ARES PRESENTATION
Anderson Powerpoles

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EC, Nueces County, TX
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There is a very good reason for all ARES members to use Anderson Powerpoles on all their 12 Volt equipment including all radios, batteries and 12 Volt power supplies. In an emergency if a ham runs out of power, he can use another ham's battery or power supply. If you bring your transceiver to an EOC as a spare, if you use Powerpoles on your radio you can instantly swap out the EOC radio with yours. There is simply no excuse anymore for any ham not to use Anderson Powerpoles.

The cost of converting to Anderson Powerpoles is not as expensive as one would think. Typically 25 sets of Powerpoles cost $19.95. Add a $12.99 crimper and the total with shipping is $40.69. If you need 50 sets of Powerpoles the cost with a crimper and shipping would be $68.49. If you split this order with another ham and shared the crimper it would cost you only $34.25. This is a lot cheaper than buying the old style Molex connectors at Radio Shack.

There is some debate about what type of crimper to use and whether to solder the connections. Originally I did not solder my connections and used a cheap (less than $15 crimper) as recommended by many people. After many failures I started to solder all my crimped connectors. I have not had a failure since I started doing this about 10 years ago. We need reliability for emergency communications. You are worthless if you get to a disaster site and your radio doesn't work due to a bad power connector or as we spoke about last month a bad coax connector.

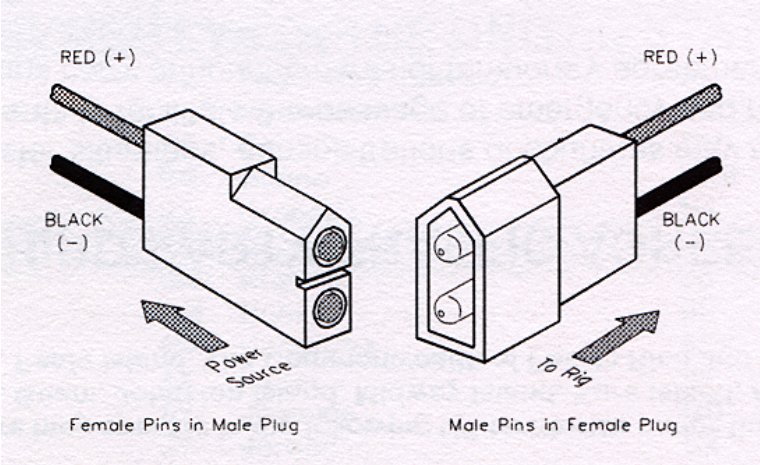
In aerospace, soldered connectors are not permitted. All connections are crimped. A soldered wire can vibrate and it will break where the solder stiffens the stranded wire. However, we are not under these conditions and crimping our connections with a cheap crimper and then soldering the connectors is a dependable way to go.

I recently heard of a group who was hosting an event, who offered to crimp your wires with your Anderson Powerpole connectors with an "aerospace" grade crimper for free. They were charging a reasonable amount for the Powerpoles if you did not have them. I had never seen an "aerospace" quality crimper before, and decided to see if I could find out some information about them on the Internet. I could not find any info, so I started searching the Anderson website. I finally found a picture of an "aerospace" quality crimper that they sell, but the price was not listed. It looked like it was machined out of solid pieces of stainless steel. I figured that Anderson would likely charge a minimum of

$1000 for one of these tools if not many times more. I attended the event and discovered that the person in charge of the demo was using a compound crimper usually sold for $35 on sale to connect undersized wires to 30 amp Powerpole contacts. I also found out that he solders his own connectors so they don't come apart. So out the window went the fallacy of using an "aerospace" quality crimper on Powerpoles without soldering them afterwards.

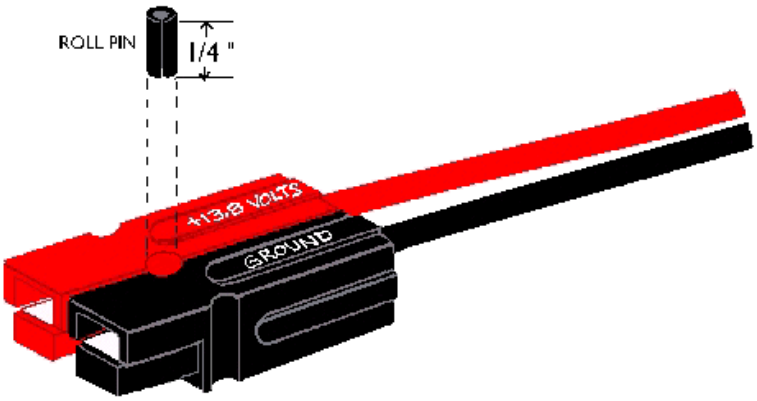
So the jist of my method is that you only need a cheap crimper because the crimp only keeps the contact in position on the end of the wire until you are ready to solder it. This is extremely low tech but reliable.

With this introduction I will now describe how I assemble my Anderson Powerpole connectors.



Photograph 1:

This s the old style ARES standard of the 1990s and before. It is a Molex style connector. All members were encouraged to use these so hams could use the same power supplies in an emergency. Note the male and females pieces. They were not very reliable.



Photograph 2:

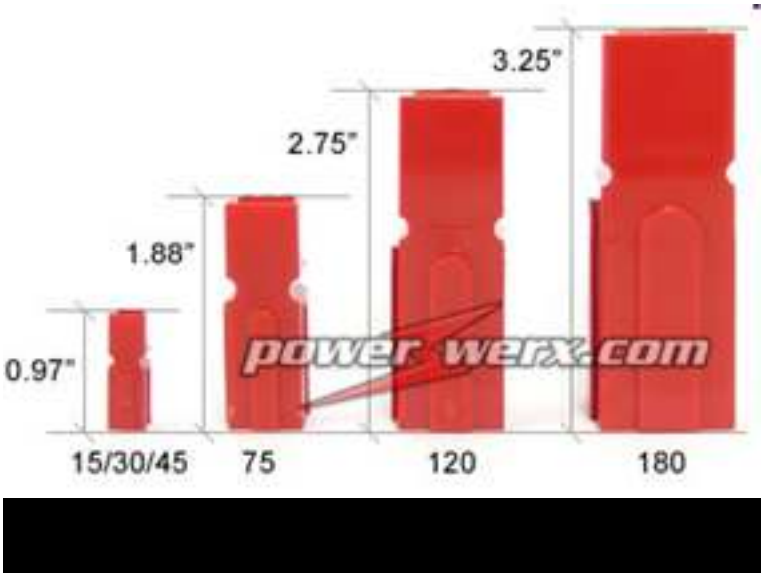
This is the new ARES standard for power connectors. Note the polarity of the colored housings. There is no male-female; all pieces are the same.

Photograph 3:

Many new pieces of equipment come with Anderson Powerpole connections, such as this Elecraft K3 HF transceiver.

Photograph 4:

This is an Anderson Powerpole set. It consists of two plastic housings two contacts, and one roll pin.



Photograph 5:

We normally use the 15/30/45 Amp housing for amateur use.

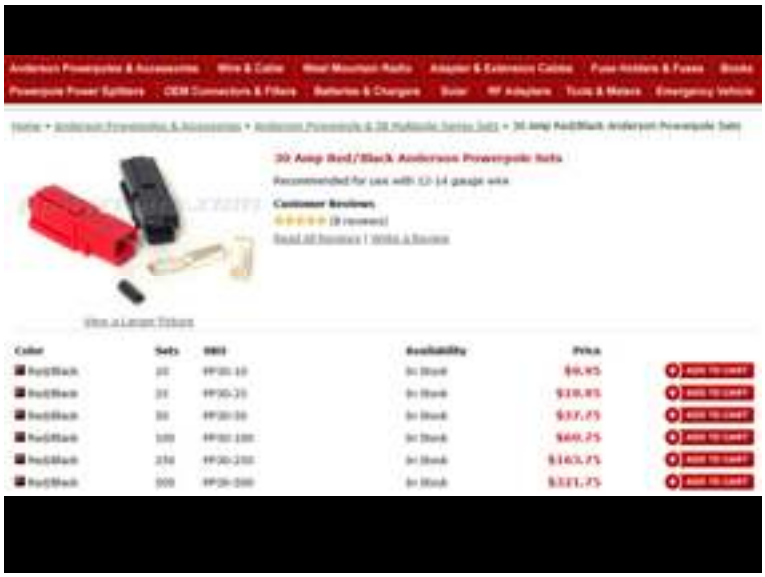
Photograph 6:

As you can see the Amperage goes up to 350 Amps which is a bit scary.

There are also waterproof sets available.

Photograph 7:

There are three different types of contacts that will fit into the 15/30/45 housing. The 30 Amp version will allow 14 and 12 gauge wire to be used. Hams normally use the 30 Amp contact.



Photograph 8:

Here is a table of typical prices for the 30 Amp sets. A set of 25 is $19.95. This includes 25 red and 25 black housings, 50 30 Amp contacts and 50 roll pins. Refer to www.powerwerx.com.

Photograph 9:

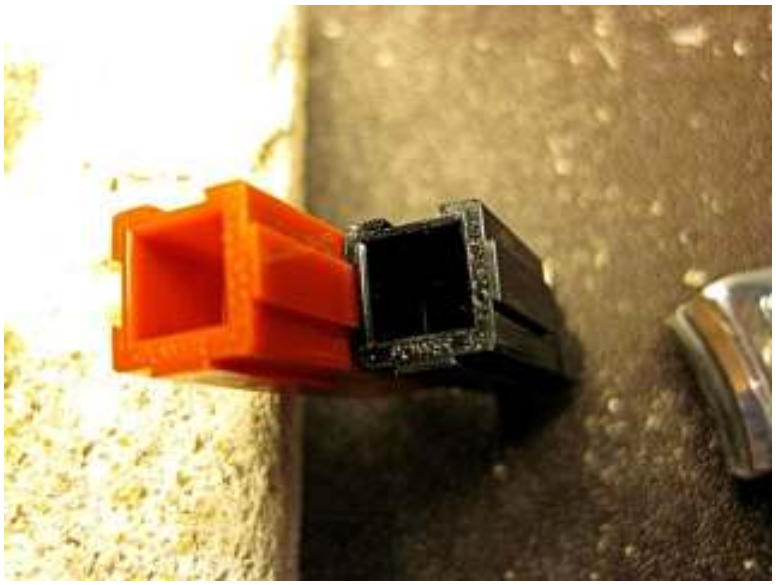
This shows a close up of the housings. The housings come with a flat metal spring that locks the pin in place after it is inserted into the housing.

Photograph 10:

Note that there are no male or female housings. They are all identical. If you rotate one 180 degrees it will mate with an identical housing.

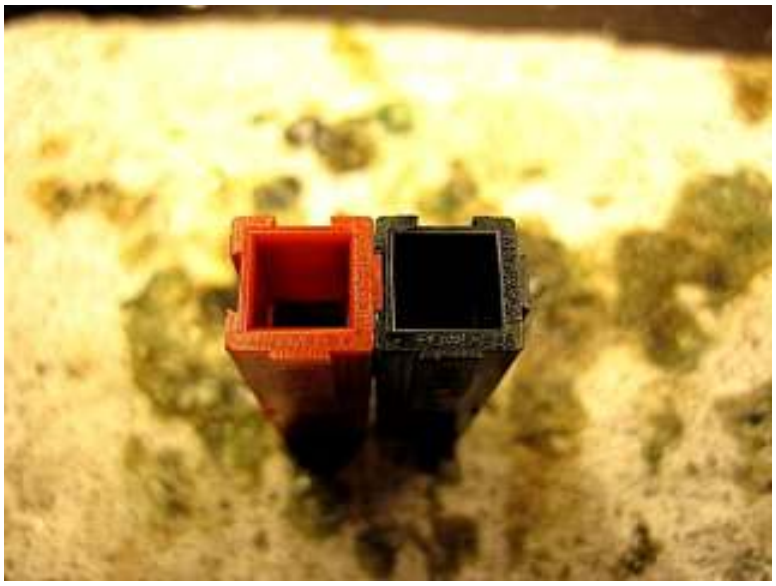
Photograph 11:

Note that some sides of the housing have a slot and some have a key. This allows them to be assembled in an infinite number of combinations.



Photograph 12:

Here I am starting to put one red key into one black slot.



Photograph 13:

Here the two connectors are fully mated.

Photograph 14:

Two assembled housings. Note the hole between the housings. This is where the locking roll pin is inserted.

Photograph 15:

This is a roll pin and the insertion tool I use.

Photograph 16:

I place the roll pin onto the tip of the tool.

Photograph 17:

I then force the pin into the connector.

Photograph 18:

Here the pin is fully inserted.

Photograph 19:

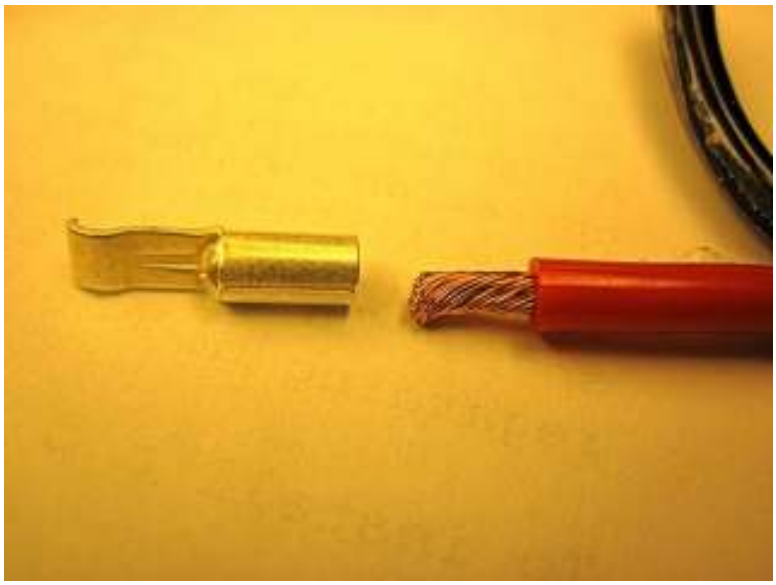
Roll pin has been installed.

Photograph 20:

These are the standard 30 amp contacts. They have a tongue and a sleeve. The wire will go into the sleeve.

Photograph 21:

Rear view of the contacts.



Photograph 22:

The 12 gauge wire has had its insulation cut away. The strands are twisted to make it easier to insert into the sleeve.

Photograph 23:

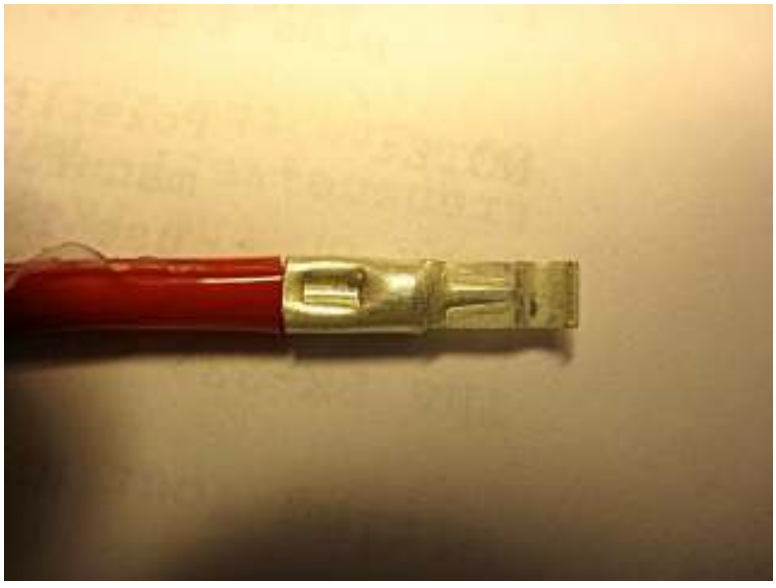
The wire has been partially inserted into the sleeve. While this is done the pin is rotated to keep the wire strands tight.

Photograph 24:

This is my inexpensive crimper. Note that the slit in the sleeve is facing away from the mandrel. Otherwise you will spread out the sleeve.

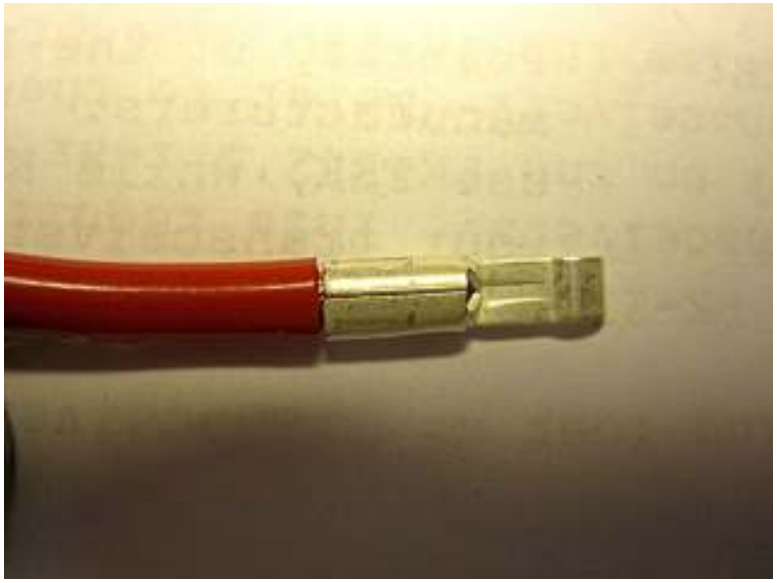
Photograph 25:

I recommend the $12.99 crimper from Powerwerx for 15 and 30 Amp Contacts. The Stock # is CT-2.



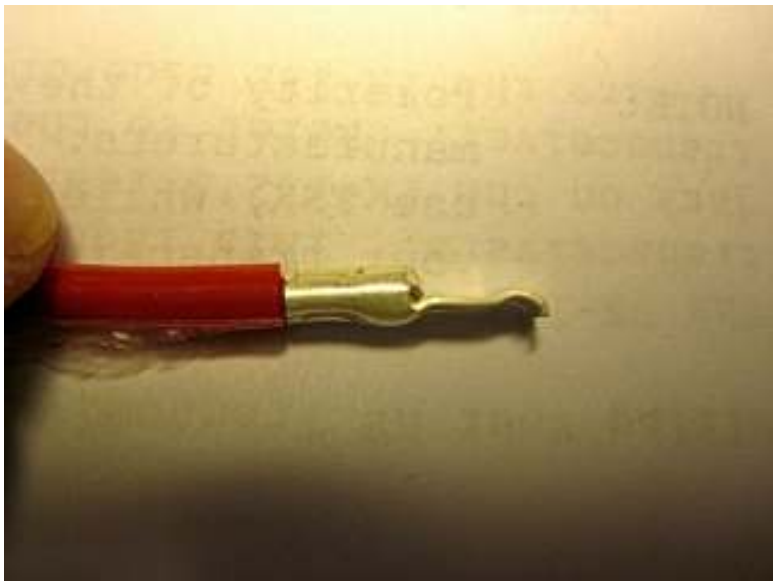
Photograph 26:

Note the crimp mark on the side of the contact away from the slit. Do not over crimp the contact. Otherwise the contact will become distorted in shape and not fit into the housing.



Photograph 27:

Note the slit has not spread apart after the contact was crimped. If the contact has widened put it into the crimper in the oval cutout (without the mandrel) on end and gently squeeze it back into shape.



Photograph 28:

Note that the tongue has not bent up or down after the crimping.

Photograph 29:

This is the standard soldering position.

Photograph 30:

Note the openings in the contact. You need to put some .030 solder in the hole farthest the tongue. Do not get any solder on the outside of the contact. If you do carefully file it off after the contact has cooled.

Photograph 31:

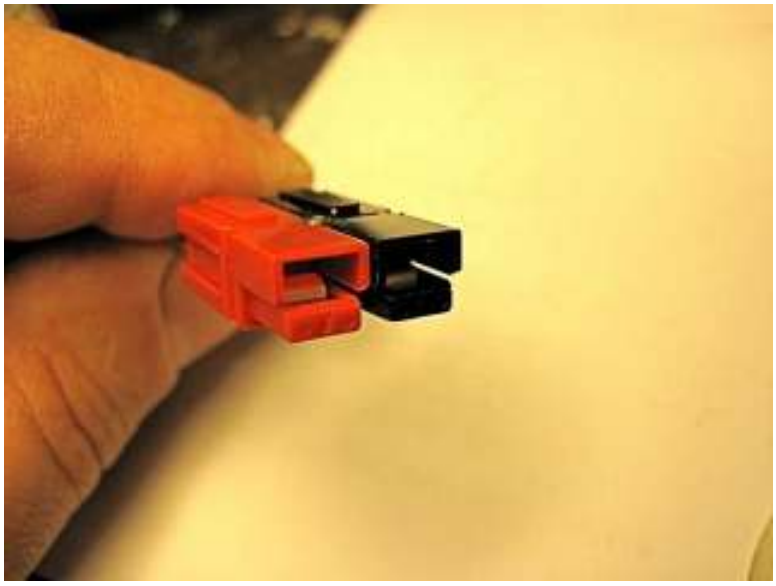
Here I am adding heat to the back of the contact while feeding ½ to 1 inch of solder into the hole. If you add too much it will splatter on the outside of the contact. You need very little solder to attach the wire to the sleeve.

Photograph 32:

This is the correct alignment for inserting the contacts into the housings. The tip of the tongues must go into a narrow slot. You can line them up visually by looking in the front of the housings.

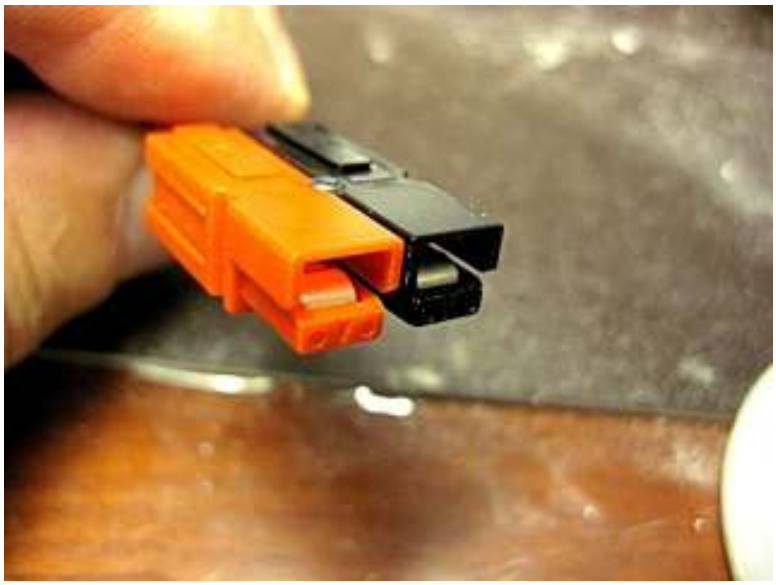
Photograph 33:

Here the contacts have been inserted into the slots and are on the metal springs.



Photograph 34:

Here the contacts have been inserted into the slots and are on the metal springs. They still need to be pushed more forward until the contacts cover the springs completely and click into place.



Photograph 35:

West Side of Residence

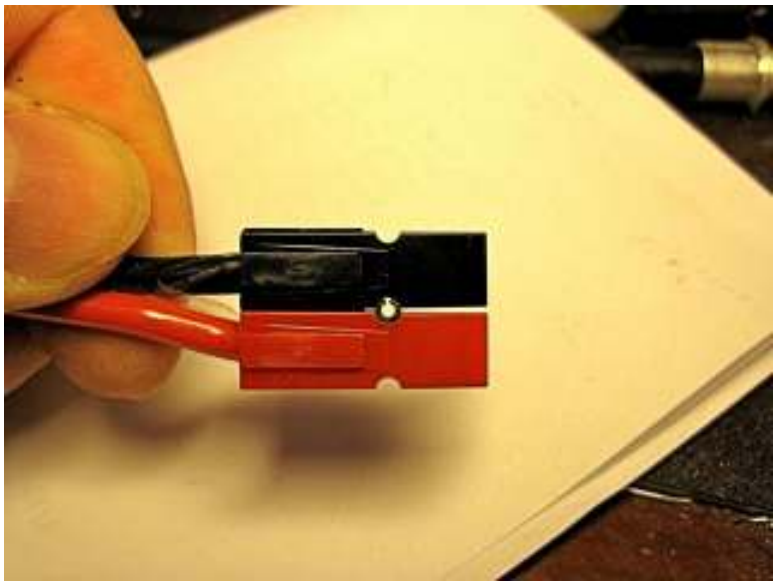
Here the contacts have been fully inserted.

Photograph 36:

This is how the contact locks over the spring.

Photograph 37:

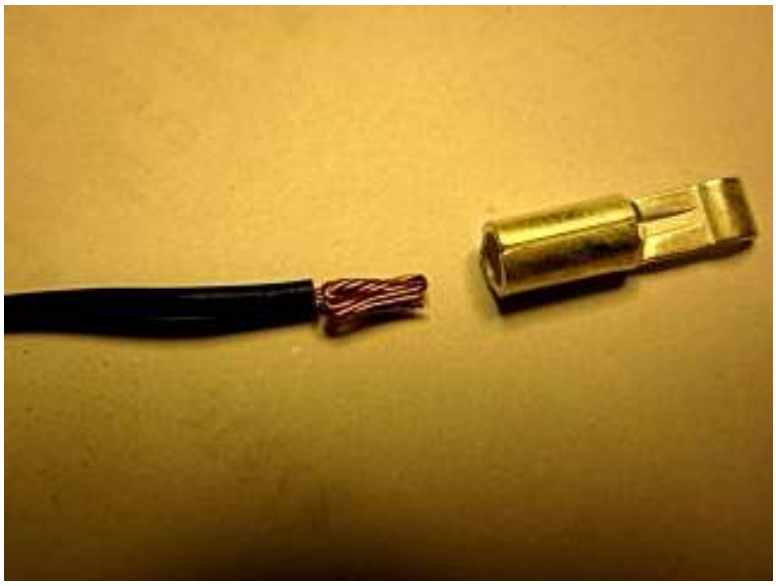
This is how the two housings and the two contacts snap together to give a secure very low resistance connection.



Photograph 38:

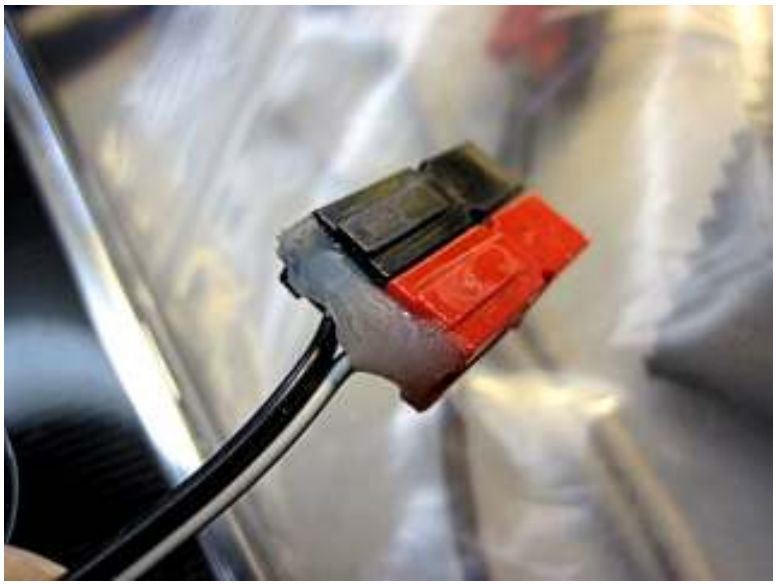
West Side of Residence

Here the contacts have been fully inserted.



Photograph 39:

If you have a small gauge wire instead of buying the 15 Amp contacts, you can use the 30 Amp contacts if you wrap the wire on itself a few times. You may want to not crimp and only to solder.



Photograph 40:

Fine wire that is soldered tends to break. If you hot glue the rear opening of the housings, it will give the wire strain relief.

Photograph 41:

Rig-runners can cost over $100. If you don't need the fusing because the power supply is fused, then you can buy one of these for $28. That will give you 7 extra connections.

Photograph 42:

Here is another view of the Powerpole junction box. It is much smaller than a Rig-Runner.