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Connection of Bel Canto e.One Amplifiers to a High Level Subwoofer Input

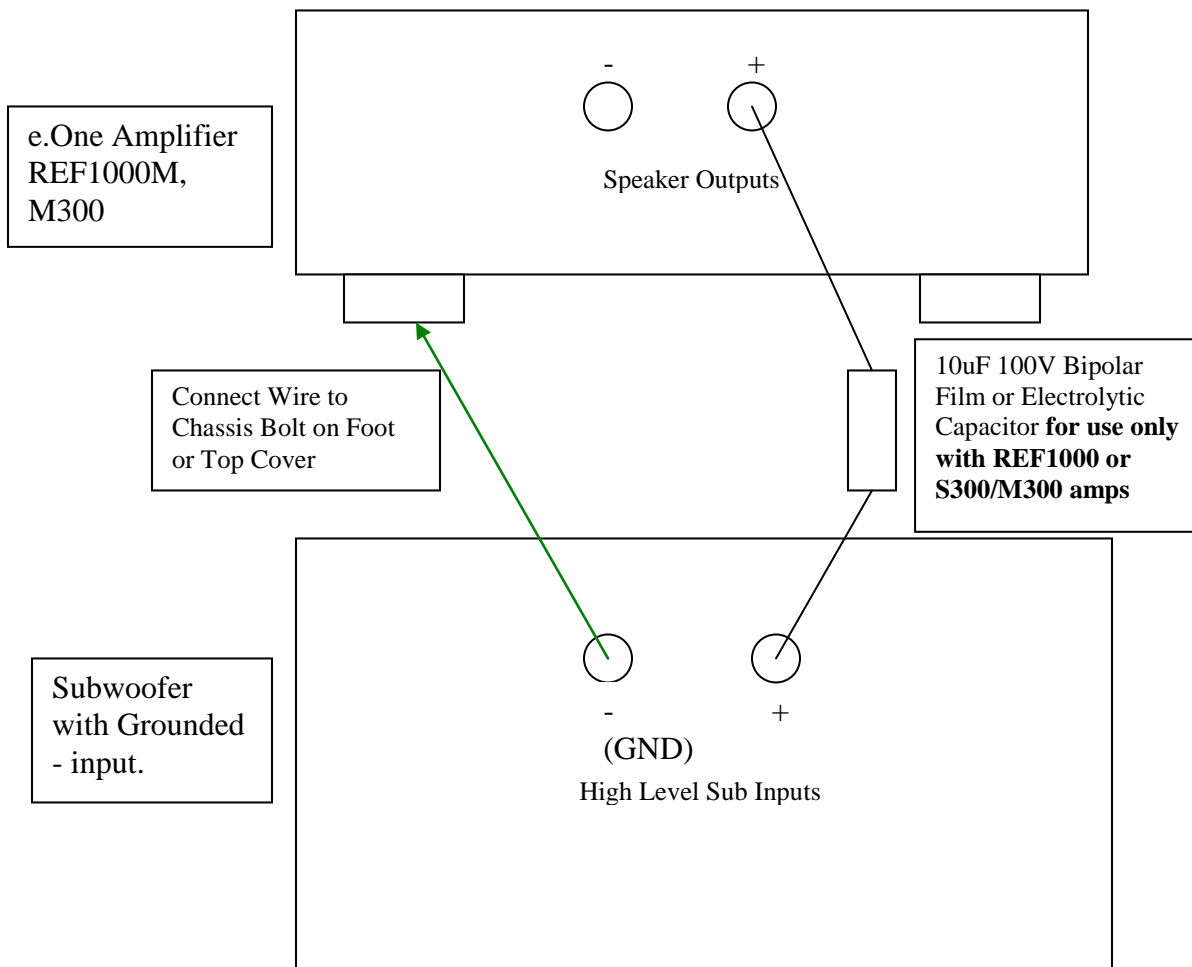
Modern audio amplifiers require some care when connecting to the high level inputs of subwoofers.

- 1) **Balanced Bridged operation:** The current REF500S, REF500M and REF1000M and older S300/M300 e.One amplifiers have balanced construction with both the + and – speaker terminals driven actively. You must not connect any Ground connection to any speaker output terminal. If the subwoofer input have a – input that is actually a ground then connecting this to an e.One amplifier output terminal could result in damage to the amplifier or subwoofer or both or at least reduced performance levels from the amplifier. The lower power C5i, C7R, S125 and REF150S amps all use a grounded negative output terminal that can be connected to ground
- 2) **DC Voltage offset from ground:** The current REF1000M and older REF1000 and S300/M300 e.One amplifiers also use a single-rail regulated power supply so the + and – outputs are both at some DC voltage above ground. This voltage ranges from about 24VDC to as much as 60VDC. It is critical to insure that the subwoofer high level input can operate under these DC offset conditions. If there is a concern then it is simple matter to place a large value 100V rated capacitor between the subwoofer inputs and the e.One amplifier outputs. Bel Canto can recommend capacitors for this application. For example: with a subwoofer input impedance of 10Kohms a 10uF capacitor will give a –3dB roll-off frequency of 1.62 Hz. This will not cause an audible problem with the subwoofer operation and it will protect both the amplifier and subwoofer from any potential problem related to the DC offset voltage.

The preferred methods for connecting a subwoofer to the outputs of an e.One amplifier are described below. An excellent compact 10uF bipolar electrolytic capacitor can be found at www.partsexpress.com Part Number 027-340. An electrolytic is a good choice for this because it is used into high impedance, carrying little current and only for very low frequencies. You can try a film cap also if you wish but size and cost will be much higher and performance may not be any different. You can connect these in line with the wires for the high level connection by soldering, using banana plugs or even wire nuts could be used. We recommend insulating any exposed metal connections to prevent accidental short circuits.

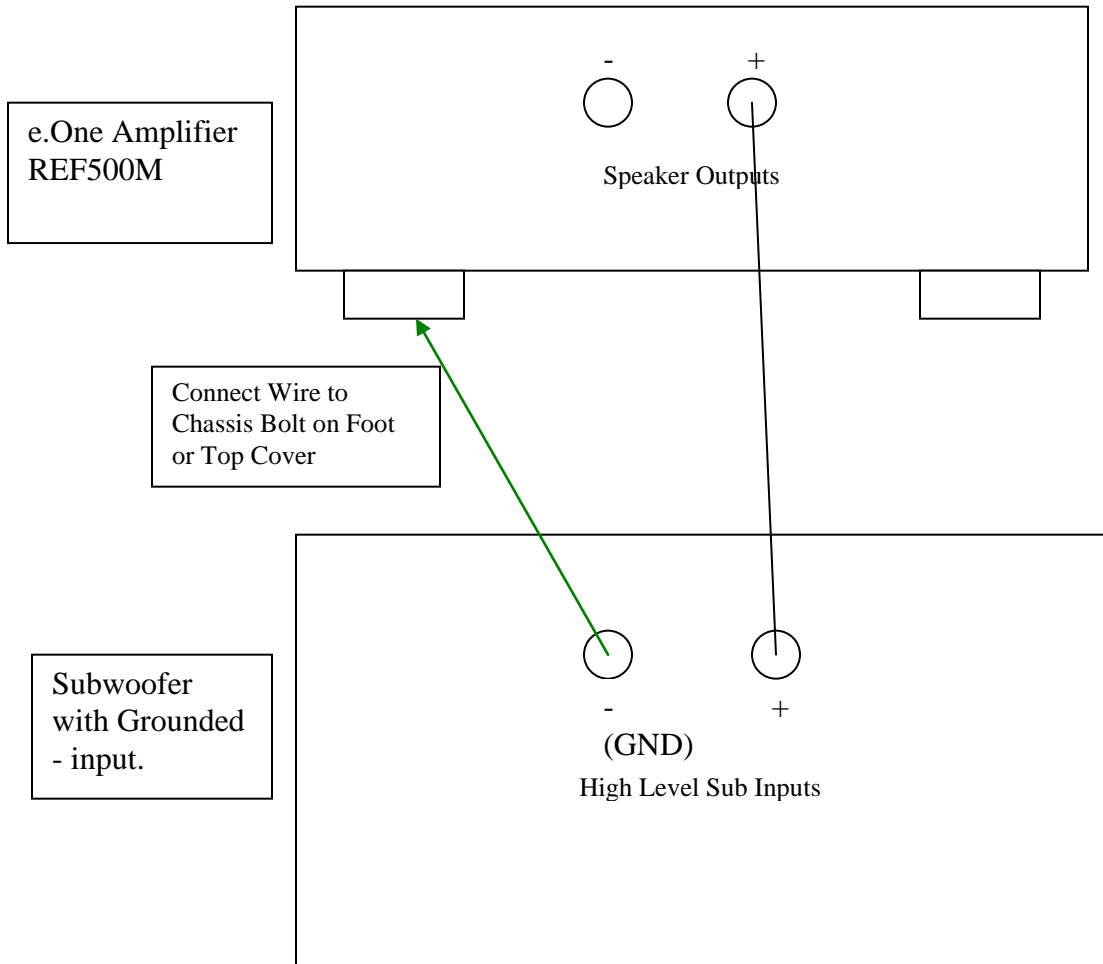
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Figure 1) Correct connection of REF1000/M, M300 e.One amplifier to Single-ended (grounded -) high level sub input



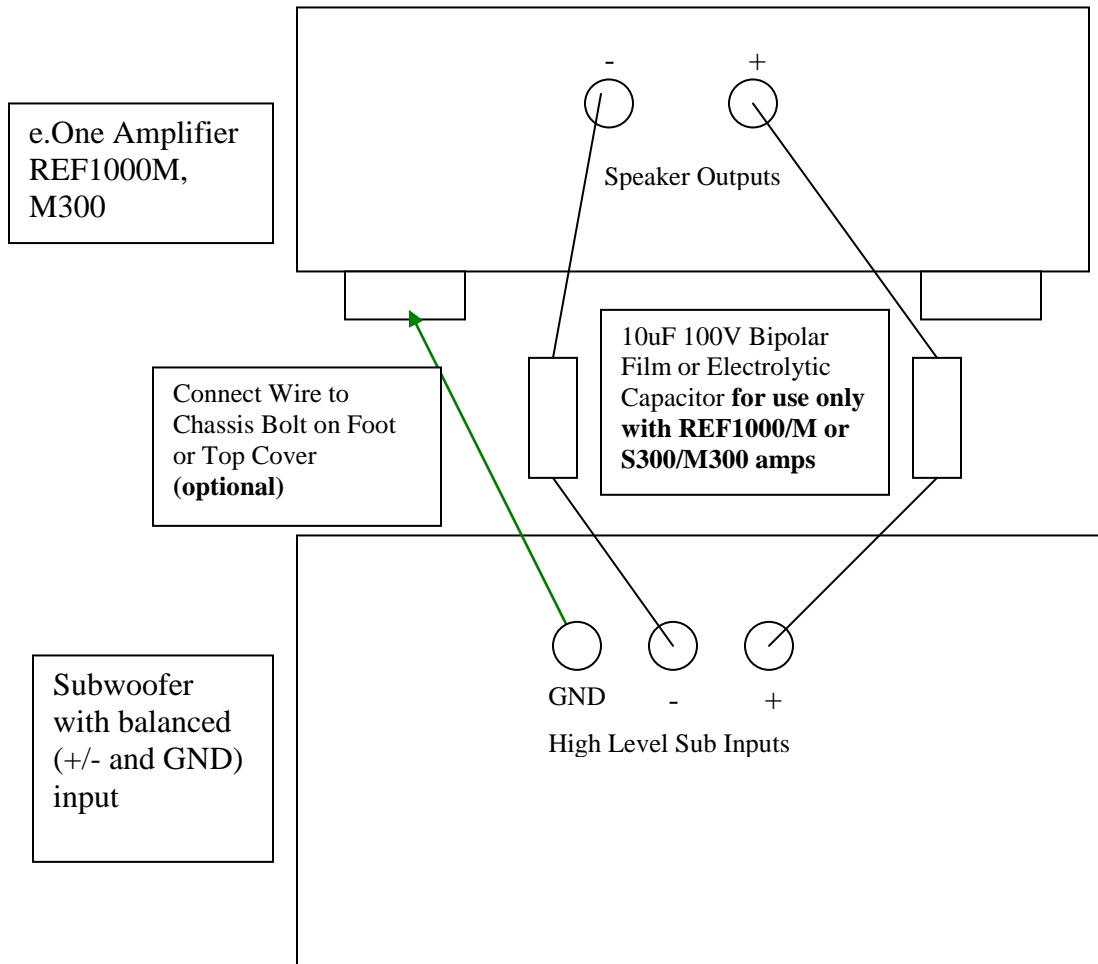
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Figure 1B) Correct connection of REF500M e.One amplifier to Single-ended (grounded -) high level sub input



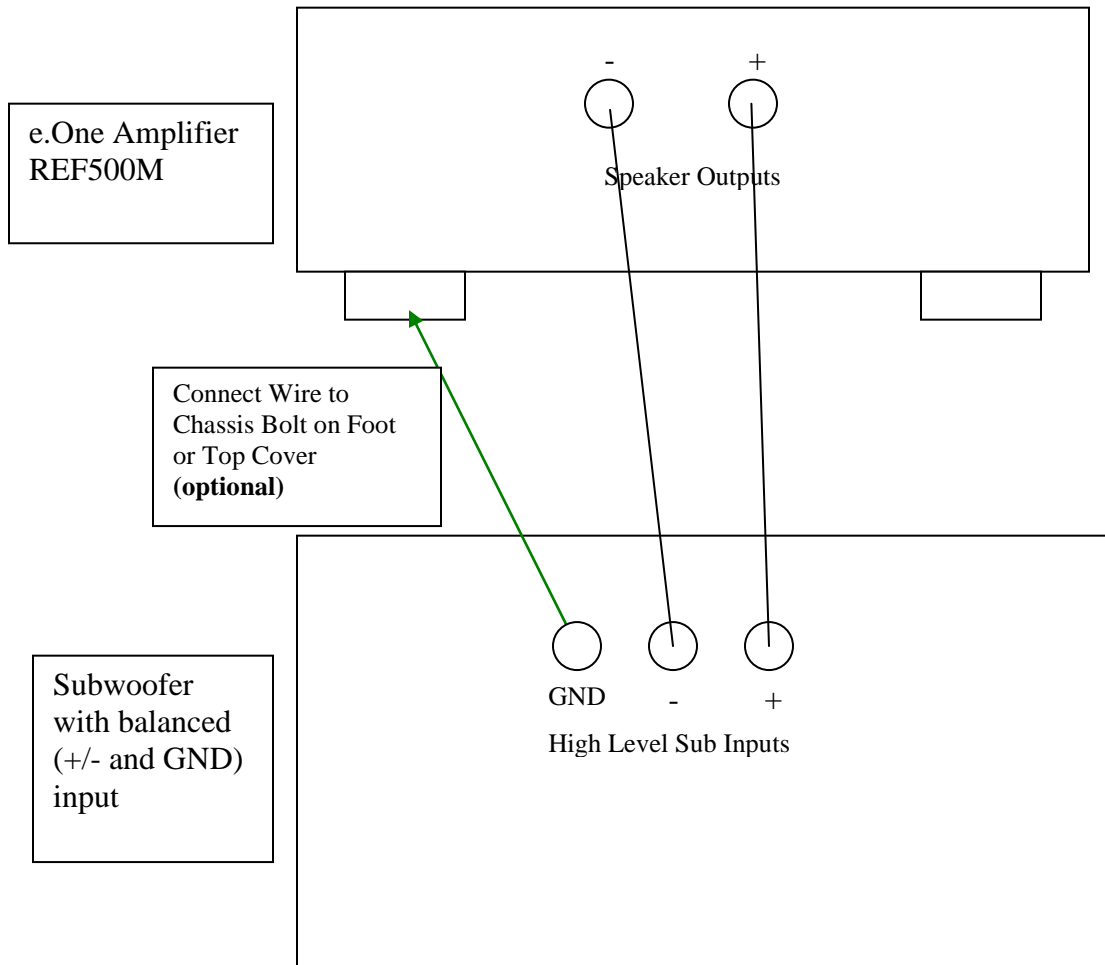
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Figure 2) Correct connection of REF1000M, M300 Mono e.One amplifier to balanced high level sub input



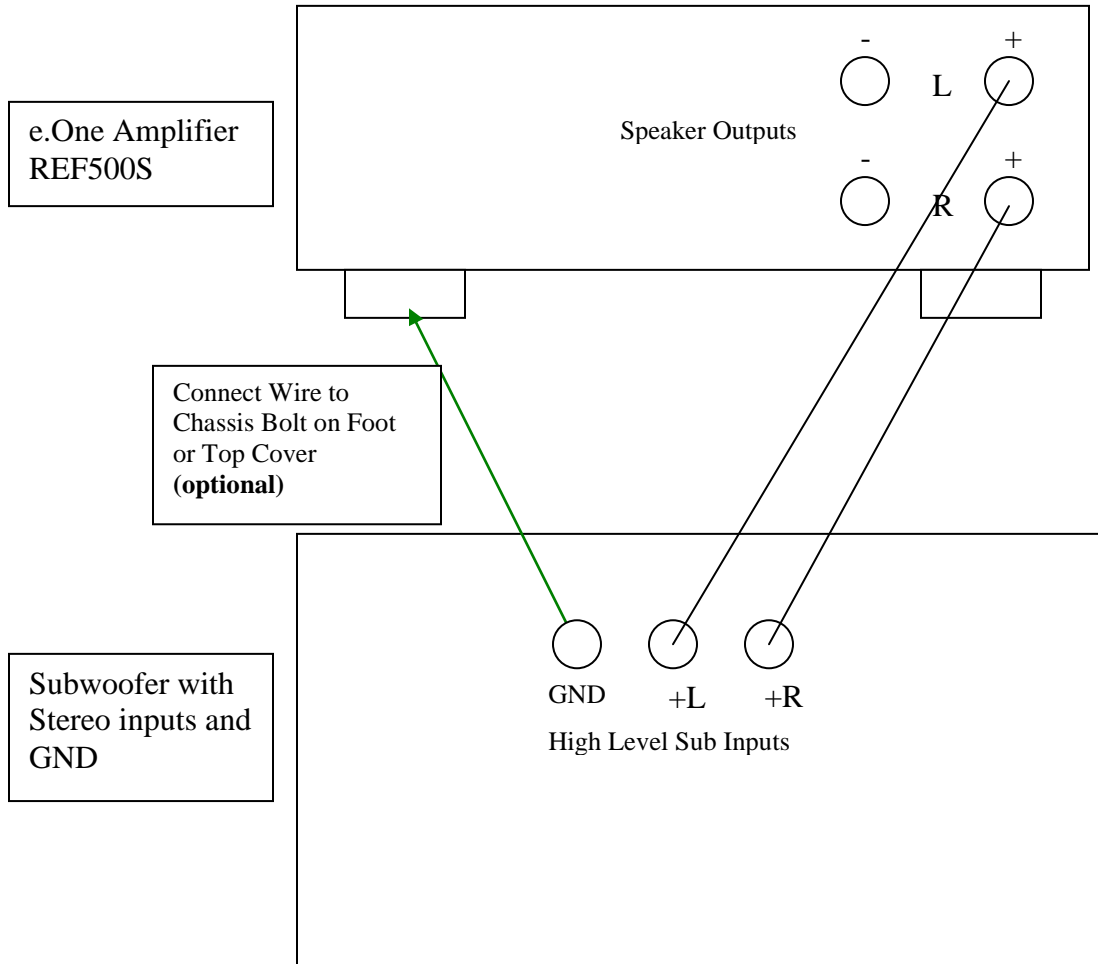
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Figure 2B) Correct connection of REF500M Mono e.One amplifier to balanced high level sub input



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Figure 3) Correct connection of REF500S e.One amplifier to Stereo high level sub input.



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Figure 4) Correct connection of C5i, C7R, S125 and REF150s e.One amplifier to Stereo high level sub inputs

