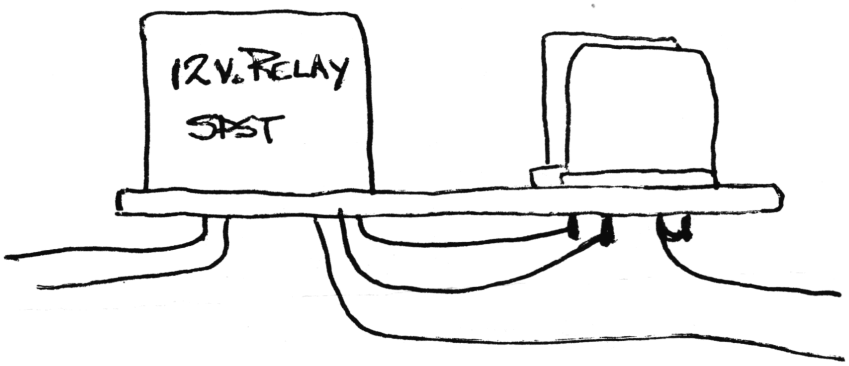
46 CHANNEL ADAPTOR

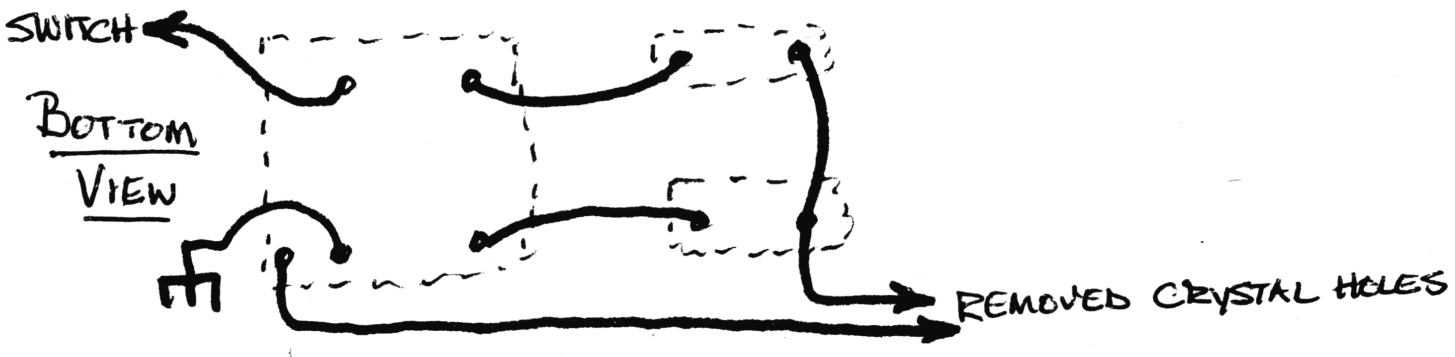
As most of you know, crystals cannot be switched with long distances of wire because of the capacitance of the wire. In many cases the crystal will either stop oscillating or will be off frequency. This adaptor will switch the crystals with a relay and the switch can be operated with any length of wire desired.

Many crystal synthesizer use what are known as IF crystals. These mix with other crystals in the radio to provide a difference in transmit and receive frequencies. If one of these two crystals were removed, the unit would not transmit on any channel, but would receive. If both were removed the unit would not transmit or receive. If the two crystals were replaced with two crystals 300 KHz lower than the original frequency, the unit would transmit and receive 300 KHz higher that the normal 23 channels. This is the basic idea behind this adaptor. Of course, two of the adaptors will have to be used to switch the two crystals, but the whole thing can be built for less than fifteen bucks including the two special crystals. The adaptor can be made from a Radio Shack mini relay and a piece of small hole vector board.

ORDERING SPECIAL CRYSTALS

Most AM units use two IF crystals, the most common is 11.275 MHz and 11.730 MHz. Therefore, the two special order crystal frequencies will have to be 10.975 MHz and 11.430 MHz respectively. These can be ordered from any crystal manufacturer, but be sure to specify the type of unit it is for, a frequency tolerance of .005%, and the type of holder which is HC25/U in most cases.





There are many ways of increasing the channel capability of 23 channel radios. The method shown here can be added to almost any CB radio providing there is space enough. Most radios use six master crystals which control transmit and receive for four channels each. In other words, if say X1 were removed, channels one, two, three, and four would drop out. If X1 were changed to a higher frequency, channels one through four would become some other channels. By using this idea and removing the wires from each of the first four master crystals and wiring them to a switch, the original crystals could be switched in, or a new set could be used just by flipping the switch. This would mean that on the other side of the switch, channels one through sixteen would become new channels. All that is needed for this is a four pole double throw switch and four new crystals. The wiring for this is shown in the drawing above.

CRYSTAL ORDERING INFORMATION

Due to the numerous frequencies used in different units, it is not possible to give all the frequencies listed, so therefore, I will show you how to figure your own for any set. The information here is for the new 40 channels for 1977.

First find out the frequencies for the six master crystals in your radio from the schematic. By adding the numbers below to the frequency of the crystals, the new frequency can be derived. The added numbers used are the same for all units.

EXAMPLE: Hy-Gain 670

			Add this		New Frequency
X1	23.290	+	.270	=	23.560 MHz
X2	23.340	+	.250	=	23.590 MHz
X3	23.390	+	.250	=	23.640 MHz
X4	23.440	+	.250	=	23.690 MHz
X5	23.490				
X6	23.540