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CUSTOM CONVERSION #5

(Code Name: Easy)

CHASSIS: Realistic TRC-448 (21-1561); Rec 86345 PLL

"This is a talking fool when modified correctly! Bonus is that most people don't know what to do with this unit and can be bought for a song..TILL NOW!

Parts Cost: \$12 +, including SAMS.

Time to Modify: Varies, initial unit-6 Hrs.

Gain in Unit: Frequency coverage range (26.965-28.075MHz*)

Variable Transmit Frequency

High Frequency Audio Filter

"Illegal Frequency Alert"

Loss in Unit: P.A. and Monitor capability

Follow directions carefully and you will have a nice 101 "channel" SSB unit to play with...CHEAP...

Use Easy Code Chart on the previous pages for frequency selection.

Frequency is determined by the main channel selector and the frequency range selectors - at any time you are capable of transmitting on an "Illegal Frequency", the left meter light will be out.

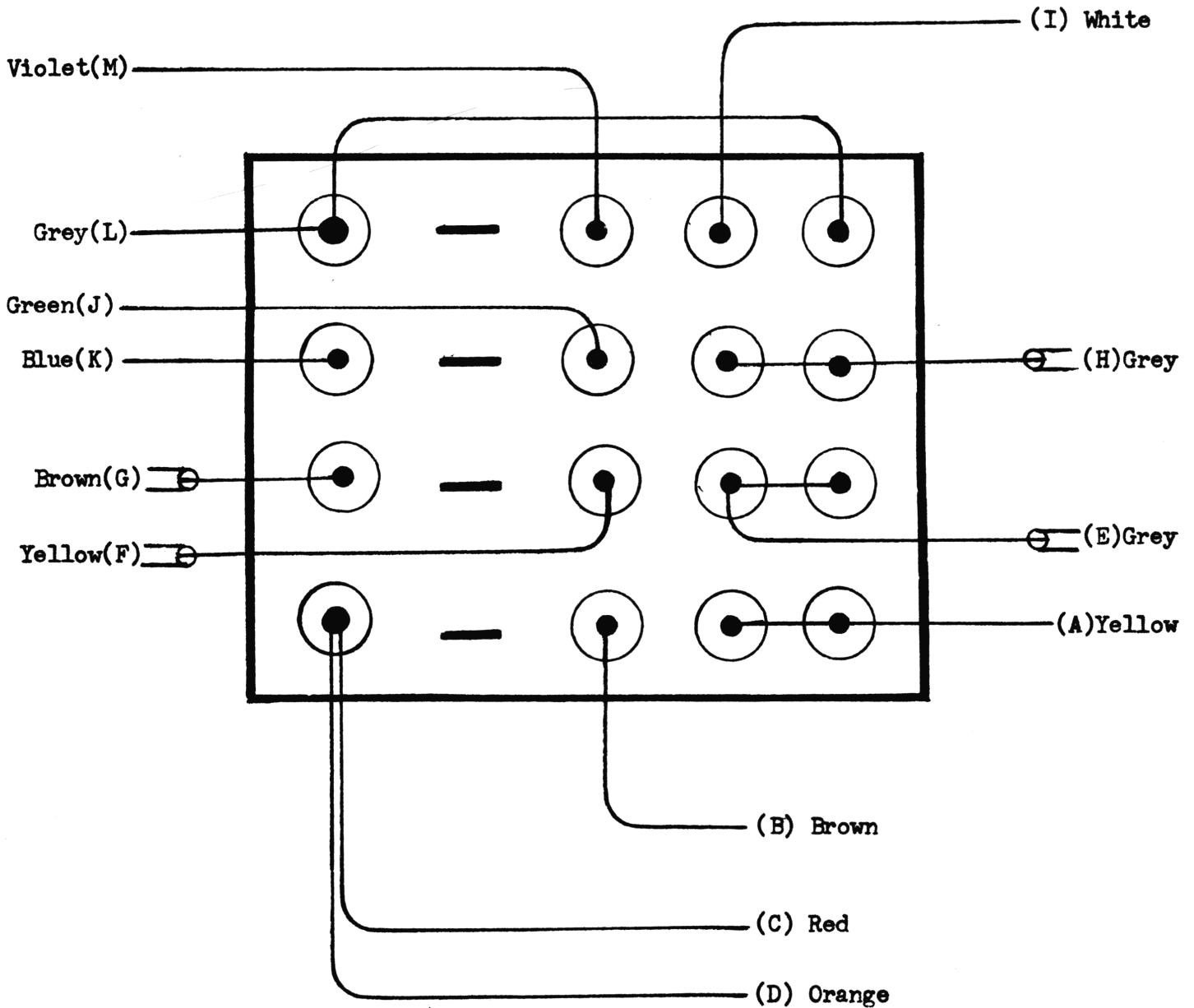
An amplified microphone is not necessary and should be avoided if possible. A "Bandit" antenna will cover the frequency range with no problems.

Initial conversion performed on S/N 012XXX, Run #9A7

Read thru this and write down all parts you will need to perform the conversion before attempting! DO NOT ATTEMPT TO CONVERT WITHOUT THE FOLLOWING: SAMS #251, Dummy Load, Frequency Counter, and Power/Modulation Meter are the minimum needed.

1. Remove Top and Bottom cover. (Mark speaker wire polarity on cover, sleeve both wires so they won't short during conversion).
2. If any power transistors have NOT got thin mica insulators on them; change over to mica. (Note this unit O.K., but have seen some that had wrong insulators.)
3. Do a complete line-up per SAMS #251 (Exception on this unit, Tune everything that calls out a certain channel at Ch. 40!)
Note: If you have modulation problems; first pull D-28, if still won't come up pull C-104.
4. Undo all plastic ties inside unit, save for re-use. Carefully remove all knobs on front panel.
5. Carefully, unsolder the Red and Black wires to meter; sleeve so won't short and tuck out of the way.
6. Remove front panel and label all switches on chassis front.
7. Remove the covers on the VCO Oscillators and AM/SSB Oscillators.
8. Un-solder carefully the bottom cover on PLL board.
9. Loosen screws holding switches (PA-Mon-CB; and NB).
10. Remove entire switch bracket from chassis, pull gently forward, so you have enough room to cut wires on NB switch.
11. Cut Blue wire, delete.
12. Cut Violet wire, delete.
13. Cut Brown Cable-trace back to PCB and remove. Jumper the points where the cable removed. (Use solid buss wire, jumper shield and center points, sleeve.)
14. Remove PA-MON-CB switch from bracket and follow instructions to the letter. NO DEVIATION! (See Switch Chart for wire color in case of change-wires are lettered according to step also.)
 - A. Cut Yellow wire, delete.
 - B. Cut Brown wire-move out of way-label "B".
 - C. Cut Red wire, trace to Mode switch and gently unsolder, clean out hole.

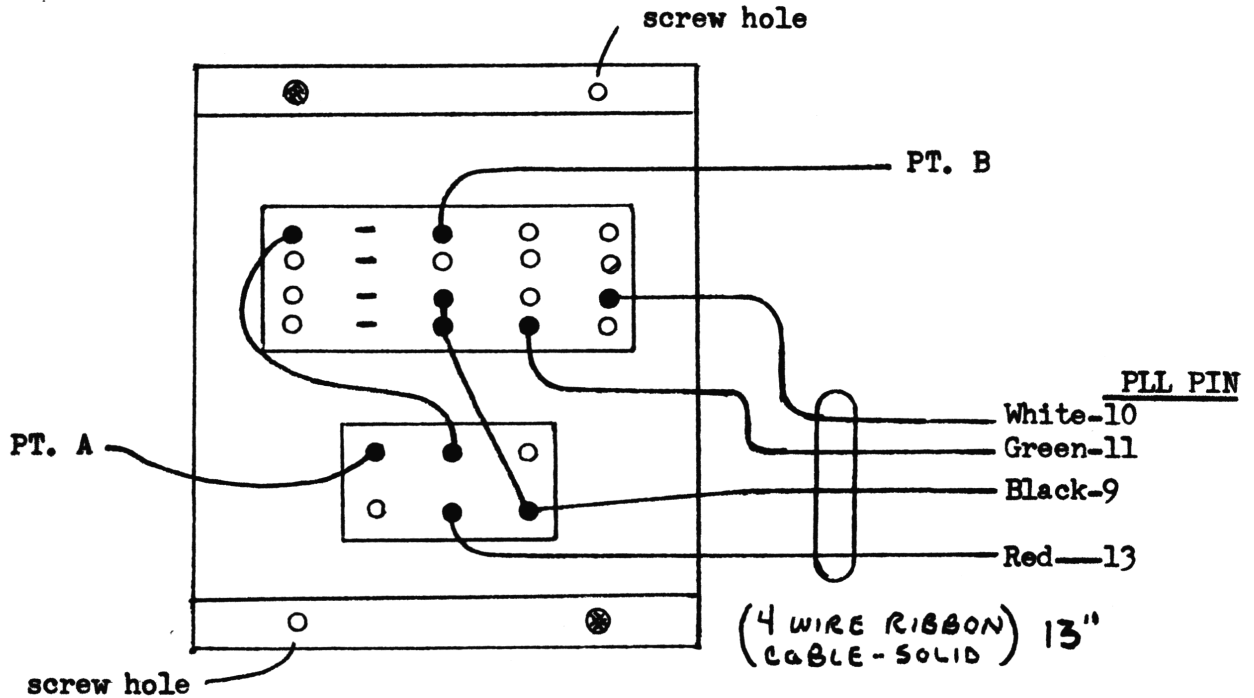
This Drawing to be used in correlation with Step 14.
 Wire/Cable colors are given, exact points of conversion listed.
 Double Check in case colors are different!



- D. Cut Orange wire, resolder both the Orange wire and Brown wire labeled "B" to place on Mode switch where wire in Step C removed. Sleeve first then solder to post carefully!
 - E. Cut Grey Cable, trace to PCB. (Note: was taped to Brown Cable in this unit; gently undo tape and unsolder the "Hot" side of Grey; CUT the shield of Grey as close as possible-use tape and rewrap to prevent short).
 - F. Cut Yellow Cable, trace to PCB-remove, clean out holes.
 - G. Cut Brown Cable, re-route to where Yellow Cable deleted. Strip wire, use shield and solder in as Yellow was- PCB silkscreen correct.
 - H. Cut Grey Cable, delete.
 - I. Cut White wire, delete.
 - J. Cut Green wire, trace to PCB, remove, clean out hole.
 - K. Cut Blue wire, re-route to where Green wire was, and solder.
 - L. Cut Grey wire, trace to PCB-remove, clean out hole.
 - M. Cut Violet wire, re-route to where Grey wire was and solder.
15. Turn unit on-check out all modes-NO PA...
 16. Remove D-12, replace with ECG-5072A, or 8.2V 1W Zener, sleeve.
 17. Unsolder L-18 from PCB; (Cut Green wire about 1" from choke; sleeve with heat shrink; tuck into wire bundle).
 18. Cut sleeving off L-18, unsolder Green wire. Solder Blue wire deleted in Step 11 to that leg. Resleeve choke and resolder into PCB.
 19. Route Blue wire between the shields of PLL Oscillator and AM/SSB Oscillators; between the PCB boards to etch side; under the shield to etch of Emitter Q-229.
 20. Remove D-15, no replacement.
 21. Remove VR-1, no replacement.
 22. Remove C-46, no replacement.
 23. Turn VR-2, FULLY CLOCKWISE.
 24. Turn unit on, check for slide-approximately:(-.6KH, +2.3KH).
 25. Clean completely both switches, holes also.
 26. On cover bottom install a 33MF/50V "non-polarized" electrolytic capacitor across the speaker (sleeve leads).

27. Mount the cleaned switches in bracket exactly as shown below, tighten screws.

28. Wire switches exactly as shown below, sleeve where possible.



29. Cut White wire on lamp nearest the place where switches taken out approximately 3" from lamp. Strip and tin 1/8" both ends.

30. Place switch bracket into chassis (feed ribbon cable down to etch side), leave loose and solder White lamp wire that comes from PCB to Pt. B.

31. Solder White wire from lamp to Point A. Install bracket tighten down.

32. Turn unit on and check that light is out in any position except; when switches are both at extreme right.

33. Mark bracket front as follows: MON-PA-CB to Red-Green-CB; NB-Off to Yellow-Off.

34. Solder wires of ribbon cable exactly as designated by drawing in Step 28. Numbers are PLL Pin numbers-solder to etch in all cases but Pin 10(use extreme caution on pin 10). Route wire so that PLL shield will fit. **CAUTION:** Use isolated tip iron or battery operated soldering gun when soldering wires around PLL.

35. Turn unit on, Switches to CB and Off-check for normal CB frequencies.

36. Keep following in mind when doing Frequency alignment:
 THIS UNIT WILL NOT HAVE A FLAT POWER OUTPUT: Example, initial unit.
 AM Power almost at max setting, SSB Power at max!

| Freq. | AM | SSB | Freq. | AM | SSB | Freq. | AM | SSB |
|--------|-----|-----|--------|-----|------|--------|-----|------|
| 26.965 | 2.0 | 3.0 | 27.405 | 5.8 | 9.7 | 27.805 | 6.0 | 10.0 |
| 27.075 | 4.1 | 8.5 | 27.585 | 6.5 | 11.0 | 27.905 | 4.0 | 8.0 |
| 27.215 | 5.0 | 9.0 | 27.705 | 7.0 | 12.0 | 28.045 | 2.2 | 3.8 |

---Use only a Plastic Tuning Tool for all adjustments!---

Using Frequency Chart, in AM Mode; see how high unit will go without falling out. (Initial unit dropped out at 27.865) All frequency range tuning will be done with T-201 thru T-204 and TC3 at this time only! Set for 27.585 and max tune the T-20's. Set for 28.045 and slowly adjust TC3 till you get an output-recheck bottom. If bottom fell out you are going to have to go back and retune the T-20's and possibly TC3. PATIENCE; is the key; I usually spend more time here than rest of the conversion.

After you get power output across the whole band; go to USB mode; should have power also.

Now go to LSB; DO NOT TOUCH T-201 thru T-204; adjust TC2 ONLY!
 Adjust for power output across the whole band.

Recheck for Power Output, All Modes, Complete Frequency Range.

Repeat T-205, T-206, T-207, T-208; for maximum power across the whole band.

On Frequency Chart check to see if you have the top frequency of 28.075, if you do-good-if not-forget it!

37. Solder shield in place on bottom of PLL board, carefully!
38. Put Foam pad on front of switches; reinstall the front panel.
39. Solder wires back onto the meter carefully!
40. Using a kid's paper punch and colored electrical tape, punch out holes for color coding the switches (Put circles below the switches) MON-Red, PA-Green, and NB-Yellow.
41. Turn unit on and see that unit works, check meter for RX and TX.
42. Calibrate TX on meter for just coming into the red on the highest power point in SSB Mode, re-check against AM point.
43. Calibrate the Clarifier knob to be at center frequency when "Ident" is at 12 o'clock position. Replace remainder of knobs.
44. Turn off, replace covers on VCO's and Oscillators.
45. Carefully, lace up all wiring-use originals taken off also.
46. Solder speaker wires on and replace covers.
47. Turn on and double check unit for everything. Enjoy!