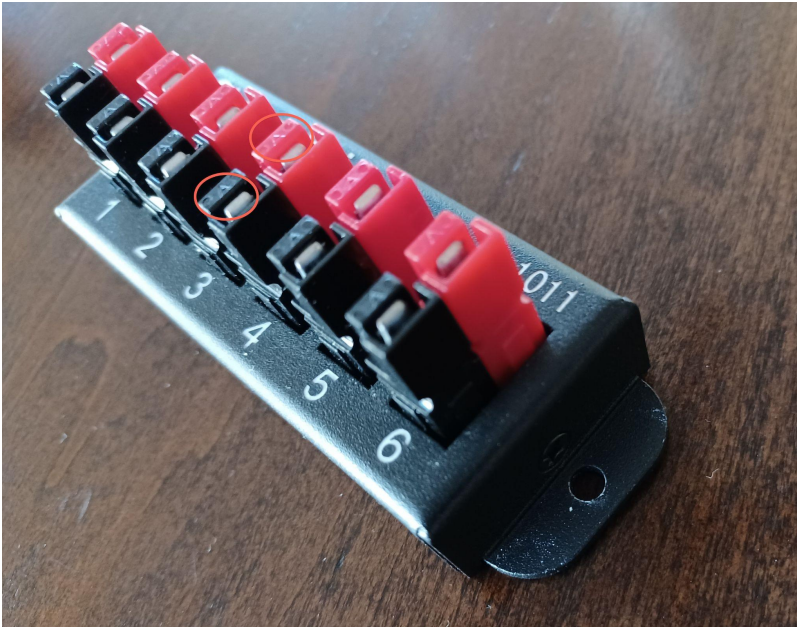
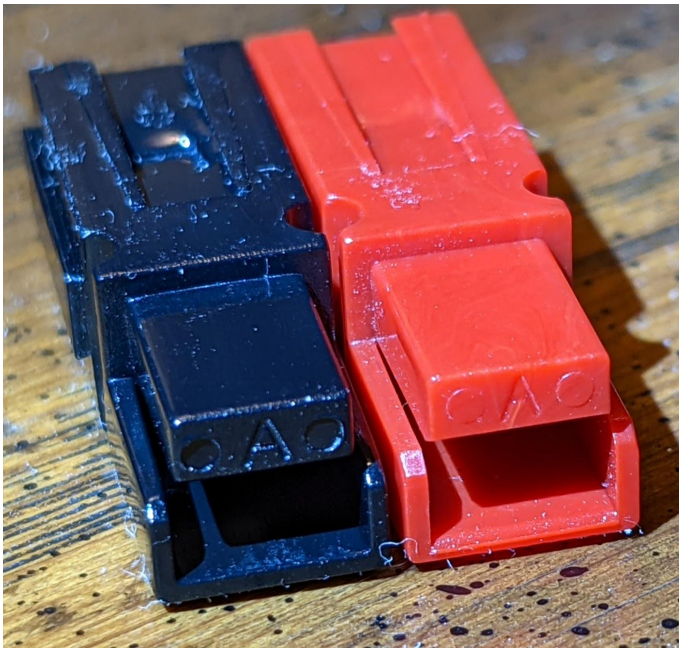


INSTALLING “ANDERSON POWERPOLE” CONNECTORS

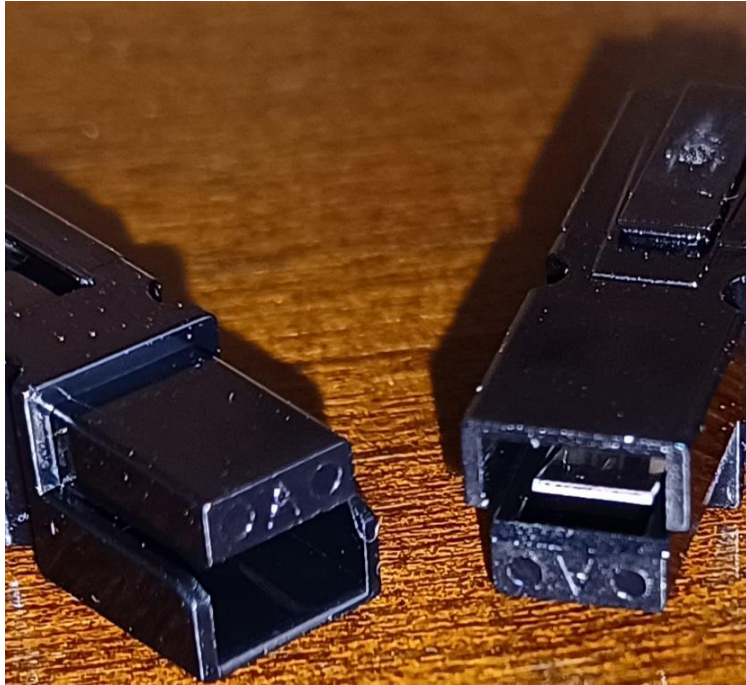
Anderson Powerpoles are a convenient way of safely connecting 12 volt DC power to Amateur Radio equipment. Connections are made with interlocked red and black plastic components. Equipment can be quickly and safely plugged or unplugged from a power strip with little risk of making a mistake that might blow a fuse or damage a piece of equipment.



This commercial terminal block is made up of 6 sets of Anderson Powerpoles. One pair of cables plugged into any of those 6 will carry the 12 volt Power Supply to all of the remaining 5 terminals. Each additional pair of Anderson cables plugged into these available terminals will then carry that 12 volt power to another piece of equipment like a radio or tuner.



Notice that the front edge of each red and black Anderson Powerpole (AP) will have a capital letter “A” embossed in the plastic to indicate it is an “Anderson” product. These embossed letters are the best way to be sure your cables are being assembled correctly.



As an example, the embossed “A”s on these two black APs are shown positioned so that either one can be inserted into the other. The “A”s on each AP are in the opposite position so the two connectors can be plugged into one another.

Notice the metal that is visible in the AP on the right. It is the "Capture Spring" that secures the electrical connector when it is inserted into the back of the plastic housing. You will learn more about it later.



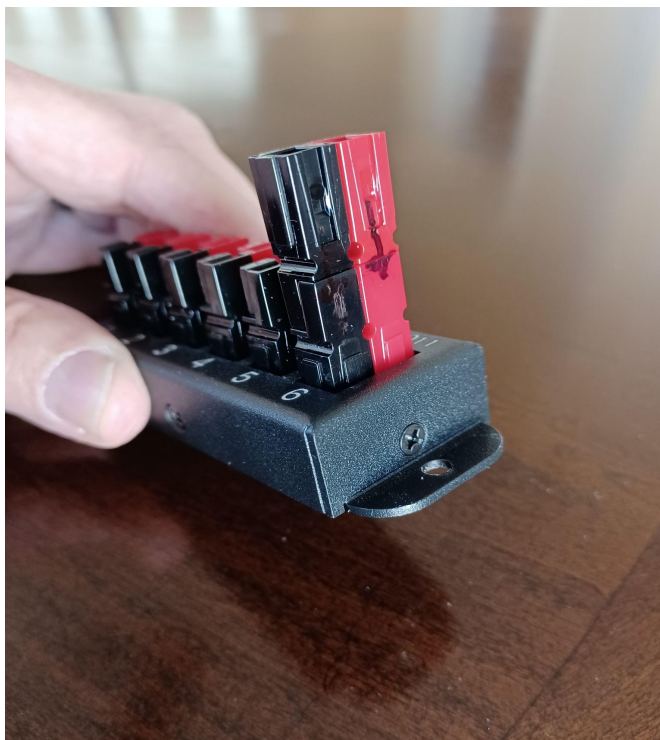
To be sure you have each pair of APs correctly positioned, take an empty pair and insert them into the target terminal strip or cable as you begin your project.



Once inserted, each Red and Black plastic piece can be marked so all the parts can be removed and later reassembled into the same position.

Of course, when plugging a pair of AP connectors into another pair of connectors, the red and black colors must match the colors of the cables to the colors of the AP connectors.

Red-to-red and black-to-black. This will make sure that the polarity of the DC voltage will be maintained in all your projects. Since most hams will follow that same standard, you can be confident at field day or other events.



For ham radio and most other applications, the position of the two connectors is very important. This position requires that the PLUS 12 volts be on the right side (red) of the connector when looking INTO the "A", active end.

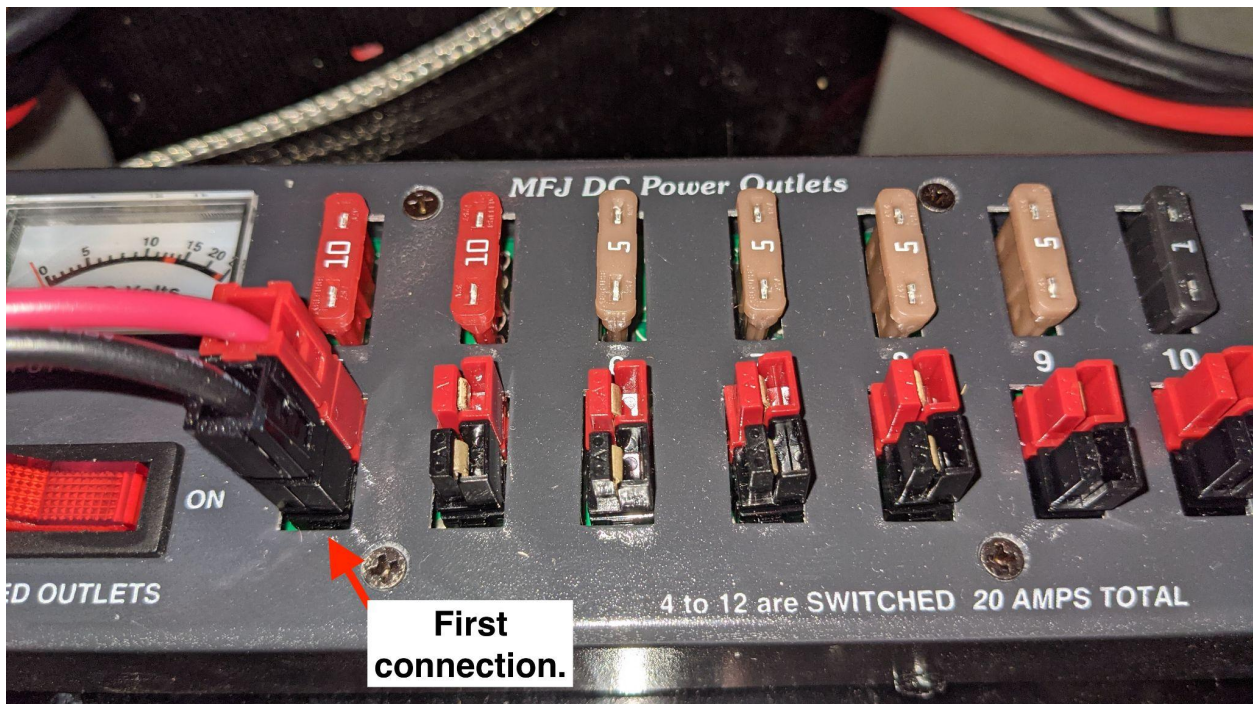
The MINUS 12 volts is on the left, or black side.

Remember, "Red is Right" when you are assembling these units AND are looking into the "A" end of the AP connectors.

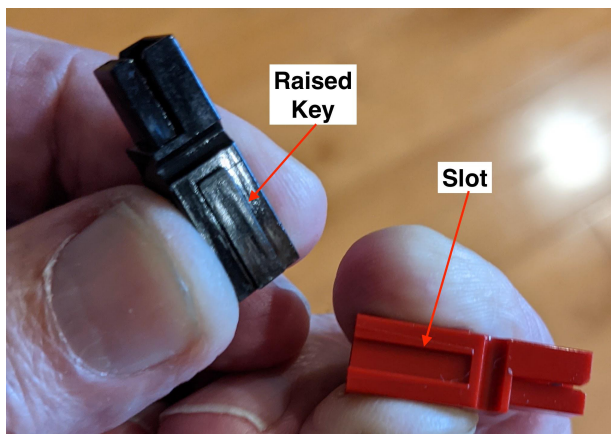
This protects you from accidentally crossing your 12V connections as long as you maintain the "industry standard" Red-Right on every cable or device on which you install Anderson connections.

Below you see an "MFJ 12" commercial power strip that uses Anderson connectors. It shows a pair of red and black wires inserted into a position in the strip. This position also has a 10 amp fuse on that circuit. Each remaining circuit on the power strip has a pair of connectors with the active ends facing up. As mentioned previously, the set of Anderson connectors on the pair of cables inserted must have their two connectors with the letters "A" in the reverse position to enable the set of connectors to physically mate with the Anderson connectors mounted in the MFJ strip.

Note that each new position has a separate fuse. The fuses can be changed based on the 12V load requirements of the device being plugged into that position. Note that this MFJ unit cautions that the total current load should not exceed 20 amps for all the equipment plugged in.

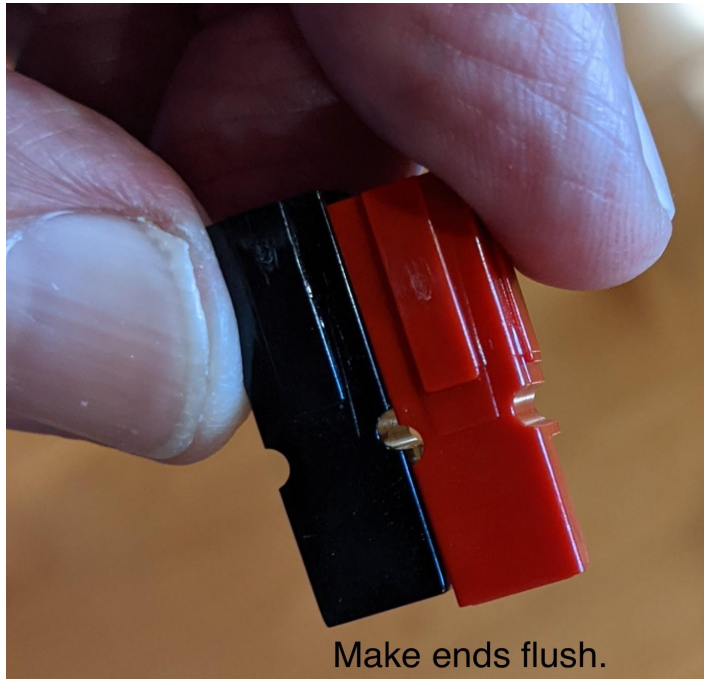


If you are making up Anderson cables for a power strip like that shown above, plug in a pair of empty plastic red and black shells into your power strip initially so that the correct position for the embossed letter "A" is determined before building cables to be inserted.



Once the correct position is determined, mate the Red and Black shells together using the slots on their sides. Here you see the flat sides on each of the shells.

The raised Key on the side of the Black shell is designed to slide into the Slot on the side of the Red shell.



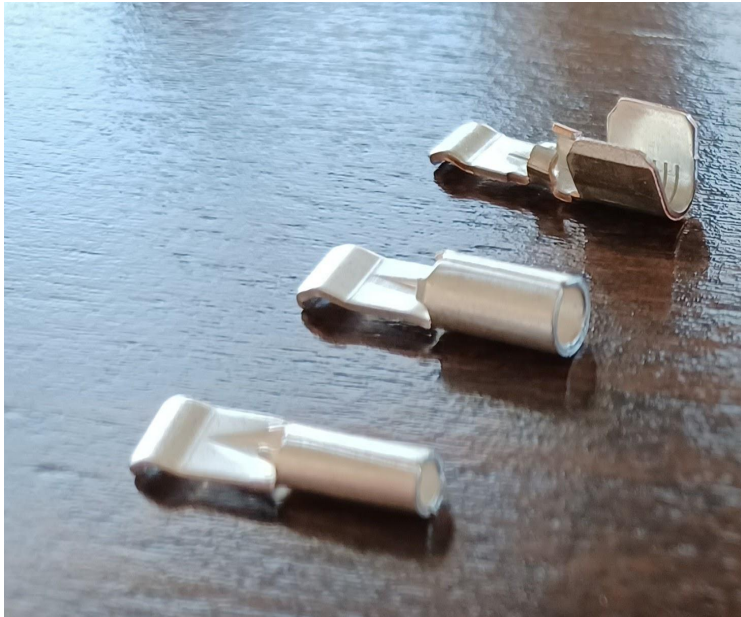
With the shells properly positioned, slide the two shells together until the "A" active ends are FLUSH on the end so the electrical connections will be solid. Because of the tight fit, you may need to gently **tap the back ends** until the front ends are flush.



The middle section of this box holds the metal electrical connectors that are crimped on the electric cables before insertion into the Anderson shells. These metal connectors are then inserted into the back of the Red and Black shells.

This box has 15 amp rated connectors. Other size connectors are available for 30 and 45 amp loads. When building an AP circuit, all the components must have the same amperage capacity. Once a circuit is built, it can be difficult to see the components inside.

The plastic Anderson shells will accept any of the three electrical connectors. The metal electrical Connectors that go inside the AP housings have a curve, or tongue, at the front end. Be sure the curve is down in the crimp tool when attaching the Connector.



The Crimp ends are sized based on the gauge of the wire required.

14 to 10 gauge for up to 45 AMP loads.

16 to 12 gauge for up to 30 AMP loads.

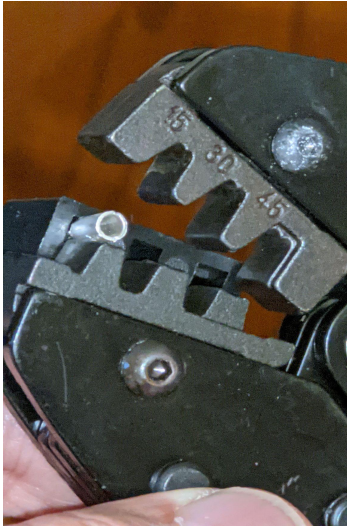
20 to 16 gauge for up to 15 AMP loads.

Be sure you select the gauge of wire to match the amperage load of Connector in your design since the Connector will not be visible once inserted into your AP.

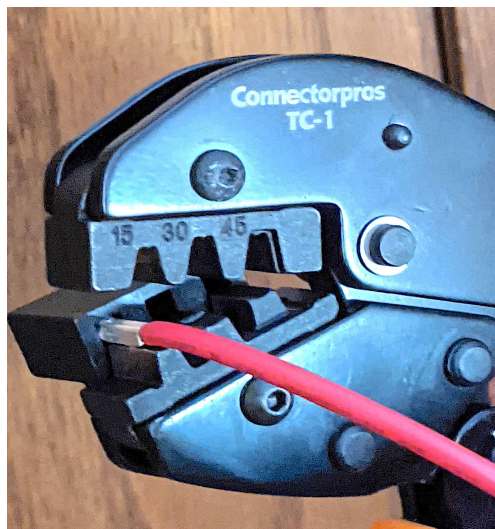


When plugging one AP into another, several problems can occur if the stripping of the wires exceeds $\frac{3}{8}$ of an inch. On the left side, note the length of the center-conductor places it very close to interfering with the CONTACT POINTS between the two connectors.

In addition, the amount of exposed conductor on the right side is too great as well. Little to no center-conductor should be visible at the back of a finished plastic AP body. Exposed wire could result in contact with the operator's skin when the connectors are plugged in or unplugged.



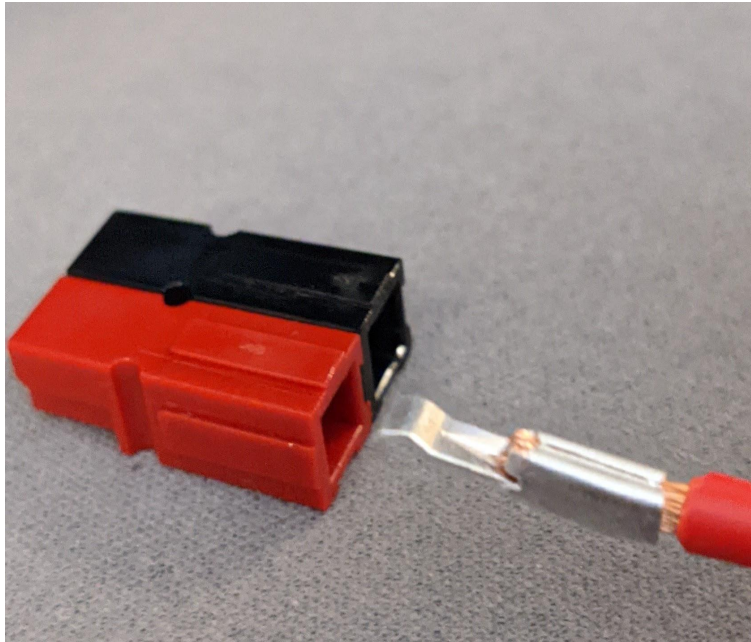
This Crimp Wrench has slots marked for each of the three-sized electrical connectors. The tongue is placed into the Crimp Wrench with the curved end facing down. Once the curved end is properly positioned within the wrench, partially compress the wrench to keep the connector from rotating while the appropriate wire gauge and length of center-conductor are inserted into the barrel for crimping.



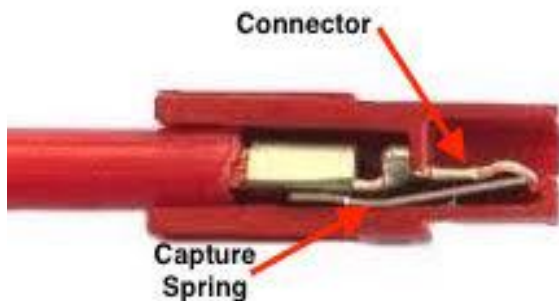
The wire going into the end of this 15 AMP size connector was stripped back 3/8 of an inch.

With this fitting positioned in the correct hole in the crimp wrench, the proper size wire was then inserted into the back of the connector and the crimping action was completed.

The wrench ratchets down to the required crimp pressure to assure a solid connection on the wire. Soldering is not recommended since the wire will increase in diameter and the shape of curved tongue may be distorted by solder residue.



The electrical Connector, which is now crimped on a Red Wire, is ready to be inserted into a Red shell. Be sure the shell is positioned with the embossed “A” upright on the front and the Connector is flat relative to the shell before it is inserted. Repeat this same procedure with the black wire and its electrical connector as well.



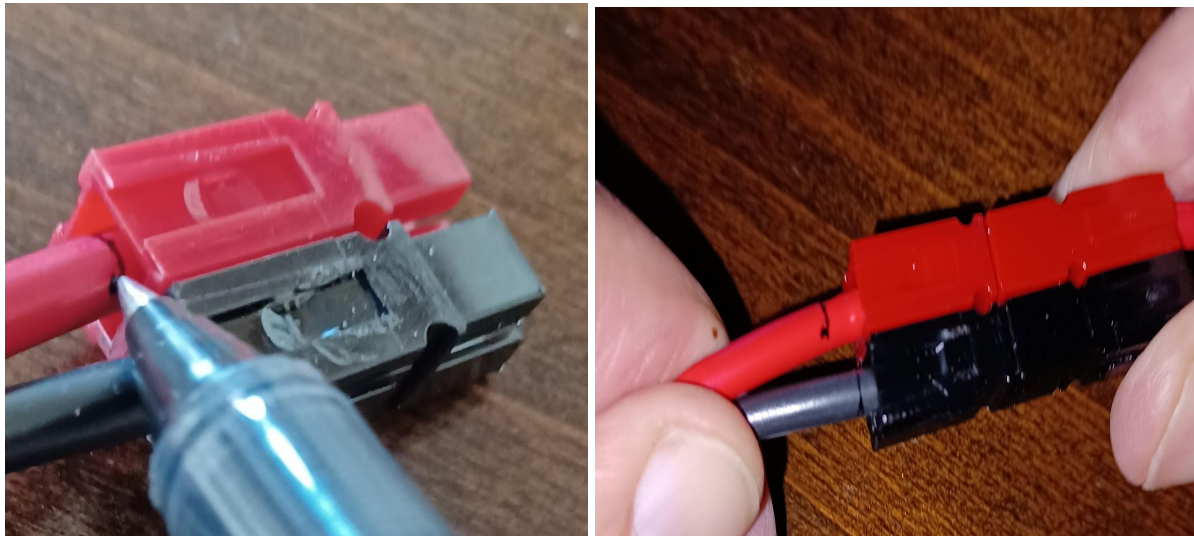
Notice the structure of the built-in “Capture Spring” shown in the cutaway view of the inside of a shell. When inserting a Connector into a shell, be sure both components are flat with no rotation so they can slide over one another properly. As the Connector slides forward the Capture Spring will “click” and the parts will be locked in place. If you do not hear a click, **PULL THE CONNECTOR OUT** and look inside the front to make sure the two parts are level while being assembled.

Some do not want to invest in the Crimp Tool designed for the Anderson Powerpoles. If a pair of conventional crimping pliers are used, it may cause the crimp to be too wide and the Connector can not be inserted correctly and the audible “click” will not be heard from the Capture Spring,

Test all the connections by gently pulling on each wire after it is inserted into its shell to make sure everything is firmly captured. You can also test by connecting the new pair to another pair of Anderson connectors as shown below.

In this test, lines were drawn on the wires. If there is any movement when pulling on a wire or when connecting another pair, you will need to remove the connections and try testing them again after they have been replaced.

Test and retest until everything is secure.



To safely disassemble an AP connector when no power is applied, gently place a small tool like a jeweler screwdriver into the back or front of the Shell to release the Capture Spring from the end of the Connector. If necessary, replace the shell or re-clamp the wires to make sure everything is totally secure in your Anderson connections. Be careful not to bend any of the metal components or it may be necessary to replace them.

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Version 15

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