Filament Bias:
Using Coleman Regulator for 26 and 4П1Л(4P1L) DHTs.

In both cases - 26 & 4P1L - about -9V of bias is desirable.
This means a B+ of about 120V for 26, and 150V for 4P1L.
The best approach is to work with -9V, and if the anode-current is too high (not likely) - you can reduce the B+ a little.

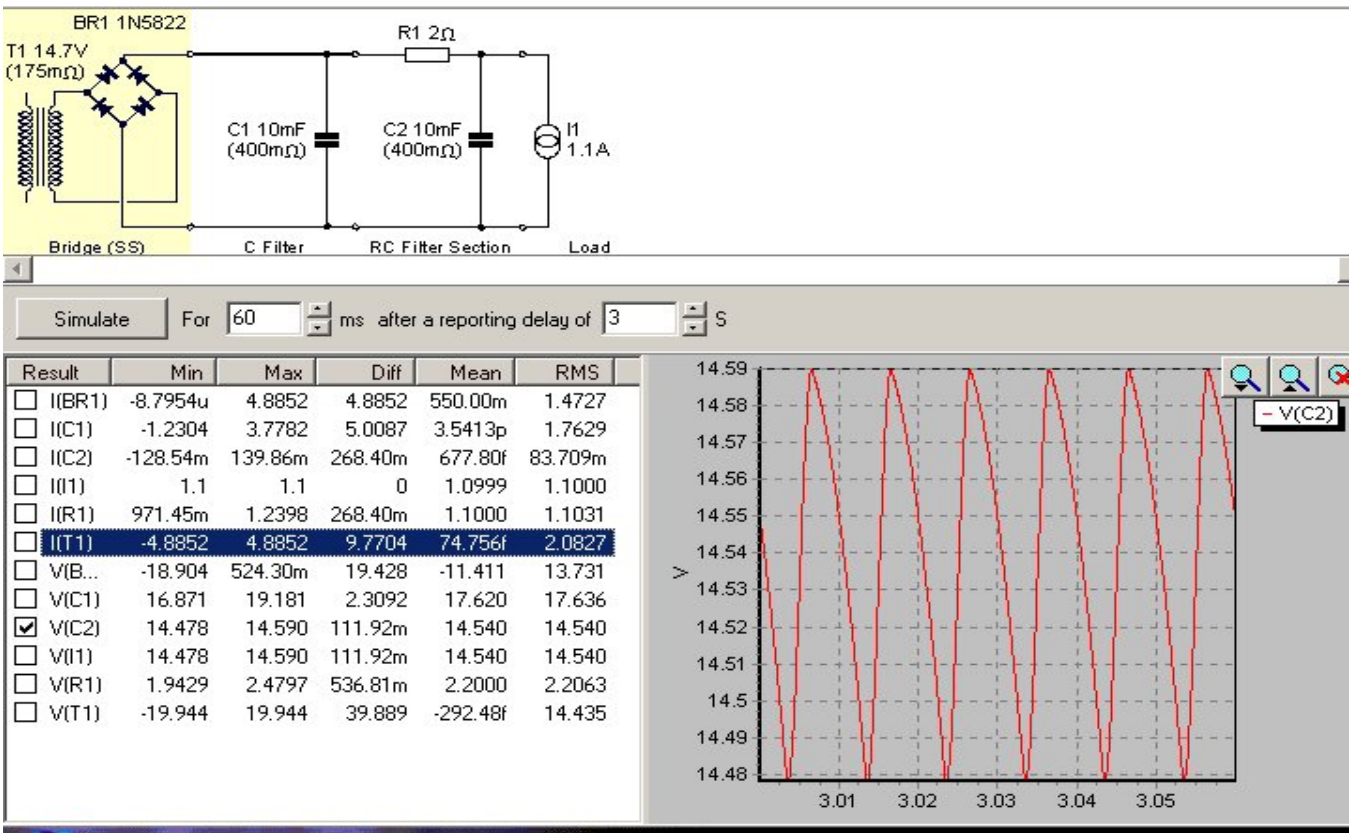
The required supply voltage headroom:
{Vin - Vout} = {Vin - (Vbias + Vfilament)}
for Regulators of V4 and earlier is 4.5-6V approximately. Try to aim for 5V, as higher voltages dissipate more power in Q5. For V5 Regulators the headroom is lower (3.5V for perfect operation, 3.0V is only slightly higher noise)

For -9V bias in 26, add 1.05V for the filament and you have ~10V.
For -9V bias in 4P1L add 2.1V for the filament and you have ~11V.

The Target dc supply voltage should be

DHT	V3-V4 Regulator: Supply	V5-V7 Regulator: Supply
26	15.5V	14.5V
4P1L	16.6V	15.5V

Construct the Power Supply model, using Duncan PSUD2:
Showing 14.5Vdc with 111mV peak-peak of ripple.



DC voltages suggested for 26 and 4P1L, with part-values to build a Raw dc supply:

DHT:	Trafo	Hammond Type	Rectifier	C1/C2	R1+R2 series total	Vdc nominal
26 (V5-7)	14V 4Arms	266L28	1N5822	10000µF 25 or 35V	2Ω (5W)	14.5V
26 (V4)	*14V 4Arms*	*266L28*	*1N5822*	*10000µF 25 or 35V*	*1 Ω (5W)*	*15.6V*
4P1L (V5-7)	14V 2Arms	266L14	1N5822	10000µF 25 or 35V	3.3Ω (5W)	15.6V
4P1L (V4)	*14V 2Arms*	*266L14*	*1N5822*	*10000µF 25 or 35V*	*1.8Ω (5W)*	*16.6V*

Note that the rms transformer current - given in the PSUD2 simulation as I(T1) rms - is nearly double the dc current. This is a normal consequence of rectification into a large capacitor: the crest-factor, or effect on rms of a high current-peak.

The final voltage for the raw dc can be trimmed to the perfect value, by adjusting the R values given in the table.

Connecting the Coleman Regulator to provide Filament Bias:

Example given of a Line Preamp, with 4P1L (Va=150V; Ia =~30mA)