Subject: ESL Bias Supply Filtering Update
Posted by moray james on Mon, 04 Jul 2005 20:19:01 GMT
View Forum Message <> Reply to Message

I was able to get back to my buddies on Sunday and try out the two 7 Henry chokes in series to form a 14 Henry choke. This composite choke was placed in series with the HV supply output after the load resistor and prior to the diaphragm (useing Acoustat 0ne plus 0ne's). I ran both panels off of the newly set up supply. There was a small but worth while improvement. I should think that building a composite choke from a series of physically spaced 1 Henry chokes would be the way to go (10 H a good value). This will result in a wide band low capacitance choke for less than the cost of a single unit.Regardless of the type of ESL you own if the stators are insulated then this mod will make an improvement. The mod works by damping AC modulations in the diaphragm caused by charge build up in the stators dielectric. This perhaps confirms why Hunt, Janszen and Strickland all shared a preference for the use of a "leaky" stator dielectric like PVC. The solution is to build stators without any dielectric at all. In the mean time this simple mod will provide you with better dynamics and bass/mid impact as well as cleaner overall sound breathing new life into your ESL's. Thanks to Robert F. of NZ for the nod regarding this great mod. Best regards Moray James.

Subject: Re: ESL Bias Supply Filtering Update
Posted by moray james on Wed, 13 Jul 2005 19:01:29 GMT
View Forum Message <> Reply to Message

Thought that I would post Ron's comments on this mod. Ron believes that the cause of the performance change in the speaker is as a result of a resonant circuit being formed by the choke and the speaker capacitance. Here are Ron's comments.Hi Moray:Those 500 Meg ohm resistors are too high to have any effect on the Q of a tuned circuit. Even 10 to 20 Megohms is pretty high. We could do a circuit simulation to show what effect the resistors would have but it maybe just as easy to connect the componets and measure the result.The resonant frequency of a tuned circuit is equal too:Fr = (2 * Pi)/(LC)^1/2Where Fr = the resonant frequency Pi = 3.1416 L = the circuit inductance C = the capacityThe term (LC)^1/2 power is actually the square root of the (LC) product. Hope this helps. Ron

Subject: Re: ESL Bias Supply Filtering Update CORRECTION
Posted by moray james on Wed, 13 Jul 2005 21:17:19 GMT
View Forum Message <> Reply to Message

Hi Moray:The equation in my last e-mail for the resonant frequency is wrong. The following is the correct one. Fr= 1/((2 * Pi)*(L * C)^1/2)Sorry about the mix up.The Q of a tuned circuit is a function of the resistance. Generally it is the resistance of the chokes winding that controls the Q. Adding

and external resistor will do the same thing. With that in mind it maybe that the bias resistance of 500 Megohms or the smaller 10 to 20 Megohms may make the circuit a low Q. In effect dampening out the resonant rise of the tuned elements. That sort of contradicts the statement in my last e-mail but it is a possibility. I would try the choke without the resistor to see what happens. Then add the resistor to see if it changes the Q of the circuit. Let me know what you find out. Ron

---

Subject: Re: ESL Bias Supply Filtering Update CORRECTION
Posted by moray james on Wed, 03 Aug 2005 13:18:39 GMT
View Forum Message <> Reply to Message

I got the new ten section ten Henry chokes built and cryo treated. I installed them and was able to compare the sound to that of the two Hammond seven Henry chokes which had been in series for a total of fourteen Henries. The new ten Henry chokes sound better. They are built up from ten one Henry chokes connected in series and physically spaced. Each choke is mounted at right angles to the next in a line. The chokes were bought from surplus and were very inexpensive. Remember that the choke goes in series with the high voltage output after the load resistor and before the diaphragm. Give this mod a try and I am sure that you will be very pleased with the results. Best regards Moray James.
