Article Update for Viking II – CDC

Speech Amplifier and Modulator:

ER #324 (May/2016) discussed some suggested upgrades to the Viking II – CDC model. In that article, the Hammond 124E and 124D interstage transformers were mentioned as replacements for the original interstage transformer. Only the Hammond 124E circuit was given. If one uses the 124D, appropriate changes to the circuitry will have to be made since this transformer has a 1.54:1 turns ratio, whereas the Hammond 124E has a turns ratio of 3:1**. Further testing shows the Hammond <u>124D</u> to be preferable because of its increased driving ability and lower crossover distortion.**

The speech amplifier and the modulator schematics, Figures 1 and 2, reflect those changes needed for the Hammond 124D.

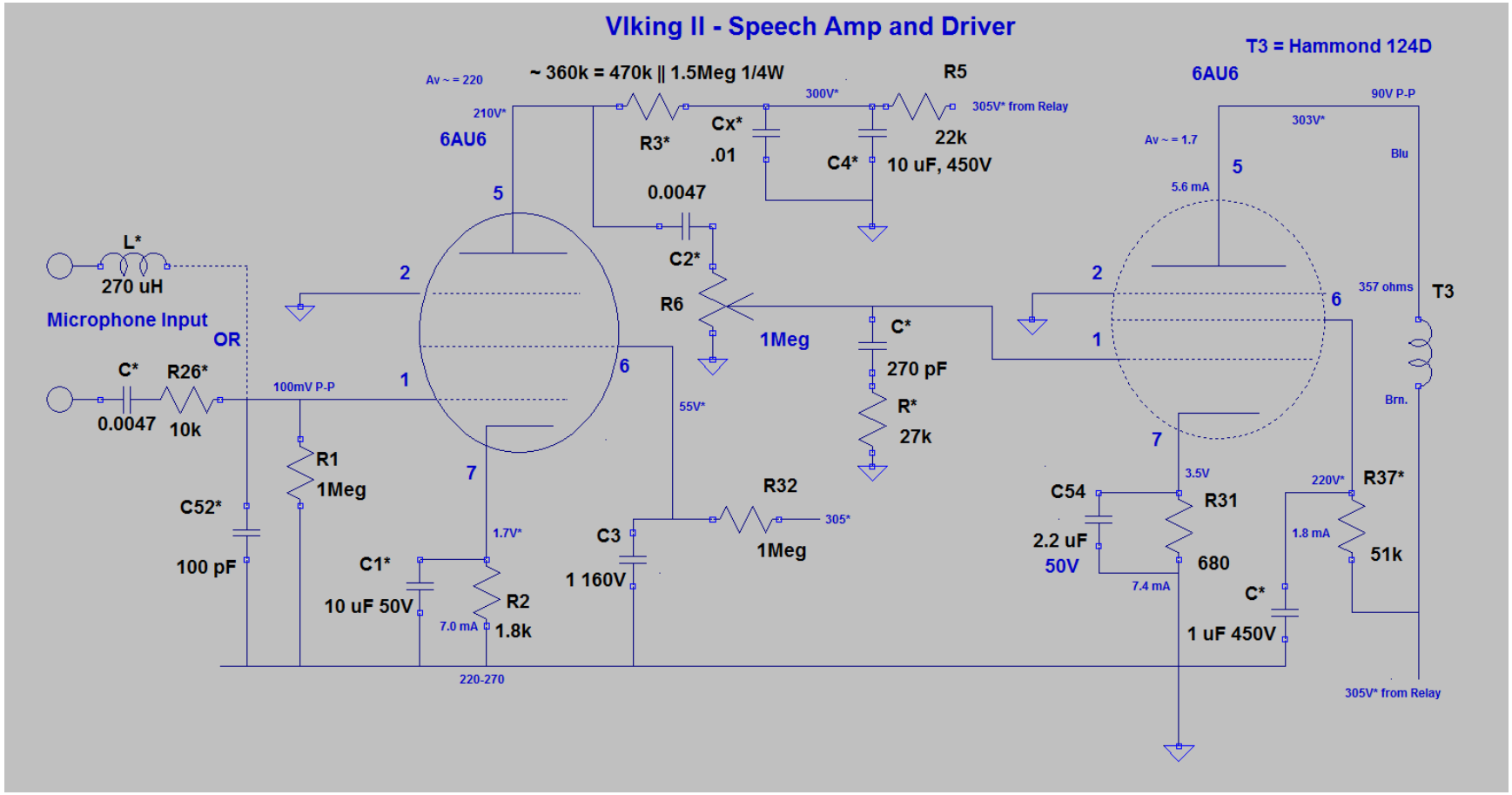
Modulator Screen Voltage Regulator:

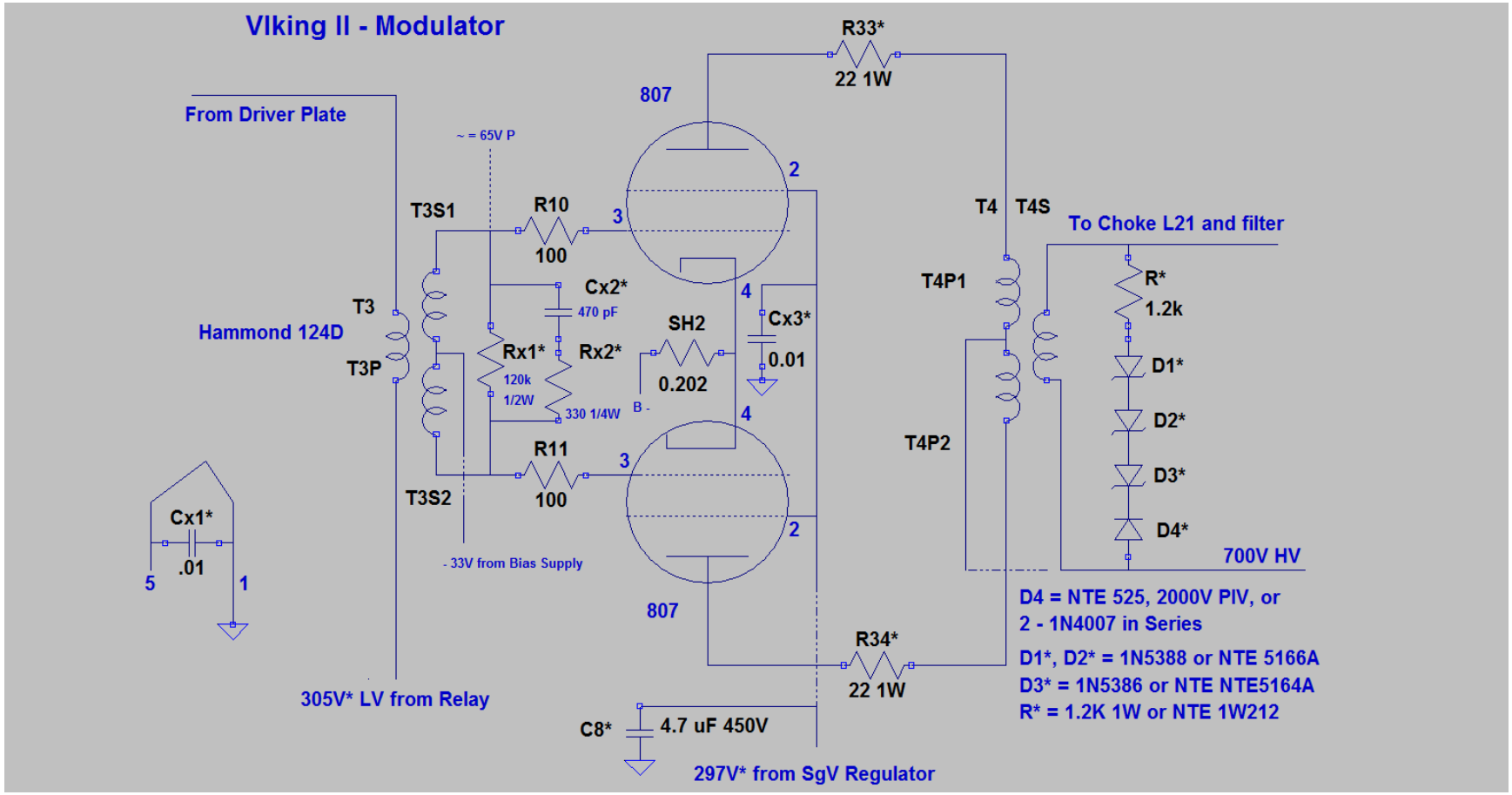
Figure 3 shows a 300V screen regulator for the modulator tubes to fuirther reduce distortion in the audio chain. This regulator is based on a FET as the active device.

One other Note: In order to reduce stray RF in the bias circuit, a 0.001 uF ceramic disk of 1kV at the Final's grid circuit is needed. The preferable location for this capacitor is at the choke's bias supply side just above the grid choke, with the other lead of the capacitor to the Final's ground bus immediately to the right of the choke.

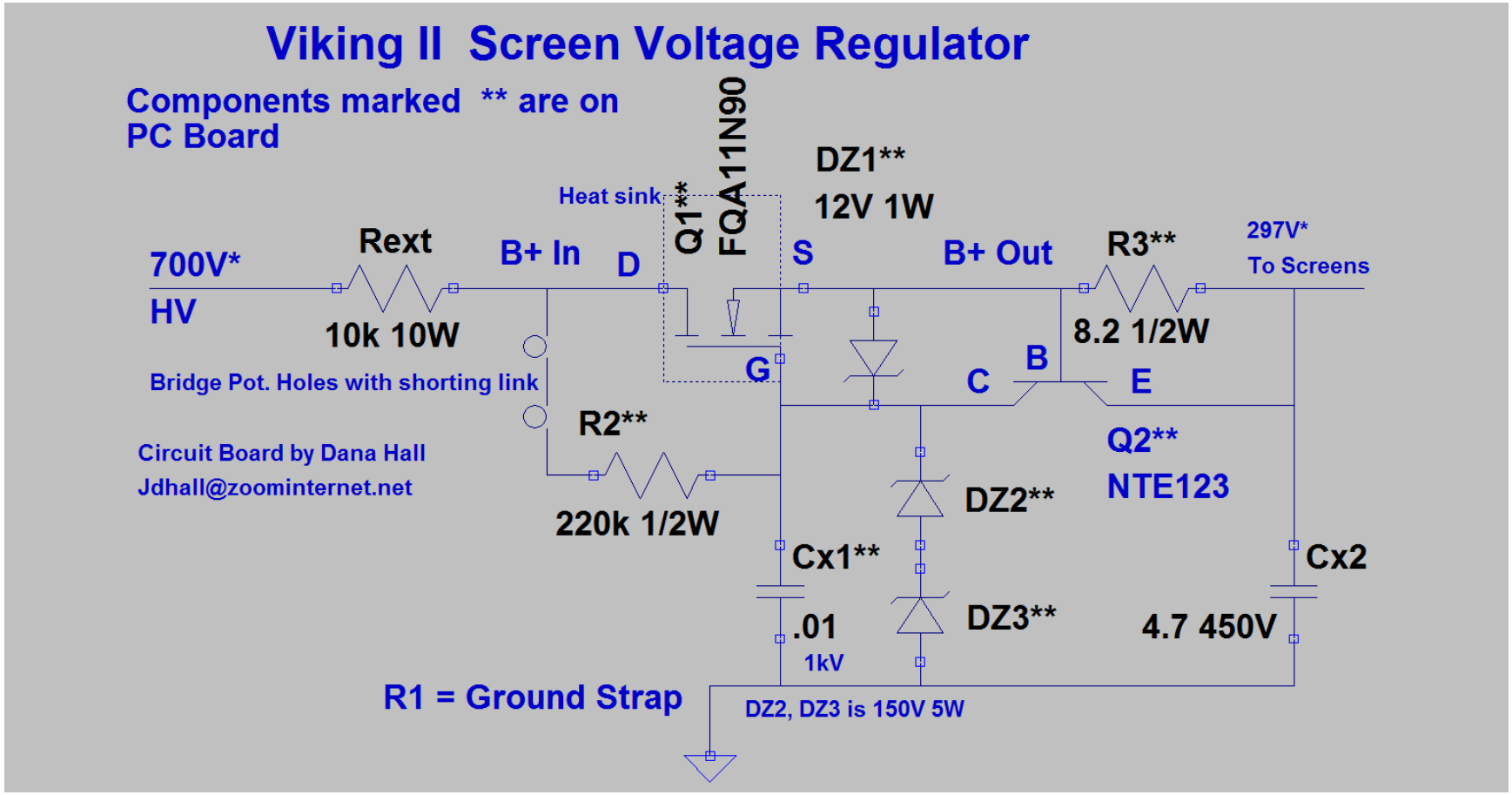
Voltages marked with a "*" are Keydown in AM or "Phone" mode under the following conditions:

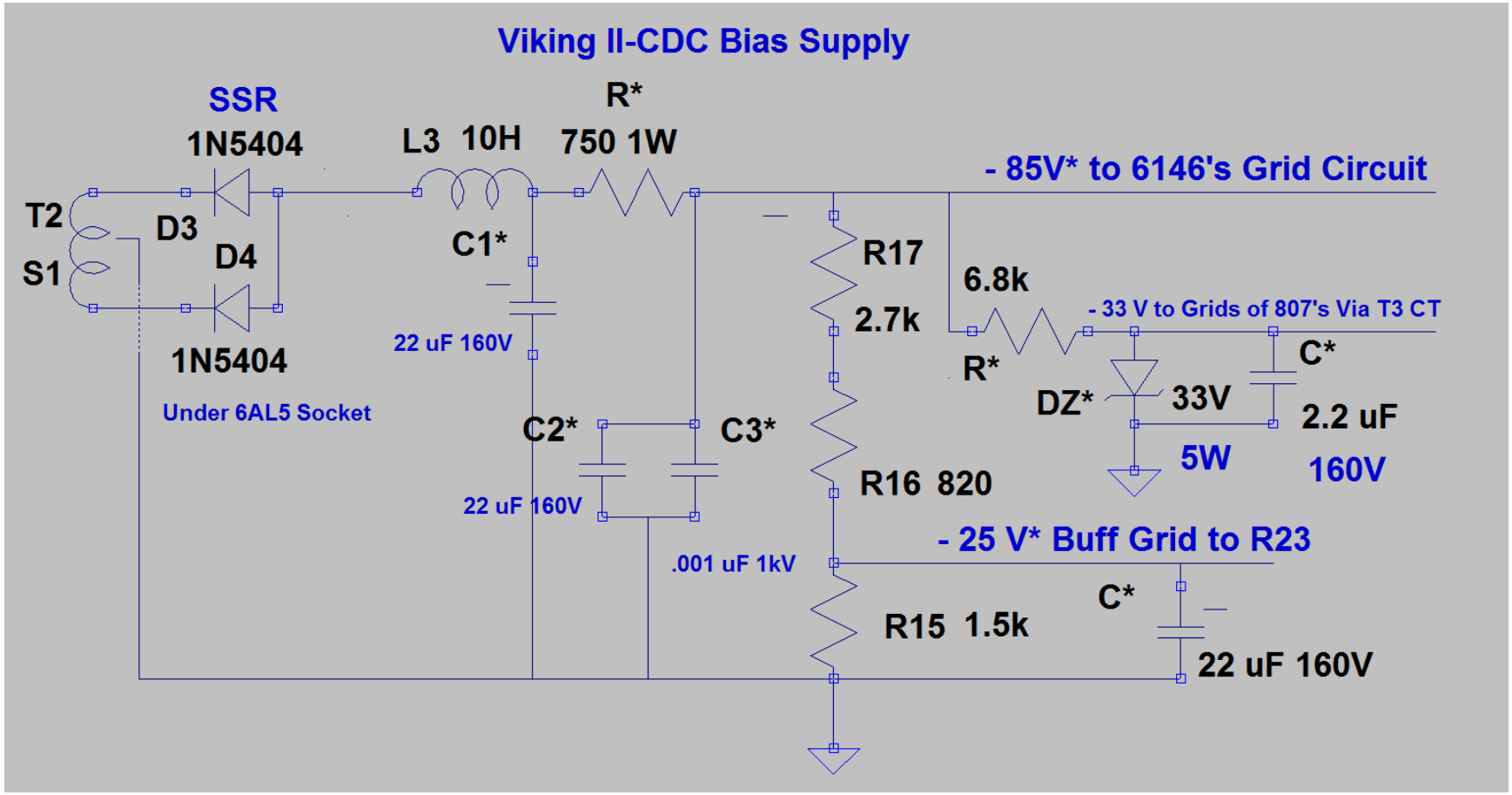
Frequency = 3.880 MHz,
VFO 122 attached,
Final Grid Current = 5 mA,
Final Plate Current = 280 mA,
Final Screen Voltage = 297V,
Resting Modulator current = 55 mA.
HV = 700V,
AC input voltage = 120V,
Resting Carrier = 110 Watts.


Viking II - Speech Amp and Driver
T3 = Hammond 124D
~ 360k = 470k || 1.5Meg 1/4W
R5
Av ~ = 220
210V*
6AU6
300V*
305V* from Relay
R3*
Cx*
.01
22k
C4*
10 uF, 450V
0.0047
C2*
R6
1Meg
C*
270 pF
R*
27k
L*
270 uH
Microphone Input
OR
C*
R26*
0.0047
10k
100mV P-P
55V*
R1
1Meg
C52*
100 pF
C1*
10 uF 50V
1.7V*
7.0 mA
R2
1.8k
C3
1 160V
R32
305*
1Meg
220-270
6AU6
Av ~ = 1.7
90V P-P
303V*
Blu
5.6 mA
357 ohms
T3
Brn.
C54
2.2 uF
50V
3.5V
R31
680
7.4 mA
220V*
R37*
1.8 mA
51k
C*
1 uF 450V
305V* from Relay


Viking II - Modulator
R33*
22 1W
807
From Driver Plate
~ = 65V P
2
T3S1
R10
3
T4
T4S
To Choke L21 and filter
100
Cx2*
T4P1
R*
T3
4
Cx3*
1.2k
470 pF
SH2
Hammond 124D
Rx1*
Rx2*
0.01
D1*
T3P
120k
1/2W
0.202
330 1/4W
B -
4
D2*
T4P2
R11
3
D3*
T3S2
100
Cx1*
D4*
2
.01
5
1
700V HV
- 33V from Bias Supply
807
D4 = NTE 525, 2000V PIV, or
2 - 1N4007 in Series
R34*
D1*, D2* = 1N5388 or NTE 5166A
22 1W
D3* = 1N5386 or NTE NTE5164A
R* = 1.2K 1W or NTE 1W212
305V* LV from Relay
C8*
4.7 uF 450V
297V* from SgV Regulator

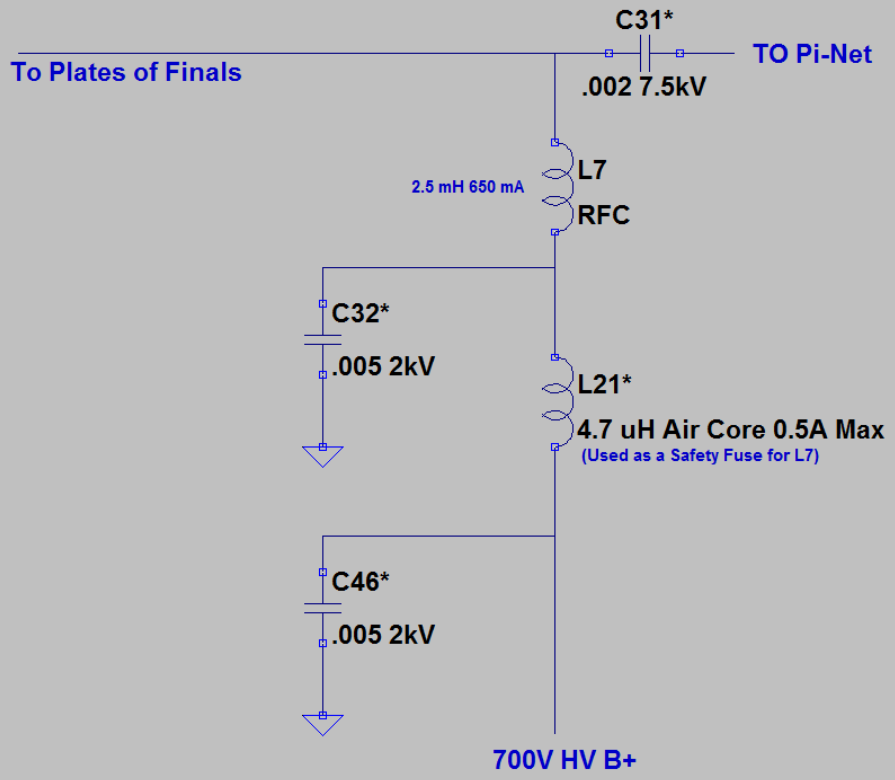
Viking II Screen Voltage Regulator

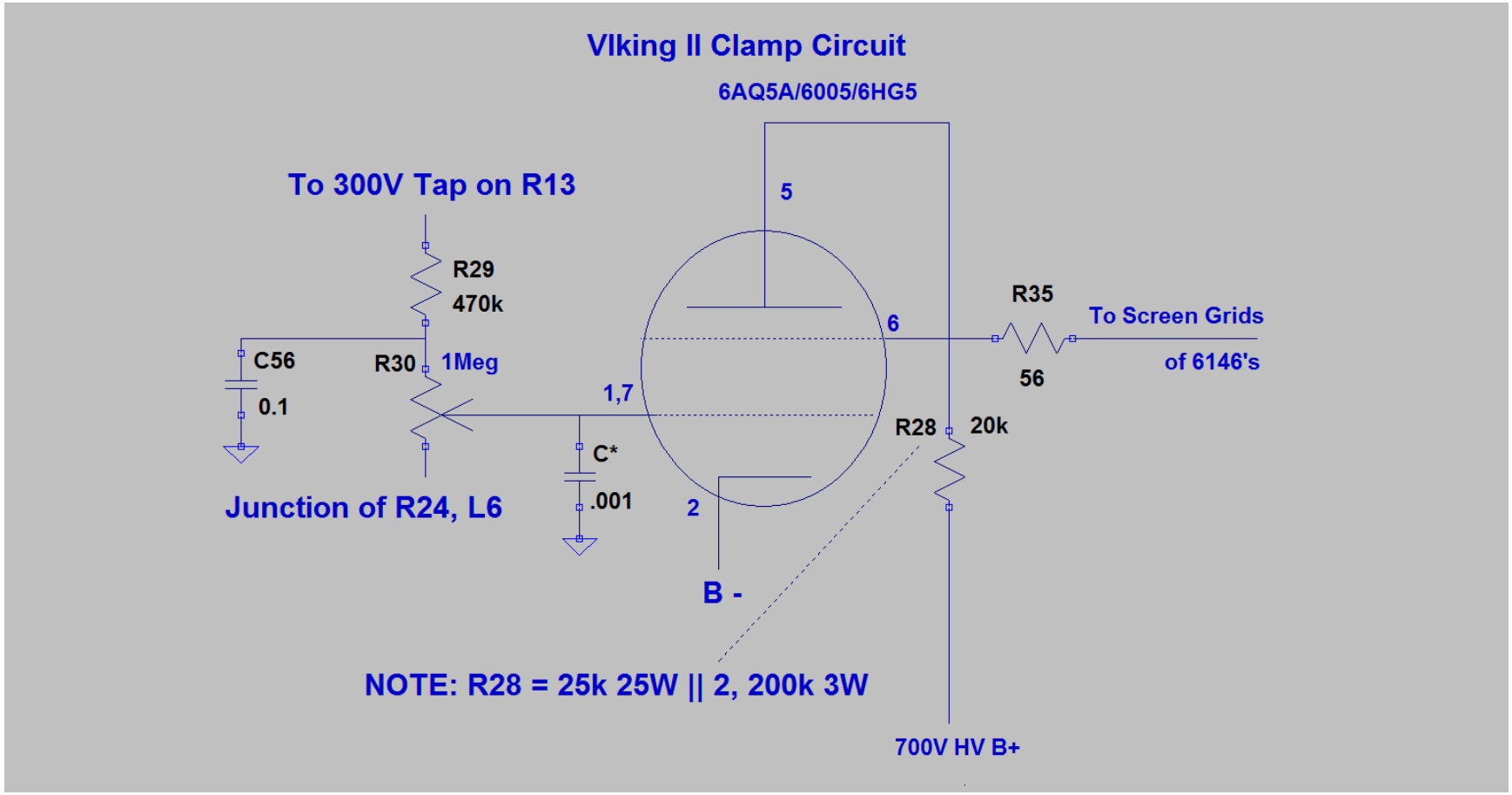



Viking II-CDC Bias Supply
SSR
1N5404
L3 10H
R*
750 1W
- 85V* to 6146's Grid Circuit
T2
S1
D3
D4
1N5404
Under 6AL5 Socket
C1*
22 uF 160V
C2*
22 uF 160V
C3*
.001 uF 1kV
R17
2.7k
R16 820
R15 1.5k
6.8k
R*
- 33 V to Grids of 807's Via T3 CT
DZ*
33V
5W
C*
2.2 uF
160V
- 25 V* Buff Grid to R23
C*
22 uF 160V

Viking II - RF FInal Filter Circuit

Improves Audio Bandwidth




Vlking II Clamp Circuit
6AQ5A/6005/6HG5
To 300V Tap on R13
5
R29
470k
R35
To Screen Grids
6
C56
R30
1Meg
of 6146's
0.1
1,7
56
R28
20k
C*
.001
Junction of R24, L6
2
B -
NOTE: R28 = 25k 25W || 2, 200k 3W
700V HV B+