

SECRET CB[®]

Special
Index
Issue



CONFIDENTIAL
**FACTUAL
REPORT**
SCHEMATICS ETC.
UPDATED QUARTERLY

TABLE OF CONTENTS

| | PAGE # |
|--|--------|
| ACKNOWLEDGEMENTS | 1 |
| INTRODUCTION | 2 |
| CRAIG L231 CLARIFIER | 3 |
| MIDLAND 13-883B (UPD858) | 4 |
| MIDLAND 79-891 (02A) | 5- 6 |
| MIDLAND 78-999 (02A) | 5 |
| MOTOROLA CM 555 (TC9105P) | 7 |
| N.D.I. PC-201 (NDC40013 PLL) | 8 |
| PACE 8193 (CC13001) | 9 |
| REALISTIC TRC-451 | 10-13 |
| REALISTIC TRC-490 | 14-15 |
| SEARS 934.3677150 & 934.36772600 | 16-17 |
| SEARS ROADTALKER (SM5104 chassis) DUAL RANGE CLARIFIER | 18 |
| TRAM D300 CLARIFIER MOD. | 19 |
| ADD A FINE TUNE TO YOUR CLARIFIER LIKE 2000 GTL | 20 |
| SIMPLE CURE FOR RX-TX TRACKING PROBLEMS | 21 |
| KENWOOD TS-120S | 22 |
| KENWOOD TS-130 | 23 |
| HAM RADIO CRYSTAL SELECTOR | 24 |
| TEABERRY STALKER XX - VSB-1 HOOK-UP | 25 |
| REALISTIC TRC-490 - VSB-1 HOOK-UP | 25 |
| WARDS GEN-719A - VSB-1 HOOK-UP | 25 |
| DELCO 90BFMC1, 90BFPC1, 91YFMC1 DM83 | 26 |
| MIDLAND 77-861 | 26 |
| SEARS 23 CHANNEL PLL D63911 WITH uPD861C CHIP | 26 |
| RAY JEFFERSON CB845 (02A) | 27 |
| REALISTIC TRC-57 | 28 |
| REALISTIC TRC-410 | 29 |
| REALISTIC TRC-455 (SM5104) | 30 |
| ROBYN WV-110 (SM5104) | 31 |
| 23 CHANNEL PLL02A AM CONVERSION FOR 26.645 to 27.275 | 32 |
| MODULATION ADJUSTMENTS FOR VARIOUS REALISTICS | 33 |
| SPECIFIC RADIO TUNE-UPS | 34-45 |
| ZAPPER 9000 REFERENCE CHART | 46 |
| ZAPPER TROUBLESHOOTING HINTS | 47-48 |
| REALISTIC TRC-209 (GRE7189 PLL - VCO) | 49 |
| TC9106 PLL OPERATION ANALYSIS | 50-53 |
| "THE SPREAD EAGLE" ANTENNA BREAK-THRU FOR TRUCKERS | 54-55 |
| BASIC PLL | 56 |
| ELECTRONIC TERMINOLOGY | 57 |
| SCANNER PROGRAMMING TIPS | 58 |
| INTO THE KNOW WITH JAPANESE SEMICONDUCTORS | 59 |
| TRANSISTOR SPECIFICATIONS | 60 |
| RESISTOR COLOR CODE | 61-62 |
| "YOU CAN BUILD IT" | |
| SECRET CB'S SUPER-DUPER POWER SUPPLY CONTROLLER | 63 |
| AUDIO TEST STATION | 64 |
| POWER LINE FILTER | 65 |
| "OOPS, WE GOOFED": | |
| VOLUME 4, PAGE 38 | 66 |
| VOLUME 10, PAGES 10, 16, & 28 | 66 |
| VOLUME 11, PAGES 3, 10, 15, 16, & 71 | 66 |
| "SECRET CB" INDEX ON VOLUMES 1 THRU 11 | 67-78 |
| "SECRET CB" BOOK ORDER FORM | 79 |

ACKNOWLEDGEMENTS

SECRET CB WISHES TO GRATEFULLY ACKNOWLEDGE THE FOLLOWING PEOPLE FOR THEIR HELP AND CONTRIBUTIONS TOWARD GETTING VOLUME 12 IN PRINT. THEIR ENCOURAGEMENT AND CONTRIBUTION OF MATERIAL HAS BEEN INVALUABLE.



JERRY CROOKSHANK

JAMES KERN

SAM KERSH

ROBERT ROSSLEY

TONY TROIDL

JAMES VAUGHAN

BILL WENTZ



**VIC says "THANKS" and
a free book to the above
people**

INTRODUCTION

We are celebrating our 4th year with this 12th edition of "Secret CB" and in it you will find information concerning the radios you have been asking about. We want to take this opportunity to thank all of our loyal customers and new friends for making this possible.

I get alot of calls from people wanting to know the specifications of our "Super Clarifier Diode". This is a "trade secret". We have contracted to have these varactors specially made- they are not available from replacement semiconductor distributors anyway. (They are also a bargain!)

Our new ZAPPER kits feature dual trimmer capacitors. This will let you set the frequencies right on the money. If you have a B & K Model 2040 Signal Generator, we have a kit for you. Our kit #117 gives 26-30 MHz coverage for the 2040. Makes receiver testing and alignment a BREEZE. By the time you read this , we will also have a KIT finally available for the TC9106 Chip, giving high or low channels. Neat!

Have you ever broken the cores trying to adjust a radio? Our item #120 CB Alignment Tool Kit features five of the most needed-most wanted alignment tools for practically any type of transceiver. This is a "must" for your tool box.

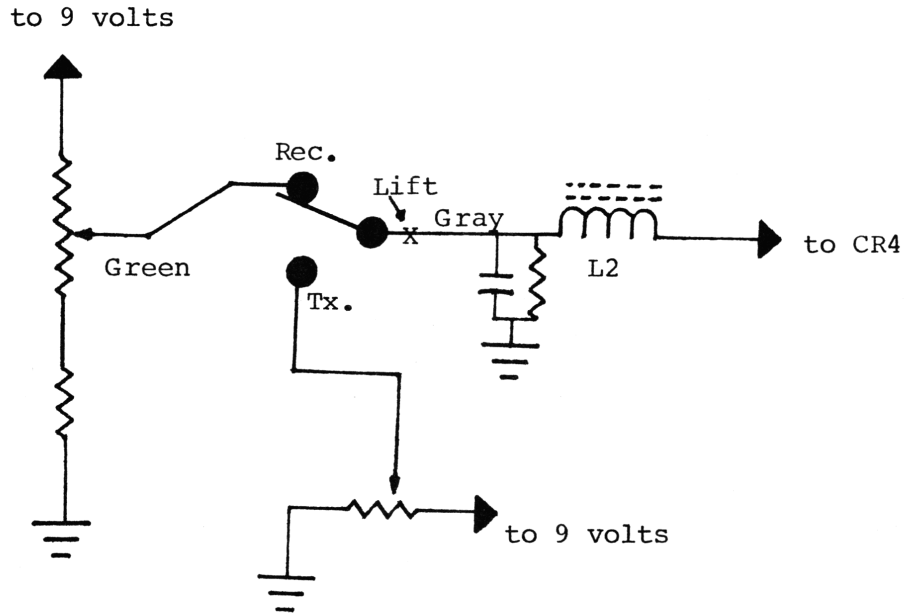
TIL THE NEXT TIME-

Jic Richter

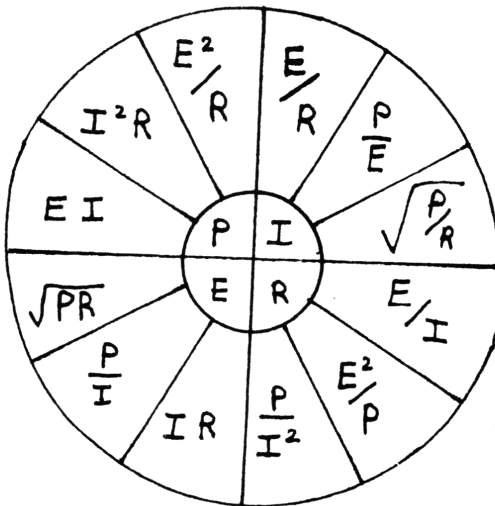
STX-105

CRAIG L231 CLARIFIER

1. Unsolder GRAY wire at relay.
2. Resolder at Green wire @ clarifier wiper.
3. Change CR4 to a Super Diode-L5 AM; L6 USB.



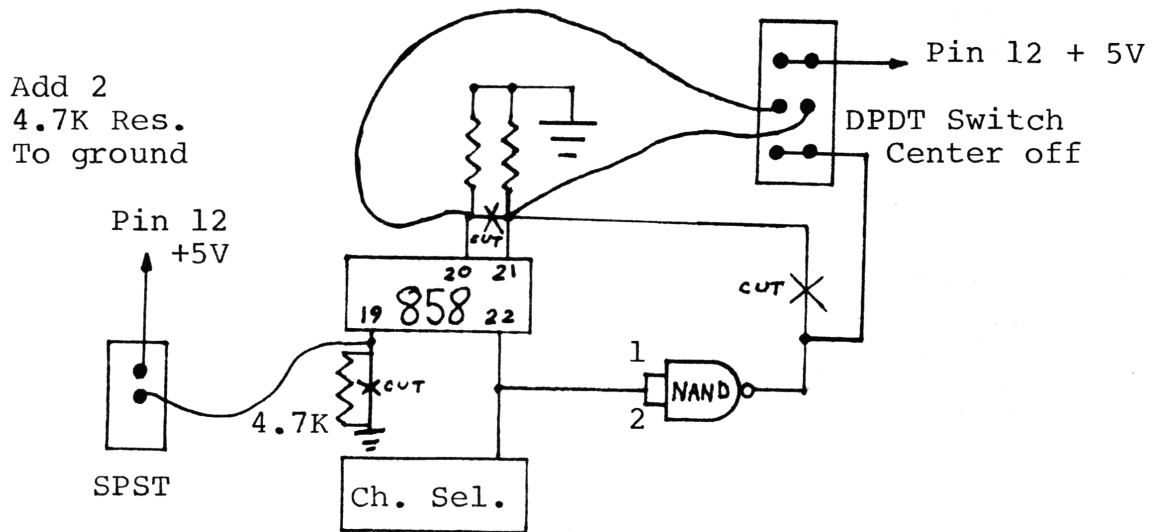
OHMS LAW FOR DC CIRCUITS



MIDLAND 13-883 B (UPD 858)

FREQUENCY EXPANSION:

1. Cut Pin 19 away from ground and reconnect to ground through a 4.7K resistor.
2. Wire a SPST Switch from Pin 12 to Pin 19.
3. Cut Pins 20 and 21 apart and install individual 4.7K resistors from Pin 20 and 21 ground.
4. Cut trace from NAND Gate to Pins 20 and 21 (1C2, pin 3).
5. Wire a DPDT-Center off Switch as shown.



L2; is VCO Coil

TR1 is disable control. It can be defeated by shorting across emitter and collector.

RX:

L201, L202.

1st if @ 9.785 Peak L203

2nd if @ 455KC Peak L206, L205, L204.

N.B. @23.5MHz Peak L220, L221.

VR201; A.G.C.

VR205; Squelch Range.

VR207; S Meter.

TX:

Peak L208, L209, L210, L211, L212, L215.

VR213; A.M.C.

VR209; RF Power Meter.

MIDLAND 78-999 PLL 02A (REF. VOL. 3)

RX: RV10; RF Gain Range.
RV6; SSB AGC.
RV7; AM SQ. Range.
RV8; SSB SQ. Range.
RV5; AM S Meter.
RV4; SSB S Meter.

TX: Peak T204, T205, T3, T209, L209, L212, L214, on USB.
RV1,RV2; Carrier Balance.
RV206; Final Bias adj. for .7v @ base of Q208.
RV3; SSB Mod. Gain.
RV201; SSB ALC.
RV9; AM AMC-or remove C71.
RV11; Mod. Meter.
RV202; RF Power Meter.

SLIDER:

1. Run a wire from the unused terminal on VR4 Clarifier Control to 8 Volt source located at the emitter of Q216.
2. Clip R221.
3. Clip D205.
4. Unit now slides. For more slide, replace D203 with Super Diode.

MIDLAND 79-891 02A

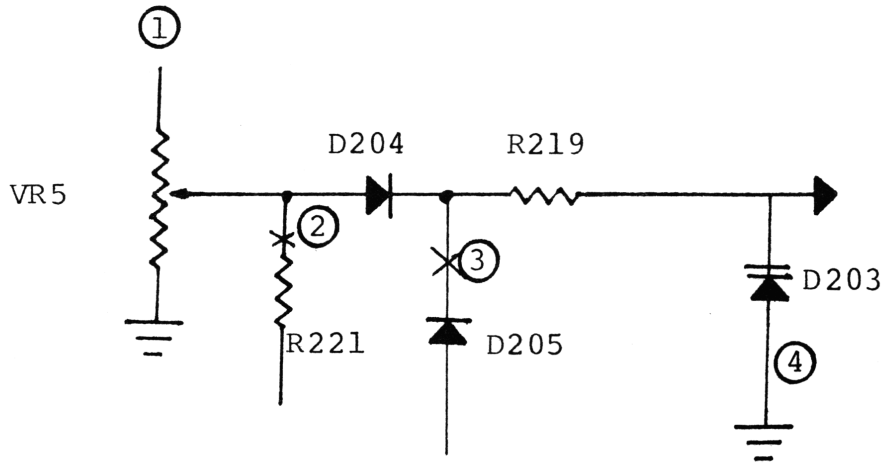
RX: RV6; SSB AGC.
RV7; AM Squelch Range
RV8; SSB Squelch Range
RV5; AM S Meter
RV4; SSB S Meter

TX: Peak T204 on Ch. 40 USB.
Peak T205 on Ch. 1, USB.
Peak T3, T209, L212, L214, on Ch. 19 USB.
RV1, RV2 Carrier Balance

Adjust R204 with VOM at base of Q208 on USB no signal input for .7 Volts.
RV3,RV201;ALC.
RV9; AM Power.
RV202; RF Power Meter.

Clarifier:

1. Run a wire from unused terminal on VR5 clarifier control to emitter of Q216.
2. Clip R221.
3. Clip D205.
4. D203 may be changed to a Super Diode.

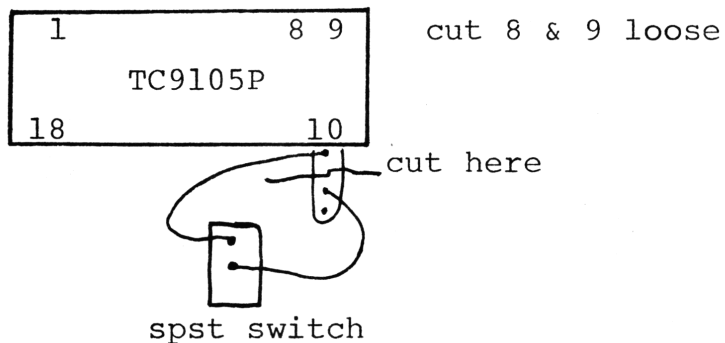


See Volume 3 for Channel Modification on 02A Chip.

MOTOROLA CM 555 TC9105P

FREQUENCY EXPANSION:

Channels 42 to 59 can be obtained directly from the Chip as follows. (For more channels, use our Zapper kit at C607.)



T601 is the VCO coil

pin 8 is loop detector output

pin 9 is T/R Switch

CLARIFIER:

- 1.) Cut off the wire on the end of the clarifier pot which reads 8V on RX, OV TX. Tape it. Run a new wire from the pot where the original wire was to pin 1 of IC702 (+side of C734).
- 2.) Clip D607.
- 3.) Remove C632.

D603 may be replaced with a "Super Diode" for more slide.

TUNEUP:

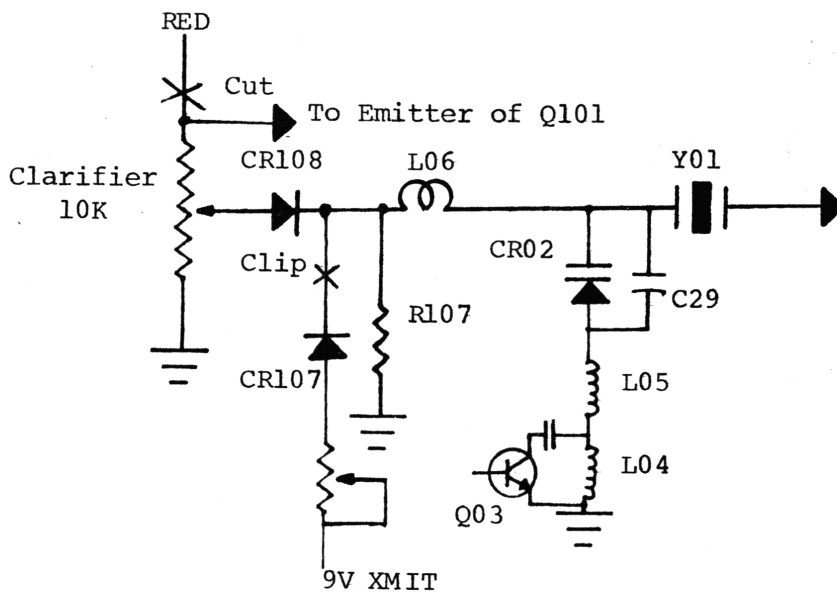
VR701 is AMC control (or remove TR704)

Peak L310, L313, L316, T201, T202, T203, T401.

VR303 is SSB ALC control.

N.D.I. PC-201 (NDC40013 PLL)

- RX: R517 AGC
 R518 Squelch Range
 R507 S Meter
 R103 Auto. Dimmer
 R912 Scan Sensitivity Range
- TX: Peak T701, T702, L702, L704, L706, L709 for Max.
 R207 AM Power
 R217 AMC
 R616 Balance Bias-adjust for 2.68V @ IC601, Pin 7.
 R611 Carrier Balance
 R721 SSB ALC
 R726 RF Power Meter
 R723 SWR Zero
 R53 SWR Call-adjust for .25V @ IC51, Pin 9.
 R61 SWR Meter-adjust for 3 Volts @ 150 OHM Dummy Load.
 R62 A.W.I.-adjust so light comes on with 150 OHM Load.



1. Cut Red wire off of end of clarifier.
 2. Run a new wire from clarifier to emitter of Q101.(9V).
 3. Clip CR107.
- Unit Now Slides.

PACE 8193 CCI3001

SLIDER MOD:

1. Remove D8.
2. Remove D9.
3. Solder a piece of hook-up wire in the hole where the cathode (banded end) of D9 was.
4. Solder the other end of the wire to the emitter of Q18.

The Pin Out of the CCI3001 is below:

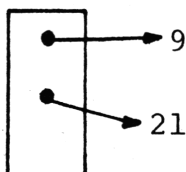
1. F. in.
2. + DC.
3. 1 Ref. OSC. input.
4. Ref OSC. output.
5. Ground.
6. Loop Filter.
7. Loop Filter.
8. D.O.
9. Phase detector output
10. T/R Switch.
11. P5 MSB.
12. P4.
13. P3.
14. P2.
15. P1.
16. P0 LSB
17. Loop Filter
18. Loop Filter

REALISTIC TRC-451

FREQUENCY EXPANSION:

For Low and High Frequencies (26.515-26.955; 26.965-27.405; 27.415-27.855) Use our Kit #106 and install @C72. Full instructions included with kit.

For high frequency coverage, (27.415-27.855) remove the uPD 2824C Chip (1C2) and install a uPD 2816C in its place. Connect pin 20 to 21 (ground). Connect a SPST Switch to pin 9 as follows:



L14 is the VCO Coil. Adjust as necessary to get all channels. The HI frequency channels come out on "even" frequencies, such as 27.410. But 15KC of slide can easily be installed by following instructions below:

CLARIFIER:

1. Clip D32 Switching Diode.
2. On Clarifier control, locate the White, Yellow and Brown wires.
3. Ground the Brown Wire.
4. Cut off the White Wire.
5. Run a new wire from where White wire was on Clarifier to cathode of D50. This supplies a constant 8 Volts to the Clarifier circuit.
6. Remove D30 Varactor and replace with a "Super Diode" for maximum slide.

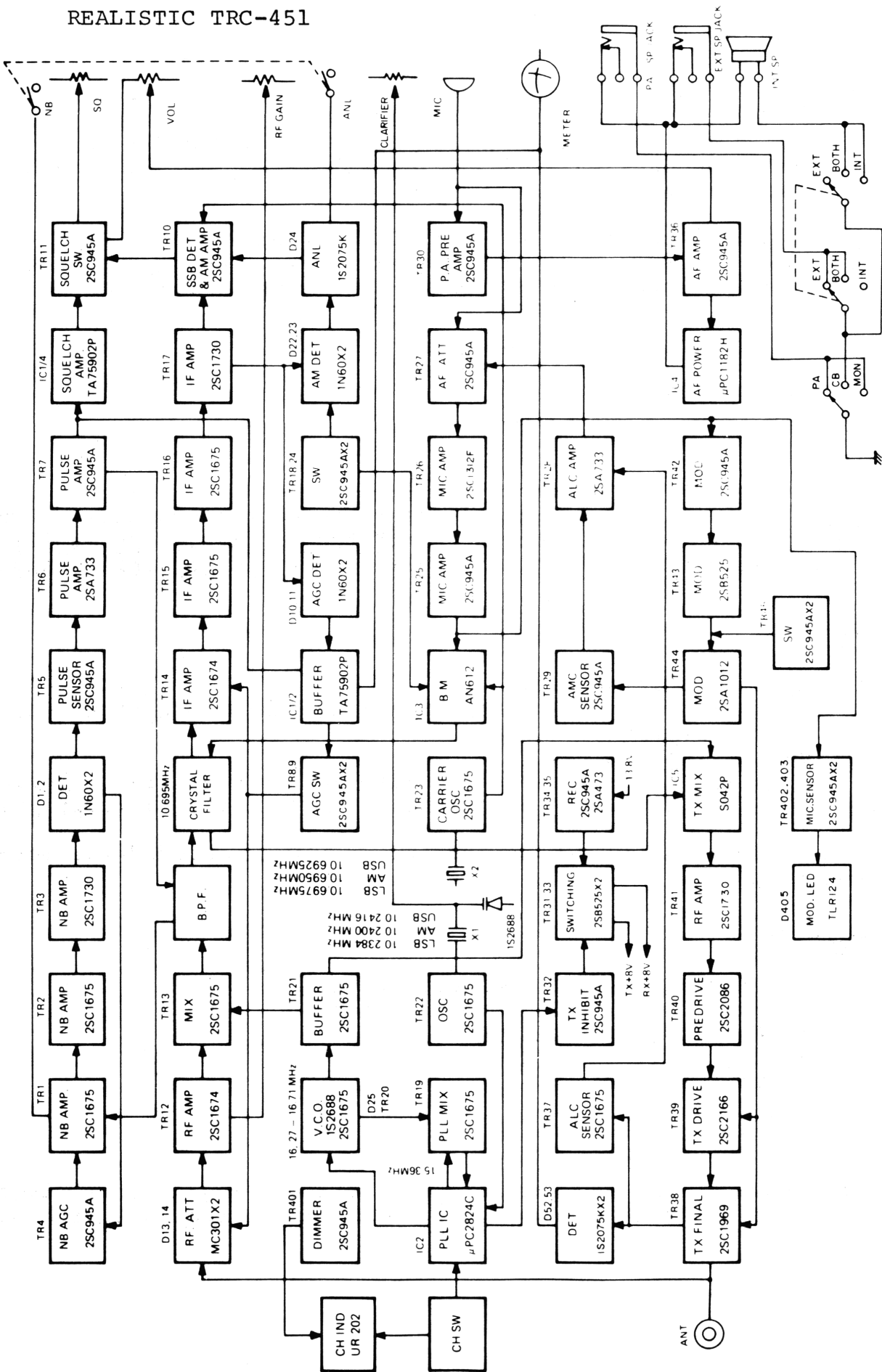
XMTR TUNE-UP:

VR9 Driver Bias 10MA, USB, No Modulation.
VR8 Final Bias 100MA, USB, No Modulation.
VR6 SSB ALC-adjust for max. power.
VR10 AM Power.
VR7 RF Power Meter.
VR5 A.M.C.
VR4 Balance.
Peak L40, L39, L38, L37, L27.

Since this chassis is very popular, we are including a Block Diagram and a description of how the circuit operates on the following pages.

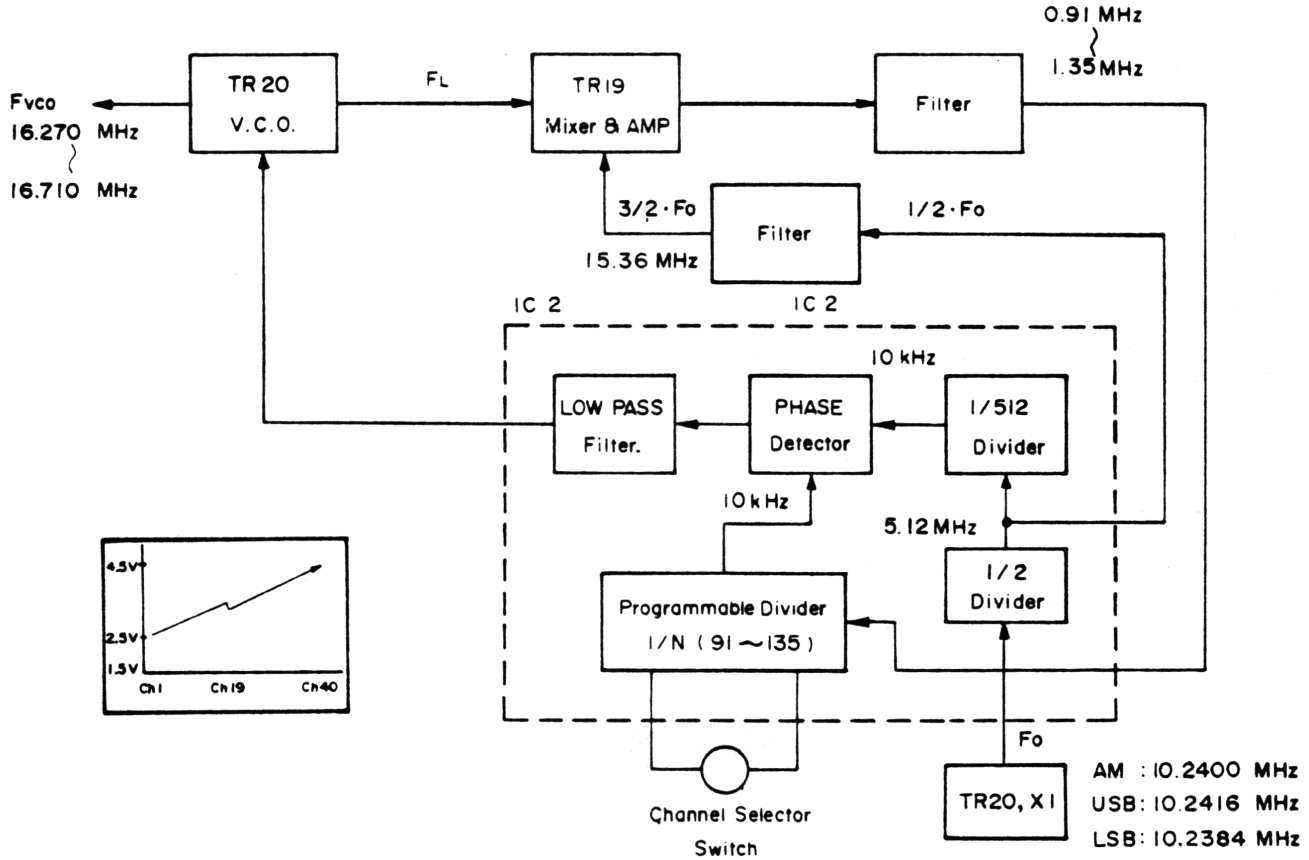
BLOCK DIAGRAM

REALISTIC TRC-451



CIRCUIT OPERATION

The Phase Locked Loop consists of 6 Major Components; Voltage Controlled Oscillator, 1/N Divider, Reference Oscillator, 1/1024 Divider, Phase Detector and Low Pass Filter.



The VCO is an Oscillator whose oscillation frequency varies in accordance with input voltage changes. 1/N Divider is a programmable Divider; the "N" is varied by the Channel Selector Switch. A portion of the VCO output is mixed with a signal from TR22 by TR19, "In-Loop mixer". It is used to shift the VCO frequency. TR22, "In-Loop Local Oscillator", generates 10.24 MHz frequency (AM: 10.2400 MHz, USB: 10.2416 MHz and LSB: 10.2384 MHz). This 10.24 MHz signal is fed to TR19, Mixer, passing through the 1/2 Divider and Filter. VCO frequency is down mixed with a signal from Tripler providing 0.91 MHz through 1.35 MHz (see frequency table). The signal is fed to the 1/N Divider through the Filter. The Filter eliminates harmonics. 1/N Divider produces the 10 kHz frequency and it is fed to the Phase Detector.

Meanwhile, the 10.24 MHz frequency generated by X1, is changed to 10 kHz by 1/1024 Divider and is fed to another input of the Phase Detector. Thus the Phase Detector receives two signals (both 10kHz).

It compares the phase difference of the two and generates an error voltage which acts on the VCO to bring the two frequencies exactly in phase. When this condition occurs, the PLL circuit is "Locked". A Low Pass Filter is used to change the AC signal to DC.

Then the VCO output is up-mixed with Local Oscillator frequency (X2 and TR23) and the resulting 27 MHz frequencies are transmitted.

By Varying the constant N, the output frequency from the VCO can be varied in 10 kHz steps. The Constant N is controlled by the Channel Selector Switch. A frequency shift of 2.5 kHz (required for AM, USB and LSB) is obtained by switching Diodes D29 (LSB), D28 (USB) and D27 (AM).

TR23 is a carrier oscillator which generates 10.6925 MHz, 10.6975 MHz or 10.6950 MHz.

In USB mode, X2 functions by D35 switching; so TR23 oscillates on 10.6925 MHz.

In LSB mode, X2 functions by D36 switching and TR 23 oscillates on 10.6975 MHz.

In AM mode, when the unit is in transmitting, X2 functions by D34 switching and also TR21 oscillates on 10.6950 MHz.

Therefore TR23 oscillates on 10.6950 MHz when receiving on AM modes.

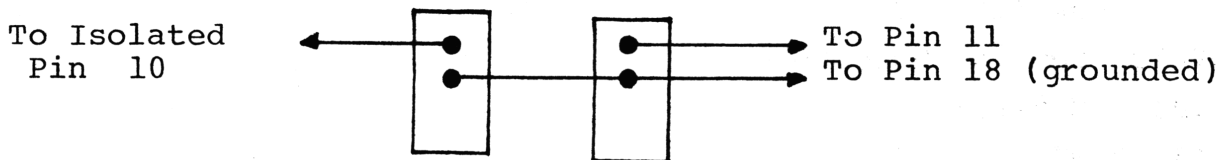
The carrier output goes to the receiver circuit for demodulation of SSB signal or goes to transmitter circuit for modulation.

NOTES

REALISTIC TRC490 (MB8734)

FREQUENCY EXPANSION:

1. Locate IC2, MB8734 and remove by unsoldering all 18 pins and lifting out.
2. Install an 18 pin socket or solder an MB8719 Chip directly in place of IC2.
3. Isolate pin 10 from ground by cutting the foil pattern with an xacto knife.
4. Wire up two SPST Switches as shown below:



5. Adjust L13 VCO as necessary for full coverage from 26.815 to 28.045.

CLARIFIER:

1. Clip D36.
 2. Locate Brown wire which goes from one end of clarifier control over to R415. Cut this wire and resolder to ground so one end of pot will be grounded.
 3. Locate Red wire on the other end of clarifier pot. ~~Cut off of pot and tape.~~ *Unsolder from switch board and resolder to open hole NEXT TO C77 or SAME POINT*
 4. ~~Run a new wire from that end of pot to pin 1 of IC5 (MB3756 Voltage Regulator)~~
 5. Install a 2-8UH choke in series with the anode of D37 for desired amount slide.
- * D37 may be replaced with a Super Diode to increase slide. Replace the Clarifier pot with a 10 Turn Pot for best results.

REALISTIC TRC490 (MB8734) (Cont'd):

Clarifier Cont'd:

CT3 is USB adjustment.
L19 is LSB Adjustment.
L20 is AM Centering Adjustment.
VR5 is Carrier Balance.
VR7 ALC.
VR6 AM Power
VR10 RF Power Meter Adjustment.
L39 TVI filter.

Peak L26, L27, L28, L29, L36 and adjust for best all around power.

RX: Peak L10, L9, L8, L7, L6, L5, L4, L3.

VR12 Squelch Threshold

VR1 S Meter

L1,L2 NB/anl Adjust.

FREQUENCY-CHANNEL NUMBER CHARTS

| Frequency | Channel | Frequency | Channel | Frequency | Channel |
|------------|---------|------------|---------|------------|---------|
| 26.965 MHz | 1 | 27.135 MHz | 15 | 27.295 MHz | 29 |
| 26.975 MHz | 2 | 27.155 MHz | 16 | 27.305 MHz | 30 |
| 26.985 MHz | 3 | 27.165 MHz | 17 | 27.315 MHz | 31 |
| 27.005 MHz | 4 | 27.175 MHz | 18 | 27.325 MHz | 32 |
| 27.015 MHz | 5 | 27.185 MHz | 19 | 27.335 MHz | 33 |
| 27.025 MHz | 6 | 27.205 MHz | 20 | 27.345 MHz | 34 |
| 27.035 MHz | 7 | 27.215 MHz | 21 | 27.355 MHz | 35 |
| 27.055 MHz | 8 | 27.225 MHz | 22 | 27.365 MHz | 36 |
| 27.065 MHz | 9 | 27.255 MHz | 23 | 27.375 MHz | 37 |
| 27.075 MHz | 10 | 27.235 MHz | 24 | 27.385 MHz | 38 |
| 27.085 MHz | 11 | 27.245 MHz | 25 | 27.395 MHz | 39 |
| 27.105 MHz | 12 | 27.265 MHz | 26 | 27.405 MHz | 40 |
| 27.115 MHz | 13 | 27.275 MHz | 27 | | |
| 27.125 MHz | 14 | 27.285 MHz | 28 | | |

SEARS
934.3677150 & 934.36772600
23 CHANNEL CRYSTAL SET

RX: Peak T5,T4,T3,MF1,T2,T1,L1 on Ch. 13.0(AM)

Peak T9,T8,T7,T6 for max. on CH. 13 LSB

R17; AM Sensitivity
R62; SSB Sensitivity
R231; SSB AGC
R37; AM Squelch Range
R260; SSB Squelch Range
R262; AM S Meter
R263; SSB S Meter

TX: Peak T10,T11,L13B,L14,L10,L11 for Max.

L13A is T.V.I. filter adjustment

On SSB, No Mod. input, adjust R67, C55 for Minimum output.

R405; Voltage Reg.
R86; SSB Mic Gain
R281; A.L.C.
R264; RF Power Meter
For Maximum AM Mod., Clip D25.

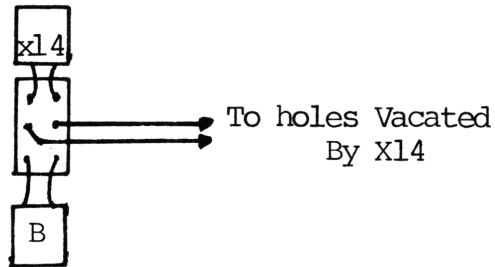
Crystal Frequency Chart:

X1 can be pulled and replaced with one crystal from chart below for 4 new channels. Or, build a Crystal Switcher to handle more crystals. X1, X2, X3, X4, X5, or X6 may be replaced. They are Tripler type. Type HC-18/W.

| | |
|--------|-------------|
| 7.8766 | 26-27-28-30 |
| 7.8933 | 31-32-33-35 |
| 7.9100 | 36-37-38-40 |
| 7.9266 | 41-42-43-45 |
| 7.9433 | 46-47-48-50 |
| 7.9600 | 51-52-53-55 |
| 7.9766 | 56-57-58-60 |
| 7.9933 | 61-62-63-65 |

SEARS (CONT)

If you want to get channels between 3 & 4 (26.995); 7 & 8 (27.045) etc., pull X14 (14.947) and install a DPDT Switch using 14.947 on one side and 14.937 on the other side.

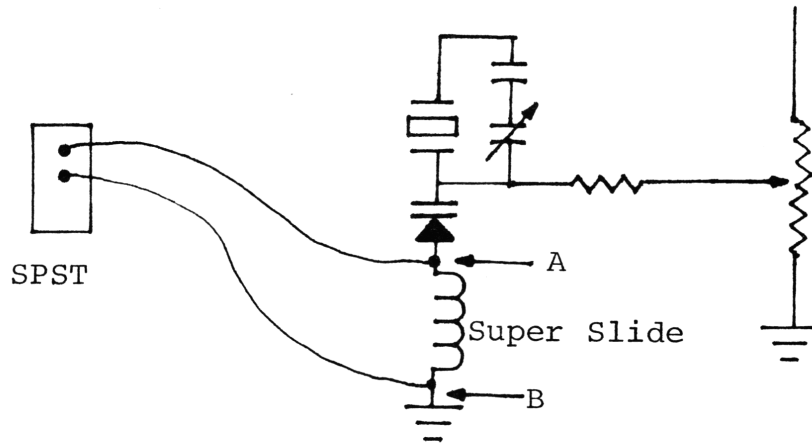


Clarifier Modification:

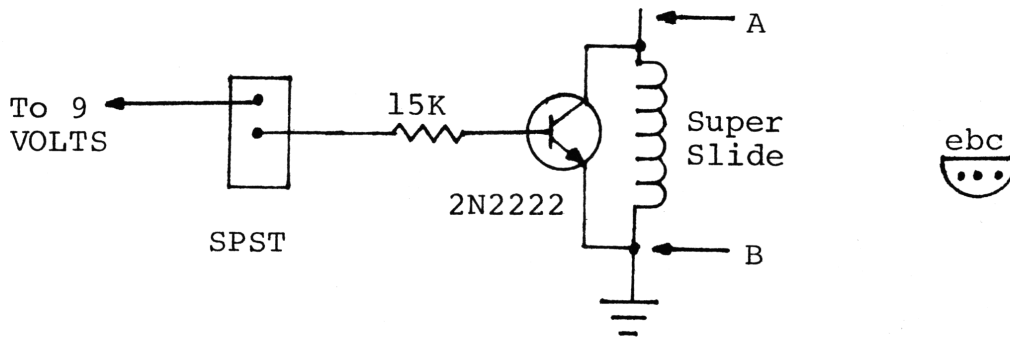
1. Clip D72
2. Disconnect Brown Wire from R501 (15K)
3. Run a new wire from R501 to cathode of D66

Unit now slides on transmit. For more slide, install a variable 2-10 UH choke in series with fine tuning capacitor (black wire).

DUAL RANGE CLARIFIER FOR SEARS ROADTALKER SM5104 CHASSIS



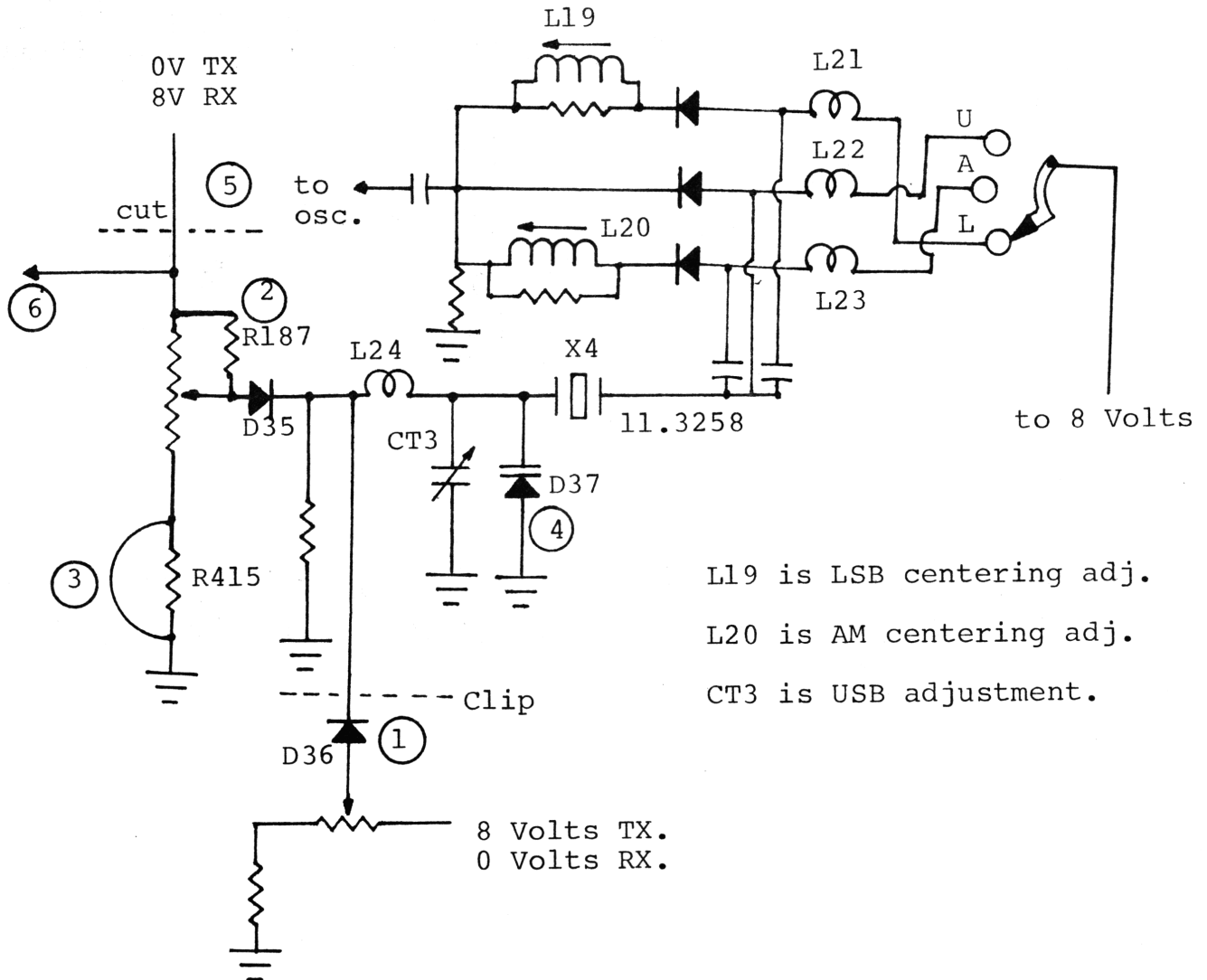
This method didn't work due to lead length. We overcame this by using a transistor for switching, located next to the Super Slide as shown here:



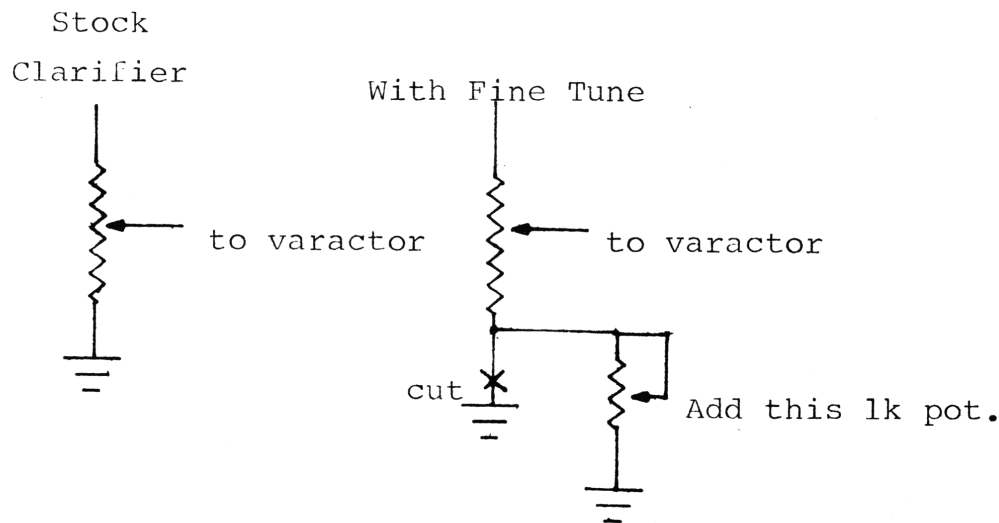
If you ground Pin 5 along with Pins 9 and 10 of the PLL Chip, you will obtain low frequency in 5 KC steps. For high frequency replace crystals X301 and X302.

TRAM D300 CLARIFIER MOD.

1. Clip D36.
2. Remove R187 (22K).
3. Jump R415. This grounds one end of the clarifier.
4. Change D37 to a Super Diode.
5. Cut wire off of other end of clarifier.
6. Run a new wire from clarifier to pin 1 of IC5. This will give us an 8 volt source on receive and transmit.



ADD A FINE TUNE TO YOUR CLARIFIER LIKE 2000 GTL



1. Unsolder Clarifier from ground. (sometimes there will be a resistor in series-if so, remove resistor)
2. Drill a hole in any convenient place and mount the additional 1K control.
3. Run a jumper wire from the stock pot over to the new one. One end and wiper should be connected together as shown above. Ground the remaining end of the 1K pot.

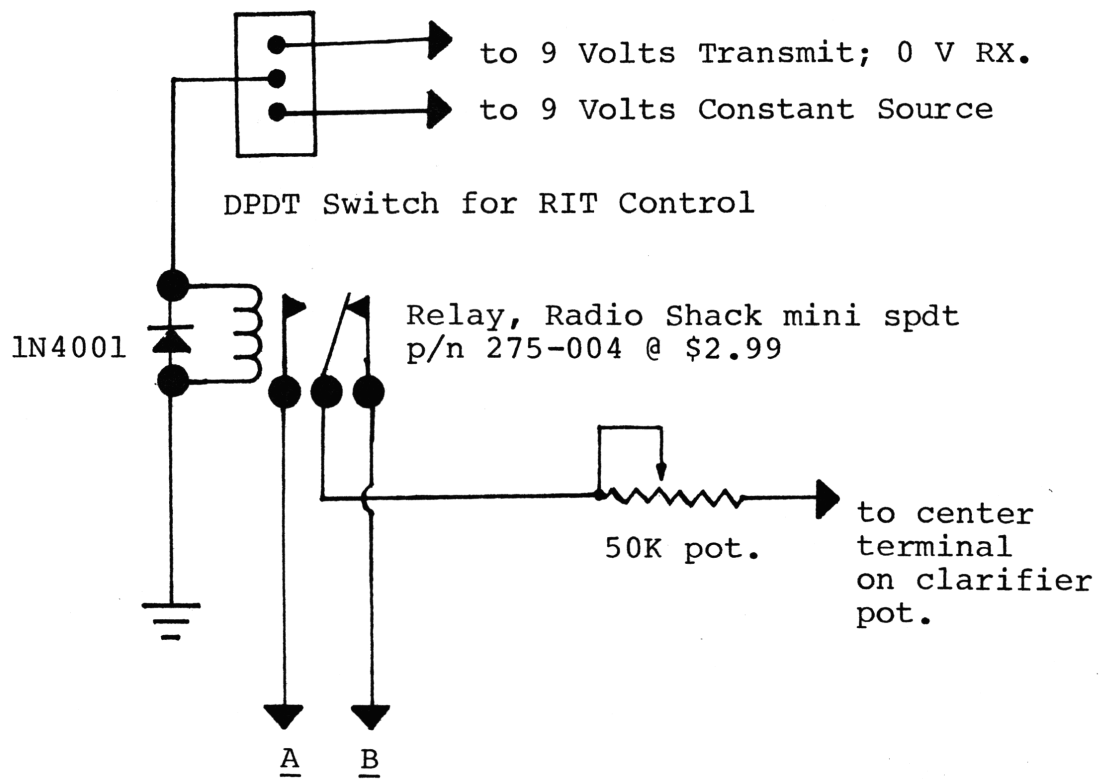
If you wish, the stock pot could be replaced with a dual pot as in the 2000 GTL.

The above circuit really works. NEAT! Now you can have 10-20KC Slide on your "Course" Control and about .5KC on your "Fine" control.

SIMPLE CURE FOR RX-TX TRACKING PROBLEMS

INSTRUCTIONS:

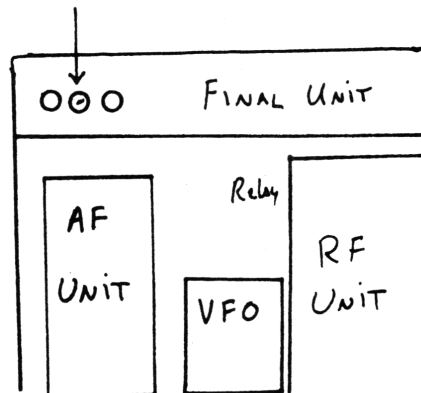
Ground A or B side of Relay Contacts to reduce clarifier voltage on either REC. or XMIT.
Ground Point (A) if you wish to Lower Voltage on Transmit.
Ground Point (B) if you wish to Lower Voltage on Receive.



KENWOOD TS-120S

Follow the steps outlined below for increased frequency coverage into the 11 meter band.

1. Locate J15 on the PLL board.
2. Cut white and red wire on the plug.
3. Adjust T3 (VCO coil) for coverage from 26.5 to 28.0 MHz. in the last three positions on the 10M band selector switch.
The display will either indicate 10M frequencies or if the PLL is out of lock, it will blank out.
4. Adjust L15, 16 & 17 for maximum output around 27.250.
5. Adjust T4 for cleanest waveform on O-Scope.
6. Shown below is the 10M ALC adjustment.



In order for the display to function, you must do the following:

1. The Counter Unit is underneath the AF Unit so it must first be lifted out of the way.
2. Obtain a 15K $\frac{1}{2}$ W resistor.
3. Solder one end to pin 6 of IC13. Solder the other end to pin 8 of IC 13.
4. Obtain two 1N914 diodes. Connect the anodes together and solder to pin 2 of RB-1.
5. Connect one of the above diodes cathode (banded end) to D8, cathode end.
6. Isolate pin 8 of RB-1 by cutting foil pc pattern.
7. Solder a 1N914 diode from pin 8 (cathode) back to pc pattern cut above (anode) to bridge cut.
8. Connect cathode of other diode in step 4 to RB-1 pin 8.
Your display will now function on all frequencies.****

KENWOOD TS-130

FREQUENCY EXPANSION:

1. Locate PLL Board.
2. Cut the white and yellow wires off of J15.
3. Adjust T5 VCO Coil to lock in on the last three 10 meter stops. If the readout goes blank, VCO is Out-Of-Lock!
4. Install a SPST Switch to reconnect the two wires in Step 2 in order to cover the phone band.

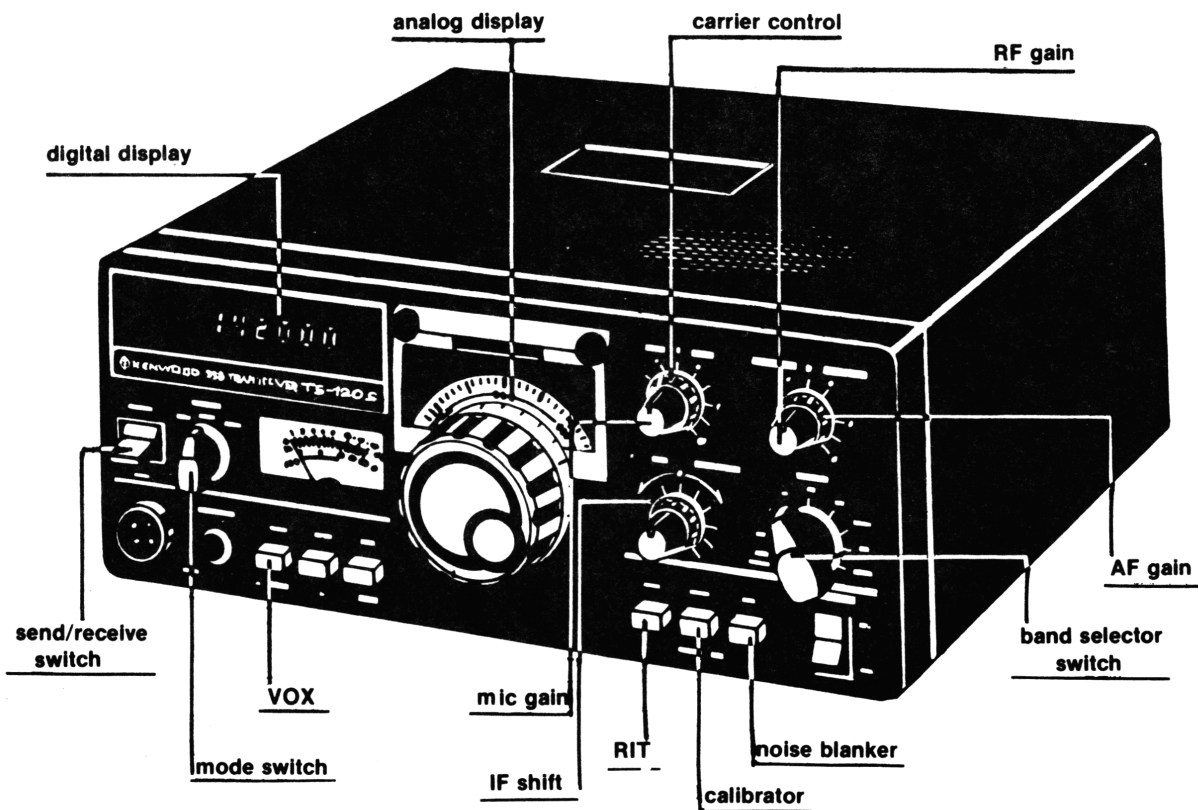
READOUT MODIFICATION:

1. Connect the anodes of two 1N914 diodes together. Solder this to one end of a 33K resistor.
2. Solder the free end of the resistor to D17 cathode.
3. Solder the cathode of one of the 1N914's to pin 1 of Q17 (TC4081 Chip).
4. Solder the cathode of the other 1N914 to pin 6 of Q17 Chip.
5. Install another 1N914 diode by soldering the anode of the diode to the cathode of D35. Solder the cathode to pin 10 of Q19, an MC14011B Chip. Readout now covers 26.5-28.



HAM RADIO CRYSTAL SELECTOR

| FREQUENCY RANGE | DRAKE TR4, TEMPO 1, YAESU FT7B | TEMPO 2020 | KENWOOD TS-520, HEATHKIT- HW101;SB104 | KENWOOD 820S | YAESU FT101E, EE, EX | YAESU 901DM |
|-----------------|--------------------------------------|---------------|---|-----------------|----------------------------|----------------|
| 26-26.5 | 40.5 | 48.025 | 34.895 | 31.5 | 32.020 | 40.4875 |
| 26.5-27 | 41.0 | 48.525 | 35.395 | 32.0 | 32.520 | 40.9875 |
| 27-27.5 | 41.5 | 49.025 | 35.895 | 32.5 | 33.020 | 41.4875 |
| 27.5-28 | 42.0 | 49.525 | 36.395 | 33.0 | 33.520 | 41.9875 |
| 28-28.5 | 42.5 | 50.025 | 36.895 | 33.5 | 34.020 | 42.4875 |
| 28.5-29 | 43.0 | 50.525 | 37.395 | 34.0 | 34.520 | 42.9875 |
| 29-29.5 | 43.5 | 51.025 | 37.895 | 34.5 | 35.020 | 43.4875 |
| 29.5-30 | 44.0 | 51.525 | 38.395 | 35.0 | 35.520 | 43.9875 |



TEABERRY STALKER XX

VSB-1 HOOK-UP

COMPRESSOR:

Remove C83. Solder Black wire in + hole; White wire in the other hole.

Remove TR32, ALC-AMC limiter.

EXPANDOR:

Remove C28. Install black wire in hole towards collector of TR13; White wire in hole towards R36.

Pre-Amp recommended.

REALISTIC TRC490

VSB-1 HOOK-UP

COMPRESSOR:

Remove C83. Solder Black Lead to + side of hole, White lead to the other hole. Remove TR32.

EXPANDOR:

Remove C28. Solder Black lead to hole towards TR13 and White lead in the other hole.

WARDS GEN-719A

VSB-1 HOOK-UP

COMPRESSOR:

Remove C93. Solder Black lead to + side of hole and White lead to other hole. Remove TR32.

EXPANDOR:

Remove C28. Solder Black lead to hole towards TR13 and White lead in other hole.

DELCO 90BFMC1,90BFPC1, 91YFMC1 DM83

For High or low channels, X2 and X1 Crystals in the down oscillator must be replaced with a new pair, X2 should equal X1 + 1.828.

TX: Peak L5 on Ch. 19.
Peak L4 on Ch. 40.
Peak L44, L75, L76 on Ch. 19.

Repeak L44

T6; VCO Coil.

MIDLAND 77-861

The crystal (X101) in the down oscillator can be switched to get hi or low frequencies. The Stock Crystal is 36.380. For hi channels, replace with 36.820 and for low channels 35.940.

RX: T103; is VCO Coil.
T101; is down oscillator coil adjustment.

TX: Peak T1, T2, T3, T4, T5, L4, L5.

L13 should be peaked with a Field-Strength meter near telescopic antenna.

RX: VR5; Squelch Range
VR3; S Meter

TX! T6; is T.V.I. Filter.
VR1; Lo Power Adjustment-Set to 1W.
VR2; RF Power Meter.

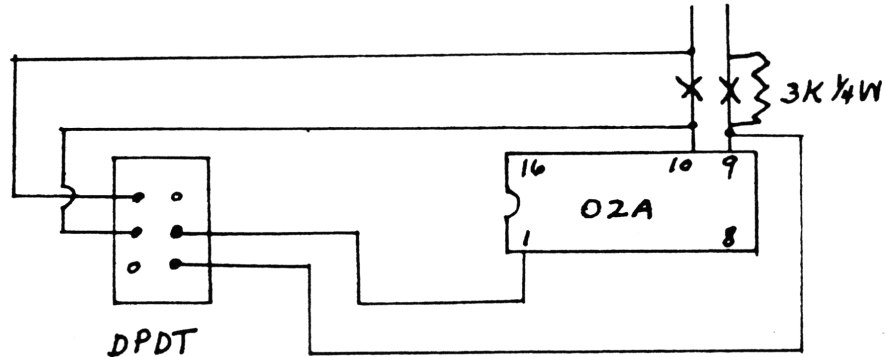
SEARS 23 CHANNEL PLL D63911 WITH uPD861C CHIP

Frequency Exp: Connect Pins 12 and 6 together with a SPST Switch. This will give new Channels 24-39 on positions 4-23.

RAY JEFFERSON CB845 (02A)

Frequency Expansion-

1. Locate IC1, PLL02A Chip.
2. Cut trace on Pins 9 & 10.
3. Bridge cut of no. 9 with 3K resistor.
4. Wire up a DPDT Center-Off Switch as shown:



Pin 16 is Ground.
This gives hi and lo Channels.
L1 is V.C.O. Coil.

- RX: Peak T10, T9, T8 (if Coils).
Peak T7, L14, T6, T5 on Ch. 19.
RV1; Squelch Range
RV3; S Meter
- TX: Peak L5, T3, T4 also L7, L11, L12.
RV2; AM Mod. Control (or remove Q15).
RV501; SWR Cal.
RV4; RF Power Meter

REALISTIC TRC-57

RX: L9, L8, L7, L6, L5, L4.

VR26; If Gain
 VR8; Squelch Range
 VR4; S Meter
 VR3; Gain Range
 L1,L2,L3 Noise Blanker, USB, Ch. 13 Rec., NB on. Adjust for Max. on 23.5MHz. 1000UV, VTUM to PT.

TX: Peak L32, L31, L30, L29, L27, L24 on USB, Ch.13

L21; TVI filter-adjust for Minimum on Ch. 13 AM, XMIT
 VR24; Voltate Regulator-adjust for 14.00V.
 VR11; SSB Mod.
 VR25; SSB ALC
 VR10; Carrier Balance
 VR13; Mic Gain
 VR23; XMIT Bias-adjust for no crossover on scope with 2 tone input.
 VR21; AM Power
 VR12; AM Mod.
 VR22; RF. Pwr. Meter

Clarifier-

1. Clip D38.
2. Clip white wire off of VR15 Clarifier Control.
3. Run a wire from Clarifier Control where white wire was to Cathode of D40.
4. Adjust VR16 for desired down slide.

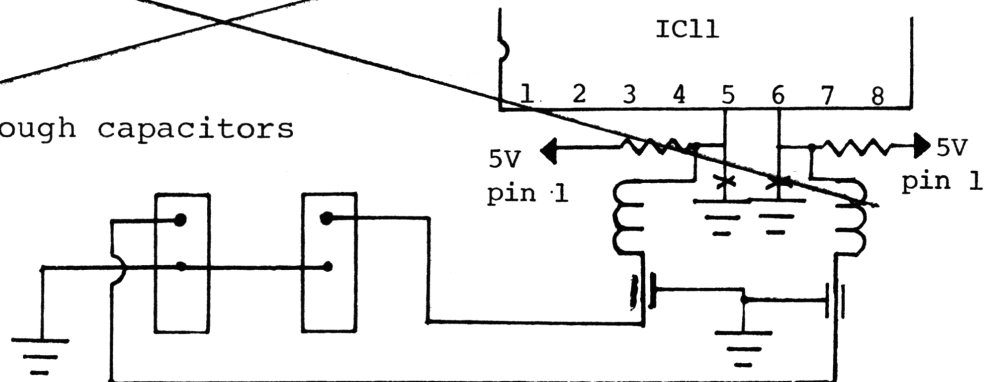
A SUPER SLIDE can be used in series with D36 varactor for additional slide.

Frequencies-

DO NOT USE - INCORRECT

~~IC10 and IC11 make up the programmable counter. Pin 3 is A data input, pin 4 is B data input, pin 5 is C data input and pin 6 is D data input. On IC11 pins 5 and 6 are grounded. These can be taken high for more channels. Wire as shown below:~~

- 2- 1K $\frac{1}{2}$ W Resistor
- 2- 4.7 UH Chokes
- 2- SPST Switches
- 2- 1000 pf feedthrough capacitors
- Misc. Ribbon Wire
- L11 is VCO Coil



REALISTIC TRC-410

This Chassis uses the LC7131 R.O.M. PLL Chip.

Pin Out is as Follows:

| | | |
|------|-----|---------------------------|
| Pins | 1-6 | Ch. Sel. Inputs to R.O.M. |
| Pins | 7 | N/C |
| | 8 | Ch. 9 Selector or N/C |
| | 9 | Ch. 19 Selector or N/C |
| | 10 | In between Ch. Kill |
| | 11 | Ref. OSC 10.240 |
| | 12 | Ref. OSC |
| | 13 | Ground |
| | 14 | Unlock Det. |
| | 15 | Phase Det. output |
| | 16 | Filter Input |
| | 17 | Filter Input |
| | 18 | 8V Chip Supply |
| | 19 | Prog. Div. Input |
| | 20 | T/R Switch |

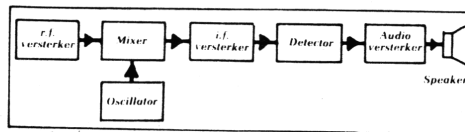
TX:

T10 Pre driver stage

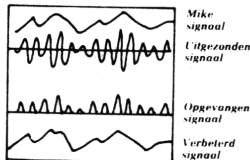
Peak T11, L5, L4, L3 for Max.

R95 Can be changed to a piece of wire for increased power.

AMC remove Q12 for maximum modulation.

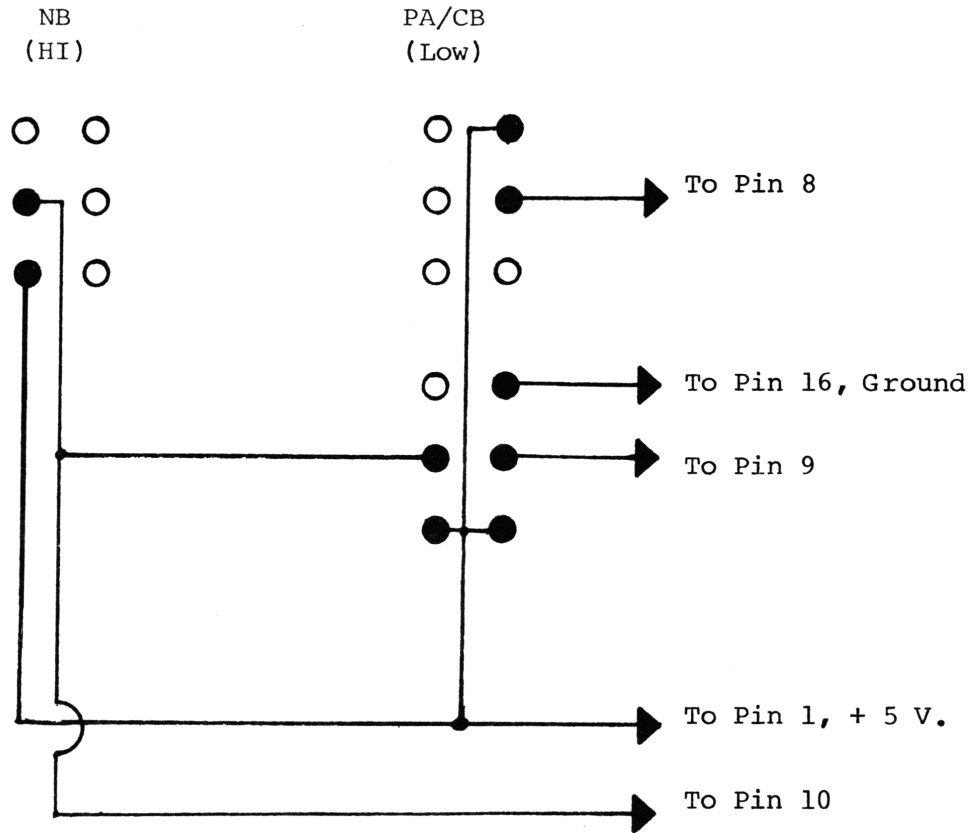


Superhet-ontvanger.



REALISTIC TRC 455 SM5104

Frequency conversion shown here will yield 26.645-27.595. However, unit is capable of lows to 25.755 and hi's to 28.015. We switched circuits by using the PA/CB Switch and NB Switch, wired as shown below:



1. Unground PIN 9, IC1.
2. Unsolder the jumper on PIN 8.
3. Solder wires directly to the PINS on IC1 as shown above.

R504 AM Mod. Control (or clip D503)

XMTR: Adj. T3, T4, T5, T6 for max.

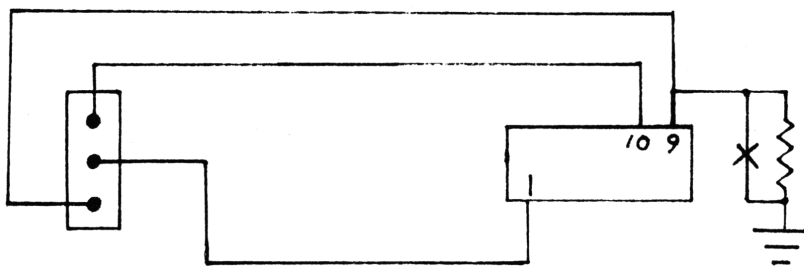
Peak T401, L407, L404, L403, C430

NOTE: Be sure to disconnect wires from NB and PA/CB Switches before adding the above wires for the modification. You will have to solder the wires which are normally connected through the PA/CB and NB Switches together.

ROBYN WV-110 (SM5104)

Frequency Mod. for Channels Above 40:

1. Locate pins 1, 9, and 10 on IC1, SM5104 PLL Chip.
2. Wire up a SPDT Switch as shown below:



3. Isolate pin 9.
4. Add a 5600 ohm Resistor from pin 9 to ground.
L2 is VCO Coil. X2 Down Mixer Oscillator Xtal may be replaced if low frequencies are desired.

RX:

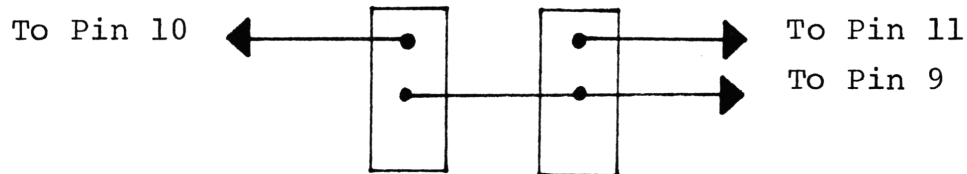
Peak L8,L7,L6,L1,L2,L3,L4,L5 on Ch. 19.
VR2 Squelch Range
VR5 S Meter

TX:

Peak L18,L17,L16,L15,L13,L12,L11,L10.
L9 T.V.I. Filter
VR6 AM Mod. Control (or remove TR18).
VR4 RF Power Meter.

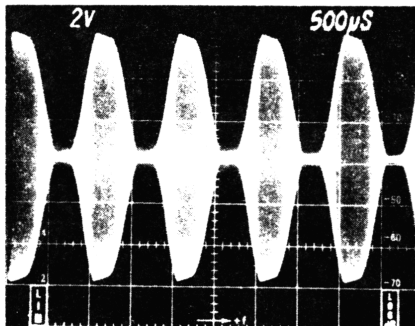
23 CHANNEL PLL02A AM CONVERSION FOR 26.645 TO 27.275 COVERAGE

- 1.) Isolate pin 10 by cutting away from pin 9.
- 2.) wire up two SPST Switches as follows:

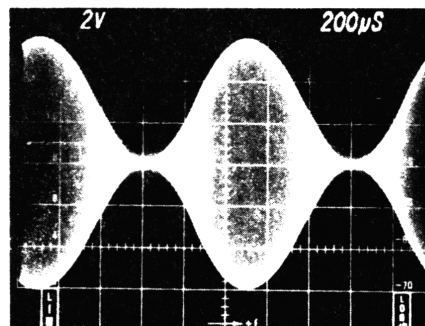


- 3.) Readjust VCO as necessary to get all channels.

If you wish, you may use the NB and ANL Switches instead of adding two additional ones.



OVERMODULATION



100% MODULATION

MODULATION ADJUSTMENTS FOR VARIOUS REALISTICS

| MODEL | MODULATION ADJUSTMENT |
|----------|---|
| TRC-420 | Remove C-146 |
| 420A | Clip Collector of Q-14 |
| 421 | Clip D-16 |
| 421A | Clip D-16 & D-17 |
| 422 | Clip D-16 |
| 422A | Clip D-14, D-15, D-16 |
| 424 | Remove C-518 |
| 425 | Clip D-508 |
| 426 | Clip D-507 |
| 427 | Clip D-21 |
| 428 | Clip Violet wire to left of audio XFMR in hole "2" |
| 431 | Remove C-511 |
| 432 | Clip collector Q-10 |
| 440 | Remove C-131 |
| 441 | Clip D-110 |
| 452 | Clip D-213 |
| 454 | Clip D-704 |
| 461 | Clip D-11 |
| 462 | Remove C-60 |
| 466 | Clip D-110, D-111 |
| 468 | Clip D-7 |
| 470 | Clip D-513 |
| 471 | Remove VR-2 and C-37 |
| TRC- 5 | Change R-22 to 22K $\frac{1}{2}$ W |
| 9A & 11 | Pull C-55, but now modulation light will not work! |
| 23B | Clip D-6 |
| 24C | Remove C-528 |
| 30A | Remove C-528 |
| 30 | Remove C-528 |
| 50 & 50B | Clip D-6, D-7 |
| 56 | Remove C-525 |
| 61 | Remove C-63 |
| 68 | Clip D-7 |
| 99A | Remove C-42 |
| 100 | Remove C-44 |
| 101 | Clip D-5 |
| 180 | Remove C-42 |
| 200 | Remove R-43 |
| 204 | Clip D-11, D-12 |
| 208 | Clip D-11, D-12 |
| 209 | Remove R-41 |

SPECIFIC RADIO TUNE-UPS

AR 711: President:

RX: Adjust L1, L2, L3, L4, L5, L6, L7 for max. on Ch. 19.
VR4; Squelch
VR1; S-Meter-adjust for S-9 with 100 UV input.

TX: Peak L17, L18, L10, L14 on Ch. 19.
VR5; A.M.C.
VR3; RF Pwr. Meter.

American Motors 3231847/48/49/50:

RX: VR102; Squelch Range.
VR101; S Meter.

TX: Peak F1L, T301, L302, L304, L305, L306
VR301; RF Power.
VR303; AMC
VR320; RF Power Meter.

Cobra 19GTL TC9109P:

RX: VR7; RF Gain.
VR3; SQ Range.
VR4; S Meter.

TX: Peak L10, L11, L12, L15
VR6; AMC
VR5; RF Power Meter.

Cobra 45XLR (MPD858):

TX: Peak L111, L113, L110
RV105; AM Mod.

For Channels 41-66, raise pin 19 to 5V.

DAK Mark V MM55116N:

RX: RV101; Squelch Range
RV102; S Meter

TX: Adj. L402, L302, L303, L304, L305, L306, L307, and L308 for
Max. RF output.
RV301; RF Power Meter.
RV202; AMC or remove Q202.
L403 VCO coil.

SPECIFIC RADIO TUNE-UPS (Cont'd):

General Electric TC9109P:

3-5804 G

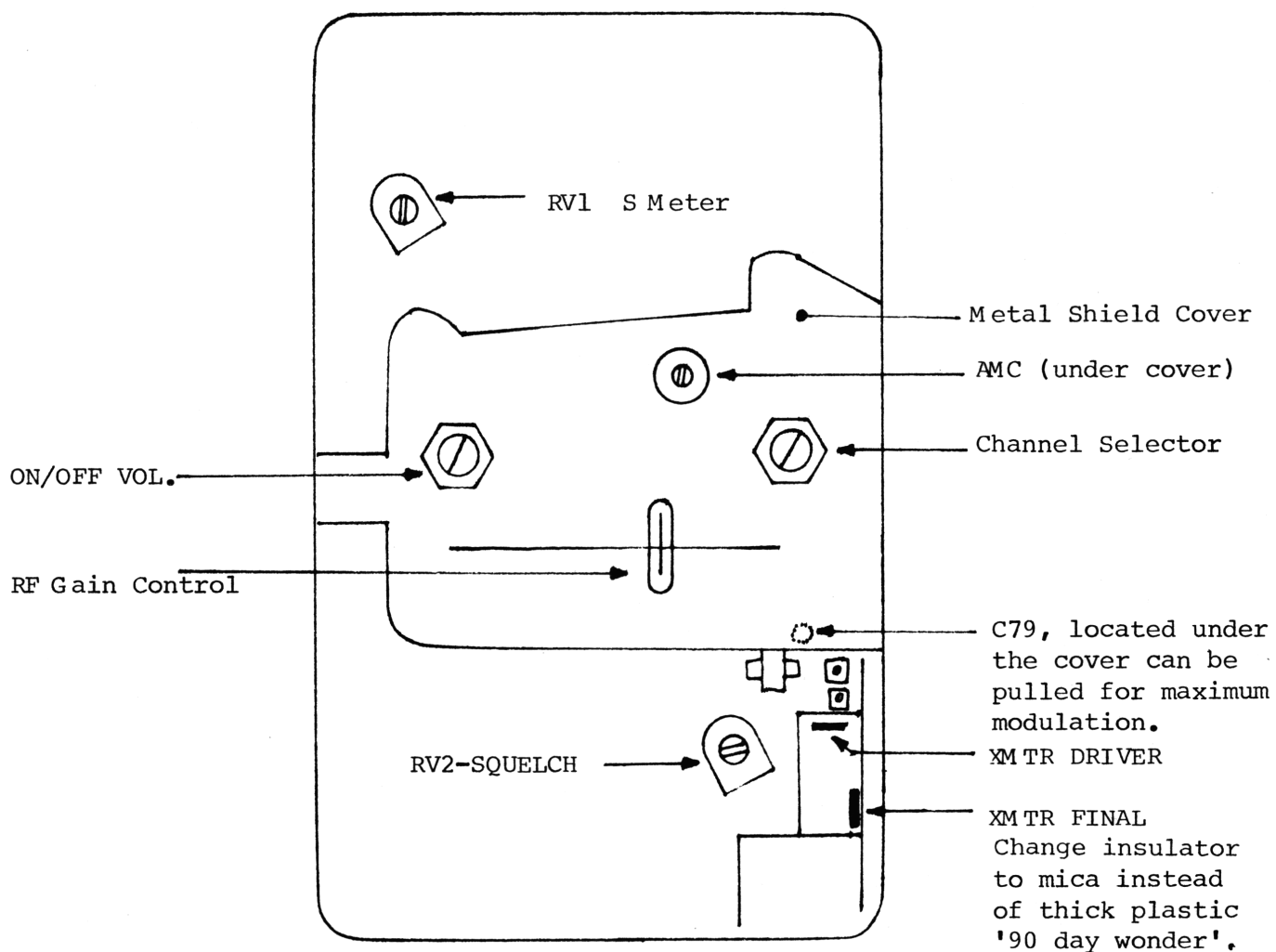
- RV2 AGC
- RV3 Squelch Range
- RV4 S Meter

XMTR: Peak T2, T3, T4, T5, L3.

- RV5 AMC
- RV1 RF Power Meter

General Electric 3-5900A HELP:

After adjustment, Unit is a talking Fool! Throw away original antenna and install a BANDIT 24 incher Magnetic!



SPECIFIC RADIO TUNE-UPS (Cont'd):

General Motors 90BCB2 (CBD-20U)PLL03A:

RX: RV1; Squelch Range
TX: Peak T3, L4, L8, L9.
RV2; AMC

Hygain 16 Model 2716 (Works in the Mike):

This is a standard Hy-Gain 40 Channel Board with Motorola Transistors.

RX: Peak T104, T105, T111, L112, T106, T107, T108, T109.
RV103; S Meter.

TX: Peak L103, L104, L102, T103, L106, L109, L110.
L108 is T.V.I. Filter.
RV102; AM Mod. Control (remove C209).
RV104; RF Power Meter.

NOTE: Change R168 (3300) to a 2200 for better sound.

Johnson Messenger 40:

RX: R13; A.G.C.
R39; S Meter.

TX: Adj. T132, T81, T83 and L84 for max. output.
Peak L85, L86, L87
R49; AMC adjust T84, T85 for cleanest envelope on scope.

Johnson Viking 200:

RX T101; VCO Coil.
R2; If Gain
R202; S Meter.

TX: Adjust T5, T6, T7, T8, L3, L4, L6.
L7 adjust for minimum at 54 MHz.
L5 adjust for minimum at 81 MHz.
R33; AMC or Clip CR12.

For extra channels, change value of Y102 and Y103 in down osc.
Y103 must be 455KC above Y102.

Lafayette LM-100 PLL02A:

RX: RV1; Squelch Range.
RV3; S Meter.

TX: Adjust T3, T4, L7, L11, L12 for max.
RV2; AMC
RV4; RF Meter.

SPECIFIC RADIO TUNE-UPS (Cont'd):

Lafayette Model LM-300:

PLL02A Chip-see Volume 3 for frequency modification.

RX: L3; VCO Coil.
RV2; Modulation Adjust, clip D13 or remove Q17.

TX: Adjust T18, T7, T8 and L7, L11, L12.
RV4; RF Power Meter.
RV5; Alert tone level.

Lake 410 MM55108N:

RX: RV201 Squelch Range.
RV101 S Meter.

TX: Adjust L301, L302, L303, L304, L305, L301 for max.
RV202; AMC or remove Q203.
RV301; RF Power Meter.

Lake 450 MM55126N:

RX: VR302; Sq. Range.
VR402; S Meter

TX: Adjust PLL5, PLL6, TX1 for max.
VR301; AMC
RV201 RF Pwr. Meter.
PLL1 VCO coil.

Lake 600 MC14506P:

RX: VR1; Squelch Range.
VR3; S Meter.

TX: Peak PLL5, PLL6, TX1, LC202, LC203 and LC204.
VR2; AMC or remove Q15.
VR4; RF Power Meter.
PLL1; VCO coil.

Midland 3001 (77-003) LC 7130:

RX: RV101; Squelch Range.
RV103; S Meter.

TX: Peak L301, L302, L303, L304, L305, L306.
RV201; AMC
RV202; RF Power Meter.

SPECIFIC RADIO TUNE-UPS (Cont'd) :

Midland 5001 (77-005) PLL03A:

RX: RV1; Sq. Range.
RV3; S Meter

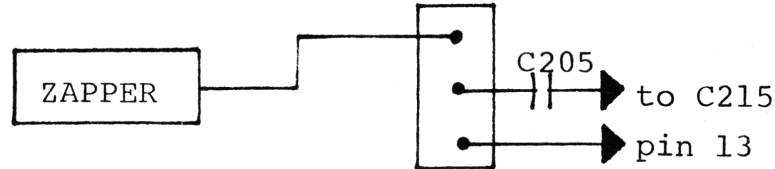
TX: Peak T2, T3, T4, L5, L10.
RV2; AMC
L2; RF Power Meter.
RV502; SWR
RV501; A.W.I.

Midland 77-101C LC7120:

RX: RV101; Sq. Range.
RV103; S Meter

TX: Peak L301, L302, L303, L304, L305 and L306.
RV201; AMC or clip D204.
RV202; RF Power Meter.

Zapper install @ C205, as shown below. L203 is VCO coil.
D201 may be replaced with Super Diode.



Midland 77-824B TC9106P:

RX: VR1; If Gain.
VR2; SQ Range.
VR3; S Meter.

TX: Adjust L16, L15, L12 for max. L9 is TVI filter.
VR5; AMC or Remove TR19.
VR4; TX Pwr. Meter.
L17 VCO Coil.

SPECIFIC RADIO TUNE-UPS (Cont'd):

Midland 77-824C LC7120:

RX: RV101; Squelch Range.
RV103; S Meter.

TX: Peak L301, L302, L303, L304, L305 and L306.
RV201; AMC or clip D203.
RV202; RF Power Meter.
RV301; A.W.I.
L203; VCO Coil.

Midland 78-574 PLL02A:

RX: RV10; RF Gain Range.
RV6; SSB AGC.
RV7; AM SQ. Range.
RV8; SSB SQ. Range.
RV5; AM S Meter.
RV4; SSB S Meter.

TX: Adjust for Max. on USB; T204, T205, T3, T209, L209, L212,
214.
RV1, RV2; Carrier Balance.
RV206; Final Bias-adjust for .7V bias at base of Q208.
RV3; SSB Mod. Gain.
RV201; SSB ALC.
RV9; AM AMC or remove C71.
RV202; RF Meter.
VR1; AM Power.

Pace 8113 MM5107N:

RX: R135; Squelch Range.
R137; S Meter Zero.

TX: Peak L301, L302, T302 and L304, L307, L308.
R220; AMC.
R325; TX Power Meter.

Zapper can be used. Insert in place of C420.

C402; VCO Coil.

SPECIFIC RADIO TUNE-UPS (Cont'd):

Pace 8155 MM55107N:

RX: R549; Squelch Range.
R544; S Meter.

TX: Peak L401, T401, T402, T403, L404, L407, L408 and C432.
R310; AMC.
R425; RF Power Meter.
L202; VCO Coil; C212-VCO XMIT.

Zapper will install @ C226 for extra Channels.

President AR-7 TC9106P:

RX: VR1; Squelch Range.
VR2; S Meter.

TX: Peak L9, L10, L12, L16.
VR3; RF Power Meter.
L3; VCO Coil.

Remove TR17, AMC Limiter.

President 1015001 James K. D2814C:

RX: VR1; If Gain.
VR3; Squelch Range.

TX: Peak L12, L13, L14, L15, L17-L20 is T.V.I.
VR2; AMC
L10 VCO Coil.

Zapper will install @ C72 and adjust L8 for extra Channels.

President AX-711 (TC9106P):

TX: Peak L20, L10, L13, L14.
VR5; AM Mod.
VR3; RF Power Meter.
VR1; S Meter.

Realistic TRC205 WT:

RX: VR101; Squelch Range.
VR104; S Meter.

TX: Adjust T9, L300, L301, L302, L303 and L100 for Max. RF output.
VR300; Controlled Carrier Bias.
VR103; RF Meter.
Modulation-Remove TR306.

SPECIFIC RADIO TUNE-UPS (Cont'd):

Realistic TRC420 HD42853:

RX: VR3; Squelch Range.
VR4; RX S Meter.

TX: Peak T113, L102, L104, L106, L109 is T.V.I.
Zapper installs @ C171 for extra frequency.
T109; VCO

Realistic TRC470 LC7110:

RX: VR7; If AGC.
VR6; RF AGC.
VR8; Squelch Range.

TX: Peak T804, T805, T806, L901, L903, L905.
F901; T.V.I. Filter.
VR10; AMC.

Replace 11.750 XTAL in down mix oscillator for high or low Channels.

Realistic TRC421:

RX: T8, T7, T6 with 455KC, 1KC, 30% Mod. to Base Q4.
Peak T5, T4, T3, T2, T1 on Ch. 19, 1KC @ 30% Mod.
VR1; IF AGC.
VR2; Squelch Range.
VR5; RX S Meter.

TX: Peak T16, T15, T17, T18, L9, L12.
L19 is T.V.I. Filter
VR6; TX Power Meter.

For Max. Mod. cut D15 or remove Q11.

To expand frequencies, use Kit #89 Zapper and install @ C39.

Royce 1-639:

TX: AM Power-Peak L3, L4, L12, T8, T9.
VR7; AM Modulation.
VR11; SSB ALC.
VR8; Mod. Meter Cal.
VR2; S Meter.
VR10; RF Power Meter.
VR9; SWR Meter Cal.

Frequency Expansion:

Ground Pin 10 of PLL Chip for 455KC drop on SSB.

SPECIFIC RADIO TUNE-UPS (Cont'd):

Royce 582 PLL3001:

RX: VR101; AGC.
VR102; Squelch Range.
VR103; S Meter.

TX: Peak T301, T302, and L303.
VR201; AMC or Clip D201.

Royce 607:

This set uses L.S.I. chips. CCl 2001 is used for the following functions:

- | | | |
|---------------|--------------|---------------|
| 1. RF AMP | 2. 1st Mixer | 3. 2nd. Mixer |
| 4. 1st if AMP | 5. AGC AMP | 6. Squelch |

Pin 7 is the output of the detected audio and feeds Pin 5 of the Audio Power AMP.

RX: T103; Tuned for Max. with 455 KC, 1KC, 30% signal injected at Pin 17 of IC101.
T101, T102; Adjust for Max. on Mid Channel.
VR101; RF AGC.
VR109; Audio Power.
VR102; Squelch Range.
VR103; S Meter.

TX: Peak T503, T504, T301, T302, L303, L304, CT301.
VR201; AMC or Clip D202.
VR301; RF Power Meter.
CT302, VR320 A.W.I.

Now on to frequency conversion. This set uses the new 3002 PLL/VCO combination chip. So you can forget about trying to get new channels out of this chassis.

SBE LCM-8 PLL03A:

RX: RV1; Squelch Range.
RV3; S Meter.

TX: Peak T8, L7, L11, L12.
RV2; AMC or Clip D13.
RV4; RF Power Meter.

SPECIFIC RADIO TUNE-UPS (Cont'd):

SBE LCMS-8 (MB8719):

Use Master Modification as shown in Volume 10 Page 25.

SBE Land Command LCB-8 UPD2816C:

RX: VR1; If Gain.
VR3; Squelch Range.
VR2; S Meter.

TX: Peak L17, L16, and L13. L10 is T.V.I. Filter.
VR6; AMC or Clip D16.
VR4; RF Power Meter.
VR5; Mod. Meter.

Zapper will install @ C79 for extra Channels.

Sharp CB2170 TC9102P:

RX: R709; Squelch Range.
R32; S Meter.

TX: Peak T301, T302, T303, T304, L302, and L301.
R110 AMC
R315; RF Power Meter.

Zapper installs @ C210 for extra frequency.
T202; VCO Coil.

Sharp CB4370:

RX: R709; Squelch Range
R32; S Meter

TX: Peak T301, T302, T303, T304, L302 and L301.
R110; AMC
R315; RF Power Meter.
L304; T.V.I. Filter (54MHz).
L303; 3rd Harmonic Filter (81MHz).

SPECIFIC RADIO TUNE-UPS (Cont'd):

Sharp CB-4470:

RX: R43; SQ. Range

TX: Peak T301, T302, T303, T304, L302, L301.
R110; AMC
T202; VCO Coil.

Install Zapper @ C210 for extra frequencies.

Teaberry Stalker IV TC9109P:

RX: VR7; If Gain.
VR3; Squelch Range.
VR4; S Meter.

TX: Adjust L10, L11, L12, L15 for Max. L18 is T.V.I. Filter
VR6; AMC or remove TR8
VR5; Power Meter.
L9; VCO Coil.

TRS Challenger 1200:

RX: VR2; AGC
VR5; SQ. Range
VR3; S Meter

TX: Peak T214, L204, CV101, L205.
VR6; AM Power
VR1; AMC or clip D201.
VR4; RF Power Meter.

Install Zapper @ C111 for extra frequencies.

TUNE-UPS FOR NEW LINE OF PRESIDENT

AX44 (TC9106):

TX: VR5; AM Mod.
Peak L10.

AX11 (LC7131) Remote:

TX: VR3; AM Mod.
Peak L12, L14.

AX711 (TC9106):

TX: VR5; AM Mod.
Peak L10.

AX14 (TC9109):

TX: Remove TR8 for Max. Mod.
Peak L10, L11, L12, L15.

AX55:

TX: Remove TR13 for Max. Mod.
Peak L12.

AX52:

TX: Remove TR13 for Max. Mod.
Peak L9, L12.

AX7 (TC9106):

TX; Remove TR18 for Max. Mod.
Peak L8, L9, L12.

AX144:

TX: Peak L40, L39, L38, L37, L27 on USB
VR6; RF Power SSB
VR10; RF Power AM
VR5; AMC or clip collector of TR29

ZAPPER 9000
REFERENCE CHART

| <u>MANUFACTURER</u> | <u>MODEL</u> | <u>SAMS</u> | <u>CHIP (PLL)</u> | <u>AMC</u> | <u>CAP. TO REMOVE</u> | <u>POINT OF REFERENCE</u> |
|---------------------|-----------------|-------------|-------------------|------------|-----------------------|---------------------------|
| Cobra | 29GTL | 217 | D2816G | VR4 | C87 | TP11 |
| Cobra | 87GTL | 243 | D2816G | VR6 | C79 | TP 8 |
| Cobra | 89GTL | 235 | D2816G | VR6 | C79 | TP 8 |
| Cobra | 1000GTL | 235 | D2816G | VR6 | C79 | TP 8 |
| Colt | 190 | | LC7120 | R71 | C36 | |
| Colt | 222 | 236 | LC7120 | RV201 | C205 | P13/IC202 |
| Convoy | Con-400 | 183 | D861C | R129 | C57 | TP 5 |
| Craig | L101 | 240 | MC14526CP | R226 | C11 | G2/Q5 |
| JC Penney | 981-6221 | 227 | D861 | D501 | C307 | TP 2 |
| JC Penney | 981-6237 | 228 | D861 | D7 | C248 | base/Q208 |
| Lafayette | Telsat 1240 | 242 | SM5107 | VR305 | C133 | T106 |
| Lake | 650 | 214 | SM5107 | R218 | C425 | TP 4 |
| Lake | 750 | 213 | MC14526 | R226 | C11 | G2/Q5 |
| Midland | 76-860 | 250 | TC9102P | R218 | C117 | TP 3 |
| Midland | 77-101B | 252 | LC7120C | RV201 | C205 | P13/IC202 |
| Midland | 77-101C | 270 | LC7120C | RV201 | C205 | P13/IC202 |
| Midland | 77-824 | | LC7120 | RV201 | C205 | P13/IC202 |
| Midland | 77-856 | 216 | K76026 | VR5 | C104 | L 23 |
| Pace | 8008 | 164 | SM5107 | R218 | C424 | T 16 |
| Pace | 8113/8117 | 240 | SM5107 | R220 | C420 | TP 2 |
| President | Dwight D | 229 | D2816C | VR6 | C79 | TP 8 |
| President | Old Hickory | 187 | KM5624 | VR5 | C79 | Base-TR9 |
| President | Thomas J | 218 | D2816C | VR4 | C87 | TP11 |
| President | Zachary T | 223 | D2816C | VR6 | C79 | TP 8 |
| Realistic | TRC-421/422 | 270 | D2814C | Q11 | C39 | TP 2 |
| Realistic | TRC-440 | 208 | D861 | D107 | C20 | TP 4 |
| Realistic | TRC-441 | 291 | D2814C | D109 | C200 | T110 |
| Realistic | TRC-452 | 178 | D858 | VR207 | C4 | Pin 8 |
| Realistic | TRC-461 | 180 | D861 | VR 2 | C99 | Base-Q27 |
| Realistic | TRC-466 | 194 | D861 | 148 | C18 | L 2 |
| Realistic | TRC-467 | 171 | D861 | D109 | C18 | P3/IC2 |
| Realistic | TRC-468 | 183 | D861 | R42 | C248 | Base-Q208 |
| Realistic | TRC-469 | 229 | KM5624 | VR5 | C93 | TP10 |
| SBE | Aspen 41 | 220 | SM5107 | VR203 | C424 | G2/Q27 |
| SBE | Cortez 42 | 205 | SM5107 | VR203 | C424 | G2/Q27 |
| SBE | Keycom 54 | 212 | MM55106N | RV1 | C425 | T401 |
| SBE | LCB-8 | 272 | D861 | VR6 | C79 | TP 8 |
| SBE | Malibu 44 | 211 | MC14526B | R226 | C11 | G2/Q5 |
| SBE | Tahoe 49 | 173 | D861 | R129 | C57 | TP 5 |
| SBE | Trinidad 45 | 204 | MC14526 | R226 | C11 | G2/Q5 |
| Sears | 370.38050700 | 193 | SM5107 | R218 | C425 | TP 4 |
| Sears | 934.38060700 | 226 | D861 | D7 | C248 | Base/Q208 |
| Sears | 934.38062700 | 236 | D861 | R42 | C248 | T206 |
| Sears | 934.38080700 | 208 | D861 | D7 | C248 | Base/Q208 |
| Sears | 934.38081700 | 225 | D861 | D501 | C307 | TP 2 |
| Sears | 934.38110700 | 209 | D861 | D501 | C307 | TP 2 |
| Sears | 934.38120700 | 201 | D861 | D501 | C307 | TP 2 |
| TRS | Challenger 1200 | 270 | TC9103C | R9 | C111 | Base/Q103 |
| Teaberry | Stalker V | 281 | D2816G | VR4 | C87 | TP11 |
| Teaberry | Stalker XII | 282 | D2816C | VR6 | C79 | TP 2 |

ZAPPER TROUBLESHOOTING HINTS

On some sets, (ex.2816 chip in Teaberry XII) the High and Low Frequencies lock in on transmit with a slight "tweak" of the VCO Coil. But then you notice receive is not in lock on the lower 20 channels and you wonder why.

After a little bit of analyzing the synthesizer, you find your answer. The RX and TX VCO frequencies are not the same-VCO RX is 455KC lower than VCO TX, due to the T/R switching built into the divider chip.

| FREQ. | VCO RX | VCO TX |
|--------|--------|--------|
| 26.515 | 15.820 | 16.275 |
| 26.955 | 16.260 | 16.715 |
| 27.405 | 16.710 | 17.165 |
| 27.855 | 17.160 | 17.615 |

VCO frequencies are easy to calculate. In our example:

VCO TX = Channel Frequency-10.240 (26.515-10.240=16.275)

VCO RX = VCO TX - .455 (16.275-.455=15.820)

Now that we have identified the cause of the problem, what can be done about it?

Since we know the following formulas we can calculate the capacitive and inductive values at resonance.

$$X_C = \frac{1}{2\pi FC}$$

$$X_L = 2\pi FL$$

At resonance $X_L = X_C$ so $2\pi F_R L = \frac{1}{2\pi F_R C}$

ZAPPER TROUBLESHOOTING HINTS (Cont'd):

This transposes to (trust me on this one!)

$$F_R = \frac{1}{2\pi\sqrt{LC}} \text{ or } \frac{.159}{\sqrt{LC}}$$

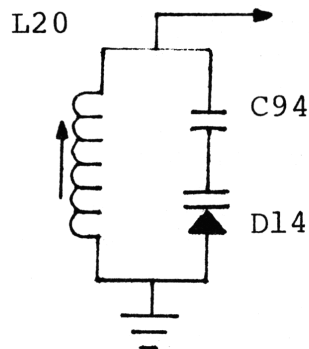
$$C = \frac{1}{(2\pi)^2 f_r^2 L} = \frac{1}{4\pi^2 f_r^2 L} = \frac{.0254}{f_r^2 L}$$

$$L = \frac{1}{(2\pi)^2 f_r^2 C} = \frac{1}{4\pi^2 f_r^2 C} = \frac{.0254}{f_r^2 C}$$

The main thing that I want you to see from the above formulas is that if you increase either the inductance (add more turns to VCO Coil) or the capacitance in the tank circuit you will lower the resonant frequency!

Now here is what we have, using our Teaberry Stalker XII example again.

D14 has a capacitance of approx. 22 pf @ 4V. C94 has a capacitance of 47 pf from the factory. By changing C94 from 47 pf to 53 pf we were able to get our VCO_{RX} to lock in at 15.820 (26.515)



That was all there was to it.

The LC7120, TC9102, TC9103, among others, have the T/R function so be careful of a dual VCO frequency on these! Also, sometimes the T/R function is not built into the chip but will have a separate T/R switching transistor.

REALISTIC TRC 209 (GRE 7189 PLL-VCO)

The following is a description of how the PLL System in this set Functions.

The PLL Circuit consists of a Phase Detector, Low Pass Filter and a Voltage Controlled Oscillator which uses a Varicap Diode as the frequency control device. A 10.240 rock is used as the reference frequency. This crystal is connected between Pins 9 and 10 of IC3. Pin 9 is the output for the 10.240 MHz and is processed by the PLL IC, as well as being used for the second mixer.

VCO Frequencies are divided by "N" as determined by the channel selector switch. Thus the resulting frequency is 2.5 KC. For channel 1, it will go like this; $16.270\text{MHz} \div 6508 = 2.5 \text{ KHz}$. Also, the reference oscillator frequency, 10.240MHz, is divided by 4096 resulting in another 2.5 KC frequency. These two 2.5KHz signals are fed to the Phase Detector. A DC Error Voltage is generated by the Phase Detector which is in proportion to the phase difference, plus effects of harmonics and noise. Pin 6 is the input to a Low Pass Filter, where the error voltage is integrated and harmonics and noises are filtered out. The resulting DC voltage is applied to the VCO varicap diode, whose capacity varies with applied DC voltage. When the Phase Detector senses no frequency or phase difference between the two 2.5 KHz signals, the system is Locked and the VCO generates a frequency which is as accurate and stable as the reference crystal oscillator. The channel selector switch provides a ROM code output which is connected to Pins 7-8, and 11-14; the IC converts these signals into binary code. The resulting code determines "N", the divisor which produces the required output frequency for each channel precisely spaced 10 KHz apart.

For transmit, the same VCO is used, which oscillates in the 13.5 MHz band. The actual transmit frequency is obtained by doubling this 13 MHz VCO frequency. These signals are divided by "N" as determined by the Channel Selector Switch. Thus, the circuits function in the same way, except for the divide by "N" number. This "N" number divisor change is controlled by Pin 5, the R/T Switch.

When the PLL is "Unlocked" an inhibit signal appears at the internal 6 BIT Counter and this signal is applied to the internal gate, turning it OFF. Thus, the Receiver and /or transmitter cannot operate in an unlocked condition.

TX:

Peak T5, T6, T7, L4, L7, L8.
VR9; Hi Power Adjust.
VR5; A.M.C.
VR6; RF Power Meter.

TC9106 PLL OPERATION ANALYSIS

1. Output Frequency of the Transmitter

Transmitting frequency, F_t is the output of the Transmitter Mixer IC2. One to the inputs of IC2 is the 1st Local frequency, F_{vco} , which is produced by the P.L.L. Local oscillator circuit, and the other is the transmitter local frequency of 10.240 MHz produced by TR 15. The sum of these frequencies make the transmitting frequency as follows.

$$F_T = F_{vco} + 10.240 \text{ Mhz}$$

2. P.L.L. Local Oscillator

The output frequency of TR 11 is designated as F_{vco} and the output frequency of TR 15 is 10.240 MHz. Both F_{vco} and 10.240 Mhz. are applied to IC 3. F_{vco} is divided by N at IC 3 and the divided frequency will be F_1 :

$$\text{Therefore, } F_1 = F_{vco} \div N$$

IC 3 also divides 10.24MHz by 2048 and the divided frequency is designated as F_2 .

$$F_2 = 10.24\text{MHz} \div 2048 = 5\text{Khz}$$

F_1 is compared with F_2 at IC3 and if they are equal in frequencies, the phase locked loop is under the locked condition. Therefore, F_{vco} is determined by the following formula:

$$F_{vco} = N \times F_2 = N \times 5\text{KHz}$$

F_{vco} is changeable at the increment of 10KHz by varying the program divide ratio, N. For example, the divide ratio, N is programmed to 3345 at the channel No. 1, the F_{vco} is calculated as follows:

$$F_{vco} = 3345 \times 5\text{KHz} = 16.725\text{MHz}$$

In the same manner, F_{vco} for channel No. 1 through No. 40 is determined as shown in Table A.

3. TRANSMITTER LOCAL OSCILLATOR

Transmitter local frequency of 10.240 MHz is produced by the oscillator, TR 15 and the output frequency is determined by the quartz crystal X 1.

4. CHANNEL SELECTION PROGRAM

The divide ratio of the programable frequency divider in IC 3 is determined through the code converter and transmit/receive mode switch in IC 3 by the voltage applied to the program input terminals, pin No. 10 through pin No. 17 of the IC 3.

The program input voltage for pin No. 10 through pin No. 17 are delivered from channel rotary switch according to channel number selected.

The Transmit/Receive mode switch in IC 3 changes the divide ratio of the programmable divider by changing the applied voltage at pin No. 8, low level for transmit and high level for receive.

Table A shows Frequency Chart of Fvco and Divide Ration vs. Antenna Frequency.

CIRCUIT DESCRIPTION

CIRCUIT FOR PREVENTION OF UNAUTHORIZED FREQUENCY EMISSION

This model is equipped with circuit which prevents transmission on unauthorized frequency at the time when the P.L.L. circuit is under unlocked condition or when the channel rotary switch is placed at the in-between channel.

When the P.L.L. circuit is not locked, or program data input is loaded which is outside of Channel 1 to 40, or channel rotary switch is switched from one channel to the next one, a program other than formulated is produced. However, even at the in-between channel, pin No. 4, in IC 3 produces low level digital control signal. This signal is delivered to the buffer amplifier, base of TR 9 and the transmitter mixer, pin No. 7 of IC 2. When this signal is in low level state, no output signal is produced from the transmitter mixer, IC 2, and TR 9. Thus the transmission of unauthorized frequency is prevented.

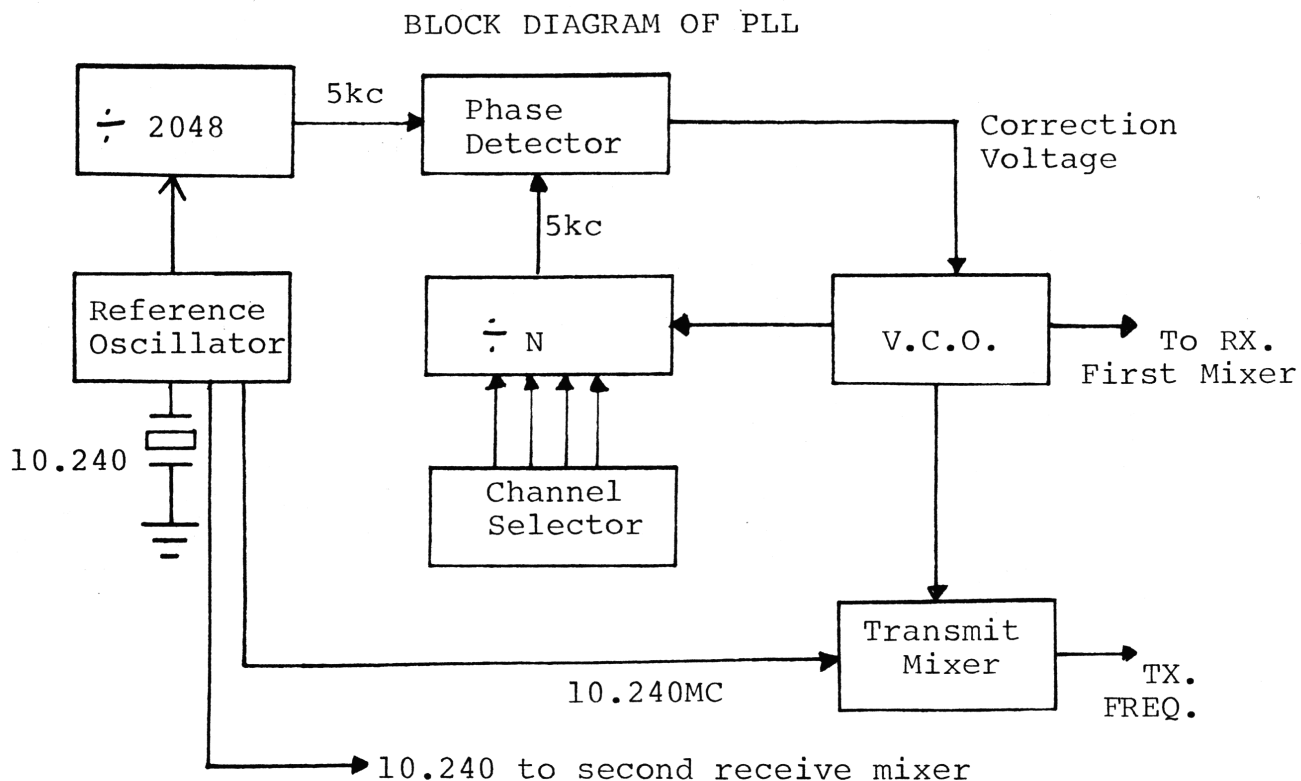


TABLE A FREQUENCY CHART OF FVCO AND DIVIDE RATIO N

| Antenna Frequency (MHz) | Channel Number | For Transmit(R/T=H) | | For Receive(R/T=L) | |
|-------------------------------|-------------------|------------------------|---------------------------|------------------------|---------------------------|
| | | Divide Ratio (N) | VCO Frequency (MHz) | Divide Ratio (N) | VCO Frequency (MHz) |
| 26.965 | 1 | 3,345 | 16,725 | 3,254 | 16,270 |
| 26.975 | 2 | 3,347 | 16,735 | 3,256 | 16,280 |
| 26.985 | 3 | 3,349 | 16,745 | 3,258 | 16,290 |
| 27.005 | 4 | 3,353 | 16,765 | 3,262 | 16,310 |
| 27.015 | 5 | 3,355 | 16,775 | 3,264 | 16,320 |
| 27.025 | 6 | 3,357 | 16,785 | 3,266 | 16,330 |
| 27.035 | 7 | 3,359 | 16,795 | 3,268 | 16,340 |
| 27.055 | 8 | 3,363 | 16,815 | 3,272 | 16,360 |
| 27.065 | 9 | 3,365 | 16,825 | 3,274 | 16,370 |
| 27.075 | 10 | 3,367 | 16,835 | 3,276 | 16,380 |
| 27.085 | 11 | 3,369 | 16,845 | 3,278 | 16,390 |
| 27.105 | 12 | 3,373 | 16,865 | 3,282 | 16,410 |
| 27.115 | 13 | 3,375 | 16,875 | 3,284 | 16,420 |
| 27.125 | 14 | 3,377 | 16,885 | 3,286 | 16,430 |
| 27.135 | 15 | 3,379 | 16,895 | 3,288 | 16,440 |
| 27.155 | 16 | 3,383 | 16,915 | 3,292 | 16,460 |
| 27.165 | 17 | 3,385 | 16,925 | 3,294 | 16,470 |
| 27.175 | 18 | 3,387 | 16,935 | 3,296 | 16,480 |
| 27.185 | 19 | 3,389 | 16,945 | 3,298 | 16,490 |
| 27.205 | 20 | 3,393 | 16,965 | 3,302 | 16,510 |
| 27.215 | 21 | 3,395 | 16,975 | 3,304 | 16,520 |
| 27.225 | 22 | 3,397 | 16,985 | 3,305 | 16,530 |
| 27.255 | 23 | 3,403 | 17,015 | 3,312 | 16,560 |
| 27.235 | 24 | 3,399 | 16,995 | 3,308 | 16,540 |
| 27.245 | 25 | 3,401 | 17,005 | 3,310 | 16,550 |
| 27.265 | 26 | 3,405 | 17,025 | 3,314 | 16,570 |
| 27.275 | 27 | 3,407 | 17,035 | 3,316 | 16,580 |
| 27.285 | 28 | 3,409 | 17,045 | 3,318 | 16,590 |
| 27.295 | 29 | 3,411 | 17,055 | 3,320 | 16,600 |
| 27.305 | 30 | 3,413 | 17,065 | 3,322 | 16,610 |
| 27.315 | 31 | 3,415 | 17,075 | 3,324 | 16,620 |
| 27.325 | 32 | 3,417 | 17,085 | 3,326 | 16,630 |
| 27.335 | 33 | 3,419 | 17,095 | 3,328 | 16,640 |
| 27.345 | 34 | 3,421 | 17,105 | 3,330 | 16,650 |
| 27.355 | 35 | 3,423 | 17,115 | 3,332 | 16,660 |
| 27.365 | 36 | 3,425 | 17,125 | 3,334 | 16,670 |
| 27.375 | 37 | 3,427 | 17,135 | 3,336 | 16,680 |
| 27.385 | 38 | 3,429 | 17,145 | 3,338 | 16,690 |
| 27.395 | 39 | 3,431 | 17,155 | 3,340 | 16,700 |
| 27.405 | 40 | 3,433 | 17,165 | 3,342 | 16,710 |

TABLE B TRUTH TABLE

| Channel No. | Pin # | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|-------------|-------|----|----|----|----|----|----|----|----|
| 1 | | H | H | H | H | H | H | H | H |
| 2 | | H | L | L | L | L | H | H | H |
| 3 | | H | L | L | H | L | H | H | H |
| 4 | | L | H | L | H | H | H | H | H |
| 5 | | L | L | L | H | L | H | H | H |
| 6 | | L | H | L | L | L | H | H | H |
| 7 | | L | H | H | H | H | H | H | H |
| 8 | | L | L | L | L | L | H | H | H |
| 9 | | L | L | L | H | H | H | H | H |
| 10 | | L | L | H | L | L | L | H | H |
| 11 | | H | H | H | H | H | L | H | H |
| 12 | | H | L | L | L | L | L | H | H |
| 13 | | H | L | L | H | L | L | H | H |
| 14 | | L | H | L | H | H | L | H | H |
| 15 | | L | L | L | H | L | L | H | H |
| 16 | | L | H | L | L | L | L | H | H |
| 17 | | H | L | H | H | H | L | H | H |
| 18 | | L | L | L | L | L | L | H | H |
| 19 | | L | L | L | H | H | L | H | H |
| 20 | | L | L | H | L | L | H | L | H |
| 21 | | H | H | H | H | H | H | L | H |
| 22 | | H | L | L | L | L | H | L | H |
| 23 | | H | L | L | H | L | H | L | H |
| 24 | | L | H | L | H | H | H | L | H |
| 25 | | L | L | L | H | L | H | L | H |
| 26 | | L | H | L | L | L | H | L | H |
| 27 | | H | L | H | H | H | H | L | H |
| 28 | | L | L | L | L | L | H | L | H |
| 29 | | L | L | L | H | H | H | L | H |
| 30 | | L | L | H | L | L | L | L | H |
| 31 | | H | H | H | H | H | L | L | H |
| 32 | | H | L | L | L | L | L | L | H |
| 33 | | H | L | L | H | L | L | L | H |
| 34 | | L | H | L | H | H | L | L | H |
| 35 | | L | L | L | H | L | L | L | H |
| 36 | | L | H | L | L | L | L | L | H |
| 37 | | H | L | H | H | H | L | L | H |
| 38 | | L | L | L | L | L | L | L | H |
| 39 | | L | L | L | H | H | L | L | H |
| 40 | | L | L | H | L | L | L | H | L |

H: High level (more than 6.0 Volts D.C.)
L: Low level (less than 2.0 Volts D.C.)

"THE SPREAD EAGLE"
ANTENNA BREAK-THRU FOR TRUCKERS

★
NEW!
★

Since the ever-growing use of fiberglass in hoods, doors, and roof panels has taken the place of steel and aluminum, it gets more and more difficult to achieve a good electrical ground to the cabs of trucks. Poor grounding results in high SWR and little or no ground plane. High noise levels from electrical systems and static charged air from turbos and blowers are also from poor grounding. The conventional grounded antenna systems that we are now using do not perform well under these conditions so the search was on for bigger and better antennas. Since height limitations stopped us from going bigger, we set our sights on better.

After wasting a lot of time on conventional grounded systems, we found no way to improve them for use with fiberglass cab components. We decided to try an ungrounded system. There are several ungrounded antennas on the market now but none are very popular because they don't perform too well. Thus, the Spread Eagle was developed.

We built and installed over 500 antennas at no cost to long haulers and slip seaters to prove to ourselves and our customers that this system really performs well. Whether on metal or fiberglass, it works equally well. You can hold it in your hand and it will perform just as well. Transmit and receive signals will be of higher quality due to the lack of electrical interference common to grounded systems. This antenna can have an SWR of 1.0 to a 3.0 without any loss in performance, or result in any damage to your CB. On CB's with an AWI (antenna warning indicator), you may have to adjust the AWI sensitivity to accept a higher SWR. This is just to keep the AWI light from coming on.

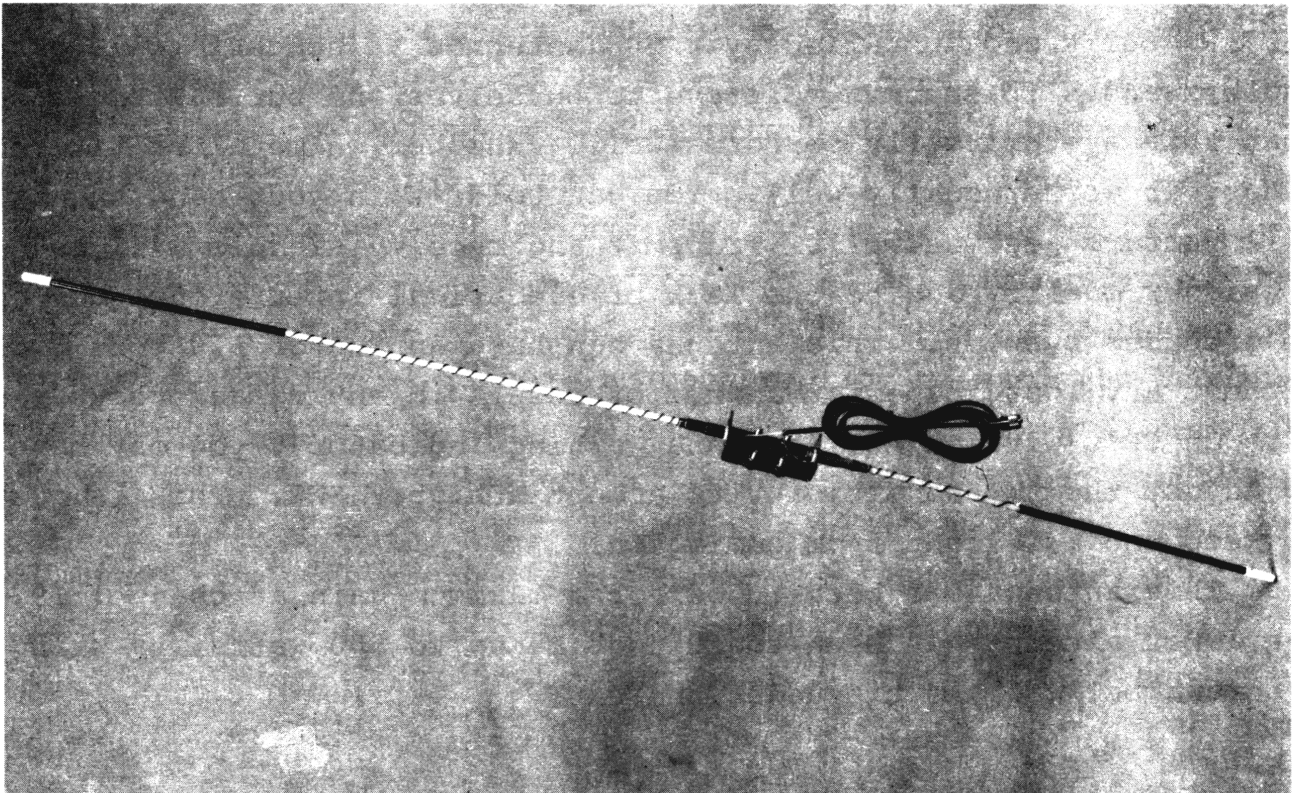
This antenna has been tuned for a maximum gain at channel 19. The lower antenna has been tuned to take up to 500 watts, by using a corona ball at the tip under the cap.

The Spread Eagle continued:

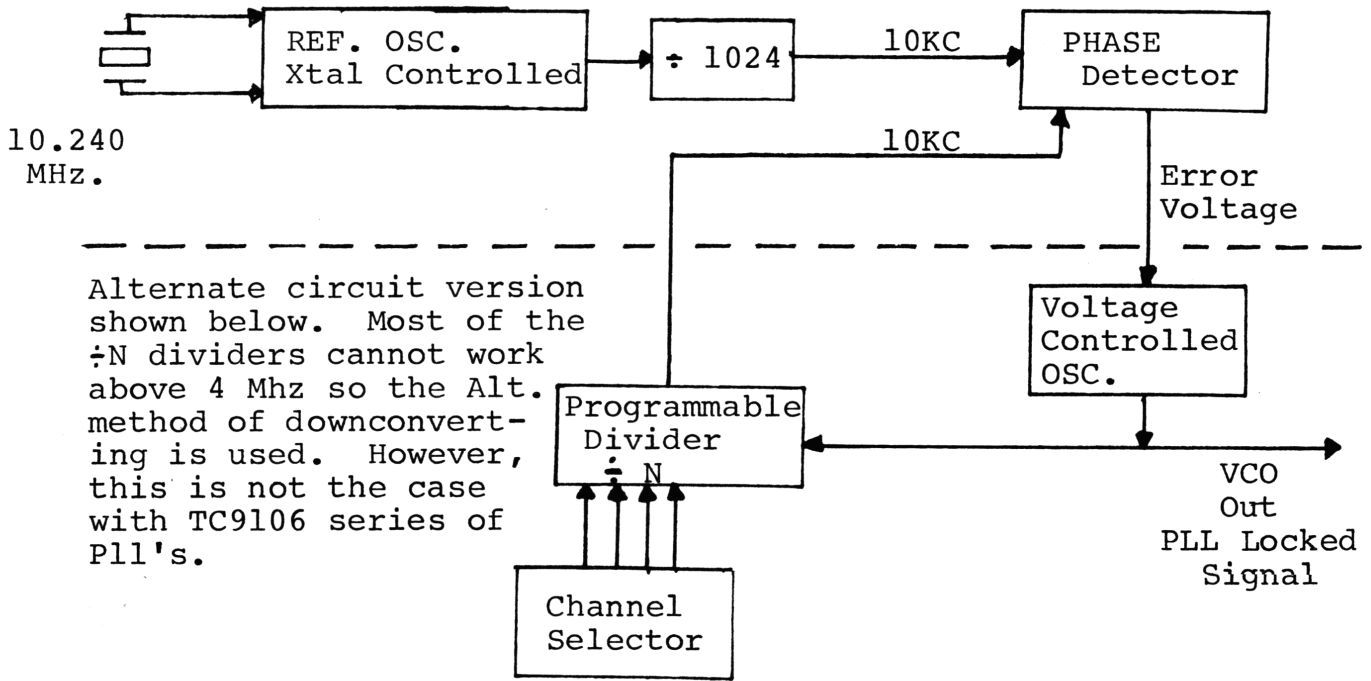
Each unit will be pretuned at the factory. If any additional tuning is needed just remove the cap and stand up a short spike of wire about $\frac{1}{4}$ inch long. Install cap and check SWR. The cap has to be on the antenna when SWR is checked. Both antennas can be tuned in this manner. If the lower whip should need to be tuned, do not forget to reinstall the corona ball. Clean insulator from wire and firmly install the ball, making sure it won't come loose under the cap. In most cases tuning will not be needed. All whips are warranted against breakage for any reason for a period of five years.

You may already have seen the Spread Eagle and wondered what it was or you may have talked to someone who is now using one. You don't have to take my word for how well it performs, just ask someone who has one or better still "Try it-you'll like it", says the inventor, who is an ex-trucker.

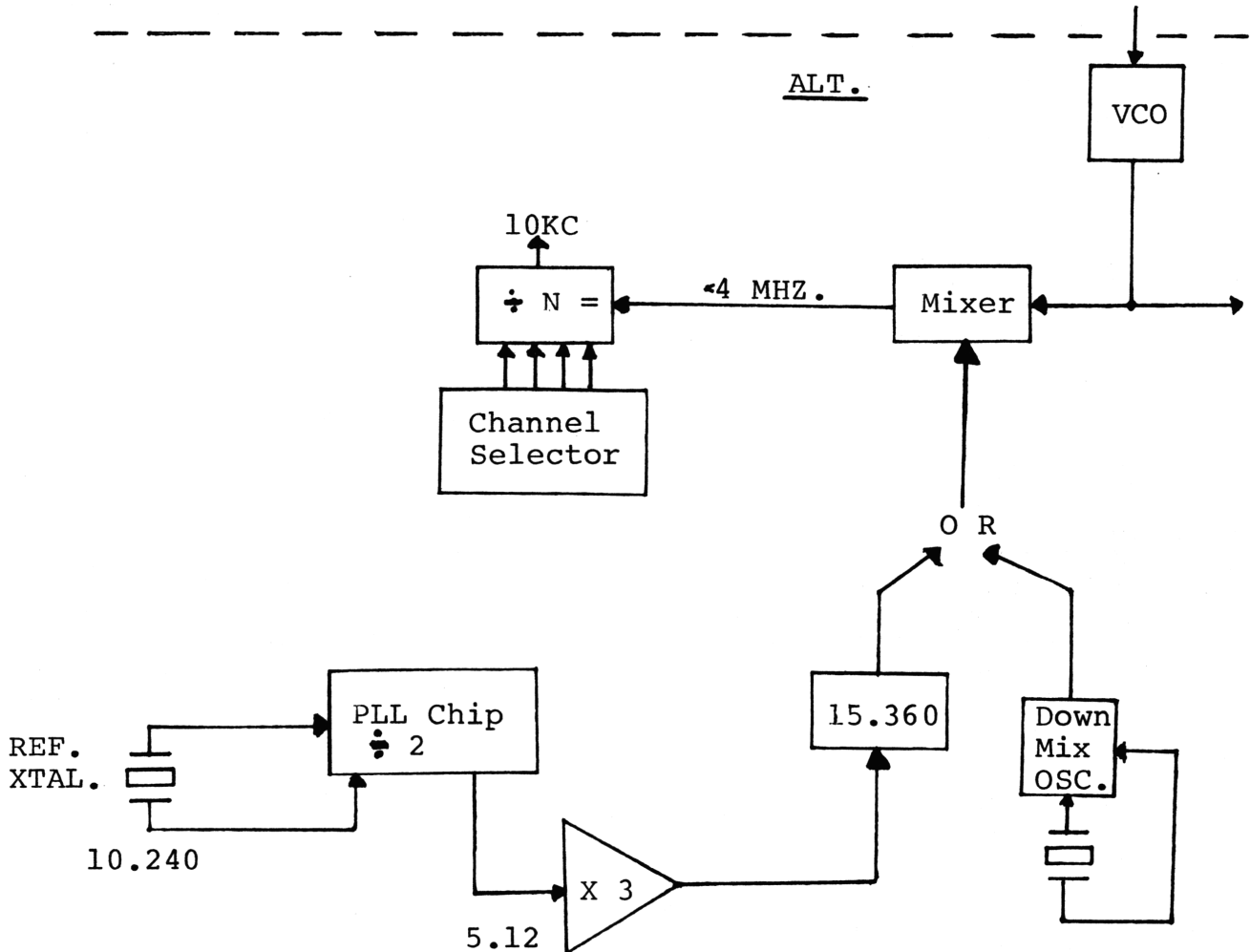
We here at "Secret CB" are impressed with the appearance, performance, and five year warranty.



BASIC PLL



Alternate circuit version shown below. Most of the ÷N dividers cannot work above 4 Mhz so the Alt. method of downconverting is used. However, this is not the case with TC9106 series of Pll's.



ELECTRONIC TERMINOLOGY

CROSSTALK:

Interference in a Transmitting or Receiving Channel that has its origin in another channel.

N.O. :

Abbreviation for Normally Open, such as in Relay contacts.

N.C. :

Abbreviation for Normally Closed, as in Relays, or No Connection.

NONSHORTING SWITCH:

A switch whose contact is broken from one position before contacting next position. Also called "break before make".

NULL:

A balanced condition in which there is zero output.

WAVELENGTH (feet):

$$\lambda = \frac{984}{\text{fMHz}}$$

EXAMPLE:

$$1 \lambda @ \text{ Ch. 40} =$$

$$\frac{984}{27.405} = 35.9 \text{ FT.}$$

$$\frac{1}{4} \lambda = \frac{35.9 \text{ FT.}}{4} = 8.97 \text{ Or about 9 Feet}$$

PHASE: \emptyset

An angular relationship between current and voltage in a sine wave.

PHASE DETECTOR:

A circuit in which a DC error voltage is derived to maintain (in our use) the Voltage Controlled Oscillator in sync with the reference oscillator, usually using 10 KC as reference frequency.

OPEN, CUT, CLIP:

Refers usually to a specific part or wire- indicates to physically disconnect the part or wire specified.

SHORT:

To eliminate a part from the circuit by jumping around it with a piece of wire, etc. Also used to indicate a high drain or 'fuse blowing'.

SCANNER PROGRAMMING TIPS

If you own (or sell) Regency Scanners, here is an "out of band" programming hint you will want to know about.

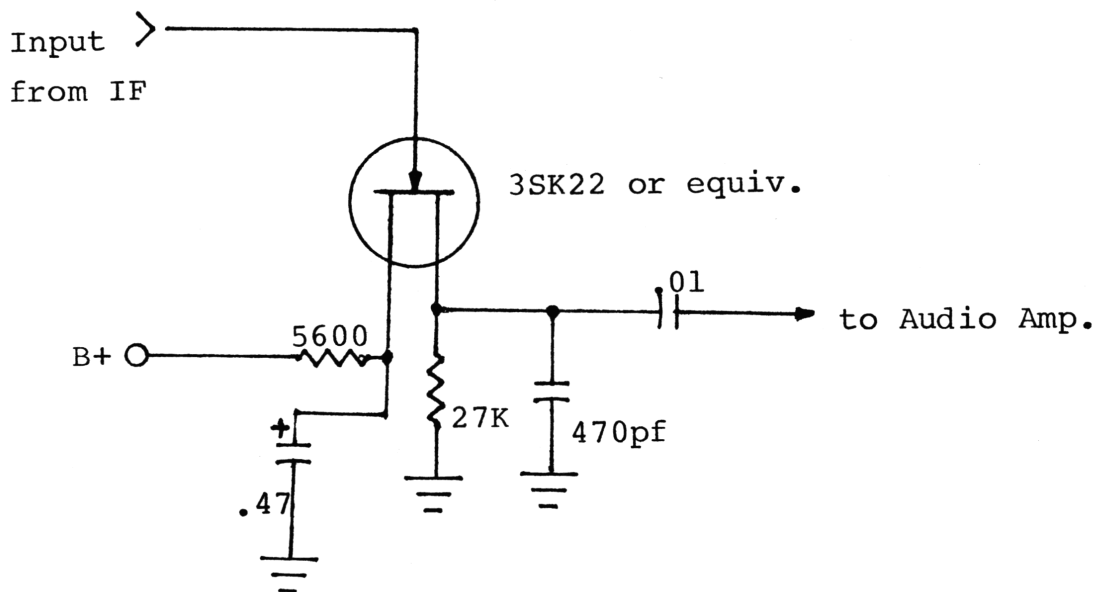
K100-Push Manual, Decimal Point, then program frequency.

K500-Push Program, Decimal Point, enter frequency.

M100-Touch Decimal Point, enter frequency.

M400-Touch Decimal Point, enter frequency.

You can pick up CB transmissions and aircraft by programming as above and adding an AM detector. A simple detector can be built as shown below:



INTO THE KNOW WITH JAPANESE SEMICONDUCTORS

All transistors "Made In Japan" will bear a 2S number. This means they are registered with the Electronic Industries Association of Japan (EIAJ.).

IDENTIFICATION SYSTEM

The type number consists of 5 Elements.

Example:

| I | II | III | IV | V |
|--------|--------|--------|--------|--------|
| 2 | S | C | 1096 | A |
| Number | Letter | Letter | Number | Letter |

- I. Specifies the Kind of Device. This number tells the number of effective electrical connections minus one.
- II. The letter "S" tells us the device is registered with the EIAJ.
- III. Tells us Polarity and Application.
 - A. Designates PNP Transistor, High Frequency.
 - B. PNP Transistor, Low Frequency.
 - C. NPN Transistor, High Frequency.
 - D. NPN Transistor, Low Frequency.
 - E. P-Gate Thyristor.
 - G. N-Gate Thyristor.
 - H. N-Base Unijunction Transistor.
 - J. P-Channel FET.
 - K. N-Channel FET.
 - M. Bi-Directional Triode Thyristor.
- IV. Tells us the application as registered with the EIAJ.
- V. Tells us of improvements: A, B, C, D, E, and F.
An "F" can be substituted for a "C" but not necessarily a "C" for an "F".

TRANSISTOR SPECIFICATIONS



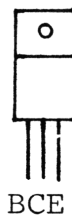
| # | 2SC710 | 2SC945 | 2SC1306 | 2SC1307 | 2SC1969 |
|---------------|--|--|---------------------|---------------------|---------------------|
| TYPE | NPN | NPN | NPN | NPN | NPN |
| CONFIGURATION | BCE  | ECB  | See Fig. 1 Below | See Fig. 1 Below | See Fig. 1 Below |
| VCBO | 30V | 50V | 65V | 70V | 60V |
| VEBO | 4V | 5V | 4V | 4V | 5V |
| IC | 30MA. | 100MA. | 3A | 8A | 6A |
| PD | 200MW. | 250MW | 12W | 25W | 20W |
| TJ | 125°C | 125°C | 150°C | 150°C | 150°C |
| ICBO | 1UA | .1UA | 10UA | 20UA | 100UA |
| VCB | 25V | 40V | 40V | 40V | 30V |
| HFE, PULSE | 90 | 150 | 80 | 60 | 50 |
| VCE, PULSE | 6V | 6V | 10V | 10V | 12V |
| IC, PULSE | 1MA. | 1MA | 500MA | 2A | 10MA |
| VCB | 6V | 6V | 10V | 10V | |
| IE | -1MA. | -1MA. | -150MA. | -500MA. | |
| FT | 200MHz | 250MHz | 300MHz | 150MHz | |
| COB | 2pf | 4.5pf | 20pf | 80pf | |

Figure 1



RESISTOR COLOR CODE

The sequence of colors can be easily remembered by the little Rhyme I learned in school one day! Here it is for what it's worth!

| | | 1st & 2nd BAND VALUE | 3rd BAND MULTIPLIER |
|-----------|-----------|-------------------------|------------------------|
| BAD | = BLACK = | 0 | $10^0 = X 1$ |
| BOYS | = BROWN = | 1 | $10^1 = X 10$ |
| ROB | = RED = | 2 | $10^2 = X 100$ |
| OUR | = ORANGE= | 3 | $10^3 = X 1K$ |
| YOUNG | = YELLOW= | 4 | $10^4 = X 10K$ |
| GIRLS | = GREEN = | 5 | $10^5 = X 100K$ |
| BUT | = BLUE = | 6 | $10^6 = X 1M$ |
| VIOLET | = VIOLET= | 7 | $10^7 = X 10M$ |
| GAVE | = GRAY = | 8 | $10^8 = X 100M$ |
| WILLINGLY | = WHITE = | 9 | $10^9 = X 1G$ |

K = Kilo = X 1000

M = Meg - X 1,000,000

G = Giga = X 1,000,000,000

EXAMPLES: Red-Red-Orange = $22 \times 1,000 = 22,000$ or 22K
 Brown-Black-Black = $10 \times 1 = 10$
 Violet-Black-Green = $70 \times 100K = 7,000,000 = 7\text{Meg}$

If the third band is Gold or Silver, the value is less than 10 ohms, and is calculated the same way except the multiplier is different.

Gold = X .1

Silver = X .01

EXAMPLES: Yellow-Violet-Gold = $47 \times .1 = 4.7$
 Red-Red-Silver = $22 \times .01 = .22$

RESISTOR COLOR CODE (Cont'd)

Sometimes a Fourth band is included to show tolerance. If it is Silver, it indicates that the value marked by the colors is within + or - 10%. If it were Gold, a value within + or - 5% would be indicated. If no Fourth band is present, tolerance is + or - 20%.

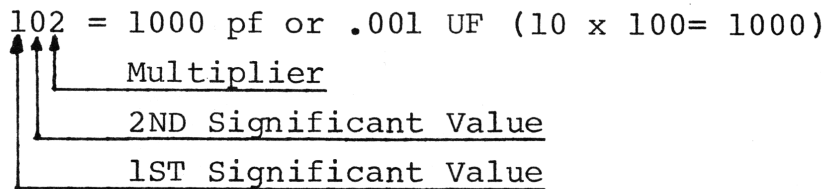
EXAMPLE: Yellow-Violet-Red-Gold

$$4 \quad 7 \quad \times 100 \quad + \text{ or } - 5\% = 4700 = 4.7\text{K} + \text{ or } - 5\%$$

This means the resistor has a resistance somewhere between 4935 (+ 5%) and 4465 (- 5%).

CAPACITOR CODES

Capacitor is marked 102. What value is it?



To convert PF to UF, move decimal 6 places to the left.

$$1000.\text{PF} = 0 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0 \ 0 . = .001\text{UF}$$

6 5 4 3 2 1

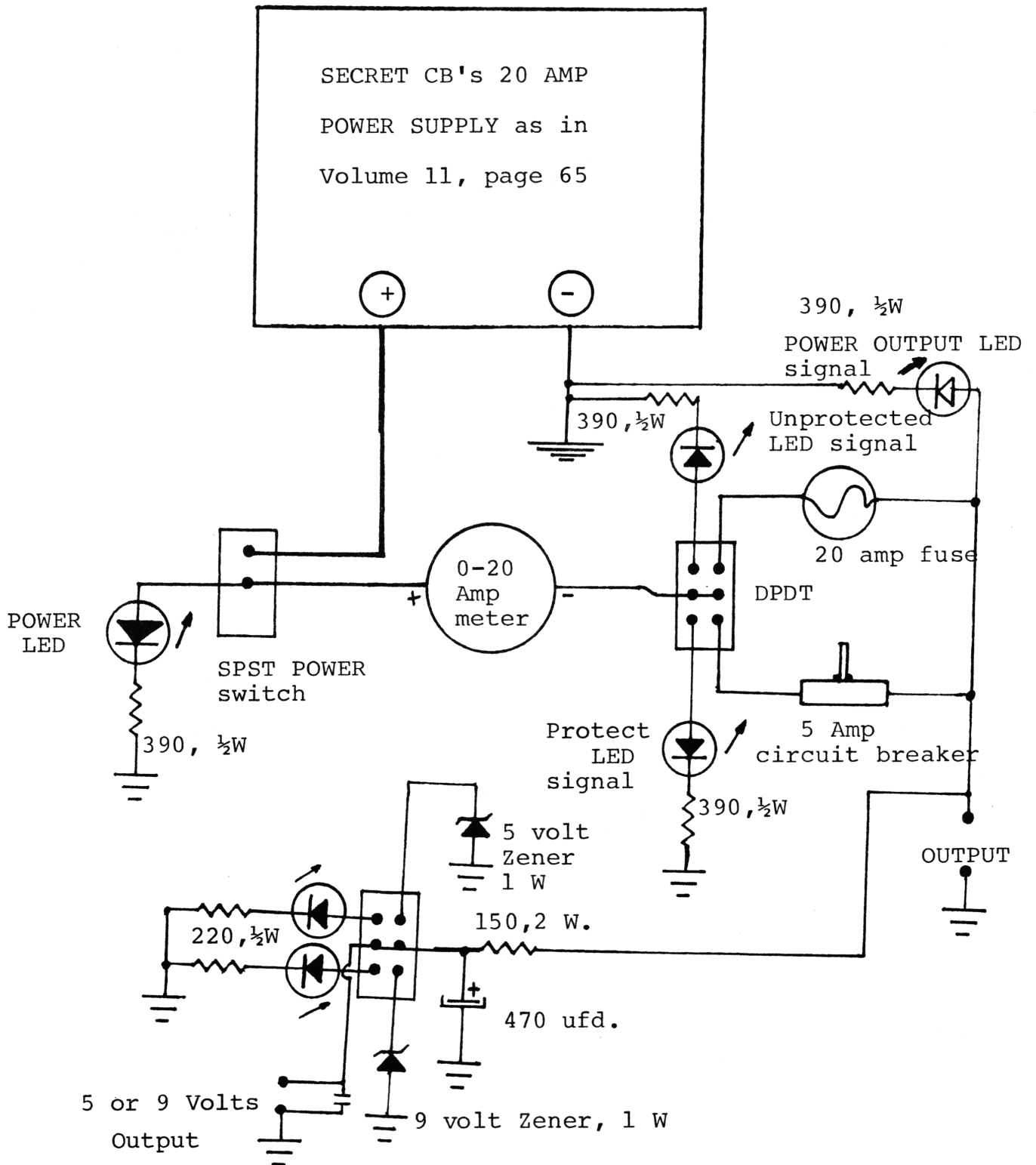


$$223 - \underline{22}000 \quad \text{or} \quad .022\text{UF} \quad (22 \times 1000 = 22000)$$

REFERENCE: Volume 11 page 59.

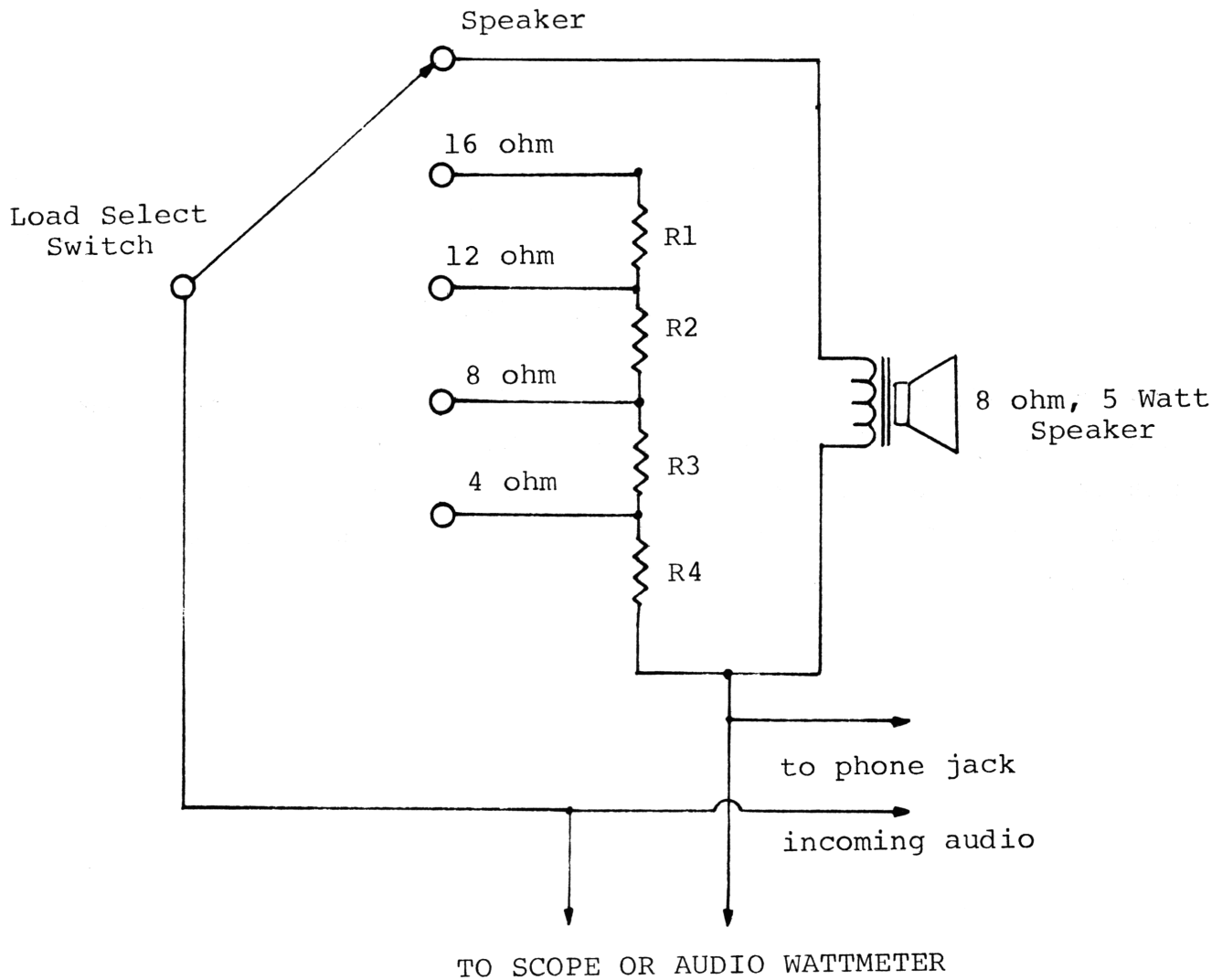
"You Can Build It"

SECRET CB'S SUPER-DUPER POWER SUPPLY CONTROLLER



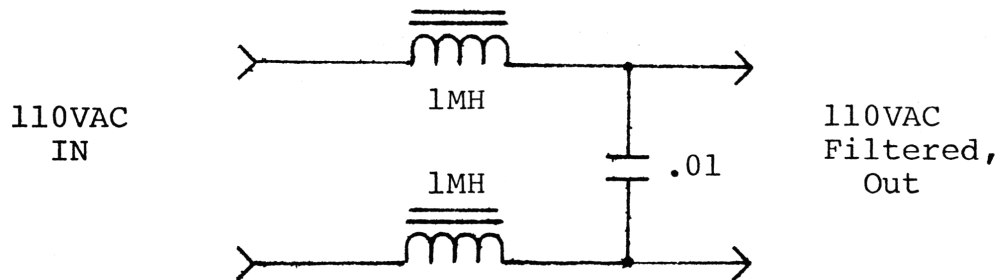
BUILD THIS AUDIO TEST STATION

At the present time, resistors R1, R2, R3, & R4 can be purchased from Ramsey Electronics 4/\$1. They are 4 ohm, 10 Watt each. You could also add a scope output in addition to the dummy loads shown below. Or even an audio wattmeter.



POWER LINE FILTER

This balanced L-type of Low Pass Filter will pass 60Hz but filter out RF.



T.V.I. FILTER

Are your neighbors THREATENING to call the F.C.C. if you keep messin' up their favorite program on the BOOB TUBE? After testing numerous filters, we have found the J.W. Miller, part number C-514-T to be the best Low Pass Filter for T.V.I. List price is under \$50.00.

"OOPS, WE GOOFED"

- VOL. 4, Page 38:** On Diagram, Crystal labeled 5.120 should be labeled 17.0555. Crystal Y is 17.215
- VOL. 10, Page 10:** VSB-1 Hook-Up: Cobra 140-142 GTL/Tram D300
Change the Expander hook-up to read as follows:
Remove C28. Solder Black wire towards collector of TR13 and White wire towards R36. Pre-amp recommended.
- VOL. 10, Page 16:** VSB-1 Hook-Up: President Washington (1001002)/
New McKinley-change the expander hook-up to read as follows: Remove C28. Solder Black wire towards collector of TR13 & White wire towards R36.
- VOL. 10, Page 28:** On the Cobra radios the Red wire goes to R415 and should be grounded. The Orange wire should be the one to go to 8V. The picture shows the correct conversion for the President Washington.
- VOL. 11, Page 3:** TABLE OF CONTENTS - The Printer Goofed! They renumbered the pages but did not change the page numbers in the Table of Contents to correspond, so add 3 to all page numbers listed in this table of contents.
- VOL. 11, Page 10:** For the Crystal 11.135, channels should read 26.515-26.955.
- VOL. 11, Page 15:** If you can't get this Mod. to work, retune the tripler, VERY CRITICAL (L18 on President Washington)
- VOL. 11, Page 16:** Under Step 2 of XTAL CHANGE, 16.511-26.955 should read 26.515-26.955
- VOL. 11, Page 71:** Item 116 has been discontinued.

WATCH OUT! NEW COLT 222's ARE COMING OUT WITH LC7131 CHIP INSTEAD OF LC7120 CHIP!

SECRET CB INDEX

LISTING ALL MODELS/CHASSIS COVERED
"SECRET CB" SERIES VOLUMES 1 THRU 11

| CONVERSIONS | VOL/PG | COLT (Cont.) | VOL/PG | FIELDMASTER | VOL/PG |
|---|---------------|-----------------------------------|------------------------------|---|-----------------|
| Conversion tips for all SSB radios |9/7 | 210 LC7130PLL | 11/33 | Micro-mini 40 frequency expansion details | ...11/37 |
| "A" Channel Mod. for all SSB |9/16-17 | 290..... | 3/4-7 | G.E. | |
| MB8719 Standard Modification | ...10/25-27 | 390..... | 3/4-7 | Superbase 3-5875-A | 10/48 |
| Tech tips on the 858 Chassis |10/55 | 480..... | 3/8-15,5/39 | GEMTRONIX | |
| Uniden 858PLL update |9/8-11 | 485..... | 3/8-15 | GTX 77 | 5/39 |
| How to get on 28 & 29 MHz w/the UPD858 PLL Chip |11/4-7 | 800..... | 3/4-7 | HALLICRAFTERS | |
| How to increase ANL efficiency 70% |11/8 | 1000..... | 3/8-15 | HCM271..... | 5/50,51 6/39 |
| BOWMAN | | COURIER | | HYGAIN | |
| CB910 update | 11/41 | Centurion PLL | .. 1/31,61, 62,5/55 | I-A | 1/22 |
| CB930 | 3/21 | Centurion 40D | 10/53 | PLL | 1/32 |
| CB950 | 5/39 | Galaxy..... | 5/53,54 7/18-22 | II..... | 8/20 |
| CBH990 | 5/43 | Gladiator PLL | ...1/31,61, 62,5/55 | V-02A | 11/8 |
| BROWNING LTD | | Spartan | 1/61,62, 5/30,53,55 | J.C. PENNEY | |
| LTD | 1/53 | CPI | | 6248..... | 8/24 |
| MKIII | 6/28 | 300..... | 8/21 | JOHNSON | |
| MKIV | 6/29,30 | 400..... | 8/21 | 242-4730..... | 10/49-51 |
| MKIV,IVA | 7/8-13 | 2000 | 3/25 | 4740 (NDC40013)..... | 11/9 |
| COBRA | | 2000 Low | 9/23 | KRACO | |
| 29GTL | 8/16 | 2500 | 5/37,38 | KCB233A | 9/15 |
| 32XLR | 4/47 | ALC Mod. for Increased SSB Power | 11/9 | MIDLAND | |
| 87GTL | 8/16 | CRAIG | | 13-892..... | 11/10 |
| 89GTL | 8/16 | L131 & L231 | 9/12-14 | 79-893..... | 2/20 |
| 132B | 1/53 | L132 & L232 | 9/12 | 79-892..... | 11/11 |
| 132XLR |10/45-46 | L232 & L132 w/UPD | | 79-900..... | 5/47 |
| 135B | 1/53 | 2824C Chip | ...10/47, 11/10 | 6001-7001..... | 11/16 |
| 135XLR | 4/38 | DAK | | MORSE | |
| 135XLR update | ...10/43-46 | IX | 5/21-23 | 3005..... | 2/27 |
| 138XLR |1/20,23 | IX Mod. update | .. 9/18-19 | NESCO | |
| 139XLR |1/20,23 | X..... | 4/39-46 | 1249..... | 6/38 |
| 140GTL |3/19,20 | DELCO | | PACE | |
| 146GTL 11 |10/41 | Delco factory AM/FM/CB Combo unit | 11/38-40 | 8092 | 6/35,36 |
| 148GTL | 8/15 | DEMCO | | | |
| 1000GTL | 8/16 | Star II |5/60 | | |
| 2000 (C.A.P.) | 6/23 | Super Satellite | 5/60 | | |
| 2000GTL | 5/20,7/15-17 | | | | |
| COLT | | | | | |
| SX 33 | 3/4-7 | | | | |

SECRET CB INDEX (CONT'D):

| CONVERSIONS (Cont.)VOL/FG | ROBYN (Cont.) | VOL/FG | STONER | VOL/FG |
|--|---|--------|---|--------|
| PALOMAR 500 4/19,20, 5/32-36, 8/21 | SB-520D 2/21,22 SB-540D 5/19,36, 7/25-38 | | Pro-40 4/52,53 | |
| PANASONIC | ROYCE | | SUPERSCOPE AIRCOMMAND CB 340 8/19 CB 340 (861-PLL) Update..... 9/24 | |
| RJ3600..... 10/57 | 1-601 1/26 1-612 5/45 1-632 Update.....11/21 1-64111/20 | | SWAN SIGNET 270 5/58 | |
| PEARCE | SBE | | TEABERRY | |
| Cheetah PLL 1/31,32 Simba PLL..... 1/31,32 | Formula D 1/49 Touch Com 1/50,51 39CB Sidebander V.2/36,37 Sidebander II.... 2/28-35 Console IV 2/28-35 Sidebander,Console VI 8/14 Console V 2/37-38 LCBS-4 7/29-33 LCMS-4 7/34-37 | | 52 Ch. Capability1/43 CAP Mod.5/30 Model T 4/3,4 Racer T 1/58 Ranger T..... 4/1,2, 6/24,25 | |
| PRESIDENT | SEARS | | STALKER | |
| Adams..... 2/16 AR144 11/17-18 AR144 UPD2824C PLL..11/41 AR144 Update.....11/42 Grant 1/22,23, 59,2/17, 23-26 Grant (New)..... 5/24-27 Honest Abe..... 1/60 John Q..... 1/60 Madison w/11.3258...10/30 McKinley.....4/12,13 McKinley w/11.1125..10/29 Teddy R. 1/60 Washington 1/22,23,59 Washington w/11.112510/28-29 Zachary T..... 1/60 | 562-38220700..... 10/56 663-3810 w/2824 Chip 11/22 934-38260700 6/26,27 10/52 934-38270700 5/28,29 934-38260700 Update 11/23 934-38270700 Update 9/20-22 | | I (4001/4002)...4/7-9 T Bear..... 4/14,15 T Dispatch... 4/14,15 Titan T 4/14,15 XV..... 10/39 XX..... 10/40 | |
| RCA | SHARP | | TRM | |
| 14T302.....5/11,39 14T302 (PLL 02AG)... 4/36 | CB-5470 HD42851B3.. 11/24 | | D12 10/56 D42 4/47,5/40 D60 1/53 D62 10/45-46 D80 MB8734 w/11.3258 10/30 D201..... 1/56,3/22, 23 D201A Update....10/54 D300..... 8/11-13 | |
| REALISTIC | SILTRONIX | | TRS CHALLENGER | |
| TRC-431 7/23,24 TRC-448 REC86345PLL.11/16 TRC-450 10/31 TRC-457 10/36 TRC-459 10/32-35 TRC-480 10/37-38 | 1011C 1/46 1011D 1/46 | | 460 4/28 600 4/28 730 4/30 1200 4/31 850/1400.....4/21-27,32-35 | |
| ROBYN | SONAR | | TRUETONE | |
| WV-23 1/24,25 GT-440D 1/23 SB-505 5/41,42 | FS-2340 5/31 | | CYJ-4837A-87....11/14 | |
| | STANDARD HORIZON | | | |
| | 29-A 5/58 | | | |

SECRET CB INDEX (CONT'D):

| CONVERSIONS (Cont.) | VOL/PG | CONVERSIONS (Cont.) | VOL/PG |
|---------------------------|---------|---------------------|----------|
| VICTOR | | YAESU | |
| 770 | 4/56,57 | 100 | 5/58 |
| 790 | 4/58,59 | FT-901..... | 6/3-12 |
| | | FT-7B | 7/38-41 |
| WARDS | | FT707 | 10/20-24 |
| 719A w/UPD2824 Chip | 11/10 | | |

| SLIDE MODIFICATIONS-VOL/PG | Gemtronics | VOL/PG | President(Cont.)VOL/PG |
|----------------------------|----------------|---------|------------------------|
| | GTX-77 | 4/49 | Grant (New)..... |
| BOMAN | Hygain | | 8/34 |
| 950 | 623 | 1/33 | McKinley..... |
| | 674-A..... | 4/60 | Washington..... |
| COBRA | | | Washington(New).. |
| 132-A | Johnson | | 34 |
| 135-A | 352 | 1/34 | RCA |
| 135-B | Midland | | 14T302 |
| 138 | 13-892 | 11/13 | 4/49 |
| 139 | 13-893 | 4/51 | Realistic |
| 140GTL | 13-898 | 1/36 | TRC-47 |
| 142GTL | 13-898-B | 1/35 | 1/41 |
| | 79-960 | 5/47 | TRC-48 |
| 135XLR | | | 1/42 |
| | | | TRC-458..... |
| COLT | | | 8/39,40 |
| 485 | Pace | | Robyn |
| | 1000 | 1/37,38 | SB-505 |
| COURIER | DK1023B | 1/39 | 5/41 |
| Centurion | 8092 | 6/37 | SB-540D |
| Galaxy | Palomar | | 5/19 |
| Gladiator PLL | 500 | 4/19 | Royce |
| Spartan | | 5/32,35 | 1-632 |
| | | | 4/51 |
| CPI | Pearce | | SBE |
| 2500 | Bengal | 1/40 | Sidebander II.. |
| | Cheetah | 1/40 | 2/28-35 |
| Craig | Simba | 1/40 | 1/47 |
| L-131,L231..... | | | Sidebander V...2/38-40 |
| L-132,L-232..... | President | | Console IV2/28-35 |
| | Adams | 2/16 | Console V..... |
| DAK | Grant | 1/59 | 2/28-35, |
| X | | | 38-40 |
| | | | Sears |
| | | | 934-38270700..... |
| | | | 5/28 |
| | | | 9/20-22 |
| | | | 934-38310700..... |
| | | | 5/19 |

SECRET CB INDEX (CONT'D):

| SLIDE MODIFICATIONS (Cont.) | VOL/PG | SLIDE MODIVICATIONS (Cont.) | VOL/PG |
|-----------------------------|---------|-----------------------------|--------|
| Siltronix | | Teaberry | |
| SSB..... | 1/45 | Stalker IX/XV | 4/7,8 |
| Stoner | | Tram | |
| Pro-40 | 4/52,53 | D60 | 1/52 |
| | | D201 | 1/56 |

SPECIFIC RADIO TUNEUPS

| AIR COMMAND | VOL/PG | CLARION | VOL/PG | COLT (Cont.) | VOL/PG |
|--------------------|-----------|--------------------|--------------|-----------------------|------------|
| CB-640 | 5/38 | DMA066..... | 3/45 | 480 | 3/8,58 |
| ALARON | | JC202E | 3/45 | 485 | 3/8,6/19 |
| B-4075..... | 9/30 | RCJ003 | 3/45 | 800 | 3/4 |
| B-4900 | 9/30 | TC203E | 6/18 | 800 update | 10/58 |
| B-5050A | 9/30 | COBRA | | 1000 | 3/8,58 |
| B-5200 | 3/41 | 19 | 7/51 | 1200..... | 9/30,31 |
| AUDIOVCK | | 21GTL | 3/41,58 | COMMANDO | |
| MCB750..... | 3/41 | 21XLR | 1/20 | 2340 | 1/21 |
| MCB5000..... | 11/42 | 21XLR update | 10/58 | CONVOY | |
| MDV6000..... | 6/18 | 25GTL | 3/41,58 | CON-400 | 3/58 |
| AUTOMATIC | | 29GTL | 3/45 | CPI | |
| CBH2265..... | 3/41 | 29XLR | 1/20 | CP400 | 10/59 |
| BCMAN | | 32XLR | 3/58 | COURIER | |
| CB555 | 3/44 | 46XLR | 3/43 | Blazer 40D | 3/58 |
| CB750 | 2/43 | 47XLR | 3/45 | Classic PLL 40.. | 3/43 |
| CBH900 | 3/44 | 50XLR | 3/43 | Classic PLL 40 update | 10/59 |
| CB910 | 1/21,3/44 | 55XLR | 3/43 | | 10/59 |
| CB920..... | 1/21 | 66GTL | 10/58 | Fanfare 125F ... | 3/43 |
| CB930 | 1/21,3/44 | 77X | 9/30 | Fanon Rogue 40 . | 3/43 |
| CB950 | 3/43 | 78X | 9/44 | Nightrider 40DR | 3/46 |
| CBR9600 | 2/42,3/41 | 78XLR | 4/49,6/19 | Rangler 40D | 3/58 |
| CBR9940 | 3/44 | 86XLR | 3/45 | Redball | 1/21 |
| CBR9950 | 10/58 | 87GTL | 6/19 | Renegade 40..... | 3/46 |
| CHANNEL MASTER | | 89GTL | 6/18 | CRAIG | |
| CB6835 | 6/18 | 132XLR | 3/45 | L101..... | 6/20,11/42 |
| CHRYSLER | | 135XLR | 3/45 | L102..... | 6/20 |
| 4048076/8077 | 6/18 | 139 | 1/20 | L131..... | 10/59 |
| | | 140GTL | 3/20,58,4/50 | L231(AM,SSB)... | 10/60 |
| | | 142GTL | 4/50 | DAK | |
| | | 148GTL | 6/19 | Mark II | 10/60 |
| | | 1000GTL | 6/18 | | |
| | | COLT | | | |
| | | 222 | 6/20 | | |
| | | 290 | 3/40 | | |
| | | 390 | 3/4 | | |

SECRET CB INDEX (CONT'D):

SPECIFIC RADIO TUNEUPS (Cont.)

| | | | | | |
|-----------------------|------------|--------------------------|------------|--------------------|----------|
| DELCO | VOL/PG | GM | VOL/PG | KRACO (Cont.) | VOL/PG |
| 70BMC3 | 2/43 | CBD-203 | 3/48 | KCB-4020..... | 3/49 |
| 80BCB2 | 6/20 | 4120 | 3/46 | KCB-4030..... | 8/44 |
| 90BFTCl (AM,FM,CB) .. | 10/60 | 4145 | 9/32 | KCB-4088..... | 3/50 |
| 90BCBl..... | 10/60 | 4175 | 3/46 | | |
| FANON | | HYGAIN | | KRIS | |
| 10-40 | 6/20 | VIII | 3/59 | XL25 | 2/43 |
| Fanfare 182F | 3/41 | 674A..... | 4/60 | LAFAYETTE | |
| Fanfare 184DF | 3/47 | V674B | 1/21 | Comstate 525..... | 11/45 |
| Fanfare 185PLL..... | 3/46 | 2701 | 2/42 | Dynacom 40..... | 11/44 |
| Fanfare 190DF.. | 3/47,7/51 | 2702 | 3/48 | HB640..... | 2/43 |
| Fanfare 350F | 3/47 | 2703 | 3/48 | SSBl40..... | 11/44 |
| FORMAC | | ITT | | Telestat 1240..... | 5/14 |
| 40..... | 10/60 | 440QM | 4/17 | MEDALLION | |
| GE | | J C PENNEYS | | 63-240 | 3/50 |
| 3-5800A | 3/50 | 981-6204(981-7461) .. | 9/32 | MIDLAND | |
| 3-5804B | 6/21 | 981-8360..... | 10/61 | 150 M | 7/52 |
| 3-5804F | 10/61 | JIL | | 13-893..... | 4/51 |
| 3-5805A | 9/31 | 615CB | 11/42 | 63-445..... | 11/45 |
| 3-5811B | 9/31,10/61 | JOHNSON | | 76-858..... | 3/49 |
| 3-5812A | 10/61 | 123A | 1/21 | 77-101B..... | 8/44 |
| 3-5814B | 6/21 | Viking 260/270..... | 3/49 | 77-821..... | 3/42 |
| 3-5817A | 7/51 | Messenger 50 | 7/51 | 77-824..... | 8/44 |
| 3-5818A | 2/42 | Messenger 80(242-0080) | | 77-838..... | 9/33 |
| 3-5819A | 11/42 | | 7/51 | 77-849..... | 3/50 |
| 3-5821A | 9/31 | Messenger 4120 | 3/47 | 77-856..... | 11/45 |
| 3-5821B | 3/54 | Messenger 4135 | 3/48 | 77-861..... | 3/50 |
| 3-5825A | 9/31,32 | Messenger 4140145.. | 3/54 | 77-861B..... | 11/45 |
| 3-5830 | 3/42 | Messenger 4170/75.. | 3/47 | 77-865..... | 9/33 |
| 3-5869A | 2/42 | Messenger 4170/75 update | | 77-899..... | 9/33 |
| 3-5871B | 3/46 | | 11/43 | 77-963..... | 3/42 |
| 3-5875A | 9/32 | Messenger 4250 | 3/48 | 78-574..... | 9/38 |
| GM TRONICS | | Viking 4330/4360 .. | 11/43 | 79-892..... | 3/49 |
| GT44 | 2/42 | KRACO | | 79-893..... | 2/20 |
| GT55 | 3/48 | KCB-2340..... | 2/42 | 79-900..... | 9/33,34 |
| GTX 66..... | 6/21 | KCB-4000..... | 11/43 | 4001 (77-004)..... | 7/52 |
| GTX 77..... | 6/21 | KCB-4003..... | 3/43 | 7001 (79-007) .. | 11/45-46 |
| GTX 4040..... | 3/48 | KCB-4005..... | 9/38,11/43 | MOPAR | |
| GTX 5000..... | 3/42 | | | 4094173..... | 3/51 |
| | | | | 4094176..... | 3/51 |

SECRET CB INDEX (CONT'D):

SPECIFIC RADIO TUNEUPS(Cont.)

| MOPAR (Cont.) | VOL/PG | PRESIDENT (Cont.) | VOL/PG | REALISTIC (Cont.) | VOL/PG |
|-----------------------|-----------|---------------------|--------------|-------------------|-----------|
| 4094177..... | 3/49 | Andrew J. | 9/34 | TRC-458..... | 10/64 |
| 4094178..... | 3/60 | Dwight D. | 10/62 | TRC-461..... | 3/51 |
| MOTOROLA | | James K. | 7/53 | TRC-462..... | 9/36 |
| T4000A/05A10A/20A... | 3/50 | Old Hickory | 9/34 | TRC-466..... | 3/51 |
| CF925AX..... | 11/46 | Washington..... | 1/22 | TRC-468..... | 3/51 |
| Mocat 40..... | 11/46 | RAY JEFFERSON | | TRC-470..... | 9/39 |
| NDI | | CB-845 | 11/48 | TRC-471..... | 8/45 |
| PC-102..... | 11/46 | RCA | | TRC-480..... | 7/53 |
| PC-200..... | 7/52 | 14T270..... | 9/36 | TRC-490..... | 11/49 |
| PACE | | 14T300..... | 2/43 | ROBYN | |
| 8003..... | 11/47 | 14T302..... | 3/53 | WV110..... | 3/56 |
| 8008..... | 2/43 | 14T303..... | 11/48 | WV110 update..... | 11/50 |
| 8016..... | 11/47 | REALISTIC | | LB120..... | 3/52 |
| 8046..... | 9/33 | TRC-45A..... | 4/37 | IG130D..... | 3/56 |
| 8117..... | 11/47 | TRC-47..... | 1/21 | 007-140..... | 3/52 |
| 8155..... | 9/34 | TRC-57..... | 1/21 | T240D..... | 3/56 |
| 8193..... | 7/52 | TRC-99A..... | 4/37 | SX-401..... | 3/57 |
| PALOMAR | | TRC-100..... | 4/37 | SX-402D..... | 3/57 |
| 49..... | 3/60 | TRC-180..... | 4/37 | GT-410D..... | 3/57 |
| 500 | 4/19,5/32 | TRC-200..... | 4/37 | AM500D..... | 3/57 |
| 4100..... | 3/54 | TRC-200 update..... | 10/63 | SB-505..... | 5/42 |
| PANASONIC | | TRC-204..... | 10/63 | SB-520D..... | 2/22 |
| CR-B4747EU(AM-EM-CB). | 9/34 | TRC-209..... | 10/63 | ROYCE | |
| RJ-3250..... | 11/47 | TRC-421..... | 8/44 | 604..... | 3/56 |
| RJ-3600..... | 11/48 | TRC-421A..... | 9/35 | 1-617..... | 3/52 |
| PEARCE | | TRC-422..... | 8/45 | 1-619..... | 3/56 |
| Simpson Leopard B.... | 3/49 | TRC-422A..... | 10/64 | 1-621..... | 3/57 |
| Simpson Tiger 40A.... | 9/34 | TRC-424..... | 3/57,9/35 | 1-625..... | 3/56 |
| Supertiger 40A..... | 3/60 | TRC-425..... | 7/53 | 1-641..... | 3/60,4,51 |
| PIONEER | | TRC-426..... | 10/64 | 1-651..... | 7/55 |
| GT-100G (AM-EM-CB).. | 10/62 | TRC-427..... | 8/45 | 1-655..... | 11/50 |
| PRESIDENT | | TRC-428..... | 11/48 | 1-660..... | 2/42 |
| AR-44..... | 10/63 | TRC-431..... | 4/37 | 1-673..... | 3/52 |
| Adams..... | 2/16 | TRC-432..... | 11/48 | 1-675..... | 3/53 |
| | | TRC-440..... | 8/45,9/35 | 1-680..... | 3/52 |
| | | TRC-441..... | 11/49 | SBE | |
| | | TRC-448..... | 3/51,10/64 | 26CB1A..... | 3/61 |
| | | TRC-449..... | 3/51,9/35,36 | 42CB Cortez 40... | 3/61 |
| | | TRC-452..... | 1/21,3/52 | 44CB..... | 9/36 |
| | | TRC-454..... | 8/45 | 45CB Trinidad.III | 3/61 |
| | | TRC-455..... | 3/60 | 49CB Tahoe 40.... | 3/53 |
| | | TRC-457..... | 9/35,36 | 47CB..... | 3/53 |

SECRET CB INDEX (CONT'D):

SPECIFIC RADIO TUNEUPS (Cont.)

SBE (Cont.) VOL/PG
 43CB..... 3/53
 LCM5 Land Command..... 9/36
 LCM8..... 9/36

SEARS

CM-6000LA..... 3/59
 CM-600LC..... 3/59
 Roadtalker 40..... 2/43
 370-38050700..... 3/54
 562-38200700..... 3/55
 663-38020800..... 7/53
 663-38070700..... 3/61
 934-38061700..... 11/50
 934-38062700..... 10/65
 934-38080700..... 9/37
 934-38081700..... 9/38
 934-38120700..... 3/61
 934-38260700..... 7/53
 934-38270700..... 7/54
 934-38310700..... 7/54,55

SHAKESPEARE

GBS240..... 3/53

SHARP

CB-800..... 2/42
 CB-4670..... 7/55

SONAR

FS-2340..... 5/31

SPARKOMATIC

SR42/CEM..... 3/54

SURVEYOR

2610..... 3/54
 620..... 3/55

Teaberry

Model T..... 3/55
 T Charlie..... 10/65

TEABERRY (Cont.) VOL/PG

T Command..... 3/55
 T Dispatch..... 3/55
 Racer T..... 3/55
 Stalker II..... 1/21
 Stalker III..... 7/55
 Stalker V..... 7/55
 Stalker VIII..... 10/65
 Stalker IX..... 10/65
 Stalker XII..... 7/56

TENNA

11.302 (AM, FM, CB)..... 9/37
 10902..... 10/65

TRS

Challenger 600..... 9/37
 Challenger 850..... 7/55

TRAM

D12..... 3/54

TRUETONE

CYJ4832-A-87..... 2/43
 CYJ4837-A-87..... 3/59
 CYJ4862-A-87..... 9/39

UTAC

TRX-400..... 3/59
 TRX-500..... 3/56

VECTOR

X..... 2/43
 770..... 9/37
 790..... 9/37

WARDS

GEN-775A..... 3/61

SECRET CB INDEX (CONT'D):

VOLUME 1

| | <u>PAGE #</u> |
|--|---------------|
| CRYSTAL CROSS REFERENCE GUIDE | 5-10 |
| LETTER CHART FOR CRYSTAL FREQUENCY CORRELATION | 11-18 |
| GENERAL INFORMATION | 63-67 |
| LINEARS | 68-70 |
| 40 CHANNEL PLL SWITCH | 71,72 |

VOLUME 2

| | <u>PAGE #</u> |
|--|---------------|
| NEW CRYSTAL CROSS REFERENCE GUIDE | 5-9 |
| LETTER CHART FOR CRYSTAL FREQUENCY CORRELATION | 10-13 |
| ANTENNA REPORTS | 53-55 |
| BETA-COM INFO (upgrading 23 channel radios) | 57-87 |

VOLUME 3

| | <u>PAGE #</u> |
|---|---------------|
| SUPER MOD. IV (Frequency Counter Kit) | 16-18 |
| MICROPHONE WIRING INSTRUCTIONS | 26-32 |
| PLL CHANNELIZER | 33-40 |
| ANTENNA SECRETS (K40 Stud Mount for Big Stick) | 63,64 |
| SPECIAL SECTION ON LINEAR AMPLIFIERS: | |
| 50-70W MOBILE | 66 |
| 300-400W BASE | 67-69 |
| 70W BASE | 70,71 |
| EAGLE 200 | 72 |
| EAGLE 500 | 73 |
| CONVERSION FROM AMATEUR TRANSMITTER TO LINEAR AMP | 74 |
| LINEAR AMP PROBLEMS & SOLUTIONS | 75,76 |

VOLUME 4

| | <u>PAGE #</u> |
|---------------------------------------|---------------|
| HOW TO BUILD YOUR OWN RELAY MODULE | 16 |
| 02A CHIP INFORMATION | 54,55 |
| TURNER MIC EXPANDER (500 AMC DISABLE) | 62 |
| K40 BLINKIE | 63 |
| SUNSPOT PREDICTION CHART | 64 |
| LINEAR REPORT SECTION | |
| D & A MAVERICK | 65 |
| D & A 500 TRIPLE CONVERSION | 65 |
| EAGLE 515 MODIFICATION | 66,67 |
| UNIDEN SSB 10 METER POWER CONVERSION | 68-70 |
| SUPER CLARIFIER DIODE | 71 |

VOLUME 5

| | <u>PAGE #</u> |
|--|---------------|
| 10 METER CONVERSION MICROCOMPUTER (MICROMONITOR PLL) | 1-5 |
| ECHO BOX | 6 |

SECRET CB INDEX (CONT'D):

VOLUME 5

| | <u>PAGE #</u> |
|---|---------------|
| 250 WATT DUMMY LOAD | 7 |
| BUILT IN POWER MIKE | 8,9 |
| 5-MILE SIMULATOR | 10 |
| RECEIVER PREAMP | 11 |
| GLEN DIGITAL CONTROLLER | 12,13 |
| GETTING SWR DOWN ON BASE ANTENNAS | 15 |
| APARTMENT ANTENNA | 16 |
| GROUNDING MOBILE RADIOS | 17 |
| OOPS! WE GOOFED (corrections for volumes 1-4) | 17,18 |
| THE ART OF WIDEBANDING 858 CHIP | 44 |
| CONVERSION KIT + MARS & CAP FOR SSB | 48,49 |
| CONVERSION OF AM/SSB TO 10 METER AMATEUR | 52 |
| REDCO UFO INSTALLATIONS | 61-70 |
| SLIDE INCREASE, ALL SSB RADIOS | 71 |
| RADAR COMMUNICATOR | 72 |

VOLUME 6

| | <u>PAGE #</u> |
|---|---------------|
| PLL CRYSTAL CROSS REFERENCE GUIDE | 1,2 |
| SECRET CB TEST TONE | 13 |
| ERRONEOUS SIGNAL LOCATOR | 14 |
| LOW COST AMATEUR CONVERSION FOR 10 METERS | 15 |
| BASE ANTENNA GROUNDING | 16,17 |
| SUPER CLARIFIER 10-TURN POT | 22 |
| OOPS! WE GOOFED (corrections for volume 5) | 25 |
| THUMBWHEEL 200 CHANNEL CONVERSION FOR 858 CHASSIS | 31-34 |
| REDCO UFO APPLICATIONS | 40-52 |
| SPECIAL SECTION ON LINEAR AMPLIFIERS: | |
| PDX 400 | 54 |
| D & A MAVERICK 250 | 55 |
| MACO DUSTER 300, 750 & 1000 TRANSMITTER | 56,57 |
| MACO 75 | 58 |
| 500 CX & 700 CX 10 to 11 METER CONVERSIONS | 58 |
| RDX-75 | 59 |
| HDX-50 | 59 |
| MDX-200 | 60 |
| PDX-400 | 61 |
| 10 METER EXPERIMENTER BOARD INFORMATION | 62,63 |
| SUPER CLARIFIER HINTS | 66 |
| REDCO DX-50 | 68-70 |

VOLUME 7

| | <u>PAGE #</u> |
|--|---------------|
| HOW TO MAKE YOUR EAGLE SCREAM | 14 |
| IMPROVED SLIDE MODIFICATION FOR 02A SSB RADIOS | 42 |
| UPDATED 200 CHANNEL AMATEUR CONVERSION FOR 858 CHIP | 43-48 |
| 10 METER CONVERSION FOR SSB RADIOS USING MB8719 CHIP | 49-50 |

SECRET CB INDEX (CONT'D):

VOLUME 7

| | <u>PAGE #</u> |
|---|---------------|
| HOW TO MAKE YOUR 858 CHASSIS SLIDE | 56 |
| LINEAR AMPLIFIER NOTES | 57-56 |
| ECHO BOX SPEECH PROCESSING FOR TRC-449 | 60 |
| ADDING PING | 61 |
| CORRECTION TO THUMBWHEEL 200 CHANNEL CONVERSION | 62,63 |
| MICROMONITOR TECH NOTES | 64-69 |
| MICROMONITOR INSTALLATION INSTRUCTIONS FOR RADIOS USING 858 CHIP | 70,71 |
| AMP FOR RF PROBE | 72 |
| OSCILLOSCOPE MODIFICATION FOR RF & MODULATION DISPLAY | 73 |
| THE "BANDIT" ANTENNA | 74-76 |
| EXPO 100 KIT | 76 |
| SECRET CB'S OWN "TROUBLESHOOTER" | 77 |

VOLUME 8

| | <u>PAGE #</u> |
|---|---------------|
| WHAT'S NEW ON THE ELECTRONICS HORIZON? | 1-6 |
| UHF FM CB (GMRS) | 7-10 |
| UNIDEN MB8719 PLL CHIP FREQUENCY CONVERSION | 15 |
| FREQUENCY MOD. FOR JC PENNEY, COLT, LAFAYETTE, HYGAIN, ETC. | 18 |
| BROWNING MKIVA MOD. & UFO INSTALLATION | 22,23 |
| BROWNING MKIV TRANSMITTER TROUBLESHOOTING | 25-32 |
| OOPS! WE GOOFED (corrections for volumes 5 & 7) | 41-43 |
| LINEAR AMPLIFIER NOTES: | |
| Installing & Troubleshooting Linear Amplifiers | 47-49 |
| 10 Meter Amp Board Modification to Upright Driver | 50 |
| YOU CAN BUILD IT | |
| Two-Tone Generator | 51 |
| Yaesu 601(B) Frequency Counter Modification to Read CB Low, Middle, High Frequencies | 52-54 |
| RF Test Meter | 56,57 |
| REDCO UFO MODIFICATION (from 20 to 29.995MHz) | 55 |
| SECRET CB'S POWER VECTORING | 58 |
| HOW THE ECHO BOX CAN ACTUALLY SURPASS THE POWER OF A LINEAR IN SSB | 59 |
| MICROMONITOR QUESTIONS | 60-62 |
| MICROMONITOR INSTALLATION INSTRUCTIONS: | |
| SM5104 PLL | 63,64 |
| ICOM 22S | 65-67 |
| NEW PRODUCT RELEASES: | |
| Zapper 9000 | 68,69 |
| Redco Digi-Scan UFO Elite | 70 |
| Chopper Charlie Antenna, Model 64#5 | 71 |
| Troubleshooter | 73 |

SECRET CB INDEX (CONT'D):

VOLUME 9

| | <u>Page #</u> |
|---|---------------|
| SSB'ers LOSE OUT AGAIN | 1 |
| FCC ANNOUNCES PLANS FOR SIDEBAND | 2-3 |
| FCC DELAYS NPRM; SSB FREQS. DOUBTFUL | 3-4 |
| PRODUCT REVIEW; SPEED-O-MATIC "SPEEDO-1" X-BAND RADAR GUN | 5-6 |
| RELAY CRYSTAL SWITCHING | 25-26 |
| LETTER FROM A FRIEND | 27-28 |
| HINTS & KINKS-ELECTRONIC CRYSTAL SWITCHING | 29 |
| SOLVING T.V.I. | 40-42 |
| IMPORTANT FACTS ABOUT ECHO BOXES | 43-44 |
| VOICE SIGNAL BOOSTER (VSB-1) INSTALLATION | 45-48 |
| POWER SUPPLY MODIFICATION FOR REALISTIC PRE-AMP NOISE-CANCELLING MIKE #21-1175 | 49-50 |
| HINTS & KINKS- SWITCHABLE MODULATION INCREASE | 51 |
| RF ATTENUATOR | 52-54 |
| PRESIDENT SERVICE BULLETINS | 55-61 |
| OOPS! WE GOOFED! (VOL. 8, page 17) | 29 |
| OOPS! WE GOOFED! (VOL. 4, page 51) | 44 |

VOLUME 10

| | <u>Page #</u> |
|---------------------------------------|---------------|
| LETTER FROM VIC | 1 |
| SECRET CB's TROUBLE SHOOTER | 2-4 |
| VOICE SIGNAL BOOSTER- "VSB-1" | 5-19 |
| UNCONVERTIBLE CHIP LIST | 66 |
| MODULATION ADJUSTMENTS FOR NEW RADIOS | 67 |
| LINEAR SUGGESTIONS | 68-69 |
| ZAPPER INSTALLATION HINTS | 70 |
| OOPS! WE GOOFED! (VOL. 3 page 33) | 71-75 |
| (Vol. 5 page 24, 28, & 48) | 72 |
| (Vol. 8 page 16) (Vol. 8 page 17) | 72-73 |
| (Vol. 9 page 9) | 74 |
| (Vol. 9 page 51) | 75 |
| (Vol. 9 page 29) | 72 |

VOLUME 11

| | <u>Page #</u> |
|---|---------------|
| CPI ALC MODIFICATION FOR INCREASED SSB POWER | 9 |
| VSB-1 UPDATES | 25-26 |
| NEW FRONTIER: FM CB | 27-29 |
| NEW PRODUCT: DIGI-SCAN DS-400 | 30-31 |
| COMING ATTRACTIONS-SERIAL DATA/PLL FREQ. SYNTHESIZERS | 32 |
| UNCONVERTIBLE AT THIS TIME-GE 3-5900A TC9109P | 33 |
| ZAPPER 9000 INSTALLATION UPDATES | 34 |
| RADIO MODULATION ADJUSTMENTS FOR VARIOU BRANDS/MODELS | 51-53 |
| HINTS ON SERVICING | 54 |
| SERVICE NOTES-GOLDEN EAGLE MARK IV TRANSMITTER | 55 |
| D104 & D104M6 ASTATIC MIKE MODIFICATION | 55 |
| HOW TO SOLVE NOISE PROBLEMS | 56-58 |
| MORE ON "THE TROUBLE SHOOTER" | 57 |

SECRET CB INDEX (CONT'D):

VOLUME 11

| | <u>Page #</u> |
|-----------------------------------|---------------|
| IN HOUSE VALUE LISTING | 59 |
| HOW TO BUILD | 60-71 |
| PLL PINOUT DIAGRAMS | 72-77 |
| THE BANDIT ANTENNA | 53 |
| OOPS! WE GOOFED! | 78 |
| (Vol. 8,Page 52) | 78 |
| (Vol. 7,Page 53) | 78 |
| (Vol. 7,Page 43) | 78 |
| (Vol. 3,Page 25) | 78 |
| (Vol. 6,Page 32 & Vol. 7,Page 63) | 78 |
| (Vol. 10,Page 2) | 78 |
| 858 AM Conversion | 35 |

Notes