

User's Manual
Model 1100 High Voltage AC Power Supply

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GENERAL INFORMATION

The Model 1100 output is a high-voltage sinewave of continuously adjustable amplitude. The maximum output is at least 10 KV peak-to-peak (3.54 KV rms) over a frequency range of 50 to 500 Hz. Over most of this frequency range, maximum output is at least 15KV peak-to-peak (5.3 KV rms). The output frequency is also continuously adjustable. The high voltage output is available at the SHV output connector on the rear panel of the Model 1100. Use only the special cable provided with the Model 1100, or an equivalent cable, for connecting the experiment to the Model 1100.

Model 1100 overall dimensions are 12.00 inches wide, 3.625 inches high and 12.50 inches deep. Figure 1 is a front panel drawing of the instrument.

Peak-to-peak output voltage is displayed on a 4 1/2 digit display on the front panel. Normally this meter displays output voltage. A spring-return switch on the front panel enables this switch to display the Model 1100 output frequency also.

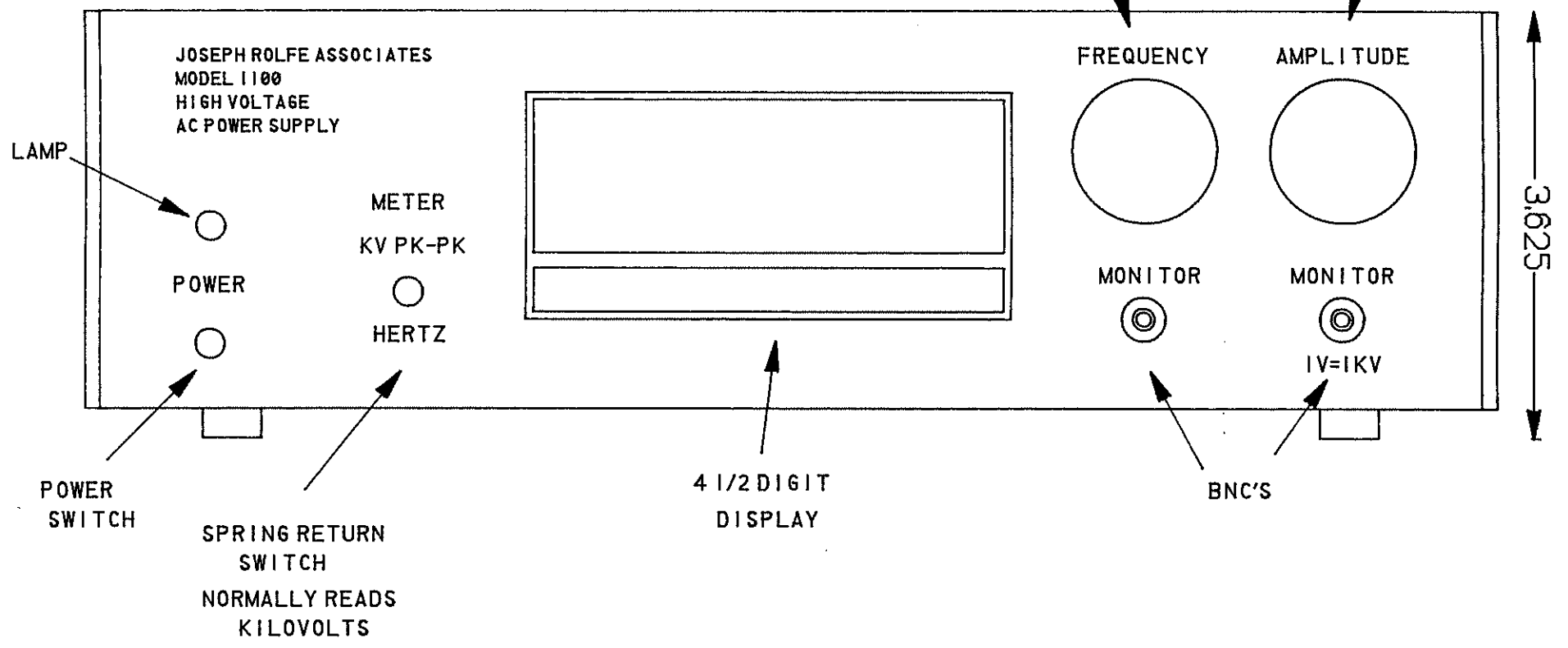
There are two BNC monitor jacks on the front panel. One jack displays the output voltage of the Model 1100 divided 1000:1. The output signal may be viewed on an oscilloscope or fed to an external digital voltmeter. This monitor jack is especially useful for identifying corona or similar breakdown problems with an oscilloscope. The other jack is a squarewave that is particularly useful as the input to an external counter/frequency meter.

A special feature of the Model 1100 turns off the output if there is an output overload. This circuit is very fast acting and turns the output off in less than one cycle of the output signal. The Model 1100 is set to trip at a peak output of about 1.4 ma peak (1.0 ma rms).

*LASH cable
for 10KV connect
Kings*

12.000

10 TURN POTENTIOMETERS



OPERATING INSTRUCTIONS

Another instrument should not be placed immediately on top or behind the Model 1100. Allow at least 3 inches for adequate ventilation. Install the output cable and connect it to the experiment before turning power on. To Operate the Model 1100:

Turn the AMPLITUDE control fully counter-clockwise (CCW) before turning power on.

Turn power on. Check frequency with the front panel meter. Adjust the FREQUENCY control if required.

Slowly turn the AMPLITUDE control clockwise (CW) to increase the output.

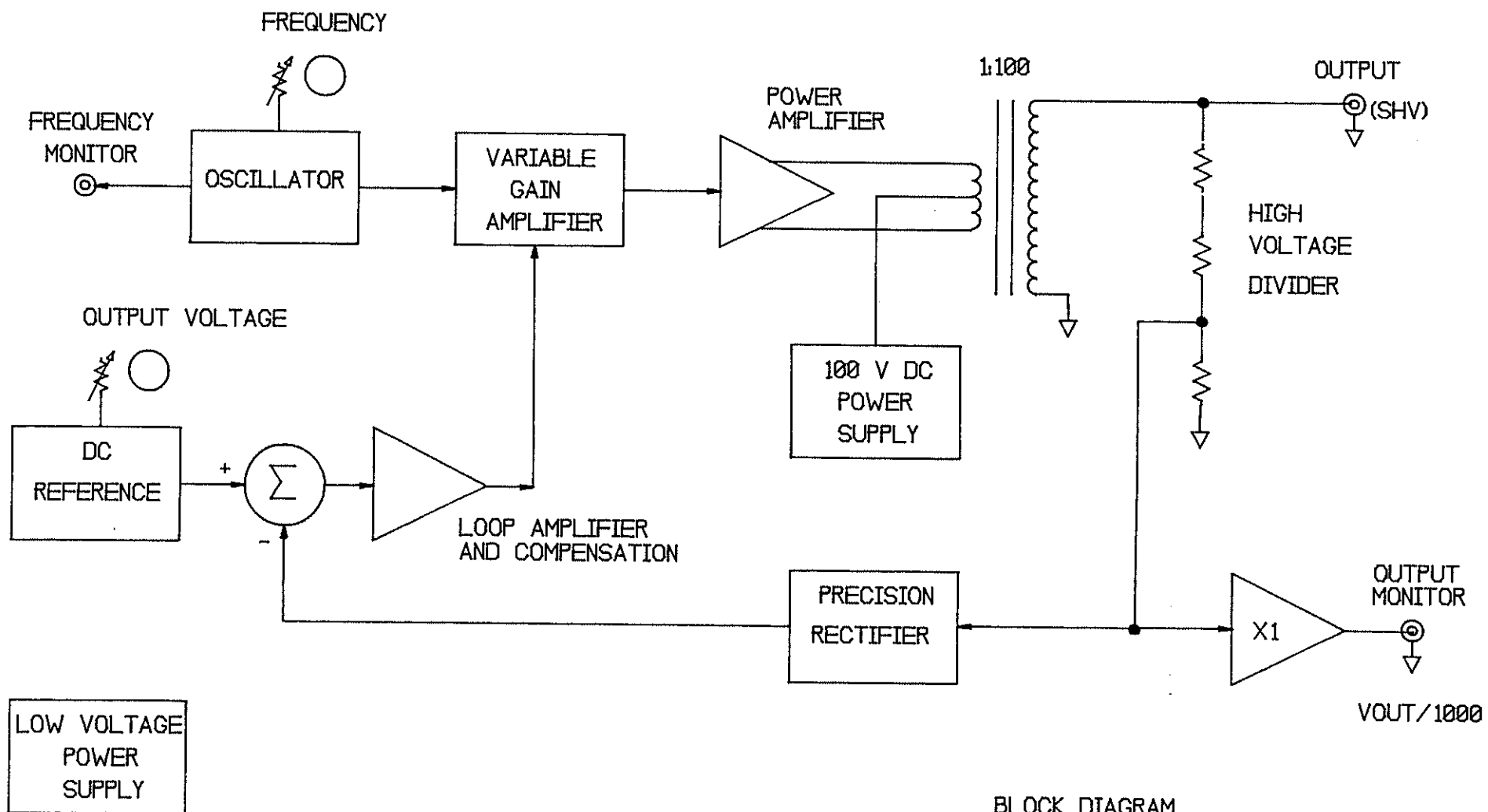
If the overload circuit trips, turn power off for 5 seconds to reset the overload circuit. Turn the AMPLITUDE control fully counter-clockwise (CCW). Turn power on, and increase the output amplitude slowly.

Occasionally, the overload circuit will trip when power is turned on. If this happens, turn power off and turn the AMPLITUDE control fully counter-clockwise (CCW). Wait 5 seconds and turn power on again. Turn power on.

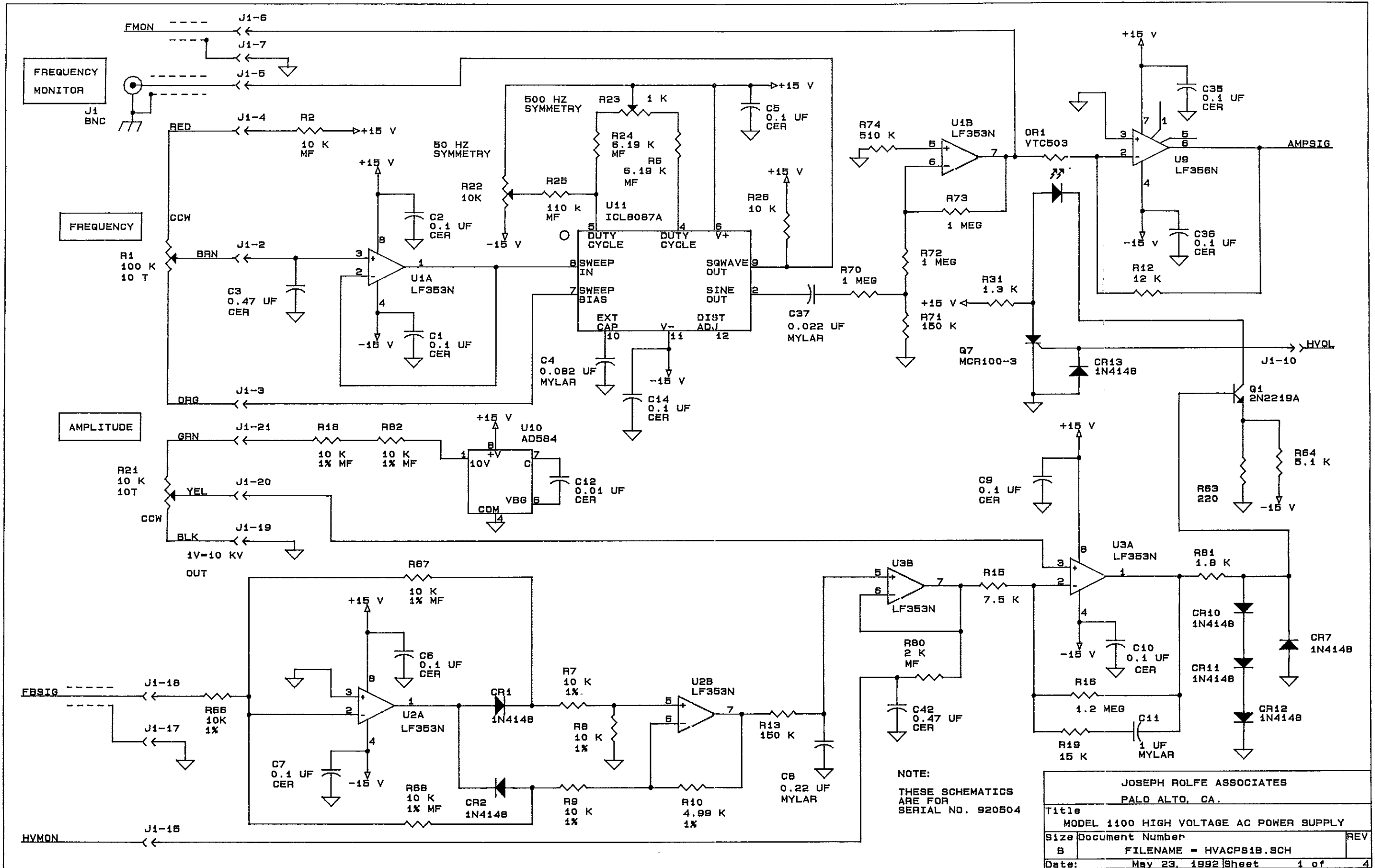
OPERATING PRINCIPLES

Figure 2 is a block diagram of the Model 1100. An integrated circuit function generator produces a sine-wave that is fed through a variable gain amplifier which controls the amplitude of the signal fed to the power amplifier. The variable gain amplifier uses an optically controlled variable resistor to provide the required wide range of output amplitudes produced by the power amplifier while introducing minimum sinewave distortion. Power amplifier output is fed through a 1:100 step-up transformer to obtain the high voltage available at the output. The output signal is sampled by a high voltage divider and fed to a precision full-wave rectifier. Rectifier circuit output is compared with a stable dc reference, passed through the loop amplifier and feedback stability compensation. It is then used to control the gain of the variable gain amplifier which sets the output voltage.

Monitor points for both the output voltage and frequency are also furnished.

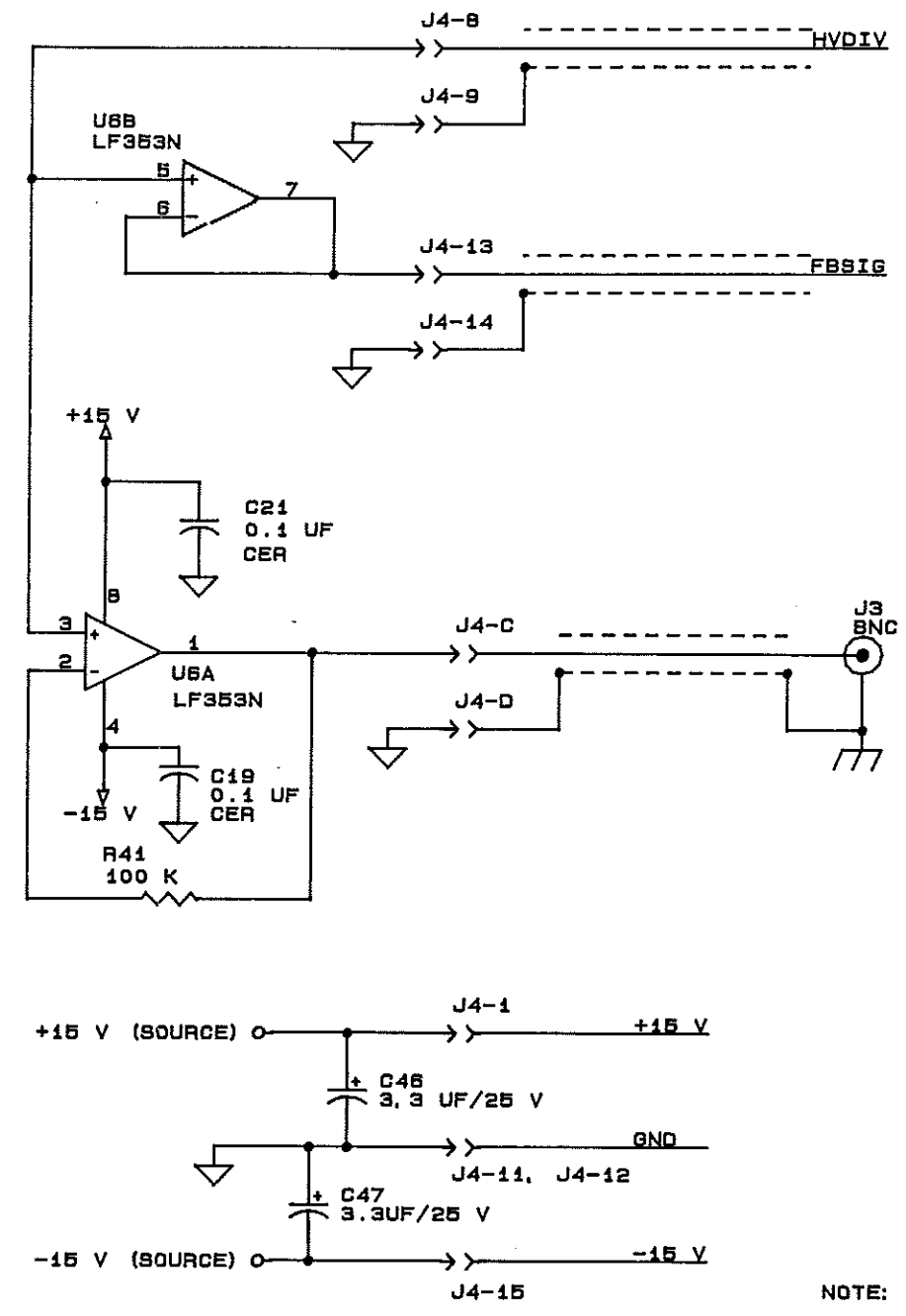
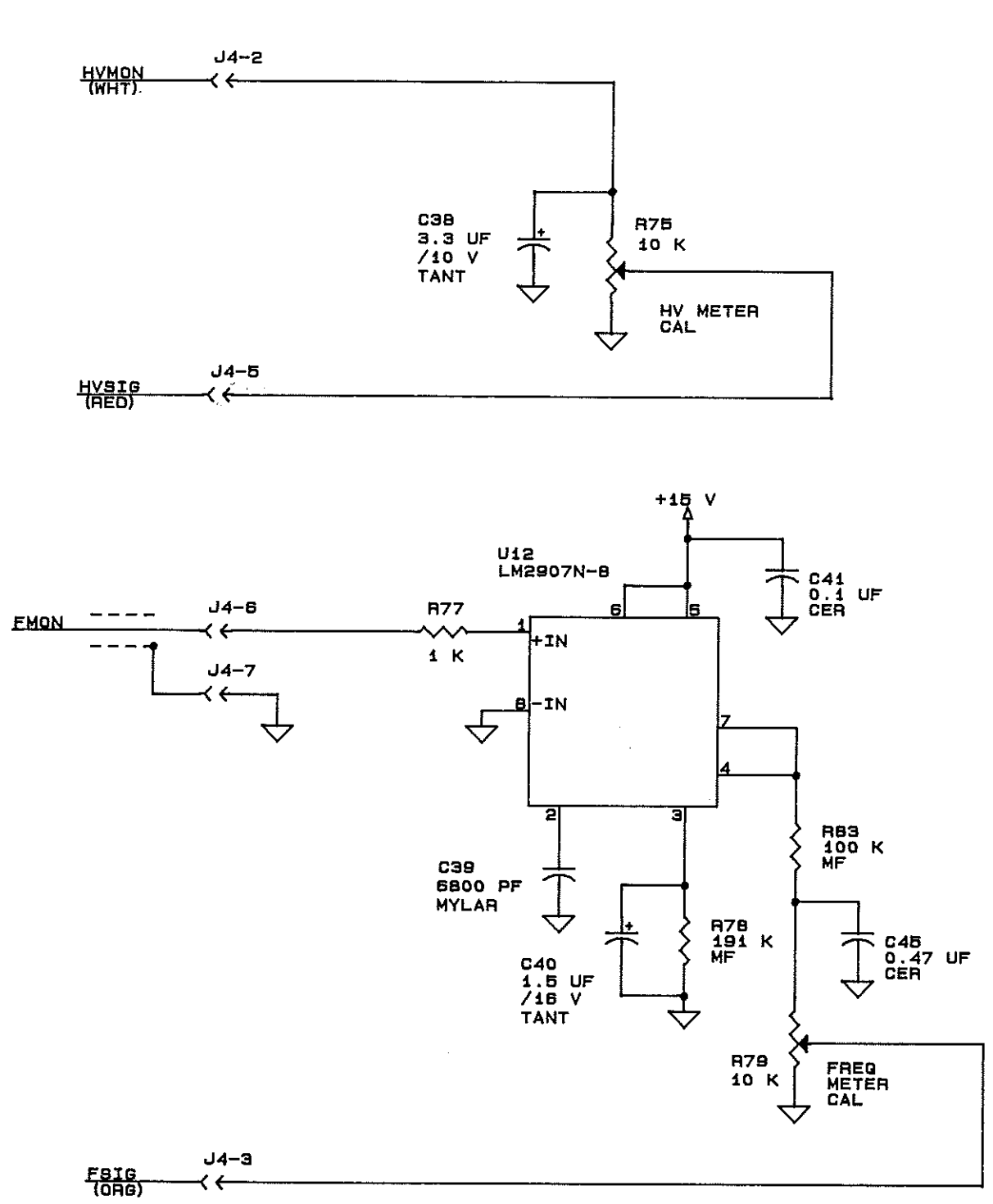


BLOCK DIAGRAM
 MODEL 1100 AC POWER SUPPLY



NOTE:
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 ARE FOR
 SERIAL NO. 920504

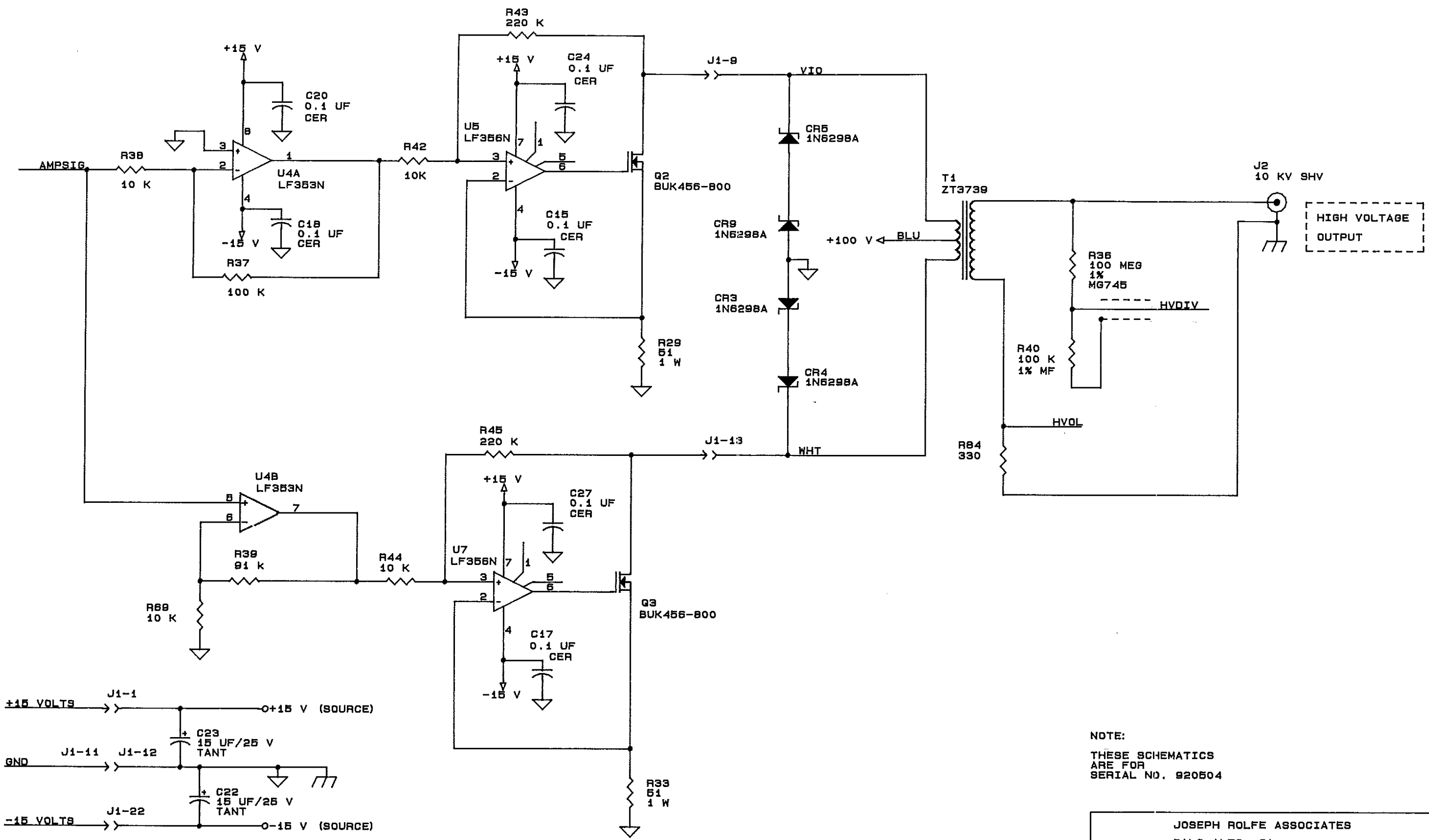
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Title MODEL 1100 HIGH VOLTAGE AC POWER SUPPLY	
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FILENAME = HVACPS1B.SCH	
Date: May 23, 1992	Sheet 1 of 4



HIGH VOLTAGE MONITOR

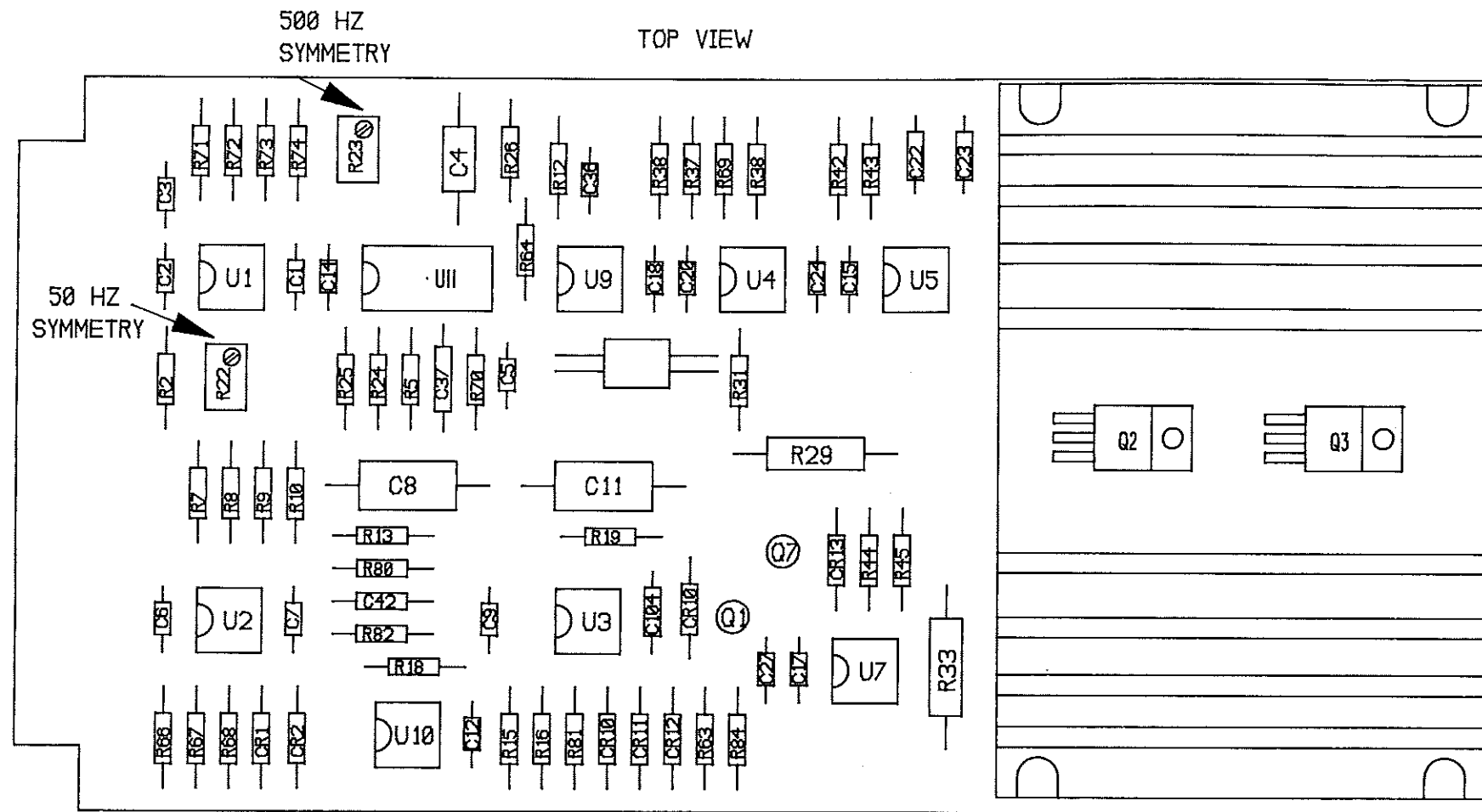
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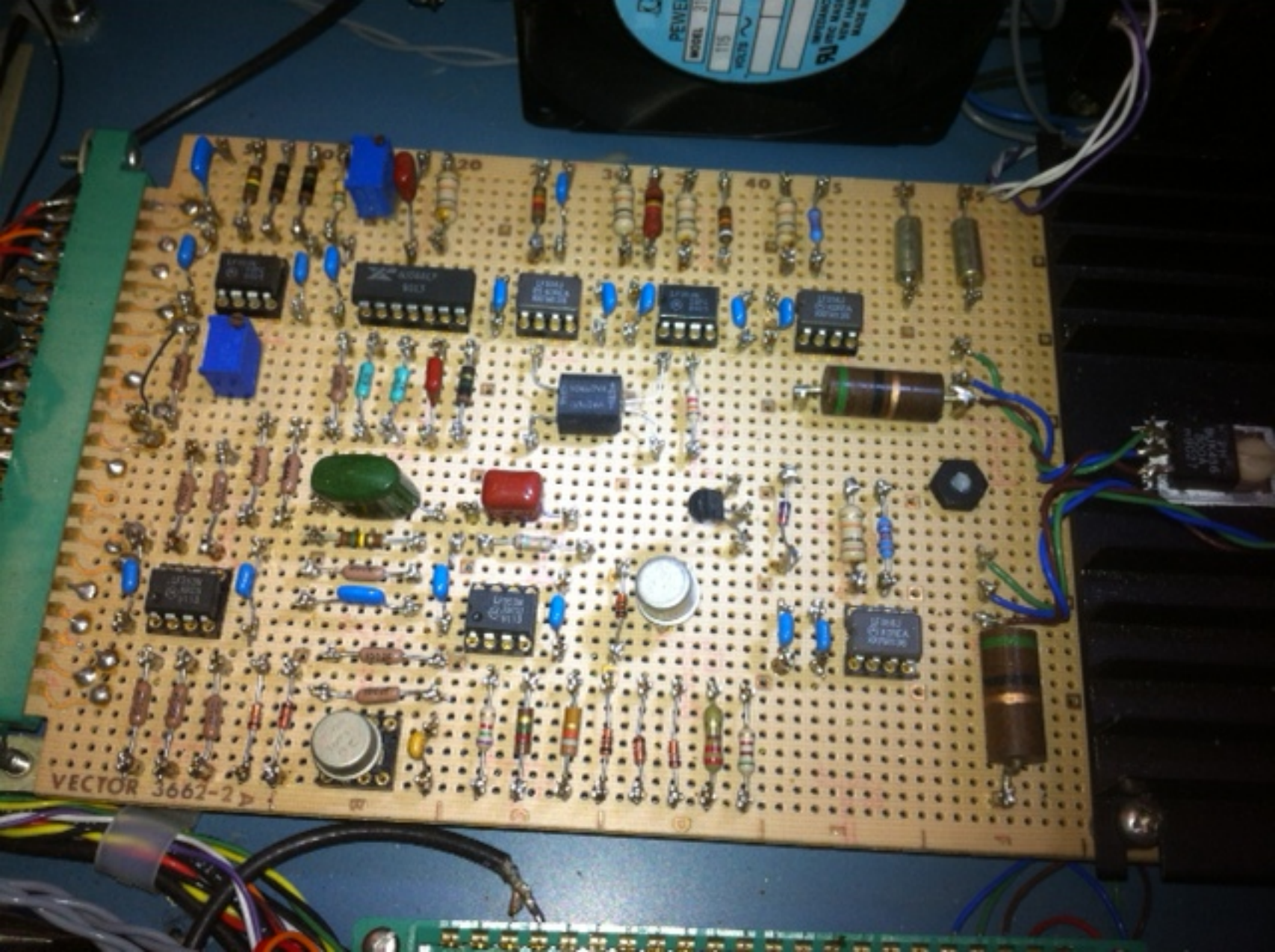


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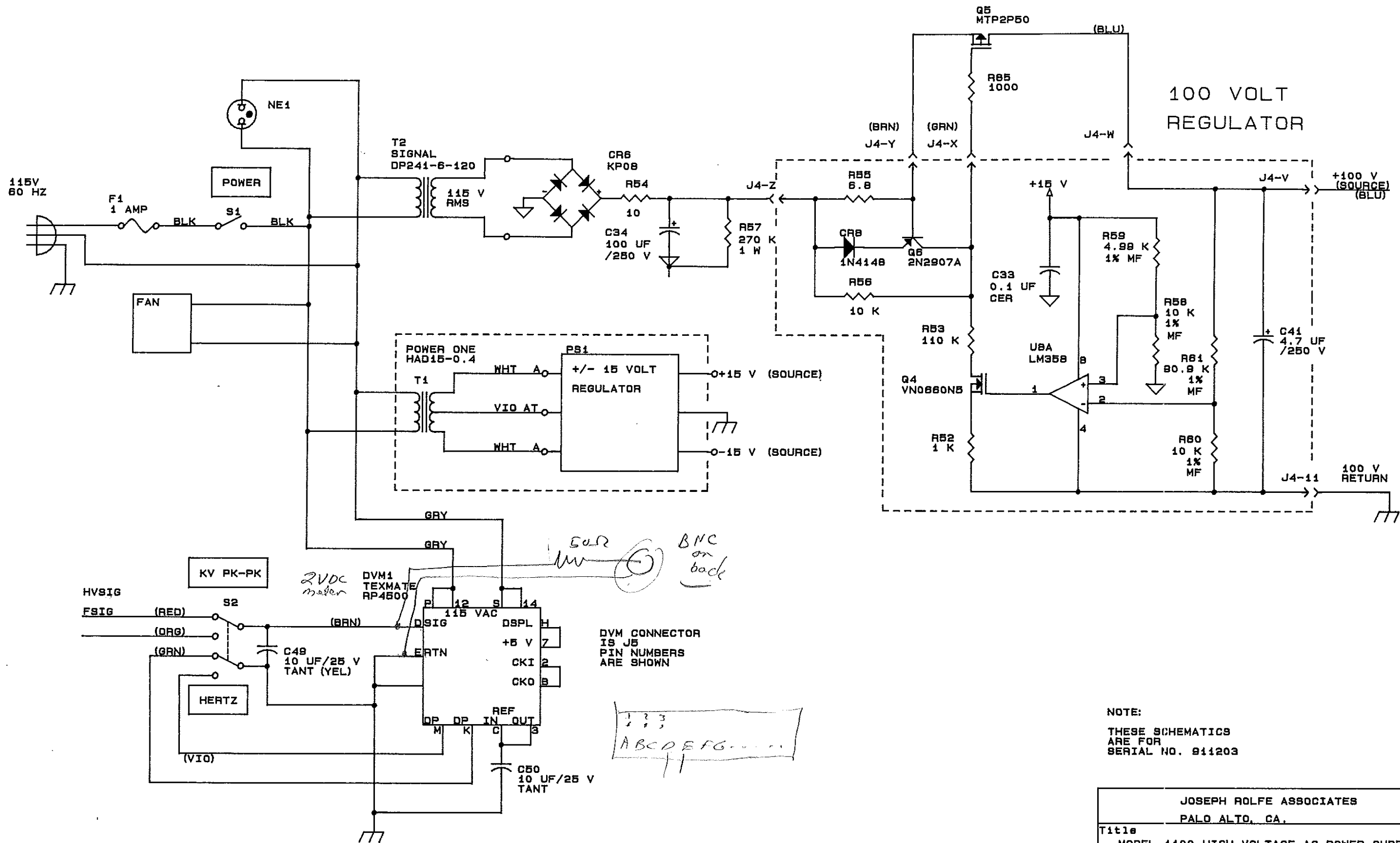


HIGH VOLTAGE AC POWER SUPPLY
 SIGNAL BOARD LAYOUT
 SERIAL NO. 920504



PEWEE
MODEL 31
115
VOLTS
30
WARNING:
DO NOT TOUCH
ANY PARTS
MADE IN
USA

VECTOR 3662-2



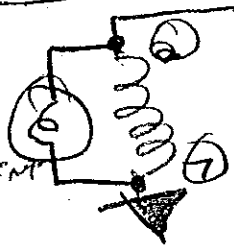
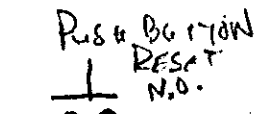
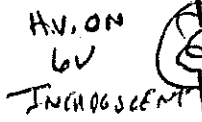
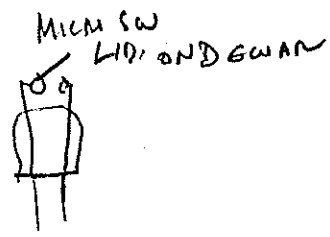
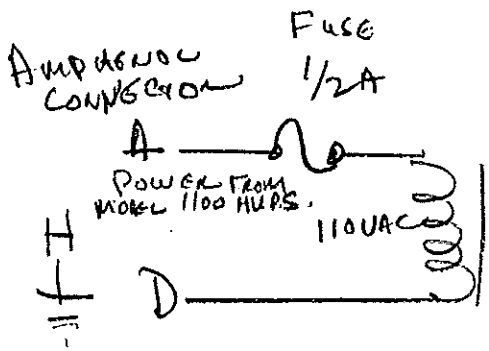
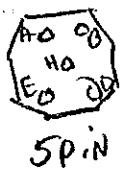
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CONTROL BOX FOR MODEL 1100 HIGH VOLTAGE POWER SUPPLY

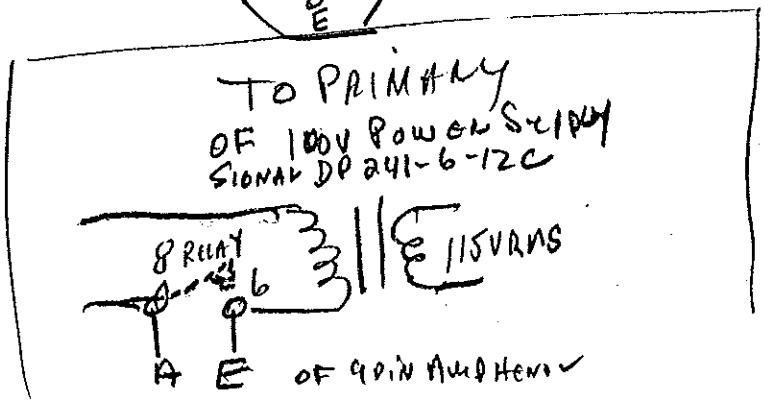
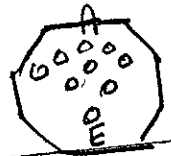
Control Box for
High Voltage Power Supply

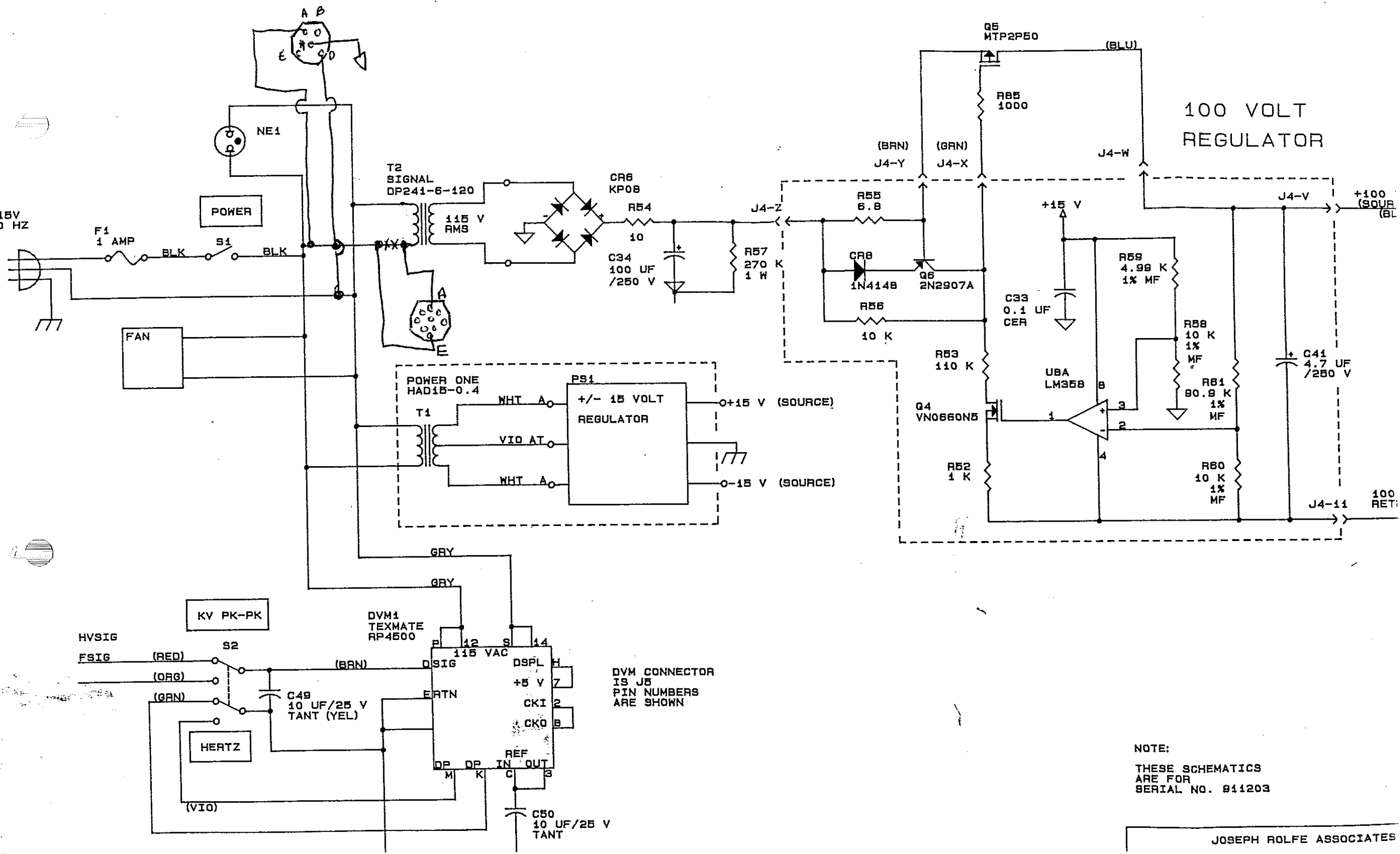
Designed by Richard Seebach



6.3 VAC
RELAY

9 PIN - AMPHENOL

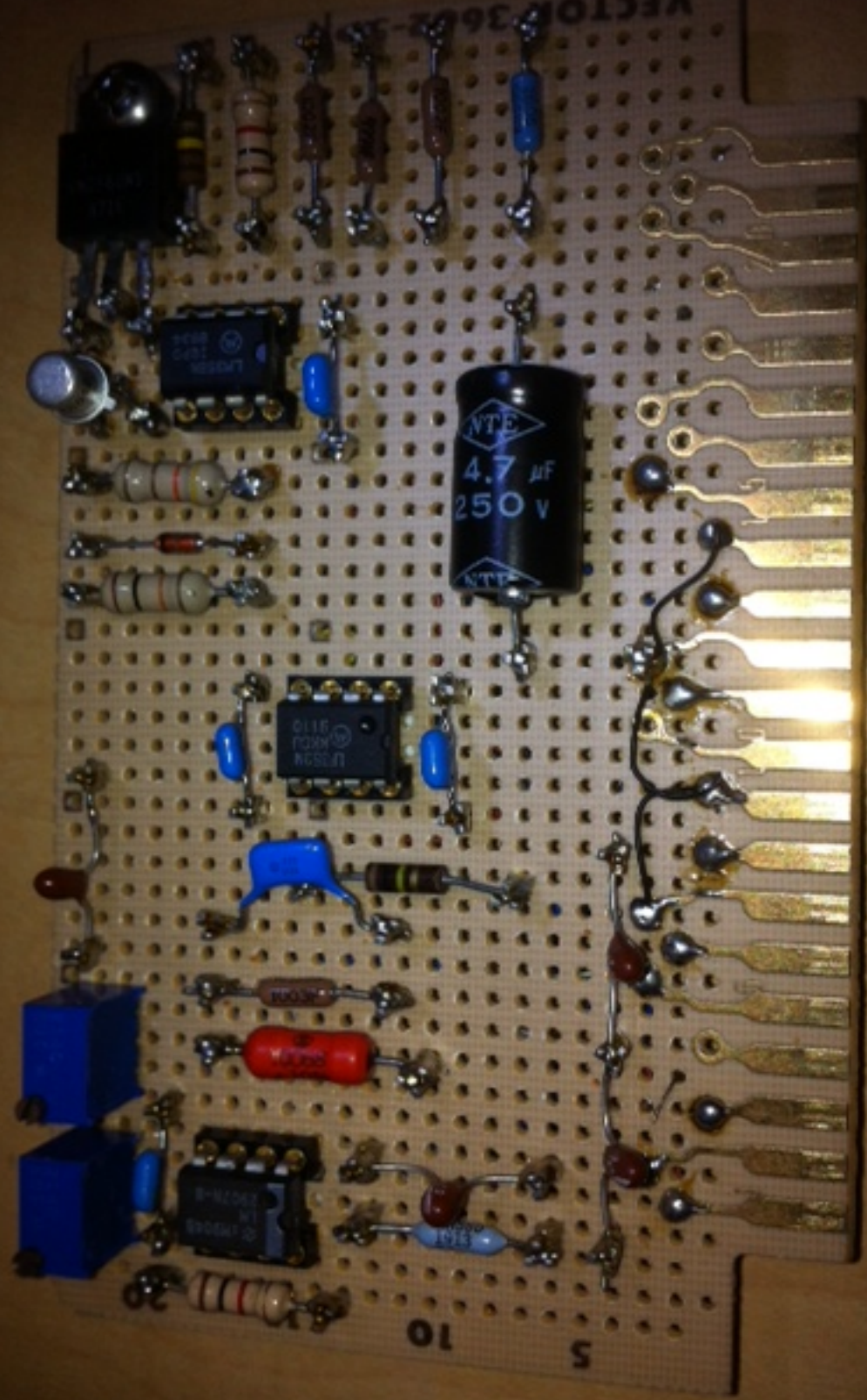




DVM CONNECTOR IS J5 PIN NUMBERS ARE SHOWN

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VECTOR 362



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