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:

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.

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).