

Anderson Powerpoles

Powerpole Assembly

Instructions for

SCOUT, NAVIGATOR AND

RANGER ROV's

Anderson Powerpoles

Power Connections

NEW in 2016!!!

- **ELEC-010E:** Power supply connections will be Red/Black Anderson Powerpole Connectors. Companies' ROV system power wires must have proper connectors to obtain power. The Anderson Power Connectors must be connected to the ROV power wires securely; use of a proper mechanical crimper is suggested.
- Powerpole connectors are physically and electrically hermaphroditic, thus avoiding the need to worry about which end is the plug and which the socket, or which end has the correct polarity.

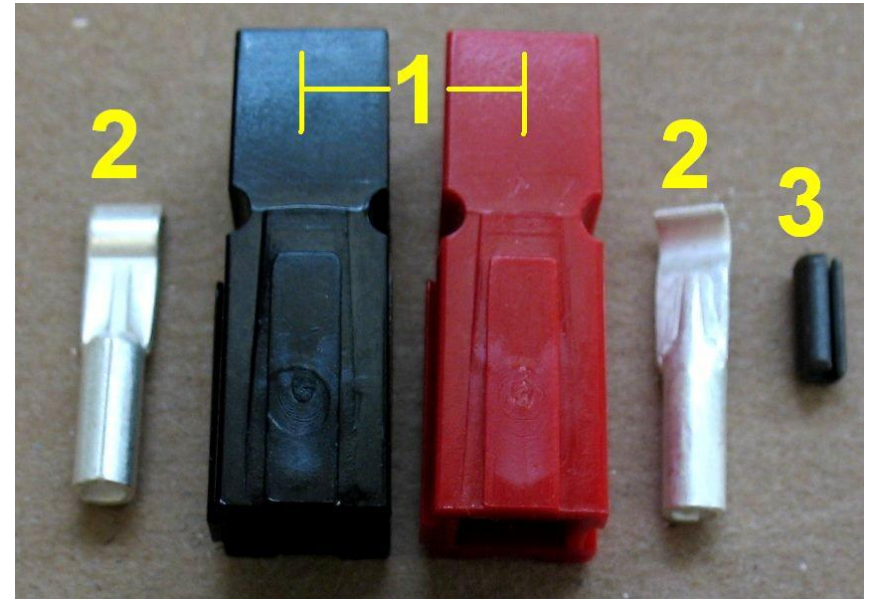
Powerpole Identification

- 4 different sizes
- **PP15/30/45**
- PP75
- PP120
- PP180
- ***Only PP15/30/45 are interchangeable. All others are not!***



Powerpole parts breakdown

1. Housing
2. Contacts
3. Lock pin *(I recommend not using. Use glue instead if you plan on shelling your connectors)*



PP 15/30/45 Differences

- 15/30- Only difference is the size of the wire barrel on contact
- 45-Style of wire mount is different than the 15/30
- When connected, hard to distinguish other than wire gauge used.

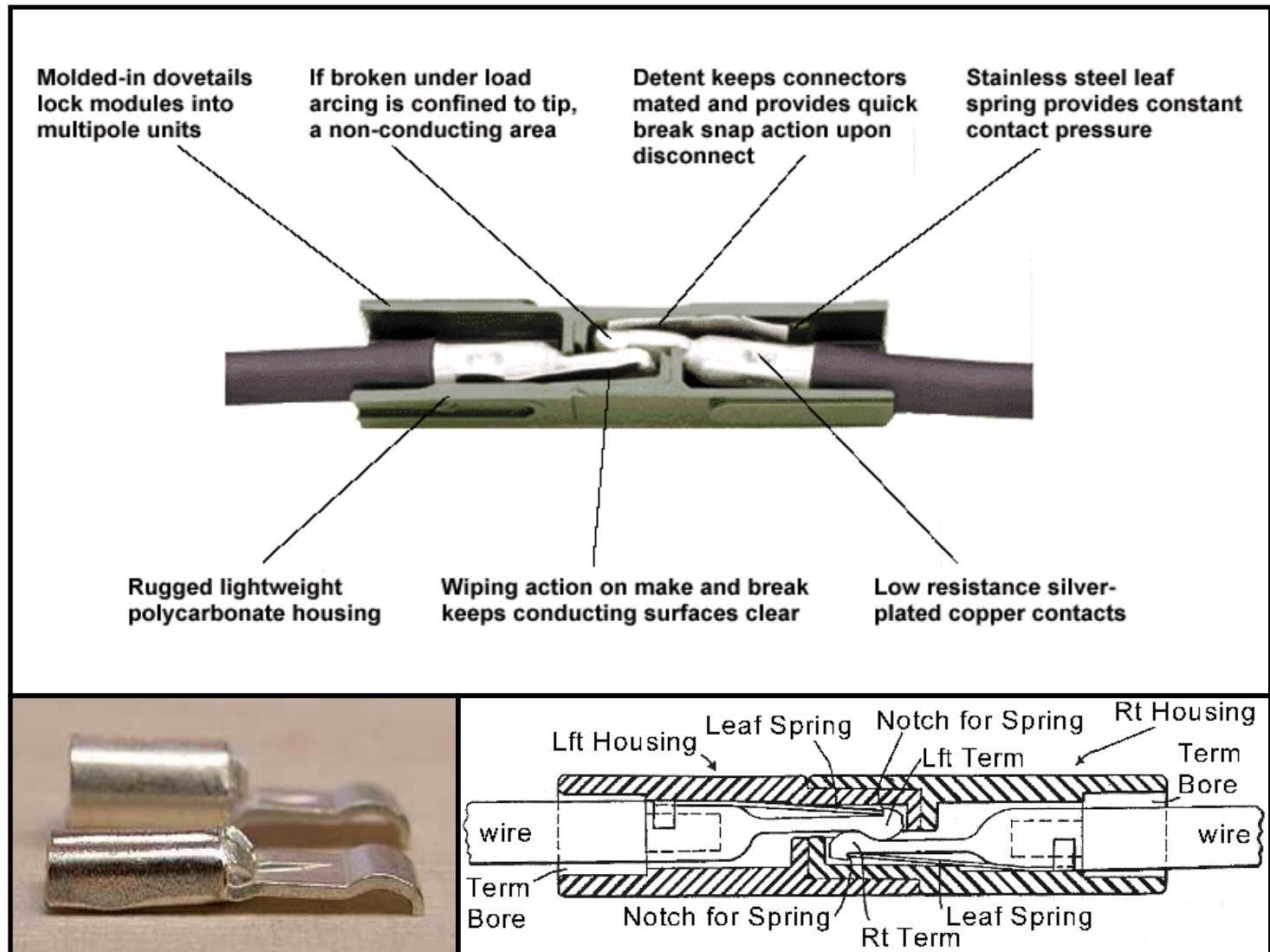


One housing design, three contact options



P/N	Max Amp	Gauge
CONTACT OPTIONS		
1332	15A	16-20
1331	30A	12-16
261G2	45A	10-14
CONNECTOR HOUSING		
1327	RED	
1327G6	BLACK	

Anatomy of a Powerpole



Powerpole assembly tools

- Three basic tools needed
 1. Wire cutters
 2. Wire strippers
 3. Contact crimper*
- One sundry item
 1. Glue/adhesive (aka crazy glue)

Wire cutters

- Nothing fancy.
- Good and sharp
- Appropriate to gauge of wire your using.



Wire Strippers

- Good and sharp
- Appropriate to gauge of wire your using.



Contact crimper

- Heart of the procedure!
- Mess this up and you've botched the whole thing (contact wont lock in or worse...WIRE CAN COME OUT)!
- Three different styles.
 1. Not Recommended
 2. If you have money to burn.
 3. Just Right!

Contact crimpers (NO!)

- Guaranteed to mess up
- Inconsistent results
- Inexpensive...\$12.99
- Overall rating, “0”



Contact crimpers (Top of the Line)

- Consistent results!
- Official APP crimper
- Only does 30 and 45A contacts

• **~\$219.99!**

Anderson Power Pole
Crimpers



Contact crimpers (Just right!)

- TRlcrimp, Powerpole Crimping Tool

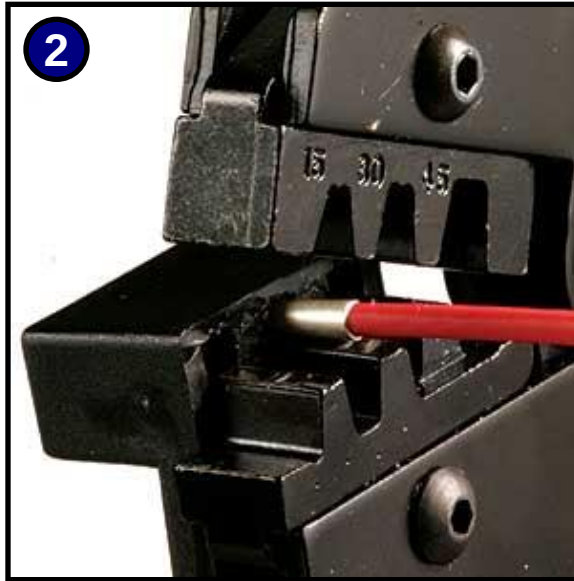
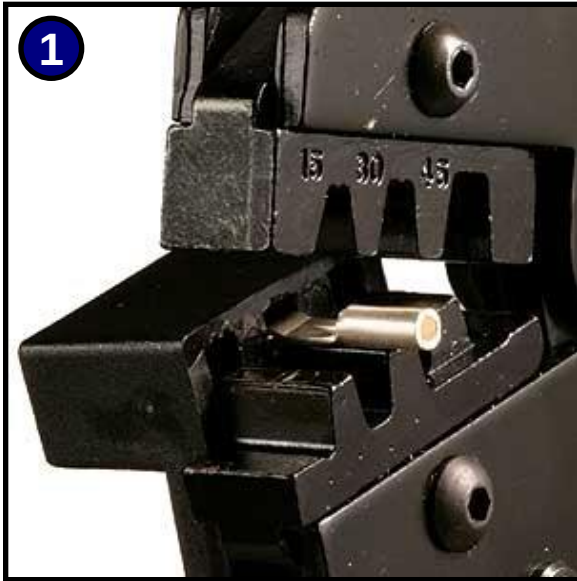
Consistent results

- Does 15, 30 and 45A contacts!

- ~ \$39.95!

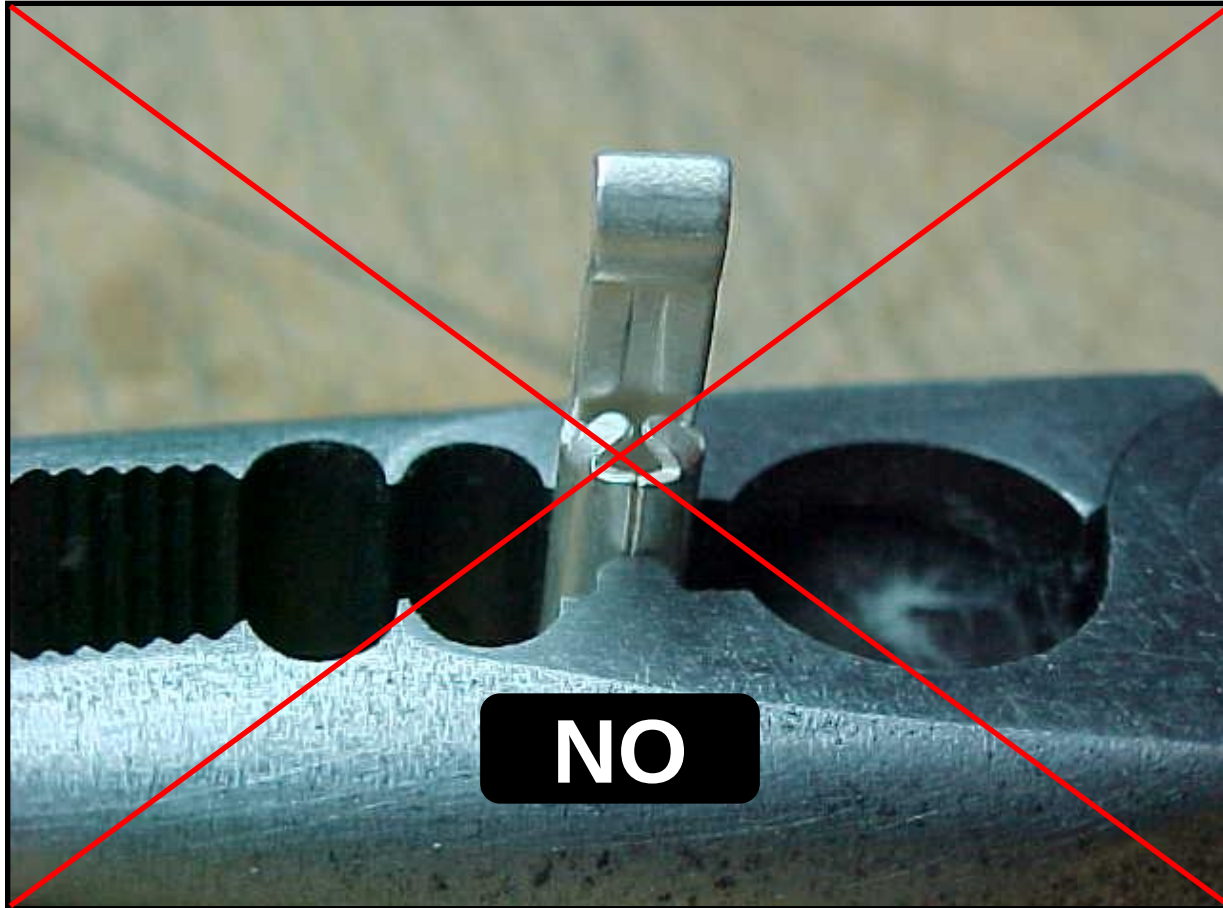


Powerpole Connector Assembly Procedure



The “best” crimping tool for the money is the TRlcrimp, Powerpole Crimping Tool for 15, 30 and 45 amp contacts

Incorrect Crimping Technique



Regardless of the crimping tool used, the seam in the barrel of the contact must be against the rounded side of the tool's die.

Assembly procedures

Shell selection

- They come in 11 different colors
- **Red Black** (*What we'll use for MATE ROV*)
- Blue Green
- White Orange
- Yellow Grey
- Brown Violet
- PINK!



Shell selection

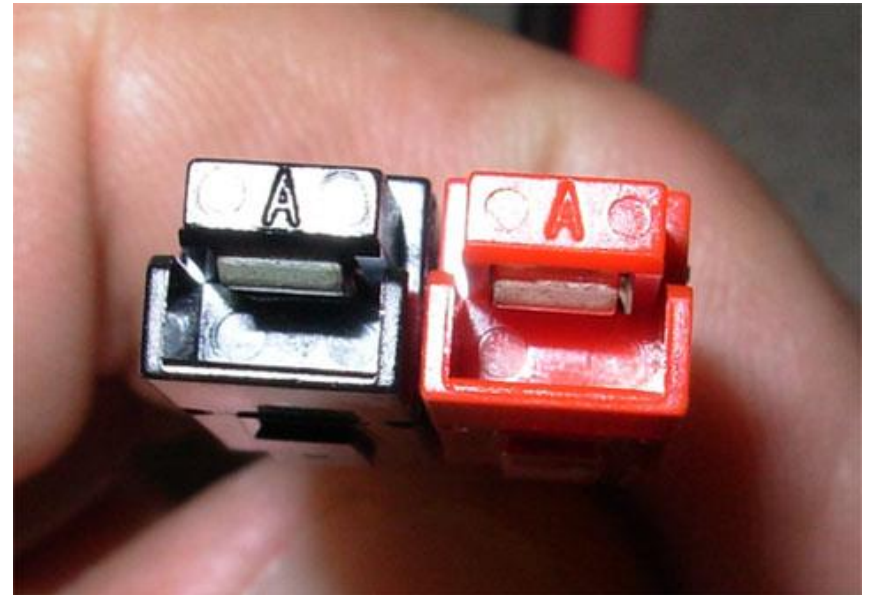
- **RED** +12vdc
- **BLACK** Return

Yes , there is an standard color code. MATE ROV uses red/black to indicate polarity.



Shell assembly

- Shell orientation VERY important.
- As you are looking at the connector.
 1. Tongues up
 2. “A”s up
 3. Black on left
 4. Red on right



Shell assembly

- Locking pins...
- **THROW THEM AWAY OR RECYCLE!**
- Chances of pin coming out under vibration very good
- Steel and electricity not good partners.
- Just glue it!



Shell assembly

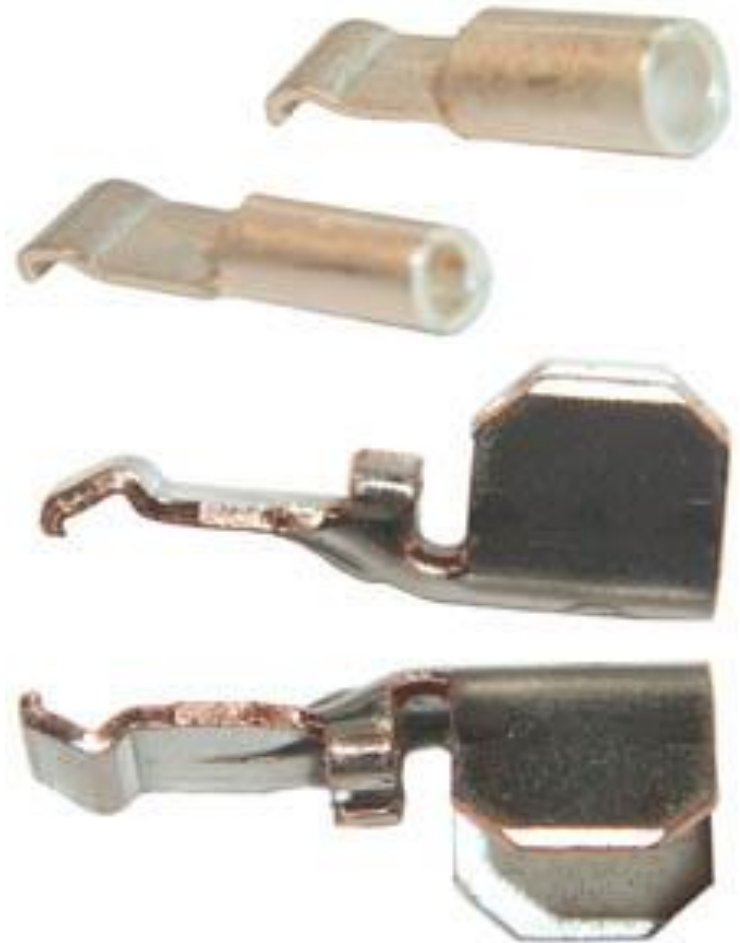
- Get correct orientation.
- ONE DROP of glue (don't need much) on the inside dovetail
- QUICKLY and with a little force, slide them together till they are both level
- DONE!



Contactors Selection

15/30/45 What is the wire size?

- 15 20~16ga
- 30 16~12ga
- 45 14~10ga



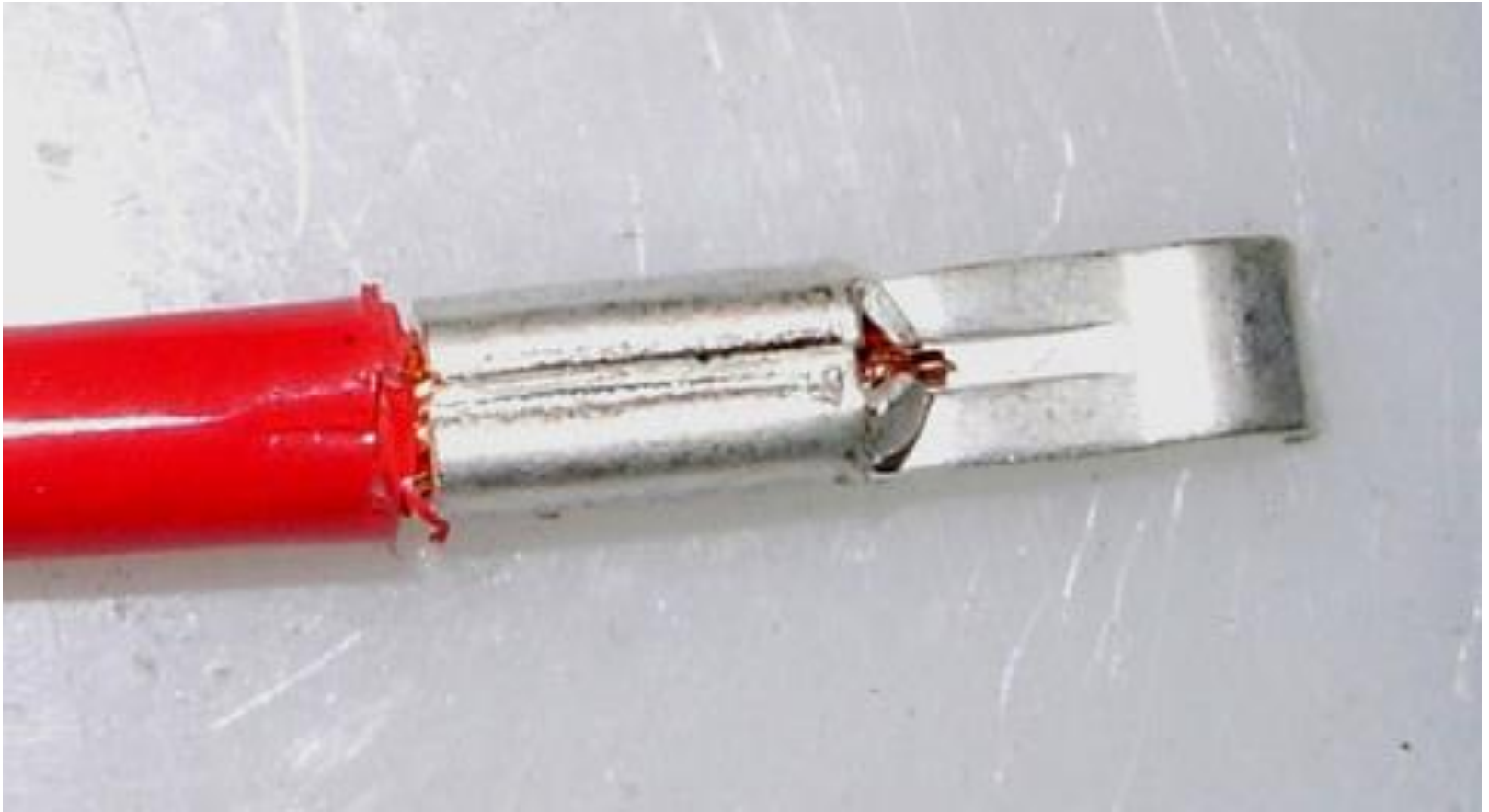
Contactor assembly.

1. Square off the wire ends
2. Split conductors back about ½ inch.
3. Strip conductors back approximately 5/16 inch.
4. If stranded, twist the bundle tight
5. NO NEED TO TIN!
6. Insert conductor into contactor. Should be flush and wire should barely be seen on front of contactor.
7. Verify that there isn't an excess amount of conductor exposed at end of contactor. It should be almost if not flush with insulation

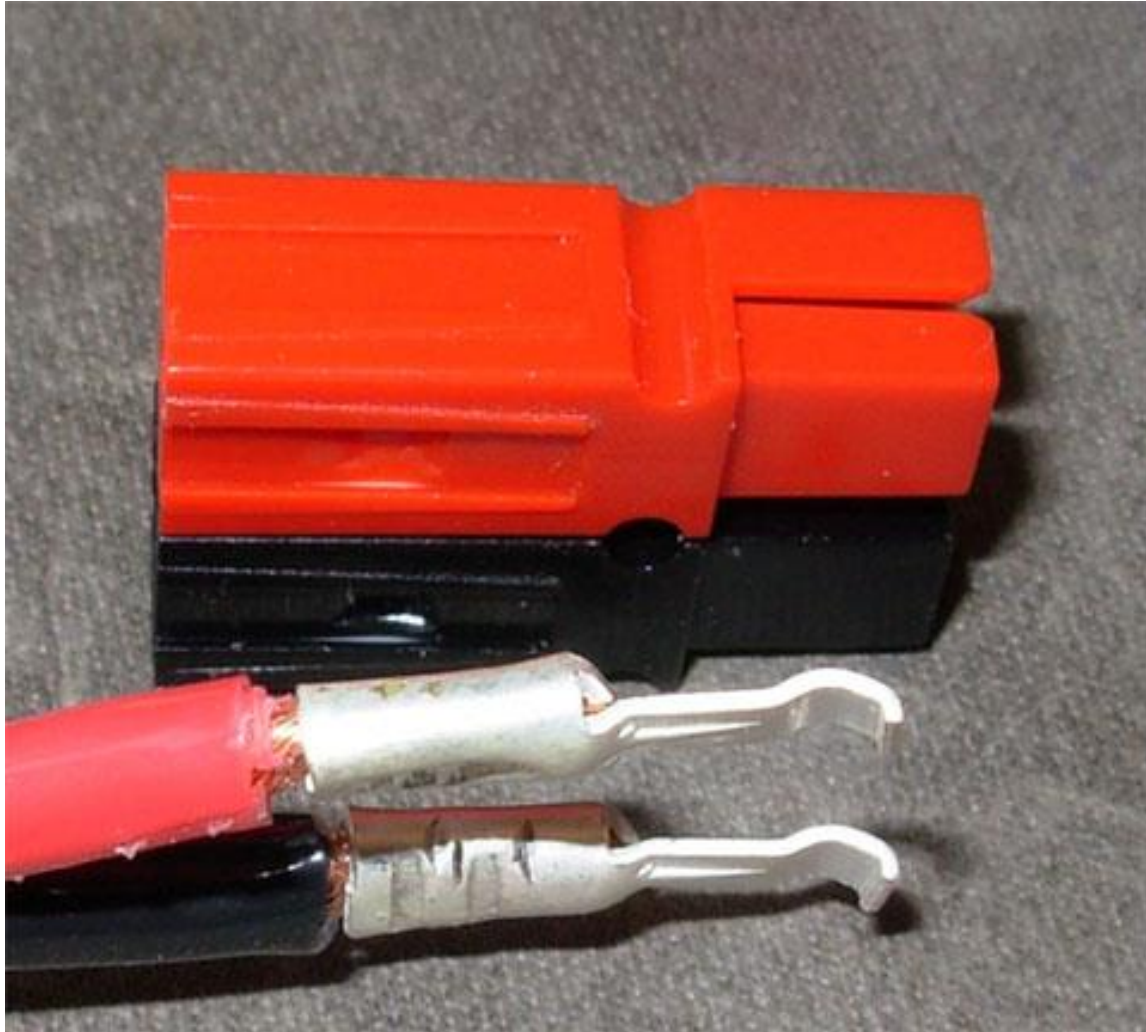
Contactor assembly continued.

- Insert contactor “curve” down into crimper.
- Give one or two clicks to hold contactor
- Re-insert wire if necessary
- FIRMLY SQUEEZE handle all the way thru the cycle and release.
- Conductor done!
- One note: The 45A contactor. You may need to squeeze the wire crimp wings just a bit to get it to a “U” shape to fit the crimper.

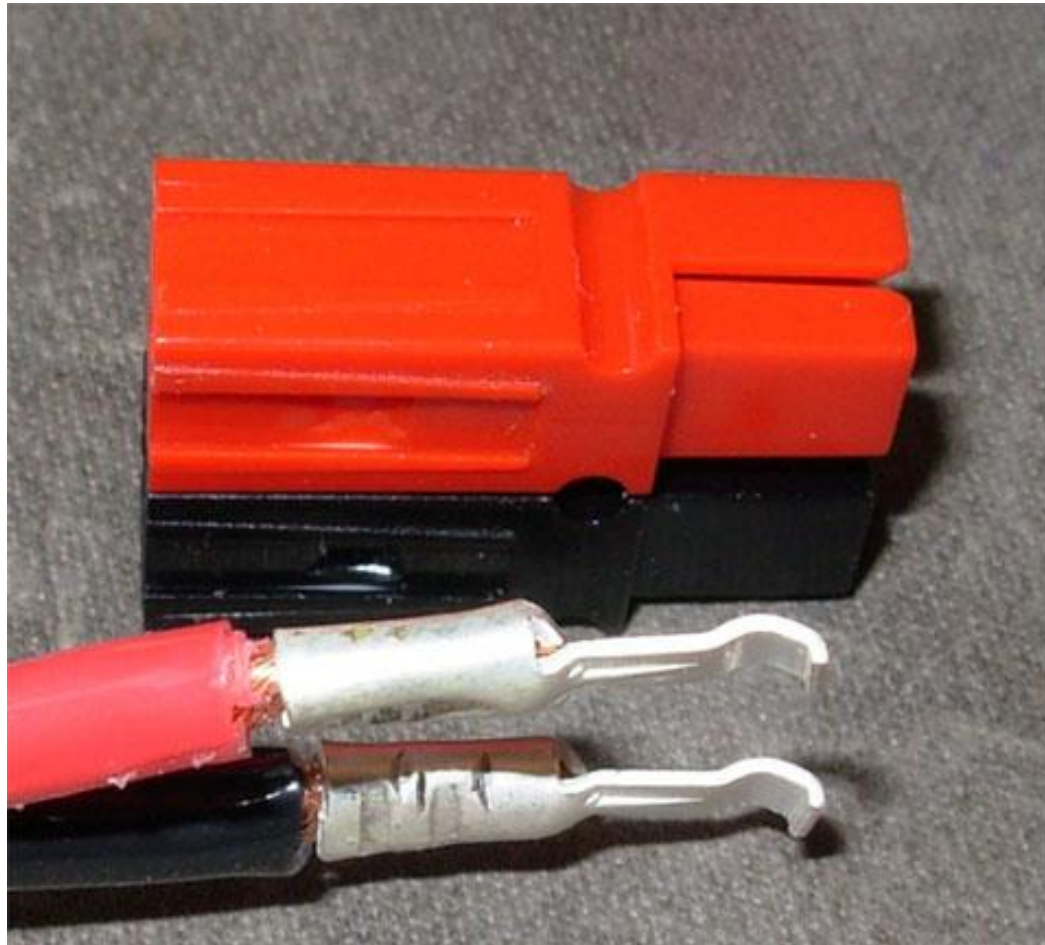
Should look just like this!



These are acceptable too!

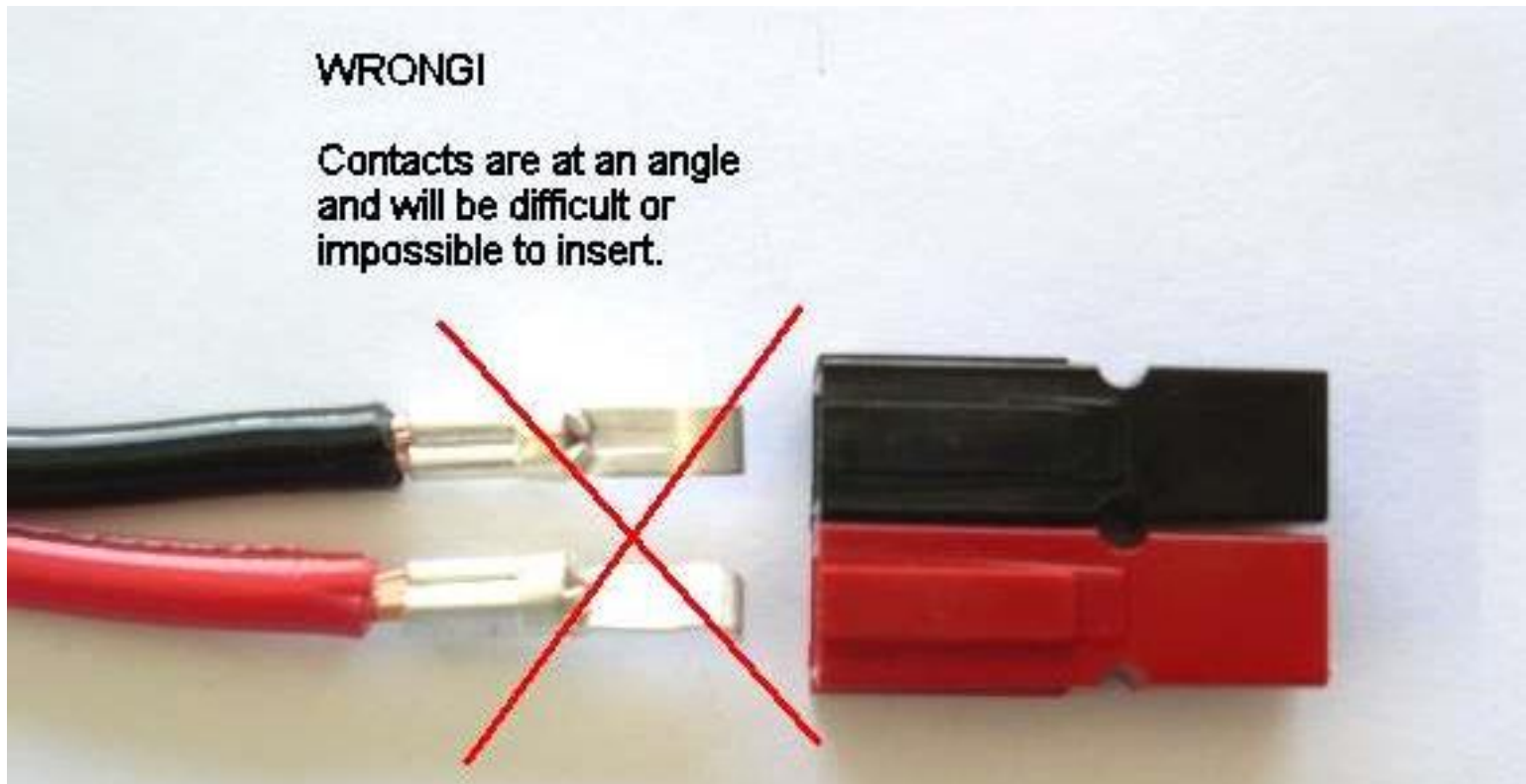


P.S. This is also the correct orientation for insertion into a correctly coded powerpole shell!



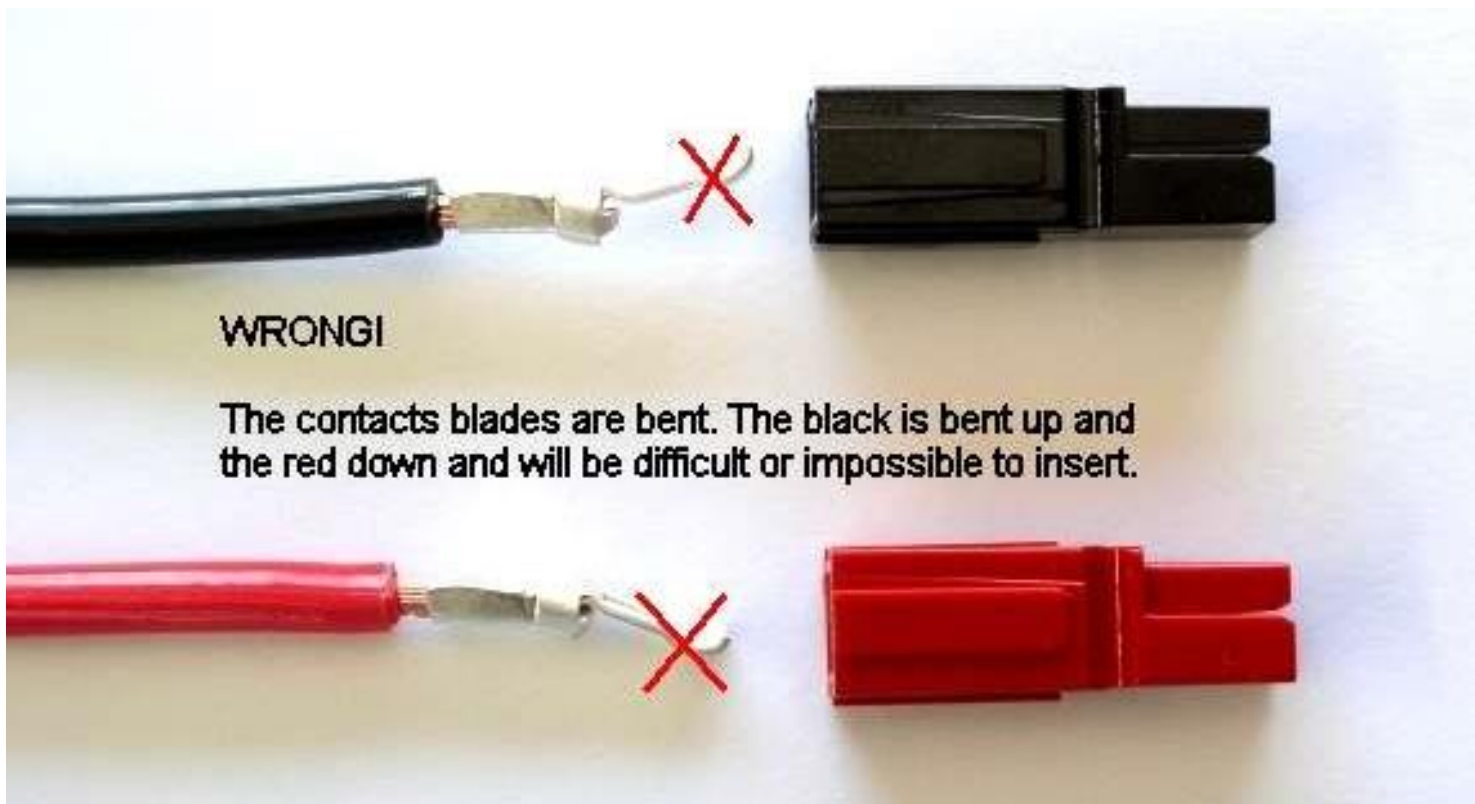
INCORRECT examples

- Contacts at odd angle.
- Twist them gently to correct orientation.



INCORRECT examples

- Contact blades bent.
- Gently straighten them up.



INCORRECT examples

- WRONG ORIENTATION!
- Flip wire and gently twist conductors to match connector.

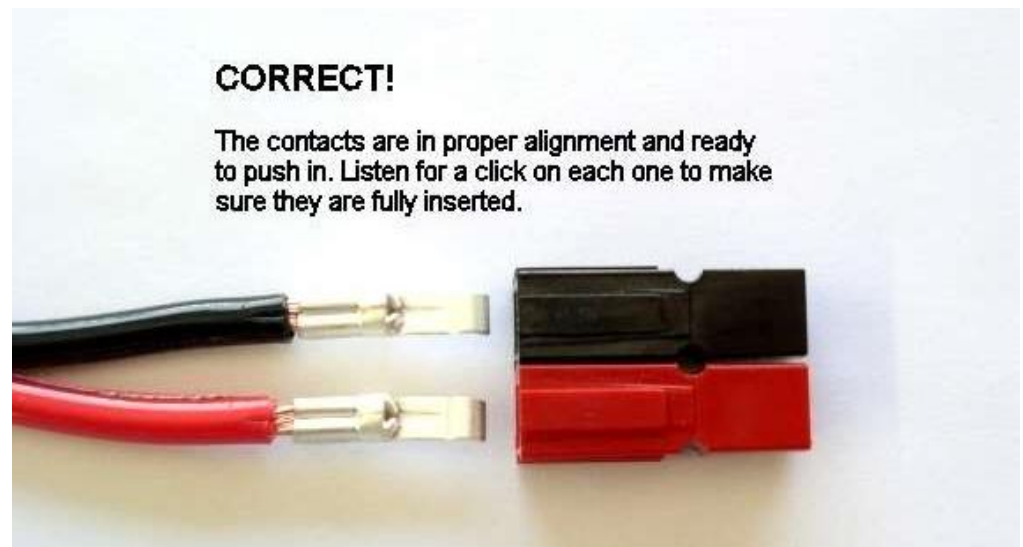
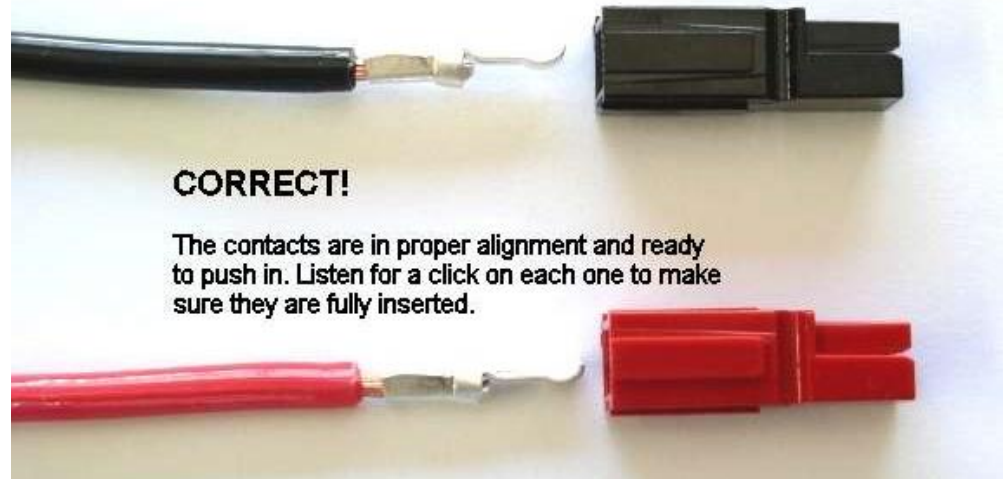
WRONG!

Contacts are up side down
in relation to the housings and
the colors are backwards.



CORRECT examples

- Contacts straight
- Contacts correctly aligned
- Contacts correctly polarized
- Ready to insert



Final connector assembly

- Insert contactor “curve” down towards the tongue (A).
- Slide straight in until “CLICK” is heard or felt.
- Tug back on conductor to verify lock
- Repeat with other conductor.
- DONE! One powerpole completed!

Cutaway showing contactor locked into connector

Cutaway view of a Powerpole connector.

Note that the contact must fit through the gap between the housing and the spring and that the contact is snapped over the end of the spring.



OOPS! I goofed up, or I need to remove
the wire/conductor.

What do I do?

Contactors removal

- A special APP tool is available to help remove the contactor from the shell.
- BUT, A jewelers flat blade tweaker is also probably available in your tool box that will do the same thing!
- Procedure is to put the blade just under the contactor curve and lift up while pulling on the conductor. When the curve is clear, the conductor will pull right out.
- (Kinda clunky first time you do it but it does work!)

Contactor removal

Cutaway view of a Powerpole connector.

Note that the contact must fit through the gap between the housing and the spring and that the contact is snapped over the end of the spring.



Thoughts

- The 30A or 45A Powerpole is the ideal connector for 12vDC power connections for Scout, Navigator and Ranger ROV's.
- The 15A Powerpole is just cutting it to close for comfort for the Scout and Navigator ROV's
- The housings mate together through molded dovetails.
- Buy twice as many contacts as you will need for your project – crimping takes some skill.
- Keep your housings, contacts, zip wire, and crimping tool in your jump kit. This way, you can make field repairs or even construct new cables on the spot.

FAQ's

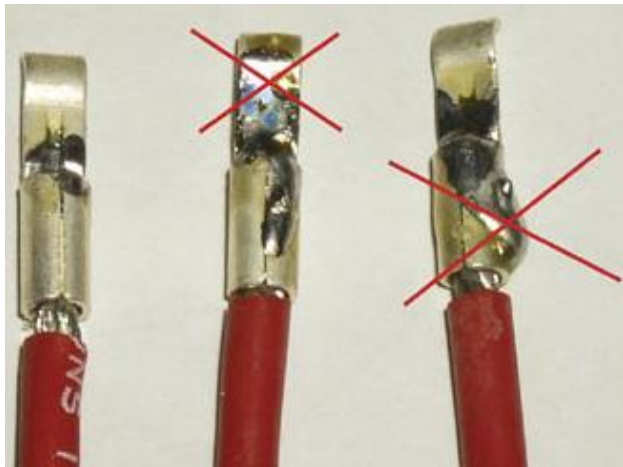
“The wire fits better in the 30A or the 45A connector but the widget is only drawing 10 amps. Can I use the higher capacity contactor?”

- You sure can! Nothing says you can't use a higher amp contactor. Just don't go lower!
- Your Fuse or breaker controls the amount of Amps available to your ROV

FAQ's

“I don't crimp anything. Rosin runs in my blood and I keep a strand of 60/40 in my pocket at all times! Can I solder these puppies?”

- Yes you can, but don't bubble-gum it or use a piece of rebar to solder the thing. And don't flow too much up the wire to harden it. Less is more and beware of not melting the insulation!



FAQ

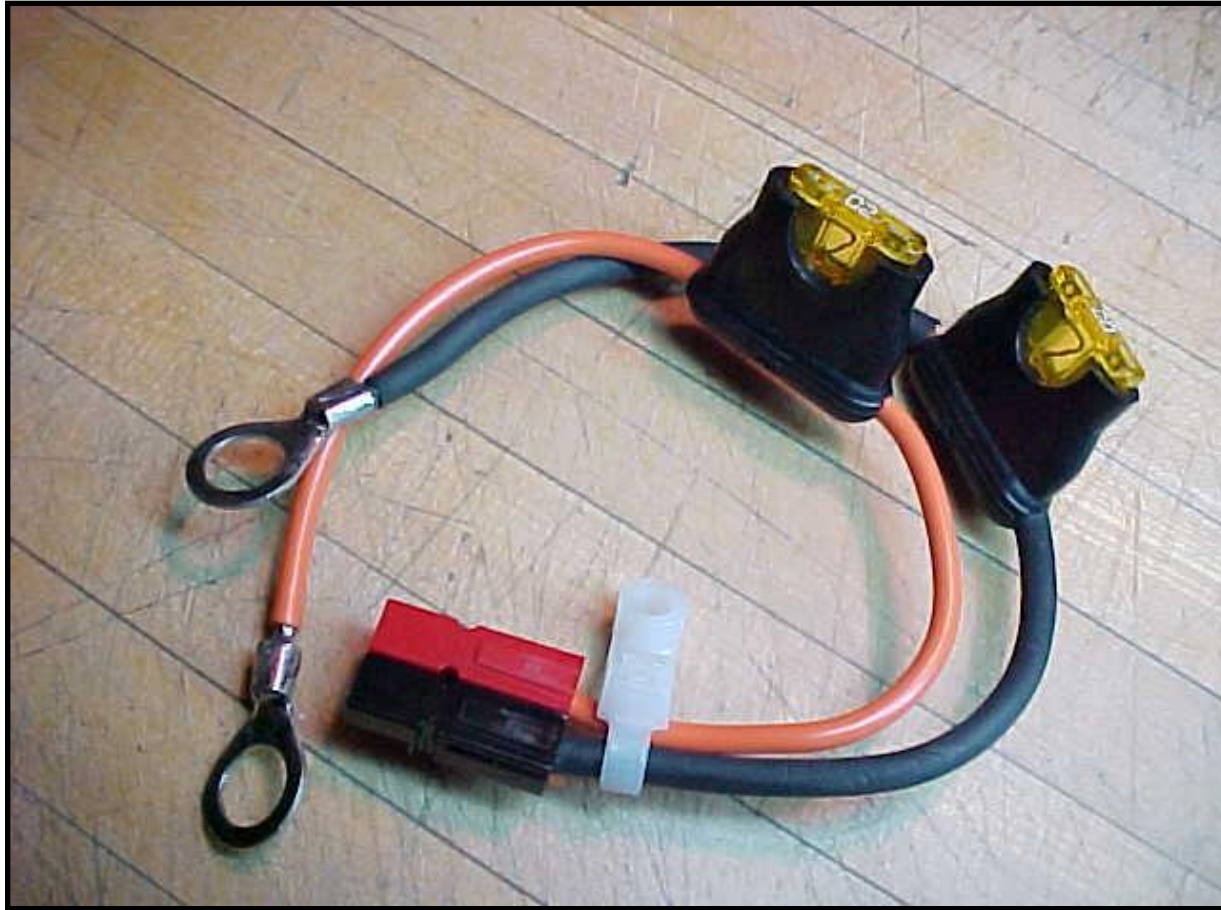
To shell or not to shell?

- This is your preference you can shell you connections or leave them separated.

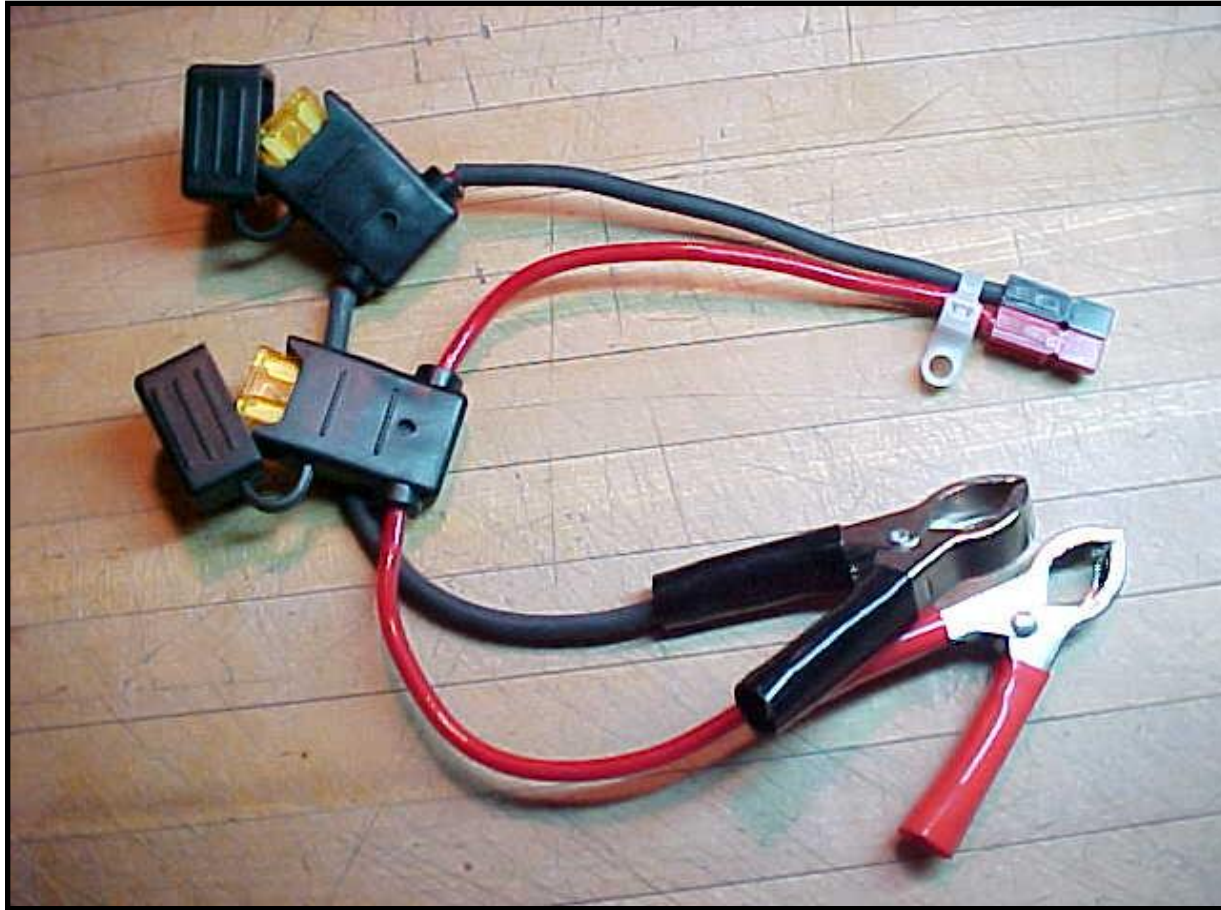
Shelled connections look neater but may limit your ability to make connections

Unshelled connections provide more versatility in making connections

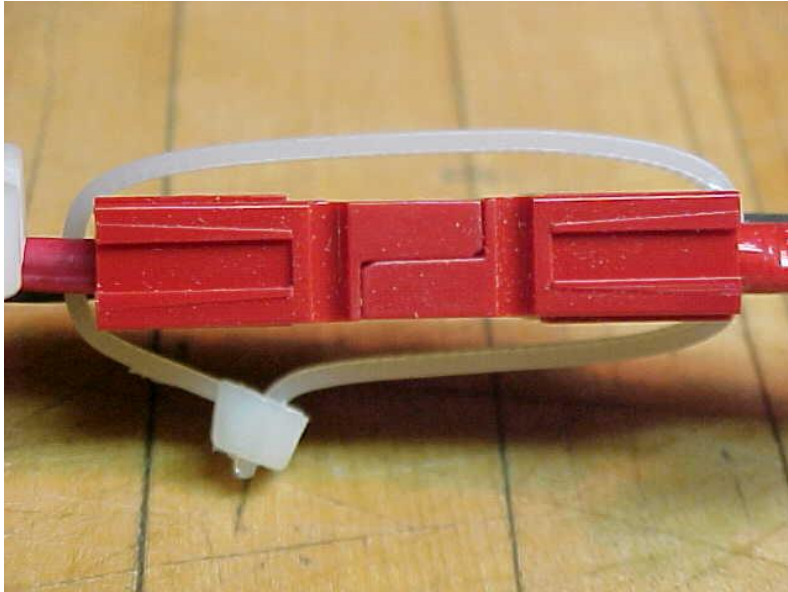
***Powerpoles in Action
Bolted Battery Connection***



***Powerpoles in Action
Battery Clip***



Locking the Connectors



More Information

- **Vendors include:**

www.powerwerx.com

<http://www.races.net/sca/powrpole.html>

<http://www.aesham.com/power-distribution/powerpoles/powerwerx-wp30-10/>

http://www.gigaparts.com/Product-Lines/Power_2/Powerwerx-WP30-10.html

<http://www.hamradio.com/detail.cfm?pid=71-001833>