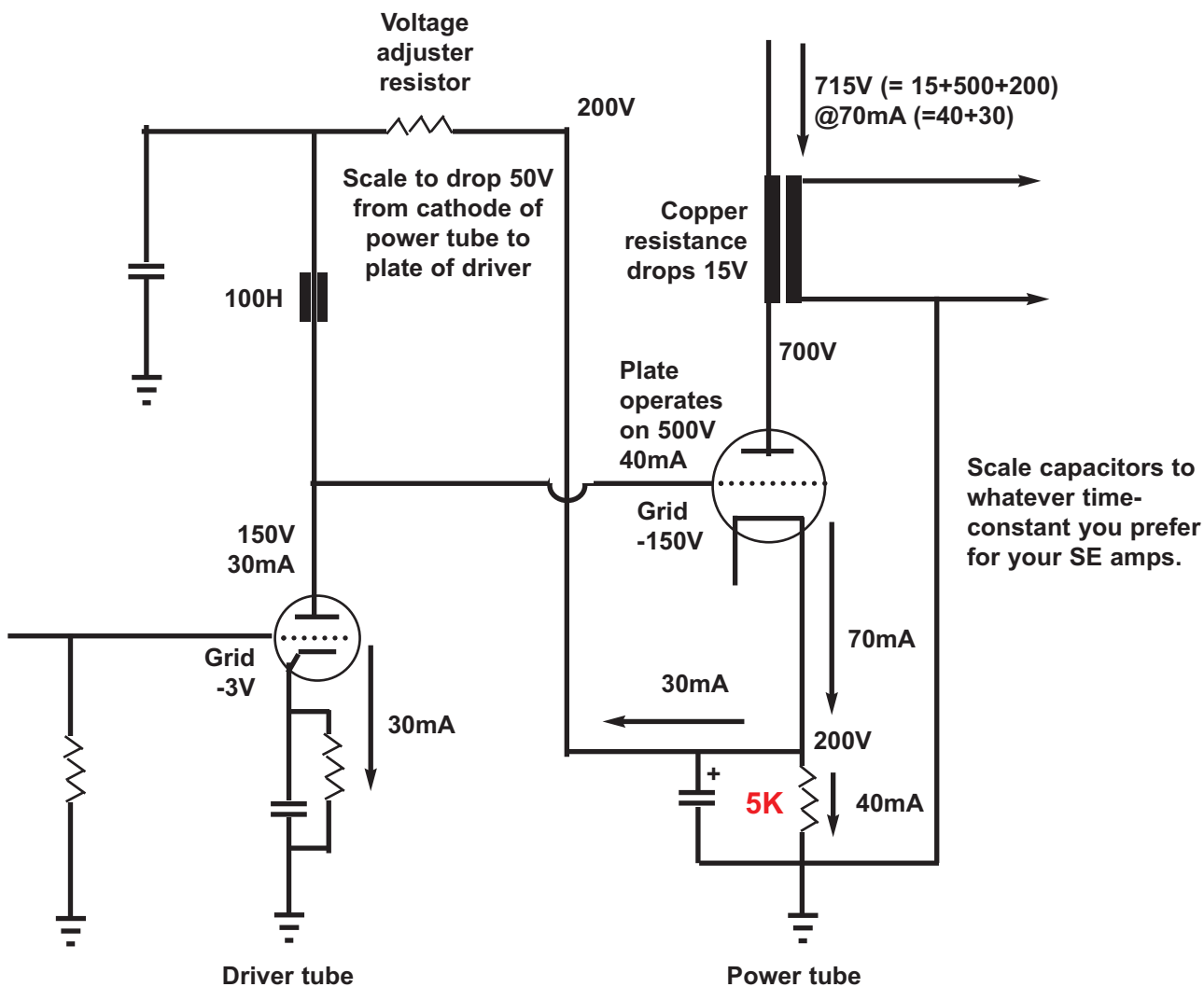


The Mills Connection

Clever self-adjusting direct coupling scheme. Named for that excellent Australian tubie, Anthony Mills, who suggested it to me. It is intended to provide a direct coupling for a low-voltage high-mu driver to a kilovolt transmitter tube but has general application. Drawn by André Jute 13 August 2007. E&OE



Two ways to calculate this circuit:

1. You have a transformer giving X voltage, in which case you decide on operating conditions for the tubes and scale the voltage adjuster resistor to drop the excess voltage.
2. You will order a custom power transformer, in which case you choose operating conditions for the tubes and arbitrarily make the drop over the voltage adjuster resistor a third or more of the voltage desired on the plate of the driver.

Note:

1. The circuit doesn't work without what I have merely for convenience called the voltage adjuster resistor. It is also a part of the voltage divider.
2. The power tube cathode resistor, labelled in red, is calculated at the current the power tube will consume but the entire voltage sent to the driver, including what will be dropped in the other half of the voltage divider.
3. A few volts are also dropped to the DC resistance of the audio choke, and if you are truly obsessed, you should add the negative grid bias of the driver tube to its plate voltage requirement; this can become important if the driver is another power tube.