6 June Ferroelectric Experimental Results
Simple Diode Configuration
Test Anode at 12KV 1.7nF

6 June 2013

Photo 1 Anode Side of Setup\ change to 1.7nF Anode Capacitor\ Increase Cathode Drive Peak

1000X DSO Probe @ Anode/
higher voltage rating

1000X DSO Probe @ Cathode

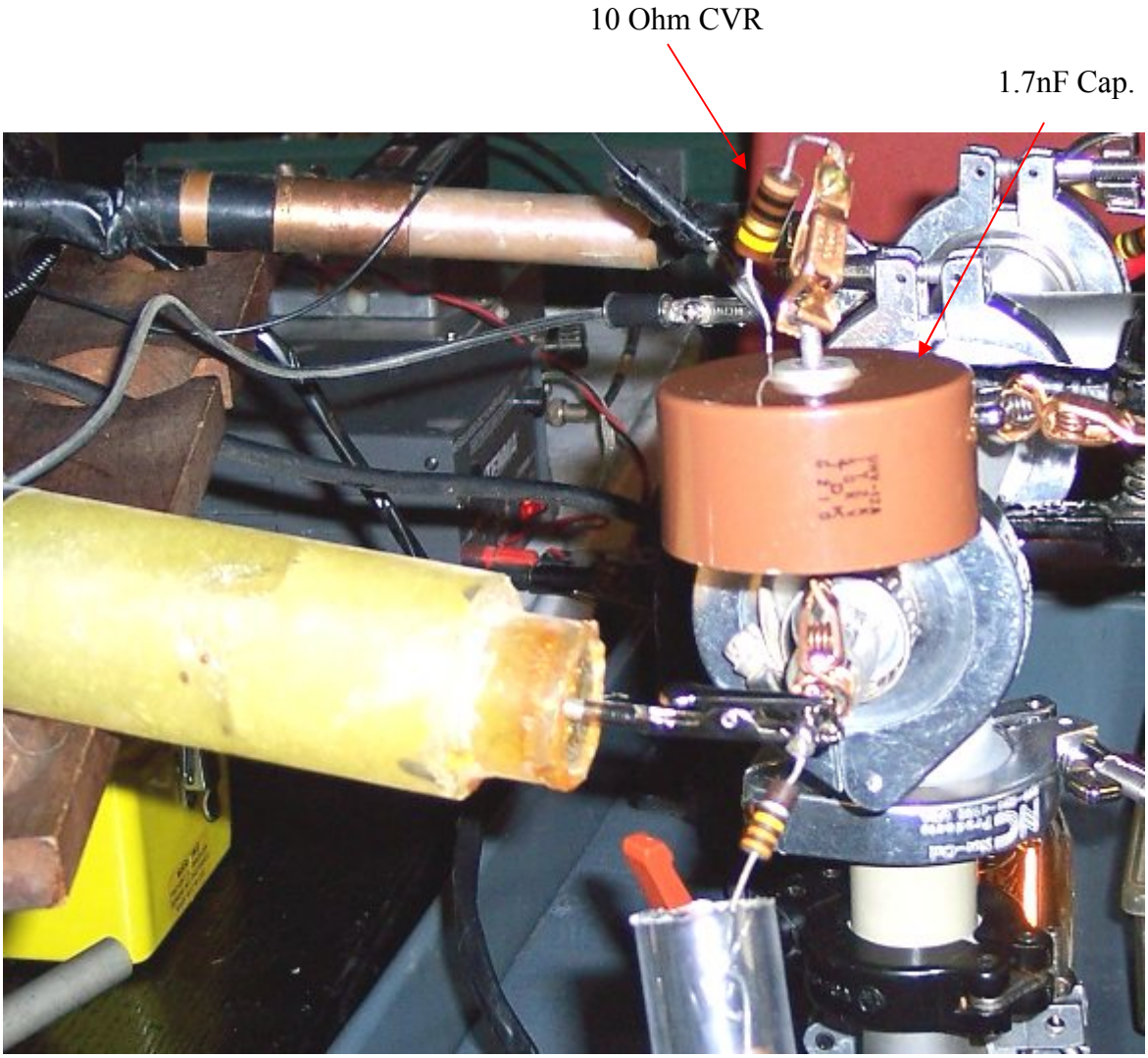
In previous test , 5 June 13, was having problem maintaining 10 Ohm load for the PFN cathode driver; decided to increase load resistance to 33 ohms allowing the peak voltage drive to increase (Photo 6); possibly increase electron emission.

The ION gauge reading during the beginning of the experiment was ~ 7 E-6 Torr and after 3 hours later ~ 3.5 E-6 Torr (Photo 7).

The system was operated for about 3 hours at 12KV (anode to GND switching Photo 3)at a pulsed peak current of 150 Amps (Photo 4). I didn't observe any sputtering; only tiny scinilations.

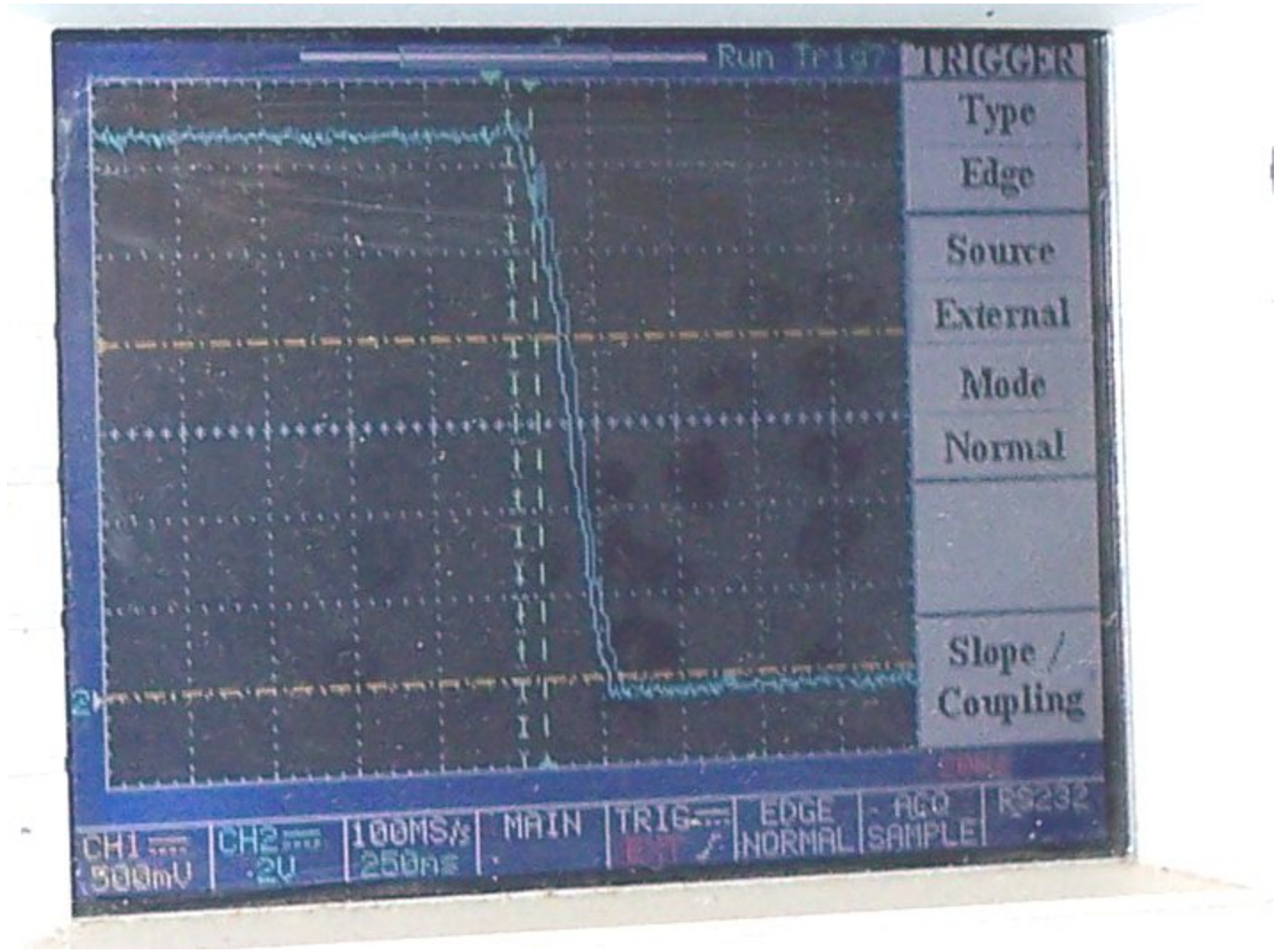
I did test it at 22KV; placed my Geiger counter at the observation window; got a click in step with the trigger.

Photo 2 Close up Anode Electrical Connection



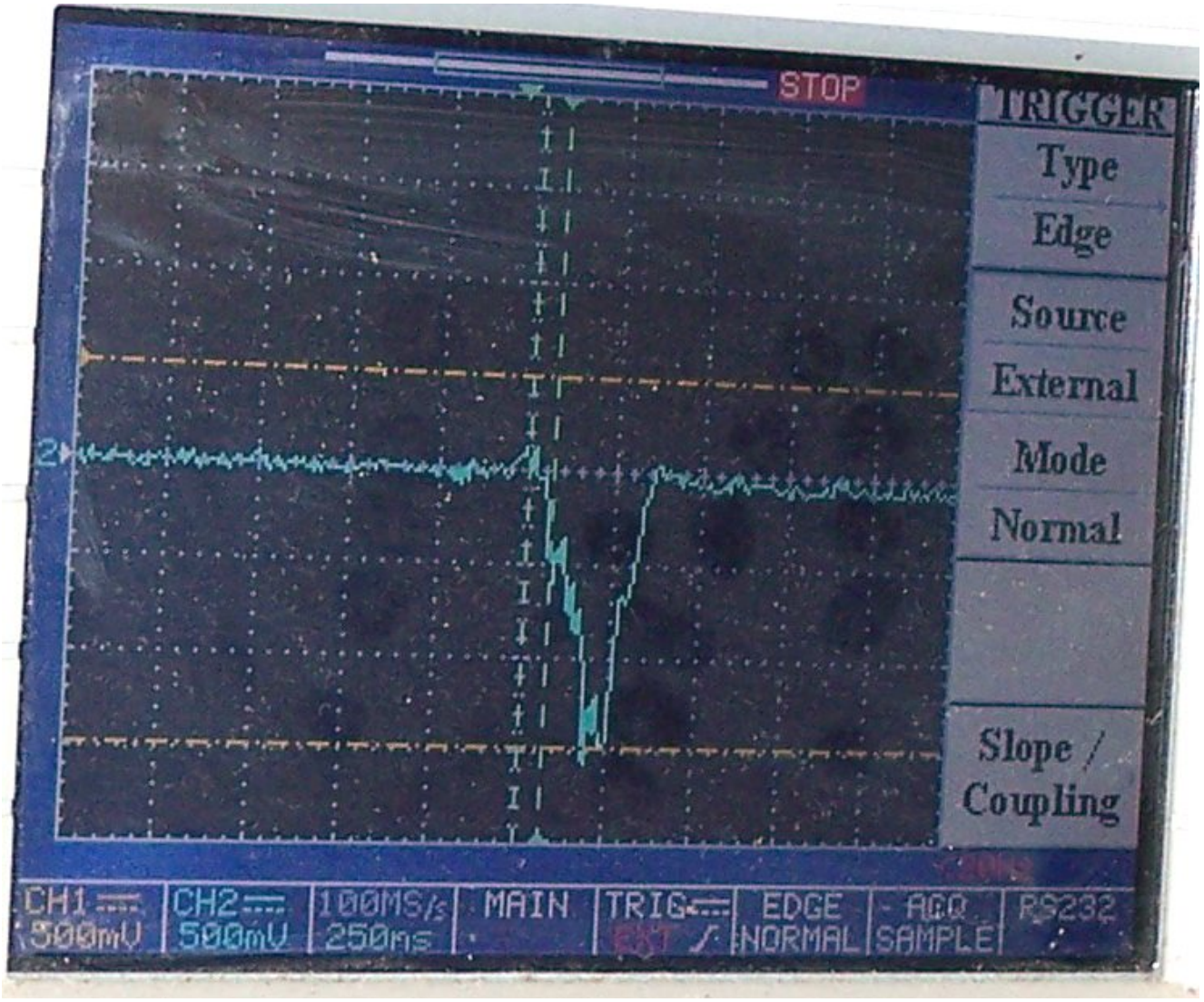
Note that the CVR resistance value was periodically ; stayed close to 10 Ohm value throughout the experiment

Photo 3 DSO Waveform Anode to GND



2KV /Div 250ns/Div

Photo 4 DSO Waveform / CVR



500V/Div => 50AMPS/Div ==> 150 AMPS

Photo 5 Cathode Side of Setup

Change from 10 to 33 Ohms

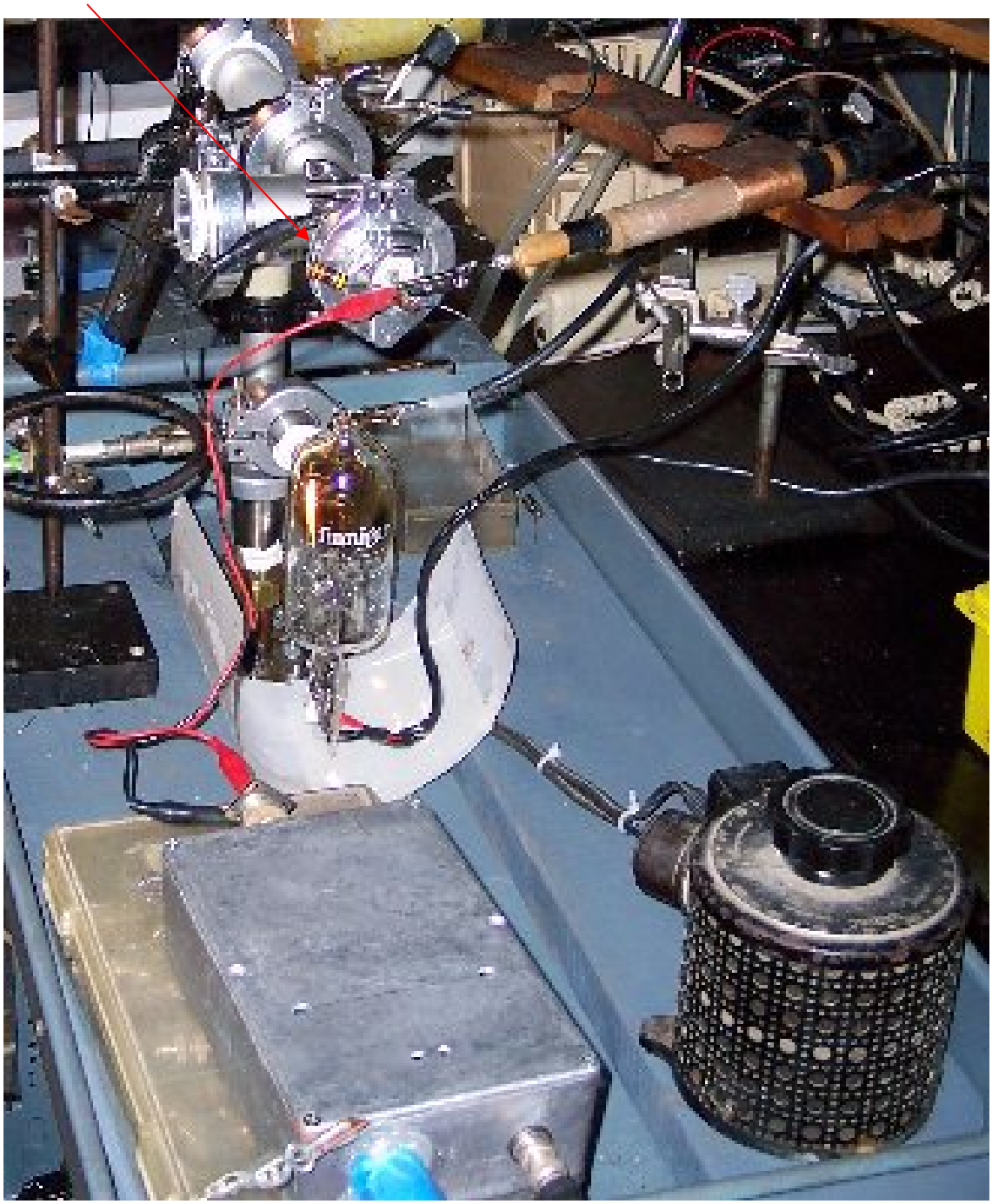
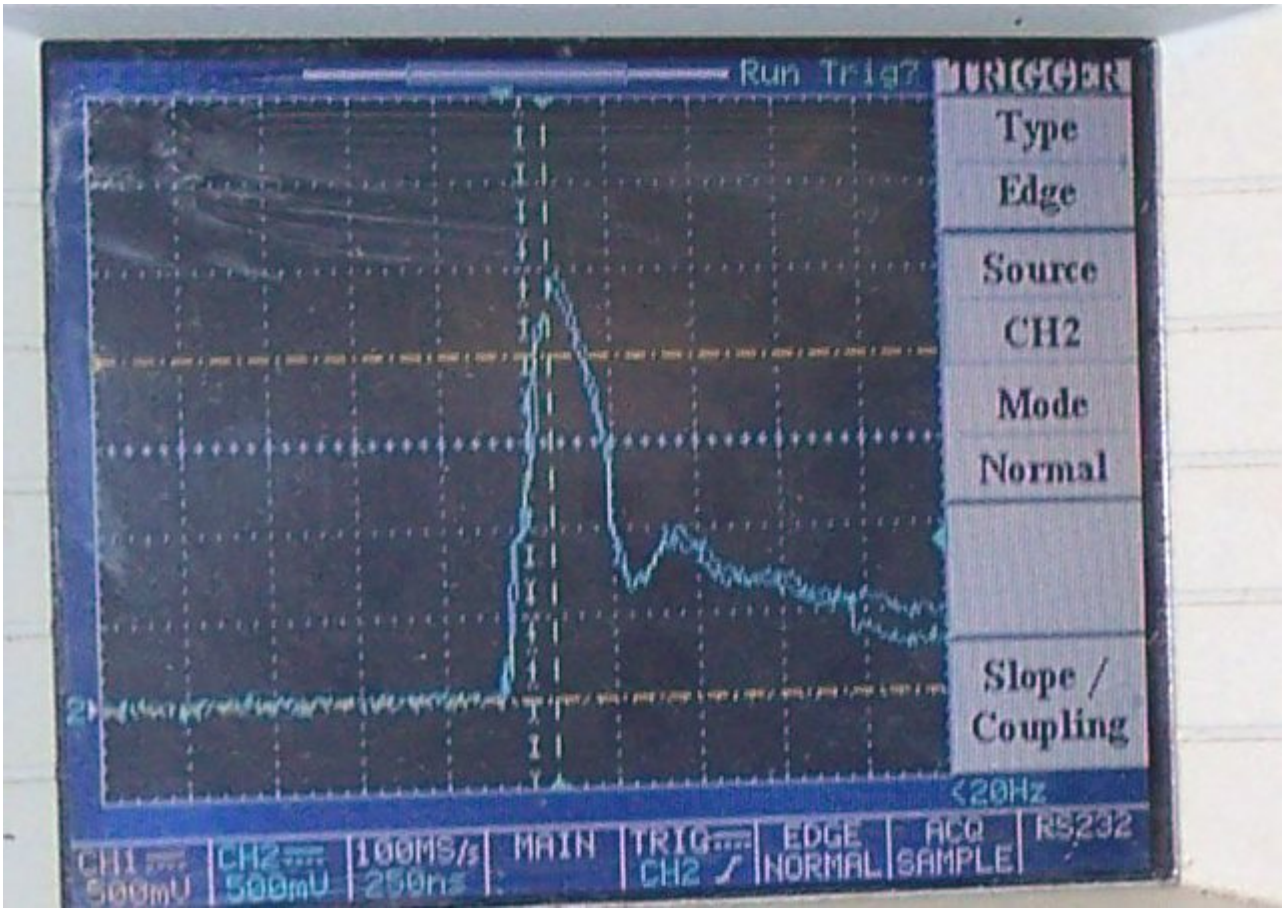
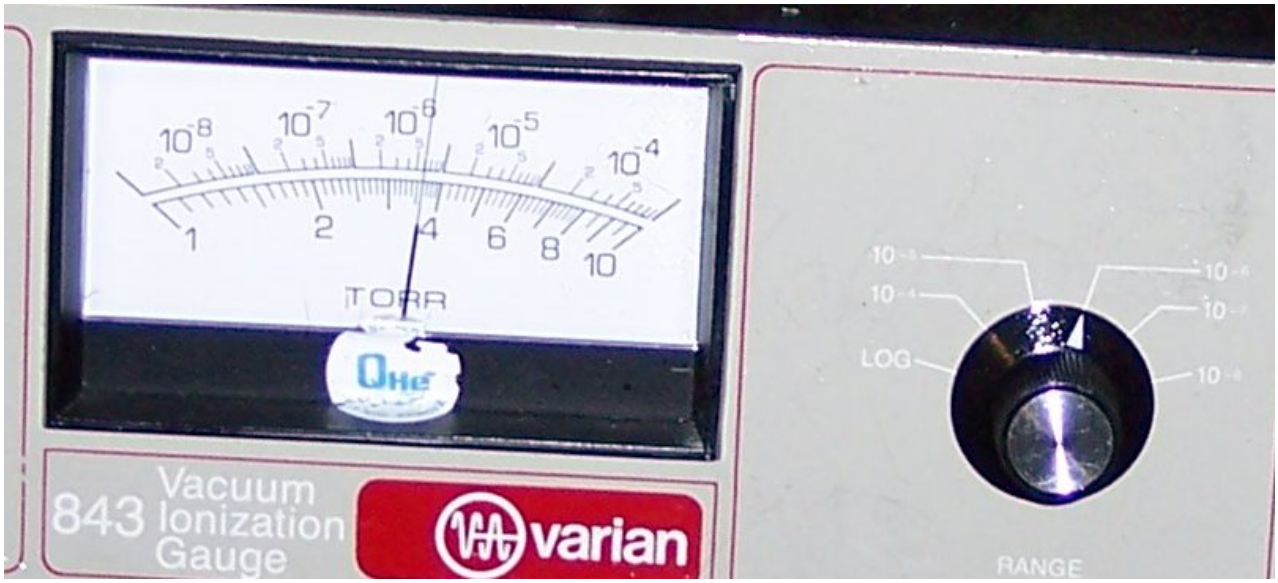


Photo 6 DSO Waveform of Cathode's Back Electrode Driving Voltage



500V/Div ==> ~ 2.5KV Peak

Photo 7 ION Gauge Reading / toward end of testing



~ 3.5 E-6 Torr