

UNCOVERING

THE 2950

The RCI-2950 is a very versatile transceiver. This unit is very broad banded and has the ability to transmit & receive from 26.000MHz to 32.000MHz. One of it's most favorable features is a true variable RF POWER control that functions on AM, FM & SSB. Along with a large easy to read digital display, split frequency capability, 10 channel memory & the ability to scan in both manual & memory modes. Transmit audio quality is excellent, there are few radios on the market in the same price range that will match the sound of a properly tuned 2950 over the airwaves. The receiver is slightly noisy but can be improved as discussed later. There are many improvements that can be made as with any production radio.

The RCI-2970 utilizes the same chassis with the addition of a 100 watt amplifier. There are few differences internally with the exception of the use of one final transistor instead of two to drive the 100 watt amp and the removal of the VSWR board.

The addition of an external fan on the 2970 is highly recommended as heat can be a problem especially on AM & FM. With the amplifier mounted inside the radio and the heat sink on the bottom a lot of heat will build up inside of the radio.

When modified the "LOCK" button when pushed will yield CB channels 1-40, including all RC channels which will be displayed as CH40 ect. This modification does disable the frequency lock function. (Up to Ser.#440000 only)

When modified, the "ROGER BEEP" button will give instant channel 9, however this modification enables the roger beep on full time. If wanted, Channel 9 can be selected in the CB mode and whenever returning from a manually selected frequency, just push "LOCK" and the radio will return to the last channel selected in the CB mode. i.e. Ch 9 or CH 19. (Up to Ser.#440000 only)

The memory function allows up to ten of your most used frequencies to be stored. The radio will always return to the last frequency in either the manual or memory mode. Simply by pressing "MAN" or "MEM" you can alternate between two frequencies anywhere within the radios bandwidth. When in memory mode, you cannot shift above or below the selected frequency, however when on any frequency in the memory mode you can change that same frequency to manual mode allowing full shift capabilities by simply pressing "SCAN" then "MAN". The squelch control must be below threshold level in order for this mode change to function properly.

The 2950 has programmable upper & lower band limits. You can program the 2950 to cover the entire range of 26.000MHz to 32.000MHz or just one band or any part of a band. This is especially nice in the scan mode. To program limits simply press "PRG" then "SCAN". Scan+ or scan- will appear on the display. The scan+ identifies the upper limit while scan- identifies the lower limit. Enter one frequency limit then press "ENT". Press "SCAN" again and enter the other frequency limit then press "ENT", now press "MAN". The radio will not except frequencies above or below the programmed limits in manual or memory modes unless limits are reprogrammed. Also see note under frequency bandwidth modification.

One of the most misunderstood functions of the 2950 is the SPLIT function. The split differential is factory programmed at "00000". This means there is no split until programmed by the operator. You can split from 100Hz to 3.9999MHz. The amount of split is programmed not the frequency that you want to split to. To program press "PRG" then "SPLIT". You will then notice "00000" shown on the display. Enter the desired split differential, i.e. 00700, then press "ENT". Press "MAN" to return to normal operating mode. Now the split function will work on any manual or memory frequency on AM, FM or SSB. By simply pressing the "SPLIT" button once or twice to either split+ (to transmit above receive frequency) or to split- (to transmit below receive frequency). When keying the microphone in the split mode you will notice the display

rolls over to show the actual transmit frequency. You may now exchange a semi-private conversation with another station that has this capability.

EXAMPLE

Station A
Receive Freq. 28.3650MHz
Transmit Freq. 28.4350
Split Diff. 00700
"SPLIT+"

Station B
Receive Freq. 28.4350MHz
Transmit Freq. 28.3650MHz
Split Diff. 00700
"SPLIT-"

The station that splits + must subtract the differential from the receive frequency of the station splitting- and enter this frequency as his receive frequency.

The RCI-2950 works very well as a base station. A well regulated 13.8VDC power supply with a minimum of a 10 amp continuous, 12 amp surge is recommended for proper performance, especially if the radio has been "tuned-up". One of the best desk microphone's that works very well is the Turner +3 or +3B although they haven't been made for years there are a lot of them still available. With their compression type amplifier they will hold a higher average modulation giving them a lot more punch and clarity than the standard amplified microphones. The Turner Super Sidekicks work well also although they tend to be a little bassy. The TURNER +2's work well also.

The ASTATIC 1104C's work very well and also have a tone control which allows you to match your voice to the microphone. The ASTATIC D104's and Silver Eagle's work well also if you have a bassy voice as they tend to be a little high pitched.

The SADELTA ECHO MASTER PLUS Desk microphones have a lot of punch and good audio quality, along with VOL & ECHO controls & dual switchable roger beeps. The ASTATIC RD104E Road Devil Amplified Noise Cancelling mobile microphones offer excellent audio quality with voice amplification & reduced noise.

The ASTATIC D104M6B is the best all-around power microphone, they have a lot of punch, very clean crisp audio and just the right amount of bass for a natural sound. The ASTATIC 575VOL-TONE's work very well also and have a tone control also. They do not have as much punch as the D104M6B's. The New ROAD DEVIL noise cancelling power microphones by ASTATIC work very well also.

The SADELTA mobile power microphones are like their base versions, a lot of punch but not a very good quality echo, more of a reverb much like the old spring type reverb's in a electronic version.

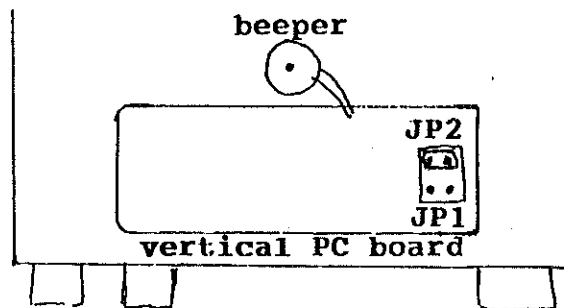
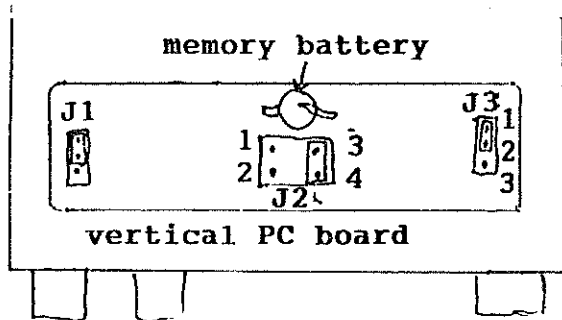
The TURNER RK56 noise cancelling microphones work very well with the 2950's. The TURNER hand held power microphones work well also but are getting hard to find. The ASTATIC 636L noise cancelling microphones work very well to.

If you like echo and want to add a little punch to your audio the LT-2 (Connex) echo boards have absolutely the best quality echo and audio quality available. They are easy to install in the 2950's and many other radio's. With dual control's you have the option of either echo or reverb. With just a slight amount of echo not enough to repeat your word's numerous times they sound very good and add a lot of punch on SSB.

If you want to use the stock microphone but want a little more audio than the radio will produce, the installation of a speech processor will boost the audio quite effectively, especially for DX use. There are several speech processors on the market, of the units costing under \$75 the only one that I have found that works really well is the SP-1 which originally came out in the RANGER AR-3500 radio's.

Another aftermarket item that works very well if properly installed and with a properly tuned radio is the DX-100 module. Which is a bolt on 100 watt amplifier module for the 2950 and other similar chassis radio's. AM-FM dead key will be 2-35 watts, AM swing will be about 30-50 watts from a low key to 65-80 watts from med-hi key. SSB will range from 8-125 watts.

The use of a cooling fan is highly recommended. Installation time is 1½-2 hours. Experience is a must.



Frequency Bandwidth Modification (Old style)

Remove speaker side cover, looking down from front of radio locate the vertical PC board behind the front panel. (See diagram above left). For frequency coverage of 26-29MHz, remove plug over pins 3&4 of J2. For coverage of 26-32 MHz, remove plug over pins 3&4 of J2 and place over pins 1&2 of J2.

Frequency Bandwidth Modification (New style-Ser.#440000 & above)

Remove speaker side cover, looking down from front of radio locate the vertical PC board behind the front panel (See diagram above right). For frequency coverage of 26-29.699MHz remove jumper from JP1 & place over JP2. If you wish to use CB channel 1-40 readout press MAN button, press SHF button to display frequency of the channel. Press MAN to return to manual mode. A jumper may be placed over JP1 & JP2 to give 26-32MHz frequency coverage. If a second jumper is not available a small piece of wire may be soldered across the second set of terminals. While in this mode if you press MAN you will change from frequency to CB channel 1-40 readout. Pressing SHF will display frequency of the channel. Press MAN to return to manual mode.

NOTE:

Some radios may not reach upper frequency limits of either modification above; in which case the upper limit needs to be programmed as follows: Connect power to radio, turn on radio and press the "PRG" button, then press the "SCAN" button. Scan+ should appear on the display. If not, then press the "SCAN" button again. Now the upper limit should appear on the display of either 29.699 or 32.000 depending on the placement of J2. If the display shows less than this, move the frequency up to the proper reading and press the "ENT" button. Now press "MAN" and the radio is operational giving full coverage.

CB CHANNEL MODIFICATION (Old style only)

Remove plug over pins 1&2 of J1 & place over pins 2&3 of J1. You now have CB channels 1-40 including all RC channels shown on the display as (CH 1, CH 9, CH 7A) etc. To operate simply press the "LOCK" button & you will be in the CB mode. Select channels by manually pressing the up or down buttons or with the frequency selector. Once you have selected a channel, press the "LOCK" button again & the frequency of that channel will be displayed. Press the "LOCK" button again to return to channel number display. You cannot shift frequency above or below the selected channel number except on receive with the clarifier. To return to full manual operation, simply press the "MAN" button. Pressing the "LOCK" again will return you to the previously selected CB channel as it is stored in the radio's memory. This in effect gives you another memory selection. This modification does disable the normal frequency lock function of the radio.

NOTE:

Both the new & old style radio's have a small piezo beeper which beeps when pressing any of the buttons on the front panel. The new style CPU also causes a beep when turning on the unit or keying the microphone. The beeper is a small black plastic disc which is found on the vertical PC board (old style) or just above the CPU board (new style) with a red & black wire which solder to the PC board and may be removed if found to be annoying.

Instant Channel 9 Modification (Old Style Only)

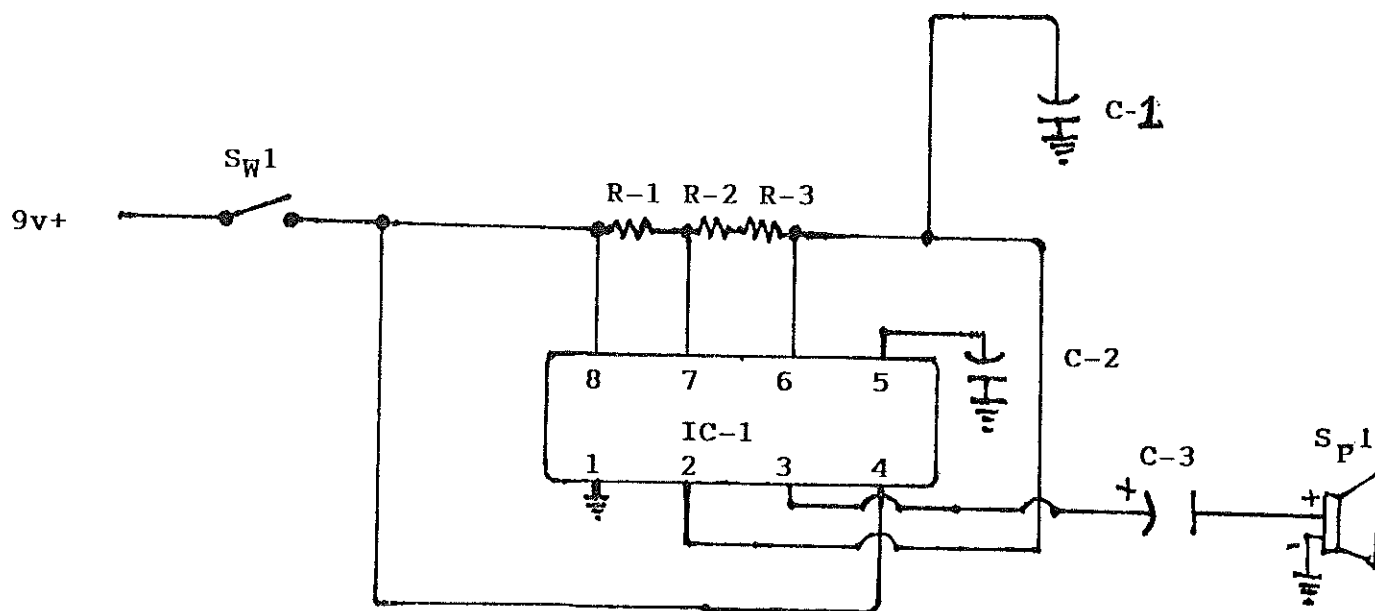
Remove the plug over pins 1&2 of J3 and place over pins 2&3 of J3. You now have instant channel 9. To operate simply press the "R.BEEP" button and the radio will go to CB channel 9, and the display will now read CH9. Press the "LOCK" button to display the operating frequency (27.0650). Press the "LOCK" button again to display the channel number. To return to full manual operation, simply press the "MAN" button. This modification will leave the roger beep on at all times and you will not be able to turn it off.

TALK-BACK MODIFICATION-For full-time talk-back remove D78. For switchable talk-back lift one end of D78, run a wire from the loose end of D78 to a SPST switch, run another wire from the other contact on the switch to the hole that the end of D78 was removed from. If radio squeals from too much mic gain, add a .001MFD ceramic disc capacitor between pins 1&2 on rear of mic jack.

EXTERNAL ANALOG METER MOD-To add a analog meter, a new signal strength meter or one from an old CB may be added, hook (+) to cathode (banded end) of D-14. Hook (-) to board ground. Adjust as follows:

<u>AM</u>	<u>RADIO</u>	<u>ADJUST</u>	<u>REMARKS</u>
Output of signal generator thru .01MFD to ant. input. 28.500MHz, 1000Hz@30% mod. Output 100uV.	28.500MHz AM mode RF GAIN- Clockwise	VR-1	Adjust for S9 on signal meter
<u>SSB</u> 28.501MHz, No mod. Output 100uV	28.500MHz USB mode RF GAIN- Clockwise		Adjust for S9 on signal meter

1 Kc Tone Generator Schematic




R-1 4.7K ohm $\frac{1}{4}$ watt
R-2 68K ohm $\frac{1}{4}$ watt
R-3 2.2K ohm $\frac{1}{4}$ watt


C-1 .02 MFD cer.disc
C-2 .01 MFD cer.disc
C-3 4.7 MFD Elect. 16v

SW1 SPST Switch
IC-1 NE555N or
ECG-955M
SP1 8 ohm speaker

RECEIVER MODIFICATIONS

- 1) PROBLEM-Receiver very noisy & RF GAIN CONTROL has to be rotated 3/4 turn before functioning.
SOLUTION-Locate R78, a 2.2k ohm resistor and replace with the 6.8k(Blue-Gray-Red)ohm resistor supplied.
- 2) PROBLEM-Receiver AGC circuit overloads and temporarily shuts down or distorts on strong incoming signals.
SOLUTION-Locate R49, a 100k ohm resistor and replace with the 47k(Yellow-Purple-Orange)ohm resistor supplied. Also turning down RF GAIN CONTROL when very close to another station will help considerably.
- 3) PROBLEM-Receiver very noisy.
SOLUTION-Remove Q18(2SC1674) and replace with a ECG-23 low noise transistor.
NOTE: The pinout on the ECG-23 is different, Install facing opposite direction of original and insulate and cross emitter & collector leads.
If a ECG-23 is not available a 2SC2026 will work well, after replacing trans, L8 may have to be adjusted($\frac{1}{2}$ -1 turn CCW)


2SC1674


ECG-23
2SC2026

MISC. MODIFICATIONS

PROBLEM-When radio is turned on no audio is heard from speaker. After radio is turned off/on again radio functions normally.

SOLUTION-Locate C107, a .001MFD ceramic disc capacitor located to the left of L17. Change to a 100pF NPO type ceramic disc capacitor. VCO will now have to be readjusted as follows: Place radio in FM mode at 28.000MHz, positive lead of digital voltmeter to J13(Located between L46 & L11), negative lead to board ground & adjust L17 for 1.9VDC.

PROBLEM-Frequency selector knob does not function properly.

SOLUTION-Locate R611, a 47k ohm chip resistor located on the rear of the CPU board (small vertical board in the front center of radio containing the plugs shown in the diagram on pg.3) Viewed from the speaker side looking down R611 is located just to the right of the memory battery. Change the 47k ohm resistor to a 10k ohm. For ease of the change a 10k ohm 1/8 watt carbon resistor may be used.

PROBLEM-Loss of memory, when radio is turned on radio comes up 26.000MHz.

SOLUTION-Replace memory battery located on rear side of CPU board as shown in diagram on pg.3. Follow procedure below:

Remove both covers. Remove all knobs from front. Remove 4 screws on the sides holding front face on. Remove 2 screws on sides holding front chassis on & lean front chassis forward so as to gain access to battery solder joints. Unsolder & remove battery. Before soldering in new battery check voltage, (should read between 3.25-3.5VDC. After battery has been replaced & radio reassembled turn radio on & then off again. Now turn radio on & check all functions, if all normal turn radio back off, disconnect from power source & let sit for 5-10 minutes then check battery voltage which should read the same as when checked previously, If a significant drop in voltage is read there is a problem in the CPU chip or elsewhere & radio will require further service. Normal battery life is 3-5 years.

PROBLEM-Noise Blanker does not function very well.

SOLUTION

- 1) Remove C5, No replacement.
- 2) Replace Q3, a(2SC945) transistor with a 2SC1730 transistor.
- 3) Replace C7, a(.0047MFD ceramic disc capacitor(marked 472) with a .047MFD ceramic disc which if coded would be marked (473) May already be changed at factory)
- 4) Replace C16, a(2.2MFD) Electrolytic capacitor with a 10MFD 16vdc Electrolytic capacitor. NOTE: Late model radio's may already have this change at factory.
- 5) Retune L1 & L2 for minimum noise, either ignition or atmospheric. A small amount of adjustment is required.

MISC.MODIFICATIONS CONT.

For additional line noise filtering and power reserve for transmitter peaks, remove C322,a(2200MFD)electrolytic capacitor and replace with a 4700MFD 16v electrolytic capacitor. Then solder the 2200MFD cap removed from C322 and solder it across the + & - terminals on the 3-pin power jack on the rear of the radio. **NOTE:** When installing the 4700MFD capacitor it may be necessary to unsolder the choke on the negative terminal of the power jack and move it over to the right around the relay to make room for the larger cap. then re-solder the choke. **NOTE:** Some 4700MFD capacitors are to large to be used in place of C222 on board & may be soldered across the power jack instead.

RECEIVER ALIGNMENT- Center of normal operating frequency.

AM

Adjust L8 for best signal with least distorted waveform, **DO NOT** adjust L8 for maximum or degraded receiver performance will be experienced.

Adjust L9,L11,L12,L13,L14,L4,L3,L5 & L6 for maximum.

SSB

Adjust L15 & L16 for maximum. L15 & L16 mat be offset from maximum slightly to lower receiver noise, adjust just enough to lower noise level without loosing any appreciable signal.

FM

Adjust L7 for maximum.

RCI-2950 TRANSMITTER MODIFICATIONS & TUNE UP

- 1) To extend the **Life & Performance** of the driver & final transistors due to much better heat transfer, replace the plastic insulators with **MICA** insulators & plenty of heat sink compound. After replacing insulators & before replacing retaining screws gently pry back on the bottom of the transistors to firmly seat them against the rear chassis & to take up the difference from the thinner insulators. **NOTE:** After transistors are secure remove the shorting bar from TP1, 2&3 and take a ohm meter and check between each transistor tab and chassis if a reading is indicated on any of the tabs the tab is shorted & you will have to unsolder that transistor & move it then resolder it & check until no reading is shown.
- 2) To decrease transmit voltage drop & increase heat dissipation & durability Remove Q51,a (2SB754 7amp 60 watt transistor) and replace with a ECG-37 or equivalent 12 amp 100 watt transistor and MICA insulator.
- 3) Locate Q53 and remove, replace with the transistor supplied. This mod will prevent overheating & failures at increase power levels and increase transmit audio quality & low power swing on AM.
- 4) For a higher carrier level & SSB power locate C261 and parallel on the underside of the board with one of the capacitors supplied. Take the other capacitor supplied and parallel C262 in the same manner.
- 5) Locate R178 (4.7k ohm)&=replace with the 3k ohm(Orange-Black-Red)resistor supplied. This modification will drastically improve low power swing on AM.
- 6) Remove R194 (10k ohm)resistor & replace with the 4.7k resistor (Yellow-Purple-Red) removed in step 5.
- 7) Remove R281 (4.7k ohm) resistor & replace with the 10k ohm resistor (Brown-Black-Orange) removed in step 6.
- 8) For Increased output on AM & SSB C270 may be paralleled with a 470pF-1kv ceramic disc capacitor.

RCI-2950 TRANSMITTER TUNE UP
RCI-2970 TRANSMITTER TUNE-UP NEXT PG.

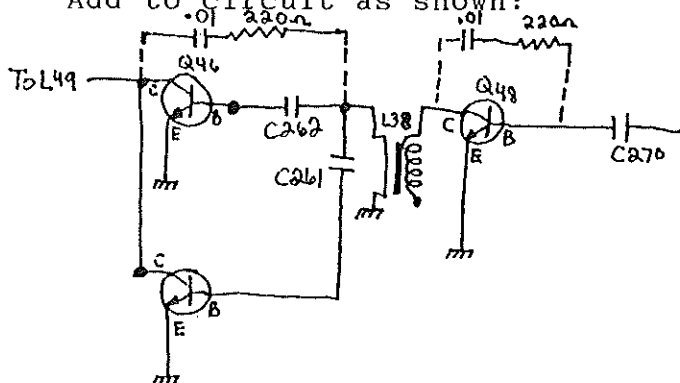
- 1) Connect radio to a regulated 13.8vdc power supply with a 8-10 amp continuous rating.
- 2) Connect a 50 ohm dummy load with a 75watt or greater continuous rating & a peak reading watt meter to the antenna connector.
- 3) Settings

Frequency	Center of normal operating range
Mic Gain	Maximum
RF Power	Maximum
Mode	USB
VR-14 & VR12	Mid range
- 4) Key the transmitter with a 1KHz tone & adjust **L34,L46,L47,L48 & L19** for peak reading. Again with tone key transmitter & adjust **L34** for peak reading. **DO NOT** Adjust **L34** more than 1/8 inch below top of coil as core could drop down into coil if enough threads are not left in contact. Also if **L34** is adjusted to far down in coil transmitter may go into self oscillation. If core is loose in coil lacquer or wax when finished.
- 5) Change mode selector to AM, key transmitter with tone and adjust **VR-14** for maximum forward swing (90-95% modulation) If available use oscilloscope for peak reading without flat-topping.
NOTE: On some units if **VR-14(AMC)** is opened all the way maximum swing will actually be decreased.
- 6) Key transmitter and adjust **VR-13** for maximum AM dead key, if maximum reaches 18watts are higher back down to 14watts. If maximum dead key is less than 18watts back down to 12watts. **DO NOT** run **VR-13** at maximum.
- 7) Place mode selector in USB and with 1KHz tone adjust **VR-12** for maximum.
- 8) Rotate **RF POWER CONTROL** to minimum and and adjust **VR-16** fully clockwise.
- 9) Place mode selector in AM mode, key microphone and adjust **VR-15** for a 2-4watt dead key. This setting depends on if radio will be used with an external amp or not, If using an external amp adjust **VR-15** for the input desired then when **RF POWER CONTROL** is set at minimum power level will be set for input to amp & when set to maximum radio can be used by itself. Just remember to turn down the power before engaging amp or amp will be damaged or worse. If using a high-drive amp power levels can be set accordingly.

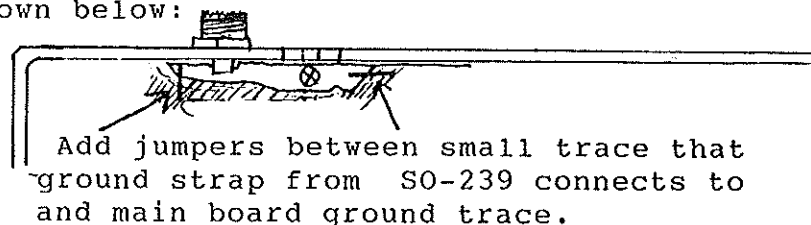
Open **RF POWER CONTROL** Back up to maximum, AM mode from 12-14watt dead key radio should produce 30-40watt swing.
 SSB mode should yield 40-50 watts PEP.

When using some external linear amplifiers it is sometimes necessary to add some negative feedback to the driver & final transistors. This modification is also necessary when installing the DX-100 modules.

Parts required: (2) 220 ohm 1/4 watt resistors & (2) .01uF cer. disc capacitors
 Add to circuit as shown:



In order to prevent unwanted ground loops because of the floating chassis design of the 2950 add two jumpers as shown below:



RCI-2970 TRANSMITTER MODIFICATIONS & TUNE-UP

- 1) Locate Q53 and remove, replace with the transistor supplied this mod. will prevent over heating at increased power levels and increase low power AM swing. Also improved audio quality will be achieved.
- 2) To decrease transmit voltage drop & increase heat dissipation & durability Remove Q51, a (2SB754 7amp 60 watt transistor) and replace with a ECG-37 or equivalent 12 amp 100 watt transistor and MICA insulator.
- 3) Locate C261 and parallel on the underside of the circuit board with one of the 100pF 1Kv ceramic disc capacitors supplied.
- 4) Locate R178 (4.7k ohm) & replace with the 3k ohm (Orange-Black-Red) resistor supplied. This modification will improve low power swing on AM.
- 5) Remove R291 (10k ohm) resistor this will improve AM swing on the 2970.
- 6) Remove R281 (4.7k ohm) resistor and replace with the 10k ohm resistor (Brown-Black-Orange) removed in step 5. (Improves low key AM swing)
- 7) Remove R194 (22k ohm) resistor and replace with the 4.7k ohm resistor removed in step 6. (Will improve audio response & modulation.)
- 8) Connect radio to a regulated 13.8 VDC power supply with at least a 30amp continuous rating. Connect a 50 ohm dummy load with a 250 watt continuous rating and a peak reading watt meter to the antenna connector.

9) Settings

Frequency	Center of normal operating range
MIC Gain	MAX
RF Power	MAX
MODE	USB
VR-12 & VR-13	Midrange

Key the transmitter with a 1KHz tone & adjust L43, L46, L47, L48, & L19 for peak reading. Again with tone adjust L34 for peak reading. DO NOT ADJUST L34 more than a 1/8 inch below the top of the coil as core could drop into coil if enough threads are not left in contact. Also, if L34 is adjusted to far down into coil transmitter may go into self-oscillation. Lacquer or wax core in place when finished.

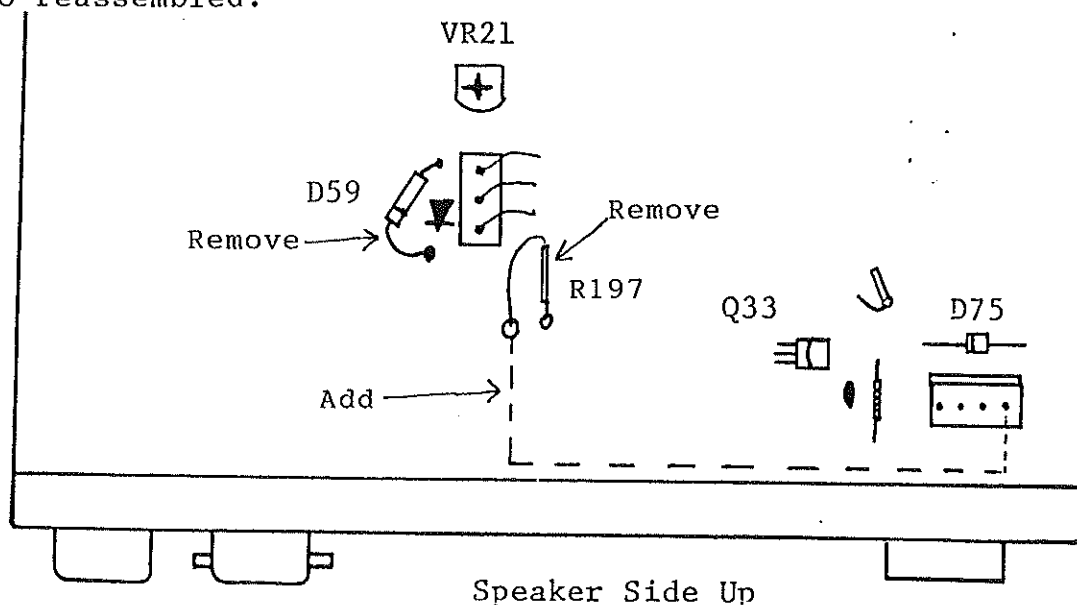
- 10) Adjust V-13 for 50watt dead key with RF Power Control at maximum. (AM Mode) Do not adjust VR-13 for more than a 50watt dead key or else swing will be decreased. In some cases in order to get maximum swing VR-13 will have to be set at 40 watts.
- 11) Adjust VR-12 for 150-200 watts PEP. (USB Mode)
- 12) Adjust VR-16 fully clockwise.
- 13) Place on AM Mode, rotate RF POWER CONTROL to minimum and adjust VR-15 for a dead key of 2-4watts.

Open RF POWER CONTROL Back up to maximum, AM Mode, from 50 watt dead key modulation should produce 75-150 watts of swing. SSB Mode should yield 150-200 watts PEP.

The addition of an external cooling fan is recommended as additional output power will produce more heat than heat sink can effectively dissipate.

FREQUENCY DISPLAY COLOR CHANGE

If desired, frequency display color may be changed. To do so remove top and bottom covers, knobs & face plate. Then remove LCD board and unsolder the display lamps & remove. Bulb covers may now be replaced with color desired and radio reassembled.



CLARIFIER MODIFICATION

This modification will enable the clarifier to function in both the transmit and receive modes. Giving approximately 850HZ above and below center frequency.

1. Remove both covers
2. Remove D59, may be in wax, and R197. See diagram
3. Cut a 5" piece of 20-22 gauge insulated wire and strip both ends.
4. Connect as illustrated in the diagram. Looking down, connect one end of the 5" wire to the left hole of the removed R197 and the other end to the far right hole of the unused 4 hole box outlined on the circuit board.
5. Clarifier modification is now complete. If the radio was on frequency to start with no further adjustments will be necessary. However many of the radio's are off frequency at least on one mode when they are new and as they age and component values change occasional frequency adjustment will be required.

Adjust as follows: L27 AM L28 LSB L29 USB

To **INCREASE CLARIFIER RANGE**-Change D-67 to a super clarifier diode or place a 3.3uH-10uH RF choke between the anode of D67 & ground.

ROGER BEEP MODIFICATION

The Roger Beep on these units hit hard and fast. If you would like to extend the length of the beep you may do so by changing the value of C146 a 2.2 MFD 25v electrolytic capacitor.

3.3 MFD Longer beep

4.7 MFD Much longer beep

10 MFD Extra long beep

MICROPHONE WIRING

RCI-2950	1-Ground	Shield
stock	2-Audio	Yellow
mic	3-Transmit	Red
	4-Receive	Black
	5-Channel Up	White
	6-Channel Dn	Blue

Turner 4-wire	Turner 6-wire	Astatic 4-wire	Astatic 6-wire	Palomar	Palomar EC-2018TB & EC+3B
1-Shield	SH&Red	Shield	SH&Blue	SH&Black	Black&SH
2-White	White	White	White	Red	Red
3-Black	Blue	Red	Red	White	White
4-N/C	N/C	N/C	N/C	N/C	N/C
5-N/C	N/C	N/C	N/C	N/C	N/C
6-N/C	N/C	N/C	N/C	N/C	N/C

Sadelta Echo master+ ME-3	Galaxy DC-512	Cobra 4-wire Pwr.Mic	Cobra CA-61	Cobra CA-70, 71&72	Realistic Power Mics
1-Shield	Shield	Shield	SH&Blue	SH&Blk	Shield
2-White	Yellow	White	White	Red	White
3-Brown	Red	Red	Red	White	Red
4-Green	Black	Black	Black	Blue	Black
5-N/C	N/C	N/C	N/C	N/C	N/C
6-N/C	N/C	N/C	N/C	N/C	N/C

SDM-1000	Workman Superstar Dm-461	Vanco ECHO Mic's
1-SH&Black	SH&Blk	SH&Black
2-Green	Red	White
3-White	White	Red
4-Orange	Blue	Blue
5-Yellow	N/C	N/C
6-Red	N/C	N/C

INTERNAL ALIGNMENT POINTS

VR-1	AM receive meter cal.	VC1	10.240 crystal trimmer (X1)
VR-2	SSB receive meter cal.	VC2	10.240 crystal trimmer (X2)
VR-3	SSBsquelch threshold	VC3	Final bias
VR-4	AM squelch threshold	L27	AM frequency adjust
VR-7	Carrier balance	L28	LSB frequency adjust
VR-8	Transmit meter cal.	L29	USB frequency adjust
VR-11	Driver bias		
VR-12	ALC(SSB high power)	Q46	Final trans. 2SC2312
VR-13	AM (High power)	Q47	Final trans. 2SC2312
VR-14	AMC	Q48	Driver trans.2SC2166
VR-15	AM (Low power)	Q49	Predriver trans.2SC2314
VR-16	ALC (SSB low power)		