TP7 (-).
- B. Adjust VR8 to read 100ma between TP8 (+) and TP6 (-). RECONNECT BOARD....
- C. USB/LSB TX (No mod.); adjust VR4 for minimum carrier leakage.
- D. VR6 to CW position; adjust for max RF power output in USB: L40, L39, L38, L37, and L27.
- E. Turn VR6 CCW to obtain desired SSB RF TX level.
- F. Adjust VR10 to obtain desired RF TX level in AM.
- G. VR7 - TX Mtr.

Kenwood TS-940S, "Complete" TX/RX Modification
by R.S.

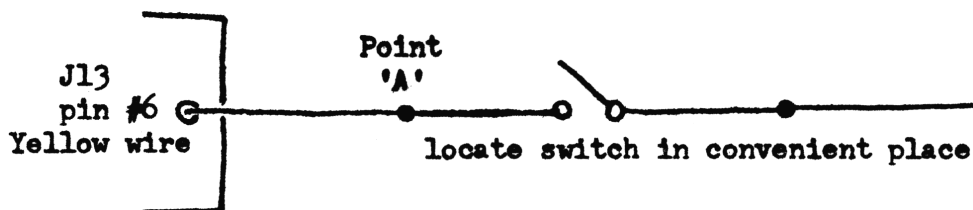
CAREFUL..... OR YOU WILL END UP WITH A \$2,000 PAPERWEIGHT.

1. Remove top and bottom covers. Remove screws which hold the front of the radio to the cabinet. Lay the front down CAREFULLY!
2. Locate digital-B-unit (X54-1840-00), see large picture below..
3. Locate diode D130, is next to IC109 - carefully clip or remove.
4. Locate diode D135, is next to IC112 - carefully clip or remove.
5. Modification is now complete; unit will transmit across the entire readout range. CAREFULLY reassemble unit, use extra caution - don't pinch any wires....

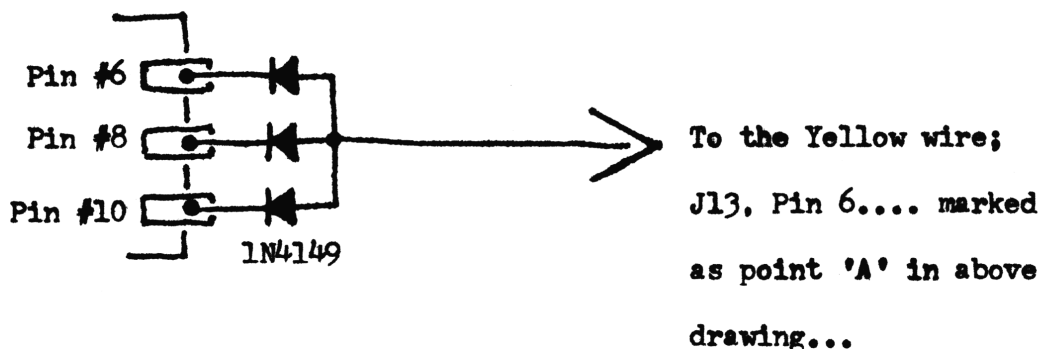


Kenwood TS-120/TS-130 11 Meter Modification
by R.S.

1. Remove the top and bottom covers, unplug the speaker.
2. Locate the AF-GEN-IF circuit board and remove the three screws.
Lift off and move to one side.
3. Locate the counter, PLL Board. Locate J13 (13 wire plug); pin #6 will be a Yellow wire.
4. Follow the drawing below for cutting wire; add a switch in series. (It will be necessary to splice wire, be sure to insulate splice joints.)



5. With switch open the TX/RX Fo's are now 26.435-28.005MHz.
BUT....., the readout/display will not follow.
Example: 27.995 will read 29.995.
6. If you want the readout to 'track', will have to do the following.
BUT....., will lose the 10 Meter portion of unit.
7. Locate the RBI IC terminal (#116-471) see pins #6, #8, and #10 from front to back. Follow drawing below, diodes are 1N4149.

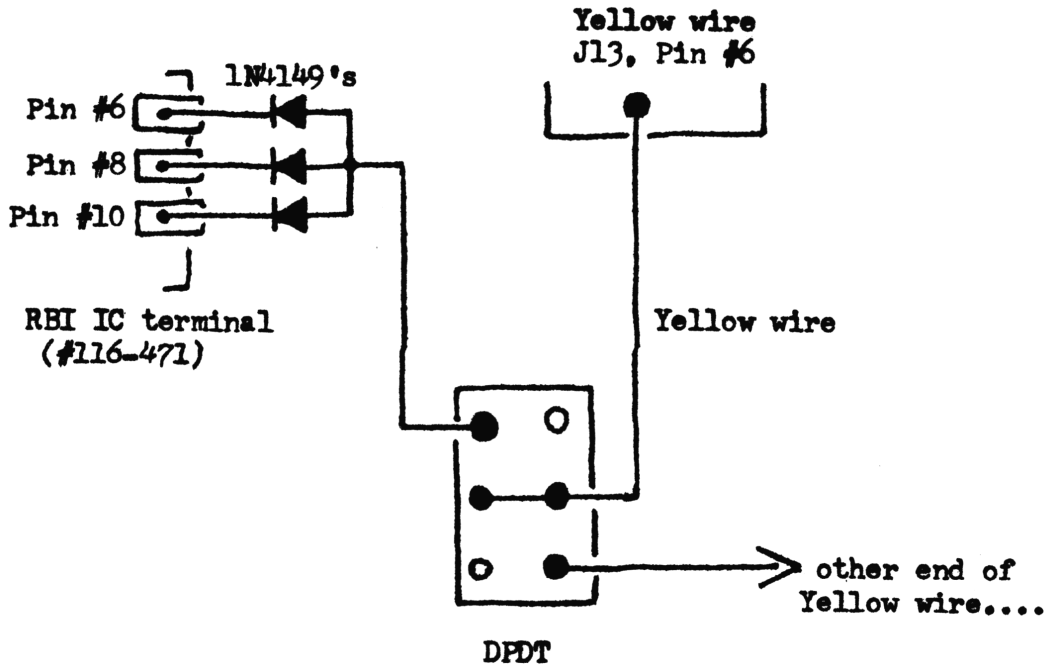


"Theory, Not Checked Out"
by Editor

Kenwood TS-120/TS-130 11 Meter Modification

With the following switch arrangement should be able to have 10 and 11 Meters both. Also the 'Fo Meter/Readout' should also track in both..... Want some feedback on this.....

Use same principals as modification on page 12.



Theory: Up - regular 10 meter operation

Down - new 11 Meter operation, with meter tracking correctly.

'Philips ECG' - Specifications and Master Replacement Guide
by Editor

I use this as a reference in most situations, and most SCB suggested substitutions are for ECG line parts.

If you don't have copy or need to know where to get, call 1-800-225-8326 (Mass. 890-6107) and ask for closest distributor. OR... send \$3.25

to: Philips ECG, Inc.
Marketing Services Center
70 Empire Drive
West Seneca, New York 14224

Will get you guide and supplement..

EXPORT ROUNDUP

This is list of all currently known 'Export CBs'.
By now should be calling them the IMPORTS, as are probably outselling
the legal (FCC) units.
List is incomplete and data is still needed to update.

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE.....
Cobra 148GTL-DX (Early) 120 Ch. AM/FM/SSB/CW	V-16	V-19	
26.515-27.855MHz, 8719-PLL			
Cobra 148GTL-DX (Late) 120 Ch. AM/FM/SSB/CW	V-17	V-19	
26.515-27.855MHz, ME145106F-PLL			
Palomar 2400, 240 Ch. AM/FM/SSB/CW	V-18	V-17	X
26.065-28.755MHz, 02A-PLL			
Comtron XII, 120 Ch. AM/FM	V-18	V-17	X
26.515-27.855MHz, 1G7120-PLL			
Colt 510, 120 Ch. AM/FM	V-18	V-17	X
26.515-27.855MHz, 1G7120-PLL			
Lafayette 1800, 200 Ch. AM/FM/SSB/CW	V-18	V-17	X
25.965-28.005MHz, 02A-PLL			
Super Star 2000, 200 Ch. AM/FM/SSB/CW			X
26.065-28.305MHz, 02A-PLL (See note #1)			
Super Star 2000, 200 Ch. AM/FM/SSB/CW			X
25.965-28.005MHz, 02A-PLL (See note #1)			
Cobra 148GTL-B, 60 Ch. AM/SSB (120 ch. #)	V-17	V-17	X
26.315-27.605MHz, 02A-PLL (See note #2)			
Tristar 747	V-19	V-15	
Cobra 150GT 120 Ch. AM/FM/SSB			
26.515-27.855MHz, 02A-PLL			
Stalker 9FM, 80 Ch. AM/FM/SSB			
26.965-27.855MHz, MB8719-PLL (See Vol. 15)			
Starfire DX			
Colt 2400, 240 Ch. AM/FM/SSB/CW			
26.065-28.755MHz, 02A-PLL			
Colt 1600DX			
Colt 2000DX			
Colt 320FY	See 747 Tristar		
Ham Int. UK, M1 120FM, 120 Ch. AM/FM	V-22	V-22	X
26.965-28.305MHz, 1G7120-PLL			

NOTE #1: 2 different versions exist!
#2: Called 60 ch., Fo sheet shows 120 chnls. (have been noted coming in either
configuration-120 Ch. unit has mod on Tone Sw.)

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Midland 3001			
Midland 4001			
Mustang CE1000			
Mustang CE2000			
Mustang CE3001			
Mato 40FM			
Oscar 1			
Petrusse Pacific 160			
Radiomobile 201			
Radiomobile 202			
Rotal RVC220			
Rotal RVC230			
Rotal RVC240			
Sapphire 2000X			
Sirtel Searcher			
Speedway			
Stalker ST-9FDX, 80 Ch. AM/FM/SSB; and UK-FM			
26.965-27.855MHz (UK-FM 27.60125-27.99125) 8719-PLL	V-19		
Steepstone SCELPM			
Tandy TRC-2000			
Tandy TRC-2001			
Tandy TRC-2002			
Tristar 777			
Tristar 797, 200 Ch.			

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Ham Int. Multimode 3, 200 Ch. AM/FM/SSB	V-20		X
26.065-28.305MHz, 02A-PIL			
GlobePhone GS-480 DX, 80 Ch. AM/SSB/CW	V-20		X
26.965-27.405, 27.665-28.105MHz; CCI3001-PIL			
Sommerkamp TS-340 DX, 80 Ch. AM/SSB/CW	V-20		X
26.965-27.405, 27.665-28.105MHz; CCI3001-PIL			
Palomar 5000, 240 Ch. AM/FM/SSB/CW	--- Identical to Palomar 2400		---
26.065-28.755MHz, 02A-PIL			
Ham Int. M-788, 200 Ch. AM/FM/SSB	V-21		X
26.065-28.305MHz, 02A-PIL			
Superstar 120, 120 Ch. AM	V-20		X
26.965-27.855, 28.500-28.940MHz; uPD2816C-PIL			
Superstar 120FM, 120 Ch. AM/FM			
26.515-27.855MHz; uPD2816C-PIL			
Palomar 1200, 120 Ch. AM/FM			
26.515-27.855MHz; IC7120-PIL			
Comotron IV, 40 Ch. AM/FM			
26.965-27.405MHz; IC7131-PIL			
Cobra 1488TL-DA, 240 Ch. AM/FM/SSB/CW	*Everything needed for Maint. in Owner Man.		
26.065-28.775MHz, 02A-PIL	--- Identical to Palomar 2400		---
SuperStar 3600, 160 Ch. AM/FM/SSB/CW			
26.515-28.305MHz; MC145106-PIL			
Lincoln 1500, 120 Ch. AM	V-21		X
26.515-27.855MHz; IC7120-PIL			
Colt 444, 120 Ch. AM/FM	--- Identical to Tristar 727-		---
26.515-27.855MHz; uPD2810-PIL	- Fo range being only difference.		
DNT HF-12/3, FM Walkie-Talkie	V-21		X
U.K. CB FM Chs. 7, 14, 19.			
Argo 300, 240 Ch. AM/FM	V-21		X
26.065-28.755MHz; 02A-PIL			
Ham Int. Concorde 3, 200 Ch. AM/FM/SSB/CW	*Use Palomar 2400 info as guide		
26.065-28.305MHz, 02A-PIL	...Lineup, schematic, are in our file...		
Excalibur SSB, 200 Ch. AM/FM/SSB/CW	Owner's Manual has complete lineup		
26.065-28.305MHz; MC145106-PIL			
Ham Int. Jumbo 3, 200 Ch. AM/FM/SSB/CW	*Use Palomar 2400 info as guide		
26.065-28.305MHz; 02A-PIL	...Lineup, schematic, are in our file...		
Formac 240, 120 Ch. AM/FM	V-22		X
26.515-27.855MHz; IC7120-PIL			
Formac 700, 200 Ch. AM/FM	V-22		X
25.615-27.855MHz; IC7120-PIL			
SuperStar 3600 (Low Band), 120 Ch. AM/FM/SSB/CW	V-22		X
26.515-27.855MHz; MC145106-PIL			
SuperStar 3900 (High Band), 240 Ch. AM/FM/SSB/CW	V-22		X
25.615-28.305MHz; MC145106-PIL			

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Audieline 345			
Barracuda GT668			
Barracuda HP940			
Binatone 5-Star			
Colt 295			
Cobra 21XFM			
Colt 320DX			
Colt Excalibur SSB M11. 160DX, 160 Ch. AM/FM/SSB			
26.515-28.305MHz, 02A-PIL			
Comotron CB40F			
Cybernet Beta 1000			
Cybernet Beta 2000			
Cybernet Beta 3000			
ELFtone KIC6000			
Falcon 2000, 240 Ch. AM/FM/SSB/CW			
26.065-28.755MHz, 02A-PIL	--- Identical to Palomar 2400		---
Fidelity CB1000H			
Fidelity CB300H			
Fidelity CB2000H			
Fidelity 2001FM			
Great GT658B			
Great GT668B			
Harvard 400H			
Harvard 402MPA			

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Transcom CBZ2000			
Transcom CBH4000			
Transcom CBH4000			
Uniface 100			
Uniface 200			
York JCF861			
York JCF863			
Major M-120, 120 Ch. AM/FM 26.965-28.305MHz, 02A-PIL		V-19	X
Grant-DK, 120 Ch. AM/FM/SSB 26.515-27.855MHz, MB8719-PIL		V-19	X
Comitron VIII			
Colt 870, 120 Ch. AM/FM 26.515-27.855MHz, 02A-PIL		V-21	X
DFT M40FM			
DFT 2740FM			
Fidelity CE1000FM			
Formac 120			
Ham International Hercules FM			
Ham International Puma			
Ham International Viking			
Rycom CBZ000			
Rycom CB3000			
Rycom CB4000			

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Ham International Concorde II		See 747 Tristar	
Rygain V (Export)		See 747 Tristar	
MATO 2000, 200 Ch. AM/FM/SSB/CW; and U.K.-FM 26.065-27.855MHz (FM-27.60125-27.99125MHz)			X
Thunder 2000, 240 Ch. AM/FM/SSB/CW 26.065-28.755MHz, 02A-PIL			--- Identical to Palomar 2400 ---
Intec 1200FM			
Pacific SSB 800, 80 Ch. AM/SSB 26.965-27.855MHz, NE145106-PIL		V-19	X
Rygain 8795			
Ham International Concorde			
Ham International Jumbo			
Lafayette 1200FM			
Multimode II			
Major 360			
Major M588			
Teaberry Stalker IX (FM), 80 Ch. AM/SSB/FM 26.965-27.855MHz, (MB8719-PIL)			
Lafayette 2400, 240 Ch. AM/FM/SSB/CW 26.065-28.755MHz, 02A-PIL		--- Identical to Palomar 2400 ---	
Super Star 360, 120 Ch. AM/SSB/CW 26.965-27.405MHz; 28.000-28.940MHz (MB8719-PIL)		V-18	X
Super Star 360FM, 120 Ch. AM/FM/SSB/CW 26.965-27.885MHz; 28.500-28.940MHz (MB8719-PIL)			
Academy 501			
Academy 502			
Amstrad CB900			
Amstrad CB901			
Audioline 340			
Audioline 341			

EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Jaws II			
Major M540			
Major 3000			
Midland 150M (Export), 80 Ch. AM-Only (Line-up identical to Colt 510, less FM ckts.) 26.965-27.859MHz, 1C7120-P1L	V-18		X
Midland 77-FM-005			
Mongoose 2000			
Multitech M8211			
Pearce-Simpson Super Lynx 18			
SAM 2000			
Shogun CB			
Somerkamp TS310DX			
Stag 357 40 Ch. AM/SSB 26.965-27.405MHz, 1C7120-P1L	On File		X
Vice-President FRANK			
Vice-President BOI			
WES 1001			
Marko CB-444, 120 Ch. AM/FM 26.965-28.305MHz, 02A-P1L	V-19		X
Tristar 727, 120 Ch. AM/FM 26.965-28.305MHz, uFD2810-P1L	V-19		X
Jackson, 226 Ch. AM/FM/SSB 26.065-28.315MHz, ME145106-P1L	V-19		X
Super Star 360FM, 120 Ch. AM/FM/SSB/CW 26.515-27.859MHz, ME145106-P1L (See note #1) - - - Identical to 1489TL-DX (Late)			
Tristar 848, 240 Ch. AM/FM/SSB/CW 26.065-28.755MHz, 02A-P1L			
Super Star 95, 120 Ch. AM 26.515-27.859MHz, uFD2810C-P1L	V-19		X

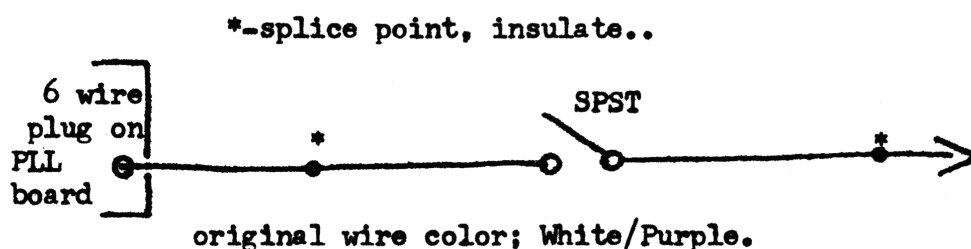
EXPORT ROUNDUP (Cont.)

UNIT	LINE-UP PRINTED	SCHEMATIC PRINTED	OWNER'S MAN. ON FILE
Harvard 420M			
Harvard B401			
Barrier CBK			
Barrier CBBQ			
Halycom CheetaH			
Halycom Condor			
Ham International 8040			
Rygain 80			
Rygain 2795			
Rygain 2795IX			
Johnson XE2000			
Lake 850			
Lake 950			
Lafayette HB870AFS			
Maxcom 48			
Maxcom 68			
Maxcom 168			
Maxcom 208			
Maxcom 218			
Midland 2001T			
Midland 2001 (Export), 120 Ch. AM-Only (Line-up identical to Colt 510, less FM ckts.) 26.515-27.859MHz, 1C7120-P1L	V-18	V-19	X
Midland 7001(Export)			
Midland 76-200			

Kenwood TS530S/TS-830S, 11 Meter Modification
by R.S.

1. Remove bottom cover, turn over so bottom is facing up.
2. Locate the PLL board, to right of the VFO.
3. A six wire plug is on the left side of the PLL board.
4. The second wire from front must be cut; a SPST switch put in series. "(additional wires will have to be spliced to existing WHITE/PURPLE wire; be sure to insulate)"

see diagram below:



...Locate switch in a convenient position....

5. With the switch open, coverage is from 26.435-28.055MHz,

BUT...readout will be 28.435-30.055..... *Band Switch on 29 mhz position*

SPECIFIC TUNEUPS

WARDS Gen-730A: Same as Gen-775A, Ref to Vol 3, pg. 61.

WARDS Gen-716A: D8-AMC; L9, and L7 for max forward.

WARDS Gen-774A: VR7-AMC; Tune L10 for max forward.

MIDLAND 13-853: VR1-RF Gain; VR2-Sq Rng; VR3-RX Mtr; VR5-AMC adjust or remove from circuit; VR6-TX Mtr. Tune L910, L912, L908, and L913. "L912 and L913 are not adjustable, spread or compress the coils to tune."

UTAC TRX-30 and SUPER TINY 23; R69 is AMC; Tune L17 for max forward.

PALOMAR 21: C204 is AMC defeat; Tune L9 for max forward.

HITACHI CM-2425H: D19 is AMC defeat; Tune T13 for max forward.

REALISTIC, TRC-50B (Mini Twenty Three); R13-IF Gain, D6 is AMC defeat. Tune T16, T15, T14, T13, T12, T11, and T10 for max forward on Ch. 12. T5, T4, and T3 are RX adjust. NEC 2SC799 final is 10W/1.5A.....

EXPORTS

HAM INTERNATIONAL CONCORDE 3: 200 channel-AM/FM/SSB/CW; Freq. Range: 26.065-28.305MHz. Standard "02A Mux. Export Chassis", however this is the "Deluxe" mobile version. Has SWR Meter, Speech Compressor, RF Power Switch, Tape Out Jack, Tx Fo Counter Jack, and Select Call feature. (Why the "Select Call" units aren't available, I don't know. As there is a substantial call for them!) The 'junk final' is still being utilized.

HAM INTERNATIONAL JUMBO 3: 200 channel-AM/FM/SSB/CW; Freq. Range is 26.065-28.305MHz. Standard "02A Mux. Export Chassis", with this being the "Deluxe" Base version. Has identical features of the Concorde 3 with the addition of: RF Power switch is now a 3-level (Max is 8W-AM/FM, 20W-SSB), and an Antenna switch.

EXCALIBUR SSB: (3,000 channels advertised) Actual channels - 200! 26.065-28.305MHz. AM/FM/SSB/CW - "Deluxe Base", MC145106-PLL. This is NOT a Uniden chassis..... However is a slick looking copy of the 148GTL-DX and SuperStar 360FM. Almost identical layout and parts; use caution working on board; as is fragile. NOTE: On the first few chassis that made it out, problems have cropped up with the voltage regulator shorting out to chassis ground. (Check and replace insulator if needed). Also PCB is being bowed by a bent chassis frame, which in turn is cracking the board. (Check and shim if needed with nylon spacers). Other than these two problems, nothing else is critically wrong -- have heard complaints about alignment being out of 'spec'? "Supposed to be fixed now." This is not the 'High Power Excalibur', but standard RF power output. Clarifier is both TX/RX, and RX again? Roger Beep, Dual Antenna Sw., SWR Meter, Select Call Capability, Hi/Low RF Power Sw., Fo Cntr Jack (TX Only), and recording jack for both TX/RX signal. NO, 10KHz jump switch. Alignment procedure/schematic are in an excellent owner's manual. As for only 100 of these units being available, forget it! PLENTY....

FORMAC 240: (240-channels advertised?) Actual 120 channels, AM/FM. Fo Range: 26.515-27.855MHz. IC7120-PLL. Manual says 240 channels, guess they counted 120-AM, and 120-FM channels. Nice little unit overall, have been told that extra spaces are left on PCB for additional crystals/associated parts. Guess there is another unit out there with these in it. Unit does have an SWR meter and 3-level RF output power (10W is max per spec.)

EXPORTS

FORMAC 700: (400-channels advertised?) Actual 200 channels, AM/FM.
Fo Range: 25.615-27.855MHz. LC7120-PLL.
Very nice unit, same board as the Formac 240, full of parts.
...BUILT-IN ECHO... actually this thing acts more like a
reverb, adjustable intensity/interval. Echo is on a separate
plug-in PCB. 'Trucker's Delight', as this unit isn't that
expensive.....

SuperStar 3600 (Low Band): 120 channels, AM/FM/SSB/CW; Fo Range is
26.515-27.855MHz. This is a 'Deluxe Mobile!
MC145106-PLL. Has Roger Beep, BUT: no 10KHz
jump or beep switch. Identical PCB as the
Excalibur SSB.

SuperStar 3900 (High Band): 240 channels, AM/FM/SSB/CW; Fo Range is
25.615-28.305MHz. MC145106-PLL chip.
Deluxe Mobile with Roger Beep, but no 10KHz
jump or Beep switches. PCB is identical to
the Excalibur SSB, but the extra components
are stuffed in.

Ham International UK, Mdl 120FM: 120 channels, AM/FM; Fo Range is
26.965-28.305MHz. LC7120-PLL chip.
"Standard NO-FRILLS" unit; 3 level
RF power with 10W being max.

? R U M O R ?

New Madison ?.... Fo readout like the UNIDEN built Cobra 2000GTL.
(always did get sick when people talked about
the Cobra unit, they all think that Cobra built
it..... NO WAY!....Uniden.)

Now for the word; rumor or truth; need feedback on this:

Cobra 2000GTL with the Uniden PCB's is being discontinued,
and a different board being substituted.....?

A new version of the Jackson ? This time supposed to have Scrambler,
SWR meter, and Hi/Low Pwr switch.

Also a new High Powered Export in the Formac line... no specs as yet.

ARGO AM/FM base ?, and an AM/FM/SSB base ?, both are supposed to be
240 channels units.....

Formac 240 (IC7120-PLL)

by B.W.

Schematic for this unit is on page 55, use it for reference!

This chassis will cover 200 channels; circuitry traces are on PCB;

additional parts and 5 position switch are all that is needed.

I 're-manufactured' 8 of these units for customer in Ecuador.

New frequencies were 26.965-29.210MHz. By realigning the capacitance of crystal (example: X2) with CT3 and C65, can vary a complete section of 40 channels.

The following crystals will give the frequency bands:

14.01 - 25.165-25.605	16.71 - 27.865-28.305
14.46 - 25.615-26.055	17.16 - 28.315-28.755
14.91 - 26.065-26.505	17.61 - 28.765-29.205
15.36 - 26.515-26.955	18.06 - 29.215-29.655
15.81 - 26.965-27.405	18.51 - 29.665-30.105
16.26 - 27.415-27.855	

Alignment/adjustments are as follows: Two (2) VR3's are on the PCB!

VR3 next to R145 location is for FM deviation. VR1-TX Mtr, VR9-RX Mtr, VR6-Mid RF Pwr level, VR7-Low RF Pwr Level, VR8-Sq Range, VR3-Low Pwr Modulation, VR4-Mid Powr Modulation, VR5-Hi Pwr Mod. RX...LT12, LT13, LT14, LT15, LT16, and LT17. TX....LT8, LT7, LT4, LT3, and LT2 (be careful with any glued slugs!).

LC 7120
SuperStar 1700 - (IC7120-PLL)

Basically this is identical to the TRISTAR 727, but comes in two different Fo Ranges: 1700B - 26.965-28.305MHz. 1700S - 26.515MHz to 27.855MHz. Make sure which one you are getting ahead of time.

~~See volume 19, pg. 30 for alignment.~~

Delete

1700B

ANT FREQUENCY (MHZ)							
CH	Low Band	Mid Band	Hi Band	CH	Low Band	Mid Band	Hi Band
1	26.965	27.415	27.865	21	27.215	27.665	28.115
2	26.975	27.425	27.875	22	27.225	27.675	28.125
3	26.985	27.435	27.885	23	27.255	27.705	28.155
4	27.005	27.455	27.905	24	27.235	27.685	28.135
5	27.015	27.465	27.915	25	27.245	27.695	28.145
6	27.025	27.475	27.925	26	27.265	27.715	28.165
7	27.035	27.485	27.935	27	27.275	27.725	28.175
8	27.055	27.505	27.955	28	27.285	27.735	28.185
9	27.065	27.515	27.965	29	27.295	27.745	28.195
10	27.075	27.525	27.975	30	27.305	27.755	28.205
11	27.085	27.535	27.985	31	27.315	27.765	28.215
12	27.105	27.555	28.005	32	27.325	27.775	28.225
13	27.115	27.565	28.015	33	27.335	27.785	28.235
14	27.125	27.575	28.025	34	27.345	27.795	28.245
15	27.135	27.585	28.035	35	27.355	27.805	28.255
16	27.155	27.605	28.055	36	27.365	27.815	28.265
17	27.165	27.615	28.065	37	27.375	27.825	28.275
18	27.175	27.625	28.075	38	27.385	27.835	28.285
19	27.185	27.635	28.085	39	27.395	27.845	28.295
20	27.205	27.655	28.105	40	27.405	27.855	28.305

1700S

ANT FREQUENCY (MHZ)							
CH	Low Band	Mid Band	Hi Band	CH	Low Band	Mid Band	Hi Band
1	26.515	26.965	27.415	21	26.765	27.215	27.665
2	26.525	26.975	27.425	22	26.775	27.225	27.675
3	26.535	26.985	27.435	23	26.805	27.255	27.705
4	26.555	27.005	27.455	24	26.785	27.235	27.685
5	26.565	27.015	27.465	25	26.795	27.245	27.695
6	26.575	27.025	27.475	26	26.815	27.265	27.715
7	26.585	27.035	27.485	27	26.825	27.275	27.725
8	26.605	27.055	27.505	28	26.835	27.285	27.735
9	26.615	27.065	27.515	29	26.845	27.295	27.745
10	26.625	27.075	27.525	30	26.855	27.305	27.755
11	26.635	27.085	27.535	31	26.865	27.315	27.765
12	26.655	27.105	27.555	32	26.875	27.325	27.775
13	26.665	27.115	27.565	33	26.885	27.335	27.785
14	26.675	27.125	27.575	34	26.895	27.345	27.795
15	26.685	27.135	27.585	35	26.905	27.355	27.805
16	26.705	27.155	27.605	36	26.915	27.365	27.815
17	26.715	27.165	27.615	37	26.925	27.375	27.825
18	26.725	27.175	27.625	38	26.935	27.385	27.835
19	26.735	27.185	27.635	39	26.945	27.395	27.845
20	26.755	27.205	27.655	40	26.955	27.405	27.855

SuperStar Mark 1/A - Update

Mark 1 - Direct plug-in use: Major M-120 and M120A
Formac 240
Formac 700

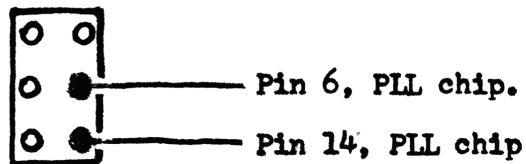
Mark 1A - Direct plug-in use: Jackson-DX
Grant-DX
SuperStar 360FM
Cobra 148GTL-DX (Both versions)
Stalker 9FM and 9FMDX
SuperStar 3600 (Low Band)
SuperStar 3900 (High Band)
Excalibur SSB

Sears 934.36760600 - 23 Ch. (uPD861-PLL)
by D.G.

"Picked up this unit in a trade, got a little excited when I saw PLL on the case! As the 23 Ch. 02A chassis are getting a little hard to find, especially in any reasonable condition. Upon opening unit up found the uPD861 PLL chip, and started wondering."

Conversion for channels 24 - 40....

- A. Hardwire NB to permanent ON.
- B. Clean off the switch, use drawing below for construction of new frequency select switch.



Mount so that contact is made in 'ON' position.

- C. With switch in ON position; Ch 1 is now ch 21, follows through Ch 19 is now ch 39. Channel 40 is found half way between Ch 1 and PA with NB switch in the OFF position.

Quickie' Tune-up TX: T14, T15, T16, T17, and T18.
RX: T1, T2, T3, T4, T5, T6, and T7.

* Will have frequency conversion worked out for future volume, as 26.385-26.625MHz is no problem. BUT from 26.625 up to 26.955MHz is ? ? ?.

Excalibur SSB

Things to check before applying power.

1. If adapter not in box with unit, will have to buy/or change plug.
2. Switch on back to 110V; check fuse; change if needed to 2 Amp fast blow.
3. Take top and bottom covers off unit, check for the following:
 - A. Make sure large heatsink in power supply has the transistor sinked correctly with mica insulator! Note: some units will have a 2SD1046 which the 'distributor' installed.
 - B. To the left of VR1 is D12. A yellow wire is soldered to one end, make sure the insulation is in place.
 - C. ? ? Why the 'distributor' would take the time to change insulators on the power supply transistor and leave those monster size ones on Driver and Final is beyond me.... Change them!
 - D. Check bottom of PCB; if bowed at any corner/s; shim with nylon washers. Put the washers between PCB and chassis. Have found most units are bowed down in the corner where PLL chip located.

W A R N I N G - C A U T I O N: Be very careful when cutting etch and soldering to PCB, as is not that strong. Support opposite side!

Superstar 3600 (Low Band)

Things to check before applying power.

1. Check to see that D-77 is flush mounted on PCB, - next to mike connector.
2. Remove mike connector from chassis as a whole unit, carefully insulate the entire small PCB with electrical tape. When replacing make sure that connector nut is tight.
3. Check jumper next to D-78, make sure isn't shorting.
4. Check TR45 for bad solder joint.
5. Change insulator on Driver and Final. This particular unit had fiberglass instead of the white ones???

SPECIAL NOTE: Serial No's on above examples - out of the box.

Excalibur SSB, S/N 300205

SuperStar Md1 SS-3600 (Low Band), S/N 104089

SuperStar 3900 (High Band)

Things to check before applying power.

Serial no. 200341, out of the box:

Surprise! - NO, transmit, receive, the meter light worked?

Found following bad: TR41, 2SA473 - Open? Replaced with 2SA490, (2SA473, 10W/3A; 2SA490, 25W/3A). Direct ECG replacement is ECG153.

Other discrepancies noted were LARGE White insulators on the driver and final, (same as the Excalibur SSB).

TP9 was bent over, checked on etch side and solder joint broken (one side) - removed, straightened, replaced.

J21 pushed over near D73. C81 was cut out of the chassis; piece of wire lead left hanging; removed it before it shorted out TR49.

REVIEW the SuperStar 3600/Excalibur SSB (pg. 24) for other items to check. See board layout 'A, B, and C' as these and other parts are in the circuit. No component numbers are listed on PCB.

HAM INTERNATIONAL UK, Md1. 120FM

Alignment/Frequency Modification

VR1-TX Mtr.; VR2-Sq Rng.; VR3-RX Mtr.; VR10-FM Insertion;
VR11-High Pwr AMC; VR12-Mid Pwr AMC; VR13-Low Pwr AMC;
VR14-Mid RF Pwr Level; VR15-Low RF Pwr Level.
TX Peak: L8, L9, L10, L12, L15, and L16.
RX Peak: L18, L19, L20, L22, L23, and L24.

Xtals X2, X3, and X4 may be removed and replaced with any in chart below for different frequencies/range. (*)in unit at present time...

<u>Frequency Range</u>	<u>Xtal Fo.</u>	<u>Frequency Range</u>	<u>Xtal Fo.</u>
29.665-30.105	18.06	26.515-26.955	14.91
29.215-29.655	17.61	26.065-26.505	14.46
28.765-29.205	17.16	25.615-26.055	14.01
28.315-28.755	16.71	25.165-25.605	13.56
27.865-28.305	16.26*	24.715-25.155	13.11
27.415-27.855	15.81*	24.265-24.705	12.66
26.965-27.405	15.36*	23.815-24.245	12.21

This is not to say unit will operate at all these Fo ranges, but should give no problems within a 1.3MHz bandwidth.

SuperStar 3600 (Low Band) Line-Up Procedure
26.515-27.855MHz Version

This is SUPERSTAR 3600 alignment, re-written for the experienced technician. Courtesy 'Custom Conversions'.

Equipment Suggested: Audio Generator; RF VTVM; DC Power Supply (*); Freq. Counter; Oscilloscope; RF Wattmeter & Dummy Load (25W minimum); RF Sig. Gen. (capable of 1KHz at 30% mod-AM, 1.5KHz deviation at 1KHz-FM); VOM-20K ohm/V min... (*) 4A Regulated MINIMUM..

PLL ALIGNMENT

1. Fo Counter to pin terminal between C78 and C79. Should read 10.24000MHz, \pm 200Hz; if out of tolerance change X1.
2. Fo Counter to TP-6 (R102):
Mode selector to CW, adjust L26 for 10.695MHz.
Mode selector to USB, adjust L27 for 10.6925MHz.
Mode selector to LSB, adjust L28 for 10.6975MHz.
(tolerance on above: +0, -100Hz.)
3. Scope to TP-4 (pin terminal between C82 and R107):
Mode selector to AM, Clarifier to center; Band to MID, Ch. 19.
Adjust L16 for max RF output.
4. Scope to TP-3 (R-74):
Mode selector to AM, Clarifier to center; Band to HIGH, Ch 40.
Adjust L18 for max RF Output.
DC Voltmeter to TP-2 (R-109).
Adjust L17 to 5.0VDC, tolerance .1VDC.
Check LOW Band Ch 1, must be 2.5VDC approximately.
5. Fo Counter to TP-3 (R-74):
Mode selector to AM, Clarifier to center; Band to MID, Ch 19.
Adjust L19 for 16.040MHz, \pm 50Hz.
Mode to USB; adjust L20 for 16.0425MHz; \pm 50Hz.
Mode to LSB; adjust L21 for 16.0375MHz; \pm 50Hz.
Leave in LSB; transmit-no input; adjust VR15 for 16.0375MHz, \pm 50Hz.

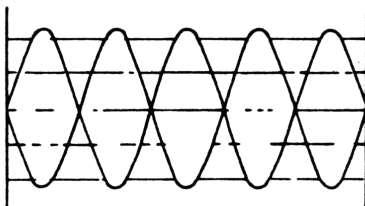
TRANSMIT ALIGNMENT

1. Driver/Final Bias adjustment: Remove small plug-in PCB from TP7, TP8, and TP9.
Mode selector to USB; Band to MID, Ch 19.
Current meter to TP9 (+), and TP8 (-). Transmit, NO INPUT.
Adjust VR11 for 10mA, \pm 0.5mA
Current meter to TP9 (+), and TP7 (-). Transmit, NO INPUT.
Adjust VR10 to 100mA, \pm 0.5mA

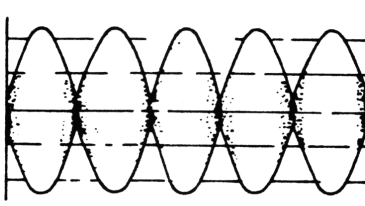
SuperStar 3600 (Low Band) Alignment (Cont.)
Transmit Alignment - continued..

2. Mode selector to USB, Band to HIGH, Ch 40.
Insert 1KHz 30mV audio to mike input, and transmit.
Adjust VR12 and I42 for maximum RF output.
Adjust I40, I43, I44 and L33 for maximum RF output, then repeat until no further increase can be obtained.
Adjust I42 for balance of RF output power between HIGH band Ch 40, and LOW band Ch 1.
3. Apply 500Hz and 2.4KHz (30mV) audio tones to mike input, at same time. Use diagram below and adjust input level of 500Hz so that wave 'A' form as indicated below appears on scoped RF output.
Adjust VR12 for 12W peak-to-peak output power.
***WARNING** - VR12 should not be rotated clockwise beyond 2 O'clock position, or the RF power transistor will be destroyed.

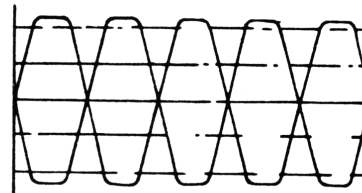
A. Properly adjusted transmitter.



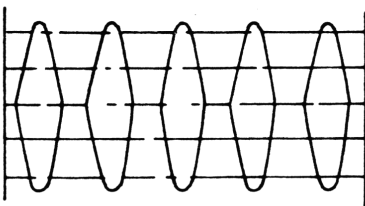
B. Unequal tones-Adjust generator outputs to balance.



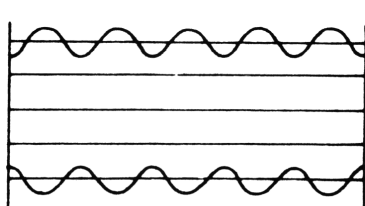
C. Excessive modulation - Adjust RV12 counterclockwise.



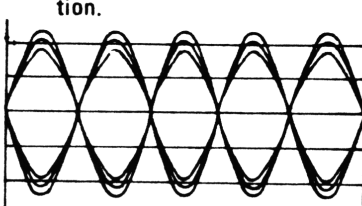
D. Final transistor incorrectly biased - Adjust RV 12.



E. Undermodulation-Adjust RV 12 clockwise.



F. Similar to A but showing hum- Check for proper testing condition.



4. Mode Selector to AM, Band to MID, Ch 19.
Adjust VR13 to obtain 5W RF power output
Apply 1KHz at 30mV to mike input.
Adjust VR14 for 90% + modulation.
5. Mode selector to FM.
Apply 1KHz at 30mV to mike input.
Adjust VR5 to obtain 2-3KHz on deviation meter on TX.
6. Mode select to USB, maximum mike gain, apply speech to microphone.
Adjust VR8 for maximum indication, without pegging meter movement.
***NOTE:** In some units VR8 will need to be changed to higher value.
7. Mode select to CW.
8 Ohm dummy load and audio VTVM to ext. Speaker jack.
Connect key switch to key sw. jack.
Key the switch, and adjust VR16 for 200mV, ± 10 mV signal.

SuperStar 3600 (Low Band) Alignment (Cont.)

RECEIVE ALIGNMENT

1. Set RF Sig Gen for 27.185MHz 30% modulation.
Mode selector to AM, Band to MID, Ch 19
Adjust L3, L4, L6, L7, L8, L10, L11, and L12 for maximum audio output.
Audio Output to be measured across dummy load with audio VTVM!
NOTE: Keep Sig Gen output as low as possible to prevent AGC action.
Adjust L8 for balance between LOW and HIGH bands.
2. Set RF Sig Gen to 27.186MHz, no modulation.
Mode selector to USB, Band to MID, Ch 19
Adjust L13 and L14 for maximum audio output, with clarifier at center.
3. Set RF Sig Gen to 27.185MHz.
Apply FM signal (1 microV, 1.5KHz deviation with 1KHz audio).
Mode selector to FM; Band to MID, Ch 19
READJUST L5 for maximum audio output.
4. Set RF Sig Gen to 27.185MHz.
Input 60db (1000 microV) 1KHz 30% modulation.
Mode selector to AM, Band to MID, Ch 19
Squelch control fully clockwise
Scope the audio output, adjust VR4 until audio disappears.
Check that the front squelch control will 'cut in' between 48-70db
on all modes. *VR3 may be adjusted if need be in SSB mode.
5. Set RF Sig Gen to 27.185MHz, output level 40db (100 microV).
Mode selector to AM; Band to MID, Ch 19
Adjust VR1 for '9' indication on front meter scale.
Mode selector to USB
Adjust VR2 for '9' indication
6. Set Sig Gen to 26.945MHz; no modulation; 40db (100 microV).
Mode selector to AM; Band to LOW, Ch 40
NB/ANL Sw ON
Connect DC Voltmeter to TP1 (D2).
Adjust L1 and L2 for 2-3VDC reading.

End of Alignment.

SuperStar 3900 (High Band) Line-Up Procedure

25.615-28.305MHz Version

This is SUPERSTAR 3900 alignment, re-written for the experienced technician. Courtesy 'Custom Conversions'.

Equipment Suggested: Audio Generator; RF VTVM; DC Power Supply (*); Freq. Counter; Oscilloscope; RF Wattmeter & Dummy Load (25W minimum); RF Sig. Gen. (capable of 1KHz at 30% mod-AM, 1.5KHz deviation at 1KHz-FM); VOM-20K ohm/V min... (*) 4A Regulated MINIMUM..

PLL ALIGNMENT

1. Fo Counter to pin terminal between C78 and C79. Should read 10.24000MHz, \pm 200Hz; if out of tolerance change X1.
2. Fo Counter to TP-6 (R102):
Mode selector to CW, adjust L26 for 10.695MHz.
Mode selector to USB, adjust L27 for 10.6925MHz. *KEY RADIO*
Mode selector to LSB, adjust L28 for 10.6975MHz. *KEY RADIO*
(tolerance on above: +0, -100Hz.)
3. Scope to TP-4 (pin terminal between C82 and R107):
Mode selector to AM, Clarifier to center; Band to 'D', Ch. 19.
Adjust L16 for max RF output.
4. Scope to TP-3 (R-74):
Mode selector to AM, Clarifier to center; Band to 'F', Ch. 40.
Adjust L18 for max RF Output.
DC Voltmeter to TP-2 (R-109).
Adjust L17 to 5.0VDC, tolerance .1VDC.
Check 'A' Band Ch 1, must be 2.2VDC approximately.
5. Fo Counter to TP-3 (R-74):
Mode selector to AM, Clarifier to center; Band to 'C', Ch. 19.
Adjust A, for 16.040MHz, \pm 50Hz.
Mode to USB; adjust B, for 16.0425MHz; \pm 50Hz.
Mode to LSB; adjust C, for 16.0375MHz; \pm 50Hz.
Leave in LSB; transmit-no input; adjust VR15 for 16.0375MHz, \pm 50Hz.
(NOTE: Check board layout for 'A', 'B', and 'C' adjustment).
6. Fo Counter to TP-3 (R-74):
Mode selector to AM, Clarifier to center; Band to 'F', Ch. 19.
Adjust L19 for 17.390MHz, \pm 50Hz.
Mode to USB; adjust L20 for 17.3925MHz, \pm 50Hz.
Mode to LSB; adjust L21 for 17.3875MHz, \pm 50Hz.
Leave in LSB; transmit with no input; check for 17.3875MHz, \pm 50Hz.
(VR15 is the adjustment for this, which should not be needed!)

TRANSMIT ALIGNMENT

1. Driver/Final Bias adjustment: Remove small plug-in PCB from TP7, TP8, and TP9.

Mode selector to USB; Band to 'C', Ch. 19.

Current meter to TP9 (+), and TP8 (-). Transmit, NO INPUT.

Adjust VR11 for 10mA, $\pm 0.5mA$

Current meter to TP9 (+), and TP7 (-). Transmit, NO INPUT.

Adjust VR10 to 100mA, $\pm 0.5mA$

2. Mode selector to USB, Band to 'F', Ch 40.

Insert 1KHz 30mV audio to mike input, and transmit.

Adjust VR12 and L42 for maximum RF output.

Adjust L40, L43, L44 and L33 for maximum RF output, then repeat until no further increase can be obtained.

Adjust L42 for balance of RF output power between 'F', band Ch 40, and 'A' band Ch 1.

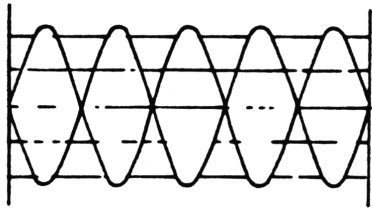
3. Apply 500Hz and 2.4KHz (30mV) audio tones to mike input, at same time.

Use diagram below and adjust input level of 500Hz so that wave 'A' form as indicated below appears on scoped RF output.

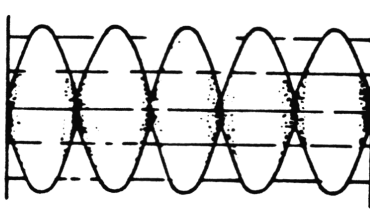
Adjust VR12 for 12W peak-to-peak output power.

*WARNING - VR12 should not be rotated clockwise beyond 2 O'clock position, or the RF power transistor will be destroyed.

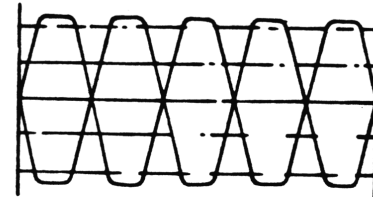
A. Properly adjusted transmitter.



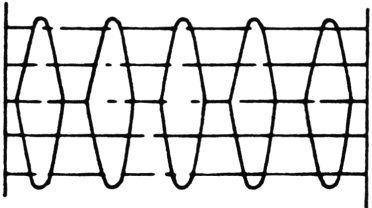
B. Unequal tones-Adjust generator outputs to balance.



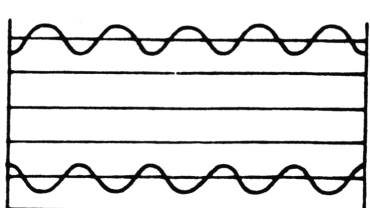
C. Excessive modulation - Adjust RV12 counterclockwise.



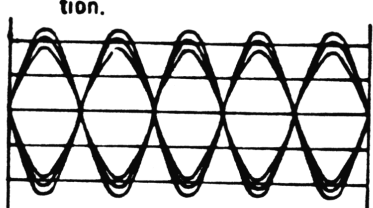
D. Final transistor incorrectly biased - Adjust RV 12.



E. Undermodulation-Adjust RV 12 clockwise.



F. Similar to A but showing hum. Check for proper testing condition.



4. Mode Selector to AM, Band to 'D', Ch 19.

Adjust VR13 to obtain 5W RF power output

Apply 1KHz at 30mV to mike input.

Adjust VR14 for 90% + modulation.

5. Mode selector to FM.

Apply 1KHz at 30mV to mike input.

Adjust VR5 to obtain 2-3KHz on deviation meter on TX.

SuperStar 3900 (High Band) Alignment (Cont.)

Transmit Alignment - continued..

6. Mode select to USB, maximum mike gain, apply speech to microphone.
Adjust VR8 for maximum indication, without pegging meter movement.
*NOTE: In some units VR8 will need to be changed to higher value.
7. Mode select to CW.
8 Ohm dummy load and audio VTVM to ext. Speaker jack.
Connect key switch to key sw. jack.
Key the switch, and adjust VR16 for 200mV, ± 10 mV signal.

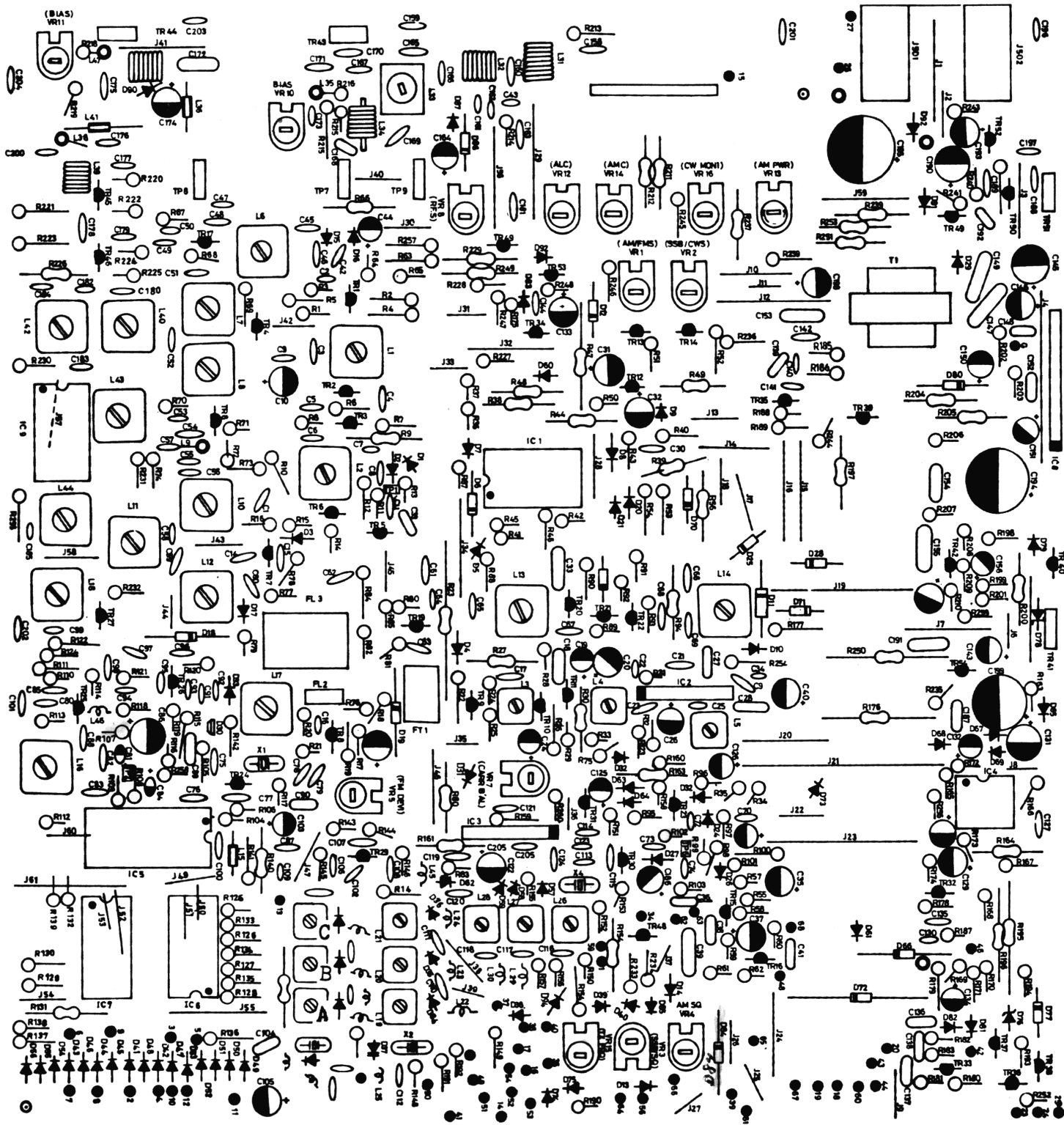
RECEIVE ALIGNMENT

1. Set RF Sig Gen for 27.185MHz 30% modulation.
Mode selector to AM, Band to 'D', Ch 19
Adjust L3, L4, L6, L7, L8, L10, L11, and L12 for maximum audio output.
Audio Output to be measured across dummy load with audio VTVM!
NOTE: Keep Sig Gen output as low as possible to prevent AGC action.
Adjust L8 for balance between 'A' and 'F' bands.
2. Set RF Sig Gen to 27.186MHz, no modulation.
Mode selector to USB, Band to 'D', Ch 19
Adjust L13 and L14 for maximum audio output, with clarifier at center.
3. Set RF Sig Gen to 27.185MHz.
Apply FM signal (1 microV, 1.5KHz deviation with 1KHz audio).
Mode selector to FM; Band to 'D', Ch 19
READJUST L5 for maximum audio output.
4. Set RF Sig Gen to 27.185MHz.
Input 60db (1000 microV) 1KHz 30% modulation.
Mode selector to AM, Band to 'D', Ch 19
Squelch control fully clockwise
Scope the audio output, adjust VR4 until audio disappears.
Check that the front squelch control will 'cut in' between 48-70db
on all modes. *VR3 may be adjusted if need be in SSB mode.
5. Set RF Sig Gen to 27.185MHz, output level 40db (100 microV).
Mode selector to AM; Band to 'D', Ch 19
Adjust VR1 for '9' indication on front meter scale.
Mode selector to USB
Adjust VR2 for '9' indication
6. Set Sig Gen to 26.045MHz; no modulation; 40db (100 microV).
Mode selector to AM; Band to 'A', Ch 40
NB/ANL Sw ON
Connect DC Voltmeter to TP1 (D2).
Adjust L1 and L2 for 2-3VDC reading.

End of Alignment.

BOARD LAYOUT

Excalibur SSB; SuperStar 3600; and SuperStar 3900



*Coils marked 'A, B, and C' are used in the 3900.

FORMAC 700 (LC7120-PLL) EXPORT

by B.W.

Out-of-the-box: S/N 500072

RF Power in high across entire band 5.0-5.9W. Modulation was highest on Lo Power mode at 50%. Echo worked perfect, actually was surprised, sounds like a high-priced reverb! Rejection is still being over-looked by the manufacturers!

A-Band		B-Band		C-Band		D-Band		E-Band	
Chan- nel	MHz Frequency	Chan- nel	MHz Frequency	Chan- nel	MHz Frequency	Chan- nel	MHz Frequency	Chan- nel	MHz Frequency
1	25,615	1	26,065	1	26,515	1	26,965	1	27,415
2	25,625	2	26,075	2	26,525	2	26,975	2	27,425
3	25,635	3	26,085	3	26,535	3	26,985	3	27,435
4	25,655	4	26,105	4	26,555	4	27,005	4	27,455
5	25,665	5	26,115	5	26,565	5	27,015	5	27,465
6	25,675	6	26,125	6	26,575	6	27,025	6	27,475
7	25,688	7	26,135	7	26,585	7	27,035	7	27,485
8	25,705	8	26,155	8	26,605	8	27,055	8	27,505
9	25,715	9	26,165	9	26,615	9	27,065	9	27,515
10	25,725	10	26,175	10	26,625	10	27,075	10	27,525
11	25,735	11	26,185	11	26,635	11	27,086	11	27,535
12	25,755	12	26,205	12	26,655	12	27,105	12	27,555
13	25,765	13	26,215	13	26,665	13	27,115	13	27,565
14	25,775	14	26,225	14	26,675	14	27,125	14	27,575
15	25,785	15	26,235	15	26,685	15	27,135	15	27,585
16	25,805	16	26,255	16	26,705	16	27,155	16	27,605
17	25,815	17	26,265	17	26,715	17	27,165	17	27,615
18	25,825	18	26,275	18	26,725	18	27,175	18	27,625
19	25,835	19	26,285	19	26,735	19	27,185	19	27,635
20	25,855	20	26,305	20	26,755	20	27,205	20	27,655
21	25,865	21	26,315	21	26,765	21	27,215	21	27,665
22	25,875	22	26,325	22	26,775	22	27,225	22	27,675
23	25,905	23	26,355	23	26,805	23	27,255	23	27,705
24	25,885	24	26,335	24	26,785	24	27,235	24	27,685
25	25,895	25	26,345	25	26,795	25	27,245	25	27,695
26	25,905	26	26,365	26	26,815	26	27,265	26	27,715
27	25,925	27	26,375	27	26,825	27	27,275	27	27,725
28	25,935	28	26,385	28	26,835	28	27,285	28	27,735
29	25,945	29	26,395	29	26,845	29	27,295	29	27,745
30	25,955	30	26,405	30	26,855	30	27,305	30	27,755
31	25,965	31	26,415	31	26,865	31	27,315	31	27,765
32	25,935	32	26,475	32	26,875	32	27,325	32	27,775
33	25,985	33	26,435	33	26,885	33	27,335	33	27,785
34	25,995	34	26,445	34	26,895	34	27,345	34	27,795
35	26,005	35	26,455	35	26,905	35	27,355	35	27,805
36	26,015	36	26,465	36	26,915	36	27,365	36	27,815
37	26,025	37	26,475	37	26,925	37	27,375	37	27,825
38	26,035	38	26,485	38	26,935	38	27,385	38	27,835
39	26,045	39	26,495	39	26,945	39	27,395	39	27,845
40	26,055	40	26,505	40	26,955	40	27,405	40	27,855

Adjustments are as follows: The VR3 next to where R145 is located (which isn't there anyway) is for FM Deviation adjustment.

VR1 - TX Mtr; VR3 - Lo Power Modulation; VR4 - Mid Power Mod;
 VR5 - Hi Power Mod; VR6 - Mid RF Power Level; VR7 - Low RF Power Level;
 VR8 - Sq Range; VR9 - RX Mtr. *There are 3 adjustments on the ECHO PCB, stay out of!

Some of the TX Fo's were off by 200-400Hz, adjusting CT's (3-7) would not bring frequency down. By adding 4-5pF to trimmer; hole is there for part; could adjust dead-on. BUT; then couldn't adjust up in frequency to get the 0's. (I left this particular unit as is; so whoever gets it can play with this; as shifts an entire band).

RX-LT12, LT13, LT14, LT15, LT16, and LT17. Rejection isn't that good, try doubling up the filters. TX-LT8, LT7, LT6, LT5, (LT4, LT3, and LT2 may be adjusted also; but be careful as glued).

Final checkout on this particular unit was in Low Power 1.5W dead key, 95% modulation; more than enough as was driving people crazy with the ECHO turned on and peaking 8W!

If you can find one grab it while you can, as won't be around for long.....

SPECIFIC TUNEUPS

KRACO KCB-4006 "Mayday I" (IC7130/IC7131-PLL): Nice little 'Emergency Type' of unit. Smaller than the GE 'Help' units. RX Peak: T5, T6, T7, T8, and T9. TX Peak: T2, T3, T4, and T6. RV1-AMC, defeat is C47 (3.3MFd/25VDC). RV2-Sq. Rng. Increase the value of C22 (1MFd/50VDC) for noise improvement. Double up CF2 (455KHz filter) for better rejection. *Ed. Note: I do suggest that SWR be monitored on this unit if the the small antenna that comes with it is used!

KRACO KCB-4009 "Mayday II" (IC7131-PLL): This is what they should have built to start with! Excellent, many are being used as walkie-talkies. Use the small 'rubber-ducky' and field strength meter when tuning the TX. TX Peak: T2, T3, T4, and I6. RX Peak: T5, T6, T7, T8, and T9. C22 may be increased in value for noise improvement. CF2 can be doubled/tripled up for rejection. RV1-AMC, defeat is C47 (3.3MFd/25VDC). RV2-Sq. Range.

REALISTIC TRC-433, 21-1547 (IC7132-PLL): RX alignment (at max RF Gain I14), then turn down to a suitable level and peak following: T2, T3, T4, and T5. Value of C33 (1MFD/50VDC), may be increased for noise improvement. CF2 (455KHz Filter) may be doubled up to increase the rejection. VR1-TX Lights, VR2-RX Lights, VR3-Sq Rng, and VR4-Pwr Supply adj.(set in TX). TX alignment: T7, T8, T9, I4, and I3. For increased RF power decrease value of R102 to no lower than 2.7 ohms.

FUZZBUSTER Md. Z-40, (IC7131-PLL): Owner's Manual has line-up, parts layout, and schematic. Value of C125 (1MF/50V) may be increased for less noise. CF2 should be doubled up for rejection. C253 is AMC defeat, but haven't had to remove in any unit to date. Quickie alignment: TX - I202, I203, I204, I205, I206, and I207. RX - I101, I102, I103, and I104. RV102 - S Mtr., RV103 - Sq Rng., RV201 - AMC, RV202 - Tx Mtr.

N E E D E D

Factory Service Manual for TRC-433....PLL Pinout/theory...

Audiovox MCB-20, Schematic

Fox: CB240, CB340, CB440; Schematics

Midland: 77-202, 75-764B, 77-805, 77-145, 77-911, 76-300, 77-155, schematics on all above units. For the 79-260 need the service manual.

Pyramid 1300, Schematic

Concept CD-85CB (AM/FM/Cassette/CB); Factory Service Manual.

SuperStar 3600 (Low Band)

10KHz Jump/Roger Beep Switch Modifications

by B.W.

This modification was performed on S/N 104089, no problems were encountered.

Channel 9 and Tone switches are utilized, both hardwired.

Roger Beep Switch modification: Tone Switch utilized.

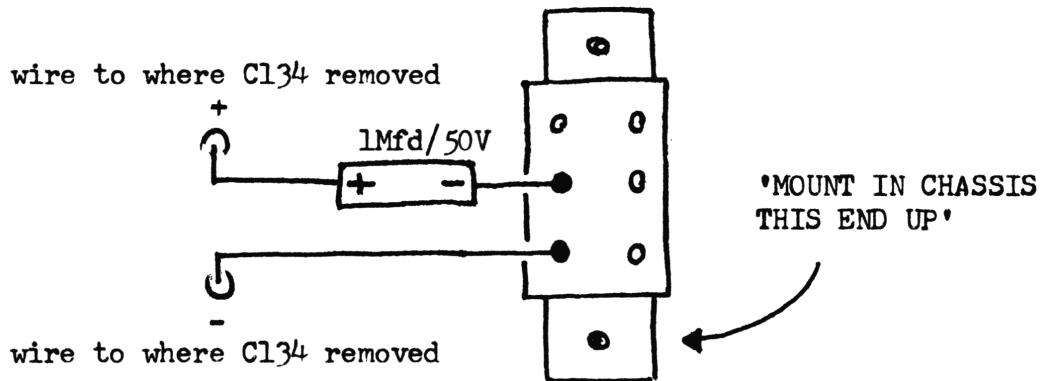
Permanent Hardwire - HI; Remove Gray wire from switch, follow to PCB #68, delete.

Remove Green wire from switch, follow to PCB #60, delete.

LO; Remove Gray wire from switch, follow to PCB #68, delete - clean out hole.

Remove Green wire from switch, solder to PCB #68 where the Gray removed.

1. Clean off all switch terminals. The 'Beep' was too long on this particular unit, so changed the capacitor to 1Mfd/50V electrolytic. For even shorter 'Beep', use smaller capacitance, but not voltage.
2. Remove C-134 from PCB, clean out holes. If not going to change the 'beep' on time, save capacitor.
3. Wire up the switch as shown below; wire length 7"; cut to proper length when installing.

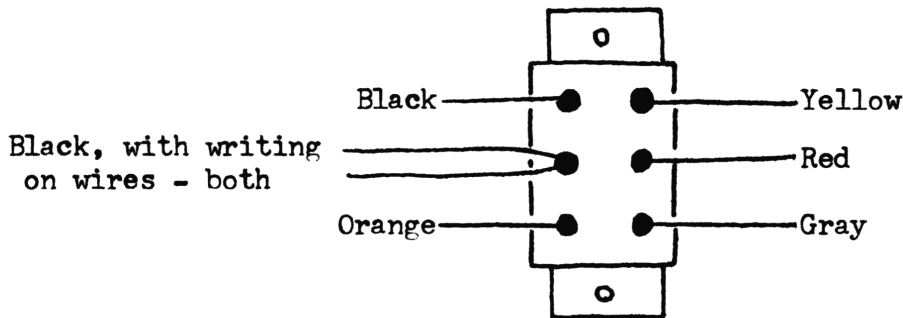


4. When switch is down - NO BEEP. UP, 'BEEP!

Caution: If not going to change the 'Beep' ON time; suggest changing capacitor to one of higher voltage rating; minimum 50WVDC.

SuperStar 3600 (Low Band)
10KHz Jump/Roger Beep Sw. Mod. (Cont.)

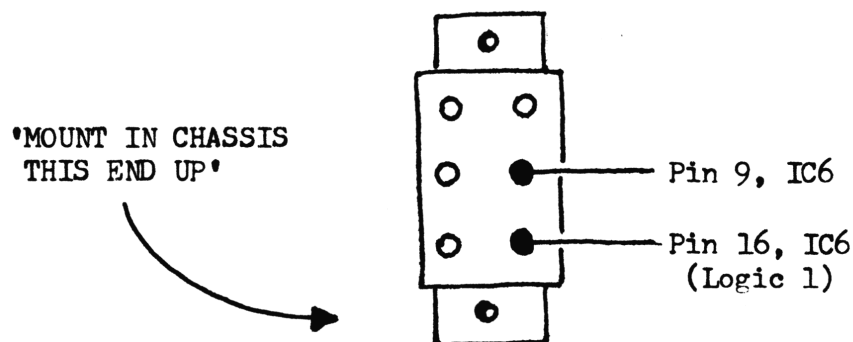
10KHz Jump Switch modification; Ch 9 switch utilized.
Permanent Hardwire - check wires' color, as referenced to below.



1. Cut all wires off at switch, pull all out of cable bundle.
2. Remove/Cut Orange wire at plug/connector - delete.
3. Remove Gray wire at PCB, (CAREFULLY, as is under the Ch. Selector).
- delete.
4. Remove approximately $\frac{1}{4}$ " of insulation from all three (3) Black wires, solder/sleeve all together.
5. Do the same as above for the Red and Yellow wires, don't forget to sleeve!

At this time check operation before going any further, if normal proceed.

6. Remove jumper J49, clean out holes. (CAUTION - this will entail unsoldering the cover on bottom of PCB, do it carefully!)
Replace jumper with 4.3K $\frac{1}{4}$ W 5% resistor, then replace cover.
7. Wire up the switch as shown below; wire length 8"; cut to proper length when installing.



8. When switch is down 'normal/correspond to Fo Chart'.
UP, add 10KHz to everything

10Kc Jump Switch
on CB/PA is in
the files

Excalibur SSB

10KHz Jump/Roger Beep Switch Modifications

by B.W.

This modification was performed on S/N 300205, no problems were encountered.

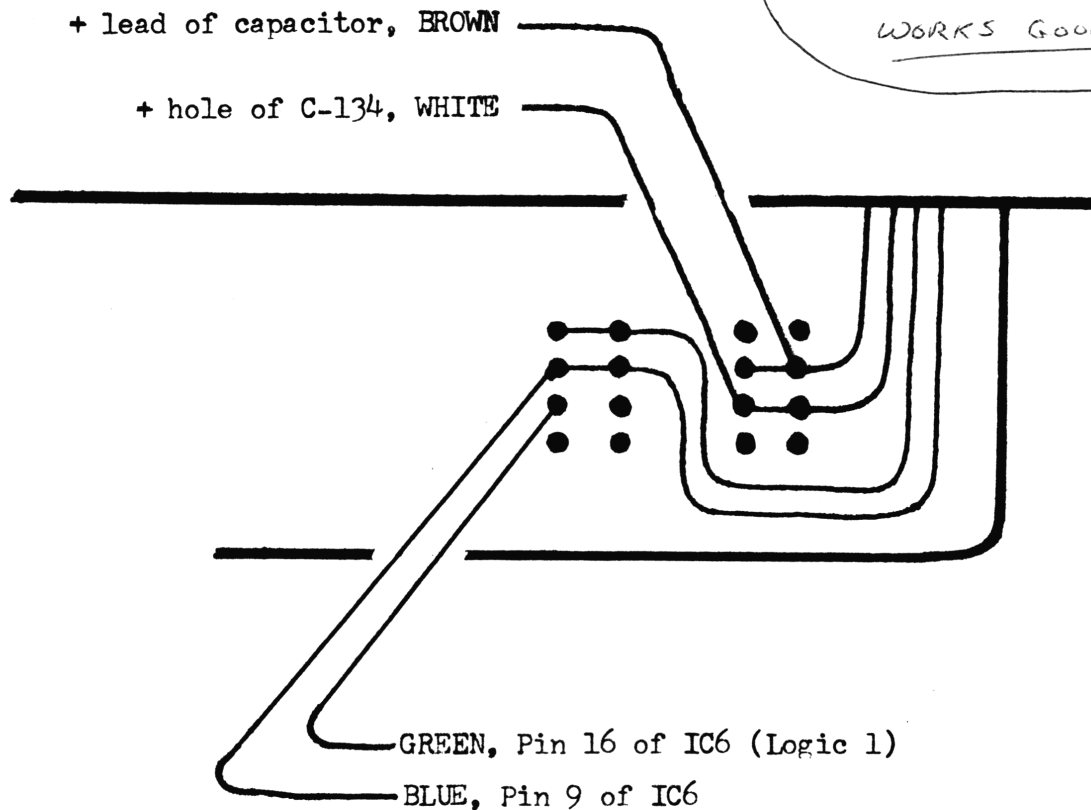
The NB and ANL switches are utilized for modifications; are permanently hard-wired; ON.

1. Trace #62 (White) and #63 (Brown) from switch PCB to main PCB, unsolder from main board.
2. "CUT OFF - flush" at small PCB the Brown wire #63, and White wire #62. Save the wires..
3. Trace #61 (Blue) and #64 (Green) from switch PCB to main PCB, unsolder-CLEAN OUT HOLES.. Save the wires..
4. Make a small 'insulated jumper' and install between the cleaned out holes.
5. "CUT OFF - flush" at small PCB the Green wire #64, and Blue wire #61. Save the wires..
6. Obtain 1.0Mfd/50VDC axial capacitor. (NOTE: have found that a 0.33Mfd is needed to lower the Beep time far enough.)
7. Remove C134 (2.2Mfd/50VDC), clean out holes.
8. Solder White wire to (+) on PCB where capacitor removed.
9. Solder (-) of capacitor (1.0Mfd/50VDC) to (-) on PCB.
10. Solder Brown wire to (+) lead of capacitor, sleeve.
11. Solder Brown and White wires to small switch PCB, see drawing 'A' for location. NB is now Roger Beep switch, Off is Off! Up position will give beep, with shorter beep time.
- * 12. Remove J49 on main PCB, clean out holes. (NOTE: will have to move shield, be careful). Replace the jumper with 4.3K $\frac{1}{4}$ W 5% resistor.
- * 13. Solder Blue wire to Pin 9 of IC6.
- * 14. Solder Green wire to Pin 16 of IC6 (Logic 1).
- * 15. Route the Blue and Green wires to etch side of small switch PCB, see drawing 'A' for soldering placement. ANL is now the +10KHz Jump switch; Off is normal frequencies per chart. UP gives +10KHz jump all frequencies/all bands.

10Kc
Jump.
see
mod
in files.

Excalibur SSB
Roger Beep, 10KHz Jump Sw. Mod. (Cont.)

Drawing 'A'



See Drawing of
10KHz Jump Switch
on EB/PA in files.
WORKS GOOD!

Excalibur SSB

Additional alignment missing from Owner's Manual:

- VR601 - Power Supply adjustment; set for 13.5VDC. Measure from D92 (+) to DC Gnd (case of T1).
.....SPECIAL NOTE: I doubt that the power supply will hold up in this unit. The heat sink used now gets HOT; even when in receive mode; add a winged heat sink to current one for additional dissipation.....Ed. Note.
- VR802 - SSB Low Power adjustment: RF switch in Low Pwr, TX in LSB at max mike gain. Set VR802 for 4W output.
- VR803 - AM Low Power adjustment: RF switch in Low Pwr, TX in AM mode. Set VR803 for 1W output. (NOTE: If you can't achieve 1W; set the pot fully CCW; then adjust VRL3 for maximum low power desired. However the high power adjustment is directly affected.....)

Change R238 TO 2.2K,

Remove TR32 for MORE AM mod

Set Low WATT RANGE for 2w to 12

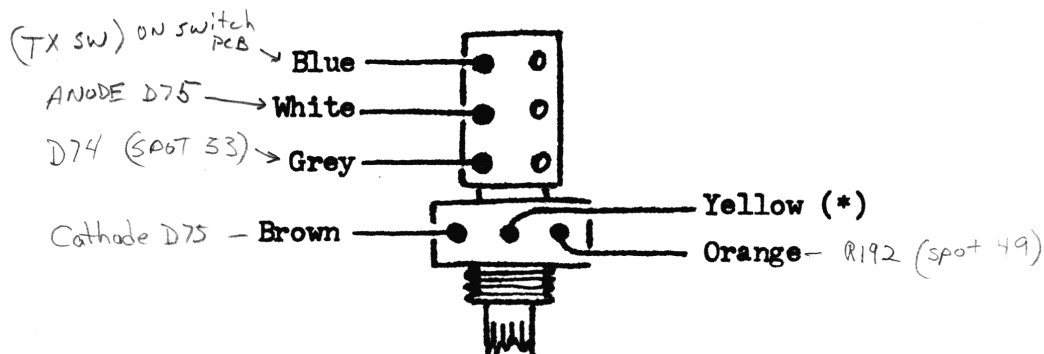
Set High WATT RANGE for 6w to 20

Excalibur SSB
Clarifier Modification
 by

The use of pull switch is bad 'Engineering Design'; as when pulling the switch out; will invariably move the setting. Why a dual control wasn't used I don't know....?

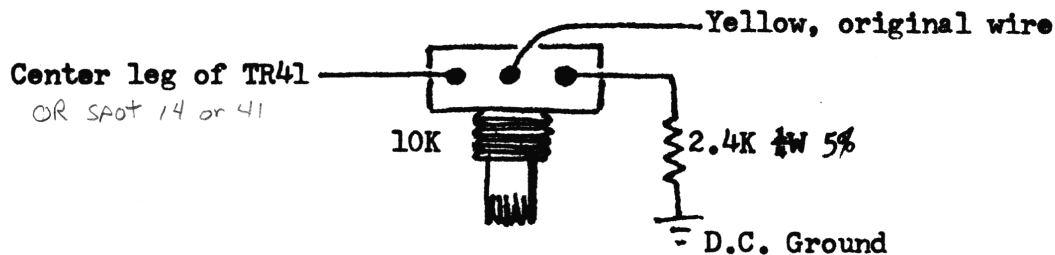
I got tired of playing with the unit I had on hand for check out, so pulled it out and replaced with a single pot. Conversion is below: **WARNING:** The shafts are longer than normal, and finding the correct length won't be easy. A 10K linear pot may be used as it was in this modification....

Original Wiring



CAREFULLY, Remove the Yellow wire from pot/switch. Then trace all other wires to point of origin on PCB and remove. The Blue wire goes to switch PCB, remove/cut off.

Rewire new pot as below, reference is correct physically!



Center up pot with knob on, realign PLL for desired offsets, gave $\pm 5\text{KHz}$ + in test unit.

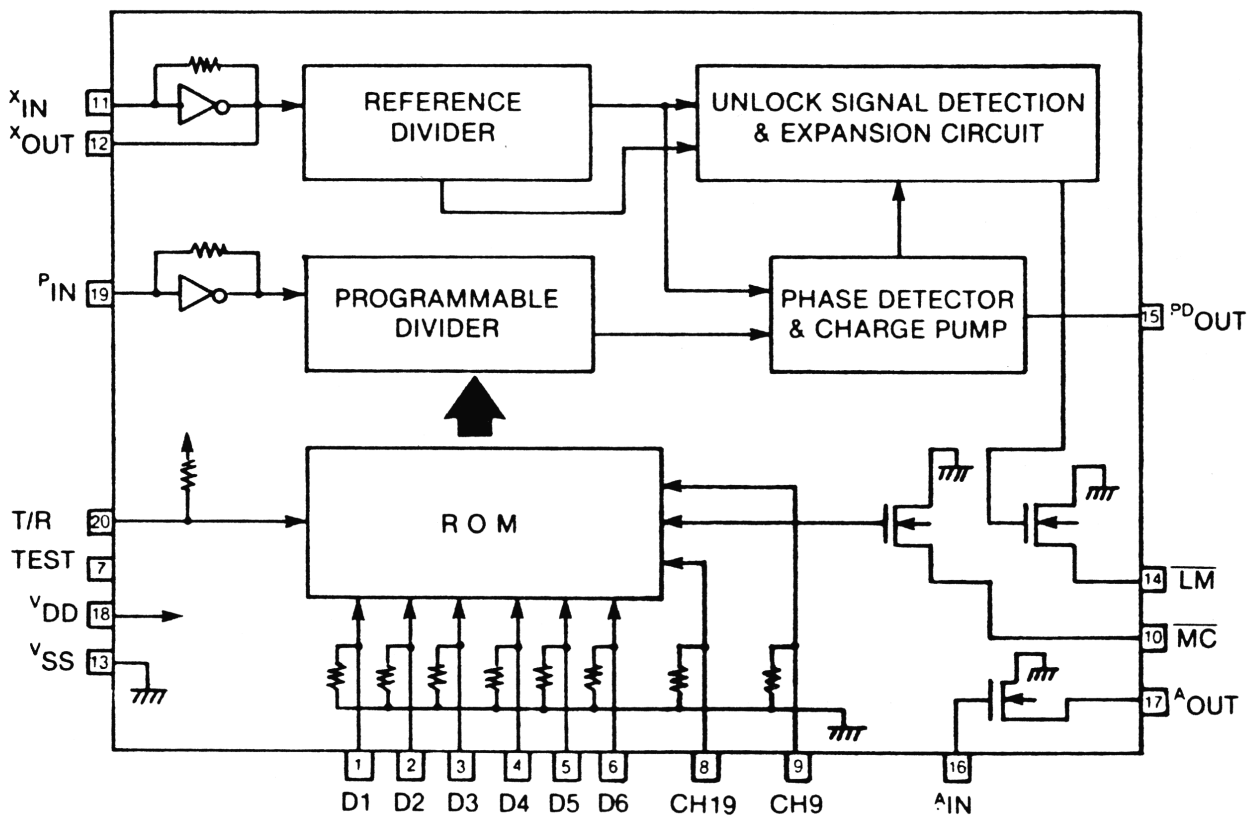
Trouble-Shooting:

Uniden PC-9: A constant problem is cropping up where the channel selector is soldered to main PCB. PCB is flexing and breaking at the solder joints/crack/break etc. Re-wire using wire jumpers...Check 1st if you run into problems with a unit!

President AR-7: DO NOT REMOVE TR17.... AMC defeat is D8...

PLL PINOUT

LC 7131



D1-D6	: Channel data input (BCD [D1 . . . LSB; D6 . . . MSB])
X _{IN} , X _{OUT}	: Crystal oscillator amplifier
V _{DD} , V _{SS}	: Power supply
MC	: Mis-code indicating output
LM	: Out-of-lock output (low when out-of-lock)
PD _{OUT}	: Charge pump output
A _{IN} , A _{OUT}	: Amplifier for low-pass filter
P _{IN}	: Programmable divider input

SuperStar 3900 (High Band)

10KHz Jump/Roger Beep Switch Modifications

by B.W.

This modification was performed on S/N 200341, no problems were encountered.

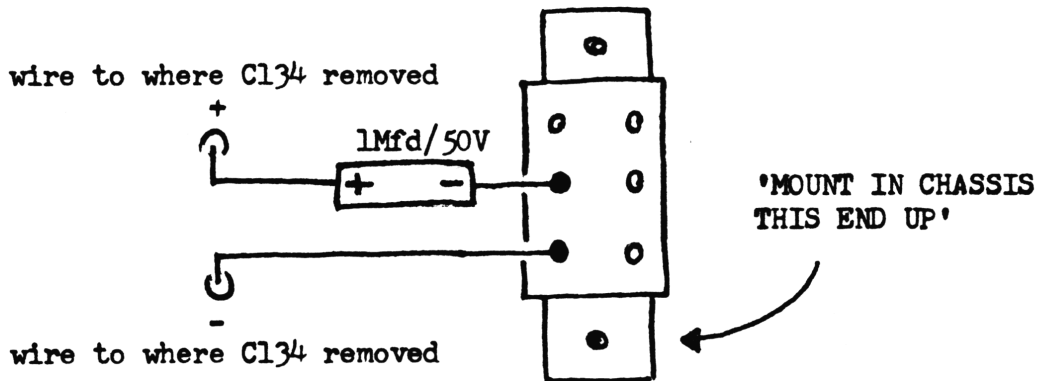
NB/ANL and Channel 9 switches are utilized, both hardwired.

Roger Beep Switch modification: NB/ANL switch utilized.

Permanent Hardwire - Remove Green wire from switch, trace to PCB and remove at hole #63, delete.
Remove Blue wire from switch, trace to PCB and remove at hole #62, delete.

Remove Gray wire at switch, trace to PCB and remove at hole #61, - clean out hole.
Remove Yellow wire at switch; re-route to hole #61 on PCB; solder in place.

1. Clean off all switch terminals. The 'Beep' was too long on this particular unit, so changed the capacitor to 1Mfd/50V electrolytic. For even shorter 'Beep', use smaller capacitance, but not voltage.
2. Remove C-134 from PCB, clean out holes. If not going to change the 'beep' on time, save capacitor.
3. Wire up the switch as shown below; wire length 7"; cut to proper length when installing.



4. When switch is down - NO BEEP. UP, 'BEEP!'

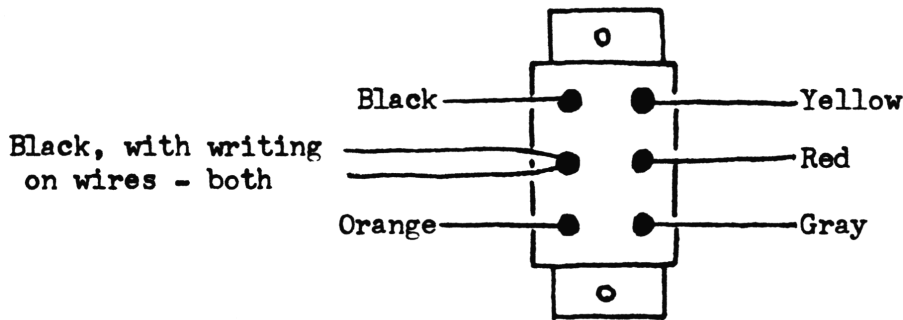
Caution: If not going to change the 'Beep' ON time; suggest changing capacitor to one of higher voltage rating; minimum 50WVDC.

SuperStar 3900 (High Band)

10KHz Jump/Roger Beep Sw. Mod. (Cont.)

10KHz Jump Switch modification; Ch 9 switch utilized.

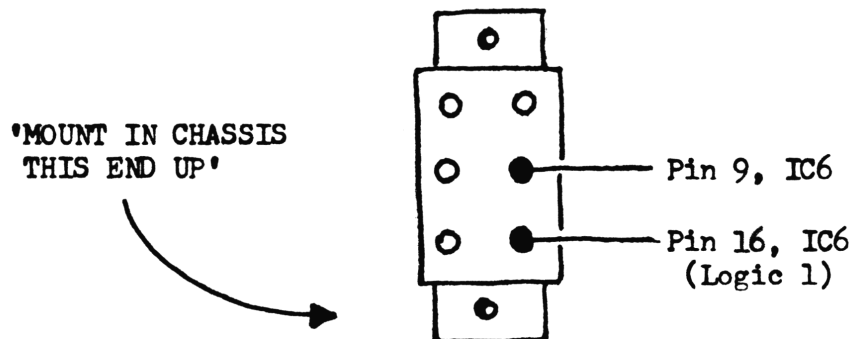
Permanent Hardwire - check wires' color, as referenced to below.



1. Cut all wires off at switch, pull all out of cable bundle.
2. Remove/Cut Orange wire at plug/connector - delete.
3. Remove Gray wire at PCB, (CAREFULLY, as is under the Ch. Selector). - delete.
4. Remove approximately $\frac{1}{4}$ " of insulation from all three (3) Black wires, solder/sleeve all together.
5. Do the same as above for the Red and Yellow wires, don't forget to sleeve!

At this time check operation before going any further, if normal proceed.

6. Remove jumper J49, clean out holes. (CAUTION - this will entail unsoldering the cover on bottom of PCB, do it carefully!) Replace jumper with 4.3K $\frac{1}{4}$ W 5% resistor, then replace cover.
7. Wire up the switch as shown below; wire length 8"; cut to proper length when installing.



8. When switch is down 'normal/correspond to Fo Chart'.
UP, add 10KHz to everything

C.B. 4 Sale
by R.M.

For that ad that just doesn't tell it all....

This is "MY" guide to "reading-between-the-lines", or what IT IS!

<u>Listing</u>	<u>Reality</u>
"New-In-The-Box"	Old unit, couldn't move (dust catcher, but sometimes get lucky, and find unit with a convertible chip...).
"Like New"	All original parts, (no large scratches/dents/gouges, etc.).
"Converted"	Has enough extra switches coming out of unit any/every where that it looks like a porcupine.
"Boat Anchor"	Tram D201/A (usually this ad is found in Sporting or Boating sections of newspapers).
"With box, paperwork"	OH YEAH, this is a gem: a large cardboard box with shredded paper to keep parts separate.
"Parts Radio"	Really a Junker!; has had all the good parts removed.
"Non-working"	Usually a unit that the local Screwdriver Jockey couldn't find the problem with, and is now so 'butchered' is a parts radio.
"Must Sell"	Either that or divorce! (good buys are sometimes found, especially if Charley' is involved).
"Used"	Lamp is on when switch thrown.
"Will Trade"	Either that or throw in trash.

ED. NOTE: Above is opinion of R.M., don't send any rebuttal....

Interchangeable Parts

by R.M.

The following have been tested for interchangeability.
The equivalent characteristics are such that no appreciable
variances were noted within original limits.

1. 2SC1674, 2SC763, 2SC1342, 2SC930, 2SC1923
2. 2SK19, 2SK104, 2SK33
3. 2SC1675, 2SC710, 2SC460, 2SC380, 2SC1684
4. 2SC458, 2SC711, 2SC945, 2SC1815, 2SC1359, 2SC536
5. 2SA733, 2SA628, 2SA1015, 2SA984
6. 2SC2029, 2SC1909, 2SC2075, 2SC2092, 2SC1816, 2SC1678
7. 2SC2028, 2SC1760, 2SC1957, 2SC495, 2SC1846, 2SC2091
8. 2SC941, 2SC2076, 2SC735, 2SC1364, 2SC933
9. 2SK168E, 2SK61
10. 2SC1730, 2SC2349
11. TA7310P, AN103
12. 1S2075K, 1S2076, 1S1588, 1S2473, 1N4148, WG713, 1N4448
13. 1S2076A, 1N60AM
14. SR1K1, 1N4003

IF YOU HAVE ANY PROVEN INTERCHANGEABLE PARTS, SEND IN YOUR LIST.

N E E D E D

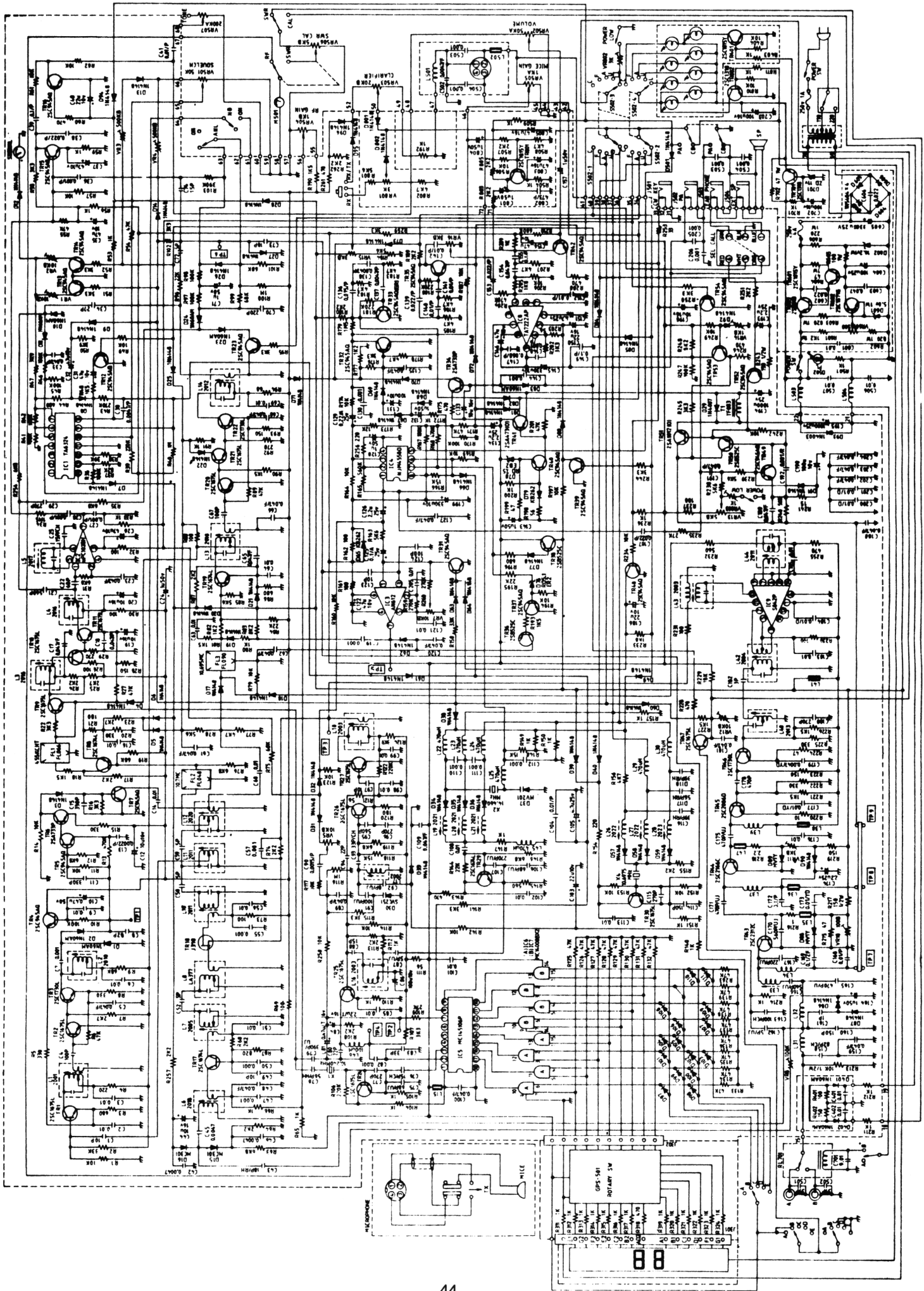
The following 'Exports' are out there but need some data on them!

ARGO: 240 Ch. AM/FM Base unit, also a 240 Ch. AM/FM/SSB Base.

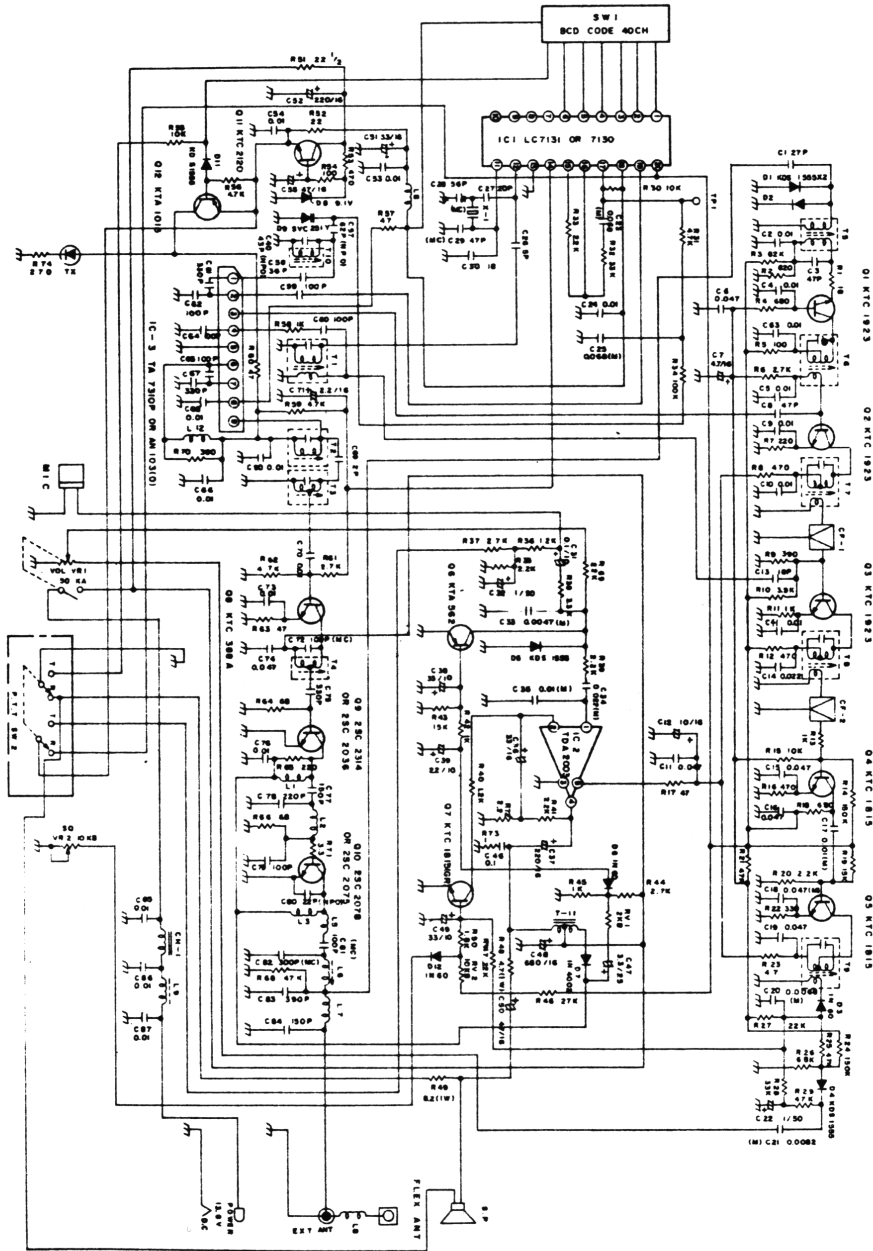
I have no other particulars on these two units....

Superstar 3600 and 3900 schematics are still not available, as
is the Formac 700.....

EXCALIBUR SSB BASE

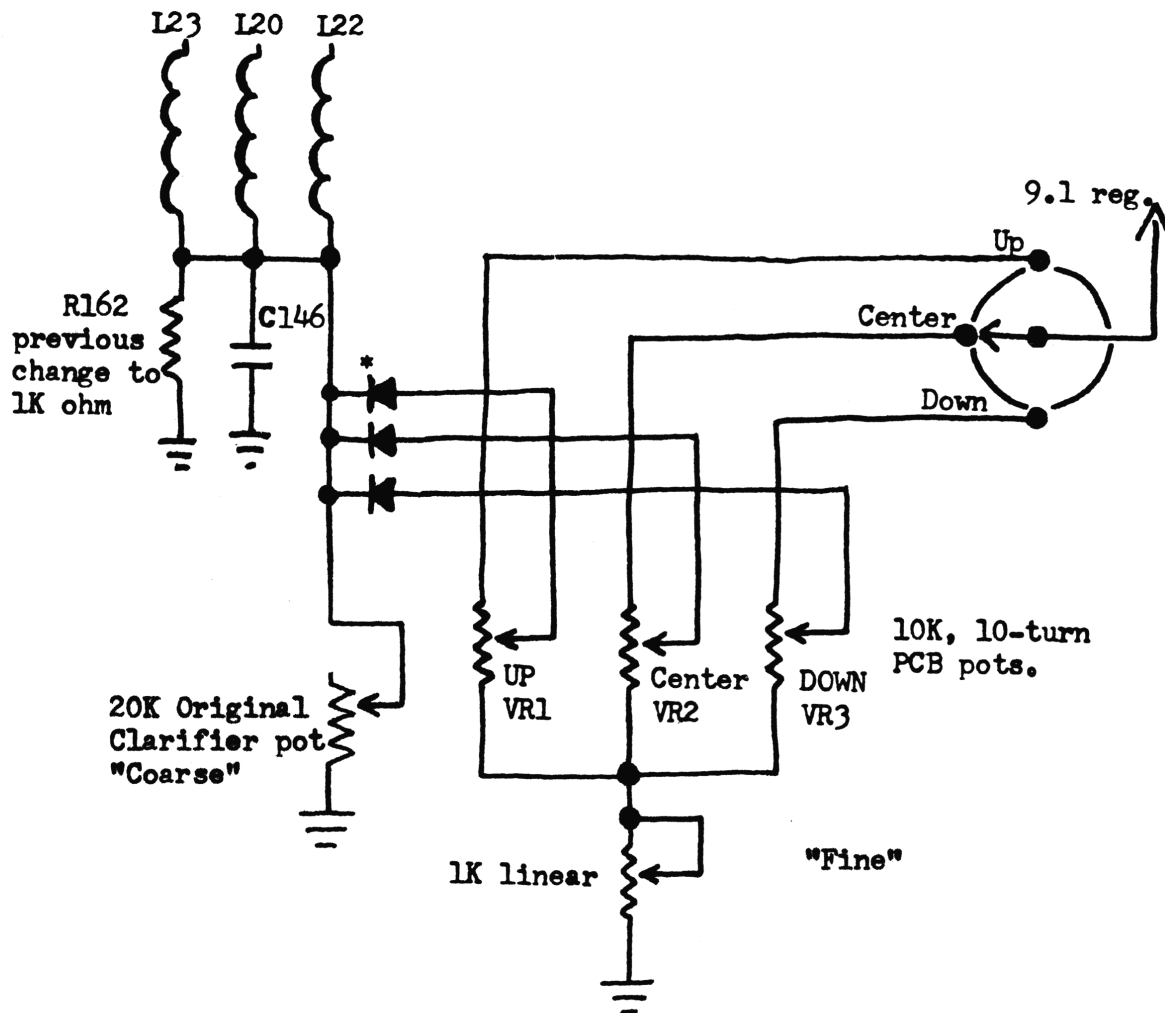


KRACO KCB-4006
"MAYDAY I"



UPDATE: 5KC Switch - 858 SSB Chassis
by L.J.

This is an update for Vol. 21, pg. 30: For those who still want a "Coarse Tune". (See Volume 21, pg 30 for parts list).



Alignment:

Set both the Coarse and Fine Tune pots to center position before 'calibrating' the switch.

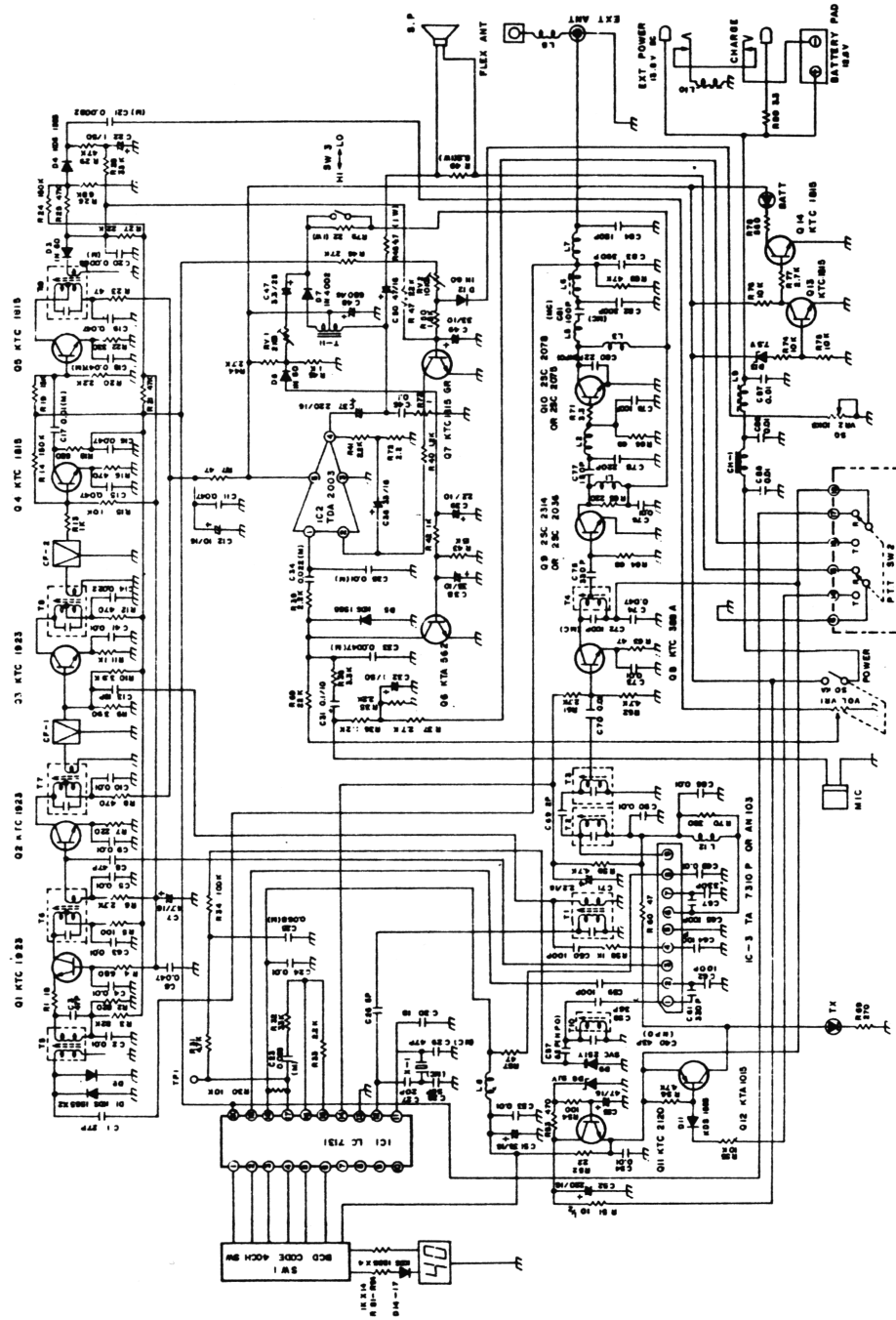
UP - adjust VR1 for +5KHz of center Fo in TX mode.

Center - adjust VR2 for center Fo in TX mode.

DOWN - adjust VR3 for -5KHz of center Fo in TX mode.

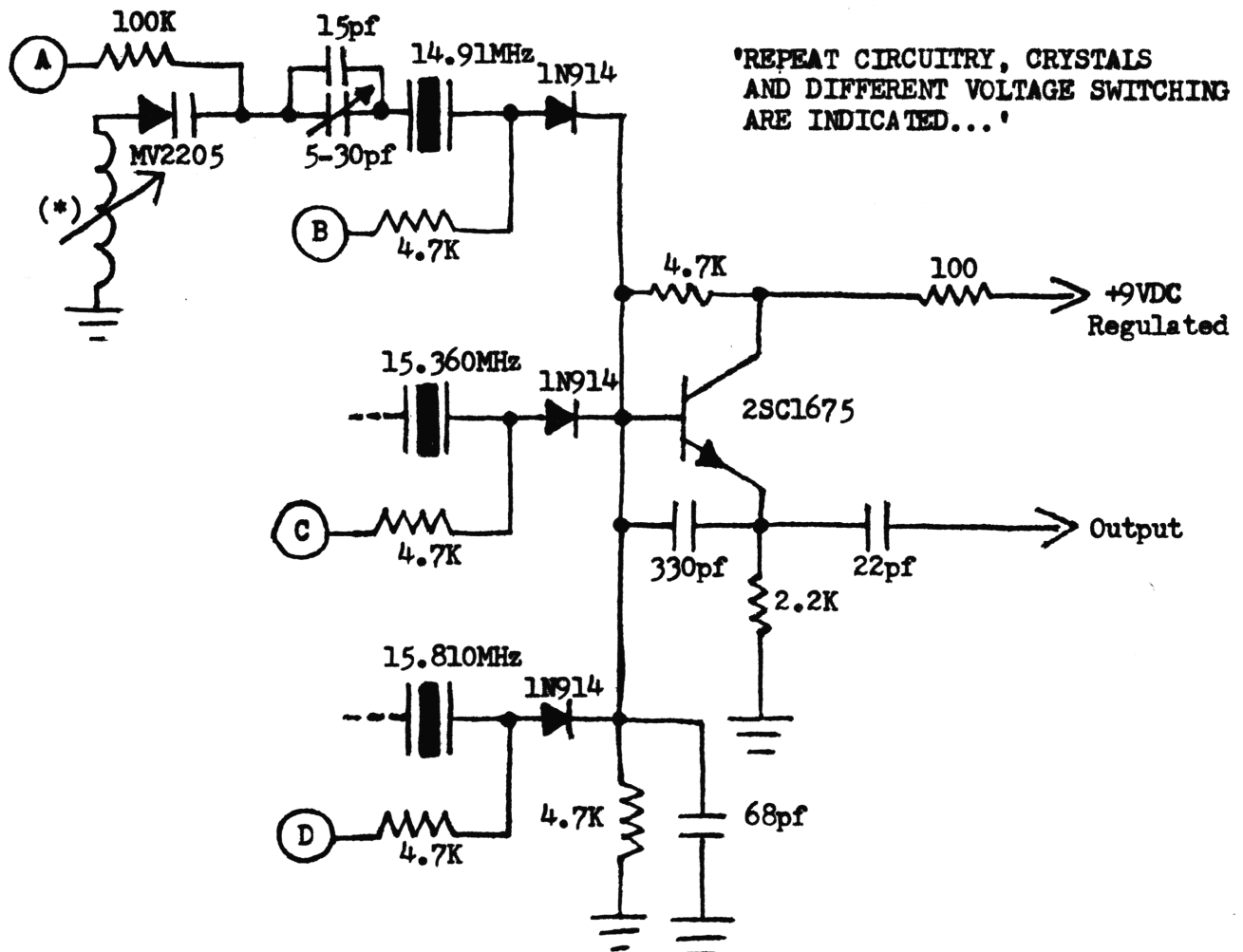
KRACO KCB-4009

"MAYDAY II"



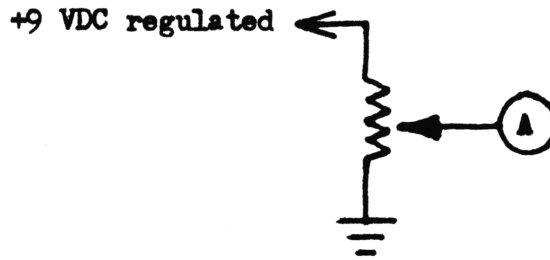
Frequency Conversion - 26.515-27.855MHz

1. Remove D49, no replacement.
2. Remove the Blue wire from point 22.
3. Trace the Yellow wire from point 22 to junction of L17/D26, remove.
4. Solder the Blue wire removed in step 2 to junction of L17/D26. Connection should be made from mode switch to above point.
5. Locate the 'holes' labeled for C97. Capacitor is not there. Connect the Yellow wire to the + hole. Check for 8.5VDC on Q36 emitter.
6. Build the circuit as shown below:

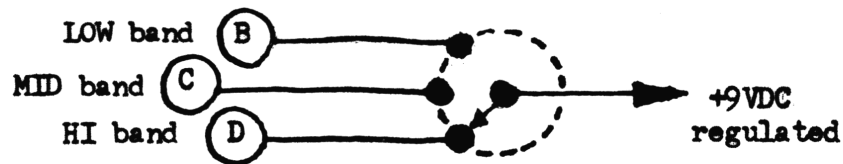


(*) 3-7_mh chokes are J.W. Miller #9051.....

7. 'A' is from center tap of clarifier, see drawing below:



8. 'B', 'C', and 'D' are switched voltages, via new 'band switch' see drawing below...



9. Inject the Output of circuitry to junction of C16, C15, C21, and L1.....(See Sams #285, circuit trace 156)

10. With the pin 10 input left connected and the oscillator switched off, the normal 40 channels are available, or add new xtals and associated circuitry, and disconnect pin 10 by lifting C16....

READ THE SPECS!

Recently had a request to set up a Bass boat with CB radio and antenna. Antenna had to be a fold-down type as would be in the way if not.

Having used Shakespeare Marine CB antennas before, gave them a try again. This time I ordered the 'Little Giant', Model 4050-B 3 foot.

BEWARE...Don't use this antenna, as the SWR is BAD! With an antenna matcher could get SWR down to below 2.0 for only about a 15 channel range. Sent antenna back to distributor for credit. I was out the shipping fees, both directions! Had I read the Shakespeare spec sheet, would have seen their specs: Nominal VSWR channel 1 and channel 40 - 3.0:1, channel 20 - 2.0:1 or less. Should have been more, not less on SWR specs..

Found an antenna system that works!! Antenna Specialists Model ASMR251. White 4' Bass Boat Antenna, fold-down mount, 6' cable..... PERFECT....

TROUBLE - SPOT:
by J.V.

COBRA 'AM' units with uPD2816D-PLL... 1000, 89, 87, and 29GTL/LTD.

After tune-up or removing modulation limiter, these units develop a buzzing sound when transmitting. In some cases it sounds like an airplane diving.

Check the audio chip TA7222AP, there is a capacitor soldered from the mounting tab to chassis ground. Remove this capacitor, no replacement. All units I have worked on have this one common problem. "Would show about 50% modulation on dead key before removal".

G.E.3-5826A, 40 Ch. SSB Mobile (LC7131-PLL)

NOTE: This is an odd-ball unit, the only unit I know of that uses this chassis....

Below is 'rough alignment procedure' for the experienced tech...

PLL: A. TP1 (R6, R7 junction), Ch 40 AM, TX; adjust T1 for 3.4VDC.

B. TP1, Ch 1 AM, TX; adjust T1 for 2.0VDC..... ±0.3VDC.

C. Fo Cntr - TP3 (Q11 collector), Ch 20 LSB, TX; adjust CT4 for 10.695MHz.

D. Fo Cntr - TP3, Ch 20 USB, TX; adjust CT3 for 10.692MHz.

E. Fo Cntr - TP2 (Q2 base), Ch 20 USB, TX; adjust CT1 for 16.513MHz, +50Hz.

F. Fo Cntr - TP2, Ch 20 LSB, TX; adjust CT2 for 16.510MHz, +50Hz.

RECEIVE: A. Peak in AM mode: T6, T7, T8, T9, T10, and T11.

B. RV8 - SSB AGC, RV9 - Sq Rng, RV3 - RX Mtr.

C. Noise Blanker may be improved by following:
increase value of C103, or decrease value of R80.

GE3-5826A, 40 Ch SSB (cont.)

- TRANSMIT: A. Peak for maximum RF, LSB Ch 20; T2, T3, T5, and T12.
- B. 'Re-peak' T3 in LSB Ch 1; T5 in LSB Ch 40; L5 in AM Ch 20.
- C. "Weird" bias adjust: connect ammeter to Hot B+ lead in series. Ch 20 LSB, 'no modulation'.
Adjust RV1 for minimum, then increase by 50ma.
- D. Balance Modulator; set RV5 for max CCW, and RV10 for max CW.
Adjust RV11 for MAX carrier leak, adjust RV10 for MIN carrier leakage.
- E. RV5 - SSB 'Mike Gain/modulation'; RV6 - AMC; RV2 - ALC;
RV7 - AM RF Pwr; RV4 - TX Mtr. (Defeat for ALC is Q27).
-

AX11/PC22 - Remote AM (IC7131-PLL)

'Rough' Alignment Procedure:

- PLL: A. TP1, Ch 40 TX; adjust L7 for 3.8VDC.
- B. TP2 (R11), Ch 40 RX; adjust L8 for max scope indication.
- RECEIVE: A. Peak for max audio using Sig Gen at Ch 20; L1, L2, L3, L4, L5, L6, and L7.
- B. VR2 - Sq Rng.
- TRANSMIT: A. Peak for max RF, Ch 20: L9, L10, L11, L12, and L14.
- B. VR3 - AMC. AMC defeat, TR24.
-

B E W A R E

Direct Quote: " A large C.B. Dealer in my area had a going out of business sale. Found a Cobra 139XLR in sealed box for sale, dealer said was new. Terms of sale was as-is. Gave \$100 for unit. Got back to shop and found out that no TX or RX? Pulled covers; found Relay missing, LSB Xtal missing, and also had a bad audio chip. "

Moral of story: Carry a screwdriver, and double-check on the inside!

PERSONAL COMMUNICATOR CONVERSION 49 MHZ

This conversion is useful to keep tabs on the kids as it enables you to monitor the unlicensed "kiddie-talkie" frequencies which are: 49.830, 49.845, 49.860, 49.875, and 49.890 Mhz. Legitimate ham radio operations can also be done by using crystals in the 13.100 Mhz to 13.200 Mhz range instead of the one specified in the instructions which follow. Caution: do not operate in the 50-54 Mhz ham 6 meter band unless you have a Technician class license.

The following conversion was done to a Midland 13-830 which is found in SAMS CB volume 120. A partial list of similar radios follows with the appropriate SAMS volume number in case you don't have this particular volume handy.

Hygain 3077	CB125	Lafayette HB750	CB134	Midland 13-857B	CB136
2683	CB138	Telsat 1050	CB139	Pearce Simpson	
2680--2681	CB148	Micro 223A	CB142	Tiger Mark II	CB125
2682	CB157	HB650	CB144	Tiger 40A	CB208
2701	CB165	Midland 13-882C	CB119	RCA 14T300	CB163
Kraco KCB2330B	CB116	13-830	CB120	Truetone CYS4732A-77	CB121
KCB2320A	CB152	13-888B	CB129	MCC4434B-67	CB122
KCB2320B	CB153	13-955	CB135		

Many other models of this Cybernet design having a PLL-02A with 3 crystals also exist but were not produced in sufficient quantities to be in SAMS.

This conversion requires a frequency counter, wattmeter, signal generator and an oscilloscope having a usable response to 50 Mhz (rating flat to 35 or 40Mhz.) The principle of this conversion is to select the sum of the oscillators instead of the difference frequency the unit was designed to operate on.

Crystal change: remove X101 (11.8066) and replace with 12.255 Mhz. (any crystal between 12.215 and 12.290 should be okay). Tune T101 (VCO) downward so that DC voltage of 1.5V appears when chan selector is on channel 1 on TP-8. DC voltage should be around 3.5V on TP-8 when chan selector is on ch 23. Next tune T111 for strongest 38Mhz sinewave at TP-3 using oscilloscope as indicator.

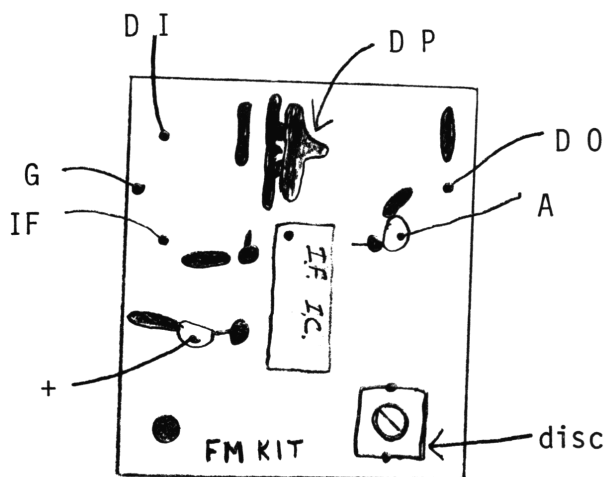
Receiver conversion: remove C154 and change to 5pf. Remove T105 from circuit board and remove its internal capacitor and reinstall T105. You should now be able to put a 49 Mhz band signal into the ant jack and hear it. Peak T104 and T105 for strongest S-meter indication. Do not tamper with the IF cans as you don't want to throw them off frequency-their alignment should be the same as they had when the unit was a CB! Sensitivity will not be real good at this time as other parts in the antenna tuning circuit for the transmitter which have not yet been retuned also affect the receivers sensitivity.

Transmitter conversion: remove C124 and replace with 33pf. Remove L103 so that you can remove its internal capacitor and reinstall L103 to the circuit board. Next remove L104 so its internal capacitor can be discarded. When L104 is soldered back in place add 15pf across the same pins the internal cap was tied to. Coil T102 also needs its internal capacitor removed and to have 15pf soldered to the same pins that the internal cap had been tied to. Change C141 to 39pf. Change C143 to 22pf. Note-T103 does not have an internal capacitor to remove even though one is shown in the SAMS. Remove C146 and do not replace. Change C149 to 68pf. Remove R202 as it is unnecessary. Remove L106 to alter it by cutting its bottom plastic to remove two turns. L106 will have 2½ turns left when it is reinstalled. Remove C153-do not replace. L109 needs to be cut down to 3½ turns-these come off the top of the winding the easiest. Change C151 to 220pf. Change C152 to 150pf. Change R132 to a 22pf capacitor. Cut down L110 at the top to 2½ turns. Add a hole at circuit trace point 21 for a 50pf capacitor to ground. Wind a 3 turn coil identical in size to L116 and use it in place of the jumper wire from test point 5B to the antenna connector. Change C1 (on the S0239) to 27 pf. Use the oscilloscope to peak each xmtr coil (mic keyed) from L103 thru L110 making sure that the 49 Mhz signal is being peaked!

Best performance of the transmitter is obtained if L106 is turned downward a little from the maximum wattage position-set it at not more than 5.5 watts. Most of the coils will tune up somewhere near the original positions except for T105 which will have its best peak about 2 turns above the coil form top. Now when you peak T105 and T104 for strongest S-meter received signal from the signal generator you will find the sensitivity to be better.

Now you can set the overall frequency to either 0 or 5 Khz on the end digit of your frequency counter depending which channel you need to match up to in your "kiddie-talkie". (Some kiddie-talkies have the actual frequency on the crystal and others will be labeled at one-third the operating frequency-example:16.610 on the crystal is for 49.830 Mhz.) Tune C119 to set the desired frequency. It probably will be necessary to change C118 to another value-try capacitors in the range of 22 pf to 39 pf until you can tune C119 to the desired frequency.

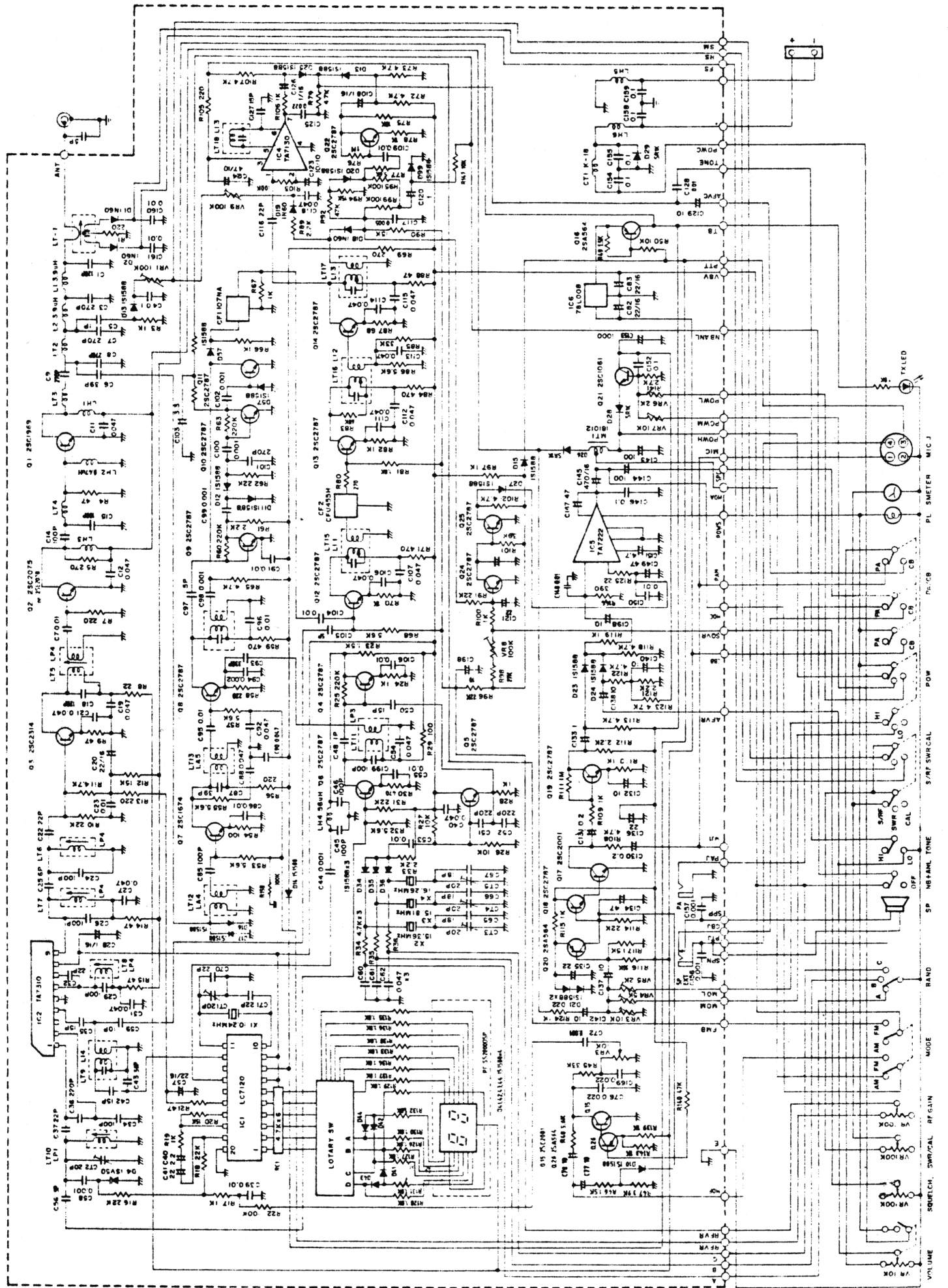
To improve the squelch sensitivity you can change R181 to 33K. You are now ready to change the unit from AM to FM. Remove D105 and put a jumper wire from the foil that the cathode (banded end) of D105 formerly was tied to to connect to +12V. A handy point for the +12V is test point 9. Remove C177-the audio coupling capacitor from the AM detector to the volume control. Put a jumper wire from circuit trace point 46 to the audio output of the FM KIT circuit board. Install another jumper wire from the IF Input of the FM KIT board to the base of Q119. (Do not remove any connections around Q119). Audio for making the FM KIT modulate the xmit frequency can be obtained at the unused terminal of the PA jack. Put your jumper lead from the PA jack to the Deviation Input of the FM KIT. The FM KITs Deviation Output goes to test point 8 of the former CB rig. Power for the FM KIT can be picked up at test point 9 for the +12V. The ground foil of the FM KIT is to be tied to negative circuit board ground of the rig. For best results adjust the 20K trimpot of the FM KIT for 5Khz deviation if you have a way of measuring it. (It is factory set at 5Khz in the test rig so it should be okay if you don't have a deviation meter). The discriminator coil of the FM KIT can be tuned for clearest sound of a received signal if you don't have a FM signal generator or for maximum noise in the absense of a signal (squelch open). Adjustment of the discriminator coil should be within ¼ turn of the factory setting on the FM KIT. FM conversion increases RF power output somewhat and improves receiver sensitivity considerably.



- D I deviation input from PA jack
- D P deviation pot (set for 5 Khz)
- G ground to circuit board negative
- IF IF input from base of Q119
- D O deviation output to TP8
- A audio out to vol control
- + 12 volts from TP9
- disc discriminator can tuning

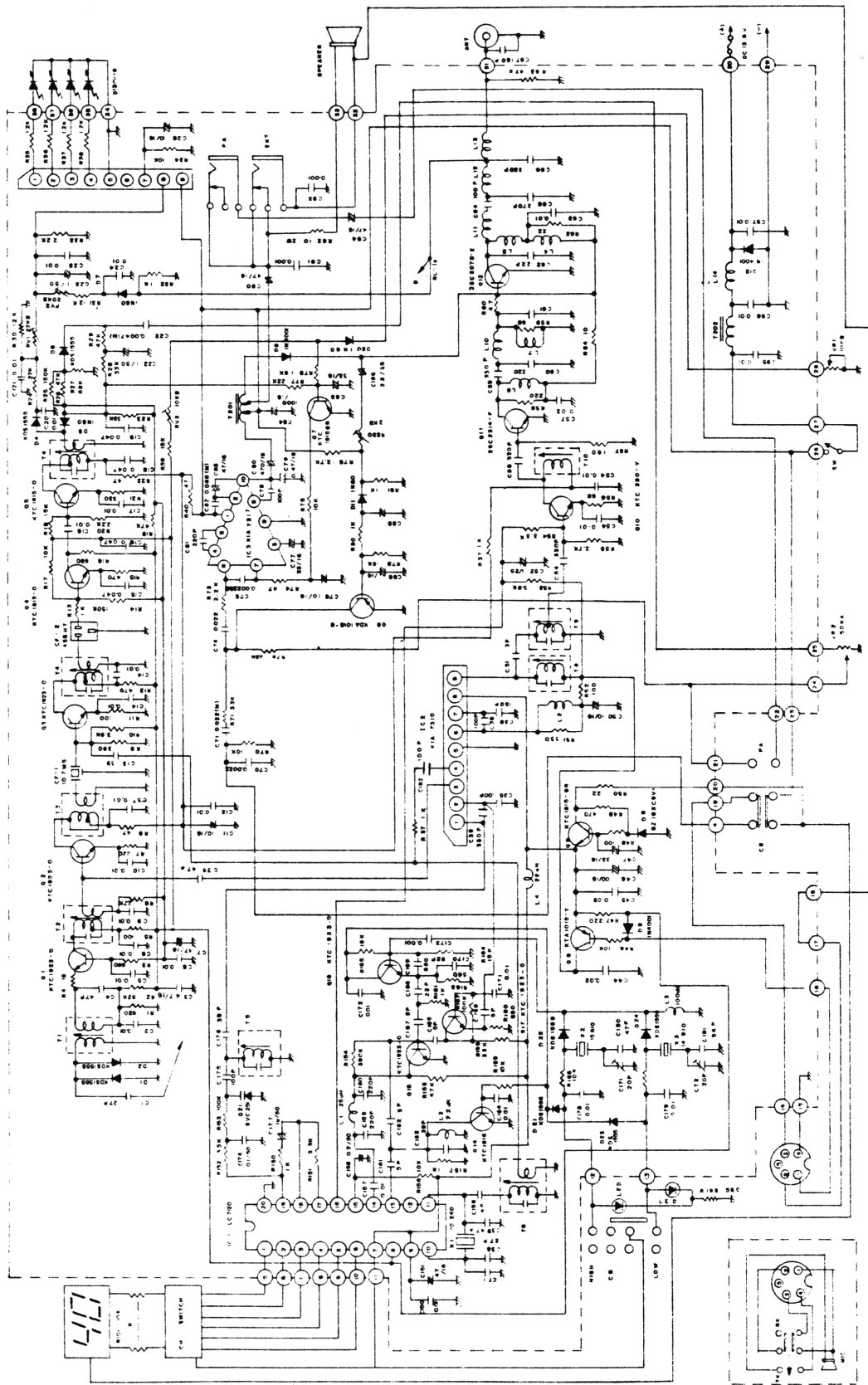
(above drawing does not show all parts-just enough to aid in identifying hookup)
 To mount FM KIT remove chassis mounting screw between RV103 and IC102, drill out hole to 1/8" or 3/16" and use 1" long bolt with 3 nuts as a standoff mount. The FM KIT should be mounted parts side up so D P and disc are accessible for adjustment.

FORMAC 240

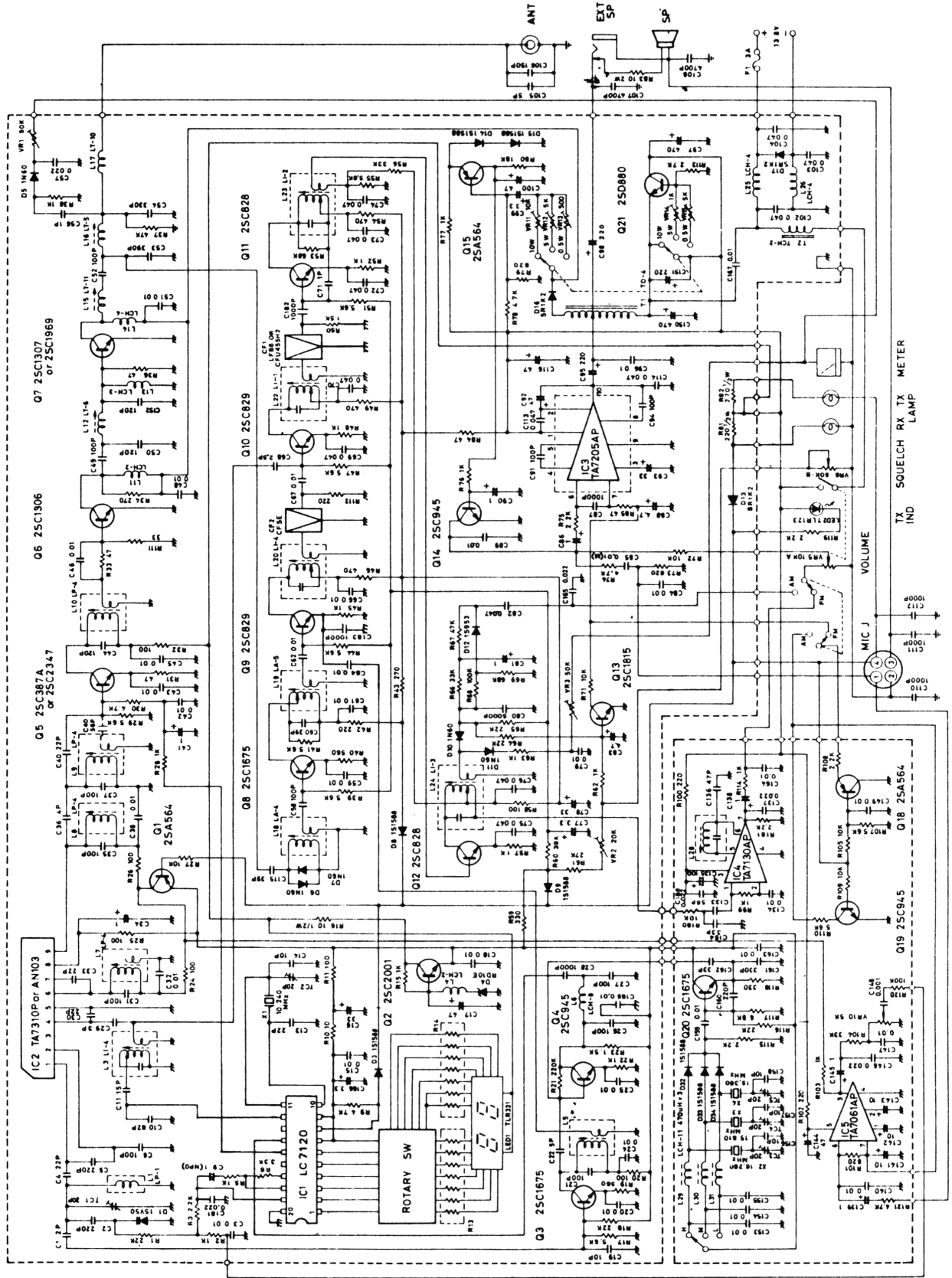


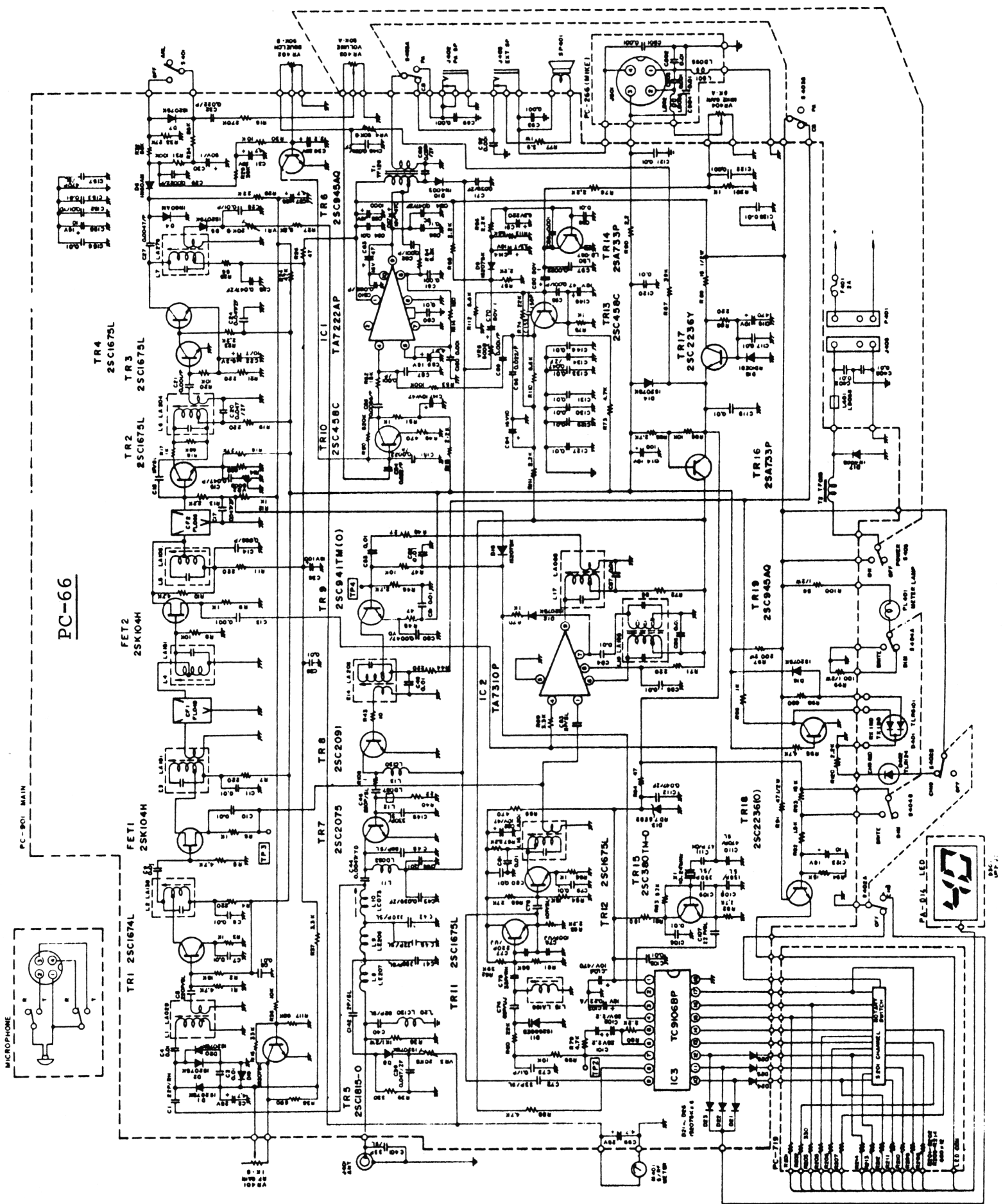
SCHEMATIC DIAGRAM

LINCOLN 1500



HAM INTERNATIONAL UK - 120FM





PC-66

Antenna for 49MHz - 02A Modification
by K.T.

RE: Page 52 & 53...

TESTED..... Bandit B-72 (56" tapered tuning whip), used in a whip adapter (Hygain or Mid-West), and practically any 3/8-24 mobile antenna mount makes a good 1/4 wave mobile whip. Ground planes can be cut down, or dipoles constructed.

Cable T.V. Amplifier TEST

Radio Shack #15-1118; (10db Booster Amp) - actual test:
3db at 147MHz.....

Vanco UVA-25; showed 13db gain at same frequency.

BOTH units did not meet advertised specifications.....

WANTED, FACTORY SERVICE MANUALS * SCANNERS

Have had a 'bunch' of requests for "re-programming" of scanners.
But need the 'FACTORY SERVICE MANUALS'; originals, NO COPIES.

Will be returned.. Need following for possible AC/DC and frequency out-of-band re-programming, instructions/modifications.

Regency: Z-10, Z-30, Z-45, Z-60

R-1040, R-1050

D-300, D-310, D-810

M-100

MX-3000, MX-4000, MX-5000, MX-7000

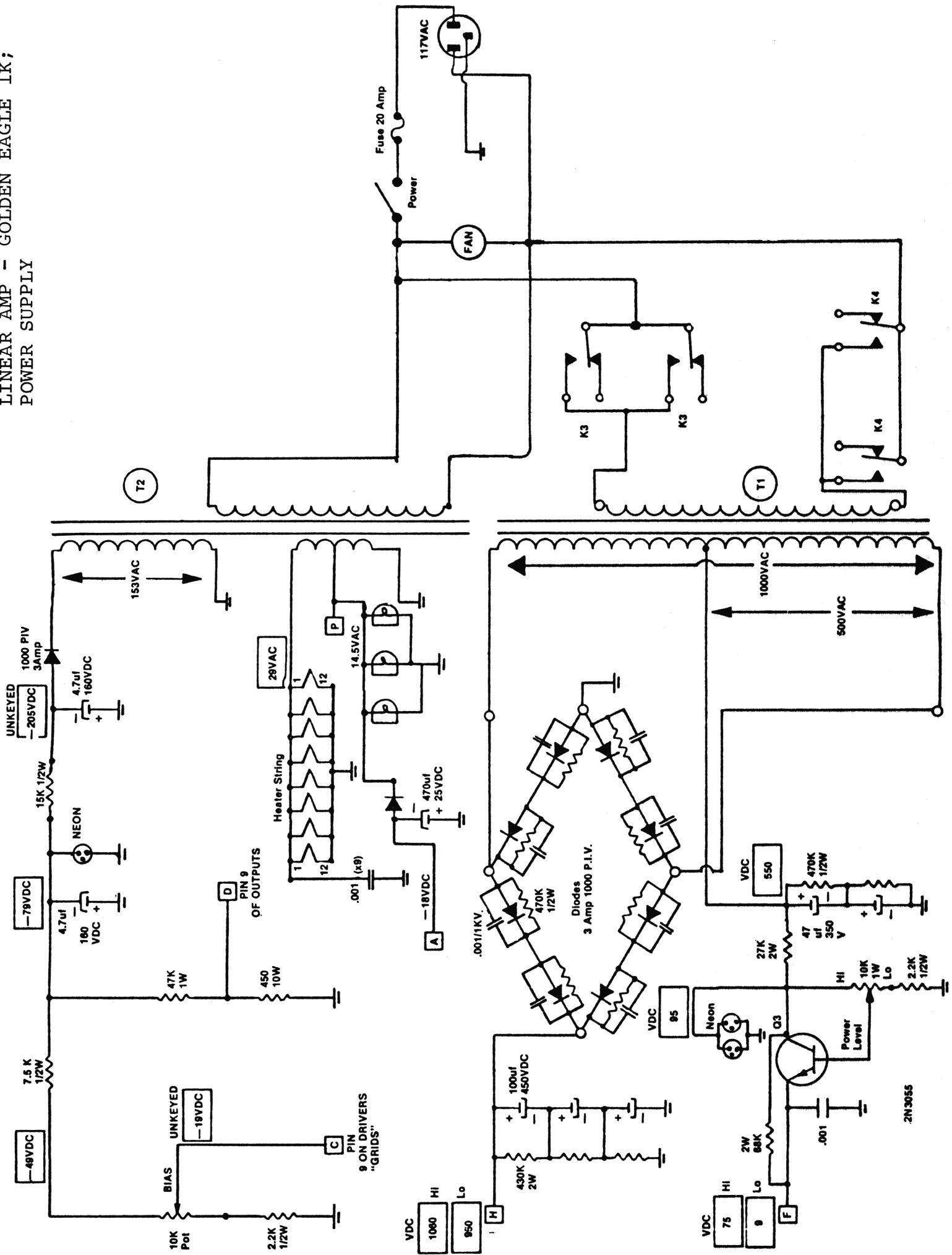
HX-1000, HX-2000, HX-3000

JIL: SX-200, SX-400

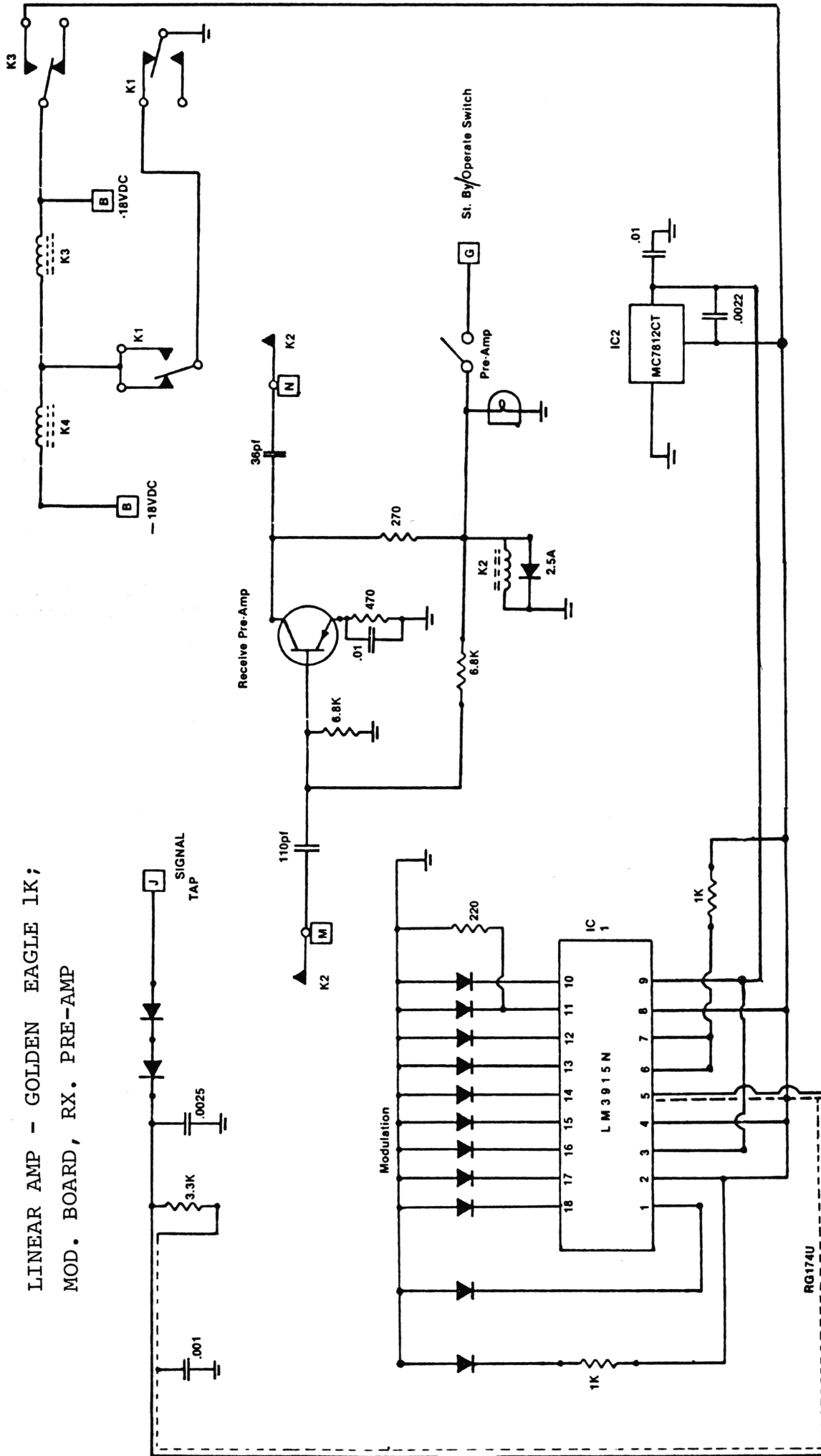
Radio Shack: PRO Mds. 2002, 2009, 2020, 2003, 30,

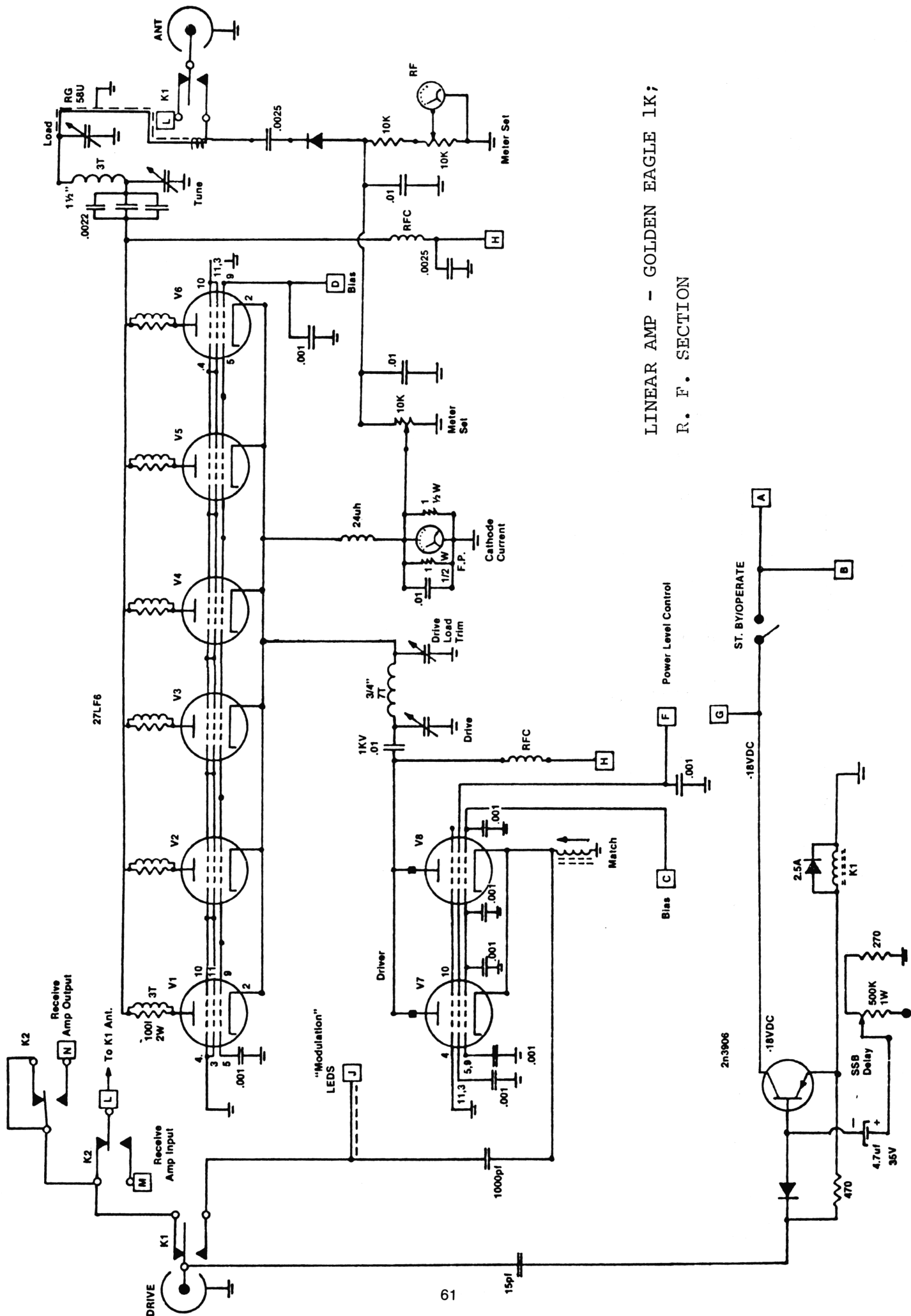
ALL ORIGINAL MANUALS WILL BE RETURNED.....

LINEAR AMP - GOLDEN EAGLE 1K;
POWER SUPPLY



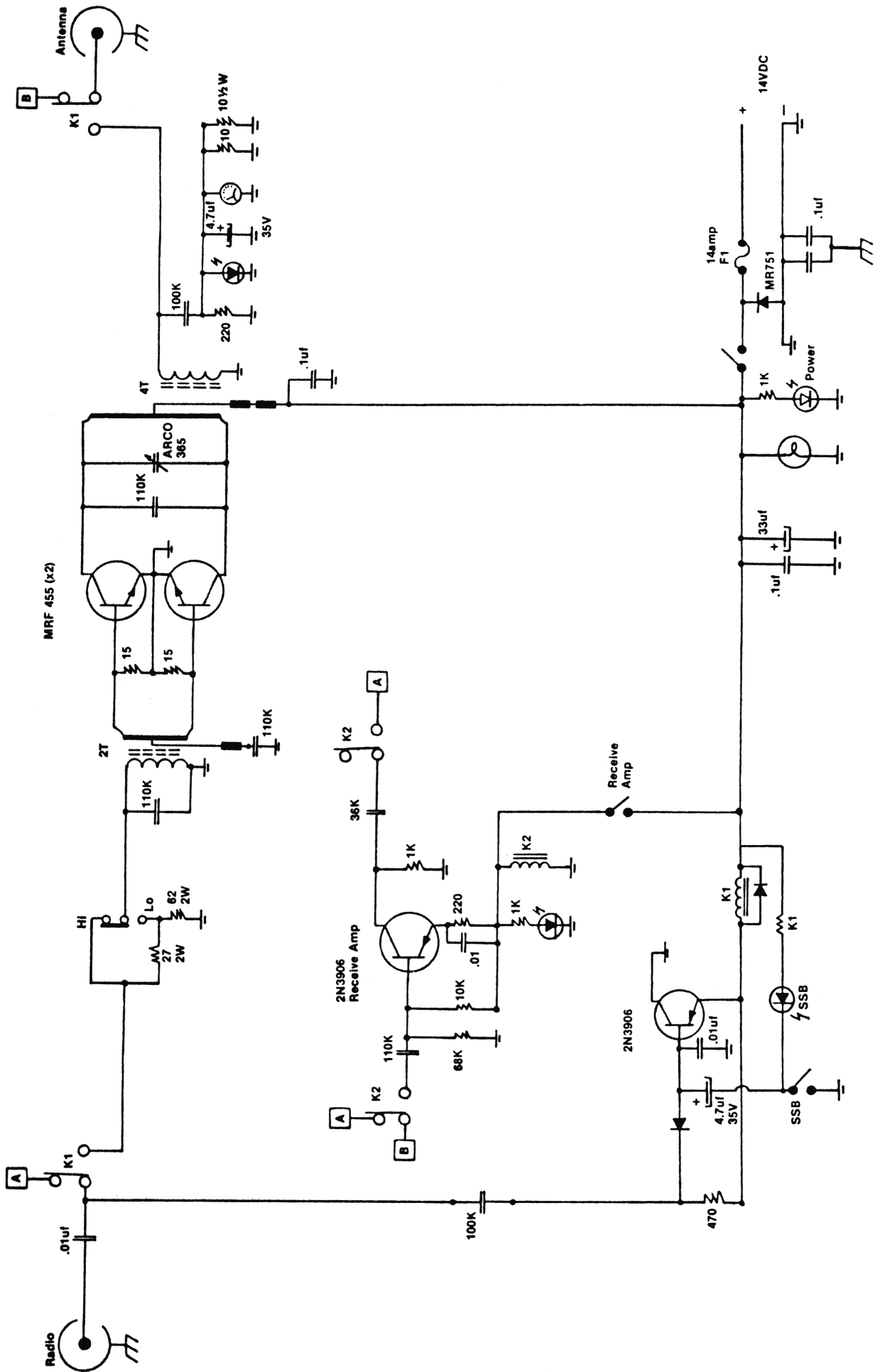
LINEAR AMP - GOLDEN EAGLE 1K;
 MOD. BOARD, RX. PRE-AMP



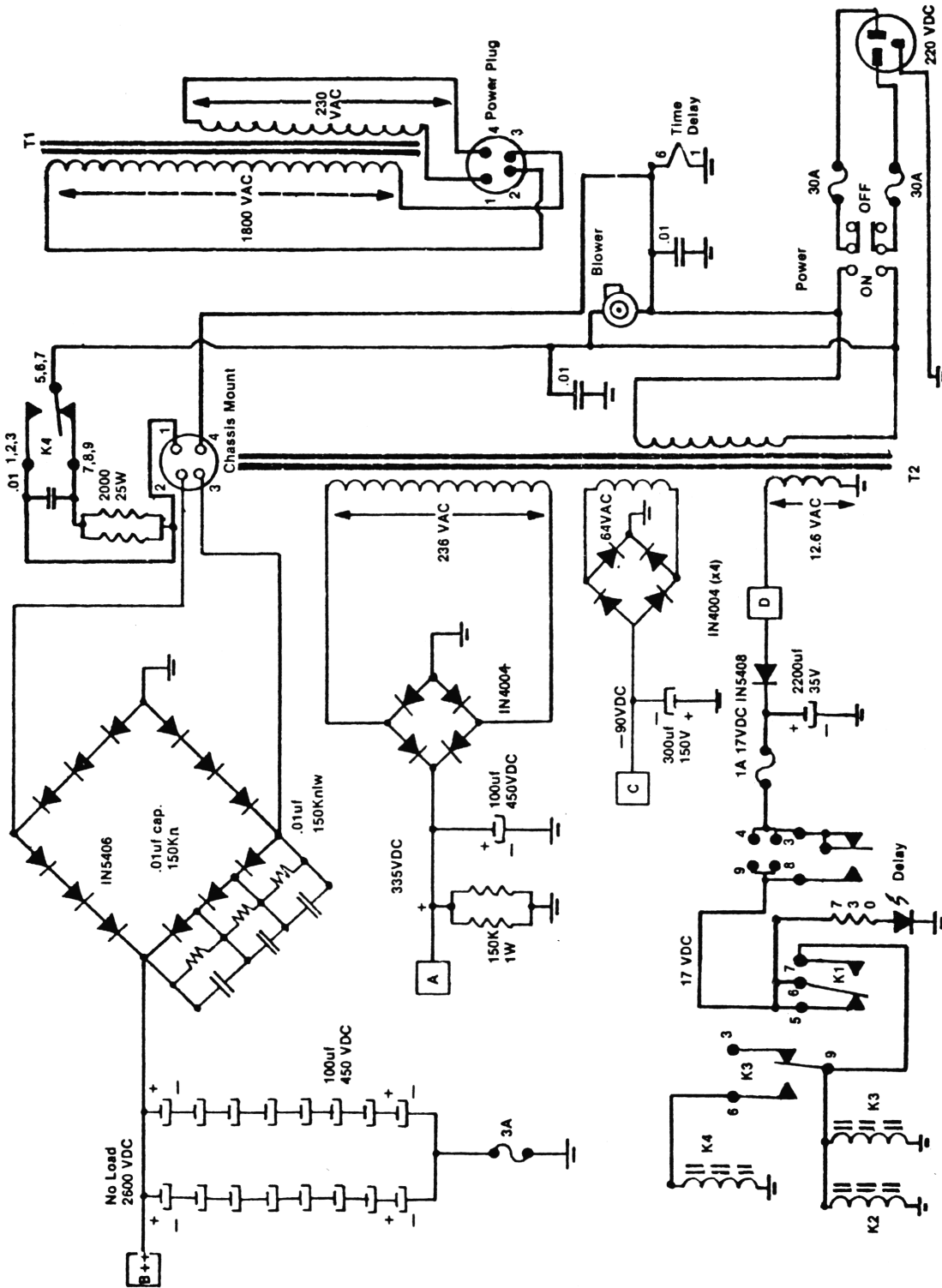


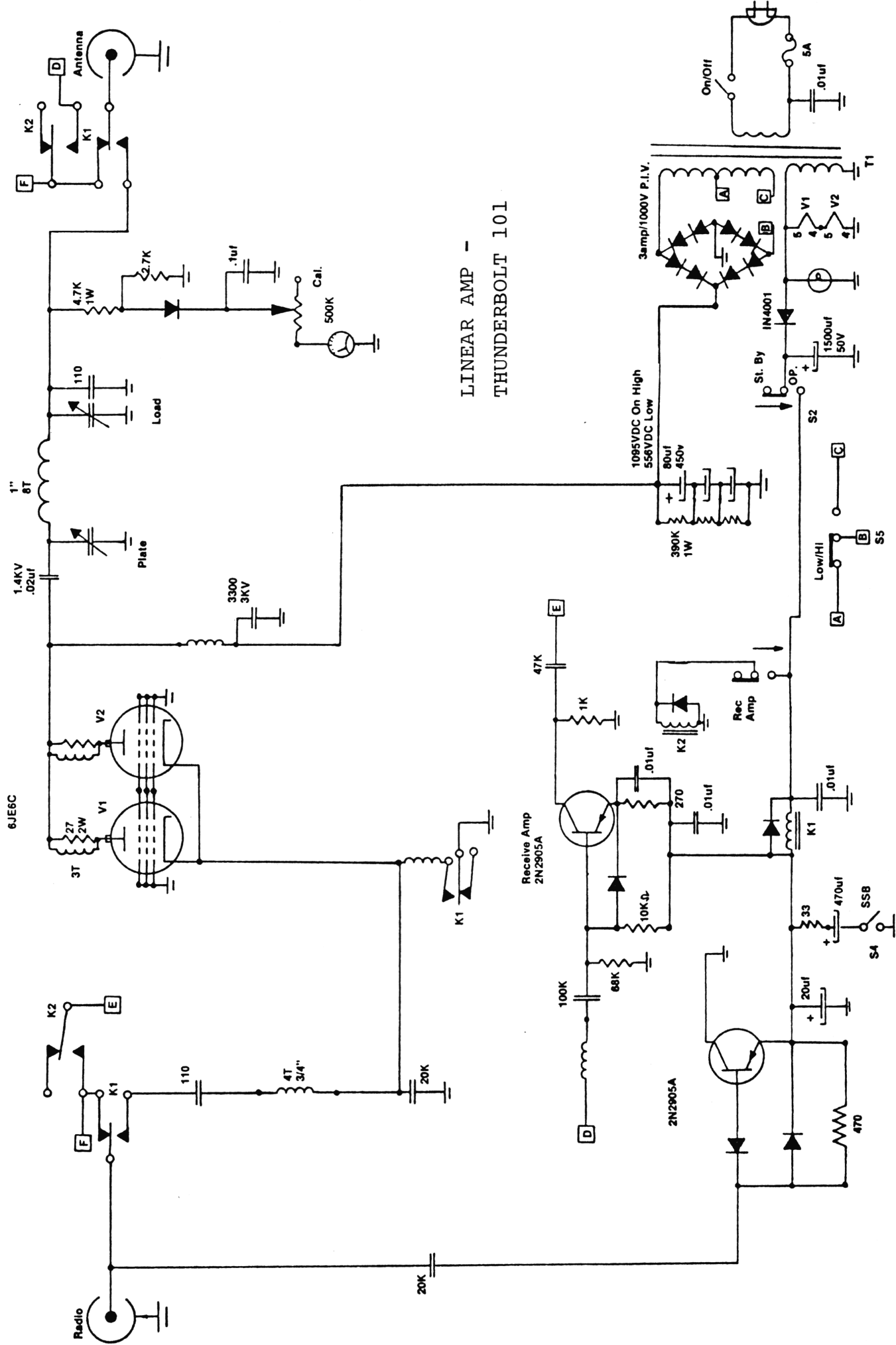
LINEAR AMP - GOLDEN EAGLE 1K;
R. F. SECTION

LINEAR AMP - GOLDEN EAGLE 150



LINEAR AMP - GOLDEN FALCON 2000; POWER SUPPLY





LINEAR AMP -
THUNDERBOLT 101

CODES: A - ALIGNMENT PROCEDURE; C - CONVERSION; FC - FREQUENCY CHART; M - MISCELLANEOUS INFORMATION;
S - SLIDE; SC - SCHEMATIC; T - TUNE UP.

VOL/PG
GENERAL ELECTRIC (cont.)
3-5805A.....T-9/31;10/61
3-5806.....T-18/65;19/64
.....SC-19/65
3-5811B.....T-9/31;10/61
3-5812A.....T-10/61
3-5813A.....C-14/41
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