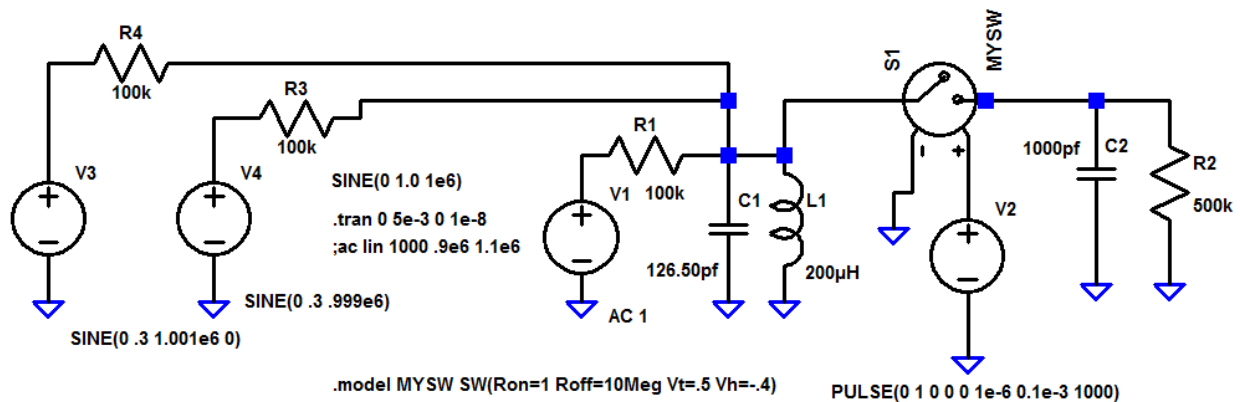


RE: Tikker (Ticker) Revisited, 120409

Phil Anderson WØXI

The following outlines a quick simulation of an ~ideal RF tank sampling switch, i.e. the so-called Tikker Detector.



The three sources at the left generate an AM signal at 1 MHz with a 30% 1 kHz modulating tone, as noted in the first graph of the voltage across tank C1-L1. V2 causes ideal switch S1 to sample the tank's voltage at 10 kHz with a 1 microsecond pulse (our Tikker contact wheel if you will).

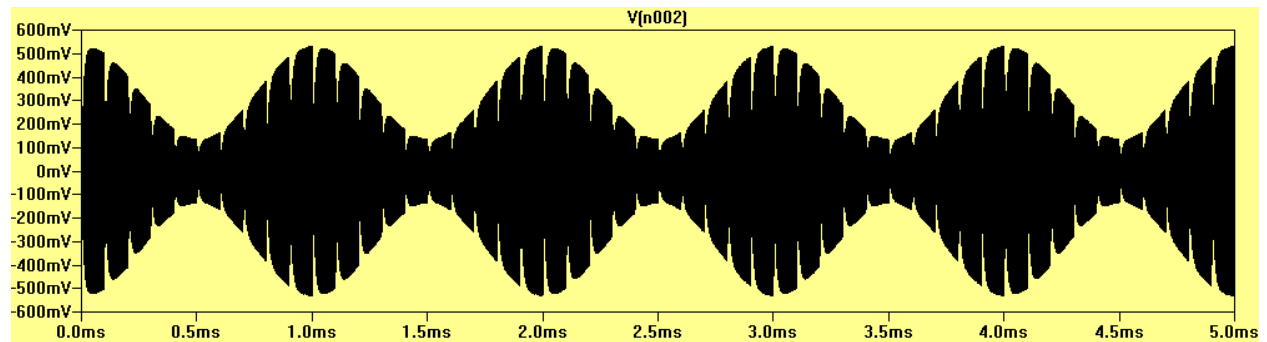
Graph 2 clearly shows that the modulating tone is reproduced, albeit roughly, at the "detector" output, wherein the voltage across R2 is roughly 50 mvpp.

The sampling voltage is noted in Graph 3.

It is interesting to note that the output amplitude is messy and a small fraction of the modulating tone. In addition, it is clear that the switch and RC

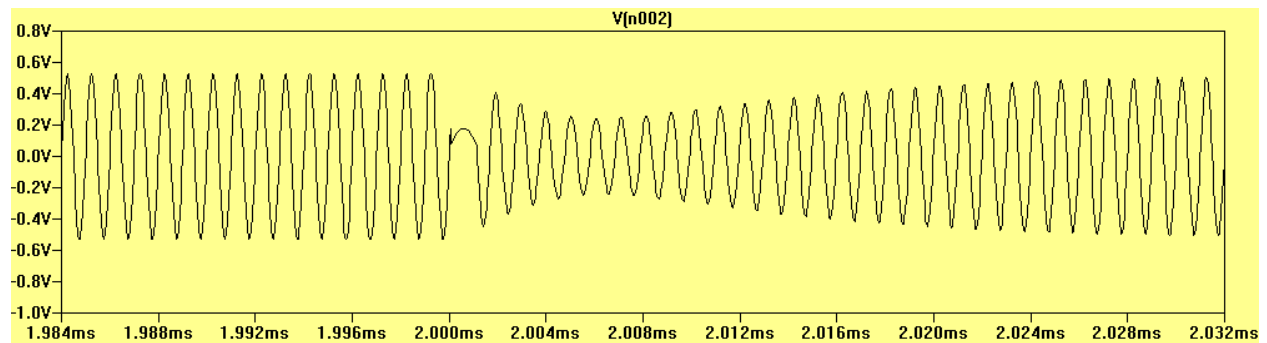
load heavily distorts the envelope of the AM signal at the tank circuit. While the switch is on, the load capacitor, C2, shifts the resonant frequency of the tank. Graph 4 notes the current being sucked from the tank while S1 is closed.

Graph 1

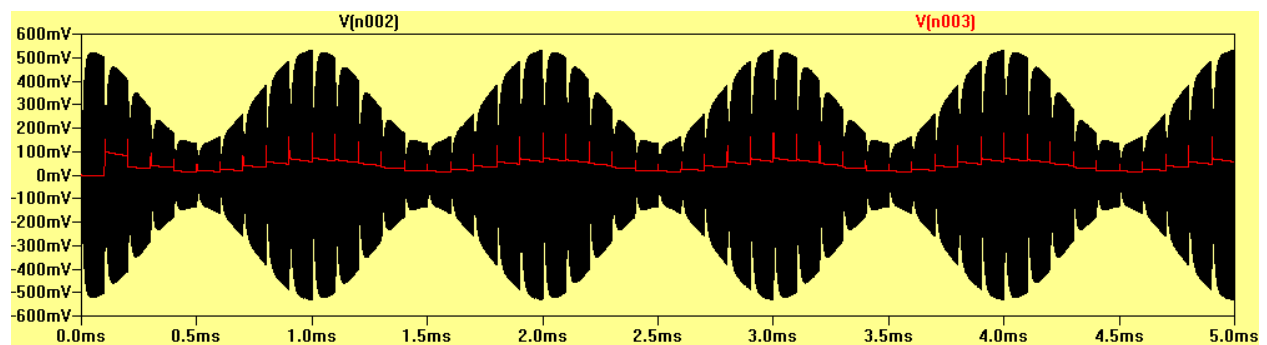


An expansion of graph 1 at 2 ms shows more detail:

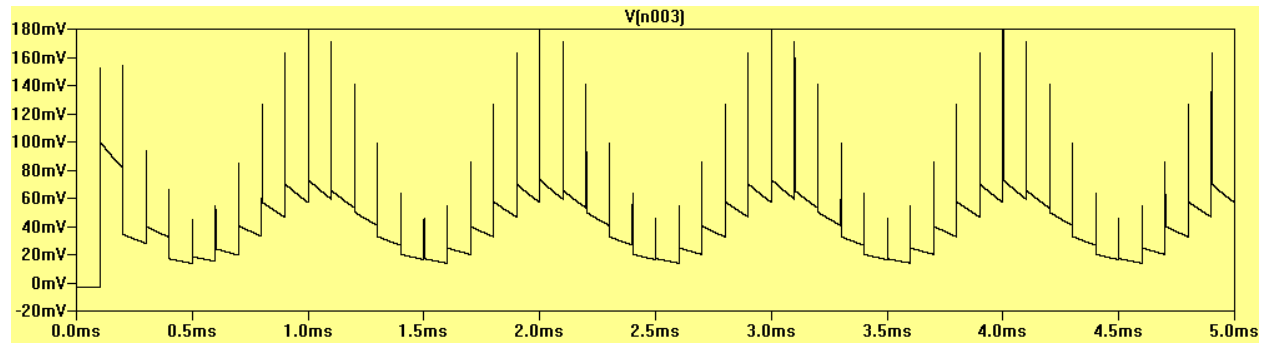
Graph 1B



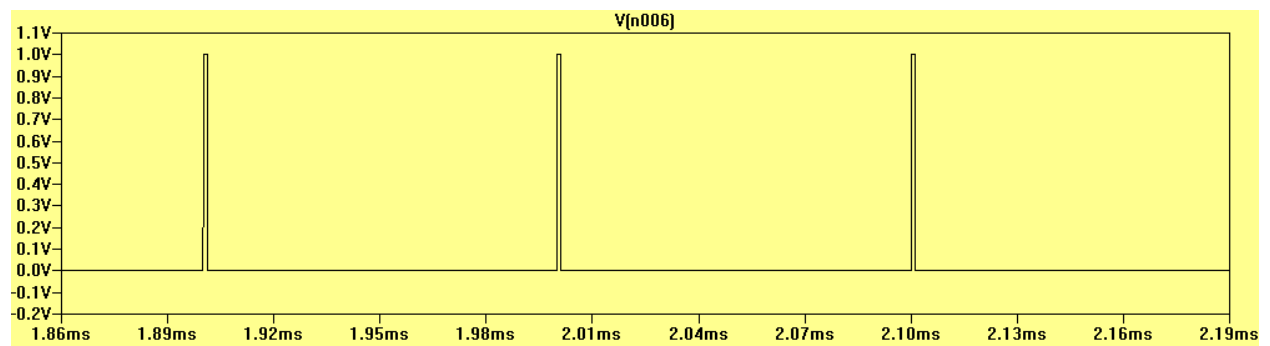
Graph 2



Graph 2B, expanded near 2 ms, shows "output" across R2.



Graph 3, the sampling pulse.



Graph 4, Sucking current from the tank during contact

