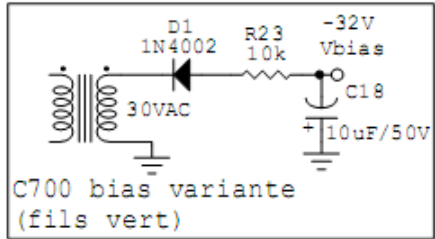
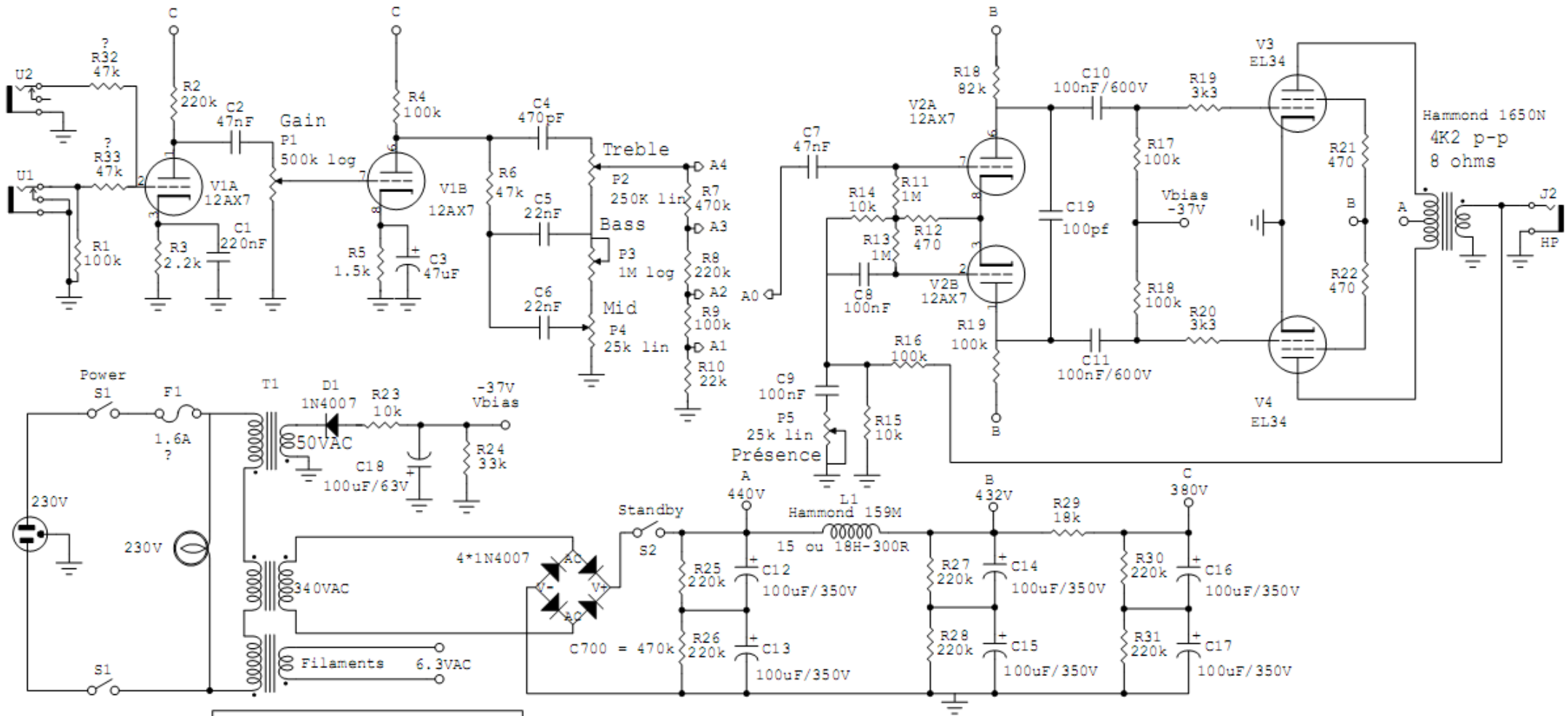


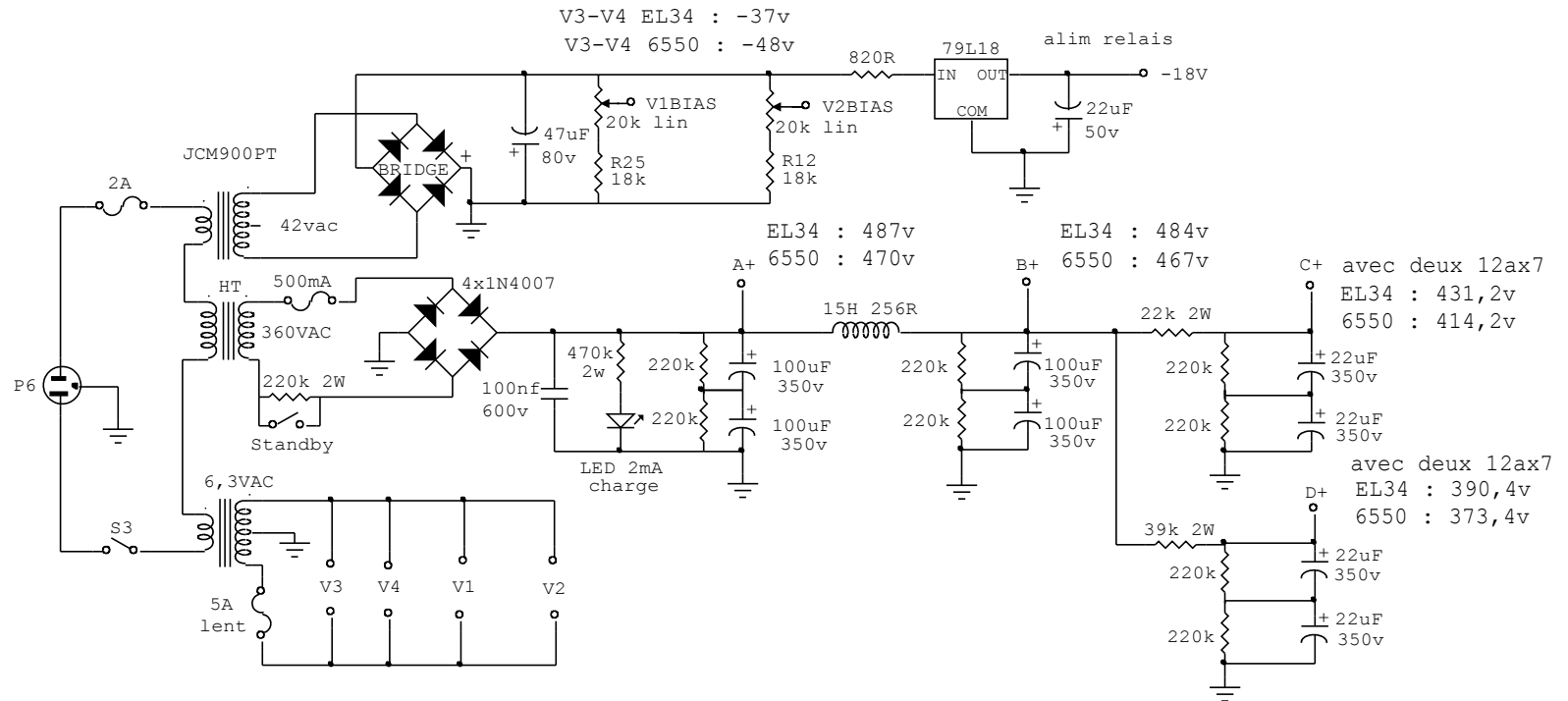
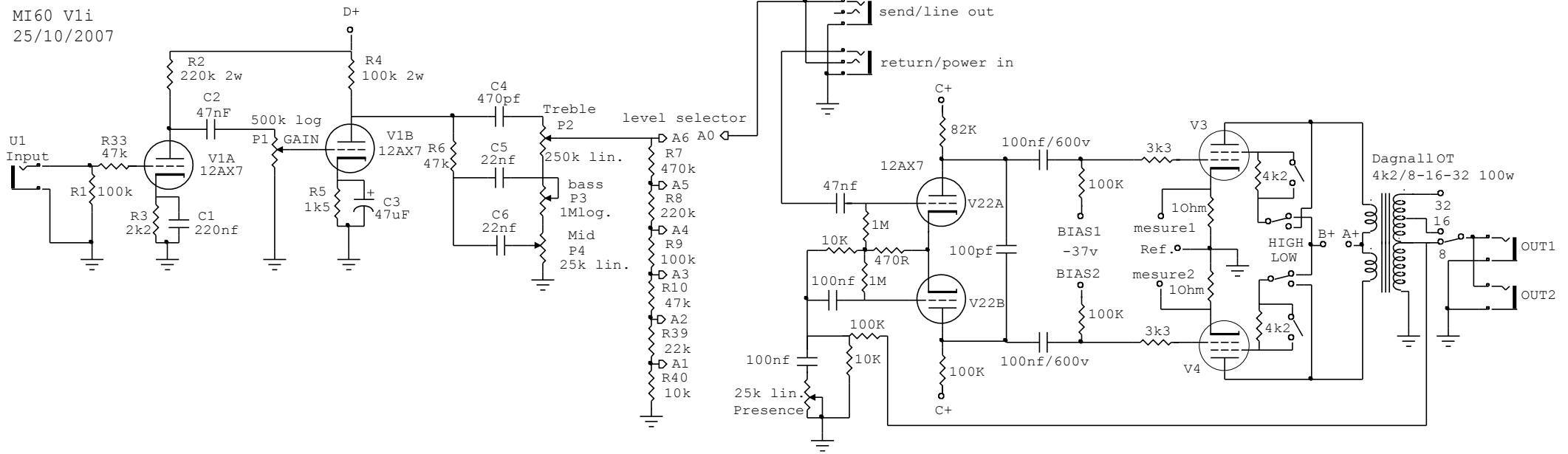
Schéma original du MI60



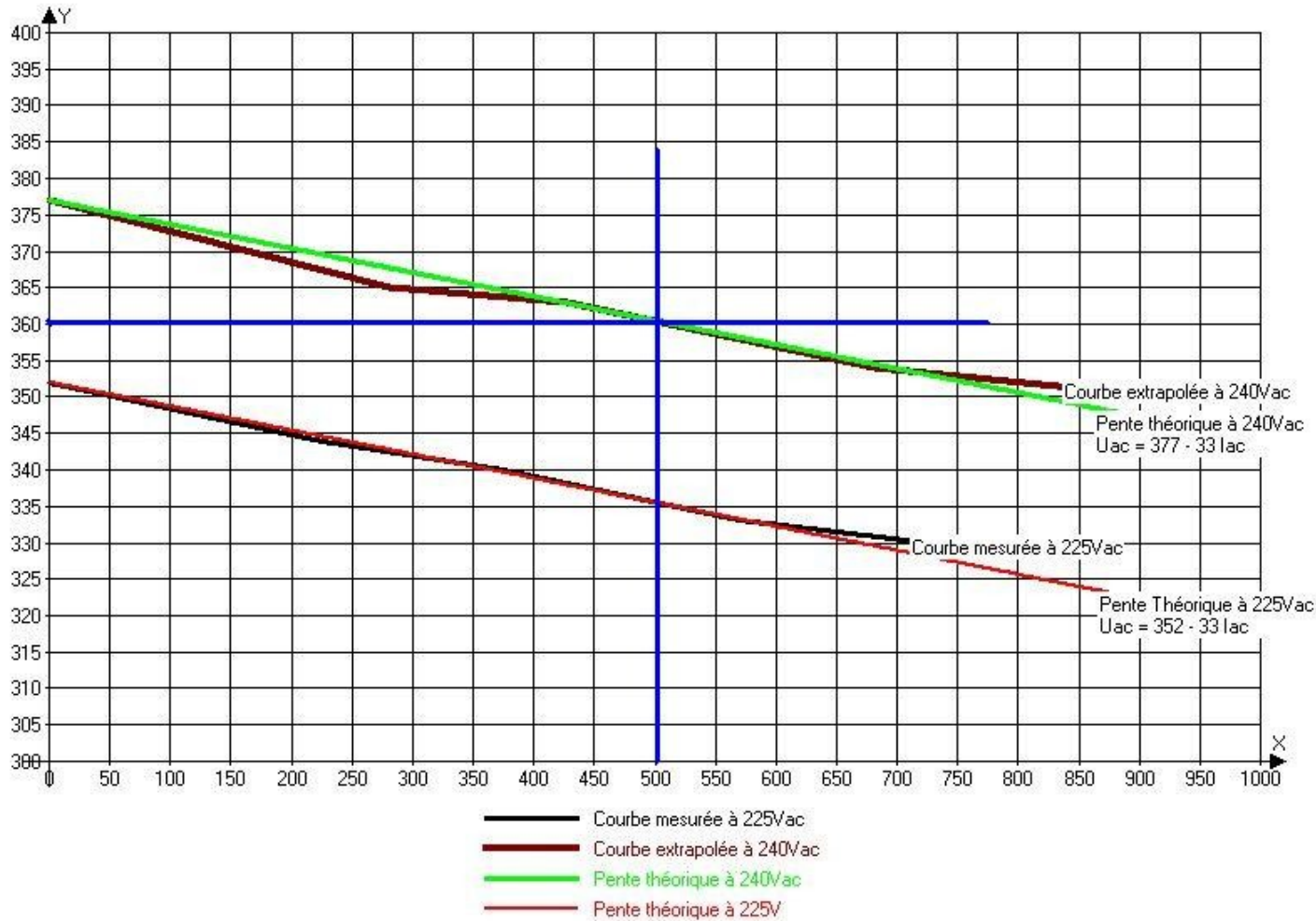
MUSIQUE INDUSTRIE MI60

Schéma modifié du MI60

MI60 V1i
25/10/2007

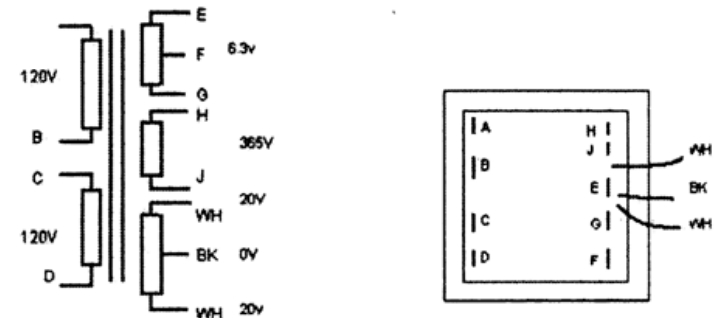


Transformateur d'alimentation : Dagnall T5826 équipant les marshall JCM900 et JCM2000



Created with a trial version of Advanced Grapher - <http://www.alentum.com/agrapher/>

JCM 900 100W POWER





EL34
Power Pentode



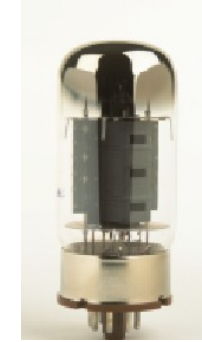
ABSOLUTE MAXIMUM RATINGS

Cathode-heater maximum DC voltage	+120v
Allowable spot temperature on envel.	250 degrees C
Plate voltage, DC (at idle)	825 v
Plate voltage, DC, in triode connection	510 v
Screen voltage, DC, at idle	510 v
Control grid voltage, DC, at idle	-120 v
Cathode current, DC, at idle	165 mA
Plate dissipation, peak or idle	26 watts
Screen grid dissipation, peak or idle	8.5 watts
Control grid resistance, fixed bias	200k ohms

Push-pull class B tetrode connection, fixed bias	
Plate voltage	500v DC
Screen voltage, both tubes	400v DC (750-ohm series resistor)
Plate current, idle	60 mA
Plate current, full power	250 mA
Grid bias	-36 v DC
Load resistance, plate-to-plate	4000 ohms
Output power	70 watts
Total harmonic distortion at 70w out	5%



6550C
BEAM POWER
TETRODE



ABSOLUTE MAXIMUM RATINGS

Cathode-heater maximum DC voltage	+250v
Allowable spot temperature on envel.	250 degrees C
Plate voltage, DC (at idle)	685 v
Plate voltage, DC, in triode connection	425 v
Screen voltage, DC, at idle	425 v
Control grid voltage, DC, at idle	-350 v
Cathode current, DC, at idle	180 mA
Plate dissipation, peak or idle	36 watts
Screen grid dissipation, peak or idle	7 watts
Control grid resistance, fixed bias	200k ohms

Push-pull class AB1 tetrode connection, fixed bias	
Plate voltage	600v DC
Screen voltage	300v DC
Plate current, idle	100 mA
Plate current, full power	270 mA
Grid bias	-55 v DC
Load resistance, plate-to-plate	5000 ohms
Output power	100 watts
Total harmonic distortion at 100w out	3.0%

Push-pull class AB1 triode connection, fixed bias	
Plate and screen voltage	450v DC
Plate plus screen current, idle	120 mA
Plate plus screen current, full power	150 mA
Grid bias	-65 v DC
Load resistance, plate-to-plate	4000 ohms
Output power	30 watts
Total harmonic distortion at 30w out	1.5%

PHILIPS

EL 34

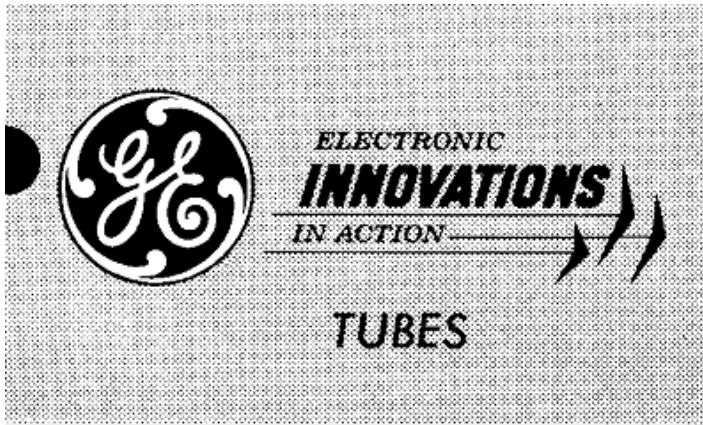
R_{g2}	=	750		750		Ω ¹⁾		
V_{g1}	=	-36		-39		V		
V_{g3}	=	0		0		V		
V_i	=	0	25,8	25,8	0	23,4	23,4	V_{eff}
R_{aa}	=	-	4	5	-	11	11	k Ω
V_{ba}	=	500	500	475	800	800	750	V
V_a	=	495	475	450	795	775	725	V
V_{bg2}	=	400	400	375	400	400	375	V
I_a	=	2x30	2x125	2x102	2x25	2x91	2x84	mA
I_{g2}	=	2x4	2x25	2x25	2x3	2x19	2x19	mA
W_o	=	0	70	58	0	100	90	W
d_{tot}	=	-	5	6	-	5	6	%

Operating conditions class AB

Caractéristiques d'utilisation classe AB

Betriebsdaten Klasse AB

— PRODUCT INFORMATION —



Beam Pentode

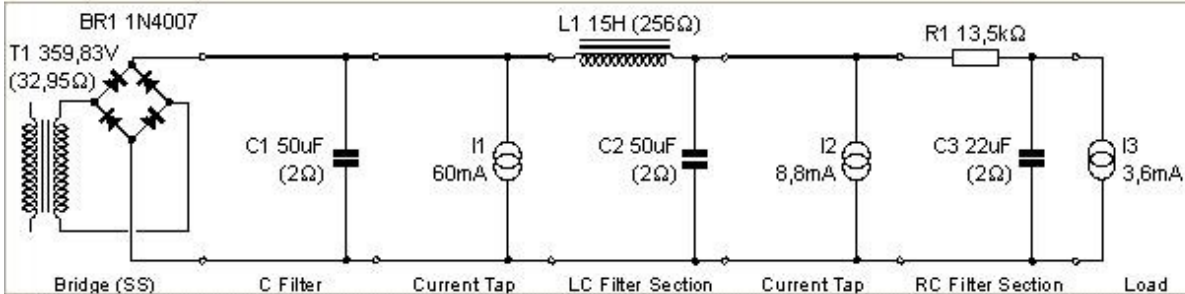
6550-A

FOR AF POWER-AMPLIFIER APPLICATIONS

PUSH-PULL AUDIO-AMPLIFIER—ULTRA-LINEAR OPERATION, VALUES FOR TWO TUBES

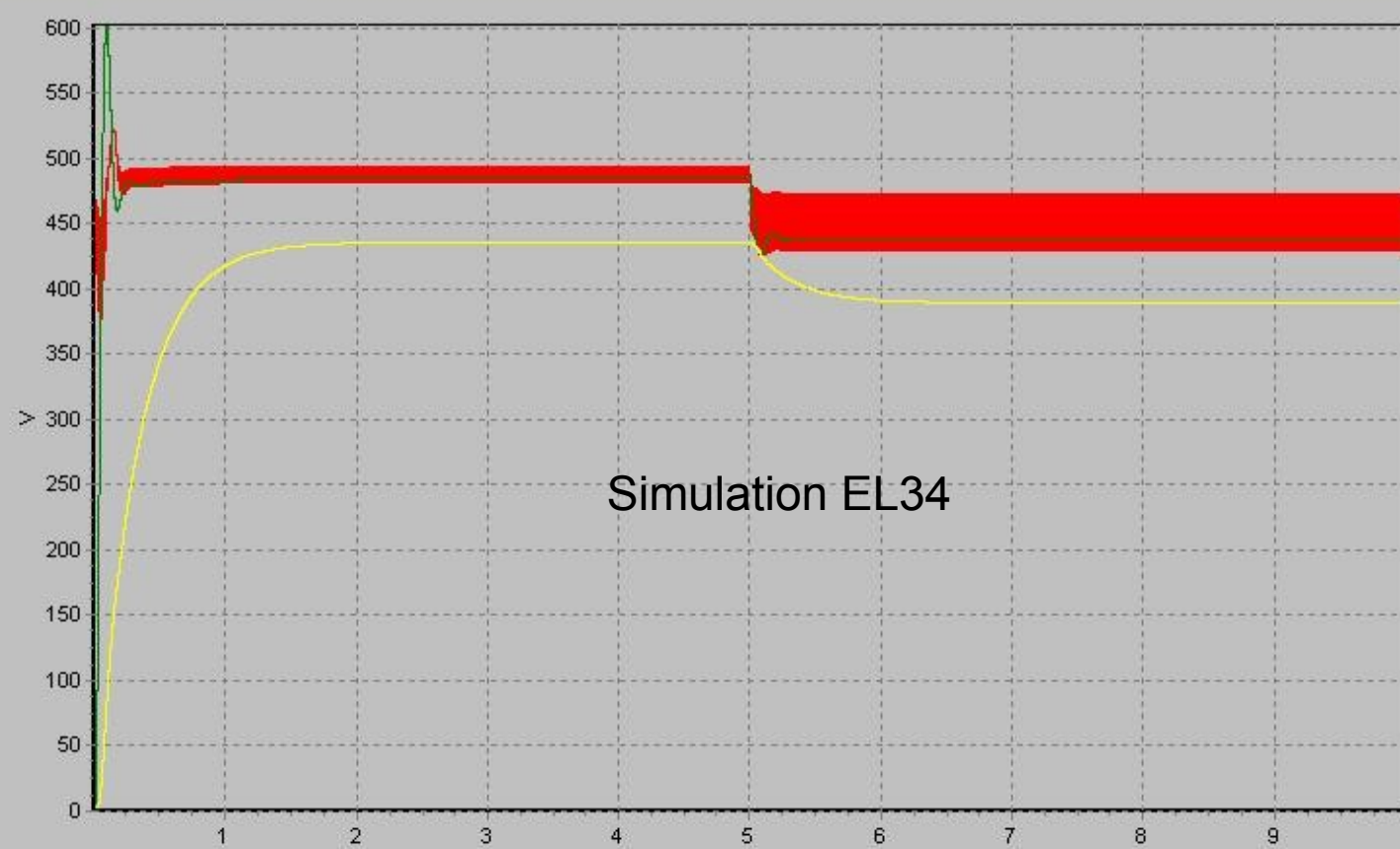
SCREEN TAPPED AT 40% OF PRIMARY TURNS

	Cathode Bias Class A1	Fixed Bias Class AB1	
DC Plate Voltage.....	395	450	Volts
DC Screen Voltage.....	395	450	Volts
DC Grid-Number 1 Voltage.....	---	-48	Volts
Cathode-Bias Resistor.....	200	---	Ohms
Peak AF Grid-to-Grid Voltage.....	70	96	Volts
Zero-Signal DC Plate Current.....	170	150	Milliamperes
Maximum-Signal DC Plate Current.....	174	265	Milliamperes
Zero-Signal DC Screen Current.....	12.5	12	Milliamperes
Maximum-Signal DC Screen Current.....	23	38	Milliamperes
Effective Load Resistance, Plate-to-Plate.....	5,600	4,000	Ohms
Total Harmonic Distortion.....	1.5	2.4	Percent
Maximum-Signal Power Output.....	34	70	Watts

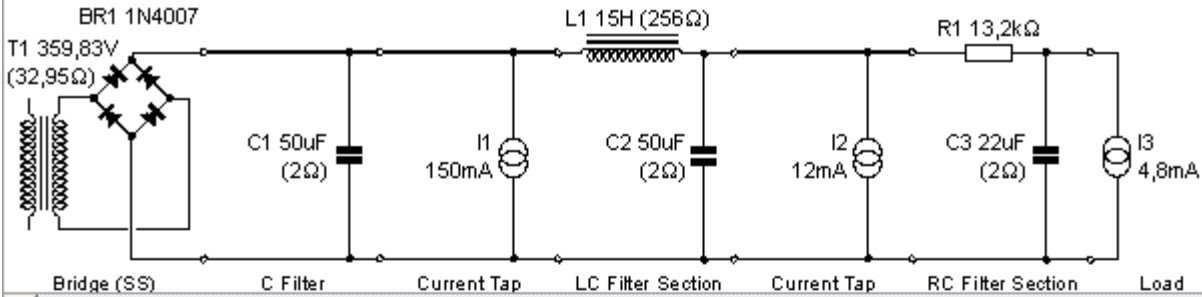


Simulate For 10 000 ms after a reporting delay of 0 S

Result	Min	Max	
<input type="checkbox"/> I(BR1)	-259,12u	5,3324	5
<input type="checkbox"/> I(C1)	-636,23m	5,2582	5
<input type="checkbox"/> I(C2)	-146,64m	548,27m	69
<input type="checkbox"/> I(C3)	-3,6794m	35,494m	39
<input type="checkbox"/> I(I1)	60m	60m	
<input type="checkbox"/> I(I2)	8,8m	8,8m	
<input type="checkbox"/> I(I3)	0	3,6m	
<input type="checkbox"/> I(L1)	-107,28m	576,05m	68
<input type="checkbox"/> I(R1)	-79,447u	39,094m	39
<input type="checkbox"/> I(T1)	-2,3760	5,3324	7
<input type="checkbox"/> V(BR1)	-522,25	1,1962	5
<input type="checkbox"/> V(C1)	284,40m	522,45	5
<input type="checkbox"/> V(C2)	-26,352m	602,32	6
<input type="checkbox"/> V(C3)	-8,1928m	435,56	4
<input checked="" type="checkbox"/> V(I1)	284,40m	522,45	5
<input checked="" type="checkbox"/> V(I2)	-26,351m	602,31	6
<input checked="" type="checkbox"/> V(I3)	-8,1928m	435,56	4
<input type="checkbox"/> V(L1)	-136,12	508,44	6
<input type="checkbox"/> V(R1)	-1,0725	527,77	5
<input type="checkbox"/> V(T1)	-508,78	508,78	1,0

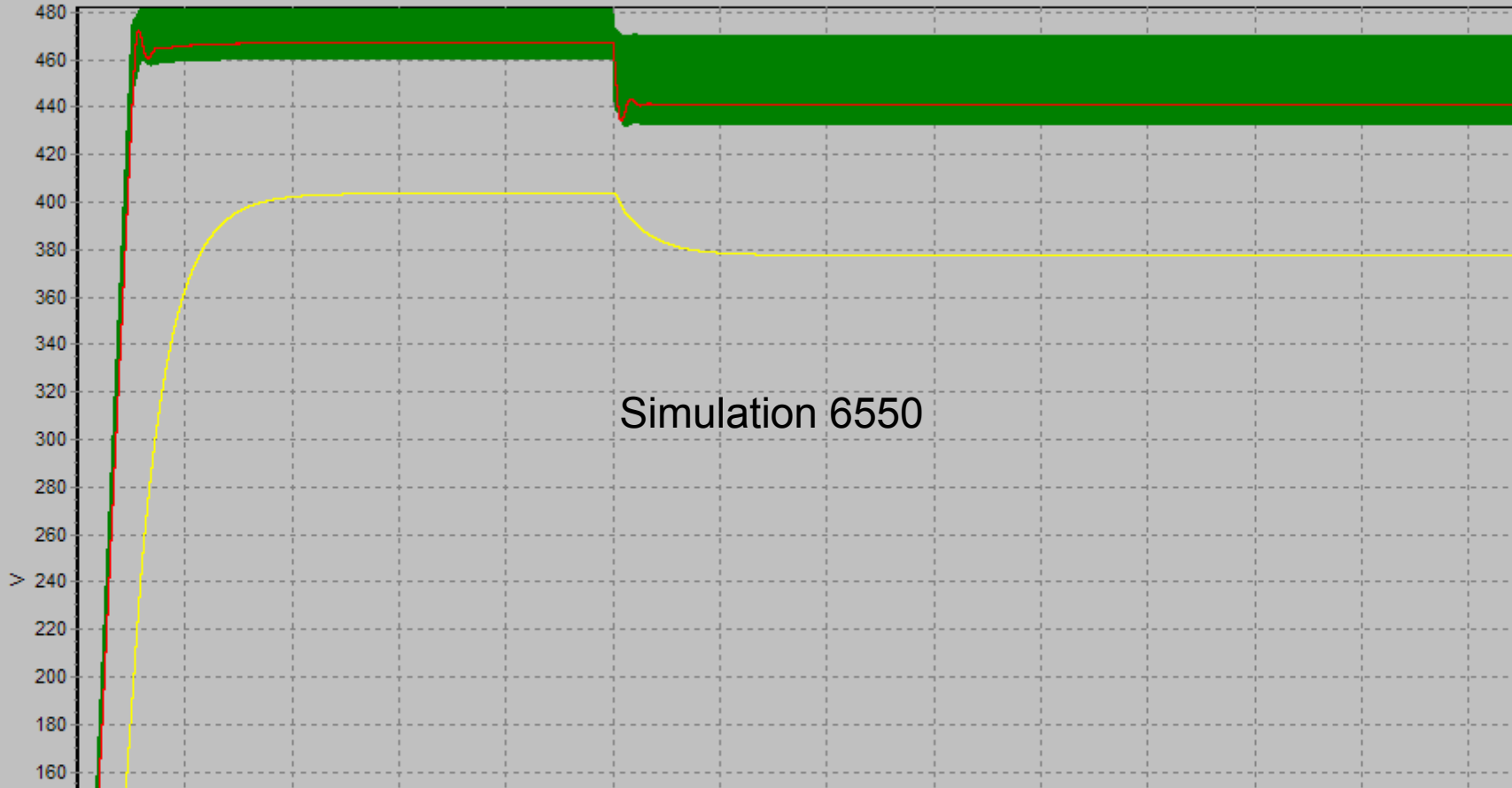


V(1)
 V(2)
 V(3)

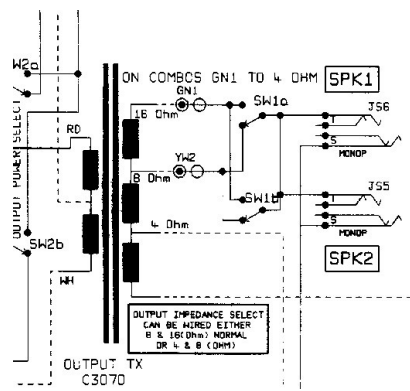


Simulate For 15 000 ms after a reporting delay of 0 S

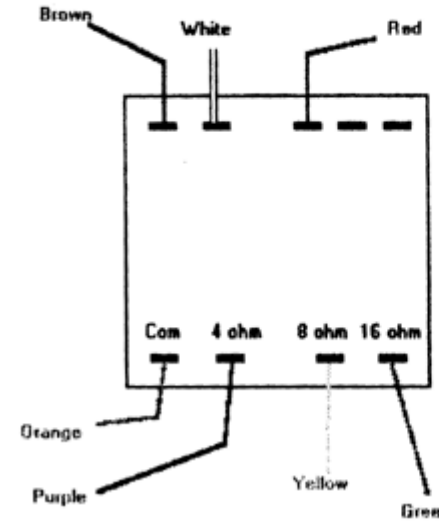
Result	Min	Max	
<input type="checkbox"/> I(BR1)	-235,40u	1,5725	1
<input type="checkbox"/> I(C1)	-316,23m	1,2598	1
<input type="checkbox"/> I(C2)	-32,635m	59,088m	91,
<input type="checkbox"/> I(C3)	-2,1424m	14,481m	16,
<input type="checkbox"/> I(I1)	18,75u	150m	149,
<input type="checkbox"/> I(I2)	1,5u	12m	11,
<input type="checkbox"/> I(I3)	0	4,8m	
<input type="checkbox"/> I(L1)	-5,5339n	78,224m	78,
<input type="checkbox"/> I(R1)	-9,5453n	19,281m	19,
<input type="checkbox"/> I(T1)	-1,5714	1,5725	3
<input type="checkbox"/> V(BR1)	-481,88	980,75m	4
<input type="checkbox"/> V(C1)	-399,77u	482,16	4
<input type="checkbox"/> V(C2)	-151,09u	472,13	4
<input type="checkbox"/> V(C3)	-392,23u	403,72	4
<input checked="" type="checkbox"/> V(I1)	-399,77u	482,16	4
<input checked="" type="checkbox"/> V(I2)	-173,70u	472,12	4
<input checked="" type="checkbox"/> V(I3)	-392,23u	403,72	4
<input type="checkbox"/> V(L1)	-15,601	56,547	7
<input type="checkbox"/> V(R1)	-125,99u	254,52	2
<input type="checkbox"/> V(T1)	-482,64	482,64	9



Transformateur de sortie : Gagnall C3070 équipant les marshall JCM900 et JCM2000



JCM 900 series Output X-formers Conversions for 16,8, and 4 ohms



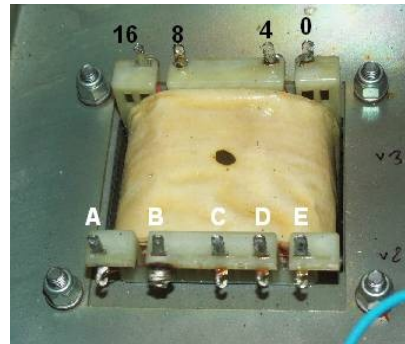
To convert from 16 to 4 ohm, move the green wire from the 16 ohm tap to the 4 ohm tap leaving the purple wire attached.

Back to Main

Mesures transfo C3070 Marshall JCM900 4101 – 100w

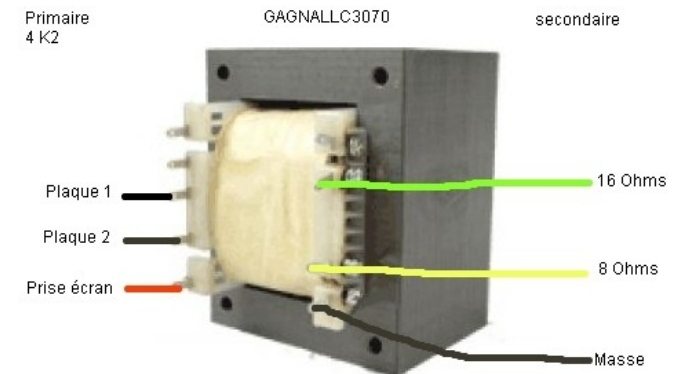
En Ohms

	A	B	C	D	E
A		Isolé	25,3	7,3	9,3
B			Isolé	Isolé	Isolé
C				32,5	16,2
D					16,6
E					



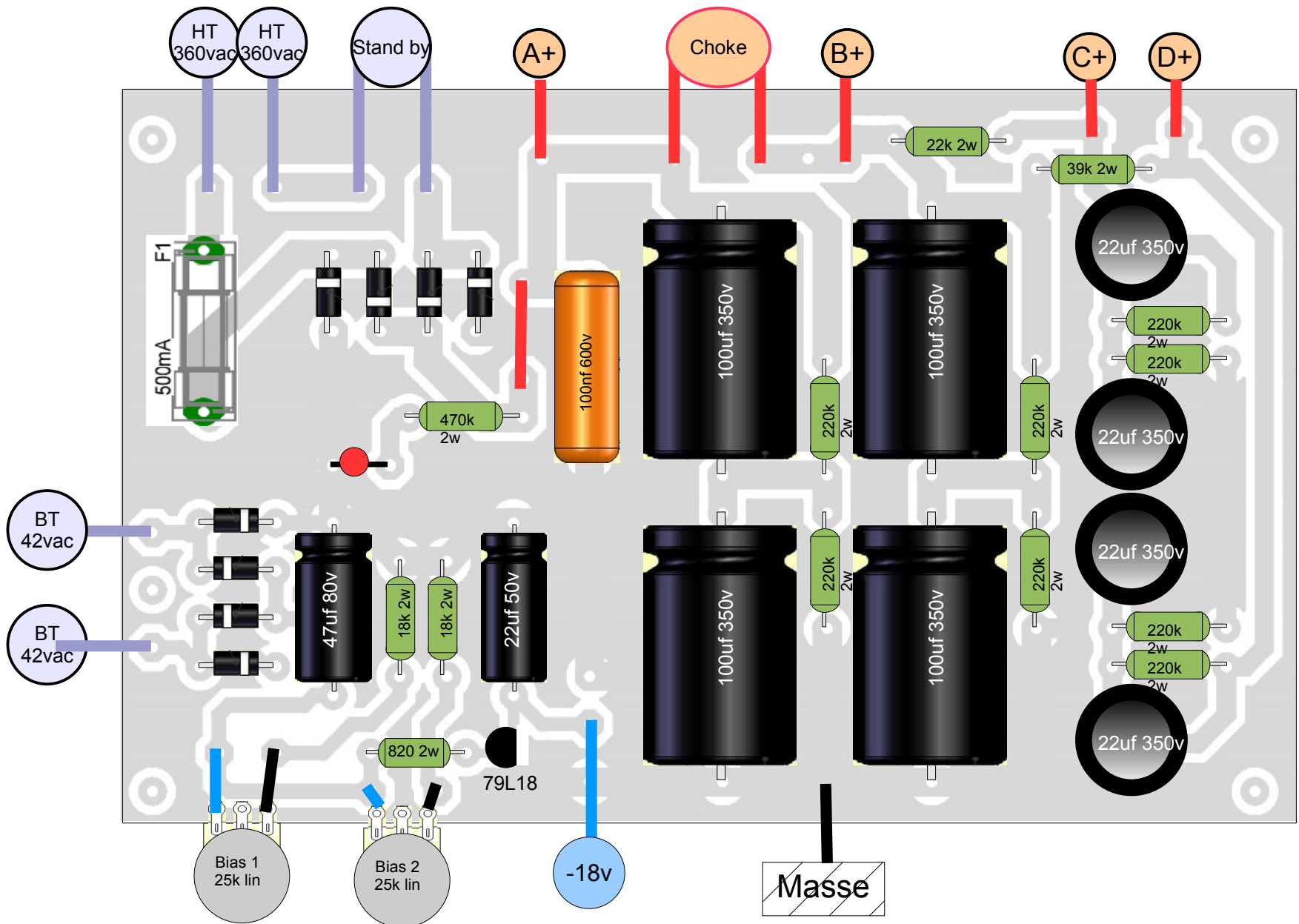
Branchement d'origine	
C	-> plaque 1
D	-> plaque 2
E	-> Prise écran

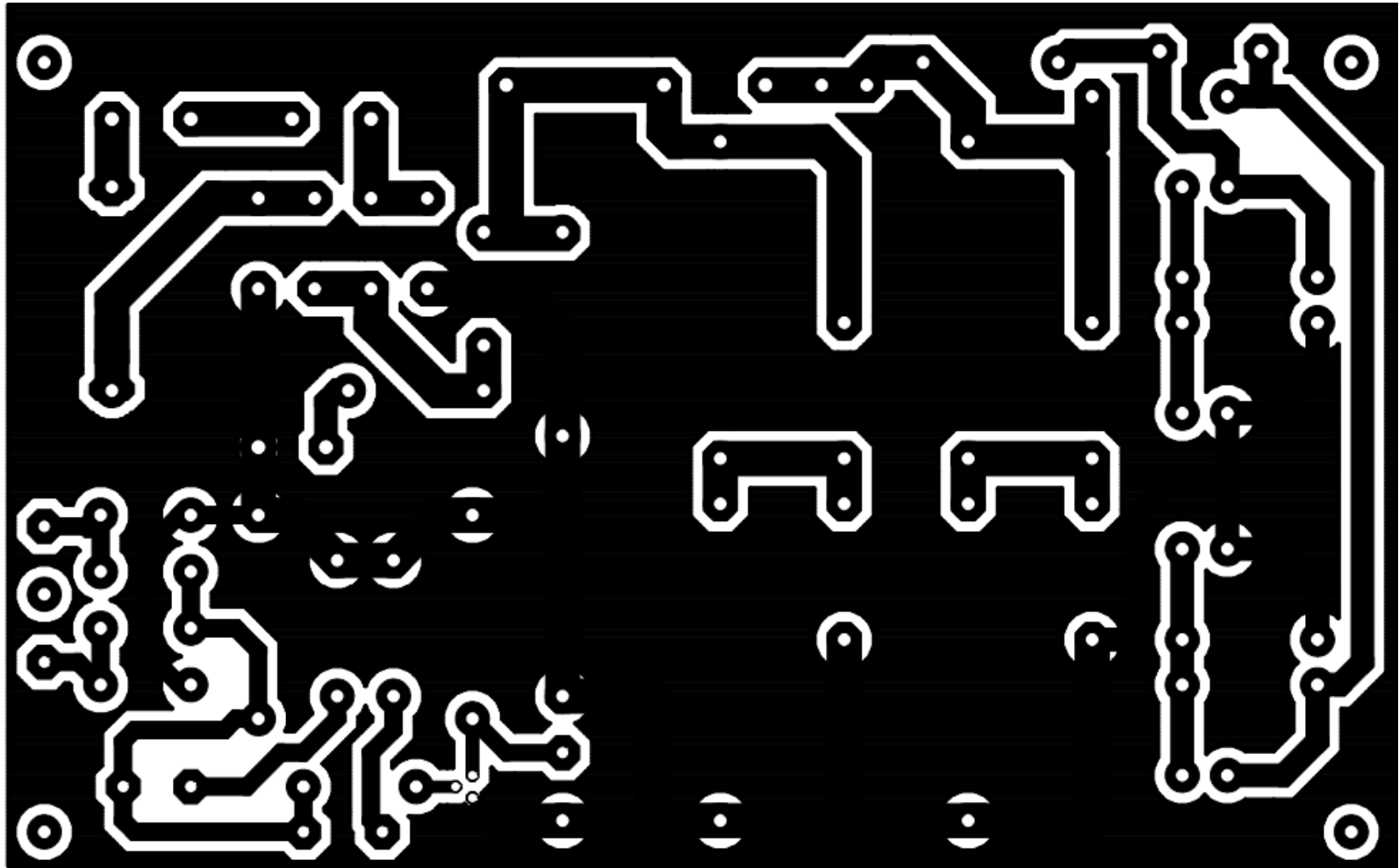
- Mesures de rapport d'impedances (electro suite gold) :
- sortie 4 Ohms : 57,8 arrondis à 58v -> 2,82v soit 2k05
- sortie 8 Ohms : 57,8 arrondis à 58v -> 4v soit 2k04
- sortie 16 Ohms : 57,8 arrondis à 58v -> 5,63v soit 2k05



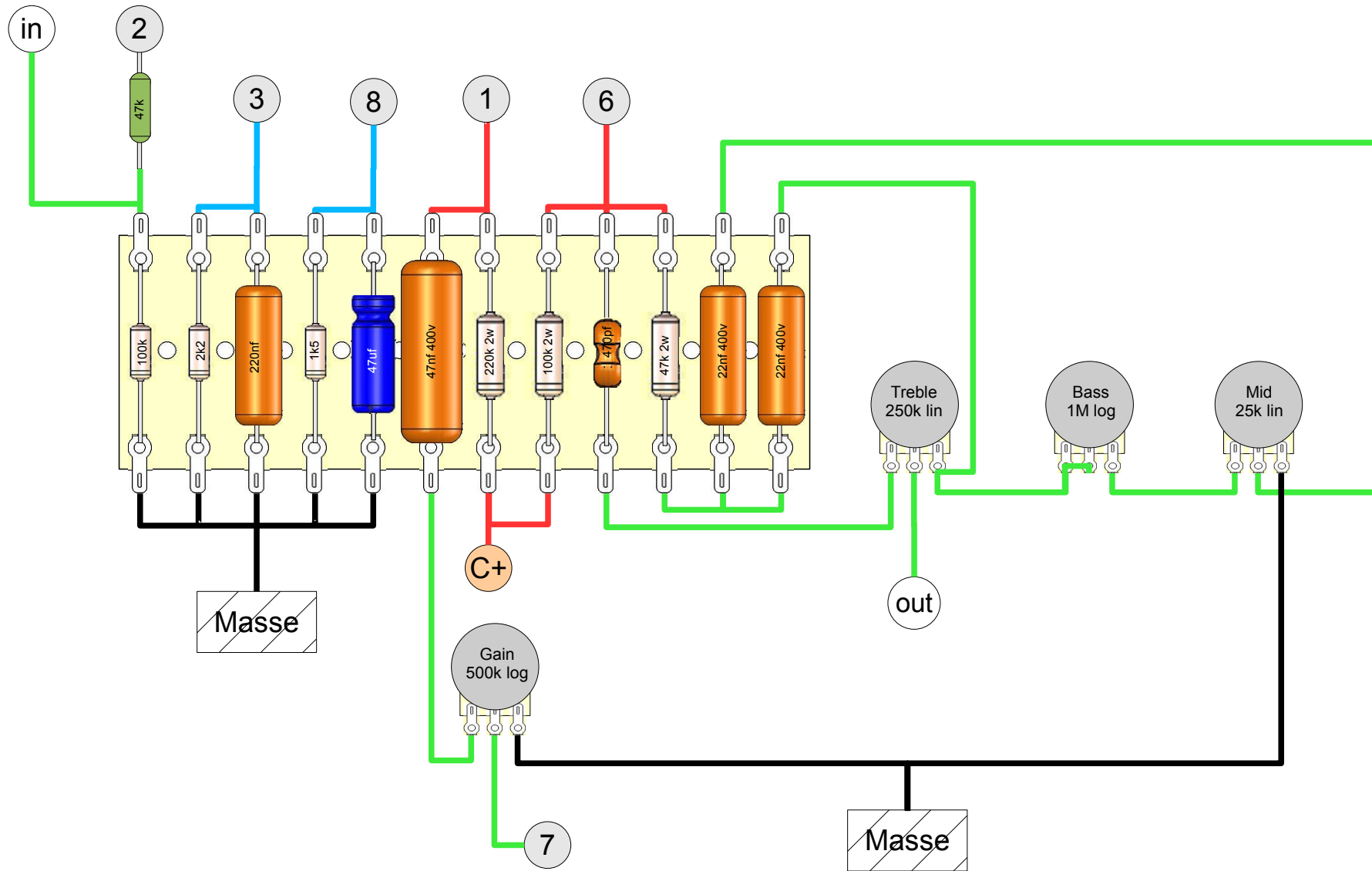
En utilisant une charge de 8 Ohms sur la sortie 4 Ohms du transformateur, on multiplie par deux la charge au primaire, ce qui donne entre 4k09 et 4k24, donc utilisable dans le projet MI60 (OT d'origine à 4k2/80Ohms). On pourra donc utiliser respectivement les sorties 4, 8 et 16 Ohms avec des charges de 8, 16, et 32 Ohms pour une puissance maximale admissible de 100w.

Layout alimentation HT et Bias

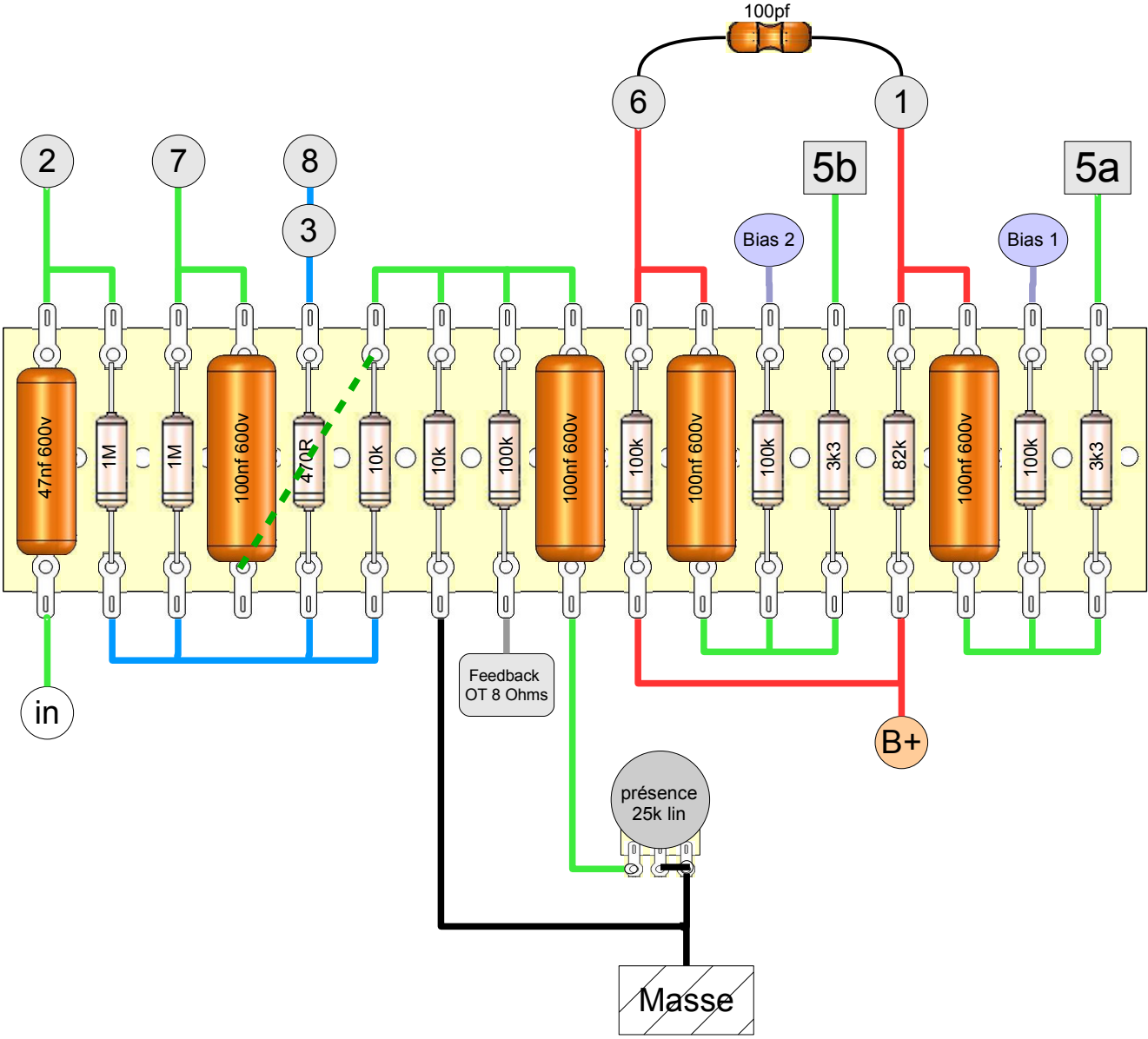




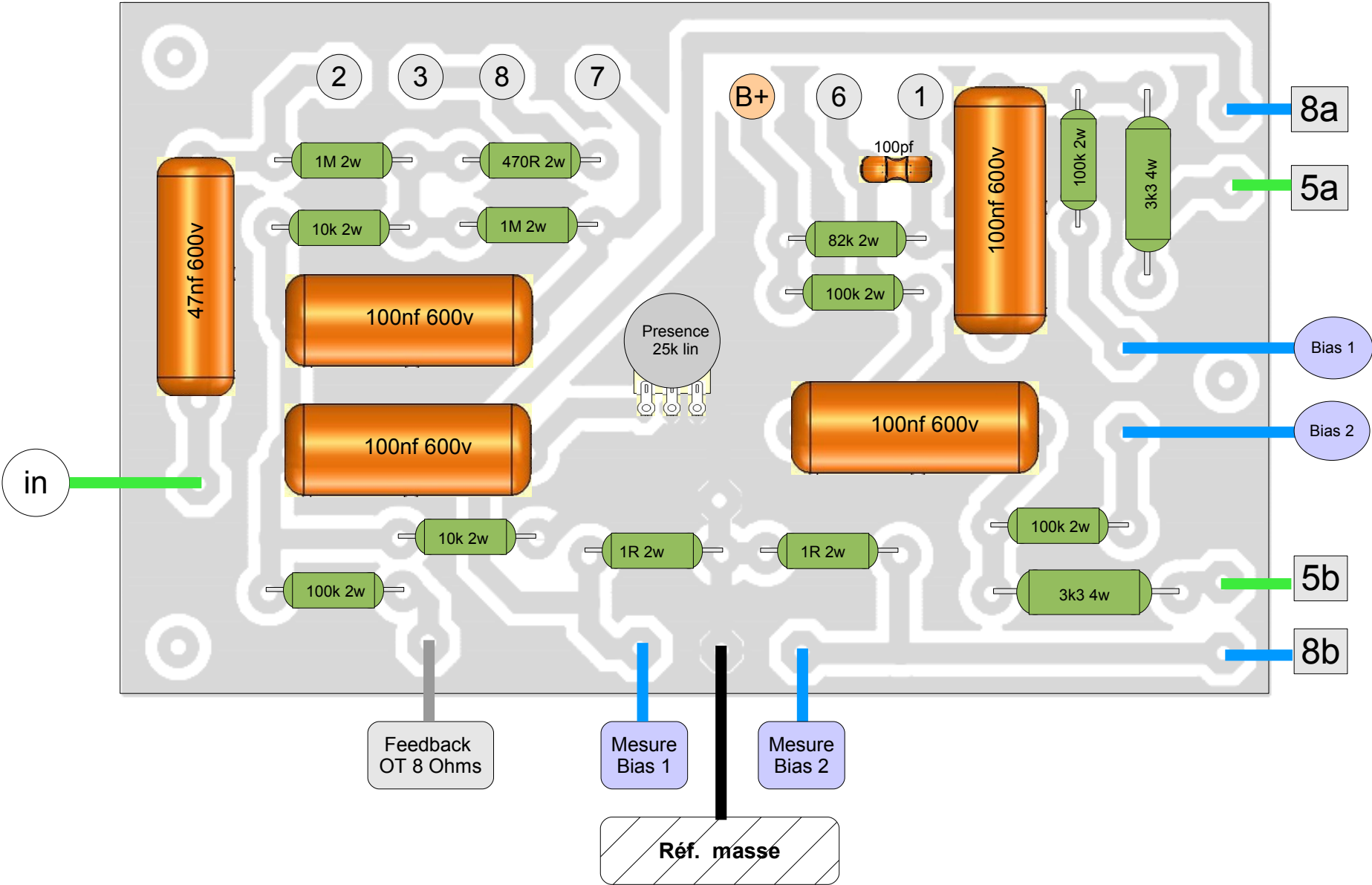
Layout préampli MI60

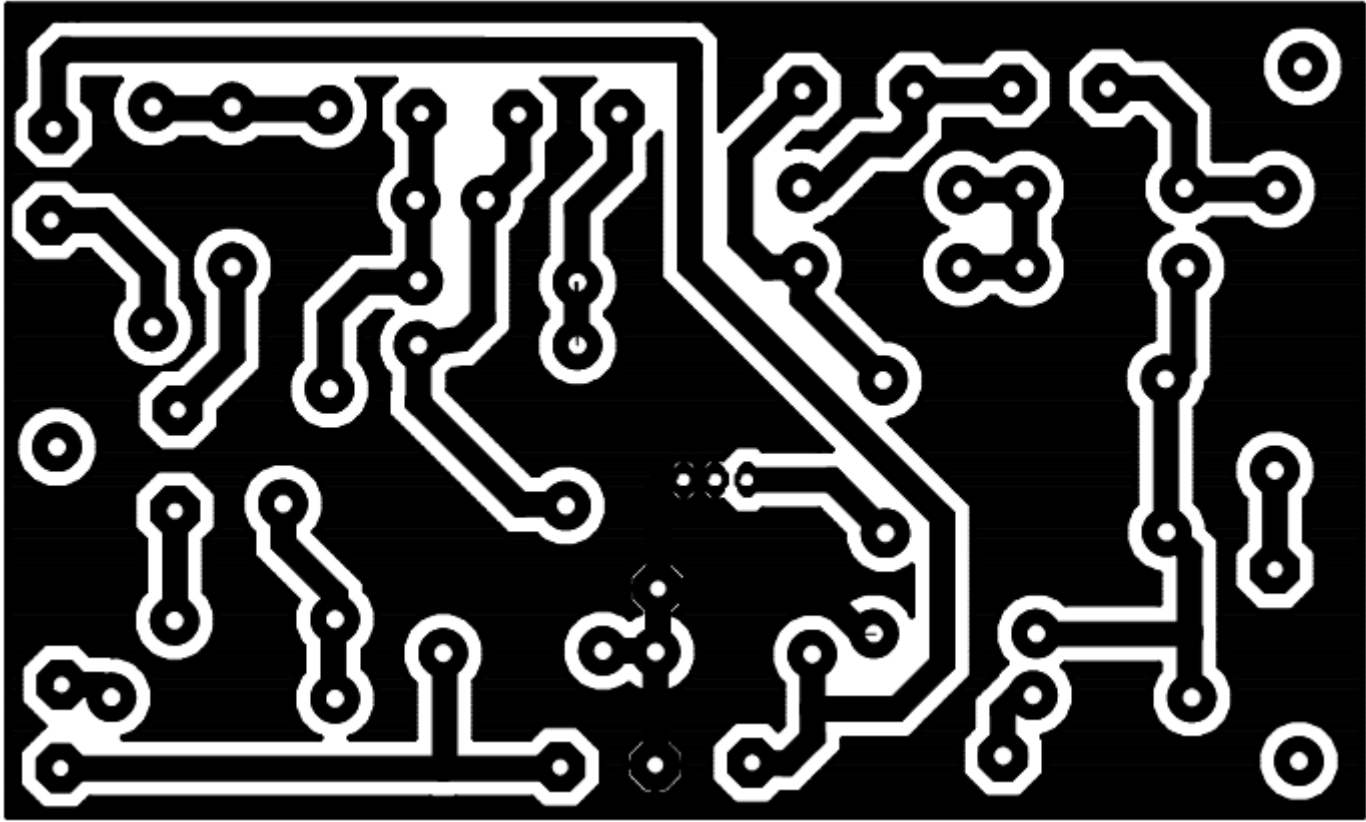


Layout phase inverter – power amp



Layout phase inverstor – power amp PCB

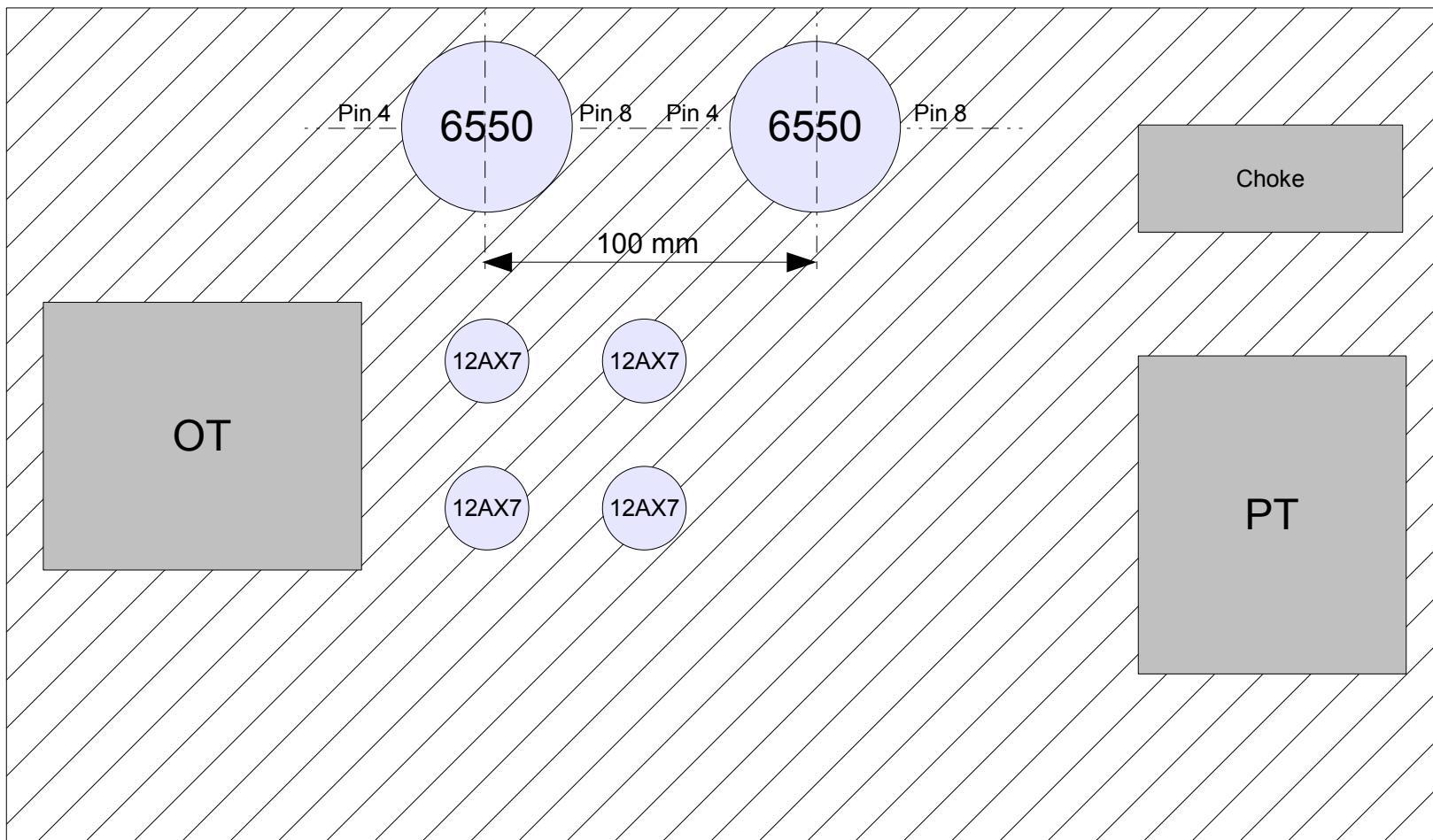




Chassis MI60 vu du dessus

Modèle Hammond Alu 1444-32 (432x254x76)

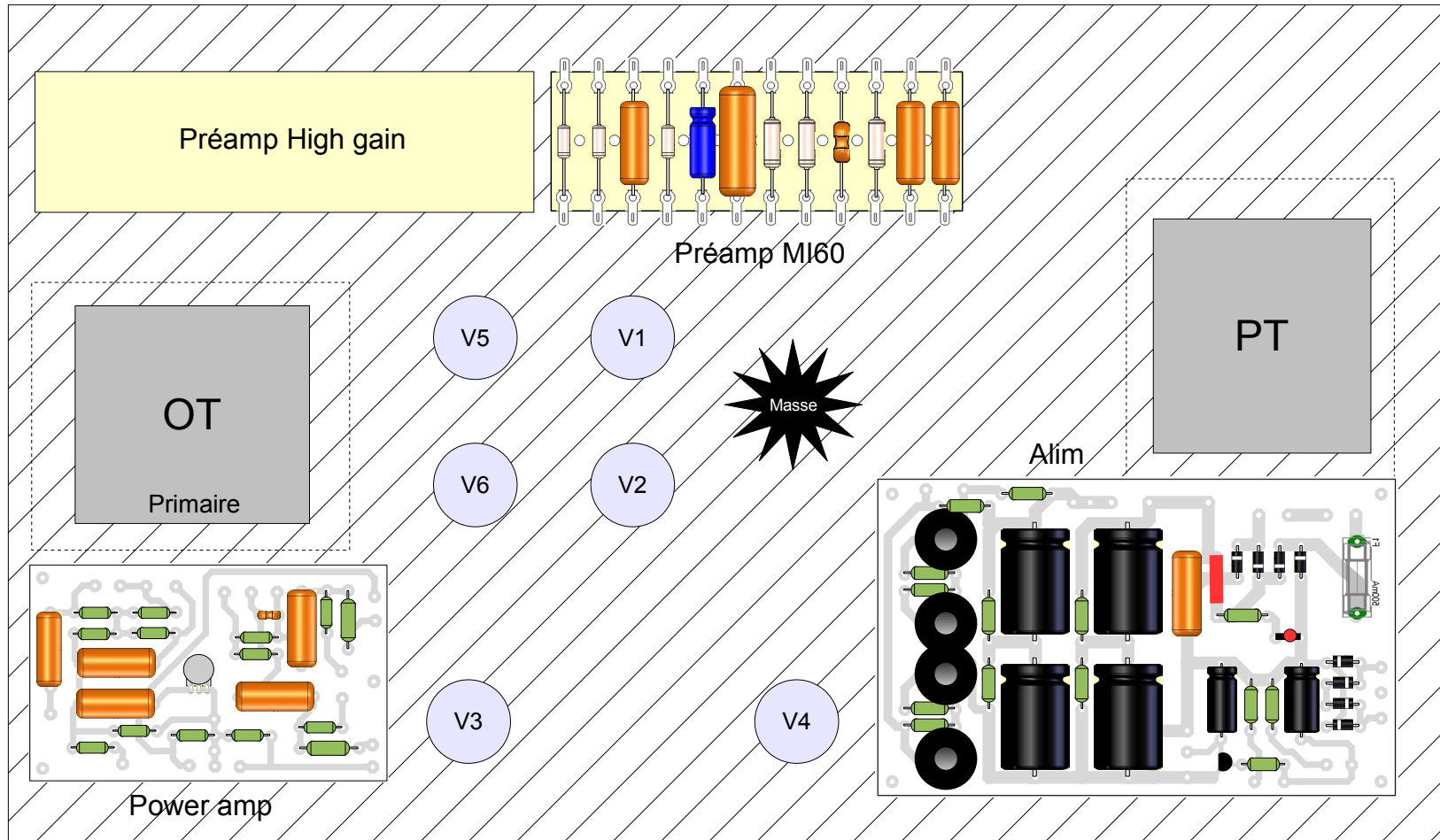
Echelle 1/2



Avant

Agencement intérieur MI60

Echelle 1/2



Arrière