Regulated Tube Power Supplies

There are three schematics here.

The first is a simple one-tube supply from the 1969 GE Essential Characteristics Data Book.

I built one of these in 1969 using an old TV transformer and substituting a 5U4 for the diodes. It has been hooked to a BC-454 set to 5MHz as a WWV monitor.

The second schematic is from the same GE book. I have never built one of these, but looks like it would be a workhorse for general tube circuit design and testing.

The third schematic, inspired by the first, which I just copied from a hand-drawn schematic, is a cobbled-up supply I built for bench testing old radios (especially ex-dynamotor types). I used transformers and tubes that were plentiful in my junk box. The mulitple filament transformers allows me to use 12v and 6v tubes, while avoiding the 200v cathode-to-filament limit. A third is used to provide a filament output.

The regulator tube is listed as a 6AM. That's the octal base number and includes any number of Horizontal Output tubes from TV (6BQ6, etc., I used a 12GB3). If you don't have any, you can probably get them free at your next swap meet. The 6GH8 was used as a diff-pair, simply because I have dozens of them pulled from old color TV sets. Depending upon what tube you use, this is good for about 100mA. I put the thing in a metal box as the plate cap is dangerous and the tubes get really hot.

I have versions of this where the pass-tube is replaced by a MOSFET.

I never did any analysis on this circuit, other than to paste it together. Comments are welcomed.

Have fun.

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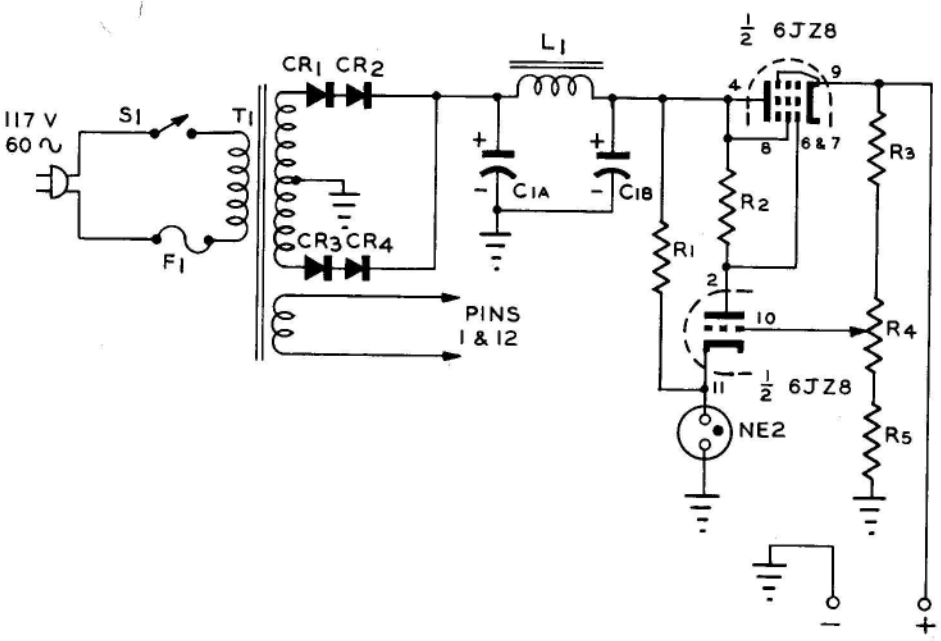
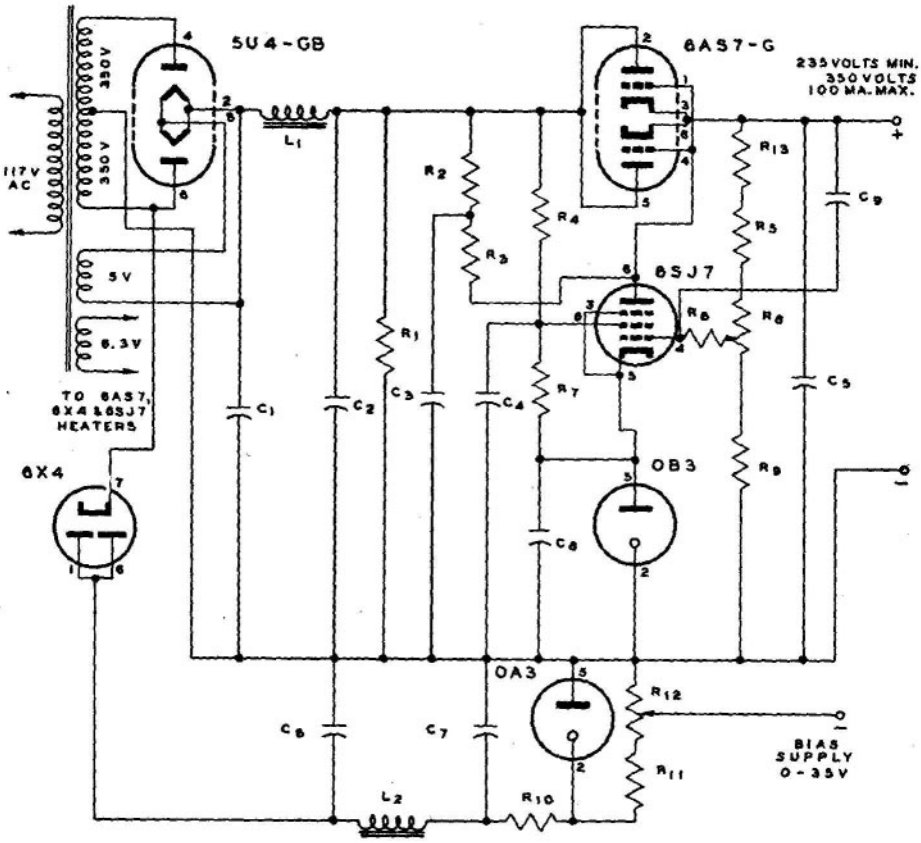
November 2005

ONE-COMPACTRON REGULATED POWER SUPPLY



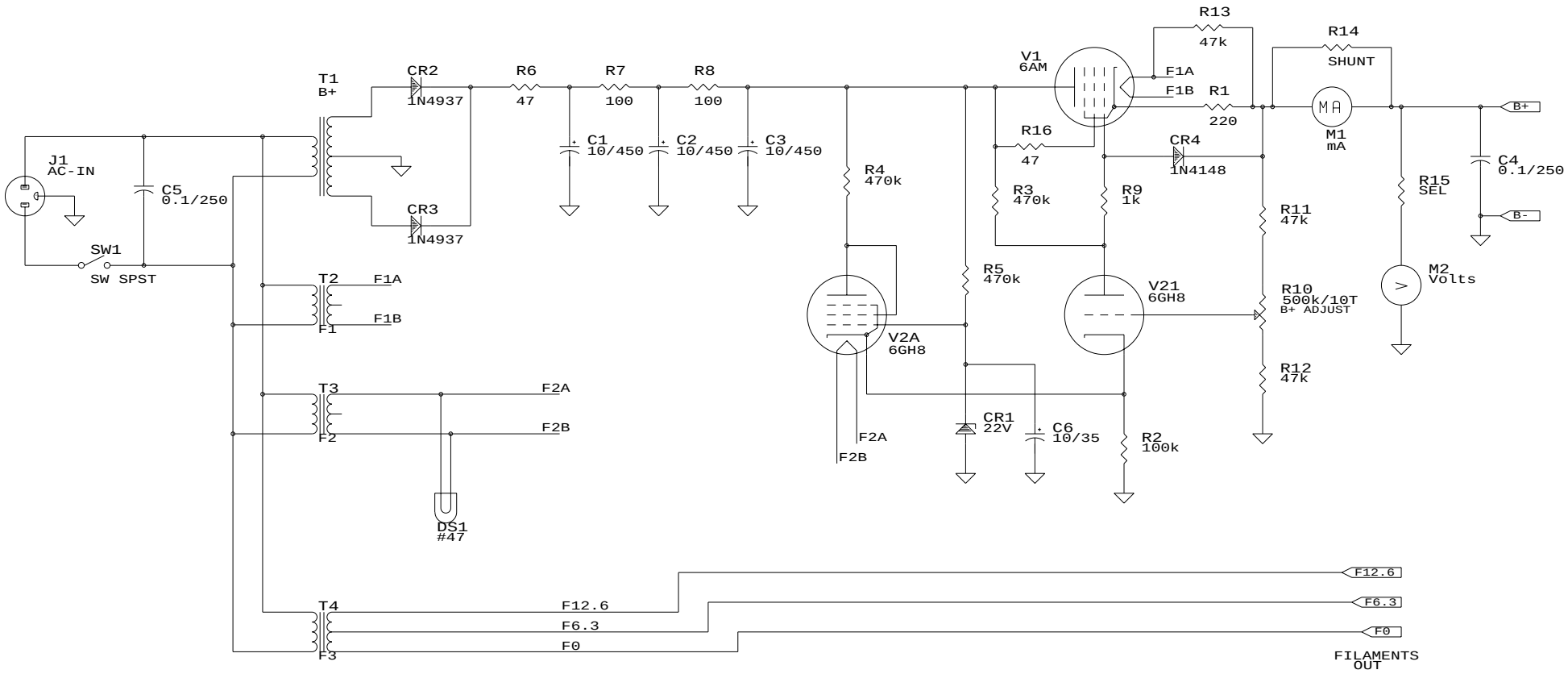
C_1—10 μf, 10 μf, 450 volts
CR_1—1N1696
CR_2—1N1696
CR_3—1N1696
CR_4—1N1696
F_1—1 ampere fuse
L_1—8 henry, 75 milliampere choke
R_1—2.2 Meg.
R_2—1 Meg.
R_3—1 Meg.
R_4—1 Meg. potentiometer
R_5—470 K
S_1—SPST toggle switch
T_1—Power transformer: primary; 117 volts, 60 cycles: secondary 1; 6.3 volts, 3 amperes: secondary 2; 480 volts, center tapped, 70 milliamperes
Maximum Current
40 millliamperes at 150 volts
60 milliamperes at 250 volts
All resistors ½ watt

REGULATED POWER SUPPLY



C_1 C_2—16 μf 600V	L_1—15 H 200 Ma	R_5 R_6—1 Meg
C_3 C_8—1 μf 600V	L_2—15 H 60 Ma	R_7—10 K 10 Watt
C_4—8 μf 450V	R_1—470 K	R_8—500 K Pot.
C_5—4 μf 600V	R_2 R_9 R_{13}—330 K	R_{10}—20 K 5 Watt
C_6 C_7—40 μf 450V	R_3—100 K	R_{11}—5 K 5 Watt
C_9—0.1 μf 600V	R_4—20 K 10 Watt	R_{12}—5 K Pot. 5 Watt

All Resistors 1 Watt Unless Otherwise Specified



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Title
TUBE BASED BENCH SUPPLY

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Date: November 5, 2005 Sheet 1 of 1

VARIABLE B+ BENCH SUPPLY USING AVAILABLE TUBES AND TRANSFORMERS.