

EXTENSION OF FREQUENCY COVERAGE ON PACE 8092

PURPOSE:

The purpose of this modification is to provide additional 40 channel segments either above or below the original 40 CB channels.

PROCEDURE:

The basic modification of the 8092 simply requires the replacement of crystal Y2. The original frequency of Y2 is 12.25MHz which provides frequency coverage from 26.965MHz to 27.405MHz. The frequency scheme behaves as follow:

$$\text{Output frequency} = (\text{Y2 crystal frequency} \times 3) + .91\text{MHz} - 10.695\text{MHz}$$

(At channel 1)

$$\text{For original crystal: } (12.25\text{MHz} \times 3) + .91\text{MHz} - 10.695\text{MHz} = 26.965\text{MHz}$$

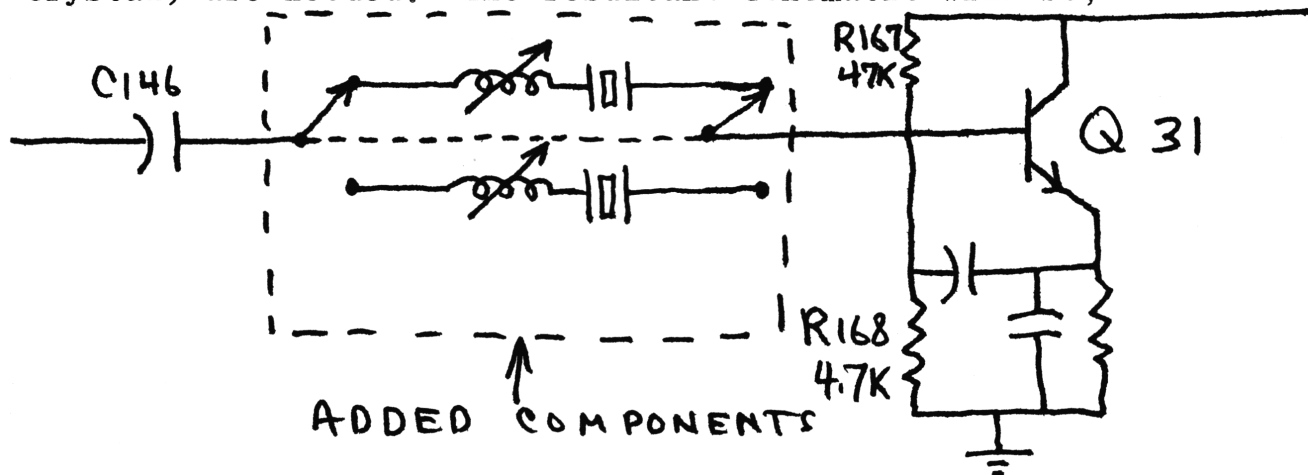
To choose another frequency segment, the frequency of Y2 must be calculated. $Y2 = \text{Output frequency (at CH-1)} + 10.695 - 0.91 \div 3$

So, for example, if the channels directly above the CB band were desired (i.e. Ch-41, 42, etc.), the frequency of Y2 would be calculated as:

$$Y2 = 27.415\text{MHz} + 10.695\text{MHz} - 0.91\text{MHz} \div 3 = 12.40\text{MHz}$$

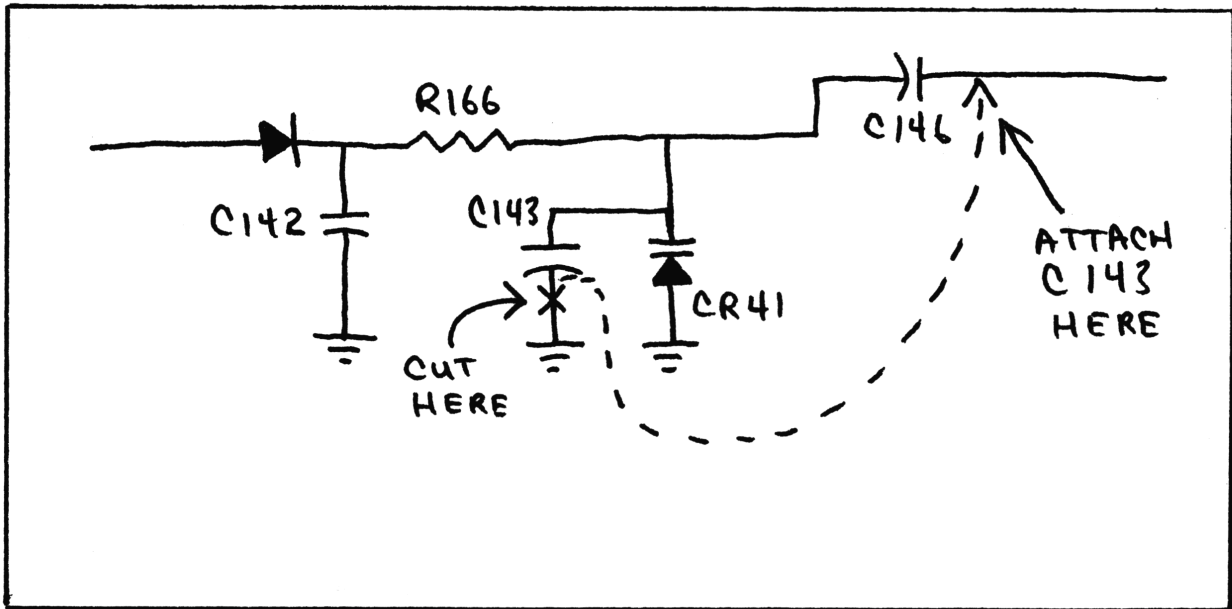
Replacement of Y2 with a 12.40MHz crystal will result in coverage of the segment 27.415MHz to 27.855MHz.

If it is desired to have both the original 40 channels and an additional 40 channels, it is possible to use the PA-CB slide switch on the front panel as a frequency selection switch. To accomplish this, the switch must be disconnected from the original circuitry and the circuitry hard-wired for CB operation. After the switch has been cleared, it is possible to use two of the three poles of the switch for crystal switching. The best way to mount the switching system is to mount components on a small perf-board. Since crystal frequencies are not always exact, tuning of each crystal is required. Therefore, the original tuning coil L34 should be shorted, and two additional 10uH coils (one for each crystal) are needed. The resultant schematic will be;



The circuit board should include the two crystals and two coils. The coil-crystal combinations are wired to the throws of the PC-CB switch. The wipers of the switch should be wired to the original Y2 mounting holes in the 8092 circuit board. The added circuit board should be installed as close to the PA-CB as possible and with wire as short as possible to minimize frequency variations caused by stray inductance.

Once the circuit is installed, the exact operating frequency must be adjusted. This can be done by transmitting and adjusting the two added coils for exact frequency. If the frequency will not adjust high enough, perform the following modification:



Remove C143 (10pF) and reposition it so it is wired in parallel with C146 (22pF). This will bring the frequency up several KHz. Readjust added coils for exact frequency.

Using the previous example, the PA-CB switch will now select channels 1 through 40 and 41 through 80 in the two positions of the switch.

When this modification is performed along with the transmitter slider modification, continuous coverage between channels 1 and 80 is possible.