



# ORgy Notes

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## Variable Tuning for the TVCX-xS ATV Downconverter

Some have expressed a desire to have the best of both worlds as far as ATV frequency selection - crystal controlled and variable tuning. The current production P. C. Electronics ATV downconverter has the 5 standard USA ATV channels switch selected and programmed to output on a TV channel crystal locked with a synthesizer. This way there is no drift with temperature or accidental nudge of the variable tuning knob to distort or loose the picture. It also allows splitting out to multiple TV's or VCR's which is difficult with a tuneable downconverter given differences in the automatic frequency control range between TV receivers.

Variable tuning allows tuning in non-standard ATV frequencies or fine tuning into the peak of a narrow band TV channel filter to pick up sync bars when searching for DX.

The local oscillator frequency in the TVCX-xS series ATV downconverter is controlled by the DC voltage applied to a varicap. The synthesizer presents an error voltage from 0 to 8V that drives the varicap to the selected frequency and then maintains the locked DC voltage. In the tuneable downconverters, this control voltage was done with a 10K pot connected to the regulated 8V.

Switching between the 5 crystal controlled channels and variable tuning is easy as can be seen from the schematic. There may not be a good space on the front panel and a side panel may have to be used for the pot or swap with the switch. Electrical modification is an easy matter of just cutting the exposed test point - TP - 10K resistor lead about 1/8th of an inch from the resistor body and running two leads to the rotary switch. In switch position 6, no channels are selected at the micro processor

inputs that tell the synthesizer what division of the oscillator to count down to equal the 4 MHz crystal reference, and the other bank of the switch connects the wiper of the added 10K tuning pot to the varicap rather than the synthesizer error voltage. There is a regulated 8 Vdc solder pad on the downconverter board that is jumpered to power the preamp stage that can be used to connect the 2.2K resistor to.

