



MELCO FM-10 ASSEMBLY INSTRUCTIONS

- ✓ 1. REMOVE T110, USING A SOLDER SUCKER. CAREFUL NOT TO LIFT ANY FOIL
- ✓ 2. CONNECT A 5" HOOKUP WIRE FROM C204 TO 3. USE THE HOLE LEFT BY ONE OF THE 3 PRIMARY LEADS OF REMOVED T110.
- ✓ 3. REMOVE RV102. RE-INSTALL AT RV103 FOR 'S' METER LEVEL.
- ✓ 4. ONLY 2 PINS OF THE RV102 WERE USED. CONNECT A 3" WIRE FROM THE PIN COMMON TO TERMINAL 18 TO ²⁰9. THIS IS + D.C. TO THE FINAL AMPLIFIER.
- ✓ 5. REMOVE R151, A 22K. INSTALL A 220K TO IMPROVE SQUELCH SENSITIVITY.
- ✓ 6. CHANGING C212 FROM A 33MFD TO 5 MFD MAKES SQUELCH FASTER
- ✓ 7. INSTALL A 2.2K RESISTOR AT R166. INSTALL JUMPER FROM PIN 9 TO 20.
- ✓ 8. SOLDER SEVEN 3" WIRES AT EACH BUSS PIN OF P.L.L. CHIP, (WHICH WILL BE EITHER A 760136, 145109 OR 02A), B0, B1, B2, B3, B4, B5, B6.
- ✓ 9. CONNECT A 4" WIRE TO CATHODE (BAND) END OF D102.
- ✓ 10. CONNECT THIS WIRE (+5V) TEMPORARILY TO BUSS WIRES B3, B4, B5. THIS PROGRAMS THE CHIP TO 29.50 MHZ.
- ✓ 11. REMOVE THE 11.806 CRYSTAL. REPLACE WITH THE NEW 12.571 CRYSTAL.
- ✓ 12. INSTALL A #47 PILOT LAMP AT THE RF OUTPUT TERMINAL 5A AND G2 FOR FINAL DUMMY LOAD.
- ✓ 13. CONNECT POWER SUPPLY GROUND TO TERMINAL #1.
- ✓ 14. CONNECT +13 VOLTS, D.C. TO TERMINAL 9.
- ✓ 15. GROUND TERMINAL 13 (PTT LINE) TO KEY UP TRANSMITTER.
16. LISTEN ON A TEN METER RECEIVER TO 29.50. USING THE CORRECT PLASTIC ALIGNMENT TOOL, (TAKE EXTREME CARE NOT TO BREAK THE TINY SLUGS) SLOWLY ADJUST T101 UNTIL A SMALL SIGNAL IS HEARD. THIS USUALLY TAKES ABOUT ONE TURN-CLOCKWISE.
17. FOLLOW PAGE 37 OF TEN METER FM HANDBOOK--TUNE ALL TRANSMIT COILS FOR MAXIMUM OUTPUT.

| | | | | | | | | | |
|--------|---------|--------|------|------|------|----|------|------|-------|
| ✓ T111 | 1T CW ✓ | T102 | 1/4T | CW | L109 | 2T | CW ✓ | | |
| ✓ L103 | 1T CW | ✓ T103 | 1T | CW | L110 | 2T | CW ✓ | T105 | 1T CW |
| ✓ L104 | 1/4TCW | L106 | 1T | CW ✓ | T104 | 1T | CW | | |

BEGIN RECEIVER ALINGMENT: TO HELP ALIGN THE RECEIVER WE WILL DO STEP 20 THAT BACK BIASES THE A.M. DETECTOR DIODE AND CAUSE IT TO BECOME YOUR OWN BUILT-IN 'NOISE GENERATOR'.

18. CONNECT 8 OHM SPEAKER FROM TERMINAL 4 TO GROUND 2.
19. CONNECT A 6" WIRE TO TERMINAL 7. TEMPORARILY CONNECT OTHER END TO G2. THIS ACTIVATES THE SQUELCH TO TURN ON RECEIVE AUDIO.

G.C.
#9440

THIS WILL BE THE CRYSTAL TO BE USED
20. A SIMPLE PRELIMINARY RECEIVER ALIGNMENT IS DONE BY TEMPORARILY CONNECTING TERMINAL 21 TO JUNCTION OF R151 AND R155.

21. TUNE THE RECEIVER COILS FOR MAXIMUM BACKGROUND NOISE. USUALLY 1/2 TO 1 TURN CW, GETS CLOSE. TUNE, IN ORDER T104, 105, L112, 106, T106, 108 AND 109. REFER TO PAGE 37 (TEN FM HANDBOOK) FOR COIL LAYOUT. YOU MAY HAVE TO TOUCH UP THE RECEIVER AFTER INSTALLATION INTO YOUR CABINET, BUT THIS WILL BE FAIRLY CLOSE. THE BEST ALIGNMENT IS DONE BY LISTENING TO WEAK SIGNALS KNOWN TO BE ON FREQUENCY.

22. REMOVE TEMPORARY JUMPER USED IN STEP 20.

23. PREPARE THE DISCRIMINATOR BOARD. CONNECT I.F. OUTPUT TO BASE OF Q 119 WITH SHIELDED LEAD ONLY. AUDIO OUT TO TOP OF VOLUME CONTROL.

PREPARE CHASSIS BY MOUNTING THE FOLLOWING:

- * MICROPHONE JACK WITH PINS 1 AND 4 TOWARDS BOTTOM
- * DUAL CONCENTRIC POT WITH KNOBS FOR VOLUME AND SQUELCH CONTROLS
- * FREQUENCY SWITCH
- * SPEAKER JACK AT UPPER RIGHT REAR CORNER
- * STAND OFF FOR DISCRIMINATOR BOARD MOUNT (NEAR SPEAKER JACK)
- * YOU MAY WANT TO MOUNT SEVERAL ITEMS NOT SUPPLIED WITH KIT SUCH AS A POWER SWITCH, COAX CONNECTOR AND GROMMET FOR POWER LEAD UNDER SPEAKER JACK HOLE.
- * MOUNT THE HY GAIN BOARD ON 4 NYLON STANDOFFS
- * DRILL FOUR HOLES IN BACK TO MOUNT THE TWO LARGE HEAT SINKS.

PREPARE THE CB BOARD BY SOLDERING THE CONNECTING WIRES TO PROPER TERMINAL NUMBERS ON THE BOARD. USE TIE WRAPS TO FORM A NEAT HARNESS.

| LENGTH | COLOR | TERMINAL | ROUTE TO |
|--------|-----------|----------|-----------------|
| 12" | BLACK | 1 | GND |
| 12" | RED | 2 | +13 V. |
| 7" | WHITE/BRN | 4 | TO J1 PIN 2 |
| 2" | SOLID #20 | 5A | COAX CONN. |
| 9" | BROWN | 6A | TO "S" METER |
| 6" | WHITE | 7 | TO SQUELCH POT |
| 7" | BROWN | 13 | TO MIC PIN 4 |
| 7" | BLUE | 21 | TOP OF VOL. POT |
| 8" | GREEN | 22 | MIC PIN 1 |
| 3" | RED | 25 | S1 POWER |
| 7" | RED | 9 | S1 POWER |

IF YOU DESIRE TO ADD THE "S" AND RF METER CIRCUITS, YOU WILL HAVE TO ADD THE FOLLOWING PARTS:

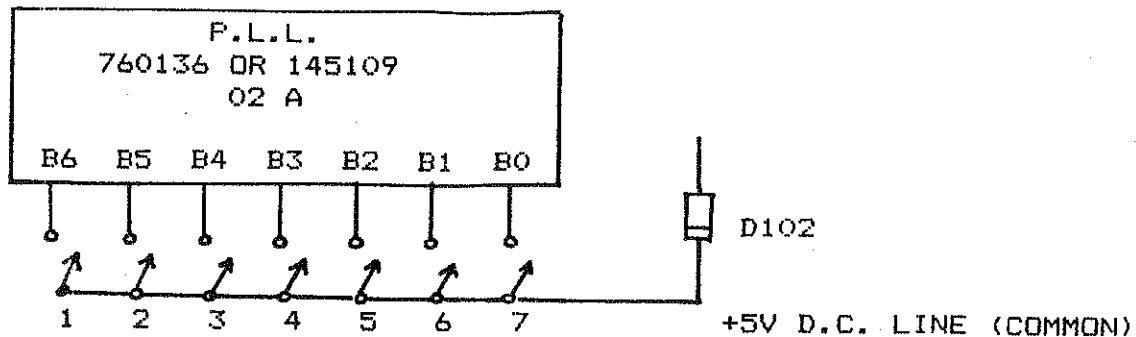
| | |
|-------------|-------------------------|
| D109 - 1N94 | C225 - 5PF |
| R185 - 1K | D112 - 1N94 |
| R165 - 1K | C226 - .02 |
| C184 - .02 | RV104 AND 103 TRIM POTS |

THE METER CONNECTS FROM TERMINAL 6A AND GND G2

FOR RECEIVE/TRANSMIT INDICATORS, CONNECT L.E.D. TO PINS 11 (RCV) AND 14 (XMIT) USE 470 OHM IN SERIES TO G2.

FREQUENCY PROGRAMMING

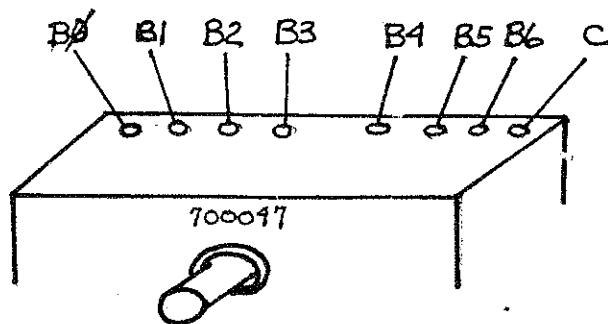
THE BASIC FM-10 USES A SPST SWITCH TO SELECT THE PROPER PLL BUSS LINES FOR 29.50 AND 29.60, OR ANY TWO FREQUENCIES YOU MAY WANT TO PROGRAM. EXAMING THE TRUTH CHART WILL SHOW THAT EITHER SEVEN SWITCHES, A DIP SWITCH, OR THE REGULAR 40 CHANNEL SWITCH WILL PROGRAM THE O2A P.L.L. REFER TO PAGES 43-45 OF THE TEN METER FM HANDBOOK....



| | | | | | |
|-------|-------|-------------|-------|-------|---------|
| CH 20 | 29.50 | 2-3-4 | CH 30 | 29.60 | 1-6 |
| 21 | .51 | 2-3-4-7 | 31 | .61 | 1-6-7 |
| 22 | .52 | 2-3-4-6 | 32 | .62 | 1-5 |
| 24 | .53 | 2-3-4-6-7 | 33 | .63 | 1-5-7 |
| 25 | .54 | 2-3-4-5 | 34 | .64 | 1-5-6 |
| 23 | .55 | 2-3-4-7 | 35 | .65 | 1-5-6-7 |
| 26 | .56 | 2-3-4-5-6 | 36 | .66 | 1-4 |
| 27 | .57 | 2-3-4-5-6-7 | 37 | .67 | 1-4-7 |
| 28 | .58 | 1 | 38 | .68 | 1-4-6 |
| 29 | .59 | 1-7 | 39 | .69 | 1-4-6-7 |

THESE ARE FOR THE 40 CHANNEL PROGRAMMING USING THE 12.571 CRYSTAL

PIN OUT FOR THE 40 CHANNEL HY GAIN SWITCH



MAKE A NEAT WIRING HARNESS USING #20 GAUGE STRANDED, (NOT SOLID!) WIRE. FOLLOW CHART ON PAGE 2 THIS CHART ABOVE, SHOW CONNECTIONS FOR STANDARD FM-10 USING THE 2 POSITION SWITCH FOR FREQUENCY CONTROL. AFTER CORRECT CONNECTIONS ARE MADE, APPLY POWER. THE ABSOLUTE FIRST THING THAT YOU SHOULD DO WITH POWER APPLIED IS TO CHECK THE THREE CRYSTALS. CHECK THESE POINTS WITH A FREQUENCY METER:

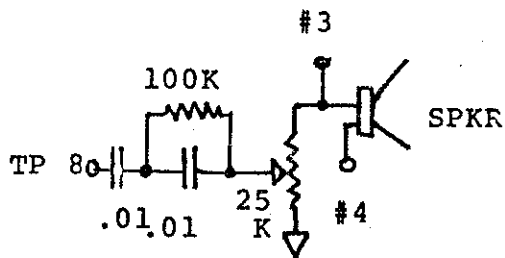
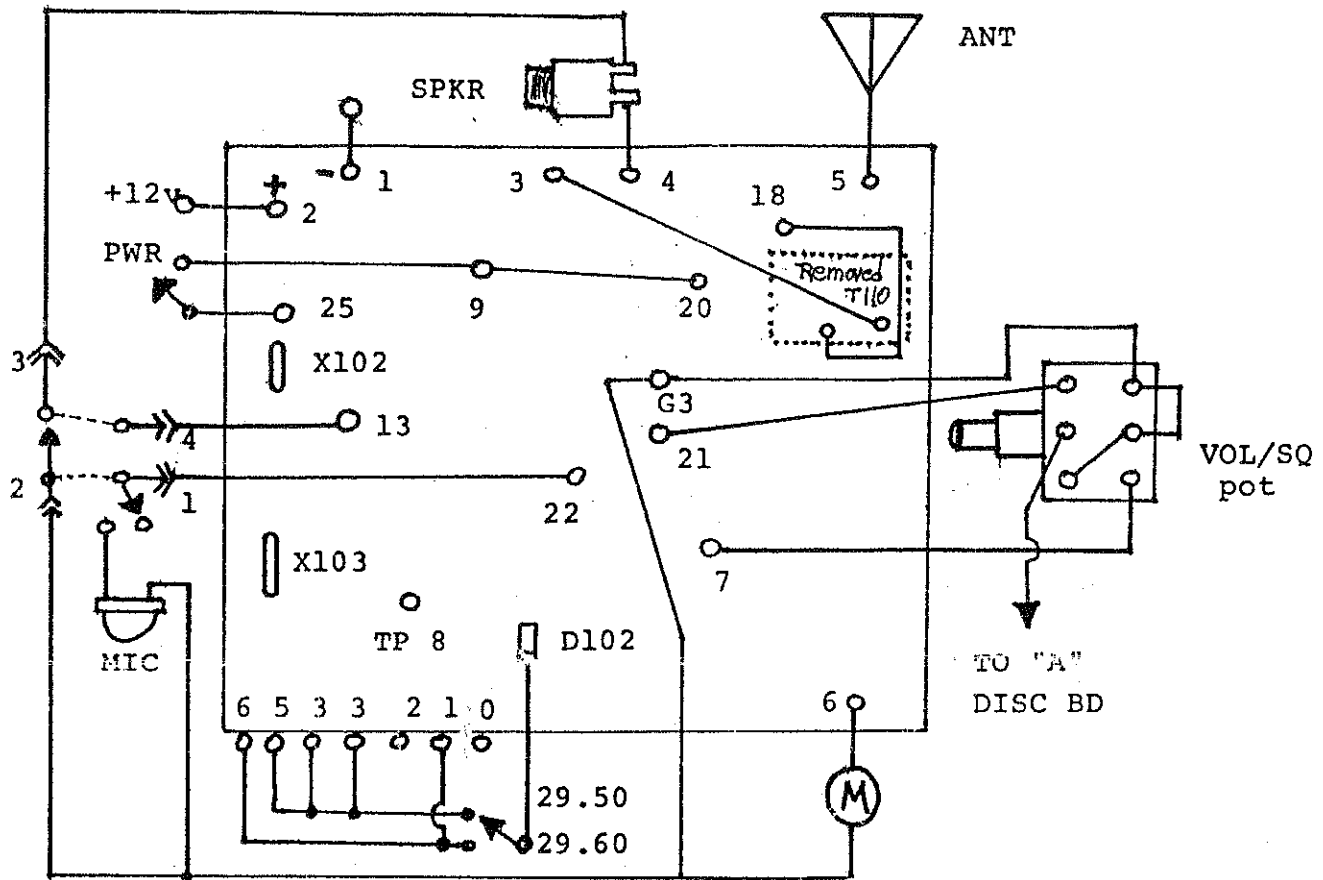
COLLECTOR OF Q104 = 10.240
 EMITTER OF Q105 = 12.571 (11.806 FOR CB BAND)

YOU WILL HAVE TO GROUND P.T.T. LINE (TERMINAL 13) TO ENERGIZE THE 10.695 MIXER CRYSTAL. GROUND 13 AND CHECK:

BASE OF Q110 = 10.695

THIS WILL BE THE CRYSTAL TO CHANGE FOR REPEATER OFFSET CONTROL. THE NEW OFFSET CRYSTAL WILL BE 10.795.

INSTALL THE TRANSMIT DEVIATION CONTROL AND WIRE TO APPROPRIATE PLACES. THE 100K AND .01 AUDIO FILTER MAY HAVE TO BE ADJUSTED TO PASSIVELY EQUALIZE YOUR AUDIO LINE FOR BETTER TRANSMIT EQUALIZATION, DEPENDING UPON THE MICROPHONE RESPONSE.



TRANSMIT AUDIO DEVIATION

USE THIS CIRCUIT TO INTRODUCE FM TO THE TRANSMIT SECTION OF THE FM-10. THE 25K POT WILL BE YOUR DEVIATION CONTROL. AUDIO FROM THE SPEAKER WILL MODULATE THE VARACTOR DIODE AT Test Point 8.



HEIL SOUND

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