PHILLIPS

TECH TIPS

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How to Build a Custom Battery Cable

Battery cables can be purchased pre-assembled or they can be custom built to accommodate differing lengths and stud sizes. Pre-assembled battery cables might not always reach the battery terminals or may create disorganization if cables are too long. Custom building your own battery cables can easily be your best option, especially when you may be working with multiple vehicles that don't have the same specifications.

There are three different ways to build a battery cable.

1. Crimp – This only requires crimping the terminals and or lugs. While this method is quick, it's not effective at keeping corrosion from entering the cable.
2. Crimp and Heat Shrink Tubing – This is the most common method used. The terminal/lug is crimped, and then sealed with heat shrink tubing. The heat shrink tubing helps to prevent corrosion.
3. Solder Terminals/Solder Slugs and Heat Shrink Tubing - This method offers a superior connection. Heat shrink tubing offers corrosion protection. (Note: Most crimp type terminals are designed for crimp or solder.)

Below are the steps for the most common method, crimp and heat shrink tubing, used when building a custom battery cable.

1. Confirm the length of battery cable needed.
2. Strip 7/8" (22-25mm) of the jacketing from the end of the battery cable. Battery terminal barrels require approximately ¾" (18-20mm). *Fig 1*
3. Slip 1.5" (38mm) of the heat shrink tubing over the end of the battery cable and slide it out of the way. Insert the bare battery cable wire into the barrel of the battery terminal. *Fig 2*
4. Set the dies of the crimping tool for the size and color code battery terminal you are using. Crimp tool die codes and sizes are printed on every battery terminal. *Fig 3*
5. All cast copper battery terminals are designed for 2 crimps (4 crimps on flag terminals). Make the first crimp closest to the barrel opening and the second crimp furthest away from the opening. *Fig 4*
6. Slide the shrink tubing over the terminal with the center of the tubing aligned with the end of the barrel. Use a heat gun or torch to shrink tubing down over the connection. (Important: Be careful to heat the shrink tubing evenly all the way around. Shrink tubing can melt if it gets too hot.) *Fig 5*

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

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- When using universal cable, use red heat shrink tubing to denote the positive connection and black to denote the negative connection.
- Improper attachment of lugs can create corrosion and poor conductivity.
- The copper wiring in all battery cable is the same. The only defining difference is the color of the jacketing or heat shrink tubing.

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