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

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.

*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.