Justification for Using Clark SPKR1304 Cable in Place of 10-2 Cable

High-powered loudspeakers and their associated amplification (usually over 1,000 watts) produce high current demands. Often, 10-gage wire is preferred to reduce voltage drop.

The current-carrying capability of a conductor is determined by its cross-sectional area. Cross-sectional area is determined in a round conductor with the formula:

$$A_{(\text{Square Inches})} = \pi r^2$$ where π is the constant 3.14159.

10-gage wire has a conductor diameter of 0.1019 inches.

13-gage wire has a conductor diameter of 0.0720 inches.

Using the radius formula, where "r" is the radius and "d" is the diameter
:

$$r = d/2,$$

The radius of a 10-gage wire is: $r = d/2 = 0.1019/2 = 0.0510$, and

The radius of a 13-gage wire is: $r = d/2 = 0.0720/2 = 0.360$.

Now that the radius is known, the cross-sectional area can be calculated with the following formula:

$$A = \pi r^2$$

Thus,

The area of a 10-gage wire is: $A = \pi r^2 = \pi(0.0510)^2 = \pi(0.0026) = 0.0082$.

The area of a 13-gage wire is: $A = \pi r^2 = \pi(0.0360)^2 = \pi(0.0013) = 0.0041$

Adding two 13-gage wires together produces a cross-sectional area of

$0.0041 + 0.0041 = 0.0082$, the exact cross-sectional area of a 10-gage wire.

Thus, by pairing two sets of two 13-gage conductors together, Clark SPKR1304 cable can be used as a direct substitute for SPKR1002 or any other 10-2 cable.

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