

**GENERIC TUBE-TYPE POWER SUPPLY – MOD. “SKIF” (“UGLY”)****REFERENCES**

| <i>type</i> | <i>DATE</i> | <i>overview</i> | <i>Note</i> | <i>deploym</i> |
|--------------|-----------------|---------------------------------|-------------|---------------------|
| <i>radio</i> | <i>may 2015</i> | <i>Power supply description</i> | | <i>Agz, website</i> |

OVERVIEW

I have had in my hands a station WS19 mkIII without power supply. So I had to make to power provisionally. For the filaments have used the radio station power supply which has large current capacity to 12V (13.7), whereas for the anodic HT1 (275V) I built in a short time a power supply, using components ready to use in the laboratory. Was born a generic power supply that can be also used for testing valve apparatuses.

Since it came a bit 'ugly I baptized it "SKIF". Is exhibited near his cousin said "PITUITOSUS" because it buzzes a bit '.

The container is from a scrapped personal computer power supply, already discarded because broken, and reused for facilities as box, fan, socket and switch, as well as for the existing anti RF-noise filter. The transformer is also recovered from a '50s radio dismantled when young.



The anode voltage output can be adjusted with a trimmer between 200 and 280 Volts. I measured when loaded and it is well regulated at 280V up to 110 mA. Besides the voltage drops across the transformer and the change is reflected on the output.

WIRING

The wiring diagram is at the bottom. The input main voltage may be selected, took advantage of the existing transformer. I have used a pair of connectors CANNON 9 pin to possibly chose another voltage out of 230.

The anode is supplied from the HT secondary winding, center-tapped, and a full-wave rectifier. The reservoir capacitor and other components are recovering from scrapped SWITCHING power supply.

The regulator is now conventional, already used several times. Another example of this circuit is part of BC652 revamping, see this http://www.frezzotti.eu/af_sec_2/surplusfiles/652ht.pdf .

I have recalculated the divider to adjust the output voltage and selected a power MOSFET that resist with ease to the voltage that goes up to 450 Volt input. I used the MOSFET FQA9N90 that can work up to 1200



volts. The essential transistor is the small MOSFET VN450, which I've bought from TEKKNA. (<http://www.tekkna.it>)

The divider uses a series of standard value resistors to obtain the non-standard resistor values for the output values desired. From + there are 820K, 22K, 50K trimmer, 100K and 10K to the negative common.

| ANCORA SU PARTITORE PER REGOLATORE | | | | | |
|------------------------------------|-------------|--------|------|-------------|---------------------|
| SEMPLICE | RH | RL | VREF | VOM? | Vom? |
| | 780000 | 33000 | 30.9 | 761.263084 | |
| CON DATI PRESI SOTTO | 887400 | 110000 | 30.9 | 280.1787273 | 199.3247184 |
| | | | | | |
| VREF | 30.9 | | VOLT | | |
| RTOTP | 1000000 | | OHM | | |
| VMAXOUT | 285 | | VOLT | | |
| RL | 108421.0526 | | OHM | -1.4901500 | 110000 100000 10000 |
| RVAR | 45400 | | OHM | | |
| VMINOUT | 200.8827756 | | VOLT | ERR% | |
| RH | 846178.9474 | | OHM | 0.493209340 | 842000 820000 22000 |
| I PART M | 0.000285 | | AMP | | |
| I PART m | 0.000200883 | | AMP | | |
| W PRT M | 0.081225 | | W | | |



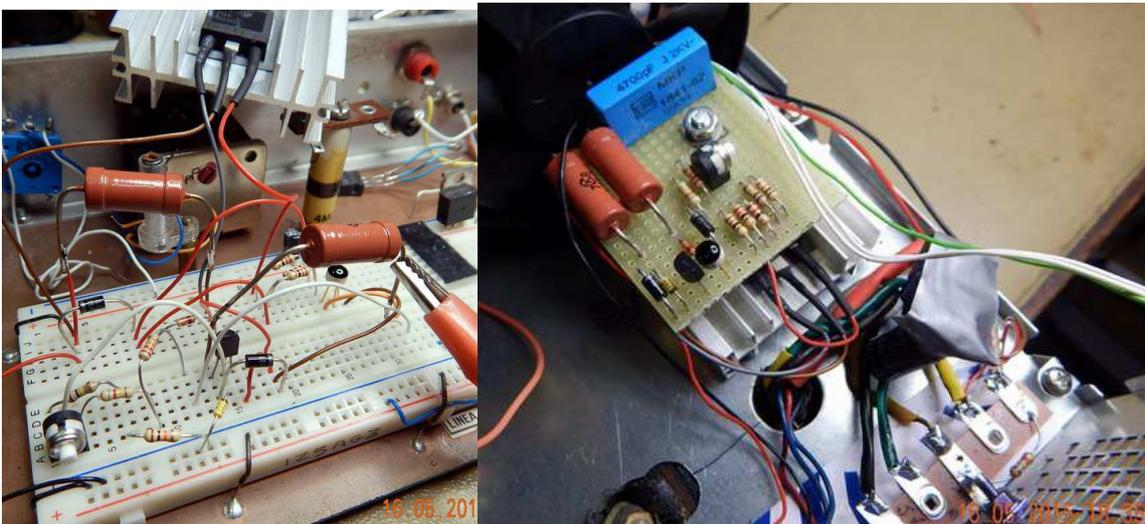
EXCEL file to design voltage reg. - power MOSFET - blower supply

The transformer has a 6.3 volts secondary which is led to the output connector for general use, and is also used with a rectifier doubler to generate a 12V for the blower. In fact the blower there would not really necessary, but the shape of the container is such that it is to remain it in the site, so I powered it.

Transformer also has a secondary winding that in origin was used for rectifier heater, 5 volts ac, which I also brought to output connector.

BUILD UP

The HT voltage regulator, that in the following pictures can be seen in beta test on breadboard and in final arrangement state, is mounted on a plate of epoxy glass pre-perforated. The power MOSFET is mounted on a isolated heatsink, and the whole is mounted bunk in front of the fan.



The transformer is very old, so I don't know exactly the characteristic data. The inner iron core measures approximately 75x68x34 mm, and the outer dimensions including cap are 85x85x75 mm.

The box, former a personal computers power supply, measures 150x140x85. With the transformer that rises above the assembly it is really ugly. That's why I called SKIF.

Have fun, Alessandro Frezzotti

