

VOLUME 28

PUBLISHED MARCH 1969

SECRET CB[®]



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**FACTUAL
REPORT**
SCHEMATICS ETC.

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

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

More information, on other units will be forthcoming in future issues.

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Secret CB®
Volume Twenty-Eight
Published March 1989

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PRINTED IN THE UNITED STATES OF AMERICA

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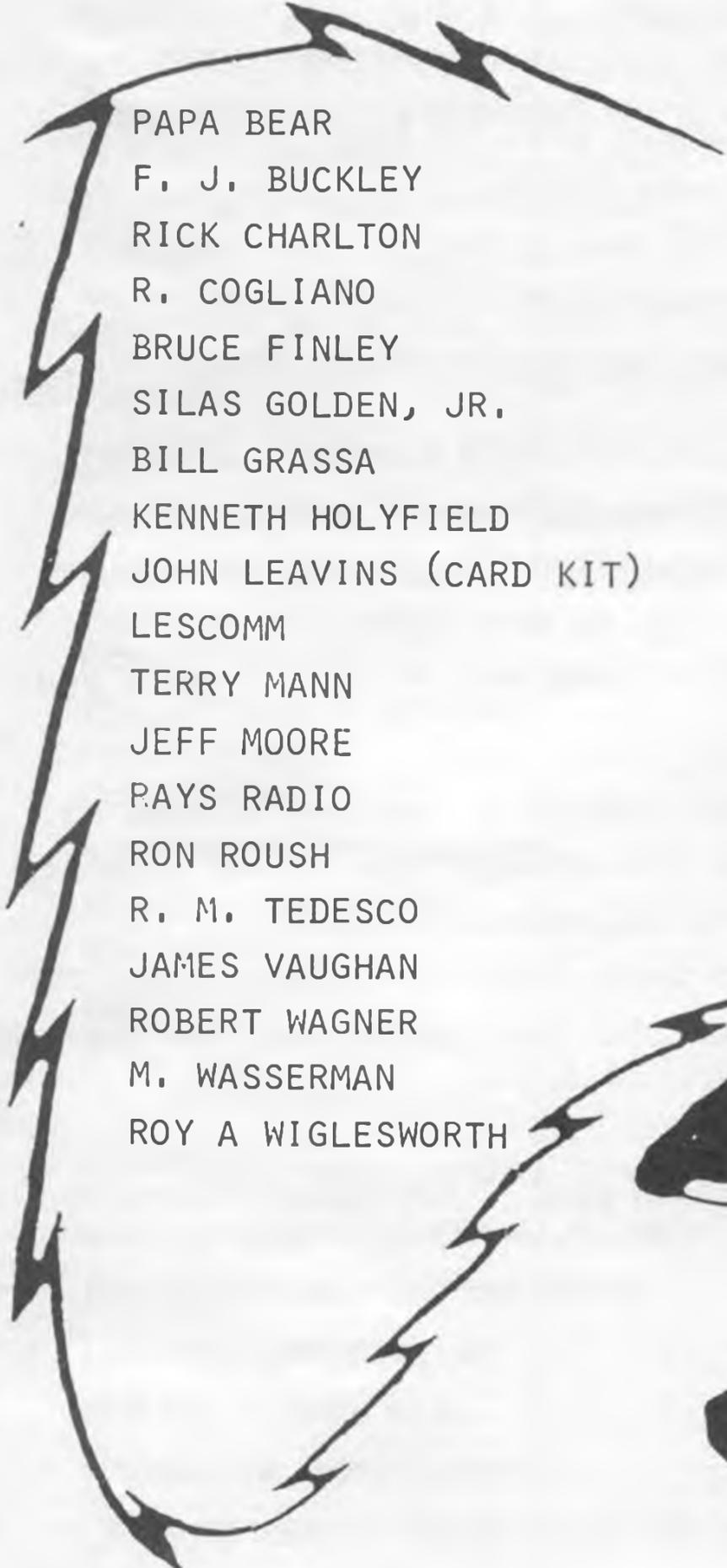
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ACKNOWLEDGEMENTS

SECRET CB WISHES TO GRATEFULLY ACKNOWLEDGE THE FOLLOWING PEOPLE FOR THEIR HELP AND CONTRIBUTIONS TOWARD GETTING VOLUME 28 IN PRINT. THEIR ENCOURAGEMENT AND CONTRIBUTION OF MATERIAL HAS BEEN INVALUABLE.

THANKS AND A FREE BOOK!



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M. WASSERMAN
ROY A WIGLESWORTH



SECRET CB VOLUME No.28 I

INTRODUCTION

. BY DORIS SELMAN

Bet you thought we would never publish SECRET CB Volume 28? SURPRISE!! We did it with your help and the expertise and hard work of our new editor, Les Jernigan.

I'm sure all of you will agree with us that he is to be commended for a job well done. We are excited about our new editor and the new format that he has given to the book.

As we have said many times it takes all of us working together as a team to accomplish the goal of releasing another volume of SECRET CB. So, please keep your articles coming.

It gets a little hectic around here sometimes, so if we leave your name off of the acknowledgement page we apologize for it. We do want you to call it to our attention and we will list your name in the next volume and of course send you a free book.

I have retired, but the excitement of another volume of SECRET CB always brings me back for enough time to be sure its done right. HA! Honestly, I do it because I love the excitement that goes with getting the book from the printers and ready to ship them out to all of you that share this excitement with us.

Remember the sooner you get your information to us the sooner we can get SECRET CB Volume 29 to you!!!

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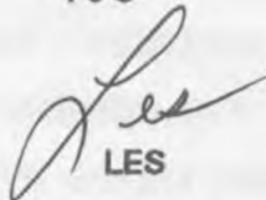
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EDITORS PAGE

- HI FRIENDS. I'M LES JERNIGAN, YOUR NEW EDITOR. GETTING VOLUME 28 OUT HAS REALLY BEEN A TASK. THANKYOU FOR ALL THE SUPPORT AND INFORMATION. REMEMBER, WITHOUT YOUR HELP, THERE WOULD BE NO SECRET CB. PLEASE KEEP THAT INFO COMING!
- AS I'M SURE YOU'VE NOTICED, SECRET CB HAS A NEW LOOK. IT'S BEING FORMATTED NOW WITH A DESKTOP PUBLISHING PROGRAM CALLED VENTURA PUBLISHER FROM XEROX. I'M SURE ALOT OF YOU ARE FAMILIAR WITH THIS. HOPEFULLY BY USING A COMPUTER TO DO SECRET CB FROM NOW ON, IT WON'T BE SUCH A TASK GETTING SUBSIQUENT VOLUMES INTO PRINT. IF YOU HAVE AN MS-DOS CAPABLE COMPUTER AND A 360K, 5 1/4' FLOPPY, YOU CAN SEND IN YOUR INFO ON DISK IF YOU WISH. JUST BE SURE TO SPECIFY WHICH WORD PROCESSOR YOU USED TO TYPE IN THE TEXT. VP CAN CONVERT SEVERAL SOFTWARE PACKAGES INTO ITS' FORMAT AND BACK AGAIN IF NECESSARY. SOME OF THE SUPPORTED SOFTWARE IS MULTIMATE (MY FAVORITE) WORD PERFECT, LOTUS 1-2-3,JUST TO NAME A FEW. SO AS YOU CAN SEE, THIS OPENS UP A NEW MEANS FOR ALL YOU COMPUTER BUFFS TO GET YOUR INFO TO US.
- ABOUT THE NEW FORMAT, YOU'LL NOTICE THAT EACH PAGE NOW HAS THE MAIN TOPIC DISPLAYED AT THE TOP. THIS CAN ENABLE YOU TO FIND A SUBJECT VERY QUICKLY. YOU'LL ALSO NOTICE THAT THE CHARACTERS ARE NOW SMOOTH, BOLD AND EASY TO READ, EVEN ACROSS THE WORKBENCH. EACH DRAWING/FIGURE HAS BEEN SURROUNDED WITH A BOX AND LABELED WITH ITS' CONTENTS FOR EASY ASSOCIATION WITH ITS' TEXT. ALL NOTES HAVE BEEN ITALISIZED TO STAND OUT WHICH WILL PREVENT YOU FROM MISSING THAT IMPORTANT TIP.
- I'M VERY EXCITED ABOUT BEING THE NEW EDITOR AND HOPE THAT I WILL NOT DISAPPOINT YOU. ALSO I DON'T BELEIVE WE'VE MENTIONED IT RECENTLY SO I'LL MENTION IT NOW. WE ARE ALSO PUBLISHING POLICE SCANNER MODS. I MYSELF AM ALSO AN AVID SCANNER BUFF AND HAVE SEVERAL PROGRAMMABLE SCANNERS. ALMOST ALL OF MY FRIENDS THAT HAVE A CB RADIO ALSO HAVE A SCANNER. SO I'M SURE THAT MOST OF YOU DO TOO.
- NOW, I WOULD LIKE TO SAY THANKS TO SELMAN ENTERPRISES AND THE GANG FOR THIS WONDERFUL OPPORTUNITY AND YOUR CONFIDENCE IN MY ABILITIES.
- NEXT THANKS FAULKNER FOR THE ASSISTANCE!
- I ALSO WISH TO THANK MY LOVELY WIFE PEGGY AND SON STEVEN FOR THEIR SUPPORT AND UNDERSTANDING, AND THANKS FOR THE DOZENS OF CUPS OF COFFEE SWEETHEART! (THE LIFE SUSTAINING JUICE THAT KEPT ME GOING!!)
- FINALLY, THANK ALL OF YOU FOR MAKING SECRET CB SUCH A SUCCESS!!!

73'S



LES

COBRA 148GTL-DX FOUR BAND MOD PLUS 10KC SWITCH

• *LESCOMM*

THE 10KC SWITCH

THIS 10KC SWITCH IS UNIQUE IN THAT IT CAUSES ALL THE FREQUENCIES TO GO UP 10KCS ON ALL BANDS/CHANNELS.

1. LOCATE THE JUMPER LABELED JP54. IT IS CONNECTED FROM PIN 9 OF IC6 TO BOARD GROUND.

2. REPLACE THE JUMPER WITH A 4.7K OHM 1/4 WATT RESISTOR.

3. WIRE A SPST SWITCH AS FOLLOWS:

A. CONNECT THE OUTSIDE TERMINAL TO PIN 9 OF IC6.

B. CONNECT THE CENTER TERMINAL TO THE +8VDC SUPPLY BY FOLLOWING JP57 TO THE OUTSIDE END AND USING THE RESISTOR HOLE LABELED R146.

NOTE: WHAT YOU ARE DOING IS APPLYING +8VDC TO PIN 9 WHICH CAUSES THE SHIFT.

FORTYMOREUP

WITH THIS PART OF THE MOD, THE RADIO WILL GO UP TO 28.245 ON CHANNEL 34.

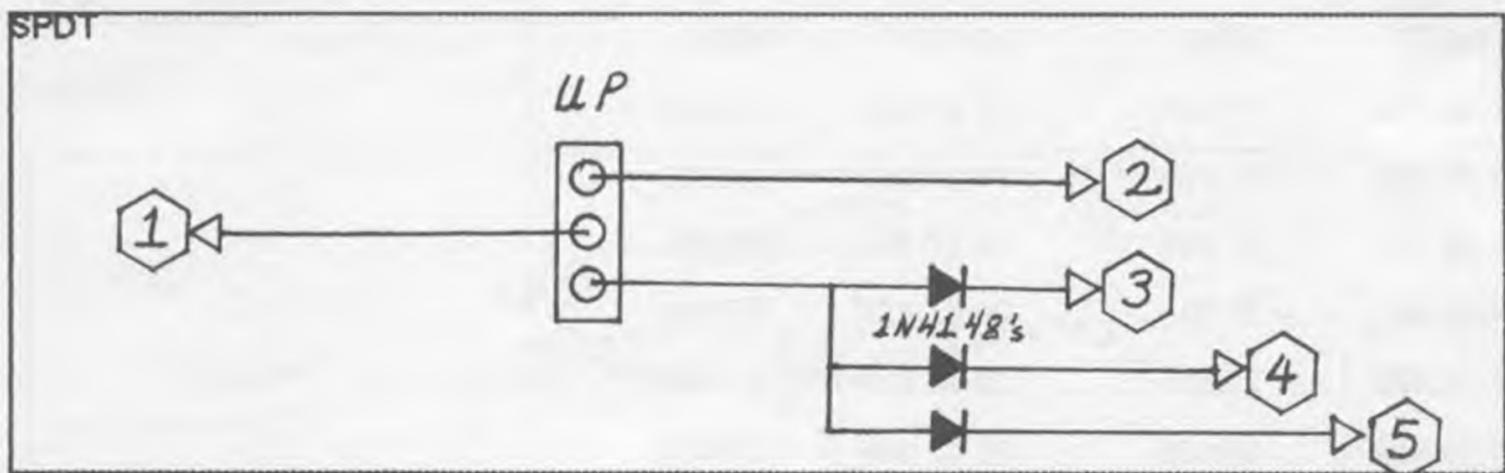


FIGURE 1. 148GTL-DX EXTEND SWITCH

CHANNELS 35 THROUGH 40 NOW SELECT FREQUENCIES IN THE 29MHz RANGE SO YOU WILL NOT BE ABLE TO USE THEM. WITH THE NEW SWITCH SELECTED, THE RADIO PICKS UP WHERE THE HIGH BAND LEFT OFF.

1. WIRE A SWITCH AS SHOWN

EXTENDED RANGES FOR THE STALKER IX-FM

2. REMOVE THE "GRAY" WIRE COMING FROM THE BAND SWITCH, AT THE PC BOARD. IT IS LABELED EITHER "MX(3)" OR "HI" ON THE BOARD
3. CONNECT THIS WIRE TO WIRE "#1" ON THE NEW SWITCH.
4. CONNECT WIRE "#2" TO THE HOLE LABELED "MX(3)" OR "HI", THAT WAS VACATED BY THE GRAY WIRE IN STEP 2.
5. CONNECT WIRE "#3" TO PIN 2 OF IC7.
6. CONNECT WIRE "#4" TO PIN 15 OF IC6.
7. CONNECT WIRE "#5" TO PIN 4 OF IC6.

NOTE: PAY VERY CLOSE ATTENTION TO THE LAYOUT OF IC6 & 7'S PINS. THEY ARE OPPOSITE OF ONE ANOTHER AND IT IS VERY EASY TO GET CONFUSED.

EXTENDED RANGES FOR THE STALKER IX-FM

• *LESComm*

THIS CONVERSION PROVIDES A 10KC SWITCH WHICH GOES UP 10KCS ON ALL 40 CHANNELS WHEN THE RANGE SWITCH IS IN THE "LO" RANGE POSITION, AND GOES DOWN 10KCS WHEN THE RANGE SWITCH IS IN THE "HI" POSITION. THE EXTENDED RANGE SWITCH WE WILL ADD WILL NOT EFFECT THE OPERATION OF THE 10KC SWITCH.

THIS IS HOW THE EXTENDED FREQUENCIES WILL COME OUT WITH THIS MOD:

LO/LO	HI/HI	LO/LO	HI/HI
1-28.085	27.575	21-27.055	27.825
2-28.815	27.585	22-27.065	27.835
3-26.825	27.595	23-27.095	27.865
4-28.845	27.615	24-27.075	27.845
5-28.855	27.625	25-27.085	27.855
6-28.865	27.635	26-27.105	27.875
7-28.875	27.645	27-27.115	27.885
8-28.895	27.665	28-27.125	27.895
9-28.905	27.675	29-27.135	27.905
10-28.915	27.685	30-27.145	27.915
11-28.925	27.695	31-27.155	27.925
12-28.945	27.715	32-27.165	27.935

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13-26.955	27.725	33-27.175	27.945
14-26.965	27.735	34-27.185	27.955
15-26.975	27.745	35-27.195	27.965
16-26.995	27.765	36-27.205	27.975
17-27.005	27.775	37-27.215	27.985
18-27.015	27.785	38-27.225	27.995
19-27.025	27.795	39-27.235	28.005
20-27.045	27.815	40-27.245	28.015

NEXT, DO THE CLARIFIER MOD SHOWN ON PAGE 50 OF VOLUME 15.

THE FOLLOWING PARTS ARE REQUIRED FOR THE MODIFICATIONS OUTLINED HERE:

PARTS REQUIRED FOR EXTENDED FREQUENCIES:

- 3 POSITION/1 POLE ROTARY SWITCH. (OBTAIN AN OLD AM/USB/LSB MODE SWITCH FROM AN OLD/JUNK SSB RADIO, OR YOU CAN PURCHASE THE UNIDEN HR2510 MODE SWITCH IF YOU PREFER. THE MODE SWITCH WILL FIT IN AN EXISTING CONTROLS HOLE AND YOU CAN USE THE ORIGINAL KNOB.
- FOUR 10K OHM 1/4 WATT RESISTORS
- ONE 2.7K OHM 1/4 WATT RESISTOR
- TWO 1N4148 DIODES
- ONE 2N3904 TRANSISTOR
- ONE DPDT SWITCH (OR YOU CAN USE AN EXISTING SWITCH)

ON TO THE CONVERSION

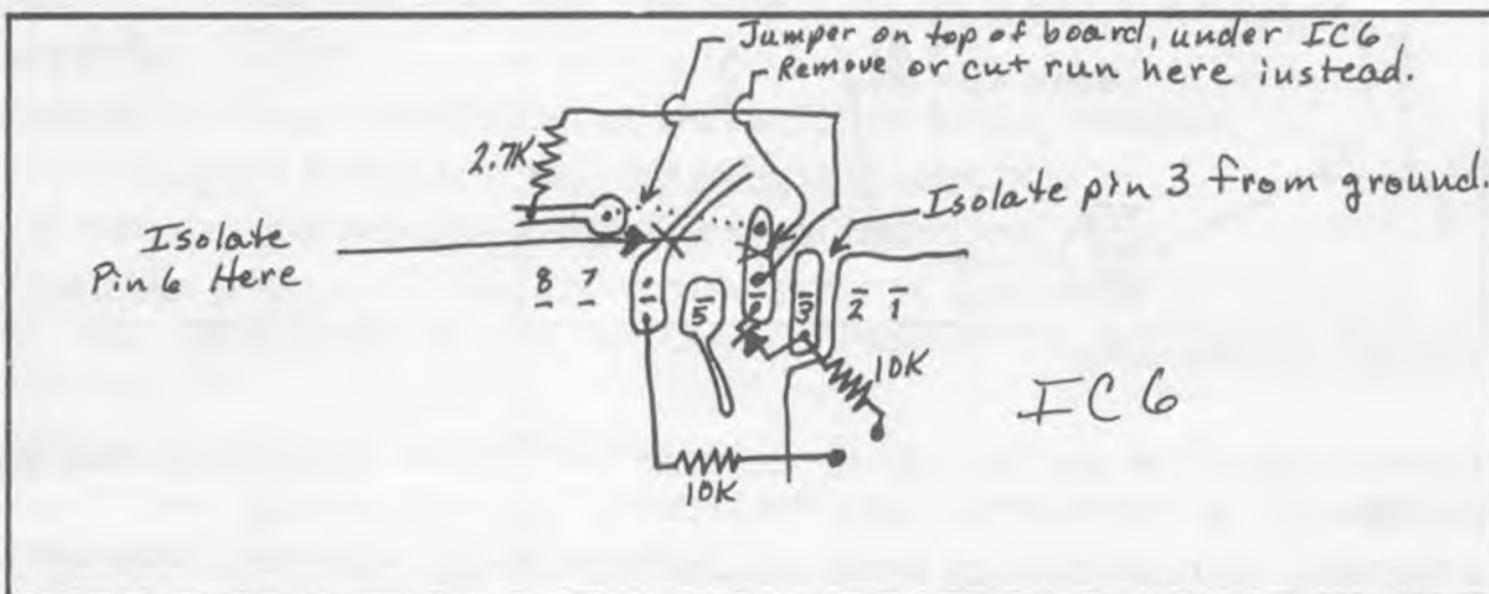


FIGURE 1. STALKER IX-FM

EXTENDED RANGES FOR THE STALKER IX-FM

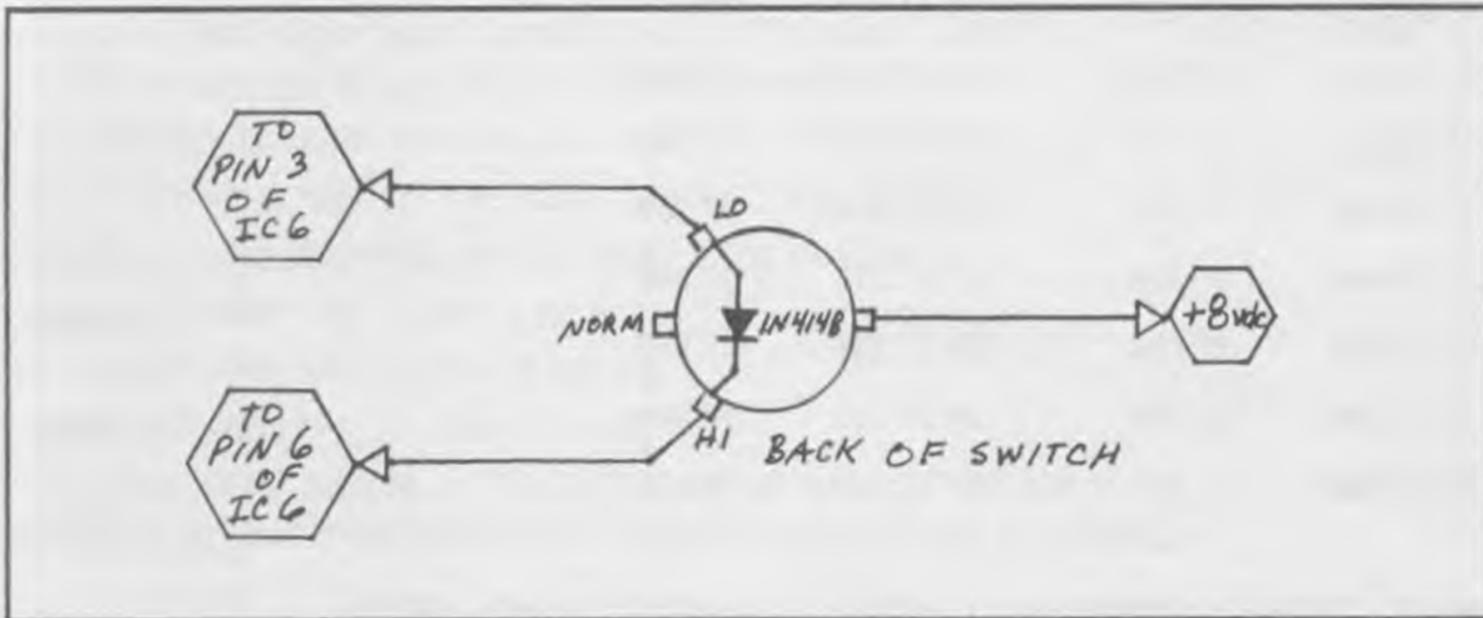


FIGURE 2. STALKER IX-FM

REFER TO FIGURE ONE

1. ISOLATE PIN 6 OF IC5.

2. ISOLATE PIN 6 OF IC6.

3. ISOLATE PIN 4 OF IC6. (I WOULD ADVISE REMOVING IC6, AND THEN REMOVE THE JUMPER CONNECTING PIN 4 TO THE HI/LO VOLTAGE BUSS. BUT IF YOU'RE IN A HURRY, YOU CAN CUT THE RUN AT PIN 4. IF YOU DO REMOVE IC6, BE AWARE THAT IT IS CMOS AND CAN BE DAMAGED BY STATIC DISCHARGES. FORTUNATELY THOUGH, REPLACEMENTS ARE READILY AVAILABLE.

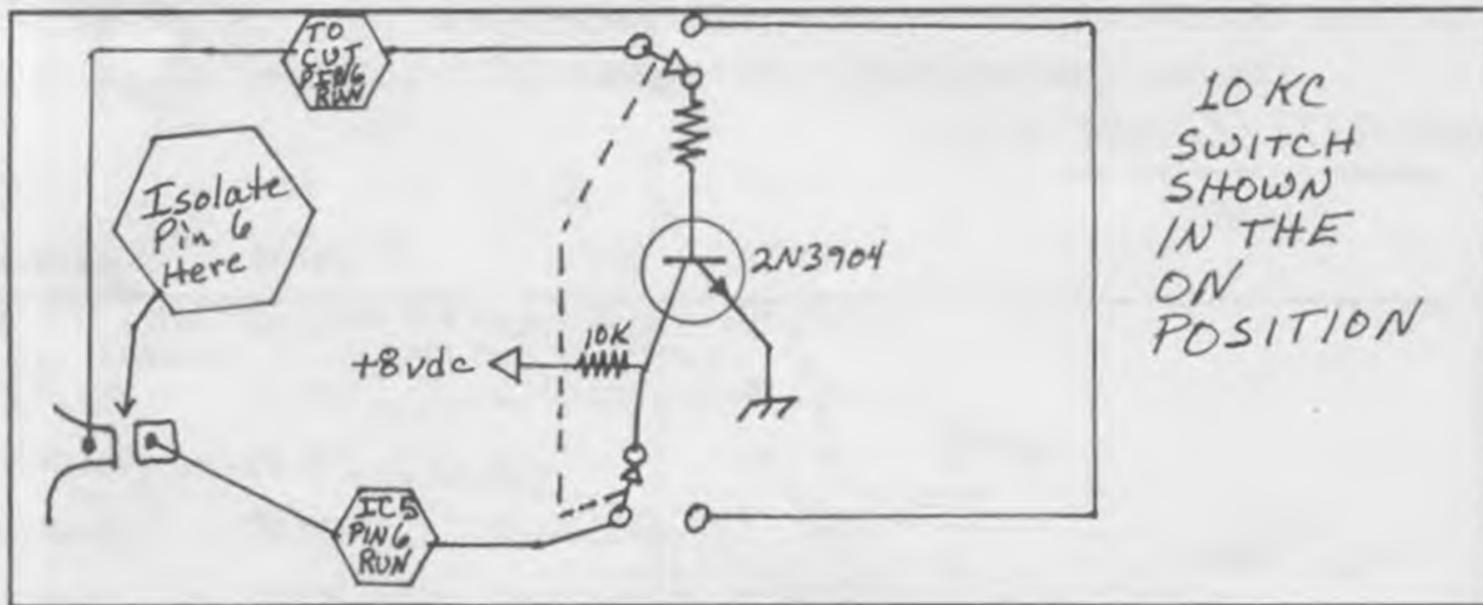


FIGURE 3. STALKER IX-FM

4. ISOLATE PIN 3 OF IC6, BUT LEAVE YOURSELF ENOUGH OF THE COPPER PAD TO SOLDER TO.

5. SOLDER A 10K OHM RESISTOR FROM GROUND TO PIN 3 AND ONE TO PIN 6 OF IC6.

6. SOLDER A 2.7K OHM RESISTOR FROM PIN 4 OF IC6, TO THE BUSS YOU ISOLATED IT FROM IN STEP 3.

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7. SOLDER THE CATHODE OF A 1N4148 DIODE TO PIN 4 OF IC6 AND THE ANODE TO PIN 3 OF IC6.
8. WIRE AND CONNECT THE SWITCH AS SHOWN IN FIG. TWO.
9. NOW, WIRE AND CONNECT THE DPDT SWITCH AND TRANSISTOR AS SHOWN IN FIG. 3. (THIS IS THE 10K SWITCH.)

YOU SHOULD NOW BE READY TO TRY IT OUT. ON ALL THE UNITS SO FAR CONVERTED, NO ADJUSTMENT OF THE VCO WAS REQUIRED. POWER WAS STEADY FROM TOP TO BOTTOM. EXCELLENT RECEIVER! IN FACT, ACCORDING TO MY B&K, BETTER THAN THE DUAL CONVERSION 8719 CHASSIS, WHICH SAYS A LOT FOR THIS RADIO. ON ADDING THE MODE SWITCH, I REMOVED THE RF GAIN CONTROL AND MOUNTED IT IN THAT HOLE. ALL YOU NEED TO DO IS GROUND THE CENTER WIRE THAT GOES TO THE CONTROLS CENTER LUG (THE WIPER). IN MOST RADIOS, IT IS A BROWN WIRE. BUT, DID HAVE A COUPLE WITH GREEN WIRES.

IMPROVED 02A SSB CLARIFIER MODIFICATION

• *LESCOMM*

THIS MOD WILL ALLOW A LARGE AMOUNT OF SLIDE WITHOUT POWER DROP-OFF AT THE EXTREME ENDS OF THE SLIDE WHICH IS COMMON IN 02A SSB RADIOS. IT WILL ALSO ALLOW YOU TO ADJUST AM, USB AND LSB TOGETHER ON CENTER SLOT.

REFER TO PAGE 46 FOR SCHEMATIC

1. REMOVE D3 AND SAVE. REMOVE C20, C21, C18, C7, R13, R24, R25, D4 AND D5.
2. CONNECT THE CATHODE OF D3 TO THE JUNCTION OF CT1 & CT2.
3. FOLLOW THE CENTER WIRE OF THE CLARIFIER TO THE PC BOARD AND REMOVE IT AT THIS POINT. CONNECT IT TO THE JUNCTION OF D3, CT1 & CT2, THROUGH A 10K OHM RESISTOR.
4. CONNECT A 3.3uh CHOKE BETWEEN THE ANODE OF D3 AND GROUND.
5. OPEN THE RUN BETWEEN X1 AND THE CT1/CT2/D3 JUNCTION.
6. BRIDGE THE OPENING WITH A .02uf 'NPO' DISC CAPACITOR.
7. CONNECT A .001uf NPO DISC CAPACITOR FROM THE EMITTER OF Q3 TO PIN 4 OF IC2. DO THIS ON THE TOP OF THE PC BOARD TO PREVENT THE BOTTOM COVER FROM AFFECTING IT.
8. REPLACE C17 WITH A 47pf NPO DISC CAPACITOR.

NOTE: THE REASON WE ARE USING NPO DISC CAPACITORS IS TO PREVENT FREQUENCY DRIFT AS MUCH AS POSSIBLE.

WHAT WE HAVE DONE IS CONVERTED Q3 INTO AN AMPLIFIER CIRCUIT VICE AN OSCILLATOR CIRCUIT. X1 WILL OSCILLATE ON ITS OWN WITHOUT Q3 & T3. AND SINCE OUR OUTPUT OF IC2 IS TUNED FROM 37.660 TO 38.100 BY T1 & T2, WE WILL BE USING

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HOPPING UP THE 8719 RECEIVER

THE SECOND HARMONIC ANYWAY. SO T3 IS NOT NEEDED AS A DOUBLER. BUT, DON'T REMOVE IT.

WE ARE USING IT TO FILTER Q3'S SUPPLY VOLTAGE. THUS OUR OSCILLATOR MAINTAINS A CONSTANT PEAK TO PEAK VOLTAGE WHILE BEING PULLED AROUND BY D3. HENCE, NO DROP OFF AT EXTREME ENDS OF THE CLARIFIER.

9. WIRE THE CLARIFIER AS SHOWN USING THE UNCONNECTED END FOR THE CONNECTION TO THE REGULATED +9 VOLTS.

NOTE: DOUBLE CHECK YOUR WORK NOW. USING THE NEW SCHEMATIC IN FIGURE ONE TO COMPARE YOUR WORK TO. IF EVERYTHING LOOKS GOOD, HOOK UP POWER AND TURN THE UNIT ON. IF ALL IS STILL OK, INSTALL THE TOP COVER BEFORE DOING THE ALIGNMENT. IT MAY AFFECT YOUR ADJUSTMENTS.

ALIGNMENT PROCEDURE

1. SWITCH TO CHANNEL 40 (OR 23) AM. TURN THE CLARIFIER FULLY CLOCKWISE. ADJUST CT1 FOR MAXIMUM 'UP' SLIDE. NEXT ADJUST THE 'CLARIFIER KNOB' FOR 'CENTER' SLOT. WHEN SET, BE CAREFUL 'NOT' TO MOVE THE KNOB.

2. SWITCH TO LOWER SIDEBAND. INJECT A 1000Hz TONE INTO THE MICROPHONE. ADJUST CT2 FOR A READING OF 27.4040 ON YOUR FREQUENCY COUNTER. NEXT, ADJUST THE KNOB FOR A READING OF 27.3990 ON THE COUNTER, WHILE STILL INJECTING THE TONE. MARK THIS SPOT ON THE RADIO. IT IS YOUR 5KC DOWN POSITION.

NOTE: THIS COMPLETES THE CONVERSION. THE RADIO USED FOR EXPERIMENTATION WAS A MIDLAND 79 892. A CLARIFIER MODIFICATION HAD ALREADY BEEN PERFORMED ON THE UNIT AND THE CLARIFIER KNOB MOVED TO THE FRONT PANEL.

HOPPING UP THE 8719 RECEIVER

• *LESCOMM*

MANY HAVE STATED NOT ENOUGH ATTENTION IS BEING PAID TO THE RECEIVER OF MULTI FREQUENCY CONVERTED RADIOS. I AGREE WITH THAT STATEMENT AND INTEND TO DO SOMETHING ABOUT IT. THAT SOMETHING IS THE FOLLOWING MODIFICATION FOR THE SINGLE CONVERSION 8719 CHASSIS. (I.E., THE UNIDEN WASHINGTON, COBRA 140GTL AND 142GTL, ETC.)

1. CHANGE R39 TO A 330 OHM 1/4 WATT RESISTOR.

2. BRIDGE L9 WITH A 1pF CAP, FROM THE PRIMARY HOT SIDE TO THE SECONDARY HOT SIDE. (SIDES OPPOSITE POWER SUPPLY AND GROUND PINS.)

3. PARALLEL C42 AND C44 WITH 1pF CAPS OR REPLACE THEM WITH 3pF CAPS. DO NOT GO ANY LARGER! 3pF IS WHAT THE VALUE MUST BE.

4. REPLACE C166 (IN FT2'S HOLES) WITH A 33pF CAP. IF UNIT HAS FT2, LEAVE FT2 IN PLACE.

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5. REMOVE R58 AND REPLACE WITH A 10 OHM RESISTOR. KEEP THE LEADS SHORT! IF THE RADIO GOES INTO OSCILLATIONS (NOTED BY A REPEATED CHIRPING SOUND FROM SPEAKER), YOU WILL HAVE TO INCREASE THE RESISTANCE OF THE NEW R58. GO UP IN 50 OHM INCREMENTS.

TUNEUP

1. GO TO THE CENTER OF YOUR FREQUENCY SPREAD. ADJUST L10, L7, L6, & L5 HERE FOR PEAK 'WEAK' SIGNAL READING ON THE S/RF METER. DON'T TRY TO ADJUST THEM USING AN 'S9' SIGNAL!

2. GO TO YOUR HIGHEST FREQUENCY NOW AND ADJUST L9 FOR PEAK.

3. NOW GO TO YOUR LOWEST FREQUENCY AND ADJUST L8 FOR PEAK. BOUNCE BACK AND FORTH BETWEEN THESE TWO ADJUSTMENTS UNTIL YOU A SATISFACTORY BALANCE OF RECEIVE GAIN.

NOTE: YOU DON'T HAVE TO HAVE A SIGNAL GENERATOR TO DO THE ALIGNMENT. (IT HELPS OF COURSE.) YOU CAN JUST USE BACKGROUND NOISE AND GET IT PRETTY CLOSE, BUT LISTEN CAREFULLY! ONE THING YOU MAY NOTICE AS SOON AS YOU START USING THE RADIO IS A SLIGHT INCREASE IN BLEEDOVER. THIS HAPPENS WHEN YOU INCREASE THE GAIN OF THE IF STAGE SUCH AS WE'VE DONE HERE. IF THE BLEEDOVER IS TOO BAD FOR YOU, YOU CAN ORDER AN FT2 FILTER AND INSTALL IT IN SERIES WITH THE EXISTING ONE (OR ADD IT IF YOUR RADIO DOESN'T HAVE IT.) OR PUTTING THE OLD R58 BACK IN. A WORD OF CAUTION HERE, DON'T TRY REPLACING R58 WITH A POTENTIOMETER. YOU'LL BE TUNING IN ALL KINDS OF AM BROADCAST RADIO STATIONS! IF YOUR RADIO DOES NOT HAVE AN RF GAIN, I SUGGEST YOU INSTALL ONE. YOU'RE GOING TO NEED IT NOW!

THE UNIDEN PRESIDENT HR2510 CONVERSION

• ROYA A. WIGLESWORTH

THIS IS A VERY NICE TEN METER AMATEUR TRANSCEIVER FROM UNIDEN. ITS' DISPLAY GIVES FREQUENCY OUT TO FOUR PLACES AFTER THE DECIMAL POINT. (I.E., 28.XXXX) AN EXTREMELY VERSITILE UNIT, CAPABLE OF COVERAGE FROM 26.0000 TO 29.9999MHZ.

PINS 34 & 35 ARE GROUNDED TOGETHER ON THE BOTTOM SIDE OF THE SYNTHESIZER BOARD.

1. CUT THE PCB PATTERN TO DISCONNECT PINS 34 & 35 FROM GROUND SO THAT BOTH ARE AT A FLOATING STATE.

2. CONNECT A 10K OHM 1/4 WATT RESISTOR BETWEEN THE JUNCTION OF PINS 34 & 35 TO THE +5VDC LINE PATTERN. (WHERE R181-187 ARE CONNECTED TOGETHER.)

THE UNIDEN PRESIDENT LINCOLN CONVERSION

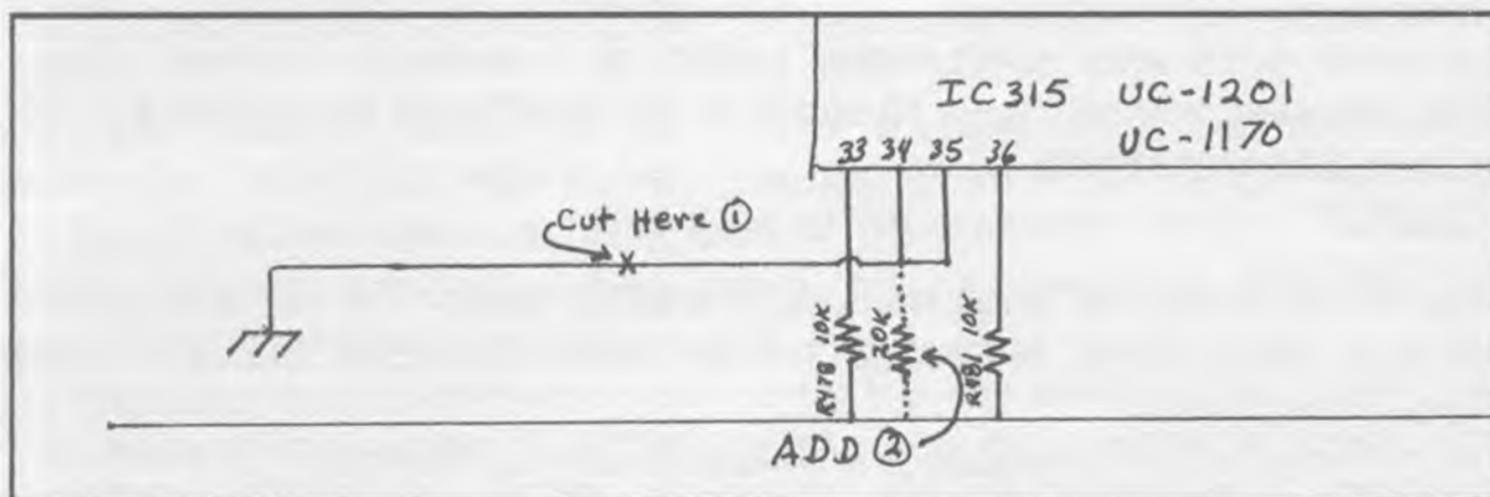


FIGURE 1. UNIDEN HR2510

THE UNIDEN PRESIDENT LINCOLN CONVERSION

• RICK CHARLTON

THIS IS THE SISTER UNIT TO THE HR2510. IT HAS NO RF GAIN, BUT DOES HAVE AN RF POWER ADJUSTMENT IN ITS PLACE. UNFORTUNATELY, THE RF POWER KNOB ONLY WORKS FOR AM/FM, NOT SSB.

BAND SCHEME FOR BOTH UNITS IS AS FOLLOWS:

A-28.0000 TO 28.4999MHz

B-28.5000 TO 28.9999MHz

C-29.0000 TO 29.4999MHz

D-29.5000 TO 29.9999MHz

E-26.0000 TO 26.4999MHz

F-26.5000 TO 26.9999MHz

G-26.9650 TO 27.4050MHz***CHANNEL READOUT CORRESPONDS TO ACTUAL 40 CB CHANNELS.

H-27.0000 TO 27.4999MHz

I-27.5000 TO 27.9999MHz

ALL BANKS CONTAIN 50 CHANNELS EACH EXCEPT BAND "G" WHICH HAS FORTY. NO NEED FOR CLARIFIER MOD AS UNIT HAS TUNING INCREMENTS DOWN TO 100HZ WITH DIGITAL READOUT TO SIX PLACES.

CONVERSION

CONNECT PIN 34 TO PIN 35 OF THE HITACHI UC1170 IC ON THE SYNTHESIZER BOARD VIA SOLDER BRIDGE. THAT'S IT!

GENERAL COVERAGE MODS FOR SOME AMATEUR RADIOS

ROY A. WIGLESWORTH

KENWOOD TS440 = LOCATE DIODE D-80 ON THE CONTROL BOARD. CLIP IT!

ICOM IC-751A = CLIP R34 ON THE NOISE BLANKER SWITCH BOARD.

ICOM IC-761 = CLIP R37 ON THE MARKER BOARD.

YAESU FT-767GX = LOCATE LOCAL OSCILLATOR UNIT. LOOK NEAR LOWER LEFT SIDE OF THE BOARD. THERE YOU WILL FIND A SMALL WHITE SWITCH. SWITCH IT!

ALL THE MODIFICATIONS LISTED ABOVE ARE BEST DONE WITH THE AID OF THE FACTORY SERVICE MANUAL

MODIFY THE SM-1 SCANNING MIKE

THE FOLLOWING MODIFICATION CHANGES THE INCREMENTAL TUNING STEPS OF THE CLEAR CHANNEL SM-1 SCANNING MIC, FROM 100HZ TO 1KHZ, 10KHZ OR 1MHZ STEPS.

FOR 100HZ STEPS, THE PURPLE WIRE FROM THE SM-1 BOARD MUST BE SOLDERED TO PIN 15.

FOR 1KHZ STEPS, THE PURPLE WIRE FROM PIN 15 OF IC300 (CPU BOARD) MUST BE MOVED TO PIN 9 OF IC300.

FOR 10KHZ STEPS, MOVE THE PURPLE WIRE FROM PIN 15 OF IC300 TO PIN 8 OF IC300.

FOR 100KHZ STEPS, MOVE THE PURPLE WIRE FROM PIN 15 TO PIN 7 OF IC300.

FOR 1MHZ STEPS, MOVE THE PURPLE WIRE FROM PIN 15 TO PIN 6 OF IC300.

THE WIRING CODE FOR THIS MIKE IS AS FOLLOWS:

PIN 1	SCAN UP
PIN 2	SCAN COMMON
PIN 3	SCAN DOWN
PIN 4	SCAN FAST A
PIN 5	SCAN FAST B
PIN 6	TRANSMIT
PIN 7	SHIELD
PIN 8	MIKE AUDIO

SECRET CB VOLUME No.28 13

GALAXY 2100 TEN METER EXPANSION

. *JAMES VAUGHAN*

1. ON SOLDER SIDE OF CIRCUIT BOARD , LOCATE PIN 9 OF IC5 (MC145106P). CUT FOIL TRACE TO ISOLATE PIN 9 WITH A RAZOR BLADE OR XACTO KNIFE.
2. BRIDGE ACROSS THE BREAK YOU JUST MADE, WITH A 4.7K OHM RESISTOR.
3. SOLDER A JUMPER WIRE FROM PIN 9 TO PIN B OF S10.(SEE FIGURE ONE)
4. SOLDER A JUMPER WIRE FROM A +8VDC SOURCE TO PIN A OF S10.
5. SOLDER A JUMPER WIRE FROM A GROUND SOURCE TO PIN C OF S10.

NOTE: THE FOIL TRACE YOU CUT AWAY FROM PIN 9 IN STEP 1 IS GROUND.

6. CONNECT A JUMPER FROM PIN C TO PIN D OF S10.
7. LOCATE JUMPER 13 (A WHITE WIRE), AT THE VERY FRONT OF THE CIRCUIT BOARD, JUST ABOUT CENTER. TRACE THE WIRE BACK TO THE HI/LO SWITCH ON THE FRONT OF THE RADIO. UNSOLDER JUMPER 13 FROM THE CIRCUIT BOARD AND SOLDER A NEW JUMPER FROM THAT POINT TO PIN E OF S10. LEAVE HI/LO SWITCH END OF JP13 INTACT.
8. SOLDER THE END OF JUMPER 13 YOU JUST DISCONNECTED FROM THE CIRCUIT BOARD TO PIN F OF S10.
9. MOUNT SWITCH S10 AT A CONVENIENT PLACE ON THE RADIO. KEEP THE LEADS AS SHORT AS POSSIBLE.

WHAT SWITCH S10 DOES

S10A CONTROLS PIN 9 OF IC5. PIN 9 IS THE MOST SIGNIFICANT BIT (MSB) PIN OF IC5. IT IS WIRED LOW,(GND), IN AN UNMODIFIED RADIO. ONE POSITION OF S10A KEEPS PIN 9 IN THAT STATE. THE OTHER POSITION APPLIES +8VDC TO PIN 9 FORCING IT HIGH. THIS CAUSES THE N-CODE TO SHIFT UP BY 264 COUNTS.

THE OTHER HALF OF S10, S10B, CUTS OUT C92 WHICH IS ACROSS TUNING COIL L17 OF THE VCO. THIS LEAVES THE VCO OPERATING AS IF THE BAND SWITCH WERE IN THE 'HI' POSITION, EVEN IF THE BAND SWITCH IS IN 'LO'.

SO, IN THE NORMAL POSITION, PIN 9 OF IC5 IS LOW, AND THE VCO TUNING IS CONTROLLED BY THE HI/LO SWITCH. THE LOOP MIXING CIRCUIT IS ALSO CONTROLLED BY THE HI/LO SWITCH. IN THE TEN METER POSITION, PIN 9 OF IC5 IS HIGH AND THE TEN METER SWITCH S10, HOLDS THE VCO IN THE 'HI' POSITION. THE HI/LO BAND SWITCH ONLY CONTROLS WHICH LOOP MIXING CIRCUIT IS USED.

HOW TO USE S10

1. PUT THE BAND SWITCH IN D/A.
 2. PUT THE HI/LO SWITCH ON "LO". WITH UNIT ON CHANNEL ONE, FREQUENCY COUNTER SHOULD READ 25.615MHz.
 3. SWITCH S10 FROM NORMAL TO THE TEN METER POSITION. FREQUENCY COUNTER SHOULD NOW READ 28.175MHz.
- YOU NOW HAVE THE FOLLOWING CAPABILITIES:

- | BAND A = 28.175-28.615
- LO- | BAND B = 28.625-29.065
- | BAND C = 29.075-29.515

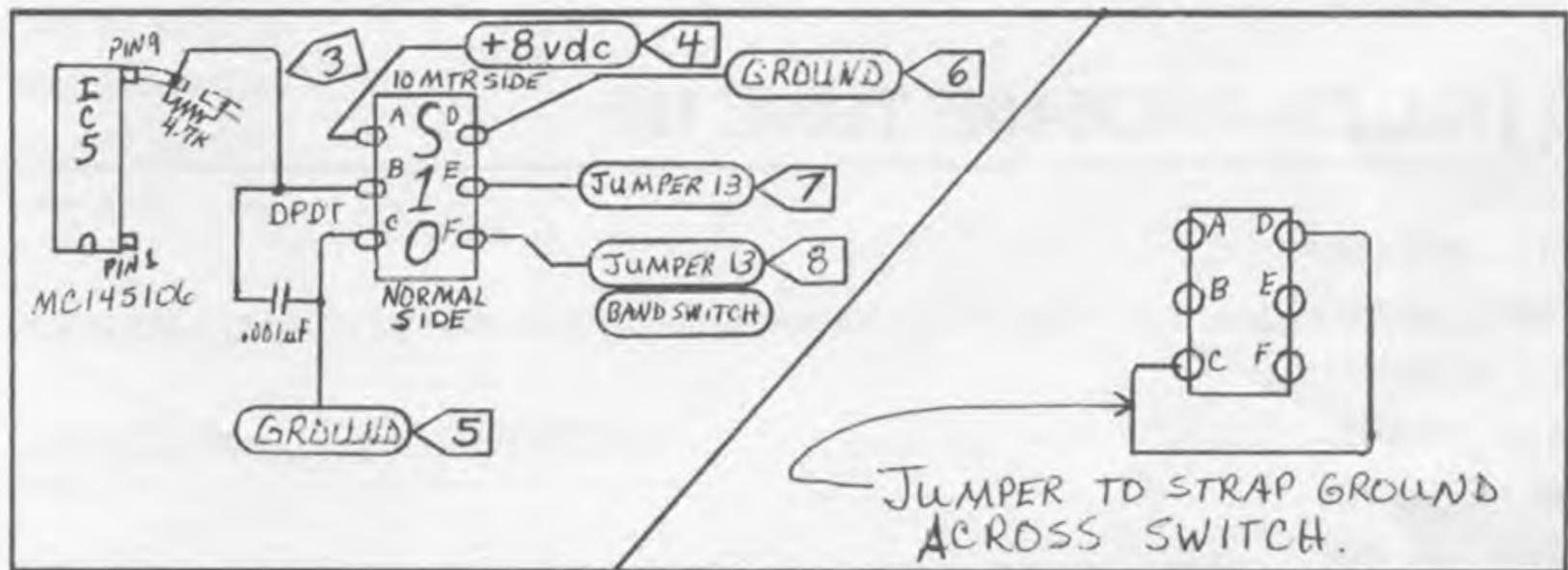


FIGURE 1. GALAXY 2100

- | BAND D = 29.525-29.965
- HI- | BAND E = 29.975-30.000, (USUALLY QUITS ABOUT 30.065)

NOTE: THE TX POWER STARTS RUNNING OUT OF STEAM AROUND 29.000MHz MUST BE RETURNED IF YOU WANT AN EVEN POWER SPREAD MUCH ABOVE THAT.

GALAXY 2100 ROGER BEEP

. JAMES VAUGHAN

HOW IT WORKS

TR33, THE ROGER BEEP AUDIO OSCILLATOR IS POWERED BY THE +8VDC TX (B+) SOURCE TR38. PRESSING THE MIKE KEY CAUSES 2 DIODES (D81 & D82) TO CONDUCT. D82 GROUNDS OUT THE TR33 ROGER BEEP TONE (IT WOULD NORMALLY PASS THROUGH R179 TO THE MIKE AMP, IC4). D81 CHARGES A TIMING CIRCUIT CONSISTING OF C134, R174 AND A SECTION OF IC4. RELEASING THE MIKE KEY SIMUTANEOUSLY

UNIDEN PRO540E TUNE UP

TURNS OFF D81 AND D82. THE TIMING CIRCUIT WILL THEN HOLD THE TRANSMIT VOLTAGE (B+) FOR A SHORT TIME. (APPROX. .15 SEC). AND SINCE D82 IS NO LONGER GROUNDING OUT THE ROGER BEEP AUDIO, IT IS TRANSMITTED FOR THAT SHORT TIME UNTIL THE TIMING CIRCUIT IS DISCHARGED AND THE TRANSMIT VOLTAGE DROPS OFF.

HOW TO CONTROL IT

CONTROLLING THE ROGER BEEP CAN BE ACCOMPLISHED BY CONTROLLING THE TIMING CIRCUIT. C134, THE TIMING CAPACITOR, IS CONNECTED VIA A BARE WIRE JUMPER, LABELED 'J9', WHICH IS LOCATED ON THE COMPONENT SIDE OF THE CIRCUIT BOARD NEAR THE S'METER. DISCONNECTING J9 WILL ALLOW THE TRANSMIT VOLTAGE TO DROP BEFORE THE TONE BURST IS TRANSMITTED. THE TWO ENDS OF J9 CAN BE WIRED THROUGH A SPST SWITCH ALLOWING THE ROGER BEEP TO BE TURNED ON OR OFF AS THE OPERATOR CHOOSES.

UNIDEN PRO540E TUNE UP

PLL = TC9106BP

FINAL = 2SC2166

SQUELCH VR1

S'METER VR2

RF METER VR3

SWR CAL VR4

L10, L11, L12, L15, & L16 = TUNE FOR MAXIMUM FORWARD SWING. YOU WILL HAVE TO SPREAD OR COMPRESS L10, L11, & L15 TO TUNE.

ROYCE 1-612 UPDATE

FREQ MOD, REF: VOL#5 PG-45

• *JAMES VAUGHAN*

ANL SWITCH

1. REMOVE WHITE & BLUE WIRES FROM ANL SWITCH TO PCB AT PCB.
2. SOLDER BLUE WIRE TO TERMINAL ON PLL CAN WITH RED WIRE. (RED WIRE RUNS FROM PLL CAN TO CHANNEL SELECTOR.)
3. SOLDER WHITE WIRE TO PCB GROUND.

NEW FREQUENCIES, ANL "OFF" = GIVES 26.735-26.935 ON CHANNELS 8-23.

ANL "ON" = NORMAL CHANNELS.

16 SECRET CB VOLUME No.28

ROYCE 613

PLL = CCI3001

FINAL = 2SC2166

VR101-IF GAIN ADJUST

VR102-SQ CONTROL

VR103-AWI LIGHT ADJUST ON SMALL PCB NEAR ANTENNA CONNECTOR

VR104-RX METER

VR110-LEVEL OF SCAN BEEP

VR202-AMC

TUNE T301/302/CT301/302 FOR MAXIMUM FOWARD SWING W/30% MODULATION.

KRIS XL40

PLL = SM5104A

VR2-RX METER

VR5-SQ RANGE

VR7-TX METER

VR8-AMC

TUNE L13,L12,L10,& L8 FOR MAXIMUM FORWARD SWING WITH 30% MODULATION.

FREQUENCY CONVERSION;

1. CONNECT PIN 9 TO PIN 10 THROUGH A SPST SWITCH.
2. ISOLATE PIN 9. (GIVES 26.325-26.765 ON CHANNELS 1-40.)
3. PIN 9 ISOLATED AND B+ APPLIED TO PIN 10 GIVES 26.845-26.955 ON CHANNELS 1-27.

TT 4000M

• *JAMES VAUGHAN*

PLL = MSM5807

VR3-TX METER

VR22-SQ RANGE

VR24-RX METER

VR40-AMC

TUNE T11,T12,T13,L3,& L1 FOR MAXIMUM FORWARD SWING WITH 30% INJECTED MODULATION.

FOR FREQUENCY MOD, SEE VOLUME 15, PAGE 13.

SECRET CB VOLUME No.28 17

ROADALERT RA400/SPARKOMATIC

TENNAPOWER 10901/FIELDMASTER TR40

MIDLAND 102M/77-102.UNICRV-CB40TB:

RV4-AMC

ROADALERT RA400/SPARKOMATIC

PLL = C5121

FINAL = 2SC2078

CHEAP UNIT. NO METER. HAS TX, RX, & MODULATION LIGHTS. HAS CHANNEL 9 SWITCH AND ELECTRONIC TUNING.

RV1-SQ RANGE

RV3-AMC

L2 & L3 ARE NON-ADJUSTABLE. WILL HAVE TO SPREAD OR COMPRESS TO TUNE. THERE ARE 3 OTHERS THAT ARE NOT LABELED. SPREAD OR COMPRESS ALL 5 COILS TO TUNE. (DON'T EXPECT MUCH.)

UNIDEN PC33X/PRO510E

VR1-SQ RANGE

VR2-TX METER

VR3-RX METER

VR4-LABELED RX SENS

TUNE L6, L9, & L1 FOR MAXIMUM FORWARD SWING WITH 30% INJECTED MODULATION.

GOOD LOW PRICE UNIT.

GALAXY SATURN BASE

QUICKIE Fo MOD: CUT PIN 11 OF IC5 AND BRIDGE CUT WITH A SPST SWITCH FOR LOW FREQUENCIES.

FORMAC 88 AM/FM EXPORT

PLL = PLL02

FINAL = 2SC1969

RV1-SQ RANGE

RV2-AMC

RV3-RX METER

RV4-TX METER

RV501-FM DEVIATION (ON FM BOARD)

CT1/MAIN BOARD-10.240 XTAL ADJUSTMENT

CT1/OSC BOARD-20.705 XTAL ADJUSTMENT (27.415-27.855)

TUNE L7, L11, & L12 FOR MAXIMUM FORWARD SWING WITH 30% INJECTED MODULATION.

USE STANDARD PLL02 MOD FOR LO FREQUENCY MOD.

18 SECRET CB VOLUME No.28

TO USE NB/ANL SWITCH, HARDWIRE AS FOLLOWS AND REPLACE WITH DPDT CENTER OF SWITCH.

- 1.REMOVE BLACK, BROWN, & ORANGE WIRES FROM NB/ANL SWITCH.
- 2.REMOVE BARE JUMPER FROM CENTER THAT RUNS FROM THE CENTER OF THE NB/ANL SWITCH TO THE CENTER OF THE HI/LO SWITCH BAND SWITCH, AT THE NB/ANL SWITCH.
- 3.CONNECT ORANGE WIRE TO REMOVED END OF BARE JUMPER.
- 4.CONNECT THE BLACK AND BROWN WIRES TOGETHER.

DIGALOG CRC100 COUNTER ON THE SUPERSTAR 360FM

• *JAMES VAUGHAN*

- 1.SOLDER THE 51ohm RESISTOR (SUPPLIED WITH COUNTER) TO THE CENTER CONDUCTOR OF THE COAX.
- 2.SOLDER THE 15pf CAP (SUPPLIED WITH COUNTER) TO THE OTHER END OF THE 51ohm RESISTOR.
- 3.SOLDER THE FREE END OF THE 15pf CAP TO TP3 (R84) OR SOLDER IT TO JP35. (EITHER WILL WORK)
- 4.SOLDER THE COAX SHIELD TO THE L12 CAN.
- 5.SOLDER THE BLACK WIRE TO A GOOD PC BOARD GROUND.
- 6.SOLDER THE RED WIRE TO SWITCHED B + .(OFF SIDE OF POWER SWITCH.)

SPECIAL KRACO KCB4010 LO Fo MOD

GIVES 26.435-26.955.AND PUTS THE SWITCH IN A CONVENIENT PLACE.

- 1.OBTAIN A 3 POSITION SWITCH SUCH AS A DELTA TUNE SWITCH FROM A MIDLAND 13-882C ETC.
- 2.DRILL A HOLE OF THE PROPER SIZE FOR YOUR SWITCH, BETWEEN THE C & B OF THE LOGO ON THE UNITS FACE-PLATE AND CHASSIS.
- 3.REMOVE THE FACE-PLATE AND INSTALL THE SWITCH.
- 4.DO STEPS 5,6 & 7 OF THE CONVERSION OUTLINED IN VOL 21,PAGE 25 FOR THE GEMTRONICS GTX44.
- 5.REPLACE THE FACE-PLATE AND ALL KNOBS INCLUDING A NEW KNOB FOR THE Fo SWITCH.

REALISTIC TRC-468

• *DC*

PLL = uPD-861C

UNIDEN PC77 CARD KIT 'A' INSTALLATION

TUNE T14 AND T15 FOR PEAK READING WITH 30% INJECTED MODULATION.

FoCONVERSION.

1. REFER TO FIGURE 1. ISOLATE PINS 7, 8, AND 14.

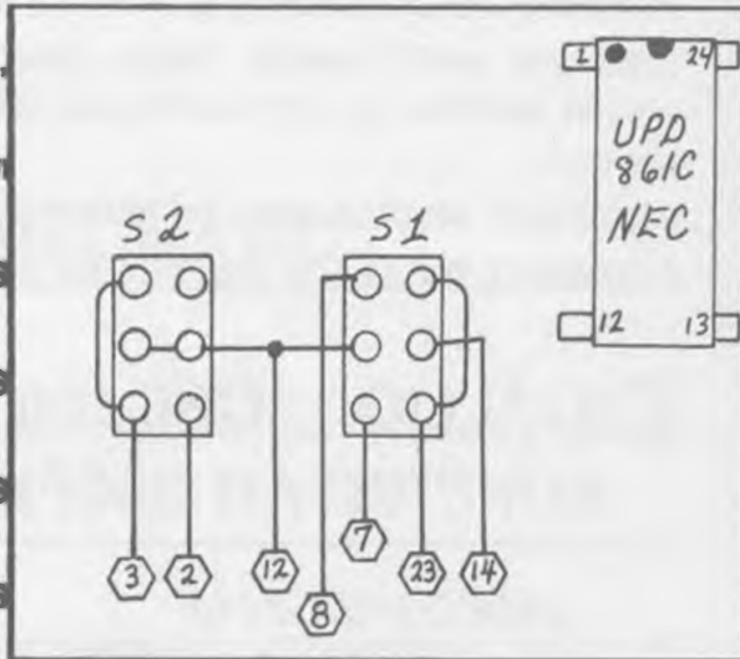
2. BRIDGE THE TRACE CUTS WITH 4.7kohm RESISTORS.

3. WIRE TWO DPDT CENTER OFF SWITCHES AS PER FIG. 1.

SWITCH 1 IN CENTER POSITION YIELDS NORMAL 40 CHANNELS.

*WITH PIN 7 HIGH AND PIN 8 LOW, GIVES LOW CHANNELS.

*WITH PIN 8 HIGH AND PIN 7 LOW, GIVES HIGH CHANNELS.



SWITCH 2 PICKS UP SOME OF THE MISSED CHANNELS.

T201 (VCO) MAY HAVE TO BE TUNED SLIGHTLY TO PICK UP ALL THE FREQUENCIES.

UNIDEN PC77 CARD KIT 'A' INSTALLATION

• BRUCE FINLEY

GIVES 27.425-27.865. REFER TO FIGURES 1 & 2.

1. LOCATE, UNSOLDER, AND LIFT ANODE OF D20 FROM PIN 20 OF PLL LC7131.

2. SOLDER WIRE FROM P TO ANODE OF D20 DIODE.

3. SOLDER WIRE FROM Q TO CUT SIDE WHERE D20 WAS LIFTED.

4. SOLDER S TO GROUND.

5. SOLDER L TO YELLOW ON EPOXY PAK.

6. REMOVE C-66. (NO REPLACEMENT)

7. REMOVE C-64, AND INSTALL NEW 47pf CAP LEG TO THE HOLE THAT CONNECTS TO PIN 4 OF TA7310 CHIP.

8. SOLDER WIRE FROM K TO THE OTHER LEG OF THE 47pf CAP.

9. SOLDER THE WIRE FROM J TO WHERE C-64 WAS REMOVED.

10. SOLDER THE WIRE FROM PIN 3 OF THE LC7131 CHIP TO RED ON THE EPOXY PAK.

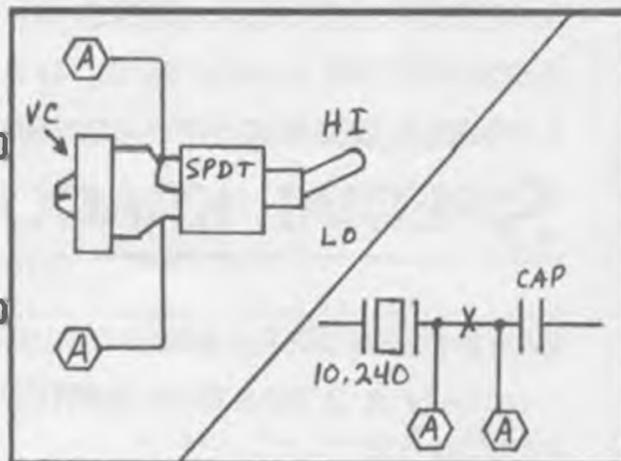
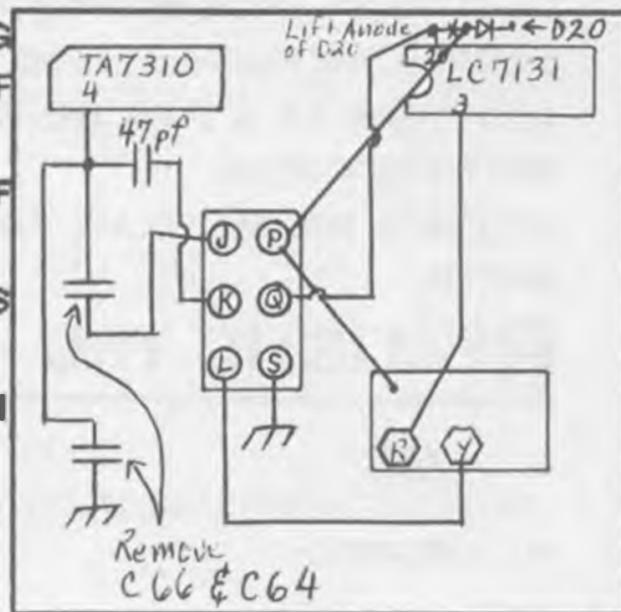


FIGURE 1&2. PC77



COBRA 25GTL AND PRESIDENT AR44 LO/HI Fo MOD

• *BILL GRASSA*

THIS MOD GIVES BOTH HI AND LOW FREQUENCIES BUT WILL CAUSE THE UNIT TO VARY +/- 1.5kc's AS THE FREQUENCIES GO UP OR DOWN. KEEP ALL WIRES AS SHORT AS POSSIBLE!

AR44

1. REMOVE UPPER AND LOWER COVERS.
 2. REMOVE THE 10.240 MHz CRYSTAL LOCATED BY THE PLL-IC.
 3. REMOVE THE WIRES FROM THE CHANNEL 9 SWITCH AND WIRE AS FOLLOWS:
 - A. SOLDER BLACK AND BROWN WIRES TOGETHER AND TAPE.
 - B. CUT THE ENDS OF THE PINK AND BLUE WIRE AND INSULATE, SO THEY WILL NOT SHORT TOGETHER.
 4. REMOVE ALL WIRES FROM THE BRITE/DIM SWITCH.
 5. REFER TO FIGURE 1. SOLDER THE RED AND ORANGE WIRES TOGETHER AND TAPE.
 6. SOLDER THE RED AND BLACK WIRES TOGETHER AND TAPE.
 7. CUT THE ENDS OF ALL OTHER WIRES REMOVED AND INSULATE.
 8. REFER TO FIGURE 2. SOLDER TWO WIRES IN THE HOLES LEFT BY THE 10.240 CRYSTAL SOLDER THE OTHER ENDS TO THE TWO CENTER POST ON THE CHANNEL 9 SWITCH.
 9. REFER TO FIGURE 3. SOLDER TWO 'SHORT' WIRES FROM THE END POST OF THE CHANNEL 9 SWITCH TO THE TWO CENTER POSTS OF THE OF THE BRITE/DIM SWITCH.
- NOTE: DO NOT CROSS THE WIRES*
10. SOLDER IN THE CRYSTALS AND TRIMMERS AS ILLUSTRATED IN FIGURE 4.

CRYSTAL FREQUENCIES + + + TRIMMER1

A = 10.140 + + + + + + + + + + + 6.35pf

B = 10.240 (AVAILABLE FROM SELMAN ENTERPRISES)

C = 10.440

11. POWER UP THE RADIO AND FREQUENCY COUNTER.
12. WITH THE CHANNEL 9 AND BRITE/DIM SWITCHES IN, CHANNEL AND CHANNEL 14 SELECTED, KEY THE RADIO AND ADJUST TRIMMER 'B' FOR 26.875MHz USING A NON-CONDUCTIVE ALIGNMENT TOOL.
13. PUSH THE BRITE/DIM SWITCH OUT, AND ADJUST TRIMMER 'C' FOR 27.675MHz.
14. REPLACE THE COVERS.

SECRET CB VOLUME No.28 21

COBRA 25GTL AND PRESIDENT AR44 LO/HI Fo MOD

*WITH CHANNEL 9 SWITCH OUT, GIVES REGULAR 40 CHANNELS.

*WITH CHANNEL 9 SWITCH IN, ALLOWS SELECTION OF EXTRA CHANNELS.

*WITH BRITE/DIM SWITCH IN, GIVES LOWER FREQUENCIES.

*WITH BRITE/DIM SWITCH IN, GIVES UPPER FREQUENCIES.

****REFER TO TABLE 1 FOR FREQUENCIES OF EXTRAS.

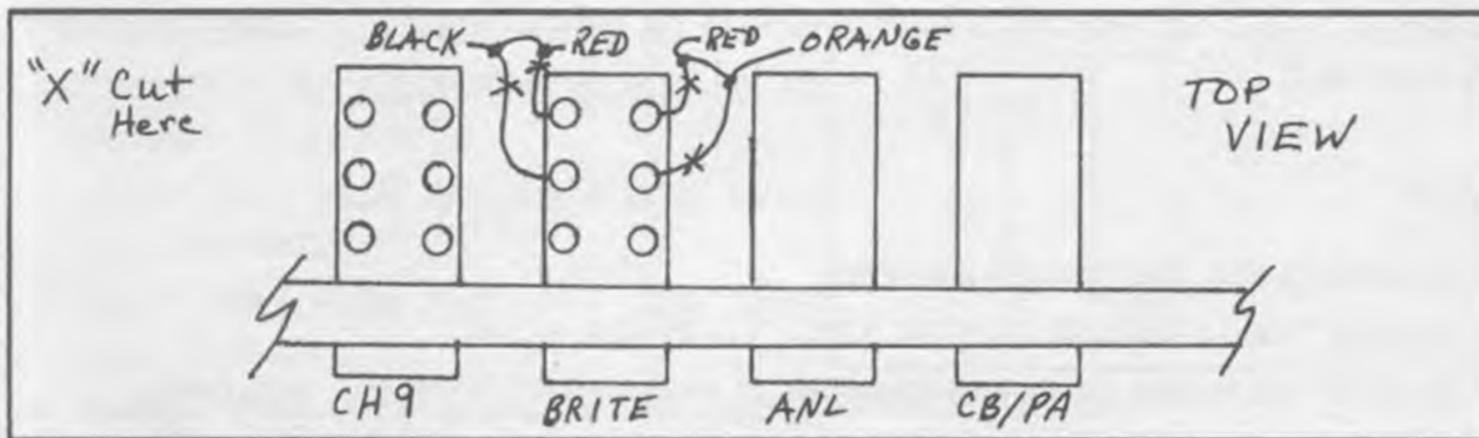


FIGURE 1. AR44/25GTL

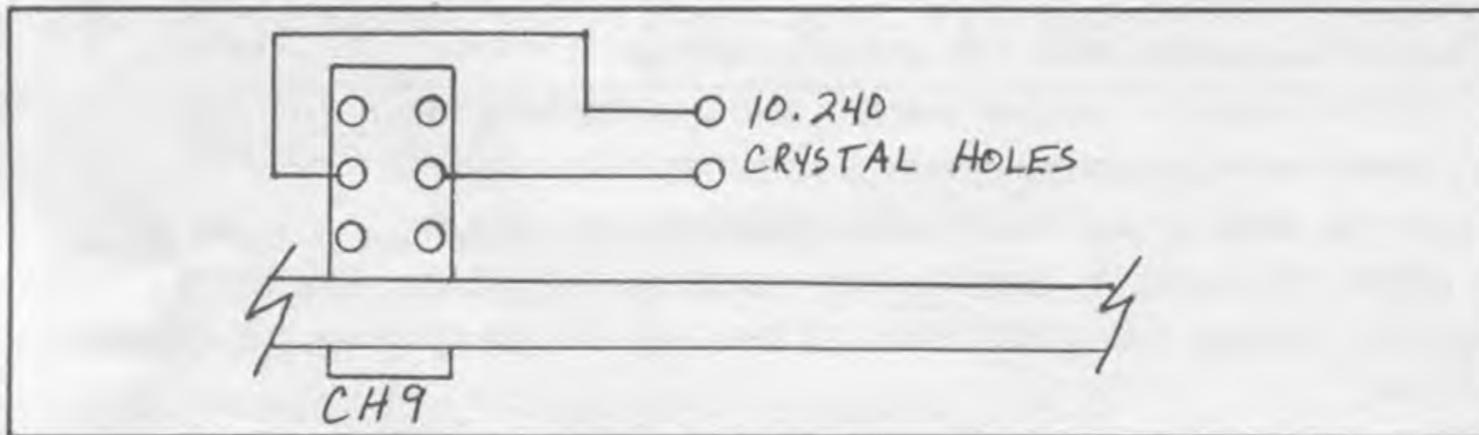


FIGURE 2. AR44/25GTL

TABLE 1. AR44/COBRA 25GTL Fo CHART

LOWERS	UPPERS		
1-26.715	27.515	14-26.875	27.675
2-26.725	27.525	15-26.885	27.685
3-26.735	27.535	16-26.905	27.705
4-26.755	27.555	17-26.915	27.715
5-26.765	27.565	18-26.925	27.725
6-26.775	27.575	19-26.935	27.735
7-26.785	27.585	20-26.955	27.755
8-26.805	27.605	21-26.965	27.765

9-26.815	27.815	22-WITHIN	27.775
10-26.825	27.825	23-REGULAR	VCO
11-26.835	27.835	24-40 CH.S	QUITS
12-26.855	27.855	UP TO 40	
13-26.865	27.865		

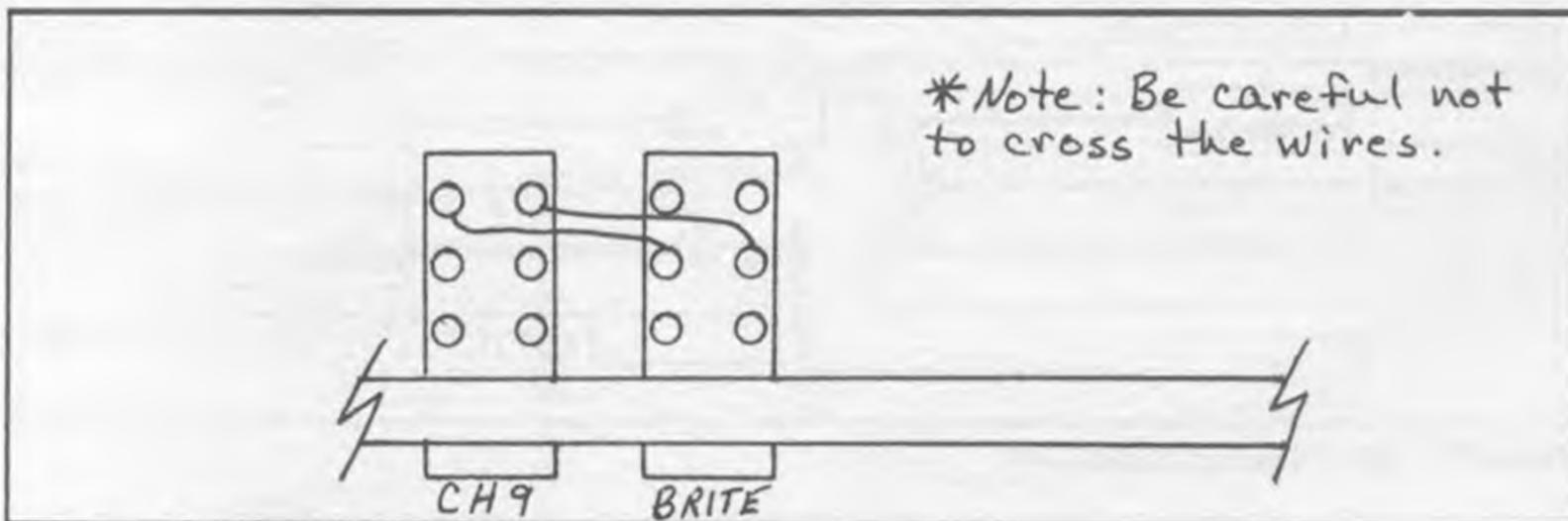


FIGURE 3. AR44/25GTL

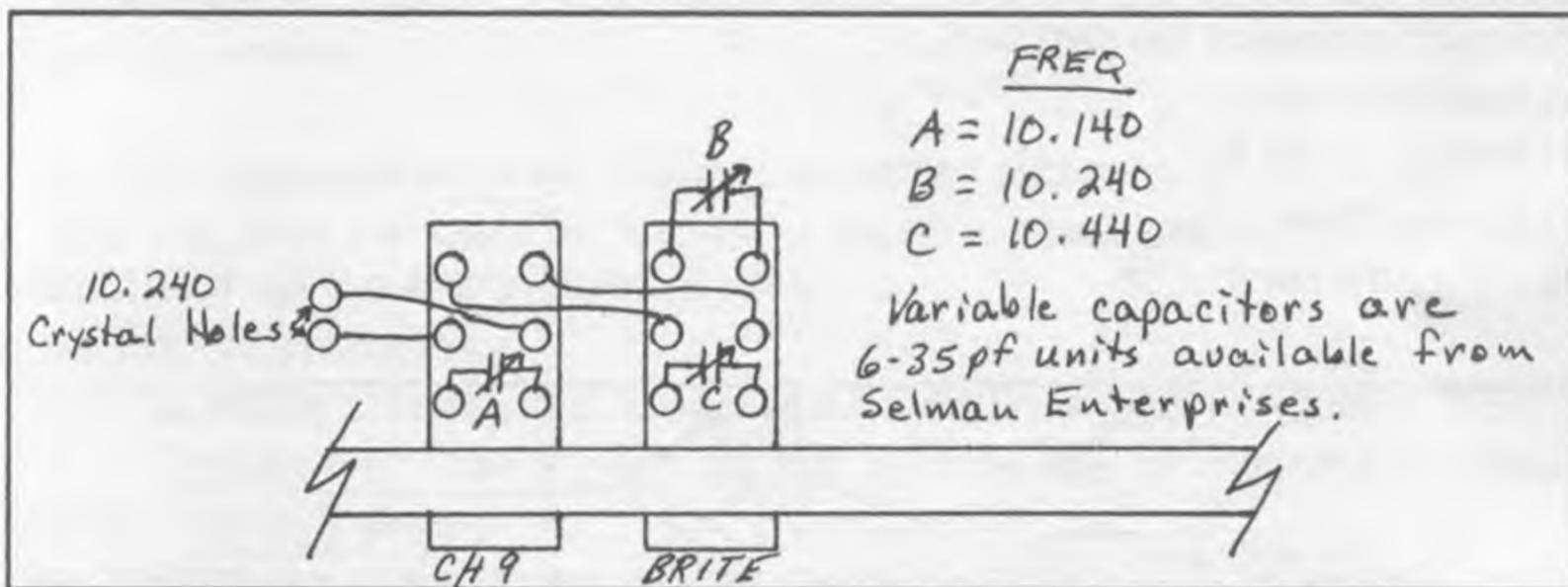


FIGURE 4. AR44/25GTL

23 CHANNEL RADIO CONVERSION

. KENNETH HOLYFIELD

THIS CONVERSION IS FOR 23 CHANNEL RADIOS USING 23MHz CRYSTALS WITH 11.272MHz TRANSMIT CRYSTAL AND 11.730MHz RECEIVE CRYSTAL.

THE CRYSTALS REQUIRED FOR 26.865MHz 26.955MHz ARE 11.575MHz TRANSMIT AND 12.030MHz FOR RECEIVE.

FOR CHANNELS 24 52, USE 11.000MHz TRANSMIT AND 11.455MHz RECEIVE.

YOU WILL NEED A '6' POSITION 2 POLE ROTARY SWITCH. (SECRET CB ITEM # 95.)

23 CHANNEL RADIO CONVERSION

1. REMOVE THE 11.275MHz TRANSMIT CRYSTAL FROM THE RADIO AND SOLDER ONE LEAD TO PIN 'D' OF SWITCH 1.
2. REMOVE THE 11.730MHz RECEIVE CRYSTAL FROM THE RADIO AND SOLDER ONE LEAD TO PIN 'J' OF SWITCH 1.

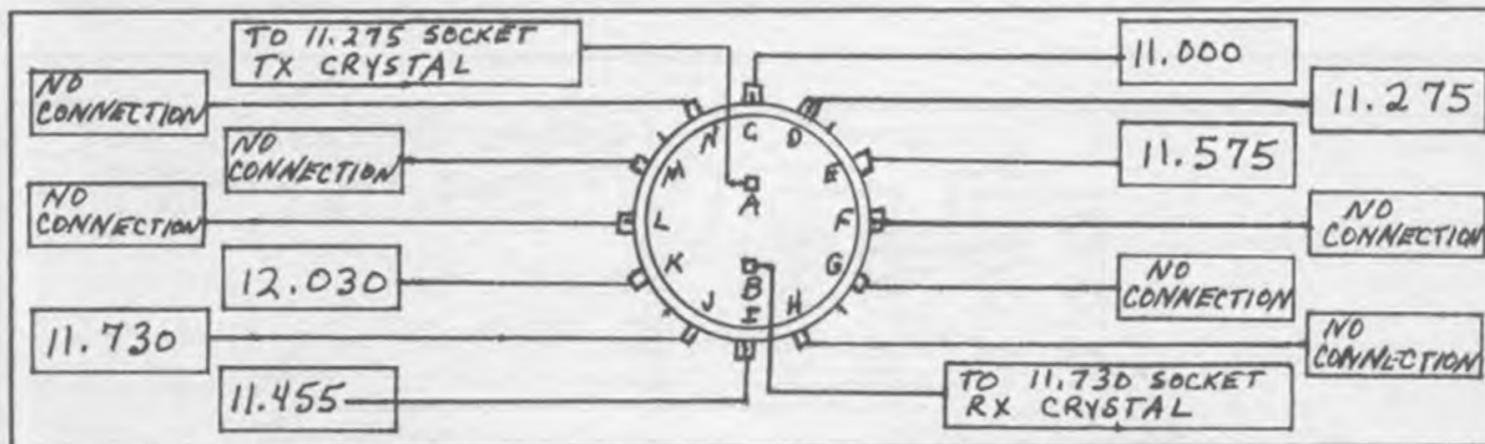


FIGURE 1. 23 CHANNELS RADIOS

3. REFER TO FIGURE 1. ADD THE NEW CRYSTALS AS SHOWN. CONT.NOTE: BE CAREFUL TO KEEP THE RECEIVE CRYSTALS AND THE TRANSMIT CRYSTALS IN THE CORRECT SEQUENCE ON SWITCH 1.

- 11.000MHz TO PIN 'C'
- 11.575MHz TO PIN 'E'
- 11.455MHz TO PIN 'I'
- 12.030MHz TO PIN 'K'

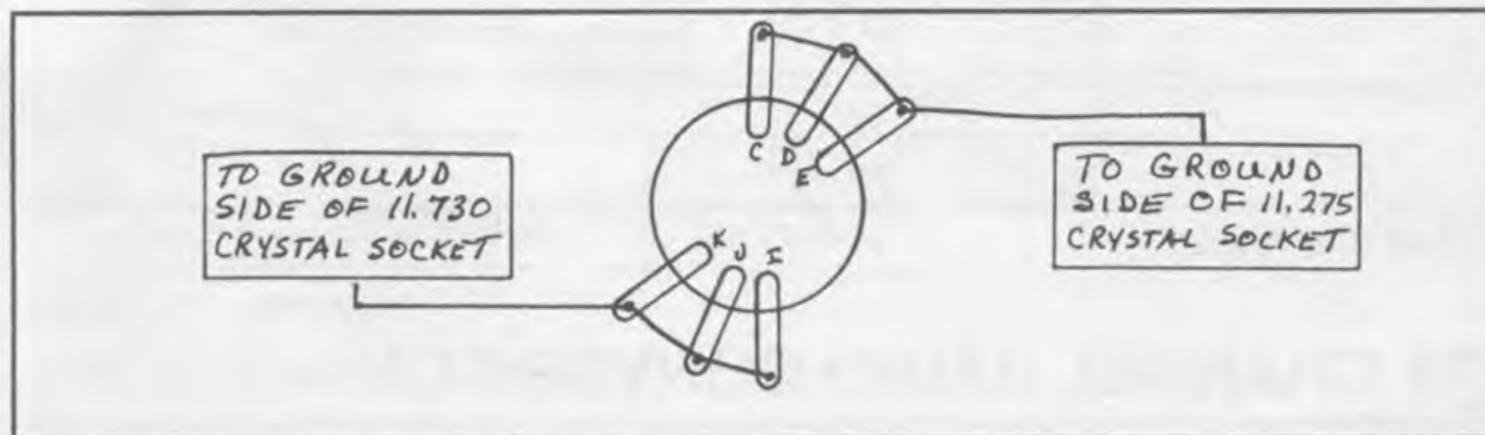


FIGURE 2. 23 CHANNEL RADIOS

4. NOW SOLDER A WIRE FROM THE TRANSMIT CRYSTAL SOCKET GROUND HOLE IN THE RADIO TO THE UNATTACHED LEGS OF CRYSTALS 11.000, 11.275, AND 11.575.
5. NEXT, SOLDER A WIRE FROM THE RECEIVE CRYSTAL SOCKET GROUND HOLE IN THE RADIO TO THE UNATTACHED LEGS OF CRYSTALS 11.455, 11.730, AND 12.030.
6. CONNECT A WIRE FROM PIN 'A' OF SWITCH 1 TO THE 'HOT' SIDE OF THE TRANSMIT CRYSTAL SOCKET IN THE RADIO.

24 SECRET CB VOLUME No.28

7. THEN, CONNECT A WIRE FROM PIN 'B' OF SWITCH 1, TO THE 'HOT' SIDE OF THE RECEIVE CRYSTAL SOCKET IN THE RADIO. THIS COMPLETES THE CONVERSION. IF YOU EXPERIENCE PROBLEMS, BE SURE TO CHECK THE SEQUENCE OF THE CRYSTALS. IF NOT IN CORRECT ORDER, WILL CAUSE SPLIT TRANSMIT/RECEIVE. (POSSIBILITIES!!!)

SPECIAL ORDER CRYSTALS ARE AVAILABLE FROM SELMAN ENTERPRISES.

P.O. BOX 8189 ,CORPUS CHRISTI, TX 78468-8189

PHONE 1-512-853-2935

RAIDER 4060 UPDATE

• *KENNETH HOLYFIELD*

PLL = MSM5807

THIS IS AN UPDATED MODIFICATION TO THE RAIDER 4060. IT REQUIRES TWO SPDT CENTER OFF SWITCHES AND ONE SPST SWITCH. ALL SWITCHES ARE AVAILABLE FROM SELMAN. THIS IS A REAL "HONEY" OF A RADIO, IF YOU CAN FIND IT! RAIDER 4060 UPDATE CONTINUED

1. CUT THE TRACE BETWEEN THE CHANNEL SELECTOR AND PIN 1 OF THE PLL IC.
2. WIRE THE SPDT SWITCHES AS SHOWN IN FIGURE 1. REMEMBER THERE IS USUALLY A SMALL DOT ON THE CHIP INDICATING PIN 1.
3. ISOLATE PIN 3 FROM PIN 4.
4. CUT THE TRACE BETWEEN PINS 4 AND 16, AND WIRE AS SHOWN IN FIGURE 1.
5. NEXT, SOLDER THE JUMPER WIRES ON THE OUTSIDE PINS OF SWITCH 3, BETWEEN SWITCH 3 AND 2 AS SHOWN.

WITH DIFFERENT COMBINATIONS OF THE THREE SWITCHES, THE RADIO WILL YEILD 25.525 27.635MHz. THIS IS SOME KIND OF A RADIO! YOU MUST DO SOME RETUNING TO THE VCO AS WELL AS THE TX CANS TO KEEP POWER EQUAL FROM TOP TO BOTTOM.

GENERAL ELECTRIC 3-5804A

• *TERRY MANN*

THIS MODIFICATION GIVES 27.745MHz 28.045MHz.

PLL = LC7110

MODULATION = VR7

RF POWER = T803, T804, T805, T806, AND T807.

COBRA 2000GTL, A DIFFERENT WAY

REFER TO FIGURE 1. YOU WILL NEED A SPST SWITCH.

1. FIND A CONVENIENT MOUNTING SPOT FOR THE SPST SWITCH AND MOUNT SAME.
2. SOLDER A WIRE TO EACH PIN ON THE SWITCH MAKING SURE THERE IS ENOUGH LEAD TO REACH THE PLL IC.
3. SOLDER THE FIRST WIRE TO PIN 13 OF IC801.
4. SOLDER THE SECOND WIRE TO PIN 14 OF IC801.

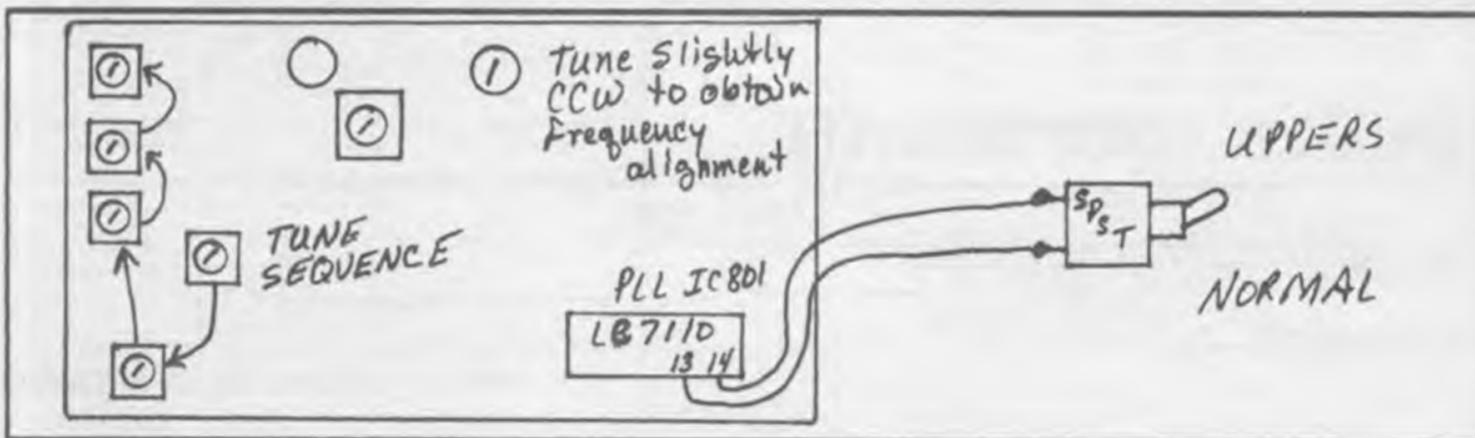


FIGURE 1. GE 5-5804A

1-11 = NORMAL FOURTY. FREQUENCIES COME OUT AS FOLLOWS:

12-27.745	22-27.865	32-27.965
13-27.755	23-27.895	33-27.975
14-27.765	24-27.875	34-27.985
15-27.775	25-27.855	35-27.995
16-27.795	26-27.905	36-28.005
17-27.805	27-27.915	37-28.015
18-27.815	28-27.925	38-28.025
19-27.825	29-27.935	39-28.035
20-27.845	30-27.945	40-28.045
21-27.855	31-27.955	00-000000

- *EDITORS NOTE: 28MHZ FREQUENCIES BELONG TO AMATEUR RADIO. HOBBIEST WOULD BE WELL ADVISED TO REMAIN CLEAR OF THESE FREQUENCIES!*

COBRA 2000GTL, A DIFFERENT WAY

• *RON ROUSH*

THE FOLLOWING IS A DIFFERENT WAY TO INSTALL KIT # 27. IT ELIMINATES THE GREEN WIRE ALTOGETHER.

1. DISCONNECT THE GREEN WIRE FROM PIN 14 AND DO NOT REUSE.
2. CUT AND CONNECT ANOTHER PIECE OF WIRE (INDEPENDENTLY) FROM PIN 14 TO A SPST SWITCH.

26 SECRET CB VOLUME No.28

3. CONNECT THE OTHER SIDE OF THE SPST SWITCH TO GROUND.
 4. CUT THE TRACE FROM PIN 16 AND BRIDGE WITH A 4.7k RESISTOR.
 5. CONNECT A WIRE FROM PIN 16 TO ANOTHER SPST SWITCH.
 6. CONNECT THE UNUSED SIDE OF THIS SWITCH TO GROUND ALSO.
- THE SWITCH CONNECTED IN STEP 5 YIELDS A 10kc DROP! THE KIT, AS INSTALLED, YIELDS 26.855-28.045MHz. BY USING THIS METHOD, YIELDS 26.815-28.085MHz.*

**SEE EDITORS NOTE ON PREVIOUS PAGE.*

HINTS/KINKS/UPDATES

COLTBLACKSHADOW

I HAVE FOUND THAT IN THE COLT BLACK SHADOW, COLT 485 MOBILE, AND ALL SIMILAR CIRCUITS, THIS WILL INCREASE THE AUTOMATIC NOISE LIMITING AND NOISE BLANKING 60-70% AND ALSO HELP BLEEDOVER CONSIDERABLY!!

DIRECTIONS: PEAK RECEIVER TO MAXIMUM, ACCORDING TO APPLICABLE SAMS, WITH THE NOISE BLANKER "OFF". THEN CHANGE C128, A .0047uf TO A .02uf. NE.T, CHANGE C133, A 220pf TO A .01uf. NOISE BLANKER SWITCH MAY NOT HAVE ANY EFFECT, BUT IT'S DARN WELL WORTH IT!.....STEVEN L. PRINCE

COBRA 148GTL-DX RECIEVER

REF: SECRET CB VOLUME 19, PAGE 37; "148GTL-DX (LATE) 'PRE-AMP/WIDE-BAND MODIFICATION'", STEPS 3 & 4.

I'VE FOUND THAT OCCASIONALLY THIS MOD KICKS THE RECEIVER JUST ATAD TOO HARD, RESULTING IN RECEIVER OSCILLATION. IT'S HAPPENED TWICE, AND BOTH WERE RUSH JOBS SO I COULDN'T TAKE THE TIME TO PLAY WITH THEM THAT I WOULD HAVE LIKED. UNFORTUNATELY, MY SUPERSTAR 360FM "GUINEA PIG" DOESN'T HAVE THIS PROBLEM, SO I HAVEN'T FOUND A TRIED AND TRUE SOLUTION.

IN THE ABOVE TWO CASES, I REPLACED R75 WITH A 470ohm 1/4w 5% (IN THE ORIGINAL R75 LOCATION), WHICH SEEMED TO PROVIDE SOME ADDITIONAL GAIN WITHOUT OSCILLATING - BUT I WON'T EVEN SWEAR TO THIS MOD MAKING TOO GREAT OF A DIFFERENCE OR EVEN WORKING IN EVERY PB-010 BOARD.

ONE FINAL NOTE ON THE PB-010: IF TALK-BACK HAS BEEN ADDED, BE SURE IT'S OFF BEFORE PUTTING ON THE TONE GENERATOR TO ALIGN THE TRANSMITTER, OTHERWISE C167 AND C172 WILL GO UP IN SMOKE. THEY'RE ONLY 10WVDC PARTS!! RECOMMEND REPLACING THEM WITH 16WVDC UNITS, THEN SMOKE IS NO LONGER A PROBLEM.....ART

SUPERSTAR 3600 W/HI BAND SQUEAL PROBLEM

HINTS/KINKS/UPDATES

CHECKED EVERYTHING AS ON PAGE 23 OF SECRET CB VOLUME 22. FOUND THAT THE CHOKE FROM GROUND PIN OF MIC PLUG TO PCB GROUND WAS BROKEN AT PCB! REMOVED BROKEN PIECE AND REPLACED. TIP: BE SURE TO SLEEVE BARE LEADS OF CHOKE SO AS NOT TO GROUND AGAINST ANY OTHER COMPONENTS. LENGTHEN ONE LEAD A BIT TO RELIEVE ANY STRESS.

THIS MODEL HAS SAME IDENTICAL CHASSIS AS THE SUPER STAR 3900, MINUS THE EXTRA COMPONENTS IN THE CLARIFIER CIRCUITRY. ALSO IS IDENTICAL IN FEATURES TO THE SS3600 LOW BAND MODEL; ALIGN AS PER SS3600 LOW BAND, BUT ONE BAND HIGHER.

COBRA-40X AUDIO

INTERMITTANT RECEIVE AUDIO.

CHECK FOR COLD SOLDER JOINTS, CRACKS, AND WIRES NOT PUSHED ALL THE WAY INTO THE BOARD.

BROWN WIRE OPPOSITE PLL CHIP SIDE OF RADIO LABELED JJ-D201, CONNECTS TO JJ-D301.

BROWN WIRE TO R-134 (ON/OFF-CB/PA SWITCH)

GREEN WIRE T.M. TO T.M.

GREEN WIRE B.L. TO B.L.

WHITE WIRE Q.Q. TO Q.Q.

YELLOW WIRE TO P.A. AT REAR OF BOARD

JIMMY BOOTH

. *REMEMBER, COURTESY COUNTS*

COBRA 2000GTL SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
INPUT OF FREQ CNTR TO TP13	CH19		CHECK FOR 10.240MHz
(IC1 PIN 8)			
INPUT OF SCOPE TO TP10	CH19 AM	L21	ADJUST FOR MAX RF (3.4vPP TYPICAL)
INPUT OF DC MTR TO TP9	CH40 AM	L19	ADJUST FOR 2.70 VOLTS, 1.95 ON CH 1
INPUT OF SCOPE TO TP1	CH19 AM	L20	ADJUST FOR MAX RF (190mvPP TYPICAL)
INPUT OF FREQ CNTR TO TP1	CH1 AM	L23	ADJUST FOR 34.7650 MHz, /20Hz
INPUT OF FREQ CNTR TO TP1	CH1 USB	L59	ADJUST FOR 34.7665 MHz, /20Hz
INPUT OF FREQ CNTR TO TP1	CH1 LSB	L22	ADJUST FOR 34.7635 MHz, /20Hz

INPUT OF FREQ CNTR TO TP10	CH1 AM		CHECK FOR 7.790MHz
INPUT OF FREQ CNTR TO TP3	CH19 USB	CT2	ADJUST FOR 7.8015 MHz, 5Hz, 0Hz
INPUT OF FREQ CNTR TO TP3	CH19 LSB	L30	ADJUST FOR 7.7980 MHz, 0Hz, 5Hz
INPUT OF FREQ CNTR TO TP14 (IC3 PIN 7)	CH19 AM XMIT	L31	ADJUST FOR 7.8000 MHz, /5Hz
INPUT OF FREQ CNTR TO TP15 (FET1 GATE 1)	CH19 AM		CHECK FOR 7.3450MHz
INPUT OF FREQ CNTR TO ANTENNA INPUT	CH1 AM	VR5 XMIT	ADJUST FOR 26.965 MHz

2000GTL COUNTER ALIGNMENT

INPUT OF SCOPE TO TP504 (IC512 PIN 5)	CH19 AM VOICELOCK MIDRANGE	L501 THEN ROTATE CORE 1/2 TURN CLOCKWISE	ADJUST FOR MAXIMUM
INPUT OF SCOPE TO TP502	CH19 USB VOICELOCK MIDRANGE	L502	ADJUST FOR MAXIMUM RF
INPUT OF SCOPE TO TP502	CH19 AM VOICELOCK MIDRANGE	CT501	ADJUST FOR 27.1850 MHz ON COUNTER DISPLAY

TECHS' NOTES

MODULATION/AMC DEFEATS

- *JEFF MOORE &*
- *PAPABEAR*

COBRA 138XLR
COBRA 21GTL AND 25GTL
COBRA 21LTD
COBRA 86XLR
COBRA 29GTL
COBRA 19PLUS
COBRA 142GTL
COBRA 32XLR
COBRA 21XLR
COBRA 148GTL
COBRA 31PLUS
COBRA 29PLUS
COBRA 33PLUS
FOR REMOTE CONTROL
COLT 222
FUZZBUSTER 2-50
GE 3-5813B
GE 3-5814A
PACE CB145
PEARCE SIMPSON SUPER LYNX
ROYCE 1-806
REALISTIC TRC-421
REALISTIC TRC-462
REALISTIC TRC-432
REALISTIC TRC-473
REALISTIC TRC-417
TEABERRY TITAN 'T'
TENNA CB26
TRAM D-300
UTAC TRX-400
WHISTLER 700
WHISTLER 900

TR-23
TR-14
TR-14 ORD-9
CD-9
D-20
D-502
TR-32
TR-18
TR-20
TR-24
D-19
R-79 OR D20
D-17
D-401
C-228
Q-8
MOD ADJ RV-2.C-96
C-98
CV-20
D-12
D-17
D-16
D-17
Q-12
D-17
Q-19
D-14
D-22
TR-23
D-11
Q-205
Q-305

REALISTIC TRC-455

- *SILAS GOLDEN Jr.*

H/L0 FREQUENCY CONVERSION WITH 5 & 10Kc SWITCHES.

THIS MODIFICATION GIVES YOU 219 CHANNELS, COVERING 25.755MHz-27.865MHz.
SWITCH # 3 IS A 10Kc SWITCH AND SWITCH # 4 IS A 5Kc SWITCH, ALLOWING ALMOST
UNLIMITED COVERAGE.

YOU WILL NEED 2 DPDT CENTER OFF SWITCHES, 2 SPDT SWITCHES AND 3 1N4148 DIODES. ALONG WITH SUITABLE LENGTHS OF HOOKUP WIRE. ALL ARE AVAILABLE FROM SELMAN ENTERPRISES.

1. REFER TO FIGURES 1 & 3. PREPARE YOUR SWITCHES AS FOLLOWS; SOLDER A 1N4148 DIODE FROM PINS 'A' TO 'D' ON BOTH DPDT SWITCHES, CATHODES TO PIN 'D'. SOLDER A 1N4148 DIODE TO SWITCH '4', PIN 'B', CATHODE TO PIN 'B'.

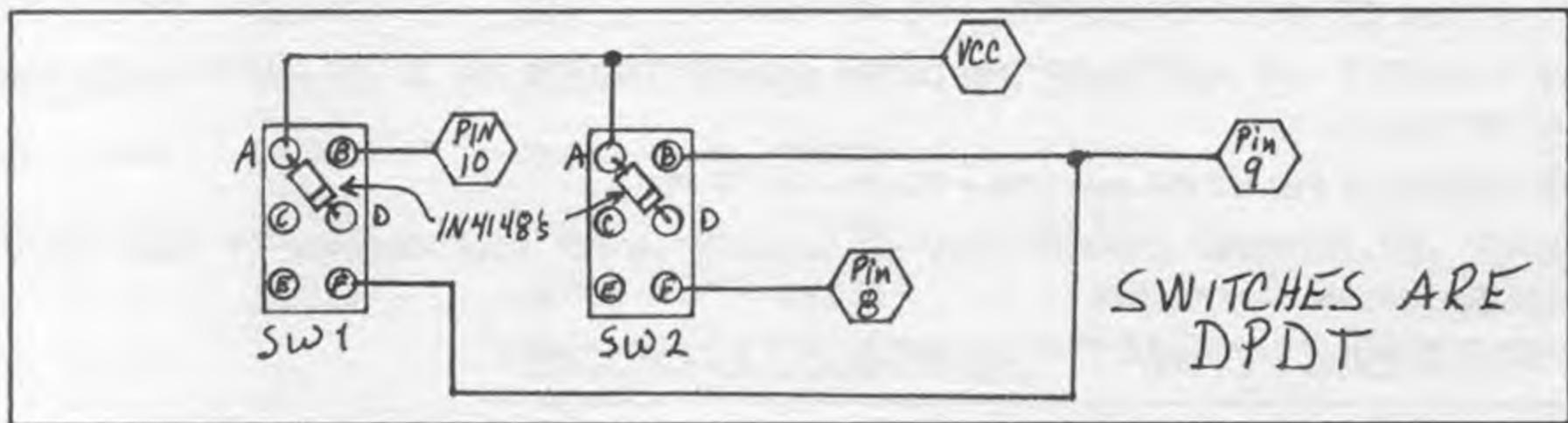


FIGURE 1. TRC-455

2. CAREFULLY REMOVE THE COVERS AND LOCATE THE PLL IC, A SM5104.
3. FIND A SUITABLE LOCATION AND MOUNT THE FOUR SWITCHES.

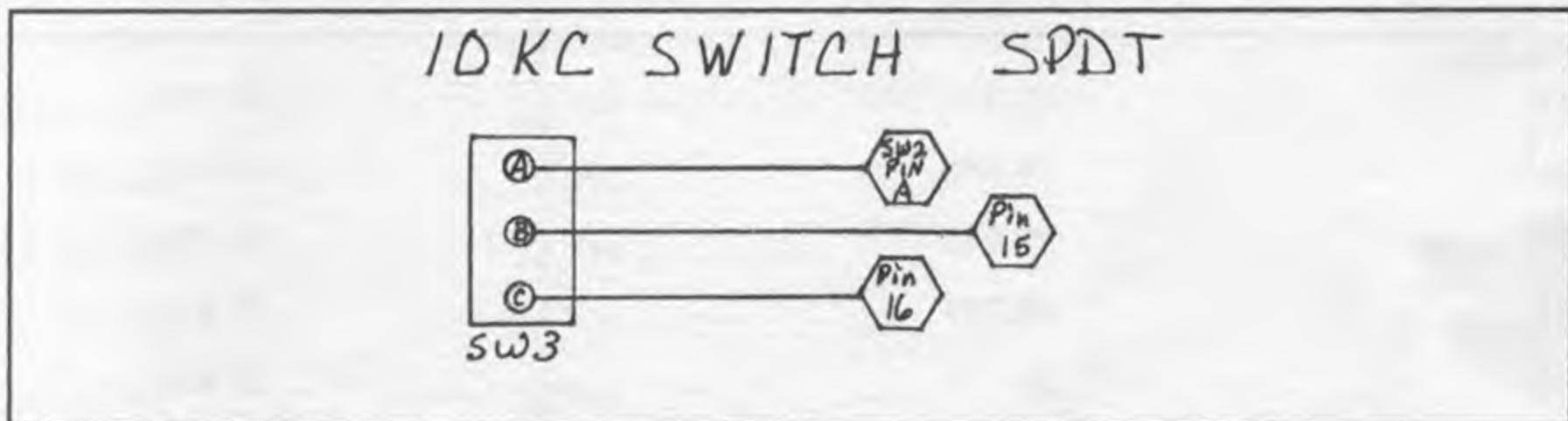


FIGURE 2. TRC-455

4. USING AN EXACTO KNIFE (OR EQUIVALENT), ISOLATE PINS 8,9,& 10 OF THE PLL IC.
5. USING YOUR HOOKUP WIRE, CONNECT PIN 'A' OF SWITCH 1 TO PIN '1' OF PLL.
6. CONNECT PIN 'B' OF SWITCH 1 TO PIN '10' OF PLL.

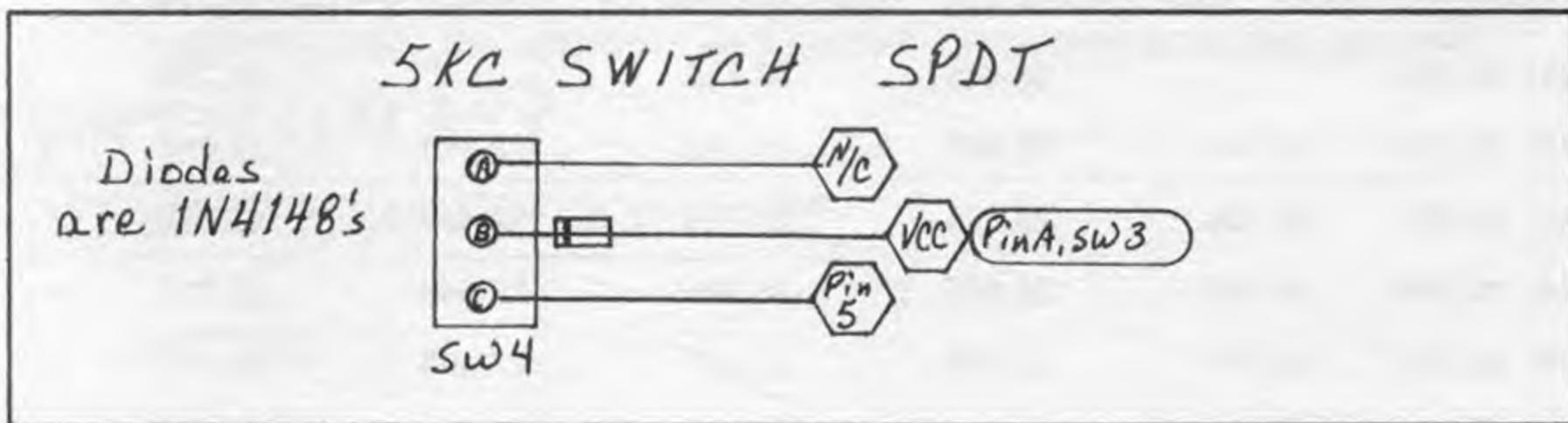


FIGURE 3. TRC-455

REALISTIC TRC-455

7. CONNECT PIN 'F' OF SWITCH 1 TO PIN 'B' OF SWITCH 2.
8. CONNECT PIN 'A' OF SWITCH 2 TO PIN 'A' OF SWITCH 1.
9. CONNECT PIN 'B' OF SWITCH 2 TO PIN '9' OF PLL.
10. CONNECT PIN 'F' OF SWITCH 2 TO PIN '8' OF PLL.
11. CONNECT PIN 'A' OF SWITCH 3 TO PIN 'A' OF SWITCH 2.
12. CONNECT PIN 'B' OF SWITCH 3 TO PIN '15' OF PLL.
13. CONNECT PIN 'C' OF SWITCH 3 TO PIN '16' OF PLL.
14. CONNECT THE ANODE OF THE DIODE CONNECTED TO PIN 'B' OF SWITCH 4 TO PIN 'A' OF SWITCH 3.
15. CONNECT PIN 'C' OF SWITCH 4 TO PIN '5' OF PLL.

NOTE: NO GROUND CONNECTION IS NEEDED, ALSO VCO ALIGNMENT WAS NOT NECESSARY IN TEST RADIO.

FREQUENCY CHART FOR REALISTIC TRC-455

TRC-455 Fo CHART

SW.1 CTR	SW.1.DWN	SW.1.CTR	SW.1.DWN	SW.1.DWN	SW.1.UP
SW.2.CTR	SW.2.CTR	SW.2.DWN	SW.2.DWN	SW.2.UP	SW.2.UP
CH.SEL.					
01|		26.325			27.605
02|		26.335			27.615
03|		26.345			27.625
04|		26.365			27.645
05|		26.375			27.655
06|		26.385			27.665
07| 25.755		26.395			27.675
08| 25.775		26.415			27.695
09| 25.785		26.425			27.705
10| 25.795		26.435			27.715
11| 25.805		26.445	26.765		27.725
12| 25.825	26.145	26.465	26.785	27.425	27.745
13| 25.835	26.155	26.475	26.795	27.435	27.755
14| 25.845	26.165	26.485	26.805	27.445	27.765
15| 25.855	26.175	26.495	26.815	27.455	27.775
16| 25.875	26.195	26.515	26.835	27.475	27.795
17| 25.885	26.205	26.525	26.845	27.485	27.805

18|	25.895	26.215	26.535	26.855	27.495	27.815
19|	25.905	26.225	26.545	26.865	27.505	27.825
20|	25.925	26.245	26.565	26.885	27.525	27.845
21|	25.935	26.255	26.575	26.895	27.535	27.855
22|	25.945	26.265	26.585	26.905	27.545	27.865
23|	25.975	26.295	26.615	26.935	27.575	
24|	25.955	26.275	26.595	26.915	27.555	
25|	25.965	26.285	26.605	26.925	27.565	
26|	25.985	26.305	26.625	26.945	27.585	
27|	25.995	26.315	26.635	26.955	27.595	
28|	26.005		26.645			
29|	26.015		26.655			
30|	26.025		26.665			
31|	26.035		26.675			
32|	26.045		26.685			
33|	26.055		26.695			
34|	26.065		26.705			
35|	26.075		26.715			
36|	26.085		26.725			
37|	26.095		26.735			
38|	26.105		26.745			
39|	26.115		26.755			
40|	26.125		26.765			

- *EDITORS NOTE: I RECOMMEND USING A TA-27 INLINE RF PRE-AMPLIFIER WITH THIS RADIO AFTER THE ABOVE MOD. IT IS AVAILABLE FROM SELMAN ENTERPRISES. SEE ADDRESS AND PHONE # ELSEWHERE IN THIS VOLUME.*

SUPER GALAXY

EXTENDED TEN METER COVERAGE

- *R.M. TEDESCO*

THIS MODIFICATION GIVES EXTENDED COVERAGE ON BANDS 'D' AND 'E' FROM 28.355MHz TO 28.945MHz.

SUPER GALAXY

OBTAIN A SPST SWITCH (AVAILABLE FROM SELMAN ENTERPRISES) OR USE AN EXISTING SWITCH.

1. REMOVE RADIO COVERS AND LOCATE IC5 AND IC7.
2. FIND A SUITABLE LOCATION AND MOUNT SWITCH.
3. CONNECT PIN 'A' TO PIN '12' OF IC5.
4. CONNECT PIN 'B' TO PIN '12' OF IC7.

SUPER GALAXY 10MTR F₀ CHART

CH.SEL		CH.SEL	
BAND D	BAND E	BAND D	BAND E
01|	28.505	21|	28.755
02|	28.515	22|	28.765
03|	28.525	23|	28.795
04|	28.545	24|	28.775
05|	28.555	25|	28.785
06|	28.565	26| 28.355	28.805
07|	28.575	27| 28.365	28.815
08|	28.595	28| 28.375	28.825
09|	28.605	29| 28.385	28.835
10|	28.615	30| 28.395	28.845
11|	28.625	31| 28.405	28.855
12|	28.645	32| 28.415	28.865
13|	28.655	33| 28.425	28.875
14|	28.665	34| 28.435	28.885
15|	28.675	35| 28.445	28.895
16|	28.695	36| 28.455	28.895
17|	28.705	37| 28.465	28.915
18|	28.715	38| 28.475	28.925
19|	28.725	39| 28.485	28.935
20|	28.745	40| 28.495	28.945

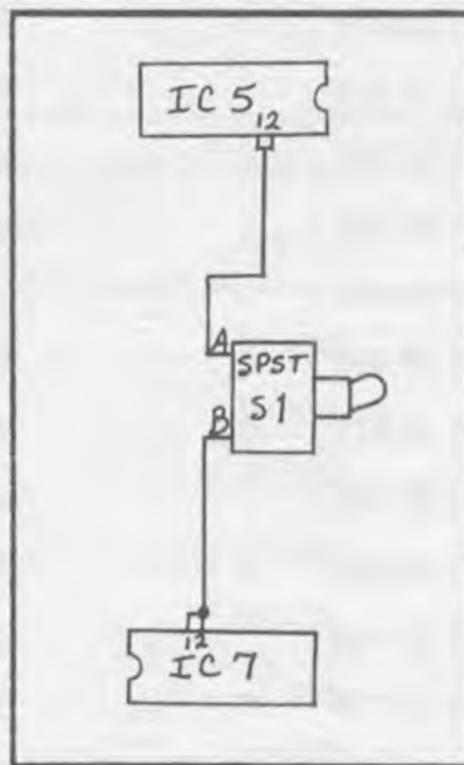


FIGURE 1. SUPER GALAXY

8719 SKIPPED CHANNELS RETREIVE SWITCH

. *R. COGLIANO*

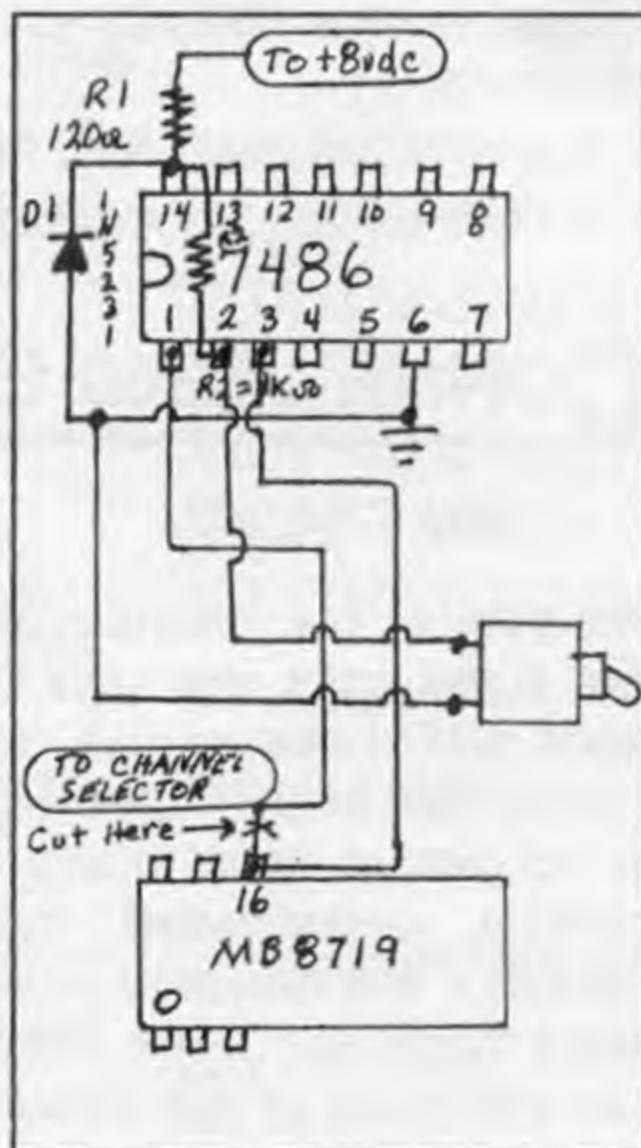
THIS CIRCUIT PICKS UP THE 'A' CHANNELS AND SKIPPED CHANNELS IN CONVERSIONS. REFER TO FIGURE 1. USE A PERF BOARD TO BUILD CIRCUIT ON.

PARTS YOU WILL NEED: 1 7486A OR EQUIVALENT IC. 1 1N5231 5 VOLT ZENER DIODE. 1 120ohm 1/4 WATT RESISTOR. 1 1kohm 1/4 WATT RESISTOR. 1 SPST SWITCH.

1. BUILD THE CIRCUIT DIAGRAMMED IN FIGURE 1.
2. CAREFULLY REMOVE THE RADIOS COVERS.
3. FIND AN APPROPRIATE MOUNTING SPOT AND MOUNT SW 1 AND NEW CIRCUIT INSIDE RADIO.
4. CUT THE TRACE BETWEEN PIN '16' OF THE PLL IC AND THE CHANNEL SELECTOR.
5. CONNECT THE WIRE FROM PIN '1' OF THE 7486 IC TO THE CHANNEL SELECTOR SIDE OF THE CUT RUN.
6. CONNECT THE WIRE FROM PIN '3' OF THE 7486 IC TO PIN '16' OF THE PLL IC.
7. CONNECT THE LOOSE END OF R1 TO A CONSTANT +8 VOLT SUPPLY.
8. CONNECT THE WIRE FROM PIN '6' OF THE 7486 IC TO A GOOD BOARD GROUND.
9. NOW, RECHECK ALL WIRING AND CONNECTIONS. IF ALL IS WELL, POWER UNIT UP AND CHECK IT OUT!

01|26.855	11|27.075	21|27.255	31|27.325
02|26.985	11A-12|27.095	22|27.215	32|27.315
03|26.975	13|27.015	23|27.265	33|27.345
3A-04|26.995	14|27.115	24|27.245	34|27.335
05|27.025	15A-15|27.145	25|27.235	35|27.365
06|27.015	16|27.165	26|27.255	36|27.355
7A-07|27.045	17|27.155	27|27.285	37|27.385
08|27.065	18|27.185	28|27.275	38|27.375
09|27.055	19|27.175	29|27.305	39|27.405
10|27.085	19A-20|27.195	30|27.295	40|27.395

FIGURE 1. 8719 SKIPPED CHANNELS RETREIVE SWITCH.



JACKSON EXTENDED LO BAND

BY STUDYING THE CHART, YOU CAN SEE HOW THE SWITCH SHIFTS THE FREQUENCIES. APPLY THIS SHIFT TO YOUR CONVERSION FREQUENCIES AND YOU CAN SEE HOW EVERY CHANNEL CAN BE PICKED UP WITH THE FLIP OF A SWITCH. TO GET CHANNELS 105-108, APPLY THE SWITCH WHEN MODE 60-104 IS ENABLED. 105-108 WILL BE ON CHANNELS 37-40.

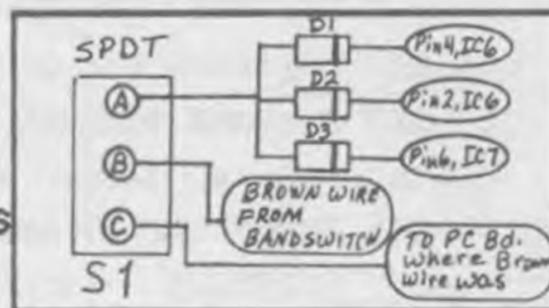
JACKSON EXTENDED LO BAND

. *M.WASSERMAN*

THIS MODIFICATION ADDS ONE MORE BAND OF COVERAGE TO THE JACKSON. IT GIVES 25.615MHZ TO 26.055MHZ ON BAND 'A' WITH EXTEND SWITCH SELECTED. REFER TO VOLUME 27 PAGE 08.(BAND 'A' IS THE ONLY BAND AFFECTED BY THE NEW SWITCH.)

PARTS YOU WILL NEED: 3 1N4148 DIODES. 1 SPDT SWITCH.

1. FOLLOW THE BROWN WIRE FROM THE BAND SWITCH TO THE P.C. BOARD BEHIND THE CHANNEL SELECTOR.
2. UNSOLDER THE BROWN WIRE AT THE PC BOARD AND CONNECT IT TO PIN 'B' OF SWITCH 1.
3. RUN ANOTHER WIRE FROM WHERE YOU REMOVED THE BROWN WIRE IN STEP 2, TO PIN 'C' OF SWITCH 1.
4. CONNECT THE CATHODE OF D1 TO PIN '4' OF IC6.
5. CONNECT THE CATHODE OF D2 TO PIN '2' OF IC6.
6. CONNECT THE CATHODE OF D3 TO PIN '6' OF IC7.
7. SOLDER THE ANODES OF THE THREE DIODES TOGETHER.
8. CONNECT THE ANODES TO PIN 'A' OF SWITCH 1.
9. REMOVE DIODES D26 AND D27. REPLACE THEM WITH 'ONE' (1) 'SUPER DIODE'.



CONNEX-3300 EXPORT ALIGNMENT

. *RAYSRADIO*

200 CHANNEL UNIT (25.615-28.305MHz). SAME EXACT CASE AND FRONT FACE PLATE AS THE SUPER STAR 3600 LESS CW AND SSB. IN ITS PLACE IS HILO PWR AND ECHO. MODE SELECT SWITCH HAS THREE POSITIONS (PA,FM,AM). ECHO BOARD LOOKS LIKE TYPICAL BBC CIRCUIT. UNIT HAD IDENTICAL PCB AS EXCALIBUR. USED BOARD LAYOUT IN VOLUME 22 PAGE 31. ANOTHER ONE HAD SLIGHT DIFFERENCE IN SYNTHESIZER CRYSTAL ARRANGEMENT. THE FIRST UNIT WITH SER.# 88060341 HAD THREE CRYSTALS IN A GROUP WITH A VARIABLE CAP NEXT TO EACH ONE. THE SECOND UNIT SER.# 012270 HAD THREE CRYSTALS BUT ONLY ONE VARIABLE CAP AND TWO TUNING COILS IN PLACE OF THE VARIABLE CAPS. DRIVER TRANSISTOR IS A 2SC2168 AND FINAL

TRANSISTOR IS A 2SC1969. HIGH POWER WAS 10 WATTS DEADKEY WITH 14 WATTS PEP. LO POWER POSITION WAS 4 WATTS DEADKEY AND 7 WATTS PEP. I SUGGEST REMOVING AMC TRANSISTOR TR32 AND ADJUST VR13 IN HIGH POWER POSITION FOR 5 WATTS DEADKEY AND 20 WATTS PEP. ADJUST VR16 IN LO POWER POSITION FOR 2 WATTS AND 12 WATTS PEP. IF HIGHER CARRIER LEVELS ARE DESIRED, I RECOMMEND REPLACING TR50 WITH TR51 AND REPLACE TR51 WITH ECG37. SOME OF THE VARIABLE RESISTORS ARE USED FOR ADJUSTMENTS OTHER THAN LABELED ON THE PCB. ALL THE VARIABLE RESISTOR ADJUSTMENTS ARE AS FOLLOWS:

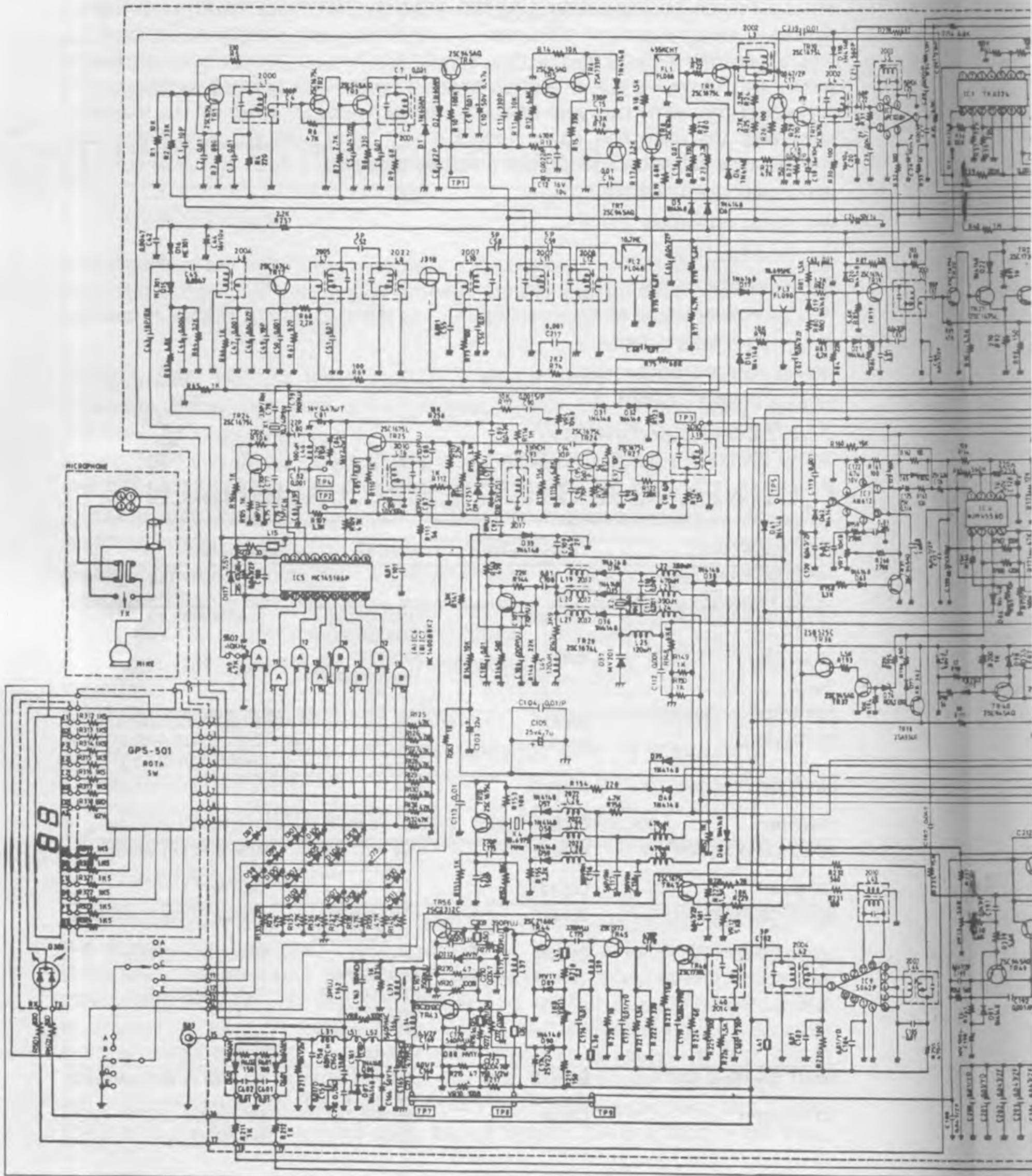
- VR1 AM/FM SIGNAL METER
- VR4 SQUELCH RANGE
- VR5 FM DEVIATION
- VR8 RF POWER METER
- VR12 LO POWER MODULATION
- VR13 HIGH POWER CARRIER
- VR14 HI POWER MODULATION
- VR16 LO POWER CARRIER

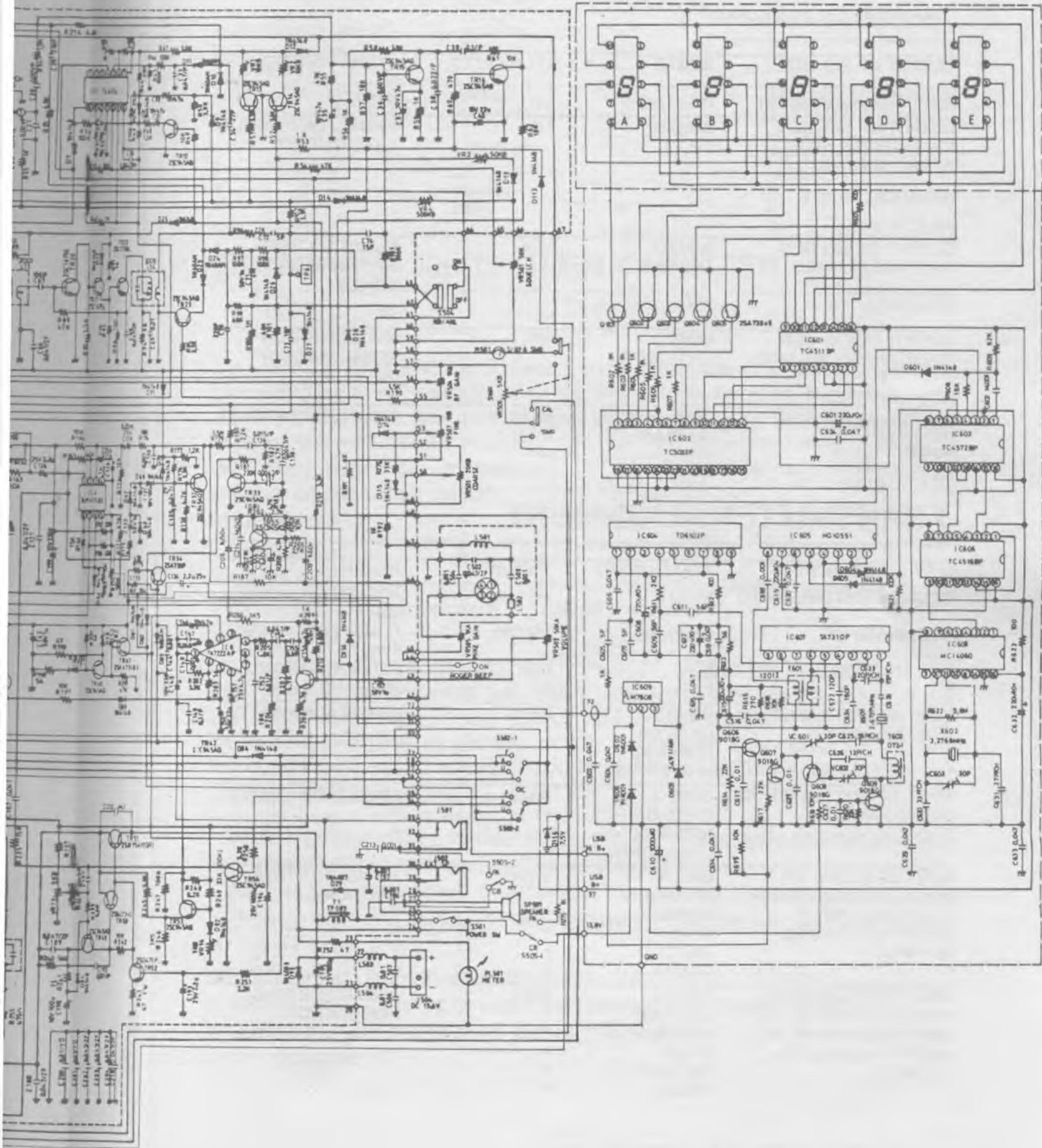
SYNTHESIZER ALIGNMENT

CONNEX-3300 SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
INPUT OF FREQ CNTR TOIC5 PIN3	CH.19		CHECK FOR 10.240MHZ
INPUT OF FREQ CNTR TOIC3 PIN3	CH.19 AM XMT	UNMARKED VARIABLE CAP NEXT TO 10.695MHZXTAL	CHECK FOR 10.695MHZ
INPUT OF DC METER TOTP2 (R109)	BAND F CH.40	L17	ADJUST FOR 5 VOLTS CHECK FOR APROX 1.5V ONBAND A CH.1
INPUT OF O'SCOPE TO TP4 (R107)	BAND D CH.19	L16	ADJUST FOR MAXIMUM RF OUTPUT
INPUT OF O'SCOPE TO TP3 (R74)	BAND F CH.40	L18	ADJUST FOR MAXIMUM RF OUTPUT
INPUT OF FREQ CNTR TOTP3 (R74)	BAND C CH.19	UNMARKED VARIABLE CAP NEXT TO 14.010MHZ XTAL OR L19 ON LATER UNITS, SAME MODEL	ADJUST FOR 16.040MHZ EXTERNAL CNTR SHOULD READ 26.735MHZ
INPUT OF FREQ CNTR TOTP3 (R74)	BAND F CH.19	UNMARKED VARIABLE CAP OR COIL 'A' NEXT	ADJUST FOR 17.390MHZ EXTERNAL CNTR SHOULD

SUPER GALAXY SCHEMATIC





SECRET CB VOLUME No.28 38

TO 15.360MHz
XTAL READ 28.085MHz

RECEIVER ALIGNMENT

OUTPUT OF SIG GEN FOR 27.185MHz, 30%MOD	BAND D CH.19 AM	L3L4L5 L7 L8 L10 L11 L12	ADJUST FOR MAXIMUM OUTPUT
OUTPUT OF SIG GEN FOR 27.185MHz, NO MOD FM 1uV 1.5KHz DEV. 1KHz AUDIO TO ANT.	BAND D CH.19	L5	ADJUST FOR MAXIMUM AUDIO OUTPUT
INPUT JACK			
OUTPUT OF SIG GEN FOR 27.185, 30% MOD 1KHz 1000uV	BAND D CH.19 AM SQUELCH MAX	VR4	ADJUST SO THAT SQUELCH JUST BREAKS
OUTPUT OF SIG GEN FOR 27.185MHz, 30% MOD., 1KHz 100uV	BAND D CH.19 AM	VR1	ADJUST FOR 9 ON SIGNAL SCALE OF METER
OUTPUT OF SIG GEN FOR 26.045MHz, NO MOD. 100uV DC METER TO TP1 (D2 CATHODE)	BAND A CH.40 AM NB/ANL ON	L1, L2	ADJUST FOR 2-3 VOLTS

TRANSMITTER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
INPUT OF WATTMETER TO ANTENNA INPUT	BAND F CH.40 AM	L40 L42 L43 L44	ADJUST FOR MAX RF OUT ADJ L33 FOR BALANCE PWR
* *	* *	L33 *	BETWEEN BAND F CH.40 AND BAND A CH.1
INPUT OF WATTMETER TO ANTENNA INPUT * *	BAND D CH.19 AM RFPWR IN HI POSITION	VR13 * * *	ADJUST FOR 5 WATTS * * *
INPUT OF WATTMETER TO ANTENNA INPUT * *	BAND D CH.19 AM RFPWR IN LO POSITION	VR16 * * *	ADJUST FOR 2 WATTS * * *
INPUT OF SCOPE OR MODULATION METER TO TO ANTENNA INPUT INSERT 1KHz 30mV TO MIC INPUT *	BAND D CH.19 AM RFPWR IN 'HI' MIC GAIN TO MAX	VR14 * * * * *	ADJUST FOR 100% MODULATION * * * *
INPUT OF O'SCOPE OR MODULATION METER TO TO ANTENNA INPUT INSERT 1 KHz 30mV TO MIC INPUT *	BAND D CH.19 AM RFPWR IN 'LO' MIC GAIN TO MAX	VR12 * * * * *	ADJUST FOR 100% MODULATION * * * *

INPUT OF DEVIATION	BAND D	VR5	ADJUST FOR 2-3 KHz DEV.
METER TO ANT INPUT	CH.19 FM	*	*
INSERT 1KHz 30mV TO MIKE INPUT	XMIT	*	*
	*	*	*
INPUT OF WATTMETER TO ANTENNA INPUT	BAND D	VR8	AT 5 WATTS RF OUTPUT ADJUST SO RF PWR METER AGREES W/ WATT. METER
	CH.19 AM	*	
*	MIC GAIN	*	
*	TO MIN. XMIT	*	
*		*	

IMPROVED 326-G GLEN COUNTER

• F.J. BUCKLEY

THE MODIFICATION SHOWN IN VOLUME 5, PAGE 13, REQUIRED A GLEN PREAMPLIFIER. THIS AMPLIFIER IS NO LONGER AVAILABLE. THE MODIFICATION AS SHOWN WITHOUT USING THE AMPLIFIER WAS NOT SENSITIVE ENOUGH FOR LOW LEVEL SIGNALS. THIS MODIFICATION WILL PERMIT READING THE FREQUENCY OF A SINGLE TRANSISTOR OSCILATOR CIRCUIT.

PARTS NEEDED:

- 1 DPDT SWITCH
- 1 PHONO JACK
- 1 FOOT OF RG-174/U COAX CABLE
- 1 390pf CAPACITOR

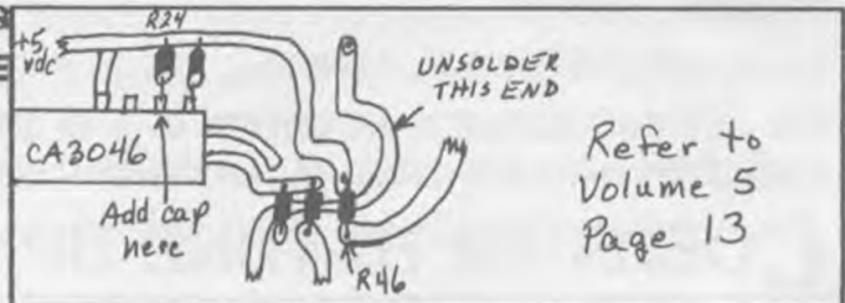


FIGURE 1. GLEN 326-G

BEFORE STARTING THE MODIFICATION, UNMODIFY, IF EARLIER MODIFICATION HAS BEEN MADE BY UNSOLDERING THE GREEN WIRE THAT RUNS FROM THE RF TAB ON THE TOP CIRCUIT BOARD TO THE OUTPUT JACK OR SWITCH, FROM THE OUTPUT JACK OR SWITCH. RESOLDER TO THE END OF THE GREEN WIRE CONNECTED TO TERMINAL 'L' OF THE LOWER BOARD. (DO NOT REMOVE THE WHITE WIRE FROM THE JACK.)

MODIFICATION STEPS

1. DRILL A HOLE SUITABLE FOR MOUNTING THE AUDIO JACK BETWEEN THE HEATSINK AND FREQUENCY SET COIL ON THE REAR OF THE CHASSIS.
2. REMOVE THE LOWER BOARD BY REMOVING TWO SCREWS AND UNPLUGGING.
3. REFER TO FIGURE 1. UNSOLDER AND REMOVE THE END OF R46 THAT IS ATTACHED TO THE B+ SUPPLY.
4. REMOVE WIRES FROM STANDBY/ON SWITCH AND REMOVE THE SWITCH.
5. SOLDER THE ENDS OF BOTH WIRES JUST REMOVED TOGETHER AND INSULATE.
8. LOCATE R24 AND SOLDER ONE END OF THE 390pf CAP TO THE TOP EXPOSED END OF THE RESISTOR.

COBRA 18LTD TUNE-UP

7. SOLDER THE OTHER LEAD OF THE 390pf CAP TO THE CENTER LEAD OF A 5" LENGTH OF RG-174/U.
 8. SOLDER THE OTHER END OF THE COAX CENTER LEAD TO A BOTTOM N/C CONTACT OF THE DPDT SWITCH, WHEN MOUNTED AS VIEWED FROM THE BOTTOM OF THE CHASSIS. SOLDER THE SHIELD TO THE TOP OR N/O CONTACT, WHEN THE SWITCH IS IN THE STANDBY POSITION.
 9. SOLDER THE CENTER OF THE REMAINING COAX TO THE CENTER TERMINAL OF THE AUDIO JACK AND THE SHIELD TO THE GROUND TERMINAL. SOLDER THE CENTER LEAD OF THE OTHER END TO THE COMMON OR CENTER TERMINAL OF THE SIDE OF THE SWITCH ALREADY USED. SOLDER THE SHIELD TO THE N/C OR TOP TERMINAL WITH THE OTHER SHIELD.
 10. SOLDER A WIRE TO THE END OF RESISTOR R46 AS REMOVED FROM THE BOARD.
 11. SOLDER THE END OF A WIRE IN THE HOLE WHERE R46 WAS REMOVED FROM.
 12. SOLDER THE OTHER END OF THE WIRE, THAT YOU CONNECTED TO THE RESISTOR, TO THE CENTER OR COMMON TERMINAL OF THE SWITCH ON THE SIDE NOT YET USED.
 13. SOLDER THE UNCONNECTED END OF THE WIRE CONNECTED TO THE PC BOARD, TO THE TOP OR N/C TERMINAL OF THE DPDT SWITCH WHEN IN STANDBY AS VIEWED FROM THE BOTTOM.
 14. MOUNT THE SWITCH, REINSTALL THE BOARD, AND REASSEMBLE UNIT.
- THE MODIFICATION IS NOW COMPLETE AND SENSITIVE ENOUGH TO CHECK CRYSTAL OSCILATOR CIRCUITS RIGHT AT THE CRYSTAL. (BUT NOT RECOMMENDED.)

COBRA 18LTD TUNE-UP

REFER TO SECRET CB VOLUME 20, PAGE 36.

PROCEED AS FOLLOWS; INJECT A 1Kc TONE VIA MIC.

TUNE/PEAK L11, L10, L9 (AFTER SLUG IS INSERTED), & L7. L8 IS NOT AJUSTABLE, IT IS A FIXED RF CHOKE.

FOR TALK-BACK; ADD A 100ohm RESISTOR AT PIN '5' OF THE MIC CONNECTOR INSIDE THE RADIO, AND A SHORT PIECE OF WIRE ON OTHER END TO THE CASE OF L4.

NOTE: RADIO OVERMODULATES EASILY. CHECK ON SCOPE AND ADJUST AS REQUIRED.

REALISTIC TRC-415 TUNE-UP

FINAL = 2SC2078

TUNE-UP: TRANSMIT, ADJUST L7, L8, L9, L10, L11, L12 (PEAK WITH 1Kc TONE); ALSO TRY SQUEEZING/SPREADING L13 AND RFC9.

RECEIVE, ADJUST L2, L3, L4, L5, RV1 = 'S' METER LED'S, RV2 = RF METER LED'S, RV3 = SQUELCH RANGE, RV4 = MODULATION ADJUST.

RADIO TALKS GOOD WHEN PEAKED AND RV4 WIDE OPEN WITH JUST THE STOCK MIC! RECEIVER FILTER IS A CFU455H- EITHER DOUBLE OR BETTER YET, REPLACE WITH A CF*W*455H.(THERE'S NOT MUCH ROOM FOR ANYTHING ELSE. RADIO IS AN ITTY-BITTY

THING!) NO ROOM FOR CHANNEL KIT. MIGHT TRY SOMETHING SIMILAR TO THE TRC 210 'SKIP' CONVERSION (REF: SECRET CB VOLUME 24 PP 31-34) FOR EVEN CHANNELS.

COBRA 2000GTL COUNTER 2MHz SPAN

. COURTESY CARD KIT

MODIFICATION FOR EXPANDING THE READING CAPABILITY OF THE COBRA 2000GTL COUNTER, TO A BANDWIDTH OF 2MHz, USING A SPECIAL 'GRAY' EPOXY CARD KIT, VERY MUCH LIKE THE TC-DX KIT, ONLY, MADE JUST FOR THE 2000GTL COUNTER. THIS KIT IS AVAILABLE FROM SELMAN ENTERPRISES. JUST SPECIFY THAT IT'S THE GRAY 2000GTL COUNTER CARD KIT.

1. UNPLUG THE FREQUENCY COUNTER/CLOCK UNIT.
2. ON THE PC SIDE OF THE CB UNIT THERE ARE 4 SCREWS THAT HOLD THE FREQ/CLOCK UNIT ON TO THE CHASSIS. REMOVE THESE 4 SCREWS.
3. REMOVE THE TOP AND BOTTOM COVERS OF THE FREQ/CLK UNIT. MOUNT THE EPOXY PACK INSIDE THE TOP COVER, IN THE REAR/RIGHT CORNER, LEAVING 1/4" CLEARANCE FROM THE LIPS. WE SUGGEST THAT YOU USE 3M 4475 PLASTIC ADHESIVE.
4. INSIDE THE UNIT YOU WILL FIND TWO TUNING TANKS. ALL CONNECTIONS ARE TO BE MADE NEAR THESE TANKS.

NOTE: THIS IS A DOUBLE SIDED BOARD, WITH PLATED THROUGH HOLES. IT IS NOT THAT COMMON IN CB SO SOME OF YOU MAY NOT BE FAMILIAR WITH THE PROCEDURES INVOLVED IN REMOVING OR CHANGING COMPONENTS IN THIS TYPE OF BOARD. THERE ARE TWO RECOMMENDED WAYS. #1, YOU CAN CUT OUT A COMPONENT LEAVING ITS' LEGS LONG ENOUGH TO SOLDER THE REPLACEMENT COMPONENT TO. #2, OR, CUT THE COMPONENT LEGS SHORT AND SUCK THE REMAINING PIECE OUT ON THE BOTTOM SIDE OF THE BOARD. IN EITHER CASE, YOU MUST BE CAREFUL NOT TO OVERHEAT THE PLATED THROUGH HOLE EYELET SO AS TO PREVENT SEPERATION OF IT FROM THE PLATED THROUGH HOLE. IF YOU USE THE FIRST WAY IN THIS MOD, YOU SHOULD PUT SLEEVING ON THE WIRES SO THAT YOU CAN SLIDE THEM DOWN IN PLACE AFTER SOLDERING. DROP A DAB OF 4475 ON THE INSIDE OF THE SLEEVE AFTER IT IS IN PLACE TO PREVENT ITS' MOVING.

5. LOCATED BETWEEN THE TWO TANKS MENTIONED AND THE WALL OF THE SHIELD, FIND FET501. REMOVE THIS FET. DRAIN (D) IS THE LEG TOWARD THE CORNER. SUPPLY (S) IS THE CENTER AND GATE (G) IS THE REMAINING LEAD.
6. THERE IS A .022uf CAPACITOR, C531, TOWARD THE CENTER, NEXT TO L502. REMOVE THIS CAPACITOR.

MODIFYING THE COBRA 2000GTL USING THE CARD KIT TC-DX KIT.

7. ON THE SIDE OF L501 TOWARD THE SHIELD WALL, FIND R517, A 150ohm RESISTOR. CLIP THE LEG AND SEPERATE THE LEG AND BODY OR REMOVE THE LEG.
8. ON THE PRINTED SIDE OF THE CIRCUIT BOARD, SOLDER A 15pf CAPACITOR ACROSS THE OUTSIDE LEGS OF THE THREE LEAD SIDE OF L501.
9. SOLDER A JUMPER FROM THE PC PAD THAT INCLUDES THE CENTER LEAD OF L501 AND THE BODY OF R517, TO GROUND OR THE SHIELD POST OF L501.
10. CONNECT WIRES FROM THE THREE HOLES (OR CUT LEADS) OF WHERE FET501 WAS, A WIRE TO THE LEAD OR WHERE THE LEAD WAS OF R517 AND A WIRE TO TP502.
11. PUT THE LOWER COVER BACK IN PLACE AND REMOUNT THE FREQ/CLK UNIT.
12. USING A PIECE OF TAPE, TAPE THE TOP COVER'S LIP TO THE BACK SIDE OF THE UNIT SHIELD, AND LET IT LEAN AGAINST THE TRANSFORMER.
13. CONNECT THE DRAIN OF FET501 TO THE YELLOW DOT ON THE TC-DX EPOXY PACK. CONNECT THE SUPPLY TO A TANK SHIELD ON THE PAK. CONNECT THE GATE TO THE BLUE DOT ON THE EPOXY PACK. CONNECT THE LEAD OR WHERE THE LEAD WAS OF R517 TO THE RED DOT ON THE PACK. CONNECT TP502 TO THE ORANGE DOT.

ADJUSTMENT

1. WITH THE RADIO SET TO THE SAME CENTER FREQUENCY THAT WAS USED FOR ITS' ALIGNMENT, PUT A SCOPE ON PIN 3 OF IC512. (A SMALL 8 PIN CHIP JUST TO THE LEFT OF L501.) ADJUST THE TWO TANKS ON THE EPOXY PACK FOR MAXIMUM AMPLITUDE.
2. CHECK READINGS FROM ONE END OF FREQUENCY SPREAD TO THE OTHER. IF ALL IS WELL, REPLACE COVERS.

MODIFYING THE COBRA 2000GTL USING THE CARD KIT TC-DX KIT.

• COURTESY OF CARD KIT

1. REMOVE THE COVERS FROM THE UNIT.
2. REMOVE THE DYNAMIC CONTROL FROM THE CONTROL PANEL AND TAPE AND TIE IT BACK TO THE POWER AND MIC WIRES.

NOTE: LEAVE CONTROL FULLY CLOCKWISE.

3. PUT TAPE ON THE ANODIZED METAL OF THE FRONT PANEL IN THE AREA TO THE REAR OF WHERE THE DYNAMIC CONTROL WAS REMOVED.
4. ENLARGE THE MOUNTING HOLE, WHERE THE DYNAMIC CONTROL WAS REMOVED TO 3/8".
5. DRILL A 1/8" HOLE JUST TO THE LEFT OF WHERE THE CONTROL PANEL THICKENS, IN LINE WITH THE OTHER CONTROLS. THIS POINT CAN EASILY BE DETERMINED BY

MODIFYING THE COBRA 2000GTL USING THE CARD KIT TC-DX KIT.

INSERTING THE GROUP SELECTOR SWITCH TO SEE WHERE THE KEY LIP FALLS. CRYSTALS AND WIRES SHOULD BE POINTING TO THE REAR.

6. MOUNT ALL CRYSTALS DESIRED ON THE GROUP SELECTOR SWITCH, ON THE PC SIDE OF BOARD, LEAVING THE LEGS STANDING ABOUT 1/8". CHANGE THE WIRES FOR WIRES ABOUT 10" LONG.

7. USING ONE OF THE FLAT WASHERS FROM THE GROUP SELECTOR SWITCH, CUT A HOLE IN THE ROUND DECAL, EQUAL TO THE OUTSIDE DIAMETER OF THE WASHER.

8. MOUNT THE GROUP SELECTOR SWITCH WITH ONE WASHER BELOW AND ONE ABOVE THE PANEL.

NOTE: IF THE SHAFT IS TOO LONG TO ALLOW THE KNOB TO SET DOWN EVEN WITH THE OTHER KNOBS, SHORTEN IT BY THAT AMOUNT.

9. PRESS THE ROUND DECAL ONTO THE CONTROL BOARD, CENTERED ON THE SWITCH WITH D TOWARD THE FRONT PANEL. TIGHTEN THE KNOB TEMPORARILY IN ANY POSITION.

10. USING 3M 4475 PLASTIC ADHESIVE, MOUNT THE EPOXY PAK ON THE LOWER SIDE OF THE CHASSIS, NEXT TO THE MOTHER BOARD AND BETWEEN THE RIGHT FRONT MOUNTING SCREW AND THE CHASSIS GROUNDING TAB, WITH THE ORANGE AND BLUE DOTS FORWARD.

11. SOLDER THE BLACK WIRE OF THE SWITCH TO THE TANK SHIELD OF THE TANK NEAREST THE MOTHER BOARD, AND RUN A WIRE FROM THAT TANK TO PINS 2, 3, AND 4 OF THE UHIC-070 CHIP.

12. SOLDER THE WHITE WIRE TO THE ORANGE DOT TERMINAL OF THE EPOXY PAK.

13. LOCATE THE OUTPUT TERMINAL OF L20.

NOTE: IF YOU ARE NOT GOING TO MAKE A FREQ/CLOCK MODIFICATION, CUT THE PC PAD BETWEEN R242 AND R107. IF YOU ARE GOING TO MAKE THE FREQ/CLOCK MODIFICATION, CUT THE PC PAD BETWEEN THE OUTPUT LEG OF L20 AND R242.

14. CHANGE R107 TO A .01uf CAPACITOR. (SUPPLIED)

15. RUN A WIRE FROM THE OUTPUT TERMINAL OF L20 TO THE BLUE DOT TERMINAL ON THE EPOXY PAK.

16. RUN A WIRE FROM THE OTHER SIDE OF THE CUT TO THE YELLOW DOT TERMINAL OF THE EPOXY PAK.

17. RUN A WIRE FROM THE RED DOT TERMINAL ON THE EPOXY PAK TO PIN 8 OF THE UHIC-070 CHIP.

18. SOLDER A 68pf (OR A 150pf, WHICHEVER GIVES THE BEST TUNING.) ACROSS THE OUTSIDE LEGS OF THE THREE LEG SIDE OF THE BLACK TANK INPUT TO THE TRANSMITTER MIXER. (THERE ARE TWO TANKS FEEDING THE MIXER, ONE HAS BLUE MARKINGS AND THE OTHER HAS BLACK.)

*19. PARALLEL THE COUPLING CAPACITOR C163 WITH A 18pf CAPACITOR.(SUPPLIED)

*20. REMOVE C161.

SECRET CB VOLUME No.28 45

TRICKS OF THE TRADE

- *21. INCREASE THE SIZE OF R184 FROM A 330ohm TO A 470ohm.
- *22. IN THE RECEIVER, SHORT ACROSS THE LEGS OF C41.
- *23. CHANGE R48 (SITTING ON AN ANGLE NEAR L4) TO A 750ohm, +/- 70 ohms.
- 24. AT THE FRONT OF THE BOARD, REMOVE JUMPERS JP17 AND JP18. CROSS WIRE THEM.

ALIGNMENT

WITH A COUNTER CONNECTED TO READ THE TRANSMITTER FREQUENCY, APPLY POWER.

1. CONNECT A SCOPE TO THE YELLOW DOT TERMINAL OF THE EPOXY PAK. ADJUST THE TANKS ON THE EPOXY PAK AND THE BLACK TANK ON THE INPUT TO THE MIXER FOR THE BEST AND CLEANEST SIGNAL. ALSO ADJUST FOR THE SAME AMPLITUDE OF SIGNAL AT EACH END OF THE FREQUENCIES YOU HAVE INSTALLED CRYSTALS FOR.
2. SELECT CHANNEL 1 AND ADJUST EACH CAPACITOR OF THE GROUP FREQUENCY CRYSTAL. THE FREQUENCY IT SHOULD READ IS STAMPED IN BLACK ON THE SIDE OF THE CRYSTAL.
3. DO A NORMAL TRANSMITTER-RECEIVER ALIGNMENT USING CENTER FREQUENCY OF THE SPAN YOU HAVE INSTALLED CRYSTALS FOR. IF EVERYTHING HAS BEEN BROAD-BANDED PROPERLY, THE EXTREME ENDS OF THE FREQUENCIES SHOULD BE AT OR ABOUT THE HALF POWER POINT.

FINISHING TOUCH

TAKE THE DECAL 'TECH'S CHOICE' AND PLACE IT JUST ABOVE WHERE YOU READ 2000GTL, OR JUST ABOVE THE TWO METERS, CENTERED BETWEEN THEM.

TRICKS OF THE TRADE

• COURTESY CARD KIT

BY NOW MOST TECHNICIANS ARE AWARE THAT THE FINAL INDUCTOR BEFORE THE OUTPUT TO THE SO-239 ON THE COBRA 21 AND 25 LTD HAS ONE TURN TOO MANY IN THEM. THIS IS CORRECTED BY PUSHING THE CAPACITOR, C142, BODY TOWARD THE COIL AND HALFING THE COIL, STANDING HALF OF IT UP OVER C142 AND LEAVING THE OTHER HALF IN ITS' ORIGINAL POSITION.

THE SAME COIL (L10) IN THE COBRA 21, 25, AND 29 PLUS UNITS NEED TO BE ADJUSTABLE, BUT ARE NOT. IN THE COBRA 21 AND 25 PLUS IT IS TOO SHORT. IN THE COBRA 29 PLUS, IT IS GENERALLY TOO LONG DUE TO THE ADDITIONAL INDUCTANCE OF THE SWR CIRCUIT.

CORRECTING THE PROBLEM

ON THE COBRA 21 AND 25 PLUS MODELS

1. PUSH THE CAPACITORS LAYING BETWEEN C10 AND C11 OVER TOWARD C11 AS MUCH AS POSSIBLE.
2. SEPERATE 2 OR 3 TURNS OF L10 PUSHING THEM ALSO OVER TOWARD L11.
3. TAKE A FERRITE SLUG FROM A RF 10mm TANK, (THOSE SIMILAR TO THE ONES FOUND IN THE TECH'S CHOICE C AND D KITS.) WITH A PAIR OF DYKES, CRACK THE SLUG INTO THREE PARTS.
4. PLACE ONE OF THESE PEICES INTO THE CENTER OF THE 2 OR 3 TURNS THAT YOU HAVE PUSHED OVER, SECURING IT THERE WITH 3M 4475 ADHESIVE.

ON THE COBRA 29 PLUS

1. PUSH THE CAPACITOR THAT IS TOWARD THE OUTPUT, BACK TOWARD THE CENTER OF L10 AND SPLIT THE COIL STAND HALF OF IT UP OVER THE CAPACITOR.

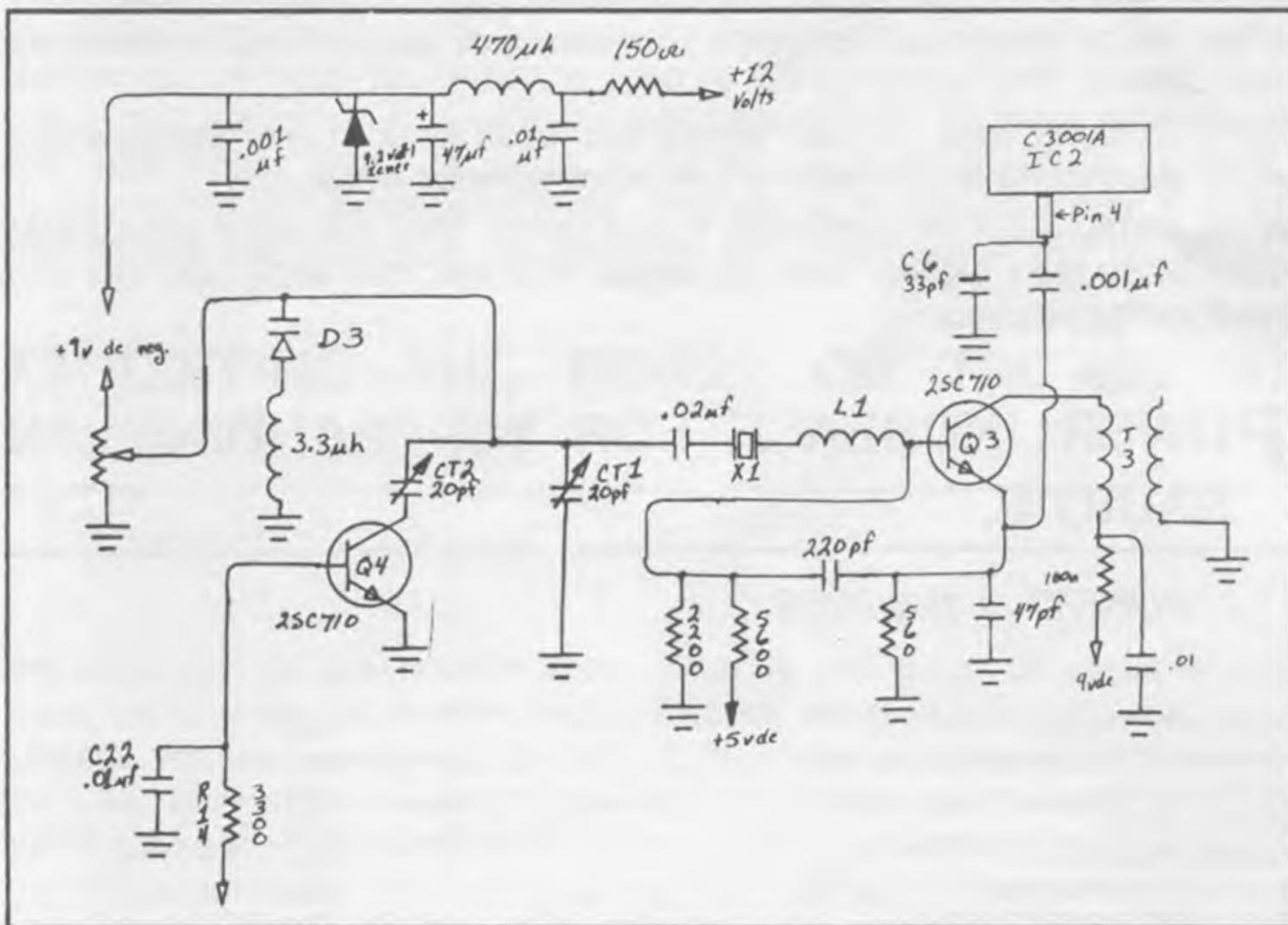


FIGURE 1. O2A CLARIFIER, REFER TO Pg 9

DWIGHT D. WITH 2816 PLL

. *ROBERT D. WAGNER*

1. REMOVE D20.
2. REMOVE C109,(SEE PART 2, STEP 2).
3. REPLACE R-81 WITH SOLID WIRE JUMPER.
4. REMOVE WIRE ON POSITIVE SIDE OF POT AT PCB AND REPLACE AT REAR LEG OF TR18, NEXT TO VR6.
5. USE L21 TO ADJUST CENTER OF DELTA TUNE CONTROL FOR CORRECT FREQUENCY. TEST UNIT RESULTS; UP 3.2 Kc's, DOWN 4.0.

MORESLLIDE

1. REPLACE D18 WITH A SUPER DIODE.
2. REPLACE C109 (REMOVED IN STEP 2 OF PART 1), WITH A 5-60pf TRIMMER CAP.
3. SET DELTA TUNE FULLY CLOCKWISE AND ADJUST L21 FOR CORRECT FREQUENCY.
4. SET DELTA TUNE FULLY COUNTERCLOCKWISE AND ADJUST 5-60pf TRIMMER FOR 10Kc DROP.

NOTE: TEST UNIT WENT 11.2 AND WOULD NOT ALIGN WITHOUT PERFORMING STEP 2. AFTER MODIFICATIONS UNIT WENT 10 Kc's DOWN WITHOUT TROUBLE.

AFTER INSTALLATION OF ZAPPER KIT, IT WAS NOTED THAT THE RADIO WOULD ONLY SLIDE DOWN 5Kc's ON HIGH AND LOW BAND, HOWEVER, THIS MADE ODD AND EVEN FREQUENCIES POSSIBLE.

POWER INCREASE FOR WIDEBANDING AM RADIO'S.

. *ROBERT D. WAGNER*

TEABERRY T' BEAR	R49
TEABERRY T' COMMAND	R49
COBRA 29XLR	R49
COBRA 89XLR	R49
COBRA 21XLR	R41
PRESIDENT DWIGHT D.	R49
PRESIDENT HONEST ABE	R49
PRESIDENT JOHN Q.	R41

CHANGE THE RESISTOR TO A 1/2 WATT 10ohm RESISTOR. THIS RESISTOR IS USUALLY A 27 TO 47 ohm RESISTOR FROM THE FACTORY.

TECH NOTES

ALTHOUGH SELMAN ENTERPRISES IS A LONG TIME SUPPLIER OF CARD-KIT CONVERSION KITS, WE HAVE RECENTLY JOINED WITH CARD-KIT TO SUPPLY TECHNICIANS WITH PERTINENT DATA THROUGH THE MONTHLY PUBLICATION OF A NEWS LETTER CALLED 'TECH NOTES'. THESE TECH NOTES WILL BE INCLUDED IN SECRET CB. INCLUDED IN VOLUME 28 IS A STARTER SET OF NOTES TO BRING YOU UP TO DATE. ALSO, SELMAN ENTERPRISES AND CARD-KIT WILL BACK YOU UP WITH TECHNICAL ASSISTANCE, SO DON'T BE AFRAID TO TACKLE ANY OF THESE CONVERSIONS OR TRICKS OF THE TRADE THAT APPEAR IN THESE NOTES. IF YOU SHOULD RUN INTO A PROBLEM, JUST PICK UP YOUR PHONE AND CALL 1-800-227-3548 WHICH IS 1-800-CARD-KIT. HAVE YOUR UNIT AND SCHEMATICS HANDY. IF THE PROBLEM CANNOT BE WORKED OUT OVER THE PHONE YOU WILL BE ASKED TO SEND IT TO CARD-KIT AND ALL IT WILL COST YOU IS THE FREIGHT BOTH WAYS. WHAT MORE COULD YOU ASK OF ANY SUPPLIER?

TOPICS TO BE COVERED: CONVERSION KITS, TRICKS OF THE TRADE, NEW PRODUCTS, DESIGN CHANGES, AND DISCUSSIONS ON CIRCUITRY. WE WISH TO SOLICIT YOUR HELP IN COMPILING THESE NOTES. IF YOU HAVE A TECH NOTE THAT YOU WISH TO SHARE WITH OTHERS, SEND IT TO CARD-KIT OR SECRET CB MARKED 'TECH NOTE SUBMISSION'. IF YOUR TIP OR IDEA IS USED IN TECH'S NOTES, CARD-KIT WILL SEND YOU A FREE KIT OF YOUR CHOICE AND RECOGNITION WILL BE GIVEN SUBMITTER'S FOR THEIR WORK. MANY OF THESE NOTES WILL ALSO BE PICKED UP BY US AT 'SECRET CB'. IF WE USE YOUR MATERIAL, YOU WILL ALSO RECEIVE A FREE COPY OF THAT VOLUME AND YOUR NAME WILL BE LISTED AS A CONTRIBUTOR TO THAT ISSUE.

MODIFYING THE PC-122 OR TRC-453 W/ THE TC SSB KIT

. COURTESY CARD KIT

LIKE MOST OF THE MINIATURIZED UNITS, THERE IS NOT A LOT OF SPACE LEFT IN THESE UNITS AFTER THE MANUFACTURER FINISHES MINIATURIZING THEM. BUT, WITH CAREFUL, PRECISE POSITIONING OF THE KIT, THEY CAN EASILY BE MODIFIED. THESE UNITS ARE DESIGNED WITH ABOUT 1.2MHz BANDWIDTH ON THEIR TRANSMITTERS AND ABOUT 1.8MHz BANDWIDTH ON THEIR RECEIVERS. WE CAN WIDEN THE BANDWIDTH OF THE TRANSMITTER TO 2MHz BY REMOVING L24 AND L25. THE RECEIVER CAN BE STRETCHED A LITTLE, (TO 2MHz TOTAL) BY STAGGER TUNING L4 AND L5. ANYTIME YOU STAGGER TUNE, YOU ARE GOING TO LOOSE SOME RECEIVER GAIN. THIS CAN BE MADE UP FOR, VERY EASILY, BY CHANGING DC AND SELF BIASING ON THE 27MHz AMPLIFIER AS FOLLOWS:

SECRET CB VOLUME No.28 49

MODIFYING THE PC-122 OR TRC-453 W/ THE TC SSB KIT

1. REMOVE THE COVERS AND PUNCH A 13/32" HOLE IN THE BOTTOM COVER, ON THE RIGHT SIDE, 1/8" FROM THE FRONT EDGE AND IN LINE WITH THE MOUNTING SCREW HOLES.
2. REMOVE THE SIDE CHASSIS ON THE PLL SIDE OF THE UNIT, BY REMOVING SIX SCREWS. 2 ON THE FACEPLATE, 2 ON THE REAR CHASSIS AND 2 ON THE PC BOARD.
3. HAMMER OUT AND STRAIGHTEN THE LIP ON THE SIDE CHASSIS THAT WAS NOT ATTACHED TO THE MAIN PC BOARD, FROM THE FRONT TO THE REAR MOUNTING EAR.
4. PUNCH A 13/32" HOLE AS INDICATED IN FIGURE 1. MAKE SURE TO LEAVE THE MOUNTING EAR ATTACHED AT POINTS A AND B, BY 1/16" SPACE.
5. USING A PAIR OF SHEARS, CUT THE TWO FILLER BOARDS SUPPLIED, JUST TO THE REAR OF THE 1/4" HOLES. NOW CUT ONE OF THESE LENGTHWISE, MAKING TWO 1/2" WIDTH PIECES. USING 3M 4475 PLASTIC ADHESIVE, ATTACH ONE OF THEM ACROSS THE REAR MOUNTING EAR, FROM THE NOTCHED GROUNDING TAB AND RESTING ON THE COOLING PLATE COUNTER FORMED AREA. DRILL OR PUNCH TWO 9/32" HOLES IN THE OTHER 1/2" PIECE, 3/4" APART. PUNCH OUT TWO 13/32" WASHERS USING THE TWO HOLES AS GUIDES.
6. REMOUNT THE SIDE CHASSIS USING THE TWO WASHERS YOU HAVE JUST MADE BETWEEN THE CHASSIS AND THE PC BOARD ON THE FRONT CORNER. THE LOWERING OF THE PC BOARD ALLOWS SUFFICIENT SPACE TO PREVENT CONTACT BETWEEN THE METAL ON THE SWITCH AND THE SHIELD OF L38. TO INSURE AGAINST THIS, YOU MAY WISH TO COVER OR TAPE THE SHIELD OF L38 OR REMOVE IT COMPLETELY.

NOTE: YOU MAY WISH TO PERFORM THE NEXT THREE STEPS BEFORE REMOUNTING THE SIDE CHASSIS.

7. REMOVE L34, L35, AND THE TWO CAPACITORS BETWEEN THEM, C157 (47pf) AND C158 (1.5pf). JUMPER ACROSS WHERE THESE TWO CAPACITORS WERE REMOVED FROM, FROM THE FRONT LEG OF C158 TO THE REAR LEG OF L157. THIS WILL BROADBAND THE TRANSMITTER WHILE MAKING ROOM FOR THE EPOXY PAK.
8. DRILL A 7/64" ACCESS HOLE IN THE PC BOARD BETWEEN L14 AND THE TA7320 CHIP.
9. REMOVE R57, (THIS COULD BE A 5.6K OR 2.2K RESISTOR) JUST TO THE RIGHT OF WHERE L35 WAS REMOVED. CLEAN THE LEG AND REINSTALL IT IN IT'S REVERSE POSITION.
10. REPLACE C159 (1.5pf) CAPACITOR WITH THE 18pf CAPACITOR SUPPLIED. IT IS LOCATED JUST TO THE REAR OF L36.
11. TRIM THE FORWARD MOST EDGE AND THE LOWER EDGE OF THE SWITCH PC BOARD CLOSE AND IN CONTOUR WITH THE TRIMMER CAPACITORS.
12. SOLDER ANY AND ALL CRYSTALS DESIRED ONTO THE SWITCH PC BOARD.
13. USING AT LEAST ONE OF THE FILLER BOARDS SUPPLIED AND ONE FLAT WASHER, MOUNT THE SWITCH ON THE CHASSIS. USE BOTH FILLER BOARDS IF THIS DOES NOT MAKE THE SWITCH AND THE SHIELD OF L38 TOUCH.

14. NOW MOUNT THE EPOXY PAK USING 3M 4475 ADHESIVE, ON THE FIBER BOARD AND THE COUNTER FORMED HEAT SINK AREA, WITH ONE END RESTING ON THE TA7320 IC. THE LOWER TANK OF THE EPOXY PAK SHOULD BE JUST TO THE REAR OF L36.
15. CONNECT THE WIRE OF THE SWITCH PC BOARD TO THE ORANGE DOT TERMINAL ON THE EPOXY PAK.
16. SOLDER THE BLACK WIRE ON THE SWITCH PC BOARD TO THE SHIELD OF THE UPPER TANK ON THE EPOXY PAK AND THEN BACK TO THE SHIELD OF L4. LEAVE ENOUGH SLACK IN THESE TWO WIRES TO ALLOW THE SWITCH TO BE REMOVED FOR CHANGING OR ADDING CRYSTALS.
17. RUN A WIRE FROM THE OUTPUT TERMINAL OF L14 THROUGH THE 7/64" HOLE PREVIOUSLY DRILLED TO THE BLUE DOT TERMINAL ON THE EPOXY PAK. CUT THE OUTPUT TRACE OF L14 BETWEEN IT AND THE CAPACITOR C161.
18. RUN A WIRE FROM THE YELLOW DOT TERMINAL ON THE EPOXY PAK TO THE LEG YOU CLEANED OFF ON R57. THIS BECOMES YOUR NEW TP3.
19. FIND TR8 IN THE CENTER OF THE PC BOARD. JUST FORWARD AND TO THE RIGHT OF THIS TRANSISTOR THERE IS A PLACEMENT FOR AN ELECTROLYTIC CAPACITOR. RUN A WIRE FROM THE POSITIVE SIDE (MARKED WITH A +) TO THE RED DOT TERMINAL ON THE EPOXY PAK.
20. RAISE THE LEG OF L21 AND L22, (FOUND JUST FORWARD OF THE SIX TANKS NEAR THE FRONT OF THE PC BOARD.) SOLDER EXTENSIONS ON THESE LEGS AND CHANGE THEM TO OPPOSITE HOLES. (CROSS ONE BEHIND AND THE OTHER IN FRONT OF THE ELECTROLYTIC CAPACITOR.)
21. REMOVE R51, (IT IS A 680ohm RESISTOR LOCATED JUST FORWARD OF ONE OF THE RF FENCE HOLDING POST.) IT LAYS FLAT ON THE BOARD. REPLACE IT WITH A 330ohm 1/4 WATT RESISTOR, OR PARALLEL IT WITH ANOTHER 680ohm RESISTOR ON THE PC SIDE OF THE BOARD.
22. ON THE LEFT END OF R51 YOU WILL FIND A .0047uf CAPACITOR, IT IS MARKED 472. PARALLEL THIS CAPACITOR ON THE PC SIDE OF THE BOARD WITH A .01uf CAPACITOR. THIS WILL RAISE AMPLIFICATION OF THIS STAGE TO MAKE UP FOR THE STAGGER TUNING.

ALIGNMENT

WITH A FREQUENCY COUNTER ATTACHED TO READ TRANSMITTER FREQUENCY;

1. APPLY POWER AND SELECT CHANNEL 1.
2. MAKE SURE THE CLARIFIER IS IN THE CENTER POSITION.
3. SELECT THE POSITION ON THE GROUP SELECTOR SWITCH THAT IS NEAREST CENTER FREQUENCY FOR THE CRYSTALS THAT YOU HAVE SELECTED.
4. USING A 40MHZ OR ABOVE SCOPE ON TP3, ADJUST L14, L37 AND THE TWO TANKS ON THE EPOXY PAK FOR THE BEST AMPLITUDE AND MOST CLEAN SIGNAL.
5. WITH THE MODE SWITCH IN THE AM POSITION, PEAK THE TRANSMITTER FROM L36 TO OUTPUT.

THE COBRA 18 PLUS/LOW CHANNELS WITH THE 'B' KIT

6. SELECT EACH POSITION ON THE GROUP SELECTOR SWITCH AND TUNE ITS ASSOCIATED VARIABLE CAPACITOR TO THE FREQUENCY MARKED IN BLACK ON THAT CRYSTAL.
7. TOUCH UP AND BALANCE THE TRANSMITTER AT BOTH ENDS OF THE FREQUENCY SPAN.
8. WHILE ON THE CENTER OF THE FREQUENCY SPAN, SELECT CHANNEL 26. INJECT A SIGNAL OF THAT FREQUENCY AS LISTED BY THE CHART. TUNE AND PEAK L3 OF THE RECEIVER.
9. SELECT THE LOWEST FREQUENCY GROUP AND INJECT A SIGNAL OF THAT FREQUENCY AND ADJUST L4 FOR PEAK.
10. SELECT THE HIGHEST FREQUENCY GROUP AND INJECT A SIGNAL OF THAT FREQUENCY AND ADJUST L5 FOR PEAK. NOW THE RECEIVER SHOULD BE FAIRLY CONSTANT ACROSS THE COMPLETE 2MHz BAND.

FINISHING TOUCHES

THERE ARE TWO DECALS IN EACH KIT. USING AN X-ACTO KNIFE, CUT A CENTER HOLE IN THE ROUND PAPER-BACKED ONE AND WITH THE COVERS IN PLACE, PLACE IT OVER THE SWITCH SHAFT AND RUB IT DOWN FIRMLY. CUT ACROSS THE DECAL WHERE THE TWO COVERS MEET. PEEL OFF THE "TECH'S CHOICE" DECAL AND TRANSFER IT TO JUST BELOW THE WORD "UNIDEN" ON THE PC-122 OR ON THE TRC-453, ABOVE THE MIC CONNECTOR AND IN LINE WITH THE SWITCHES.

THE COBRA 18 PLUS/LOW CHANNELS WITH THE 'B' KIT

USING THE VERTICAL MIKE HOLES AS A GUIDE AND AS TWO OF THE THREE POINTS OF A TRIANGLE, MARK THE THIRD POINT.

REPLACE COVER AND MARK THE CENTER OF THE PUNCHED HOLE ON THE CHASSIS.

PUNCH 1/4" HOLE IN CHASSIS.

MOUNT THE 'B' KIT. (WIRES DOWN TOWARD THE MOTHER BOARD.)

REMOVE FT-1

SOLDER REAR MOST 3 WIRES OF THE EPOXY PACK IN PLACE OF FT-1 (WHITE OR YELLOW WIRE NEXT TO FT-1 MARKING).

REMOVE D-7

SOLDER THE BROWN WIRE WHERE D-7'S CATHODE WAS.

SOLDER THE ORANGE WIRE WHERE D-7'S ANODE WAS

SOLDER RED WIRE TO THE LEG OF R-56. (82 OHM RESISTER NEXT TO D-8).

REMOVE C-42. (BESIDE THE 10.24MHZ. CRYSTAL TOWARD THE EPOXY PACK.)
REPLACE C-42 WITH A 33PF CAPACITOR LEAVING THE REAR MOST LEG RAISED.
REMOVE THE TWO JUMPER GOING TO THE CHANNEL 9 SWITCH.
ON THE PC SIDE OF BOARD, TRIM THE END OF THE 33K RESISTOR LOCATED BETWEEN THE TWO REMOVED JUMPERS, AS CLOSE AS POSSIBLE.
ON THE PC SIDE OF BOARD, INSERT AND SOLDER THE SUPPLIED VC. WHERE THE TWO JUMPERS WERE REMOVED.
ON THE COMPONENT SIDE OF BOARD, RUN TWO WIRES FROM THE VC TO THE RAISED LEG OF C-42 AND THE HOLE WHERE THE LEG WAS RAISED FROM.

THE COBRA 18 PLUS/HIGH CHANNELS WITH THE 'A' KIT

PUNCH CHASSIS AS INDICATED IN PREVIOUS PROCEDURE FOR 'B' KIT.
MAKE UP THE SUPPLIED DPDT SWITCH SUPPLIED AS SHOWN BELOW AND MOUNT IT ON CHASSIS.
RAISE CATHODE END OF D-7.
REMOVE C-46 (15PF FRONT LEFT OF L-2).
REMOVE C-47 (3PF BETWEEN PINS 4 & 5 OF VCO MIXER)
SOLDER ON LEG OF 47PF CAPACITOR SUPPLIED WHERE LEG OF C-46 WENT TO PIN 4 OF THE VCO MIXER. LEAVE OTHER LEG RAISED.
CONNECT A 3' WIRE TO THE LEG OF R-56 (82 OHM RESISTOR LOCATED NEXT TO D-8.)
MOUNT EPOXY PACK ON TOP OF PLL CHIP WITH VC TO THE REAR. (USE A FAST CURING GLUE SUCH AS SCOTCH-GRIP 3M 4475 PLASTIC ADHESIVE.)
(IF TIME PERMITS A RUBBER BASE GENERAL HOUSEHOLD GLUE WILL DO).
WIRE UP SWITCH AS INDICATED.
SOLDER WIRE FROM R-56 TO RED DOT ON EPOXY PACK.
IF FULL CHANNELS ARE DESIRED, PERFORM A 5K OFFSET

THE COBRA 19 PLUS/HIGH CHANNELS WITH THE 'A' KIT.

ON THE COMPONENT SIDE OF BOARD, NOTE THE OUTLINE OF C-112.
STAND THE CAPACITOR UP AGAINST THE TANK AND DRILL AN EXCESS HOLE THROUGH THE BOARD. DO NOT GO OUTSIDE OF DOTTED LINE.
PUNCH OR DRILL THE TWO LOWER MIKE HOLES TO 1/4" IN BOTTOM COVER RIGHT SIDE. IF HALF CHANNELS ARE DESIRED PUNCH ONLY THE FRONT MOST HOLE.
MOUNT THE TWO SUPPLIED SWITCHES IN THESE CORRESPONDING HOLES.

THE COBRA 19 PLUS/LOW CHANNELS WITH THE 'B' KIT.

(SPDT SWITCH IN THE FORWARD MOST HOLE).

5KHZ. OFFSET

NOTE: THE CHANNEL 9 SWITCH APPEARS TO BE IDEAL FOR 5K OFFSET.

WARNING: THESE SWITCHES HAVE PROVEN TO BE WET CIRCUIT SWITCHES.

A DRY CIRCUIT SWITCH IS REQUIRED.

REMOVE C-208 & C-209.

CUT PC PAD AS INDICATED.

REPLACE C-209 WITH C-208.

RUN THE TWO WIRES FROM THE SPDT SWITCH, THROUGH THE BOARD AND CONNECT ONE ON EACH SIDE OF CUT.

ISOLATE PIN 20 OF THE PLL CHIP FROM THE REMAINDER OF THE CIRCUIT.

REMOVE C-222 & C-221.

REPLACE C-222 WITH 47PF CAPACITOR SUPPLIED, LEAVING THE LEG RAISED THAT IS NOT CONNECTED TO PIN 4 OF THE VCO MIXER.

AFFIX THE EPOXY PACK ON THE CHASSIS WALL JUST ABOVE THE MOUNTING BRACKET HOLE.

CONNECT DPDT SWITCH AS INDICATED.

RUN A WIRE FROM THE PIN 18 OF PLL THROUGH THE PC BOARD TO THE RED DOT ON EPOXY PACK.

LET'S HELP EACH OTHER DO A BETTER JOB

TECH'S NOTES

THE COBRA 19 PLUS/LOW CHANNELS WITH THE 'B' KIT.

ON THE COMPONENT SIDE OF THE BOARD, NOT THE OUTLINE OF C-112. STAND THE CAPACITOR UP AGAINST THE TANK AND DRILL AN EXCESS HOLE THROUGH THE BOARD. DO NOT GO OUTSIDE OF THE DOTTED LINE. PUNCH OR DRILL THE LOWER FRONT MIKE HOLES ON EACH SIDE OF THE BOTTOM COVER TO THE SIZE OF 1/4".

CUT THE BOTTOM COVER ON THE MIKE SIDE AS INDICATED BELOW.

MOUNT THE EPOXY PACK ON THE INSIDE OF THE WALL OF THE CHASSIS NEAREST THE PLL CHIP. (MAKE SPECIAL NOTE THAT THE FACEPLATE MOUNTING SCREW IS NOT TOUCHING ANY COMPONENT OF THE EPOXY PACK). MAKE UP THE SPDT SWITCH AS INDICATED IN STEP ONE OF THE PACKAGING.

MOUNT THE SPDT SWITCH ON THE SIDE NEAREST THE MIKE CONNECTION.

5KHZ. OFFSET

THE COBRA 21 PLUS/HIGH CHANNELS WITH THE 'A' KIT.

NOTE: THE CHANNEL 9 SWITCH APPEARS TO BE IDEAL FOR 5K OFFSET.

WARNING: THESE SWITCHES HAVE PROVEN TO BE WET CIRCUIT SWITCHES.

A DRY CIRCUIT SWITCH IS REQUIRED.

REMOVE C-208 & C-209.

CUT PC PAD AS INDICATED.

REPLACE C-209 WITH C-208.

RUN THE TWO WIRES FROM THE SPDT SWITCH, THROUGH THE BOARD AND CONNECT ONE ON EACH SIDE OF CUT.

CONNECTING THE EPOXY PACK

ISOLATE PIN 20 OF THE PLL CHIP FROM THE REMAINDER OF THE CIRCUIT.

RUN THE BROWN, RED AND ORANGE RIBBON WIRE THROUGH THE EXCESS HOLE TO THE PC SIDE OF THE BOARD.

SOLDER THE BROWN WIRE TO 'B'.

SOLDER THE RED WIRE TO PIN 20 OF THE PLL CHIP. (B)

REMOVE THE 10.7 CERAMIC FILTER CF-1.

SOLDER THE REMAINING THREE WIRE RIBBON IN ITS PLACE WITH THE (YELLOW OR WHITE) WIRE NEAREST THE CF-1 MARKING.

THE COBRA 21 PLUS/HIGH CHANNELS WITH THE 'A' KIT.

REMOVE COVERS AND ENLARGE THE UPPER MIKE HOLE, RIGHT SIDE, IN THE BOTTOM COVER TO 1/4".

WIRE THE DPDT SWITCH SUPPLIED, AS INDICATED IN THE PACKAGING MATERIAL.

MOUNT THE DPDT SWITCH ON CHASSIS THAT MATCHES UP WITH THE ENLARGED MIKE HOLE IN THE BOTTOM COVER.

MOUNT THE EPOXY PACK ABOVE THE BRACKET MOUNTING HOLE USING PLASTIC ADHESIVE 3M 4475.

RAISE THE CATHODE LEG OF D-15.

SOLDER A WIRE FROM 'B' TO THIS POINT ON THE PC BOARD WHERE D-15 WAS RAISED FROM.

SOLDER A WIRE FROM 'B' ON THE SWITCH TO THE RAISED LEG OF D-15.

SOLDER A WIRE FROM THE REMAINING CONTACT ON THE POLE OF THE SWITCH TO GROUND. (SHIELD OF L-6 IS A GOOD PLACE).

REMOVE C-99 (5PF. CAPACITOR LOCATED BETWEEN MIXER CHIP IC-4 AND L-18).

REPLACE C-98 WITH THE 47 PF. CAPACITOR SUPPLIED. SOLDER ONE LEG TO PIN 4 OF THE MIXER CHIP AND LEAVE THE OTHER LEG RAISED.

SOLDER A WIRE FROM 'C' TO THE POINT ON THE PC BOARD WHERE C-98 WAS RAISED FROM.

SECRET CB VOLUME No.28 55

THE COBRA 21 PLUS/HIGH CHANNELS WITH THE 'A' KIT.

SOLDER A WIRE FROM C TO THE RAISED LED OF THE 47PF. CAP. C-98.

SOLDER A WIRE FROM THE REMAINING TERMINAL OF THAT POLE TO THE YELLOW DOT ON THE EPOXY PACK.

RUN AN EXTRA WIRE FROM B' ON THE SWITCH TO THE UNMARKED TERMINAL OF THE EPOXY PACK.

RUN A WIRE FROM THE RED DOT ON THE EPOXY PACK TO THE LEG OF R-69 (82 OHM) LOCATED NEAR THE MARKING FOR TR-14.

5K OFFSET USING CH-9 SWITCH.

REMOVE THE JUMPER THAT IS LOCATED ACROSS THE OUTLINE OF THE NORMAL CH-9 SWITCH FOR THE 26 PLUS. (POINT A TO E BELOW).

CUT THE GROUND TRACE AS INDICATED.

MOUNT THE VC SUPPLIED ON THE PC SIDE OF BOARD FROM POINT A TO POINT B.

SOLDER TWO WIRES THROUGH FROM THE COMPONENT SIDE OF THE BOARD AT POINTS C AND D.

REMOVE C-49 (47PF.) JUST FORWARD FROM THE 10.24MHZ. CRYSTAL.

REPLACE C-49 WITH A 36 TO 39PF. CAPACITOR, LEAVING LEG NORMALLY CONNECTED TO THE CRYSTAL, RAISED.

SOLDER THE TWO WIRES JUST MENTIONED TO THE RAISED LEG AND TO THE POINT IT IS RAISED FROM.

NOTE, THE 'B' KIT FOR LOW CHANNELS IS NOT RECOMMENDED FOR THIS UNIT.

IF LOW CHANNELS ARE DESIRED, WE SUGGEST THAT YOU USE THE 'LTD' KIT OR THE 'TECH'S CHOICE'. WE FIND THAT MOST TECHNICIANS, PREFER TO MODIFY UP AND DOWN WHEN USING THE 'LTD' KIT, SO WE WILL GIVE YOU THAT PROCEDURE.

MAKE UP A 4 POLE 3 POSITION SWITCH IN ONE OF THE FOLLOWING MANNERS.

PUNCH OR DRILL A 3/8" HOLE IN THE BOTTOM COVER IN LINE WITH AND 1/4" TO THE REAR OF THE UPPER MOST MIKE HOLDER HOLE ON THE RIGHT SIDE OF THE UNIT.

PUT THE COVER BACK IN PLACE AND MARK THE CENTER OF THIS HOLE ON THE CHASSIS.

WITH THE COVER OFF MARK TWO MORE PLACES 13/32" ON BOTH SIDES OF THIS POINT.

PUNCH OR DRILL A 3/8" HOLE IN THE CENTER AND 1/8" HOLES ON EACH SIDE.

MOUNT SWITCH.

BEFORE MOUNTING THE EPOXY PACK. USE A WOOD RASP AND FILE OFF THE LEVEL OF THE LOWER RIGHT SIDE. (VIEWED WITH THE VC UP) FOR ABOUT 1/2".

MOUNT THE EPOXY PACK JUST TO THE REAR OF THE BRACKET MOUNTING HOLE BUT DO NOT COVER THE ADJUSTMENT OF L-18. USE HOT GLUE, PLASTIC ADHESIVE OF ADHESIVE SEALANT.

DRILL AN EXCESS HOLE OF 7/32" BETWEEN L-5 & L-9 OUT ABOUT 1/8" AND EQUAL DISTANCE THE LEG AND BODY OF THE 3.3K RESISTOR.

MAKE THESE CONNECTIONS.

A VIA THE BLUE DOT ON EPOXY PACK, THROUGH THE EXCESS HOLE AND TO THE OUTPUT LEG OF L-9. CUT THE PC RUN LEAVING THIS POINT.

B TO THE LEG OF RESISTOR MARKED TP-2.

C TO THE STRAIGHT LEG YELLOW DOT ON EPOXY PACK.

D RAISE THE REAR MOST LEG OF C-102 (LIES ADJACENT TO TP-2 FRONT TO REAR.) AND ATTACH.

E CHANGE D-15 FROM A SILICON TO GERMANIUM AND LEAVE THE CATHODE RAISED. CONNECT E WHERE THE CATHODE WAS.

F SOLDER IT TO THE RAISED LEG OF D-15.

G TO GROUND.

H & I FOR FULL CHANNELS, REMOVE C-49, CHANGE IT TO A 36 TO 39PF. AND LEAVE THE LEG NEAREST THE 10.24MHZ. CRYSTAL RAISED. CONNECT THESE WIRES TO THE RAISED LEG AND WHERE IT WAS RAISED FROM

H & I FOR HALF CHANNELS. I TO THE LEG OF THE 82 OHM RESISTOR ADJACENT TO THE MARKING TR-14. H TO THE RED DOT ON THE EPOXY PACK.

RUN A GROUND WIRE FROM THE CASE OF L-3 TO THE CASE OF THE UPPER TANK ON THE EPOXY PACK.

IF YOU ARE WIRING FOR FULL CHANNELS YOU WILL HAVE TO RUN A WIRE DIRECTLY FROM THE LEG OF THE 82OHM RESISTOR TO THE RED DOT ON THE EPOXY PACK.

PLACES TO FIND PARTS AND TOOLS MENTIONED IN THESE TECH'S NOTES.

4 POLE 3 POSITION SWITCHES: SELMAN ENTERPRISES OR CARD-KIT .

HAND PUNCH SETS: 3/32" TO 9/32" ORDER #937102 \$39.00

5/32" TO 17/32" TO 17/32" ORDER #927105 \$108.00

MSC INDUSTRIAL SUPPLY CO. 151 SUNNYSIDE BLVD. PLAINVIEW IL, NY. 11803 PH (800) 646-7270

TECH'S NOTES

AS MENTIONED EARLIER IN TECH'S NOTES, THE TC AM (TECH'S CHOICE AM) KIT IS ONE OF THE KITS SPECIALLY DESIGNED FOR THE 21 PLUS UNITS. SINCE THE 21 PLUS AND THE 25 PLUS IS THE SAME UNIT EXCEPT FOR A FEW INTERNAL OPTIONS, THIS PROCEDURE COVERS BOTH.

MODIFYING THE 21 PLUS AND THE 25 PLUS IS THE SAME UNIT EXCEPT FOR A FEW INTERNAL OPTIONS, THIS PROCEDURE COVERS BOTH.

THE 21 PLUS & 25 PLUS/USING THE TECH'S CHOICE KIT

PRECISE LOCATIONS ARE IMPORTANT IN THIS MODIFICATION.

THE 21 PLUS & 25 PLUS/USING THE TECH'S CHOICE KIT

THE TC AM KIT COMES WITH TWO CRYSTALS (26.515 & 27.425MHZ.)

MOST OFTEN THEY WILL BE USED IN THE B AND D POSITIONS. YOU CAN START WITH ANY CHANNEL OR HALF CHANNEL YOU SO DESIRE, WITHIN A 2MHZ. SPAN. THERE ARE STANDARD AND NONSTANDARD CRYSTALS. STANDARD ARE, 26.065, 26.515, 27.415, 27.425. AND 27.865MHZ.

EXAMPLE OF NON-STANDARDS, OR SPECIALS ARE 26.325, 26.505, 26.510, 26.645, 27.285, 27.405 ETC. ANY FREQUENCY IN 5KHZ. STEPS. CRYSTALS MAY BE ORDERED FROM SELMAN ENTERPRISES OR CARD KIT.

STEP ONE

1. REMOVE COVERS. LOCATE AND MARK A POINT 5MM (1/20" LESS THAN 2") TO THE REAR OF THE EDGE OF THE LOWER COVER, RIGHT SIDE, IN-LINE WITH THE VERY LOWER EDGE OF THE MOUNTING SCREW HOLES.
2. PUNCH A 13/32" HOLE AT THIS POINT.
3. WHEN THE LOWER COVER IS REPLACED, THE LOWER MOST MOUNTING SCREW HOLE OF A MIKE CONNECTOR PLACEMENT SHOULD BE DEAD CENTER.
4. PUNCH A 13/32" HOLE ON THE CHASSIS USING THIS HOLE JUST MENTIONED AS CENTER.
5. MOUNT ANY AND ALL CRYSTALS DESIRED ON SWITCH PC BOARD.
6. USING THE 3/32" FILLER SUPPLIED MOUNTED SWITCH.
7. USING A WOOD RASP, RASP OF THE LEVEL OF THE EPOXY PACK ALONG THE EDGE MARKED BY THREE GREEN DOTS.
8. USING 3M 3375 PLASTIC ADHESIVE, MOUNT THE EPOXY PACK 1/8" TO THE REAR OF THE SWITCH PC BOARD, THE THE ORANGE DOT UP AND FORWARD.

STEPTWO

1. REPLACE D-15 WITH THE GERMANIUM DIODE (SUPPLIED) LEAVING THE CATHODE RAISED.
2. DRILL A 1/8" EXCESS HOLE BETWEEN L-5 AND L-9 OUT ABOUT 1/8" AND EQUAL DISTANCE BETWEEN THE LEG AND BODY OF THE 3.3K RESISTOR.
3. CUT THE OUTPUT PC RUN OF L-9 CLOSE THE SOLDER POINT.
4. REMOVE C-102 AND C-120. REPLACE C-102 WITH A 47PF. CAPACITOR. THESE CAPACITORS ARE ON THE IN PUT TO PIN 1 OF THE VCO CHIPS.
5. FOLLOWING THE SWITCH PC DIAGRAM, MAKE THE CONNECTIONS INDICATED.
6. RUN A JUMPER FROM THE LEG OF THE 82 OHM RESISTOR LOCATED JUST TO THE LEFT OF THE TR-14 MARKING, TO THE RED DOT ON THE EPOXY PACK.

ALIGNMENT

WITH A FREQUENCY COUNTER ATTACHED TO READ THE TRANSMIT FREQUENCY.

1. APPLY POWER AND SELECT CHANNEL 1.
2. CHECK POSITION C ON THE SELECTOR SWITCH TO ASSURE REGULAR CHANNELS ARE OPERATIONAL AND ON FREQUENCY.
3. NOW SELECT THE OTHER GROUPS OF FREQUENCY AND ADJUST THE RELATED TRIMMER CAPACITOR ON THE SWITCH PC BOARD TO READ THE FREQUENCY ON CHANNEL 1 AS MARKED ON THE CRYSTAL.
4. USING A 40HZ OR ABOVE SCOPE ON TP-2 ADJUST L-9 AND THE TWO TANKS ON THE EPOXY PACK FOR THE CLEANEST SIGNAL AT THE CENTER OF THE FREQUENCY SPAN. (ANY POSITION OTHER THAN C)
5. TOUCH UP AND BALANCE THE TRANSMITTER AND THE RECEIVER AT BOTH ENDS OF THE FREQUENCY SPAN.

COBRA 29 PLUS/EXTRA CHANNELS USING THE TECH'S CHOICE KIT

THE MODIFICATION ON THE 29 PLUS IS THE SAME AS THE 21 & 25 PLUS EXCEPT FOR A FEW COMPONENT NUMBER DIFFERENCES AND LOCATIONS.

NOTE: BEFORE STARTING THE MODIFICATION, REMOVE C-38 FROM THE BOARD AND PUT TWO 2" EXTENSION WIRES ON IT. AFTER YOU COMPLETED THE MODIFICATION, USE 3M 4475 PLASTIC ADHESIVE TO REMOUNT IT ON TOP OF THE PLL CHIP.

STEP TWO

2. DRILL A 1/8" EXCESS HOLE 1/4" TO THE REAR OF THE FT-1 MARKING.
4. REMOVE C-102 AND C-134. REPLACE C-102 WITH A 47PF. CAPACITOR
6. RUN A JUMPER FROM THE 1" JUMPER LOCATED JUST TO THE REAR OF THE PLL CHIP TO THE RED DOT ON THE EPOXY PACK.

FINISHING TOUCHES

THERE ARE TWO DECALS IN EACH KIT. USING AN X-ACTO KNIFE, CUT A CENTER HOLE USING A WASHER FROM THE SELECTOR SWITCH, IN THE CENTER OF THE PAPER BACKED ONE AND PLACE IT OVER THE SWITCH AFTER THE COVERS ARE ON. THE SECOND DECAL IS STUCK IN THE INSIDE PACKING BLISTER. AGAIN WITH THE X-ACTO KNIFE, CUT BELOW AND ABOVE THE WORDS, TECH'S CHOICE (1/4" TOTAL WIDTH) LIFT

SOMETHING ABOUT THE TECH'S CHOICE SSB KIT

THIS 1/4" STRIP AND TRANSFER IT TO THE UNIT HALFWAY BETWEEN COBRA AND #PLUS.

LET'S HELP EACH OTHER DO A BETTER JOB

NEXT MONTH WE WILL BE FEATURING THE TECH'S CHOICE SIDEBAND, (T.C.S.B.) KIT. AGAIN THE SAME SPECIAL TOOLS AND EQUIPMENT WILL BE ALMOST A MUST. THE TECH'S CHOICE KITS ARE NOT DESIGNED FOR THE HOBBYIST BUT ESPECIALLY FOR TECHNICIANS. THE SPECIAL TOOLS AND EQUIPMENT NEEDED MAKES THAT DIFFERENCE.

HAND PUNCH SETS; 3/32" TO 9/32" ORDER #937102 \$39.00

5/32" TO 17/32" ORDER #927105 \$108.00

MSC INDUSTRIAL SUPPLY CO. 151 SUNNYSIDE BLVD. PLAINVIEW IL, NY 11803 PH (800) 645-7270.

A 40MHZ. OR ABOVE SCOPE SUCH AS THE B&K 1540.

HERE'S WHY

THESE NEW T.C. KITS OPENS UP A WHOLE NEW FIELD OF SERVICE FOR THE TECHNICIANS. IF YOUR SHOP IS AT OR NEAR A TRUCK STOP, THE T.C. AM GIVES YOU A RENEWED SOURCE OF CUSTOMERS BECAUSE YOU CAN SUPPLY A UNIT THAT IS MORE VERSATILE, EASIER TO MAINTAIN, MORE RELIABLE AND CHEAPER THAN THE EXPORT UNITS. THE T.C.SB (TECH'S CHOICE SIDEBAND) KIT WILL HAVE THE SAME ADVANTAGES PLUS IT WILL BE A UNIT THAT YOU WOULD WANT TO SHOW TO YOUR LOCAL HAMS. NOT ONLY CAN THEY HAVE A VERY EASILY MAINTAINED 10 METER SET BUT A CB HAM COMBINATION. THE T.C.SB WILL HAVE TEN CRYSTAL POSITIONS WHICH MEANS YOU CAN COVER EVERY 5K FOR 2MHZ. OR 400 CHANNELS. COUNTING THE USB AND LSB THAT IS 1,200 TRANSMIT FREQUENCIES THE BEST PART IS OF COURSE 'YOU GET THE CREDIT FOR MAKING THE UNIT DO ALL THIS'.

SOMETHING ABOUT THE TECH'S CHOICE SSB KIT

THIS KIT IS THE EASIEST TO INSTALL AND ALIGN KIT EVER DEvised FOR A SSB UNIT. IT TOO IS THE MOST VERSATILE. YOU ARE NOT LOCKED IN TO A GIVEN SET OF FREQUENCIES. YOU ARE ONLY LIMITED BY THE BAND PASS OF THE TRANSMITTER AND RECEIVER, WHICH IN THE CASE OF THE COBRA 146GTL IS ABOUT 3MHZ.

THIS MEANS YOU CAN MAKE THIS UNIT UP FOR A HAM AND GIVE HIM/OR HER A HAM/CB COMBINATION. IT BEING A MOBILE HE/OR SHE MIGHT NOT BE INTERESTED IN THE CW FREQUENCIES SO YOU CAN SKIP OVER THEM AND STILL COME WITHIN THE 3MHZ. SPAN. THERE IS NO LIMIT TO THE COMBINATIONS AND POSSIBILITIES.

WHY EVEN SELL AN EXPORT UNIT, COSTING YOU \$250.00 AND UP, WHEN YOU CAN BUY A UNIT FOR ABOUT \$125.00 WITH EASY MAINTENANCE GOOD PARTS SUPPLY AND PROVEN RELIABILITY. THIS UNIT TOO WILL GIVE YOU TWICE THE NUMBER OF TRANSMITTING FREQUENCIES. NO LONGER WILL YOU HAVE TO MODIFY THE CLARIFIER

60 SECRET CB VOLUME No.28

AND NO LONGER WILL THE OPERATOR HAVE TO HAVE A FREQUENCY COUNTER TO FIND OUT WHAT FREQUENCY THEY ARE ON. YOU JUST MAKE THEM A LIST OF FREQUENCIES FOR EACH CRYSTAL OR SELECTOR POSITION STARTING WITH CHANNEL 1 AS MARKED IN BLACK ON THAT CRYSTAL.

WE AT CARD-KIT FEEL THIS IS OUR FINEST HOUR AND SEE A BRIGHTER FUTURE FOR CBING AND FOR THE AMERICAN COMPANIES THAT SUPPLY THEM. WE ARE SURE YOU WILL FEEL THE SAME WHEN YOU START USING THESE KITS.

TECH'S NOTES

THE COBRA 146 GTL/TECH'S CHOICE SSB KIT (AND OTHER SISTER UNITS)

THE FOLLOWING PROCEDURE MIGHT VARY SLIGHTLY FROM THE 148GTL TO ITS SISTER UNITS SUCH AS THE PRESIDENT & UNIDEN AX OR AR 144, THE MIDLAND 6001 & 7001, THE REALISTIC TRC-451, AND THE SEARS 663.38100050.

STEP ONE

1. REMOVE THE COVERS.
2. REMOVE C-86 (WHICH IS SOLDERED FROM THE PC BOARD TO THE GROUNDING TAB OF THE CHASSIS) AND RELOCATE IT ON THE PC SIDE OF THE BOARD.
3. USING THE FORWARD MOST POINT OF THE GROUNDING TAB WHERE C-86 WAS REMOVED AS A CENTER PUNCH, PUNCH A 13/32" HOLE THROUGH THE CHASSIS.
4. LOCATE AND PUNCH A 13/32" HOLE IN THE LOWER COVER, 2.05" TO THE REAR OF THE FRONT EDGE AND IN LINE WITH THE CENTER OF THE UPPER MOST MIKE HOLDER SCREW HOLE. (THIS POINT IS ALSO 5/8" TO THE REAR OF THIS SAME HOLE.
5. USING THE FILLER BOARDS SUPPLIED, PLACE THEM UNDER THE LIP OF THE CHASSIS. USE ONE OF THE BRACKET MOUNTING BOLTS, AND RUN IT THROUGH THE MOUNTING HOLE TO HOLD THE FILLER BOARDS IN PLACE. DROP A BALL POINT PEN OR SOME SIMILAR OBJECT THROUGH THE 13/32" HOLES TO KEEP THEM ALIGNED. USING A PAIR OF PLIERS AND IN A ROLLING MOTION, BEND THE EARS ON THE CHASSIS DOWN OVER THE FILLER BOARDS AT EACH END. REMOVE THE MOUNTING BOLT AND PEN.
6. MOUNT ANY AND ALL CRYSTALS DESIRED ON THE SWITCH PC BOARD. (MAKE A NOTE OF THE FREQUENCY MARKED IN BLACK ON THE SIDE OF EACH CRYSTAL AND THE POSITION IN WHICH YOU INSTALLED IT). NOTE: THE MOST SIGNIFICANT NUMBER, NUMBER 2, MIGHT BE MISSING FROM THIS NUMBER DUE TO THE PRESENT STAMP SIZE AVAILABLE. THE FREQUENCY METAL STAMPED ON THE END OF THE CRYSTAL OR IN RED, INDICATES THE FREQUENCY OF CHANNEL 1 WHEN USED IN THE TECH'S CHOICE AM KIT. THEIR FREQUENCY IS 455KHZ. HIGHER.

THE COBRA 146 GTL/TECH'S CHOICE SSB KIT (AND OTHER SISTER UNITS)

7. MOUNT THE SWITCH LEAVING ONE FLAT WASHER IN PLACE WITH THE OTHER TO BE MOUNTED OUTSIDE UNDER THE NUT.
8. REMOVE L-39 FROM THE PRINTED CIRCUIT BOARD AND CRACK OUT THE MIDDLE OF THE GLASS CAPACITOR LOCATED IN THE BOTTOM OF THE TANK. A GOOD TOOL TO USE IS A SMALL JEWELER'S SCREWDRIVER. REPLACE THE RESOLDER L-39 BACK IN PLACE. SOLDER THE 18PF. CAPACITOR SUPPLIED ACROSS THE OUTSIDE LEGS OF THE THREE LEG SIDE OF L-39.
9. JUST FORWARD OF THIS TANK (L-39) LOCATE AND REMOVE R-105 & R-202. CLEAN THE INSULATION OFF THE LEG OF R-202, TWIST AND SOLDER THESE TWO LEGS TOGETHER WITH THE BODIES OF THE RESISTORS PARALLEL. RESOLDER R-105'S BODY BACK WHERE IT WAS AND AT THE SAME TIME SOLDER R-202'S BODY BACK TO WHERE THE LEG WAS, LEAVING THE LEGS RAISED. THIS BECOMES TP-3.
10. USING 3M 4475 ADHESIVE, MOUNT THE EPOXY PACK JUST TO THE REAR OF THE SWITCH PC BOARD. MAKE SURE THE TUNER OF L-38 IS NOT COVERED.
11. LOCATE THE SWITCHING INPUT TO THE USB AND LSB TUNING TANKS OF THE 10.6975 CRYSTAL CIRCUIT. LOOKING AT THE PC SIDE OF THE PC BOARD, IT IS THE LAST RIBBON WIRE LEFT TO RIGHT, 5TH AND 6TH WIRE. CUT THESE TWO PC RUNS COMING OFF OF THESE TWO POINT AS THEY START TO THE LEFT, DIRECTLY TO THE REAR OF WIRE 4 OF THIS SAME RIBBON WIRE. NOW CROSS JUMPER THESE TWO CUTS. (CROSSING THE USB SWITCHING TO LSB AND LSB SWITCHING TO USB).

STEP TWO

1. SOLDER THE BLACK WIRE ON THE SWITCH PC BOARD TO THE SHIELD OF THE UPPER TANK ON THE EPOXY PACK AND THEN TO THE SHIELD OF L-37. LEAVE A LITTLE SLACK IN THIS WIRE FROM THE BOARD TO WHERE YOU BARE THE WIRE FOR SOLDERING TO THE UPPER TANK TO ALLOW FOR LATER CHANGING OR ADDING CRYSTALS ON THE SWITCH PC BOARD.
2. SOLDER THE WHITE WIRE ON THE SWITCH PC BOARD TO THE ORANGE DOT TERMINAL ON THE EPOXY PACK.
3. CONNECT A WIRE FROM THE POINT R-202 WAS RAISED FROM, TO THE BLUE DOT TERMINAL ON THE EPOXY PACK.
4. SOLDER A WIRE FROM THE RAISED LEGS OF R-105 AND R-202 (TP-3) TO THE YELLOW DOT TERMINAL ON THE EPOXY PACK.
5. RUN A WIRE FROM JP-22 (LOCATED IN CENTER OF PC BOARD NEAR VR-1) TO THE RED DOT TERMINAL ON THE EPOXY PACK.

ALIGNMENT

WITH A FREQUENCY COUNTER ATTACHED TO READ THE TRANSMIT FREQUENCY.

1. APPLY POWER AND SELECT CHANNEL 1.

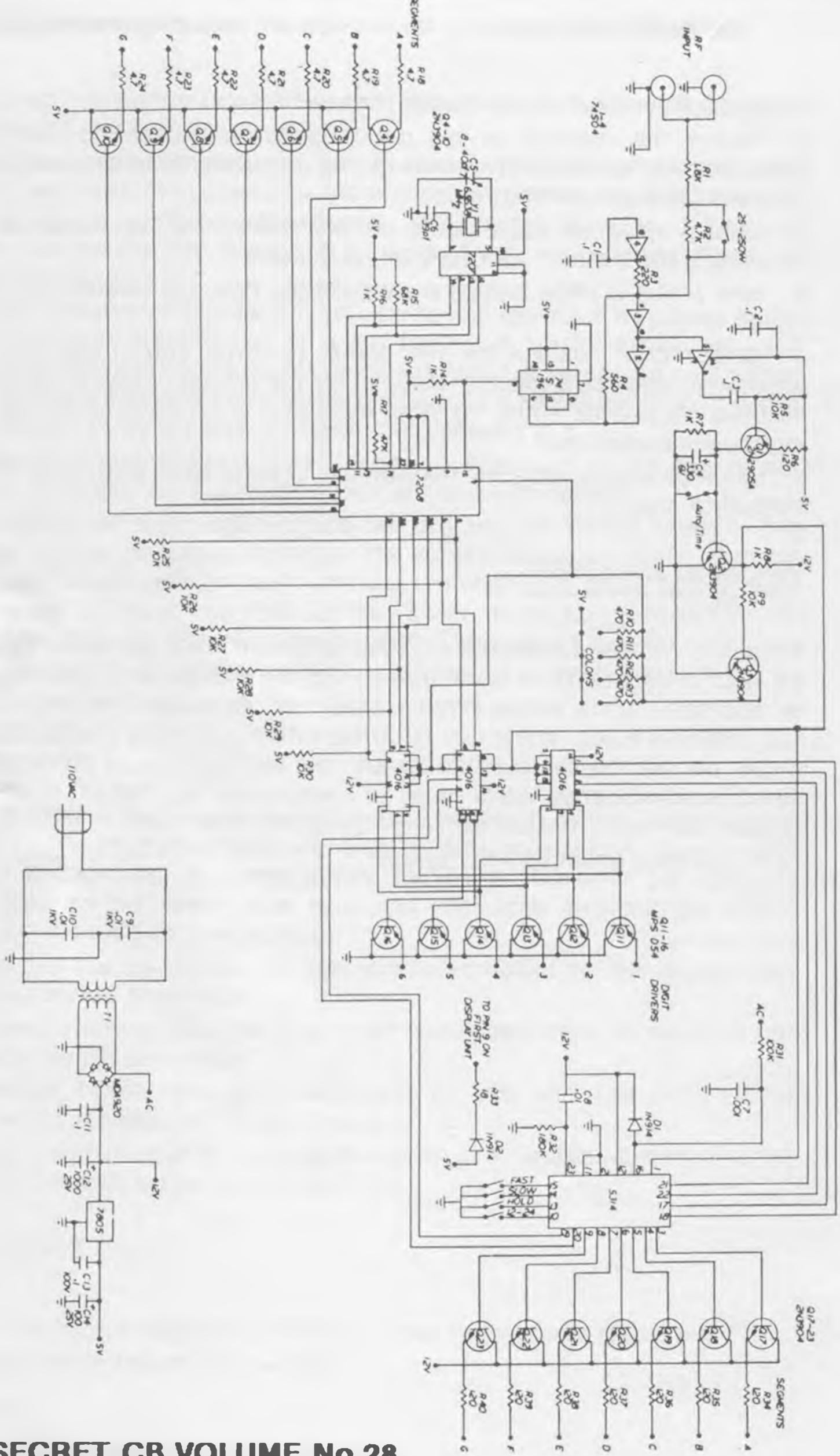
2. MAKE SURE VOICE LOCK IS IN CENTER POSITION.
3. SELECT THE POSITION ON THE GROUP SELECTOR SWITCH YOU HAVE JUST INSTALLED THAT IS THE MOST CENTER OF THE FREQUENCY SPAN OF FREQUENCIES YOU HAVE INSTALLED CRYSTALS FOR.
4. USING A 40MHZ OR ABOVE SCOPE ON TP-3 ADJUST THE TWO TANKS ON THE EPOXY PACK FOR THE BEST AMPLITUDE AND CLEANNESS.
5. NOW WITH THE MODE SWITCH IN AM POSITION, PEAK THE TRANSMITTER FROM L-39 TO OUTPUT.
6. SELECT EACH POSITION ON THE GROUP SELECTOR SWITCH AND TUNE ITS ASSOCIATED VARIABLE CAPACITOR, LOCATED ON THE SWITCH PC BOARD, TO READ A TRANSMIT FREQUENCY EQUAL TO THAT FREQUENCY STAMPED IN BLACK ON THE CRYSTALS. RECHECK PART 4.
7. TOUCH UP AND BALANCE THE TRANSMITTER AND RECEIVER AT BOTH ENDS OF THE FREQUENCY SPAN.

FINISHING TOUCHES

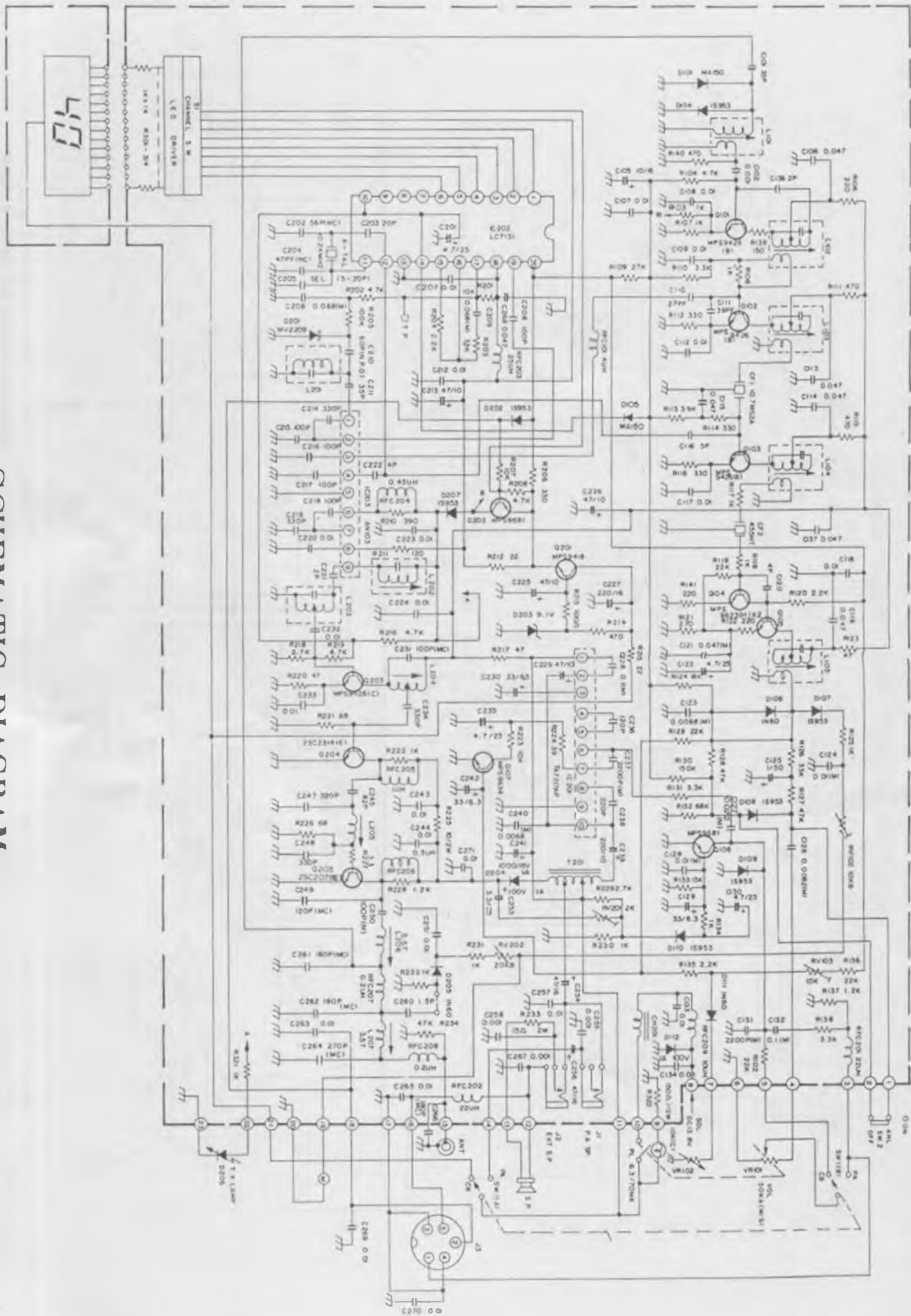
THERE ARE TWO DECALS IN EACH KIT. USE AN X-ACTO KNIFE AND CUT A 13/32" TO 3/8" HOLE IN THE CENTER, (A GOOD ITEM TO USE IS A WASHER WITH A CENTER HOLE OF THIS SIZE). IN THE ROUND PAPER BACKED ONE. FIT IT OVER THE SWITCH WITH THE COVERS IN PLACE. RUB IT OUT SMOOTHLY INTO PLACE. MAKE A CUT ACROSS IT WHERE THE TWO COVERS COME TOGETHER. THE SECOND DECAL IS STUCK ON THE INSIDE PACKING BLISTER. AGAIN USING AN X-ACTO KNIFE, PEEL THE DECAL OFF AND PLACE IT JUST ABOVE THE S/RF METER ON THE FRONT OF THE UNIT.

LET'S HELP EACH OTHER DO A BETTER JOB.

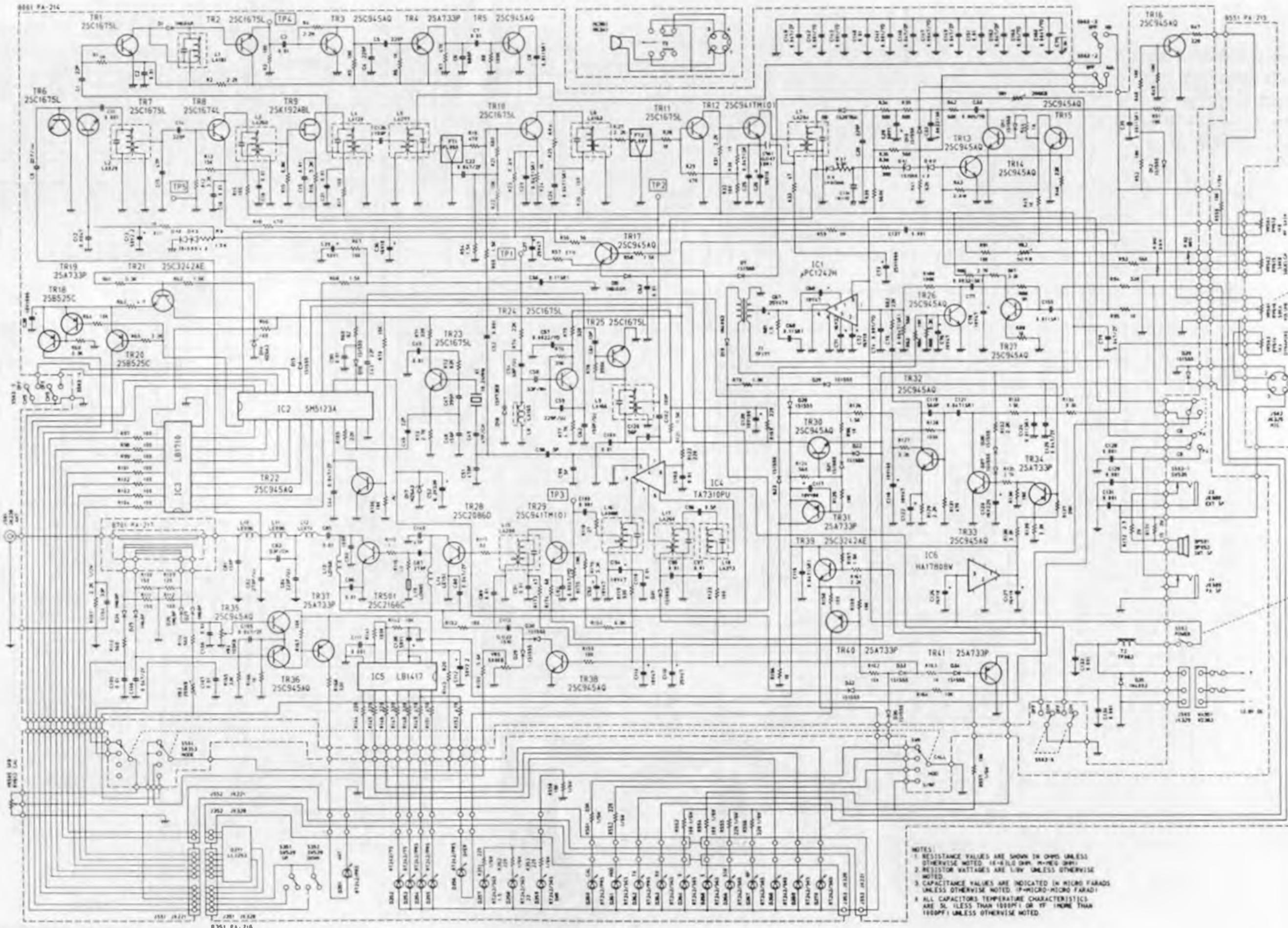
PRIDE TF-1000 TIME/FREQUENCY COUNTER SCHEMATIC



SCHEMATIC DIAGRAM



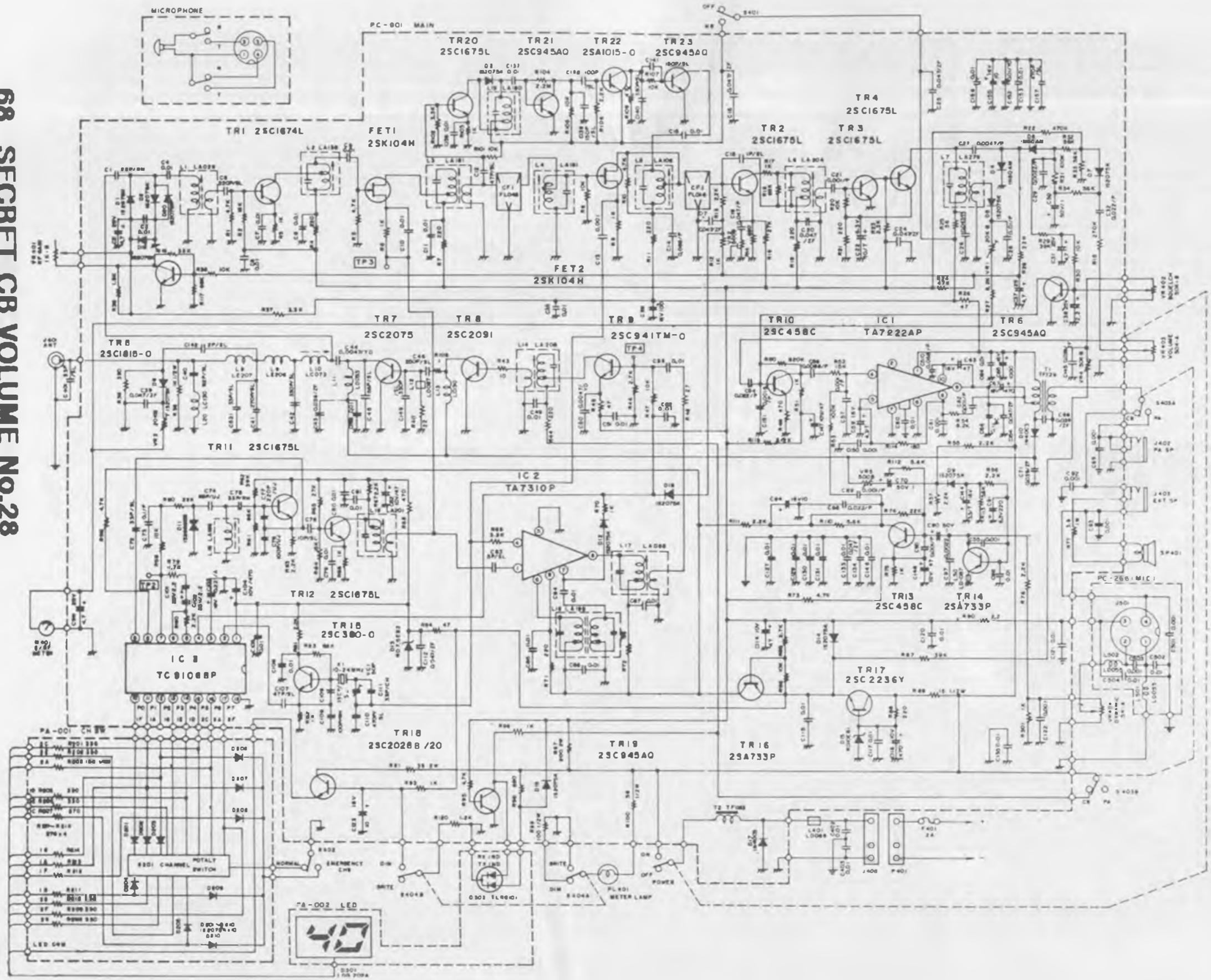
CIRCUIT DIAGRAM FOR COBRA 29 PLUS



- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. 1K = 1,000 OHMS, 1M = 1,000,000 OHMS.
 2. RESISTOR WATTAGES ARE 1/4W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. IF MICRO-MICRO FARAD!
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE 50% (LESS THAN 100PF) OR 1% (MORE THAN 100PF) UNLESS OTHERWISE NOTED.

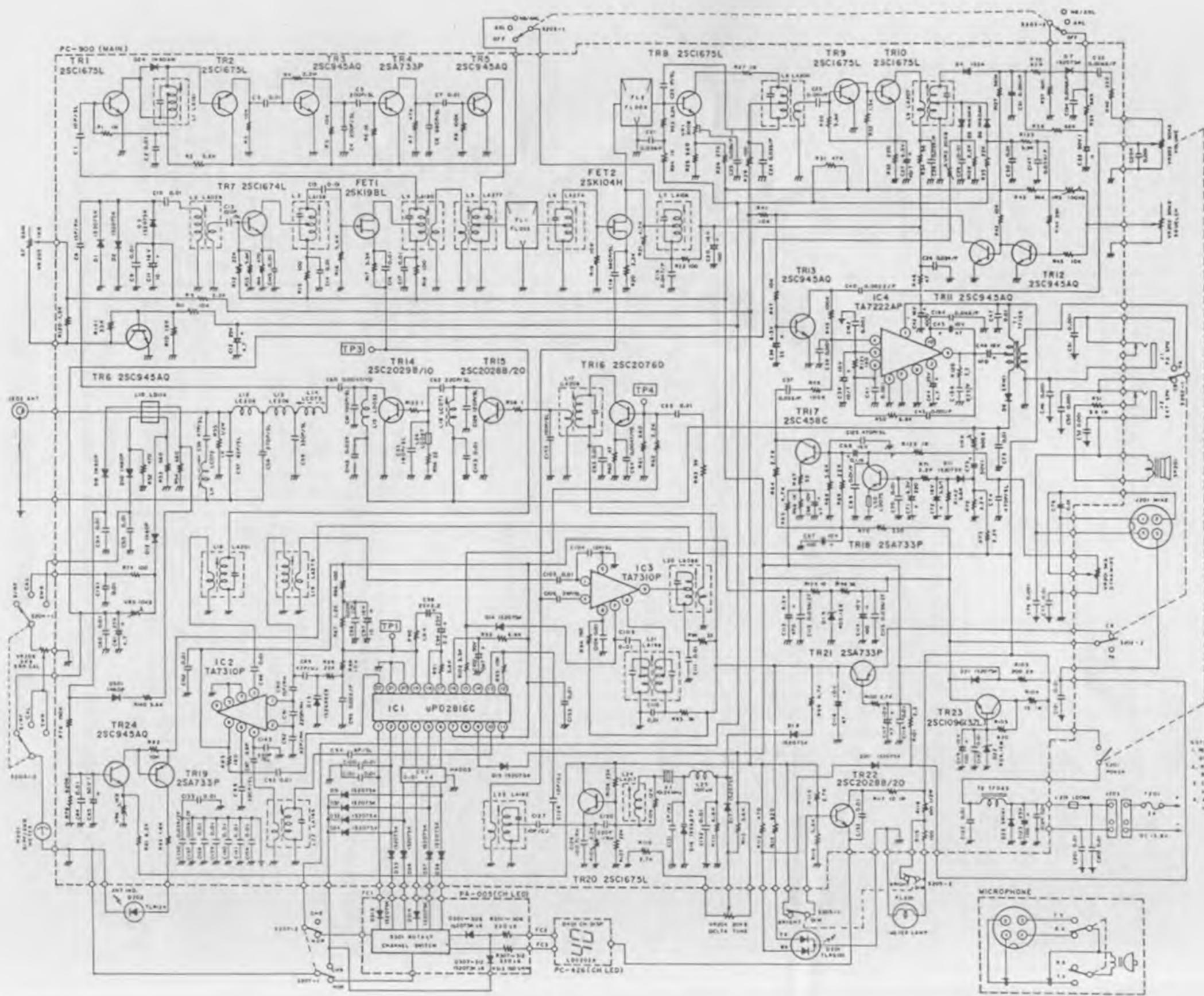
CIRCUIT DIAGRAM FOR COBRA 25LTD

68 SECRET CB VOLUME NO.28



- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
1K = 1000 OHMS, M = 1000000 OHMS
 2. RESISTOR RATINGS ARE 1/8W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICROFARADS UNLESS OTHERWISE NOTED. (P = MICRO-MICRO FARAD)
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE YF UNLESS OTHERWISE NOTED.
 5. CIRCUIT AND COMPONENTS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CIRCUIT DIAGRAM FOR COBRA 29LTD



NOTES:
 1. RESISTANCE VALUES ARE GIVEN IN OHMS UNLESS OTHERWISE NOTED (K = 10³ OHMS, M = 10⁶ OHMS).
 2. RESISTOR WATTAGE AND USE UNLESS OTHERWISE SPECIFIED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICROFARADS UNLESS OTHERWISE SPECIFIED (P = MICRO-MICROFARAD).
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTIC ARE 5% UNLESS OTHERWISE NOTED.

SECRET CB VOLUME NO.28 69

SECRET CB INDEX - VOLUMES 1 THRU 26

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

VOL/PG	VOL/PG	VOL/PG	VOL/PG
MISCELLANEOUS	AUTOMATIC	COBRA (cont.)	COLT (cont.)
CONVERSION TIPS FOR	CBH2265.....C&T-3/41	39XLR.....SC-26/44;T-26/27	485.....C-4/49;8/18;T-6/19
ALL SSB RADIOS.....9/7	AZDEN	40X..M-25/16;26/27;SC-26/43	510.....A-18/44-45;SC-17/45
"A" CH MOD FOR "RC" CHANNEL	PCS2000.....M-21/39	45XLR.....C-18/67;C&T-12/34	.....T-17/42,45
ON PLL RADIOS.....9/16-17	BETA	46XLR.....T-3/43	800.....C&T-3/4-7;10/58
MB8719 MOD....8/15;10/25-26	23 DELUXE.....T-16/32	47XLR.....C&T-3/45	870.....SC-21/53
MB8719 RX MOD.....26/34	BOWMAN	50XLR..C-16/53;18/22;T-3/43	1000...C&S&T-3/8-15;C-8/18
MB8719 w/11.1125 MOD..11/15	CB555.....T-3/44	55XLR..C-16/53,18/22;T-3/43	.....T-3/58
UPDATE.....14/11-12	CB750.....T-2/43	66GTL.....T-10/58	1200.C-8/18;T-9/30-31;16/55
MB8719 5KC DROP.....18/68	CB755.....T-14/44	77X.....T-9/30	COMMANDO
PLL O1A MOD.....9/15-17	CBH900.....C&T-3/44	78X.....T-4/49;6/19;8/44	2340.....T-1/21
PLL O2A MOD...3/13-15;18/56	CB910.....C-11/41;13/58	85.....T-15/61	COMMTRON
BROADBANDING O2A UNITS.4/55	.....T-1/21;3/44	86.....M-19/52	XII.....A-18/44-45;SC-17/45
23 CH O2A AM CONV.....12/32	CB920..C-14/43;T-1/21;14/43	86XLR.....C&T-3/45	CONNEX
TECH TIPS on the 858	CB930...C-3/21;T-1/21;3/44	87GTL.....T-6/19	3300.....C-26/42;M-23/6
CHASSIS.10/55;19/59,60,67	CB950..C-5/39;S-4/49;T-3/43	87XLR.....M-19/52	CONVOY
UNIDEN 858 UPDATE....9/8-11	CBH990.....T-5/43	89GTL.....T-6/18	CON-400.....C&T-3/58
How to get on 28 & 29 MHz	CBR9600...C&T-3/41;T-2/42	132-A.....S-1/28	COURIER
w/UPDB58 PLL.....11/4-7	CBR9940.....T-3/44	132-B.....S-1/53	BLAZER 40D.....T-3/58
UPDB58 AM CONV.....11/35	CBR9950.....T-10/58	132XLR..C-4/47;T-3/45;16/39	CARAVELLE.....T-18/65
Receiver WIDEBANDING for	BRISTOL	C-19/52;S-10/45-46;15/15-17	CENTURION.....S-1/61;5/55
858 CHASSIS.....13/34	BCB-2271.....T-16/41	135-A.....S-1/28	CENTURION PLL..C-1/31,61-62
THUMBWHEEL CONV. for	BROWNING	135-B.....C-1/53;S-1/29	.....C-5/57
858 CHASSIS.....13/35-57	BARON.....S-15/15-17	135XLR...C&S-4/38;10/43-46	CENTURION 40D...C&S&T-10/53
How to increase ANL	.....M-19/52;21/16	C-18/40-41;S-8/38;15/15-17	.....T-13/10
efficiency 70%.....11/8	MARK III.....C-6/28	C-16/39;M-19/52;T-3/45;4/38	CHIEF 23.....T-18/65
HAM RADIO CRYSTAL SELECTOR;	MARK IV....C-6/29-30;7/8-14	138.....S-1/28	CLASSIC II.....T-18/65
DRAKE TR4; HEATHKIT HW101	MARK IVA...C-7/8-14;14/5-6	138XLR.....C&S&T-1/20-23	CLASSIC III.....T-18/65
& SB104; KENWOOD TS-520	SABRE.C-1/27;T-14/42;M19/52	139.....S-1/30;T-1/20	CLASSIC PLL 40...C&T-10/59
& 820S; TEMPO 1 & 2020;	CB MASTER	139XLR.....C&S&T-1/20-23	.....T-3/43
YAESU FT7B, FT101E, EE,	Z080.....M-24/13	140GTL...C&S&T-4/50;S-6/64	COMET 23.....T-18/65
EX, & 901DM.....12/24	CHANNEL MASTER	.....C&T-3/19-20;T-3/58	CONQUEROR.....T-18/65
SM5104 AM CHASSIS..18/20-21	CB6830.....C-14/41;T-16/55	.....C&S-10/28-29	GALAXY.....C&S&T-5/53-54
SM5104 SSB..6/26-27;9/20-22	CB6834.....T-14/44	.....C&S-10/28-29;S-8/35-37	.....C&S-7/18-22
For most 23 ch radios	CB6835.....T-6/18	146GTL.C&S11/17-18;SC-21/64	GLADIATOR PLL..C-1/31,61-62
see CRYSTAL CROSS REF.	CLARICON	.....C&S-23/45-47;M-23/59	.....S-1/61;5/55
GUIDE.....1/6-18;2/5-13	71200.....T-21/16	.....C-15/18-19;S&T-10/41	NIGHTRIDER 40D....C&T-3/46
PHASE LOCK LOOP CRYSTAL	CLARION	148GTL....C&S-8/16;C-18/29	RANGLER 40D.....T-3/58
CROSS REF. GUIDE....6/1-2	DMA066.....T-3/45	.....T-6/19	REBEL 23+.....T-18/58
ANTLAFIER LINEAR SCH..26/54	JC202E.....T-3/45	148GTL-B...C-17/40-43;19/60	REDBALL.....T-1/21
'BLACKCAT'LINEAR SCHEMATICS	RCJ003.....T-3/45	.....SC-17/43;T-16/55	RENEGADE 40.....C&T-3/46
24/6-8,10-13,27,42,59-60	TC203E.....T-6/18	.....C-16/50-51;17/47,54	ROGUE 40.....C&T-3/43
DENTRON-CLIPPERTON LINEAR	COBRA	...C-18/13,17,23;19/37,46	SPARTAN.....C-5/30,53,55,57
SCHEMATICS.....25/31-32	CAM89...C-14/45-46;T-14/45	..C-21/18-19;S-21/36;T-26/61	...C-1/61-62;S-1/61;5/55
KICKER LINEAR SCH.....25/12	18LTD.....T-20/36	..SC-19/27-28;T-16/43-49	TRAVELER II.....T-18/65
KRIS LINEAR SCH...26/46-53	18 PLUS.....T-26/28	..A-17/55-58;M-18/26;19/68	COYOTE
MOSQUITOE LINEAR SCH..26/32	19.....T-7/51	150GTL.....T-17/42;M-19/31	23.....T-16/32
ZZ-2017 VCO MODULE EXPAN-	19GTL.....T-12/34	1000GTL.....T-6/18;14/42	CPI
SION.....26/21	19 PLUS.....T-26/28	2000 (C.A.P.).....C-6/23	300.....C-8/21
DUAL BOARD VCO MODULE	19XS.....M-21/16;T-18/51	2000GTL.....C-5/20;7/15-17	400.....C-8/21;T-10/59
EXPANSION (O2A CHA).26/21	20LTD.....M-20/42;T-24/25	...C-18/29;C&S&T-15/25-28	2000.....C-3/25
AIR COMMAND	20 PLUS.....T-26/28	.....S-13/40	2000 LOW.....C-9/23
CB-640.....T-5/38	21 (23 ch).....T-20/36	COLONEL	2500.....C-5/37-38;S-5/37
ALARON	21GTL.....T-3/41,58	FR360.....M-23/25	CRAIG
B-4075.....T-9/30	21 PLUS.....T-26/28	COLT	L101.....T-6/20;11/42
B-4900.....T-9/30	21XLR.....C-10/58;21/25-26	SX33.....C-3/4-7	L102.....T-6/20
B-5050A.....T-9/30	.....T-1/20;10/58	160DX.....M-21/44	L131...C&S-9/12-14;T-10/59
B-5200.....T-3/41	25GTL.....T-3/41,58	222.....T-6/20	L132...C-9/12;10/47;11/10
AMERICAN MOTORS	25LTD.....T-17/35	290.....C-3/4-7;T-3/4	.....S&T-9/12;10/47
3221847748/49/50....T-12/34	25 PLUS.....T-26/27	320FM.....A-19/48-51	L231.....C-9/12-14;T-10/60
ARGO	29GTL.....S-13/57;19/40	350.....T-14/46	.....S-9/12-14;12/3
300.A&S&T-21/49-51;T-23/33	.....T-3/45;14/42	355.....T-18/19;24/30	L232.....C&S-9/12
5000.....M-23/25	29LTD.....T-13/59	357.....T-26/54	.....C&S&T-10/47;11/10
AUDIOVOX	29XLR.....T-1/20	390.....C-3/4-7;T-3/4	L321.....C&S-14/12
MCB750.....C&T-3/41	32XLR.C-4/47;M-19/52;T-3/58	480.....C&S&T-3/8-15	4102.....T-16/32
MC85000.....T-11/42		.....C-5/39;8/18;T-3/58	
MCU6000.....T-6/18;15/60		485.....C&S&T-3/8-15	

CODES: A - ALIGNMENT PROCEDURE; C - CONVERSION; FC - FREQUENCY CHART; M - MISCELLANEOUS INFORMATION;
S - SLIDE; SC - SCHEMATIC; I - TUNE UP; TB - TALK BACK

	VOL/PG		VOL/PG		VOL/PG		VOL/PG
CRYSLER		GENERAL ELECTRIC (cont.)		HYGAIN (cont.)		KRACO (cont.)	
4048076/8077.....	T-6/18	3-5811B.....	T-9/31;10/61	2702 II.....	T-3/48	KCB2330A.....	C-9/15
DAK		3-5812A.....	T-10/61	2703 III.....	T-3/48	KCB2340.....	T-2/42
MARK II.....	T-10/60	3-5813A.....	C-14/41	2716.....	T-12/36	KCB2345.....	T-18/34
MARK V.....	T-12/34	3-5813B.....	T-18/34	2795 DX.....	M-23/25;SC-23/37	KCB4000.....	T-11/43
MARK IX...C-5/21-23;9/18-19		3-5814B.....	T-6/21	ICOM		KCB4003.....	C&T-3/42
.....C-21/25		3-5816A.....	T-21/60	720A.....	C-21/39	KCB4004.....	C-24/19
MARK X...C-4/39-46;S&T-4/45		3-5817A.....	T-7/51	745.....	C-23/34	KCB4005.....	T-9/38;11/43
DEMCO		3-5818A.....	T-2/42	751.....	C-23/34	KCB4006 "MAYDAY I".....	T-22/33
STAR II.....	C-5/60	3-5819A.....	T-11/42	ITT		.....	SC-22/45
SUPER SATELLITE.....	C-5/60	3-5821A.....	T-9/31	CB-4000M.....	C&T-13/61	KCB4007.....	M-25/20
DNT		3-5821B.....	C&T-3/54	CB-4400M.....	C&T-4/17-18	KCB4009 "MAYDAY" II.....	T-22/33
HF-12/3.....	C&SC-21/46-47	3-5825A.....	T-9/31-32	JC PENNEY		.....	SC-22/47
EVERSONIC		3-5825B.....	C&S-20/55	PINTO SSB.....	S-1/44	KCB4020.....	T-3/49
DK-222.....	T-19/42	3-5826A...C-22/50-51;S-20/54		6241.....	C-8/18;T-18/51	KCB4030.....	T-8/44
EXCALIBUR		3-5830.....	T-3/42	6246.....	C&T-13/61	KCB4045.....	T-14/47
EXPORT SSB BASE-MC145106PLL		3-5869A.....	C-14/41;T-2/42	6247.....	S-13/13	KCB4080.....	T-3/50
....C&S-22/36-38;SC-22/44		3-5871A.....	T-13/60	6248...C-8/24;S&T-13/14-15		KCB4088.....	T-3/50
M-22/19,23,31;24/45,52-55		3-5871B.....	C&T-3/46	981-6203.....	T-15/30	KCB4090.....	C-19/52
.....	TB-26/61	3-5875A...C&S&T-10/48;T-9/32		981-6204.....	T-9/32	KCB4095.....	C-19/52
FANNON		3-5900A 'HELP'.....	T-12/35	981-6221.....	T-21/35	KCB4806.....	C-15/59
IO-40.....	T-6/20	GENERAL MOTORS/DELCO		981-6225.....	T-14/47	KRIS	
FANFARE 125F.....	C&T-3/43	CBD-203 CB/AM/FM.....	T-3/48	981-6235.....	T-19/42	XL25.....	T-2/43
FANFARE 182F.....	C&T-3/41	DELCO AM/FM/CB...C-11/38-40		981-6331.....	T-20/41	LAFAYETTE	
FANFARE 184DF.....	C&T-3/47	70BFMC3.....	T-2/43	981-7461.....	T-9/32	COMSTAT.....	T-11/45
FANFARE 185PLL.....	C&T-3/46	80BCB2.....	T-6/20	981-8360.....	T-10/61;18/51	DYNA-COM 40.....	T-11/44
FANFARE 190DF...T-3/47;7/51		90BCB1.....	T-10/60	JIL		CHB740.....	T-15/60;16/55
FANFARE 350F...C-5/57;S-5/55		90BCB2 (CBD-20U)....	T-12/36	615CB.....	T-11/42	HB640.....	T-2/43
.....	C&T-3/47;13/12	90BFMC1.....	C&T-12/26	CITIZEN BPL524-77...SC-21/48		LM-100.....	T-12/36
FIELDMASTER		90BFPC1.....	C&T-12/26	JOHNSON MESSENGER		LM-300.....	T-12/37
MICRO MINI 40.....	C-11/37	90BFTC1 AM/FM/CB...T-10/60		40.....	T-12/36	MICRO-723.....	T-19/42
.....	A-20/39;SC-20/58	91YFMC1.....	C&T-12/26	50.....	T-7/51	SSB75.....	C&S&T-14/9
TR-40.....	C-15/63	4120.....	C&T-3/46	80.....	T-7/51	SSB140.....	C-8/18;T-11/44
FORMAC		4145.....	T-9/32	123A.....	T-1/21	TELESTAT 1240.....	T-5/14
240...C&M-22/19,21;SC-22/54		4175.....	C&T-3/46	132.....	T-19/42	2400 FM.....	M-19/59
700.....	C-23/36;T-22/32	GLOBEPHONE		352 VIKING.....	S-1/34	LAKE	
.....	M-22/20;23/35	GS-4800X.....	C-20/36	4120.....	T-3/47	400.....	C-16/52;19/33
FOX		.....	A-20/39;SC-20/58	4125.....	C&T-13/61	410.....	T-12/37
240.....	T-23/22;M-23/23	GREAT		4135.....	T-3/48	450.....	T-12/37
340.....	T-23/23;M-23/23	R605.....	T-16/32	4140.....	C-15/31;T-3/54	600.....	T-12/37
444.....	T-23/24;M-23/23	GT818.....	T-16/32	4145.....	C&T-3/54	LINCOLN	
FULCOMM		GT838.....	T-18/65	4170.....	C&T-3/47;11/43	1500.....	SC-22/55
2330.....	T-24/51	HALLICRAFTER		4174.....	C&T-13/61	MAJOR	
FUZZBUSTER		HC271.....	C-5/50-51;6/39	4175.....	C&T-3/47;11/43	MI20.C to ALPHA-24/36-38,41	
Z-40.....	T-22/33	HAM INTERNATIONAL		4250.....	C&T-3/48	SC&T&FC-19/23,29,43;M-21/52	
GALAXY & TEXAS STAR		CONCORDE 2.....	A-19/48-51	4730.....	C&T-10/49-51	MARCO	
2100...A-26/12-14;TB-26/61		CONCORDE 3.....	M-22/19	VIKING 200.....	T-12/36	CB-444..C to ALPHA-24/39-41	
M-24/9-10;25/28;26/11,15-17		JUMBO 3.....	M-22/19	VIKING 260/270.....	C&T-3/49	SC&T&FC-19/21,30,43;M-21/52	
GEMTRONICS		MULTIMODE 3.....	SC-20/52	VIKING 4330/4360.....	T-11/43	MECCA	
GTX23.....	T-15/16	M788.....	SC-21/55	VIKING 4740.....	C&S&T-11/12	BCB-6 (23 ch).....	T-20/41
GT44.....	T-2/42	U.K. 120FM.....	A&C-22/24	KENWOOD		MECTRON	
GT55.....	C&T-3/48	.....	M-22/20;SC-22/56	TS-120.....	C-22/12	ME400.....	C-17/34
GTX44.....	C-21/25	HITACHI		TS-120S.....	C-12/22	ME502.....	C-14/41
GTX66.....	T-6/21	CM-2425H.....	T-22/18	TS-130.....	C-12/23;22/12	MEDALION	
GTX77..C-5/39;S-4/49;T-6/21		HORIZON		TS-430S..C-18/24-25;M-25/16		63-240.....	C&T-3/50
GTX2325.....	C-15/29	29A.....	M-21/45	TS-530.....	C-24/17-18	MIDLAND	
GTX3323.....	T-17/59	HYGAIN		TS-530S.....	C-15/32;22/18	CAP 858.....	C-5/30
GTX4040.....	C&T-3/48	681-I (23 ch).....	C-8/20	TS-820S...C-14/7-8;15/32-34		100M.....	T-10/67
GTX5000.....	C&T-3/42;13/60	681-IA (23 ch)..C-1/22;8/20		TS-830.....	C-24/17-18	102M.....	T-14/42;17/59
GENERAL ELECTRIC		PLL.....	C-1/32	TS-830S.....	C-22/18	103M.....	T-17/65
3-5800A.....	T-3/50	682-II (23 ch).....	C-8/20	TS-940S.....	C-22/11	150M.....	SC-21/62;T-7/52
3-5801A.....	C-16/33;17/39	682-1IA.....	C-8/20	K-40		13-853.....	T-22/18
3-5804B.....	T-6/21	IV 673.....	T-18/34	Production Models 1,2,3,6		13-857.....	C-11/36
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	VOL/PG		VOL/PG		VOL/PG		VOL/PG
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76-860	T-14/51	<u>PACE</u>		GRANT (NEW)	C&S&T-5/24-27	MODULATION ADJUSTMENTS on	
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77-104	M-21/52;T-21/16	1000MC/1000BC	C-15/39-41		C-20/22,40;26/42;S-20/24	PRO-26	
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VOL/PG	VOL/PG	VOL/PG	VOL/PG
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CODES: A - ALIGNMENT PROCEDURE; C - CONVERSION;
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S - SLIDE; SC - SCHEMATIC; I - TUNE UP.

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