Subject: tube active xover update
Posted by Sam P. on Sat, 01 Mar 2003 18:27:26 GMT
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Well, I've rewired it a second time, due to EXCESS HUM. Converted the input jack wiring to a star ground, where all the shield leads run to the ground point of the B+ supply. THe HF outputs to the MC-240 are now pretty quiet, and seems appropiately "squeaky" to make me believe the HP filter sections are fine. The LF amp, an adcom 555 is humming/buzzing pretty good, but the sound coming thru is all bass, so the LP filters are working fine too. Touching various jack shells affects the hum, so ground loop problems still remain...for some reason putting my finger on the jack shell for the LP out at the xover connection knocks the hum down to "almost" acceptable. This same amp will "buzz" loud enough to hear across the room if "rack mounted", but is dead quiet sitting ungrounded on a shelf...ARRGGG, that's probably the trouble, it DOES NOT WANT to see a "chassis ground" coming in on it's inputs shield leads. Time to try another amp, report to follow soon. Sam

Subject: Re: tube active xover update
Posted by Wayne Parham on Sat, 01 Mar 2003 18:46:10 GMT
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"I feel your pain."Those kinds of grounding problems can really be troublesome. Some manufacturers use isolated grounds and others tie the chassis to signal ground, and so this can really be difficult to isolate. It's one thing if the system is for very high output and then the hum is masked. But when it will be used at low volume such as in the home, hum can be really irritating and difficult to solve.Good luck with it!

Subject: do "bottle heads" use 3 wire power cords?
Posted by Sam P. on Sat, 01 Mar 2003 19:21:30 GMT
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I'm thinking that may be my major trouble, having the green safety wire connected to chassis ground. I would like to hear from a Foreplay owner about the ground details they used. How are their input jacks ground leads treated? Output jacks grounded to the same point? I don't recall having a problem driving the adcom with a dynaco pas3, but in reality may never have actually tried the combo of tubes driving sand... Sam

Subject: Ground loops
Posted by Wayne Parham on Sun, 02 Mar 2003 00:40:52 GMT
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Well, you're right that it might be - At least, that there may be a ground loop. I think I'd want earth ground connected to the chassis, but if there was another point that earth ground was connected to signal ground, then I'd want to isolate earth and chassis ground at all other points. I tend to prefer having the connection made at the point where most current is drawn in a system.You want a single point ground, and with all other grounds connected to it. It is a common problem to have the signal grounds connected to the chassis ground, but then to have chassis ground connected to two different earth points, creating a ground loop. This is why the cable for cable television is a common source of noise. Isolate the grounds by connecting through a transformer and the problem is solved.There are a lot of other things that can cause ground loops, and there are other causes of hum than ground problems too. They're all irritating and difficult to find sometimes.

Subject: TEMPORARILY lifted the green wire from chassis
Posted by Sam P. on Sun, 02 Mar 2003 02:08:06 GMT
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and hum voltage measured at the outputs dropped dramatically. I think it might be asking for loop problems, sticking a chassis that is earth grounded, into the signal chain where the preceding and following units are 2 wire/isolated. If it is quieter in the system, I'll try RECONNECTING the earth ground, and look into "floating" the neg. end of the B+ supply filter caps and signal grounds from the chassis. The marchand isolates all signal and power grounds from the chassis, and connects the p/s ground to earth via a resistor, FWIW. BTW, at the outlet my ac line neutral and earth ground have about 0.3vRMS differential...is that "normal"?! Sam

Subject: You found it!
Posted by Wayne Parham on Sun, 02 Mar 2003 03:04:30 GMT
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Something else in the system probably has chassis and signal grounds connected together, perhaps via. a resistance or capacitance. Once you make another connection between chassis and signal ground, there is a possibility of difference in potential. Where there exists a difference in potential, even if slight, a ground loop results and with it comes lots of noise.

Subject: heater-cathode hum?
Posted by Sam P. on Sun, 02 Mar 2003 22:21:19 GMT
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Back to the UL approved config, with the green safety ground connected directly to the chassis:) The negative end of the filter caps is a short buss, and is also the center point of the star ground for the signal input/output jack shield leads. With the B- floating, the jack shells achieve about 38 vRMS relative to the chassis, which disappears when a 100 ohm resistor is added between the B- and chassis ground, a la marchand. Of note is the DC filament supply, which is effectively "floating" also...it shows something like 17 vRMS relative to B-...that has got to be a hum inducer...I will look at connecting it's "neg" side to chassis ground thru a resistor also. Shorting it hard to B- temporarily had no ill effects(at least the DC filament voltage never flickered), except the AC "riding" on the dc goes away! So off to ratshack in the am to get a pair of 100 ohm 1 watt resistors for connecting those neg. supply ends to the chassis:) Then we'll try again "on line" in the system. Sam