

RCI-2900 ALIGNMENT PROCEDURE

NOTE; the pinouts are exactly opposite-EBC vs CBE.

Of course to make things easy, the tranny is under the RF Shield. Nobody said this was a get rich quick business.

The results after re-alignment was 42 actual watts! (Measurement was taken on a REAL watt meter). Admittedly not spectacular. Other chassis might produce better results.

The main value here is that after three minutes of solid dead key at 42 watts, the heat sink could still be touched. Not tested, but imagine how nice it would be if 15W AM/FM could be run for long periods without damage to the final!

WARNING!!! Do not try to drive an amp with this radio after doing the mod.(Or before for that matter!)

Presently, prices are running around \$28.00 for the set.(Including shipping)

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● BILL GRASSA

PLL Adjustment

(1) Turn CLARIFIER in the middle position.

(2) Put test probe of counter on TP4, unit in 28.0000MHz (RX mode)

In AM, adjust L21 to read frequency 17.205MHz +/- 50Hz

In USB, adjust L22 to read frequency 17.3075MHz +/- 50Hz

In LSB, adjust L23 to read frequency 17.3025MHz +/- 50Hz

(3) Put test probe of multimeter on TP6, unit in TX mode

In AM, adjust L27 to read 10.695MHz +/- 30MHz

In USB, adjust L28 to read 10.6925MHz +/- 30MHz

In LSB, adjust L29 to read 10.6975MHz +/- 30MHz

(4) Put test probe of multimeter on TP7, unit in 28.0000MHz (RX mode)

In AM, adjust L17 to read DC 0.85V

(5) Put test probe of oscilloscope on TP5, unit in 28.0000MHz (RX mode)

In AM, adjust L18 to maximum output

(6) Unit in USB TX mode (MOD off)

Put current meter in TP3 and TP2 adjust VR11 to read 20mA on current meter

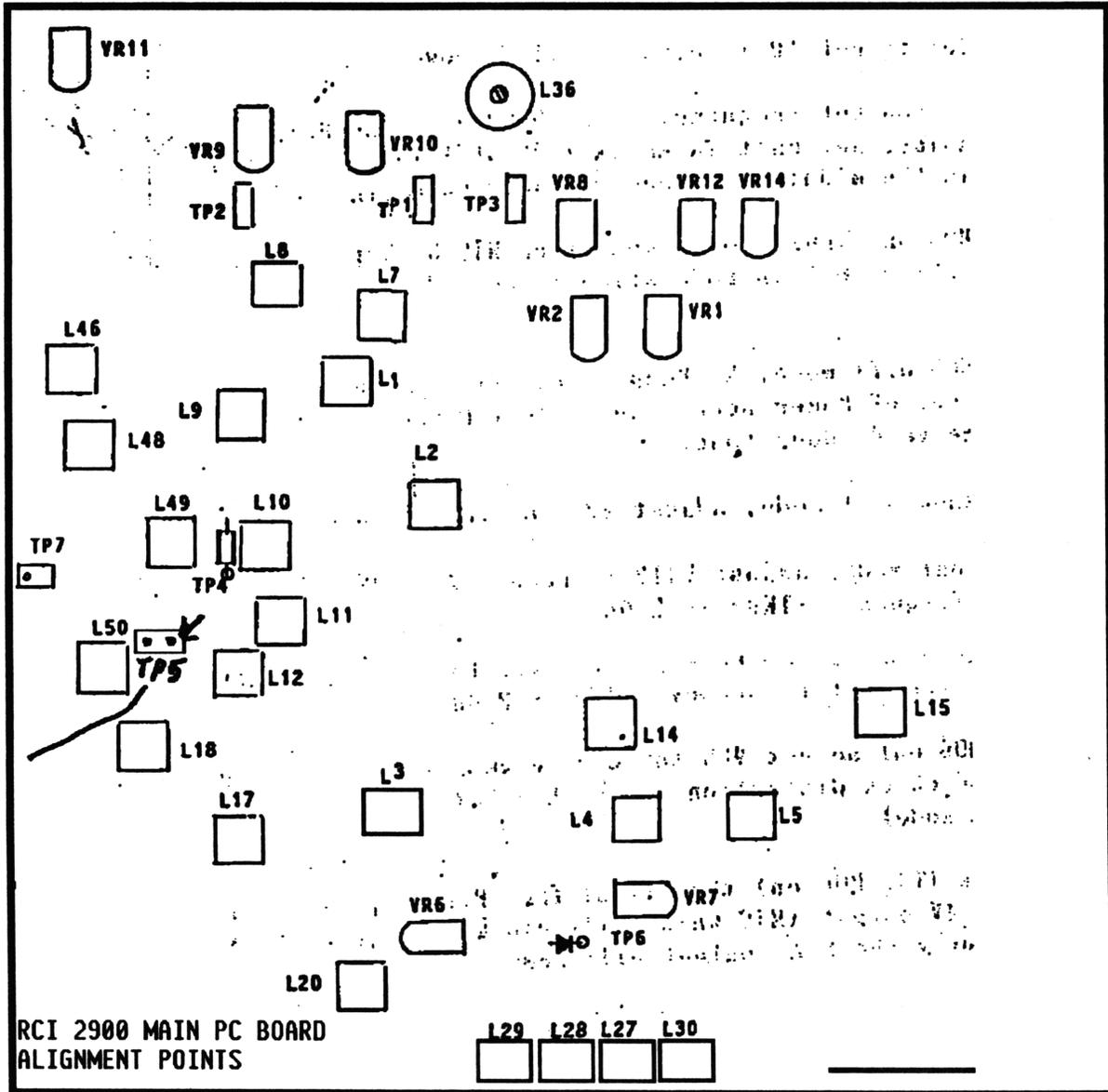
Put current meter in TP3 and TP1, first minimize with VR9 then adjust

VR10 to read 50mA and adjust VR9 to read 100mA

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RX adjustment

(1) Set unit in AM mode, squelch in MIN, RF GAIN fully clockwise, unit and RF SG select 28.0000MHz and 29.9999MHz (check two channels). Adjust L7, L8, L9, L10, L11, L12, L3, L20, L4, L5 to make maximum AF output. Input 6dB from RF SG the AF output must more than 2V, sensitivity must not be lower than 10dB



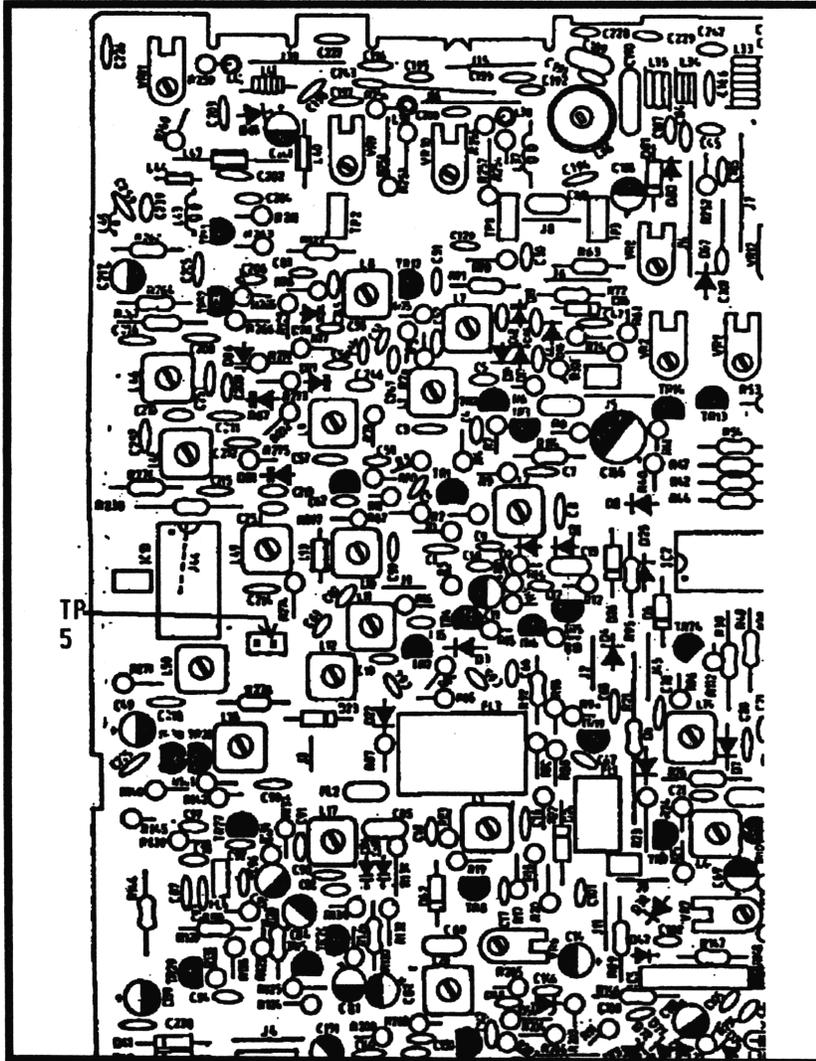
FIGURE#8.....RCI 2900 ALIGNMENT

S + N/N.

(2) Set RF SG in 60dB, when set AF output signal to 2V the distortion must not exceed 10%.

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- (3) Set unit in FM mode RF SG in FM mode, adjust L6 to get maximum AF output, minimum distortion attenuate VOL to 2V output the distortion must not exceed 10%. In RF SG input 6dB the sensitivity must not lower than 20dB S + N/N.
- (4) Set unit in USB mode, RF SG and unit select the same channel. But set RF SG IN MOD off position and also frequency higher than unit for 1KHz. Input 6dB from RF SG adjust L14, L15 to get maximum AF output and signal output must more than 2V (set CLARIFIER in the middle position).
- (5) Set unit LSB mode, check procedure same as USB,



FIGURE# 9.....RCI 2900 ALIGNMENT LOCATIONS

28.000MHz USB mode LCD display S/Rf, set 45dB input in RF SG (SQ counter clockwise) adjust VR2 to read meter in "9". Fully clockwise SQ set 66dB in RF SG input adjust VR3 to AF just have output.

but set RF SG frequency lower 1KHz than unit frequency.

(6) Set unit in CW mode RF SG and unit select the same frequency in MOD off position input 6dB from SG to adjust L30 until no AF output.

(7) Set unit and RF SG in 28.000MHz USB mode LCD display S/Rf. set 45dB input in LCD select 45dB in RF SG output, adjust VR2 to read S/Rf meter in the middle of "9". Set SQ fully clockwise, set 66dB in RF SG adjust VR4 to AF just have output.

(8) Unit and RF SG select the same

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(9) Set unit in 28.000MHz RF SG in 29.9999MHz input 66dB push keypad NB/ANL until LCD display NB/ANL. Use multimeter to test D2 cathode adjust L1, L2 to get maximum DC voltage.

TX ADJUSTMENT

(1) Set unit in SM TX (MOD off) mode, push H/L key in H position the power HI LED will illuminate, adjust L36, L46, L48, L49, L50 to get stable and maximum power output between 28-29.999MHz. Then adjust VR13 to get all TX power within 8W + (1)5W.

(2) Push H/L in L position to get 1W +/- 0.5W in all TX power.

(3) Return H/L to HI position set frequency in 28.0000MHz, push METER keypad to have S/RF on LCD display. Set unit in AM TX (MOD off) mode, adjust VR8 to read RF line right in the middle (between red and green line) of S/RF meter.

(4) Set unit in AM TX (MOD on, 1KHz. 30mV) mode turn MIC GAIN full clockwise adjust VR14 to read 90%-100% in modulation meter and distortion must not exceed 10%.

(5) Set unit in AM TX (MOD off) mode, R. Beep ON position, then release PTT switch scope will have 0.5 sec of Roger Beep tone. Select R.Beep off set unit from TX to RX will no receive R. Beep tone.

(6) Set unit in USB TX (MOD OFF) mode, adjust VR7 to minimum carry power output .

(7) Set unit in TX (MOD on) mode, adjust VR12 to read 25W-30W in power meter and check transmit frequency +1KHz +/-250Hz.

(8) Set unit in LSB TX (MOD on) mode check power meter to read 25W-30W for all frequency and check transmit frequency -1KHz +/-250Hz.

(9) Set unit in FM TX (MOD on) adjust VR6 to read between +/- 2K - +/- 4KHz on modulation meter. And check that distortion is lower than 10% (Power output and frequency same as AM mode).

(10) Set unit in P.A. mode (TX, MOD on) the signal from P.A. mode (TX, MOD on) the signal from P.A. circuit, SPK should have more than 1KHz, 4V output (MIC GAIN fully clockwise) Turn the MIC GAIN counter clockwise slowly the P.A. output will reduce.