TECHNICAL BRIEF

A Word About Batteries & High Output Alternators…

The battery in your car is a chemical storage device for electrical energy generated by the alternator. It is capable of briefly supplying high currents for cold starting the vehicle as well as powering other important electrical loads either partially or entirely for a limited period when the engine is off.

In order to supply the power required for ignition, lighting, large audio systems etc., a car needs its own efficient, reliable, and constantly available source of energy. When the engine is stopped, the battery is the vehicle's energy source. **When the engine is running, the alternator is the on-board "electricity generating plant". It is the job of the alternator to supply power to all current-consuming loads (including the audio system).**

Alternator output, battery capacity, and power demand of all electrical loads and systems must be matched as ideally as possible so the entire system is reliable and trouble-free in operation.

In the most basic of terms, you can say that car audio is gasoline powered. Multiple batteries are primarily for the extended operation of your audio system when the engine is off or for SPL competitions where high sound pressure levels are generated for short periods of time and large battery racks are needed to provide the necessary current demanded by the many amps used.

By applying the following "rule of thumb" amperage draw formula, you will be able to determine if a high output alternator is required for your vehicle and audio system.

If the current draw of your system exceeds the output capability (in Amps) of your stock alternator, your car will start to draw current from your battery (because the alternator can't keep up with the vehicle load AND charge the battery) eventually resulting in the failure of the battery (or multiple batteries), alternator, or possibly other vehicle systems.

Use this formula as a guideline to determine amperage draw. A 50% amplifier efficiency rating is used as an average. Using larger cable will only improve the current transfer of your system.

Total 4-ohm rated RMS output x 2 = Total Input Wattage
Total Input Wattage \ Supply Voltage = Current Draw (in Amps)

Example 1: A generic power amplifier having 2 channels at 150 watts per channel RMS into 4-ohms would use the formula in the following way:

150W + 150W = 300W …

300W x 2 = 600W \ 12.5V = 48 Amps Total Current Draw

Example 2: A generic power amplifier having 2 channels at 75 watts per channel RMS into 4-ohms would use the formula in the following way:

75W + 75W = 150W …

150W x 2 = 300W \ 12.5V = 24 Amps Total Current Draw

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