

# Grid Bias Tweaking

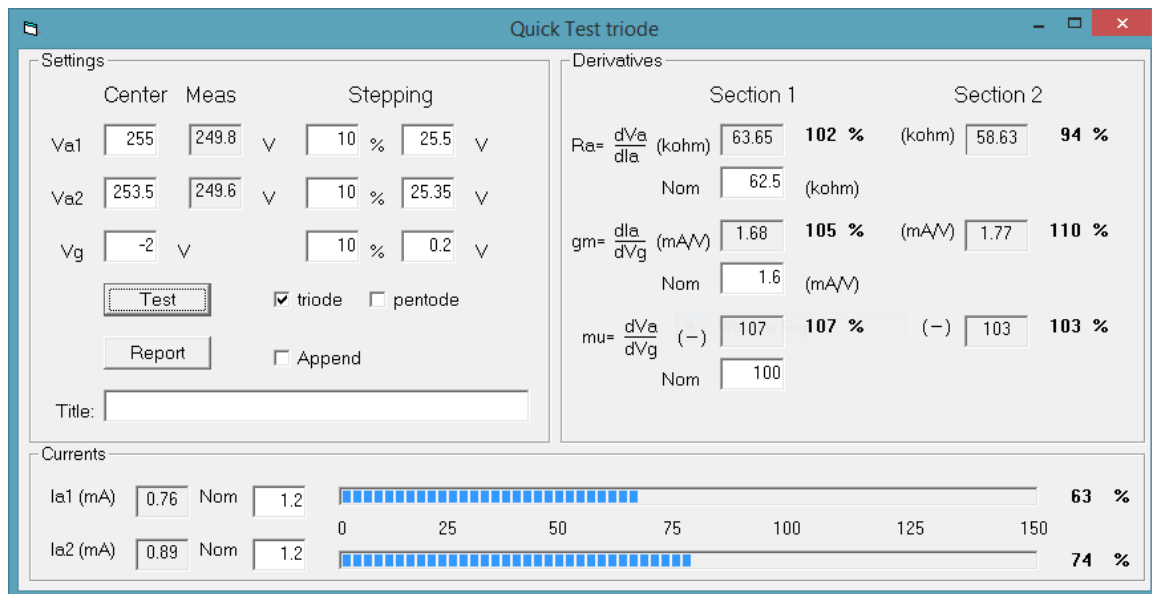
## Baseline

uTracer 3+ configuration with original values for C10 (22nF) and C11 (33nF).

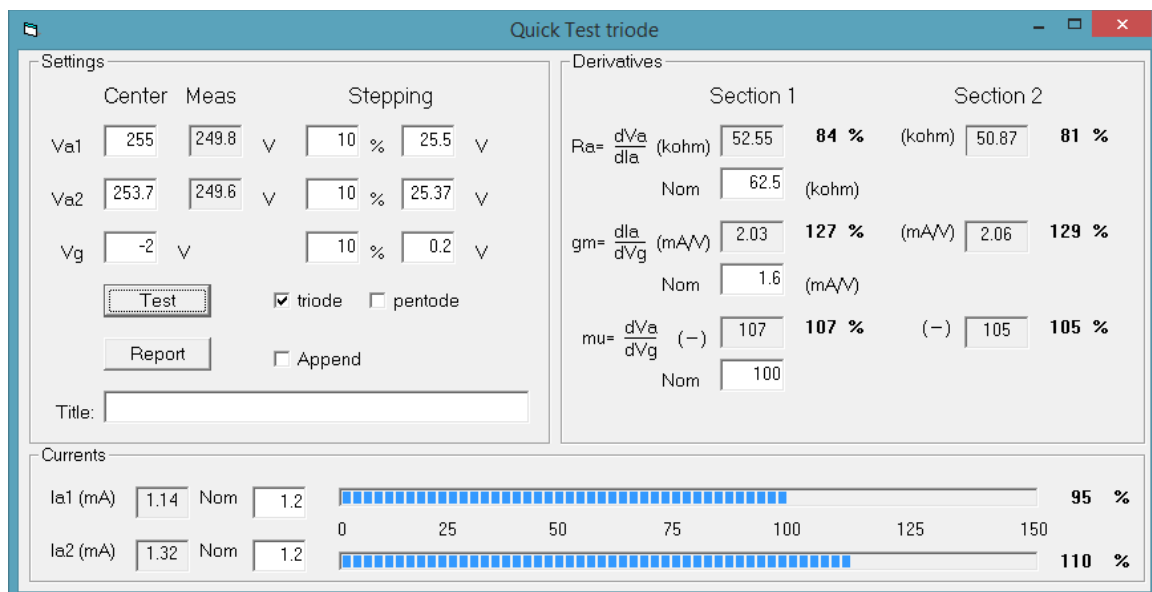
## Test article

Electro-Harmonix 12AX7 (ECC33).

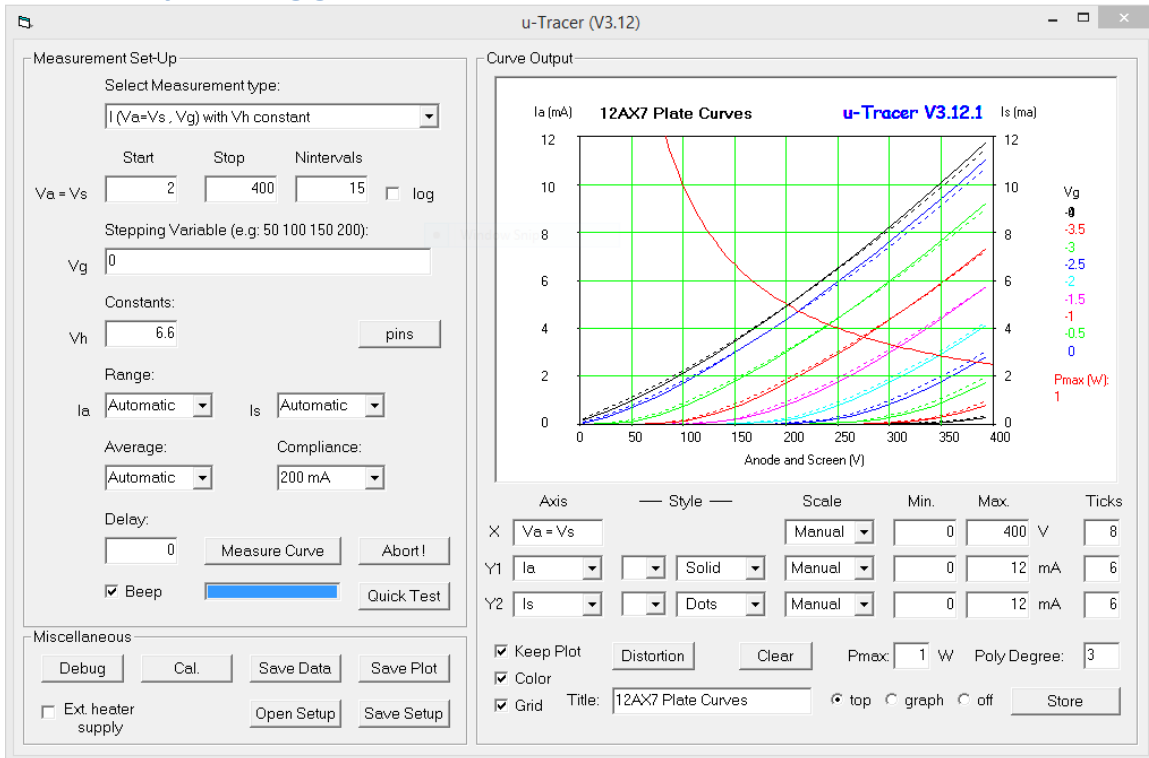
## Quick Test result with baseline values for C10 and C11



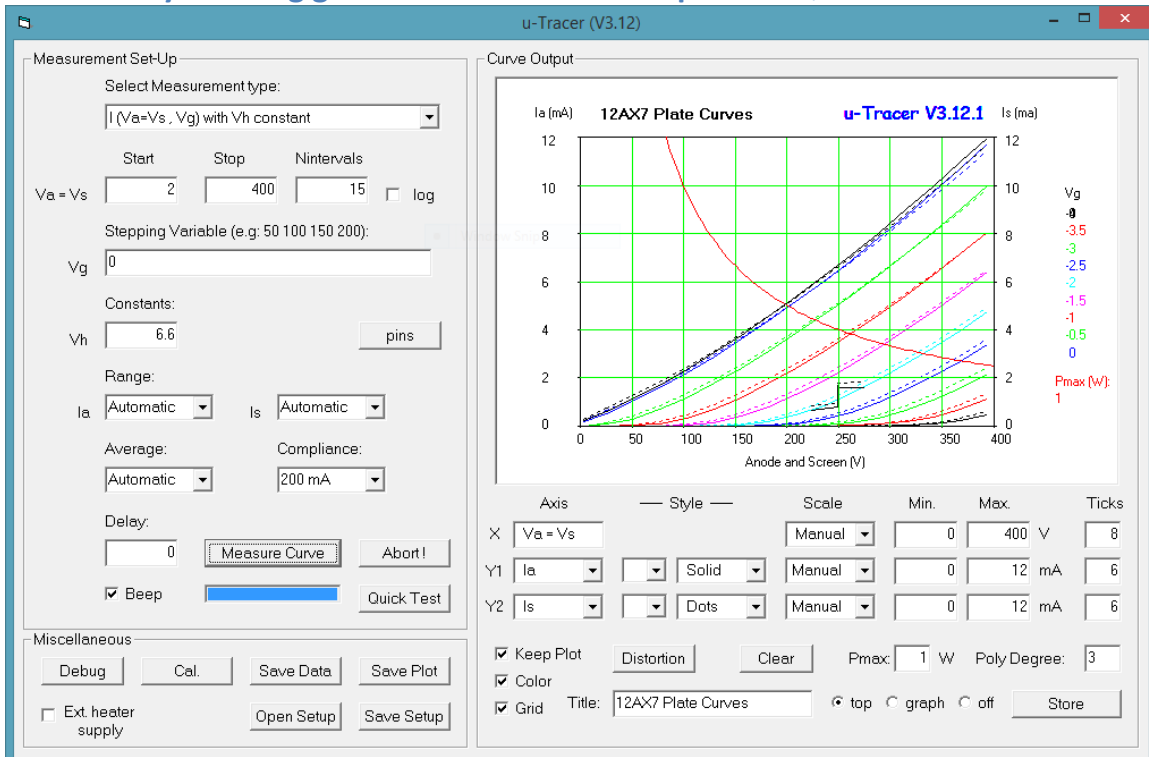
## Quick Test result after increasing C10 to 220nF and C11 to 330nF



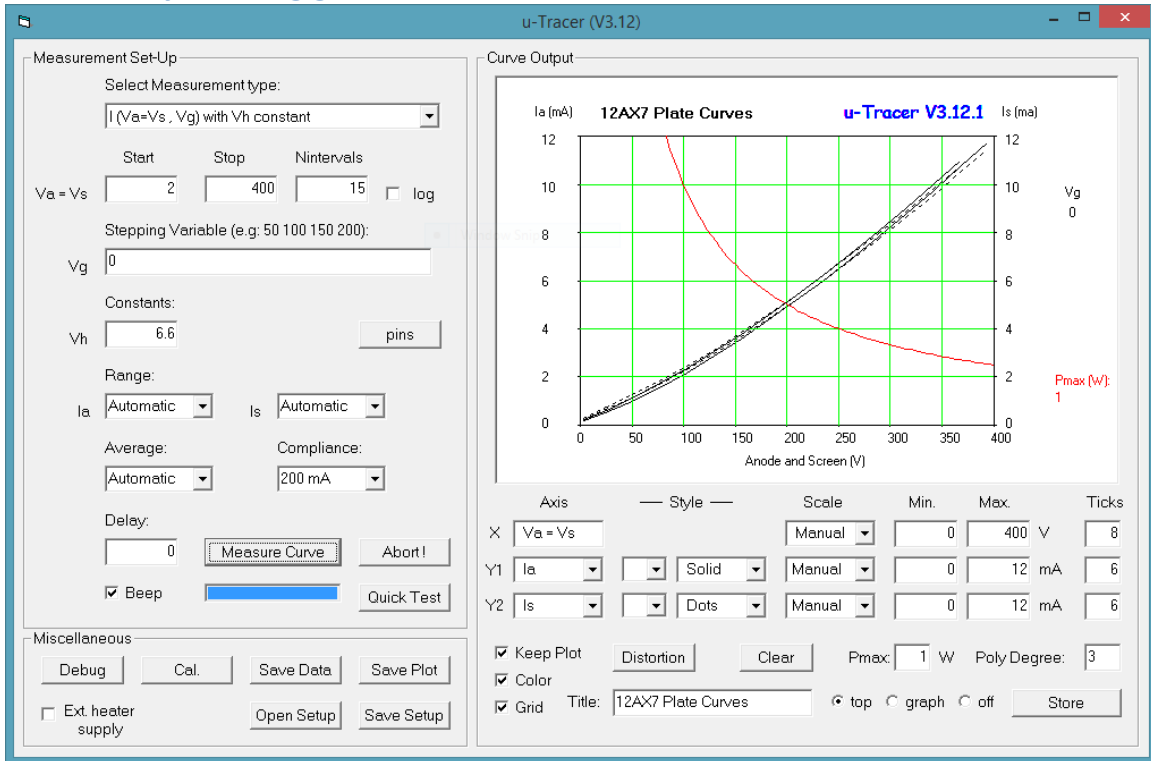
## Full trace with original values for C10 and C11 including over-plotted $V_g = 0$ obtained by shorting grid to cathode



## Full trace with increased values for C10 and C11 including over-plotted $V_g = 0$ obtained by shorting grid to cathode and over-plotted Quick Test



**Vg = 0 trace with increased values for C10 and C11 and over-plotted Vg = 0 obtained by shorting grid to cathode**



**Comments**

This particular tube tested better (higher  $I_a$ , etc.) before modification to the uTracer 3+ configuration. Based on this result, increasing C10 and C11 is a necessary change for the uTracer 3+.

In both the uTracer 3 configuration, and before increasing C10 and C11 in the 3+ configuration, a  $V_g = 0$  trace obtained by shorting grid to cathode produced a substantial increase in  $I_a$  (~0.6-0.7 mA). After increasing C10 and C11 in the uTracer 3+ configuration, the  $V_g = 0$  trace with grid shorted to cathode closely matches the  $I_a$  at  $V_g = 0$  trace obtained with the grid connected to the uTracer 3+ grid terminal (increase reduced to ~0.1-0.2 mA).

M P Manning  
28 October 2015