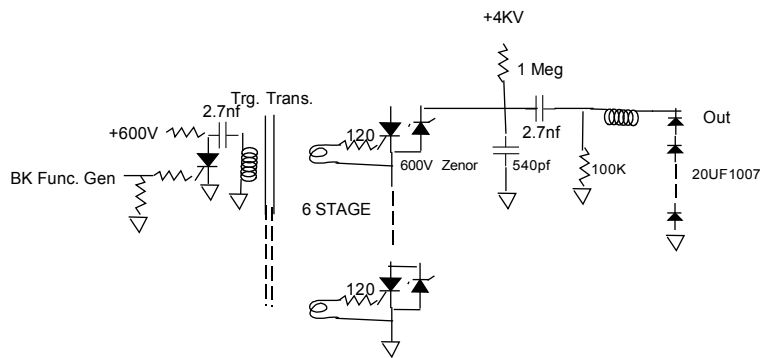
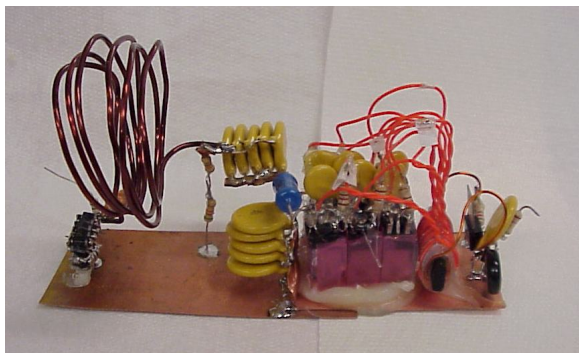
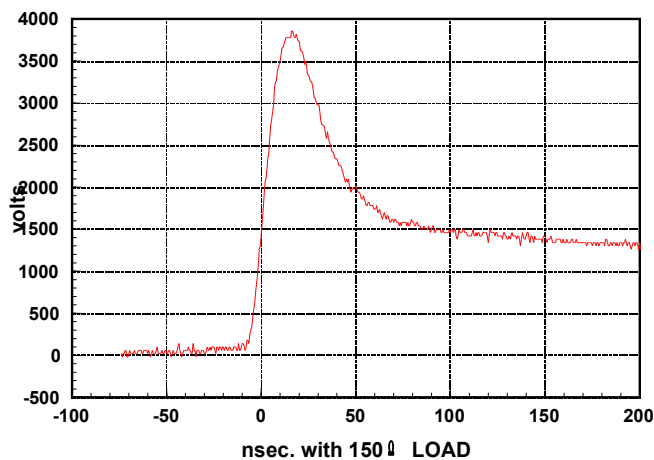
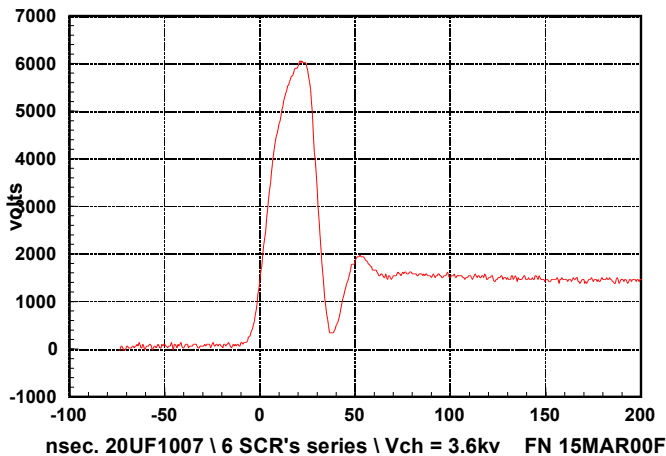
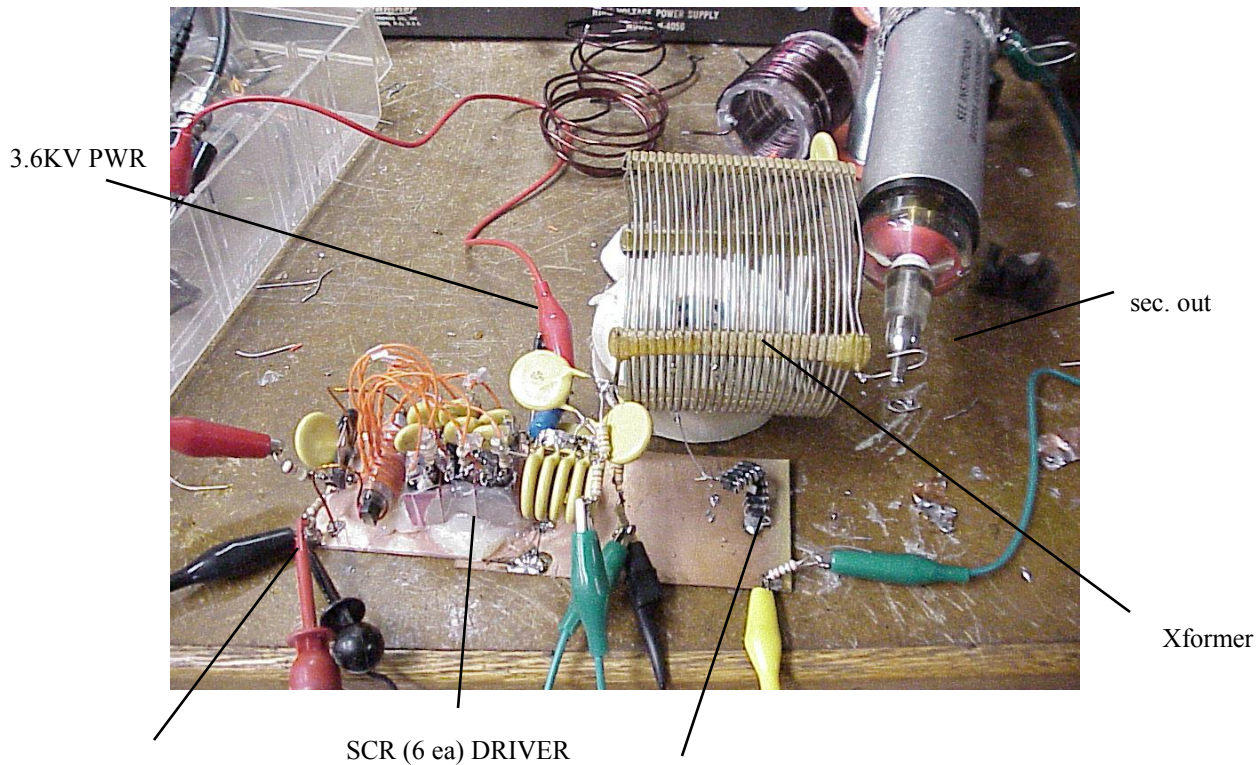


A total solid state switch was used in the DOS to replace the spark gap in the HV design. The SCR switch consists of six SCRs connected in series; each shunted with a 600 V Zenor diode. Each is triggered by the secondary of a common trigger transformer consisting of one primary winding and six secondary winding . A single SCR is used for dumping a 2.7nf capacitor, charged at 600V, into the primary. Thus when the BK function generator produces a positive pulse the SCR is fired. The remaining circuit relating to the DOS operation has been previously described. A photo and the accompanying schematic is shown below:



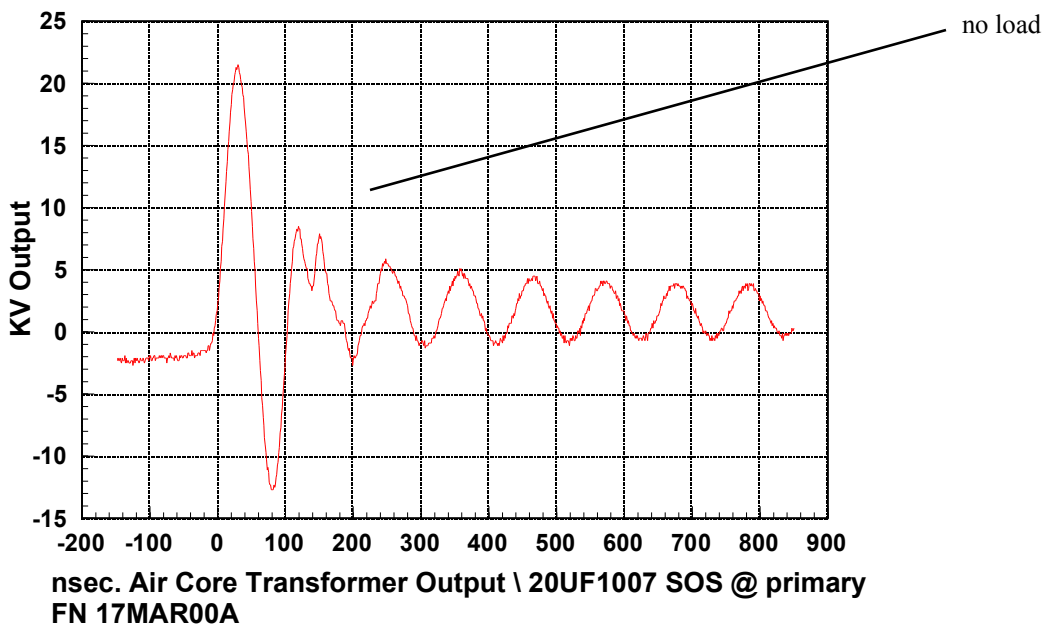
The waveforms shown below show the DOS output with and without a resistive load. As can be seen the output voltage is almost twice  $V_{ch} = 3.6KV$ .





B@K Func Gen Trig.

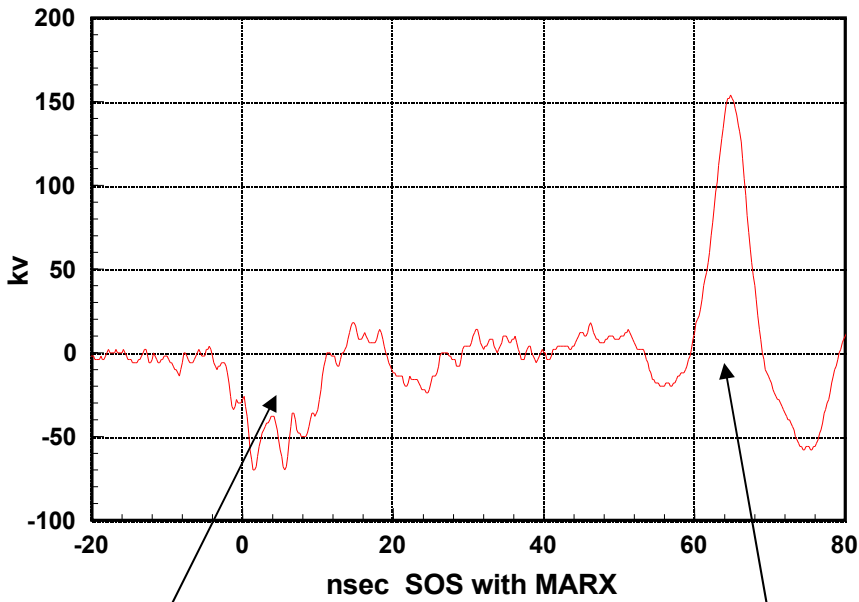
20UF1007 SOS Xformer Primary Interrupter



The above experiment uses the all solid state DOS platform described in FN 14MAR00A. The inductive load is replaced with the primary winding of the auto air core step up transformer. For a  $V_{ch} = 3.6KV$  a 22KV output appears at the secondary winding. In principle the device uses the flyback method of transformer excitation. Inductive energy is stored in the primary during reverse pumping. When the diode opens the counter EMF appearing at the primary is stepped.



L1 => restoring force for reverse pumping



Solid State Closing fwd pump

Solid State Opening reverse pump

