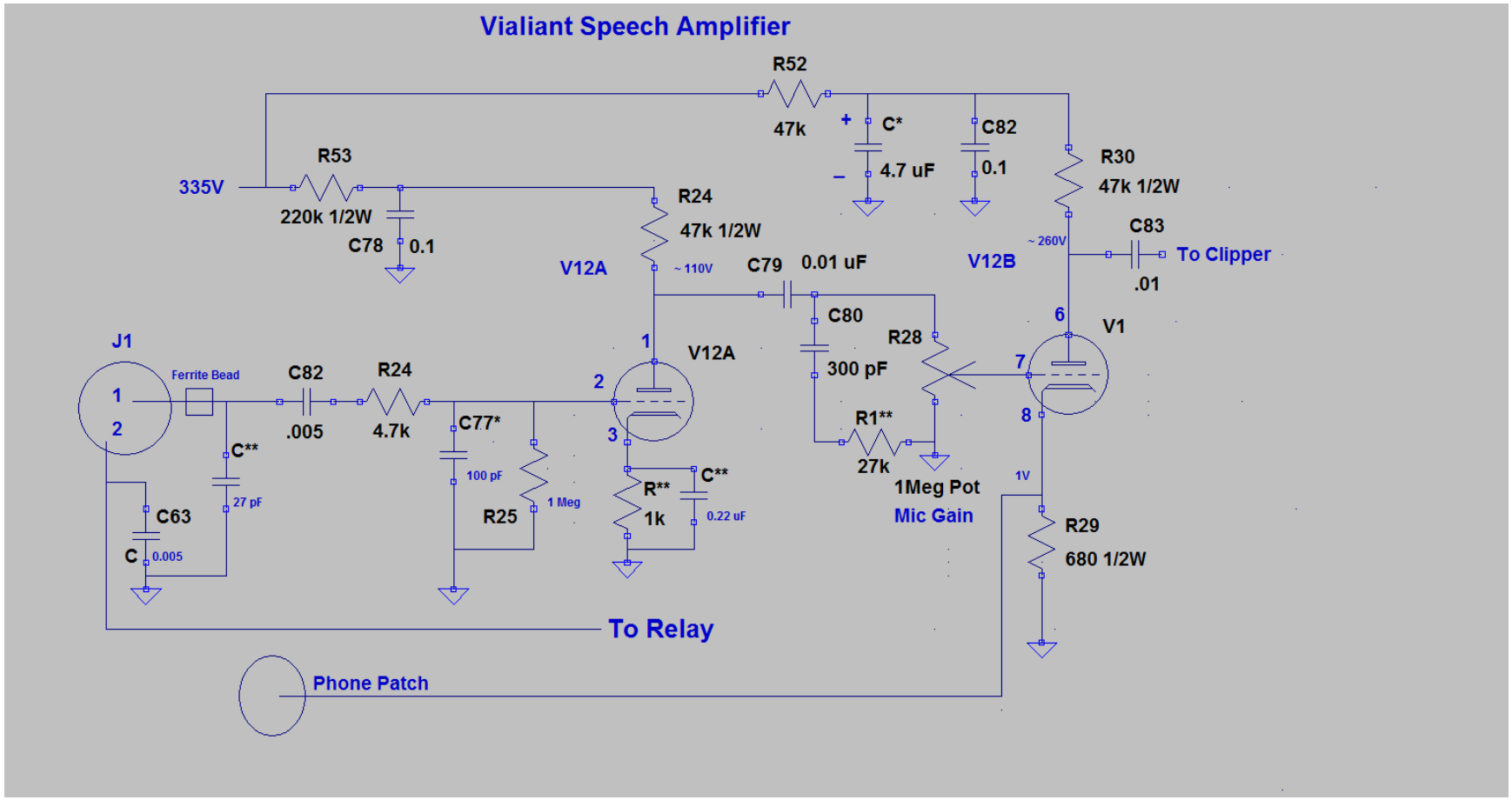
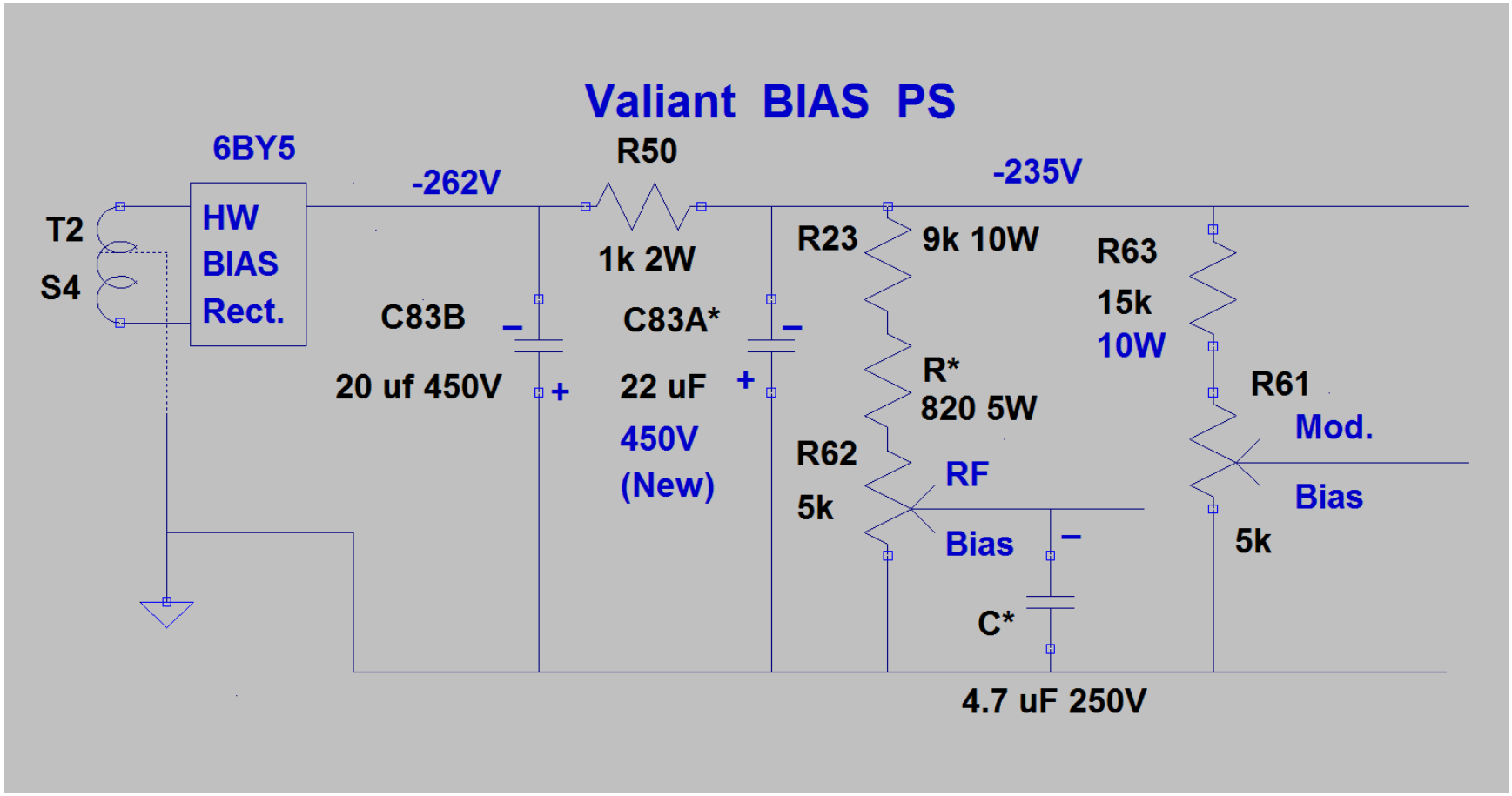
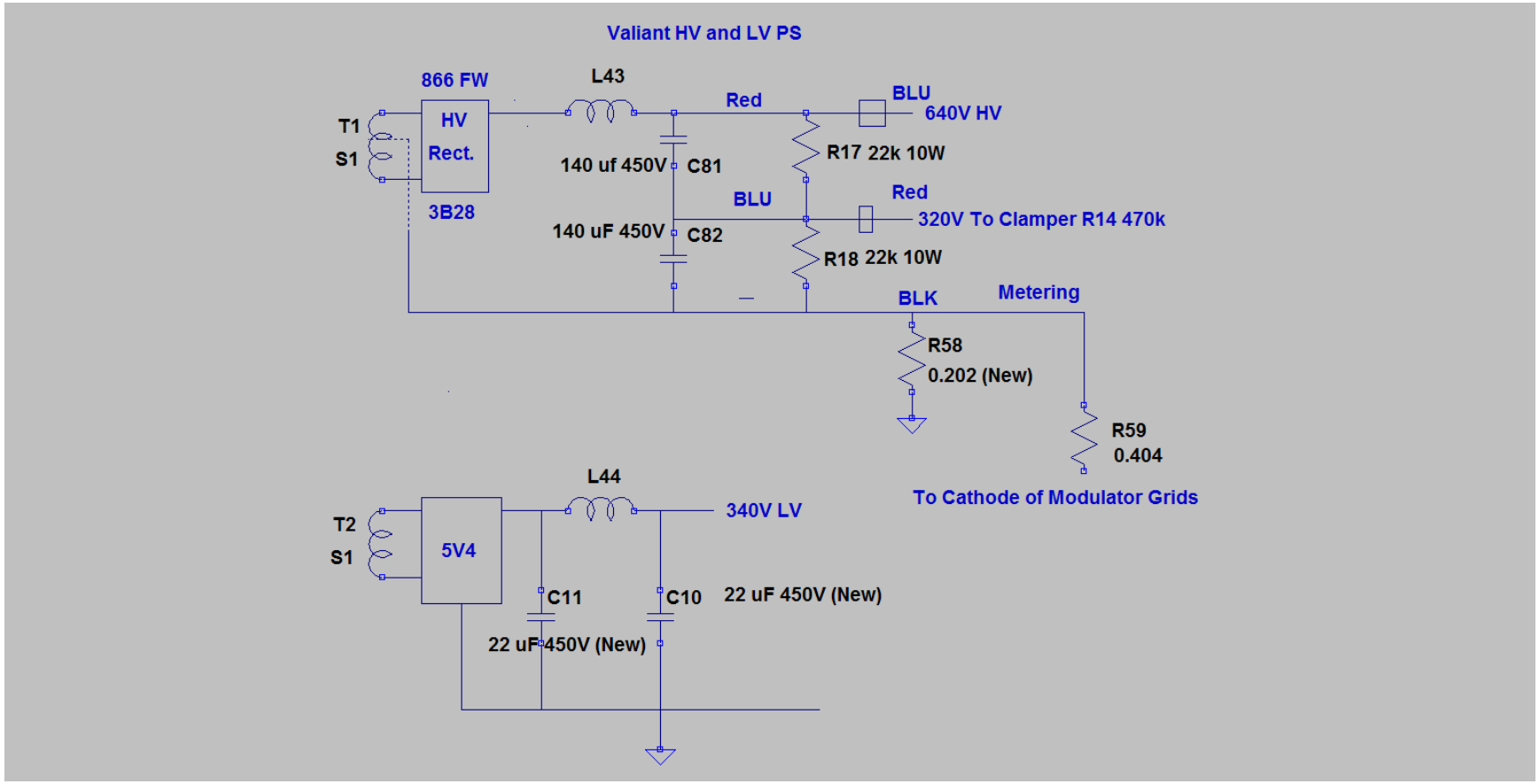

Vialiant Speech Amplifier
R52
47k
C*
4.7 uF
C82
0.1
R30
47k 1/2W
335V
R53
220k 1/2W
C78
0.1
R24
47k 1/2W
V12A
~ 110V
C79
0.01 uF
V12B
~ 260V
C83
.01
To Clipper
C80
300 pF
R28
6
V1
J1
1
2
Ferrite Bead
C82
.005
R24
4.7k
C77*
100 pF
R25
1 Meg
1
V12A
2
3
C**
27 pF
C63
C
0.005
R**
1k
C**
0.22 uF
R1**
27k
1Meg Pot
Mic Gain
7
8
1V
R29
680 1/2W
To Relay
Phone Patch


Valiant BIAS PS
6BY5
HW
BIAS
Rect.
T2
S4
-262V
R50
1k 2W
C83B
20 uf 450V
C83A*
22 uF
450V
(New)
-235V
R23
9k 10W
R*
820 5W
R62
5k
RF
Bias
C*
4.7 uF 250V
R63
15k
10W
R61
Mod.
Bias
5k


Valiant HV and LV PS
866 FW
HV
Rect.
3B28
T1
S1
L43
Red
BLU
640V HV
140 uf 450V
C81
R17 22k 10W
BLU
Red
320V To Clamper R14 470k
140 uF 450V
C82
R18 22k 10W
BLK
Metering
R58
0.202 (New)
R59
0.404
To Cathode of Modulator Grids
L44
T2
S1
5V4
340V LV
C11
C10
22 uF 450V (New)
22 uF 450V (New)

Voltage and Current Readings at Keydown

Input Voltage: 120VAC
Frequency: 3.880 MHz (75m)
Mode: AM
HV: 650V
LV: 340V
Final Plate Current: 375 mA
Final Plate current at idle with no RF drive, set by Clamp Tube circuit to 10mA; SGv = 210V
Final Grid Current: 6.5 mA
Final Grid Voltage **Bias** at bottom of R57: -70V
Modulator Plate Current as per Manual: -55mA

Power Output: 120 Watts

Parts Replacement List

1 - 12AX7A/ECC83, Speech Amplifier, $14.50
1 - 6C4/EC90, Third Audio, $3.79
1- 12AU7/ECC82, Audio Inter-stage Driver, $12.30
1 - 6AU6, VFO Osc., $7.79
1 - 6CL6, RF Amp, $6.79
3 – 6146B/8298A, Final RF Amp, $78.64
1 - 5763, Multiplier/Driver, $10.37
1- 6AQ5/6005/6HG5, Clamp, $7.97
2 – C91, C92, 40 uF, 450V Electrolytic, Radial
2 – C91, C92, 100 uF, 450V Electrolytic, Radial, (4 Total, $53.92), (Note: 40 uF and 100 uF paralleled for less HV sag)
2 – C*, 4.7 uF, 450V Electrolytics, Audio Filtering, $6.23
2 – R17, R18, 22k, 10W Bleeder resistors, $3.79
1- C37, 500 pF, 5kV, RF Plate-to-PInet, **DOORKNOB** coupling capacitor, $27.57
1 – C36, C37, 68 pF, 2kV, Ceramic, $1.27
1 – C89, 0.47 uF, 630V, Poly, $2.63
1- L12, RF Choke, 4.7 uH (Note: Feeds main RF Choke, L11), $2.79
1- R58, 0.202Ω, 1W, Precision Shunt resistor for PS Metering, $2.69
3 – C92A, C98A,B, 22 uF, 450V, for LV and Bias Supplies, $27.27
1 – C*, 4.7 uF, 250V, radial, for RF bias supply filtering, $2.13
1 – 2-lug terminal strip with ground, N/C

Total parts - $272.44
Labor - $125.00

Total Parts and Labor - $397.44

Note: The 2, 6146W Modulator tubes checked good so they were not replaced. All Rectifier tubes checked good so were not replaced. All tubes checked on a Hickok Model 533A conductance tube tester.

All ceramic wafer switches cleaned with DeOxit. All switches, potentiometers, and shafts were lubricated.

Comments and Recommendations:

1. This rig has been worked on before and thus labor cost was higher than usual to correct problems.

2. Set exciter excitation initially to 10-15. Observe plate current 350mA to 375 mA.

3. Grid Drive: set drive pot. initially to about 8:00 O:clock position or 2-3. Never transmit for more than 1 or 2 seconds without grid drive. Keep grid drive current below 8.0mA. Always advance Grid drive pot. slowly. It appears with this rig that it doesn't take much grid drive and grid current to produce power.

4. Operational Plate Current should be run around 350mA to 375 mA.

5. While the Valiant is capable of full output, I would keep the power output at or below 120 Watts to reduce tube and component stresses.

6. The RF and Mod bias voltages were set to accommodate the higher 120VAC powerline voltages. Someone put epoxy adhesive on these pots. This is stupid since anytime different tubes are installed, these pots must be adjusted. Only a mild Loctite adhesive should be applied

7. Replacement Capacitors, Resistors, and Inductors are new components.

8. Every effort has been made to bring the Valiant up to its original specifications and to keep it as original as possible. However, this is a 60 year old rig that was once operated in a smoking environment.

9. **Pin 2 of the Audio/PTT connector has 200V on it for keying the Transmit relay. I would seriously consider an MFJ ARB-702 buffer or equivalent to avoid dangerous voltages.**

10. The audio was checked with a dynamic microphone of 50kΩ microphone impedance. Any microphone with an impedance of 50kΩ or above, such as a D-104, will drive the Speech Amplifier. Set Clipper initially to 12;00 O'clock and work from this setting. Don't use too much clipping or distortion will occur.

11. The AUX “Coupling” wafer switch contacts have been **damaged due to switching during transmission**. I have been able to get at least one finger to make contact, but the bridge portion of the bifurcated contact is missing. Do NOT switch during operation.

12. An attempt to calibrate the VFO was not entirely successful. 3.880 MHz shows up close to 3.9 MHz on the dial. I suspect the NPO and temperature compensating capacitors need replacement but that would be labor intensive and replacement components expensive.

13. There are **no warranties granted or implied** since the vacuum tubes are NOS, and chassis heat degrades components over time.

14. If bill is not paid within 15 working days, the repaired unit becomes the property of the repair facility.