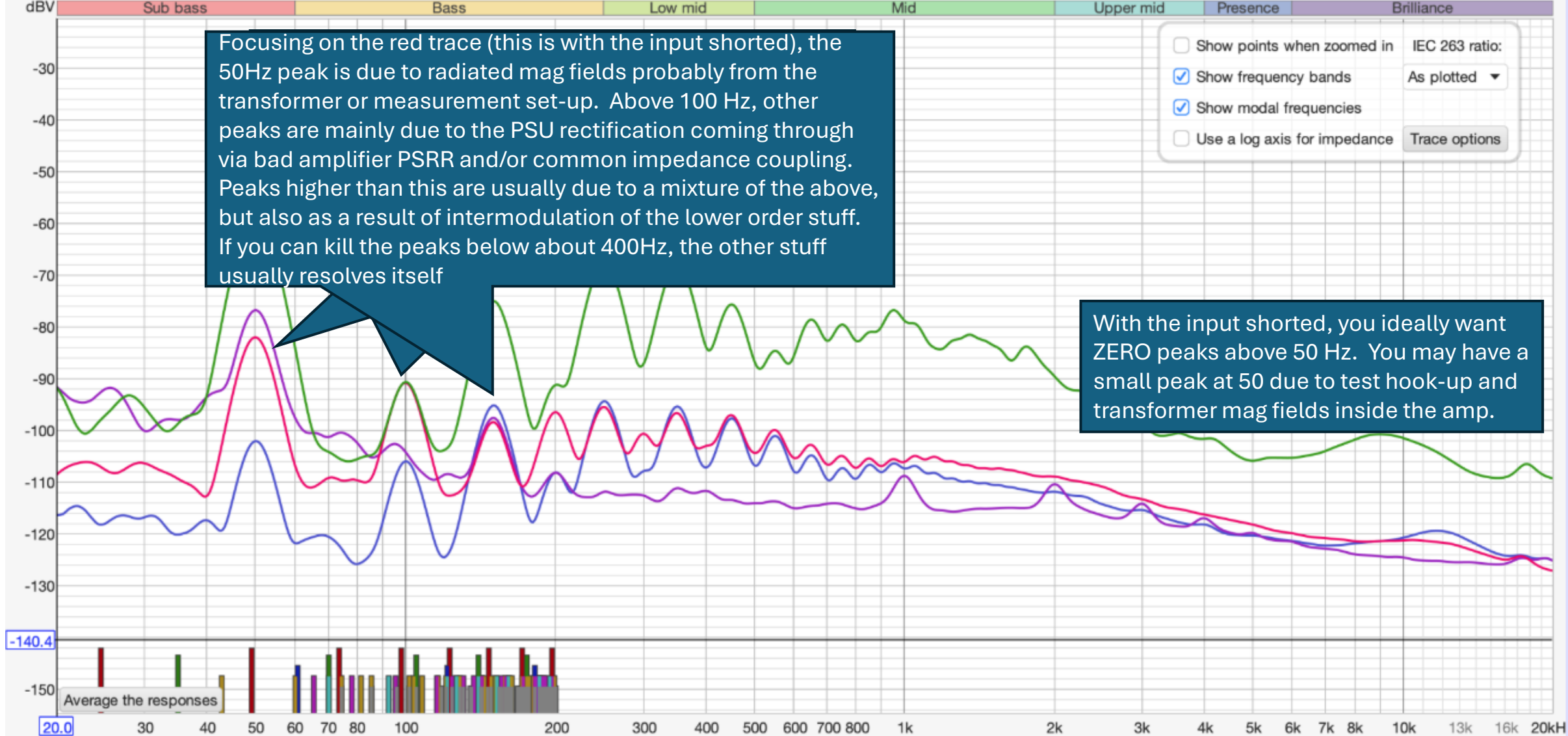


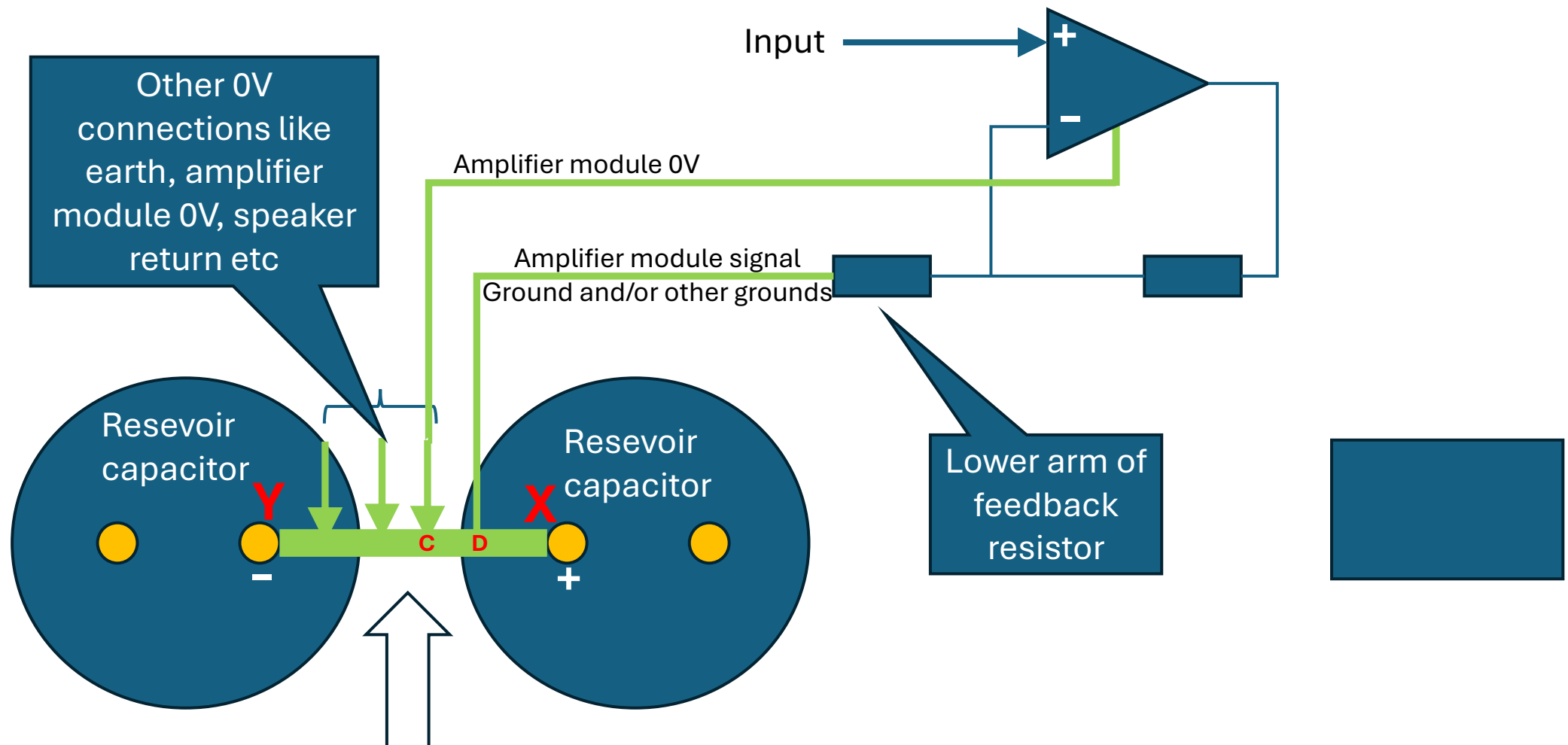
Amplifier Wiring

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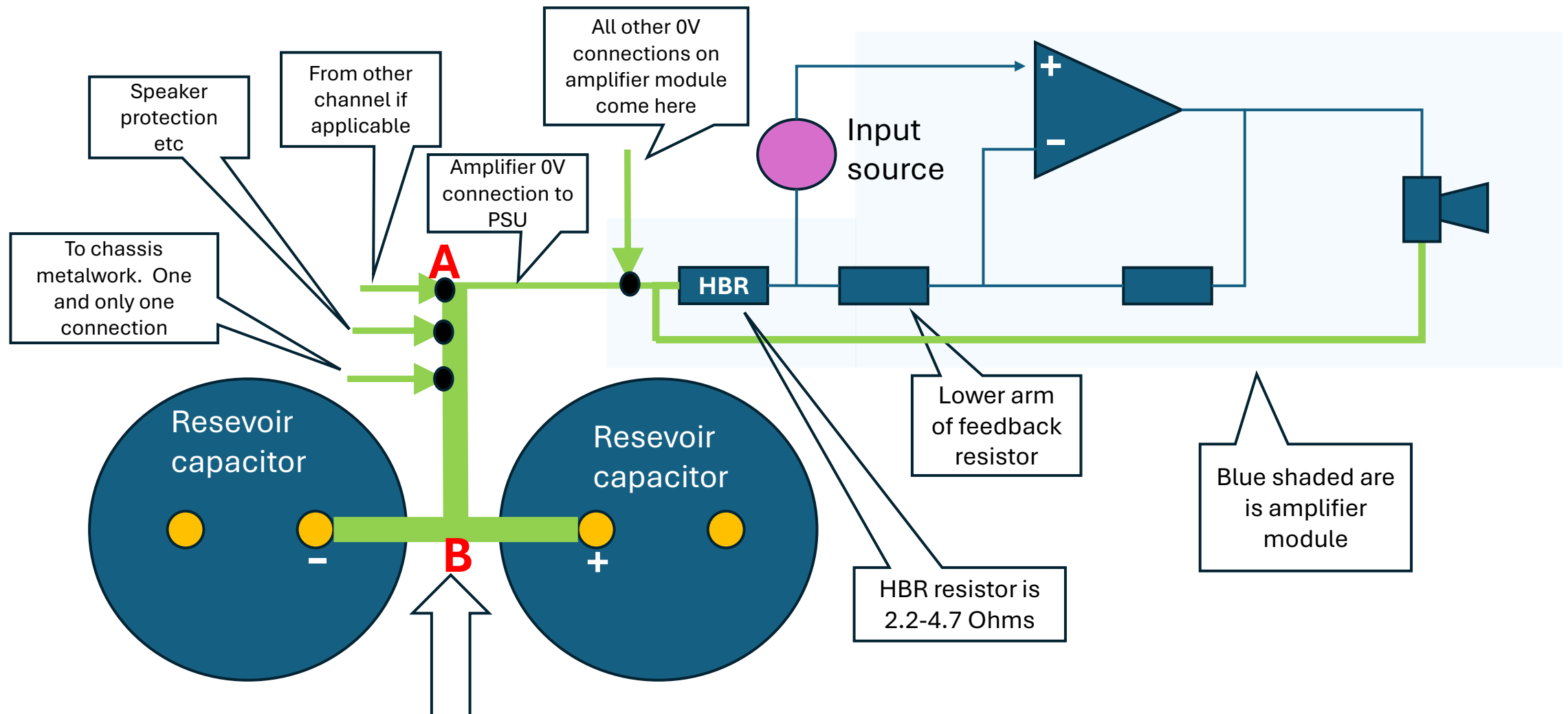
March 2025



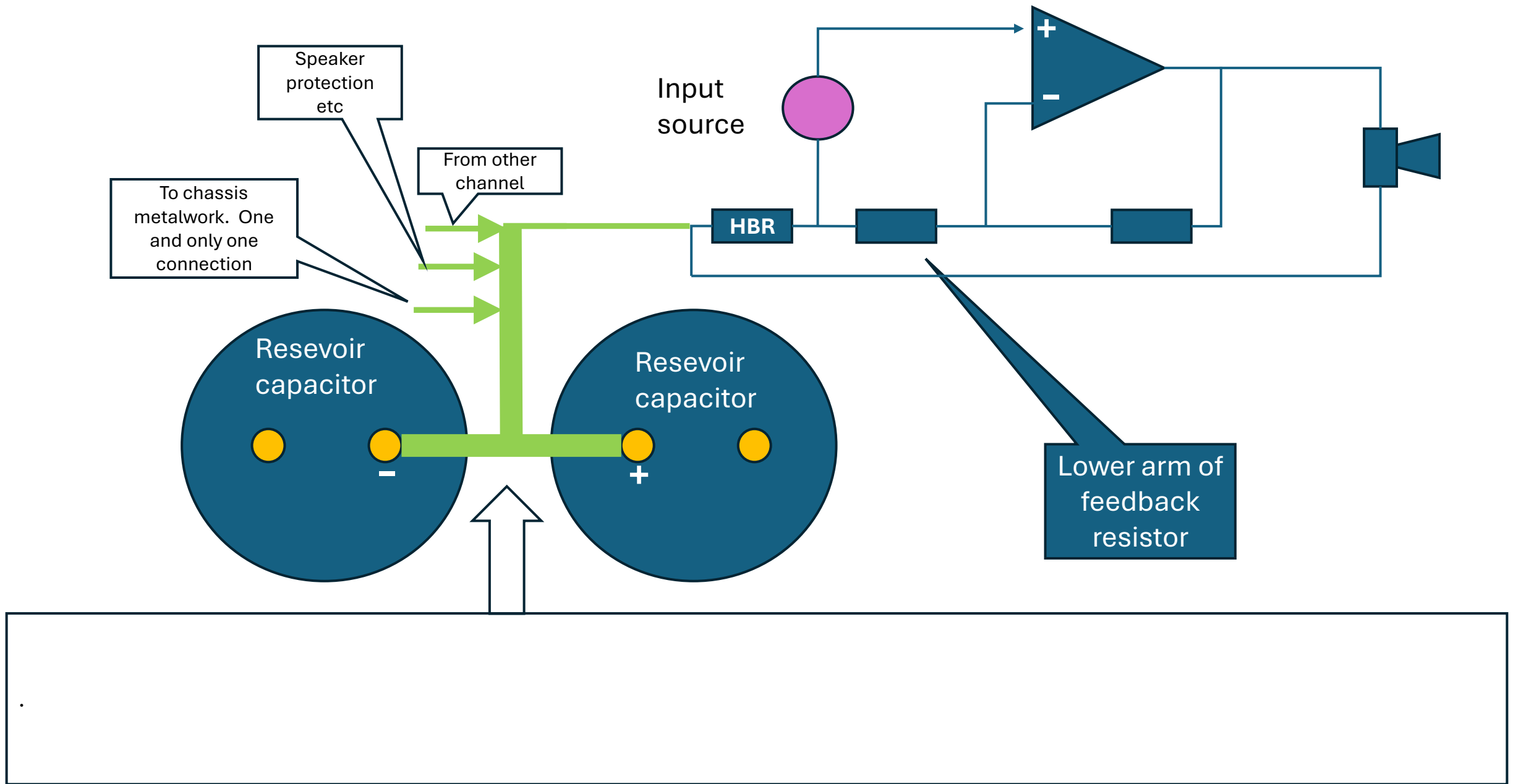
<input type="checkbox"/> 19: 10-DME with E no BKGND	-94.2 dBV	<input type="checkbox"/> 20: BK1k 10-DME short plug	-111.8 dBV	<input type="checkbox"/> 21: BK1K 10-D-Sht-no TR lid	-114.2 dBV
<input checked="" type="checkbox"/> 22: 10-D-Sht-TR lid, case lid $\frac{1}{6}$	-116.3 dBV	<input type="checkbox"/> 23: BK1K 10-DME-lid check	-109.4 dBV	<input type="checkbox"/> 24: 10-DME-E-DSP	-95.5 dBV
<input type="checkbox"/> 25: 10-DME-E- no connection	-106.1 dBV	<input type="checkbox"/> 26: 10-DME-E- DSP off	-116.6 dBV	<input checked="" type="checkbox"/> 27: BK500 DSP $\frac{1}{6}$	-91.6 dBV
<input type="checkbox"/> 28: BK1K lid on Mar 6	-92.1 dBV	<input type="checkbox"/> 29: Mar 6	-93.0 dBV	<input type="checkbox"/> 30: BK1K lid off	-96.6 dBV
<input checked="" type="checkbox"/> 31: E-GND-.01RCA no input $\frac{1}{6}$	-108.5 dBV	<input type="checkbox"/> 32: E-GND-RCA.01,DSP Mar 7	-90.7 dBV	<input type="checkbox"/> 33: BK1k E-GND-RCA.01-short	-117.2 dBV
<input type="checkbox"/> 34: E-GND-RCA.01 DSP reversed	-107.1 dBV	<input checked="" type="checkbox"/> 35: E-GND-RCA.01 just DSP red $\frac{1}{6}$	-91.8 dBV		

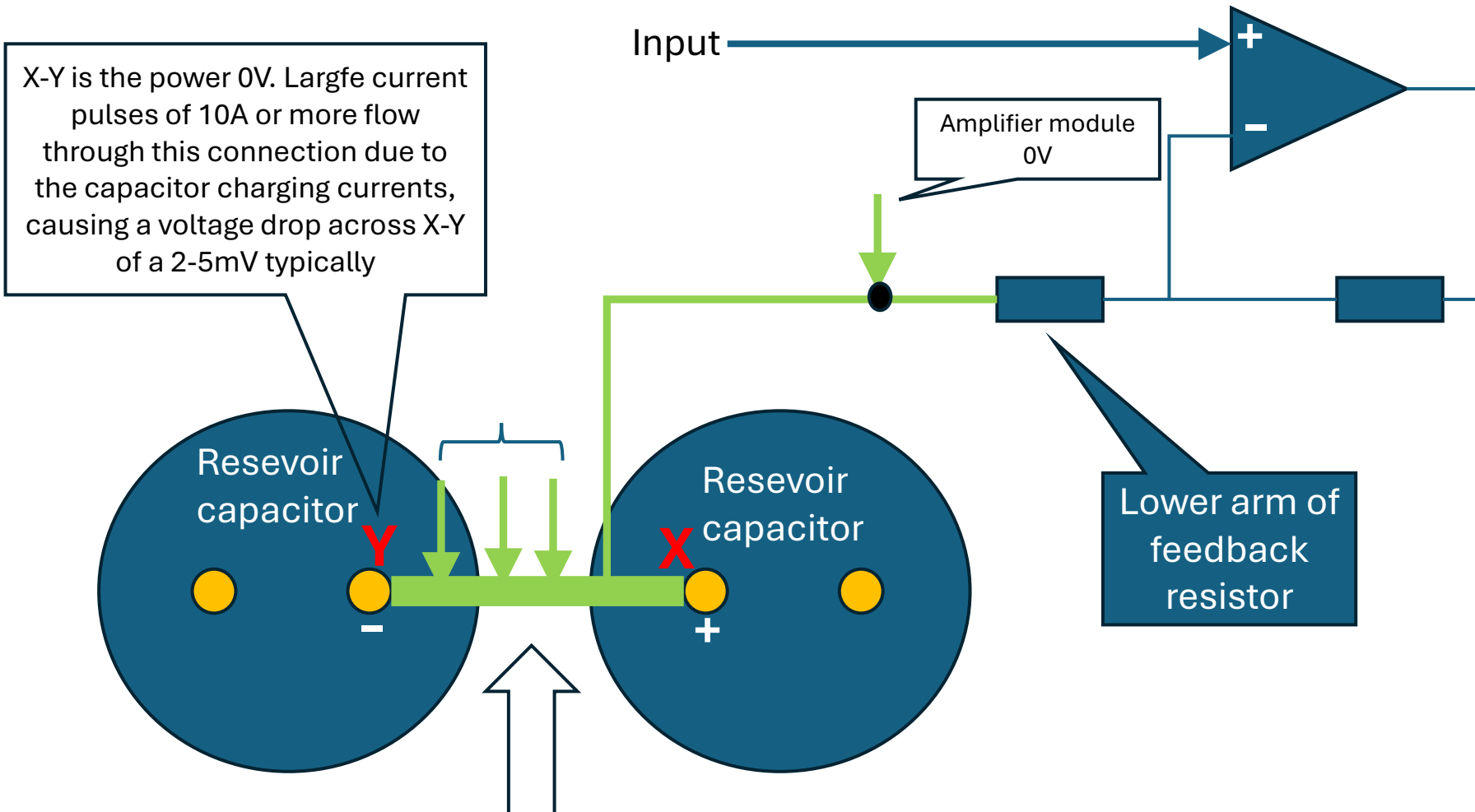


Any signal connections to the 0V between the reservoir capacitors is a recipe for severe noise which will primarily be at harmonics of 3x the mains frequency and above. It is especially important that the lower arm of the feedback resistor 0V side does not connect anywhere along the power 0V conductor X-Y whether directly or via the amplifier module 0V. There are large current pulses of many amps flowing in this connection, and a resistance between the connections of just a few hundred micro-ohms can severely degrade the amplifier SNR. The noise from this type of common impedance coupling is a sort of hum-buzz sound because of the 3rd to 10th harmonic spray it causes. For all of these reasons, check the power supply PCB layout very carefully to make sure the 0V connections are routed as shown on the following slide



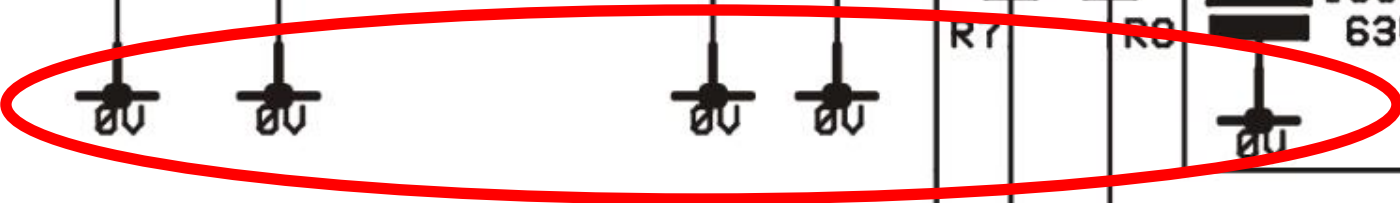
This shows how to route the connections to the power supply. Connection A-B only has to be a few mm, but importantly it has zero reservoir capacitor charging currents flowing through it. The first two connections at A are the amplifier module 0V left and right channel if a stereo amp. Next downwards are the 0V connections to any ancillary circuits in the amp – e.g. speaker protection. The last one is the connection to the chassis. There is always one and only one connection to the chassis. Take the safety ground wire off here and bond it together to the chassis along with the mains supply earth (safety ground) wire from the power inlet. Note that the speaker return does *not* go directly back to the power supply. The speaker return connection goes back to the amplifier module as shown. This connection offers significantly lower noise and distortion compared to taking it back to the 'T' because it dramatically reduces the loop area AND any small volt drops between the signal 0V and the high speaker currents.





This diagram shows how common impedance coupling degrades SNR and/or introduces hum and/or distortion.

As this amplifier is built, it does not have a hum brealing resistor aka HBR. Use an HBR to separate the clean signal ground from the dirty decoupling ground



All of these 0V connections have to be ordered VERY carefully wrt to the rest of the 0V to ensure noise (HUM/BUZZ) is not injected into the input. An HBR will help to achieve this – see next slide

Note carefully how the gain setting resistor ('SENS') is connected to the HBR. Note also, the HBR is not just in series with signal ground!

