Subject: Re: The shunt capacitance of grid and anode chokes
Posted by MQracing on Sat, 03 Dec 2005 20:13:43 GMT
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Hi MB:see if I can give you some of the "advantages" of a plate choke. first...your right... a plate choke will not have the freq response of a resistor. the resistor wins hands down on that criteria.where and when a plate choke may have some advantage is... say you were going to use a 22K ohm plate resistor.... so that it presents the anode with a 22K load impedance... this is what the anode works into load wise (keeping it simple for the moment)....now your going to have a voltage drop across that 10K to 22K ohm plate load resistor... of X amount. now sub in a plate choke... depending on specs and etc... but suppose that the plate choke has a dcr of 985 ohms and so at any given current level you will drop Y amount of dc supply volts across this resistance.So the plate choke will typically have a lot less resistance than the resistor has. Hence less supply volts are lost through the loading mechansim of the anode.But... we have yet to account for the important work of the load resistance... that it supplies a load impedance and it's this magnitude of load that does the work...the resistor basically provides the same amount of load impedance irrespective of frequency (especially in the audio band)...the plate choke... because it is a reactive component... the load impedance that it presents to the tube is dependent on the amount of inductance that it produces and the frequency...so if we have a 100 henry plate choke... then at 20 hertz it will provide or make an inductive reactance of 12,567 ohms. At 40 hertz the inductive load impedance seen by the anode of the tube will be approx 25,000 ohms and at 80 hertz 50,000 ohms and at 160 hertz 100,000 ohms and etc. So that as your double the freq and if L remains constant then the inductive reactance also doubles in magnitude. At some frequency the L will begin to taper off and fall... but still we have in the equation L times F ... so that even though L may be falling as we go up in freq... the freq itself multiplies the effect of L (if I am saying this the right way) and produces a load impedance of Y ohms. so that a plate choke may offer some advantage in providing a larger load impedance to the anode of the tube while consuming less of the raw dc supply voltage in series with it....that might be one of the advantages of a plate choke in simplified terms.msl