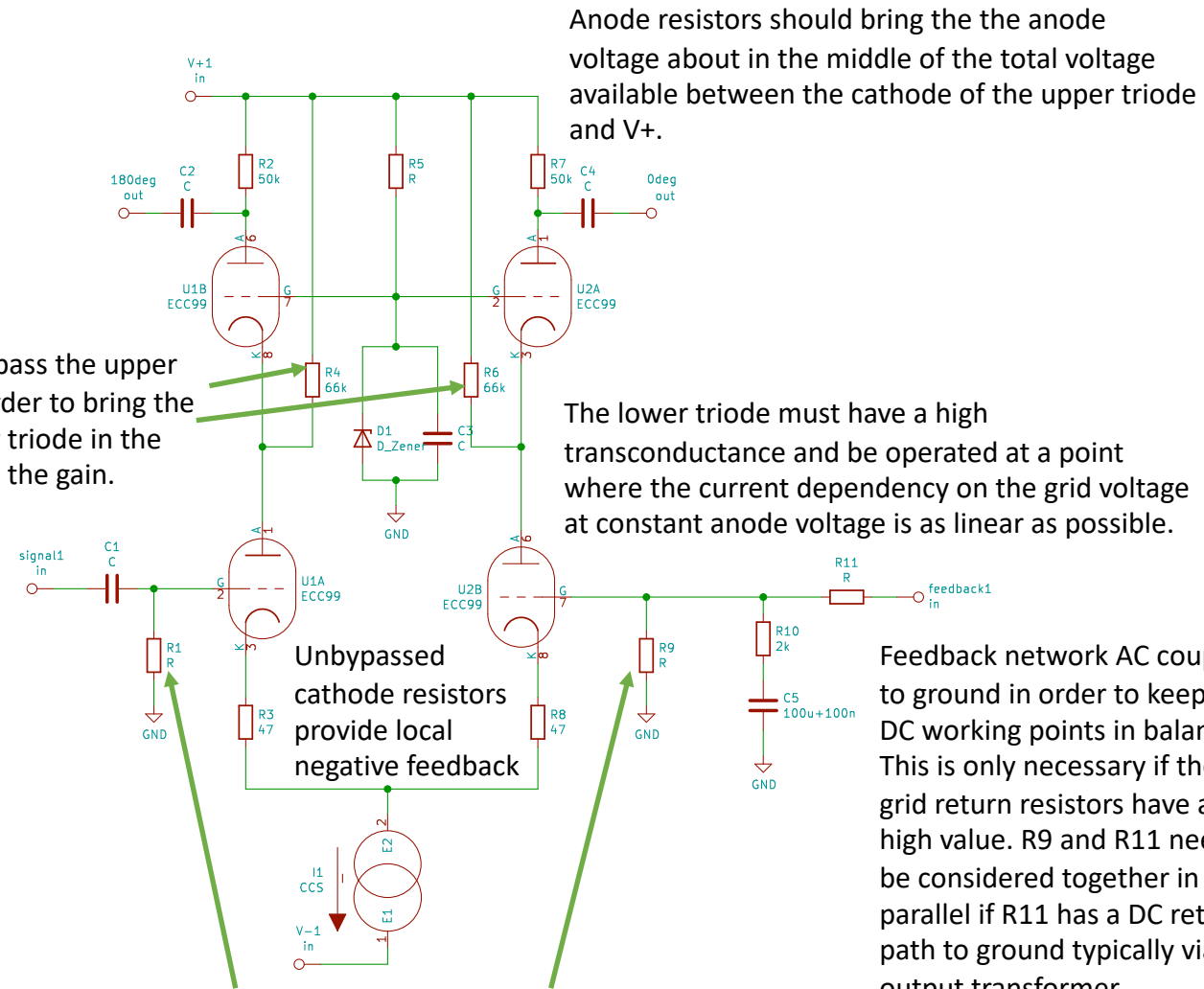


It may be necessary to bypass the upper triode with a resistor in order to bring the current through the lower triode in the desired range. This lowers the gain.



Anode resistors should bring the the anode voltage about in the middle of the total voltage available between the cathode of the upper triode and V+.

The lower triode must have a high transconductance and be operated at a point where the current dependency on the grid voltage at constant anode voltage is as linear as possible.

Unbypassed cathode resistors provide local negative feedback

Feedback network AC coupled to ground in order to keep the DC working points in balance. This is only necessary if the grid return resistors have a high value. R9 and R11 need to be considered together in parallel if R11 has a DC return path to ground typically via the output transformer.

The grid resistors must have the same value if they have large values e.g. 470k to ensure the same DC working point of both legs (grid current). If they are small e.g. 4.7k it does not matter that much anymore.