



PWRcrimp

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INSTRUCTIONS FOR MAKING POWERPOLE CONNECTIONS

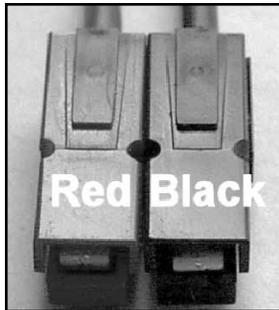
This manual has general assembly tips and photographs to make Powerpoles® easy to install on any DC cord. It is recommended to read these instructions thoroughly before crimping Powerpoles to fully understand the connectors, contacts, housings, and assembly orientation. Follow these instructions carefully when using the PWRcrimp tool to make good, reliable and consistent connectors.

GENERAL POWERPOLE CONNECTOR ASSEMBLY

CONNECTOR PAIR ORIENTATION OPTIONS

The picture to the right is the ARES/RACES standard orientation used on West Mountain Radio RIGrunners. This orientation is correctly polarized and genderless.

Tip: The housings may be oriented in several other ways for special applications to avoid accidentally plugging in the wrong voltage source. With other orientations, a matching pair may be mirror images rather than genderless mating pairs.



PREPARING THE HOUSINGS

The plastic housings are held together with dovetail joints. Assemble by sliding these joints together. They will be damaged if you try to snap them together or apart. They ONLY slide together in one direction.

Tip: Slide the connector housings together before inserting the contact pins. This is especially important when using heavy paired-wire.

SECURING THE HOUSINGS

Anderson recommends and supplies a more reliable spiral pin. Do not use roll pins on Powerpoles®! We recommend not using the roll pins because they may fall out and cause damage to your radio. After testing both pin types, even the proper spiral pins can fall out. Anderson does not recommend their spiral pins for critical applications.

After consulting with Anderson, they recommend using cyanoacrylic (CA) glue, such as Crazy Glue, to hold the connector bodies permanently together. Normally the dovetail joints in the housings hold well, but if glue is preferred, do not use pins. Make sure of proper assembly BEFORE gluing, as they will be permanently bonded together. All it takes is a very small drop of CA glue in the seam between the red and black housings. Alternatively, a bit of silicon glue injected in to the hole between the red and black housings works reasonably well to hold the housings together, and, if needed, can be later separated.

INSERTING THE CONTACTS

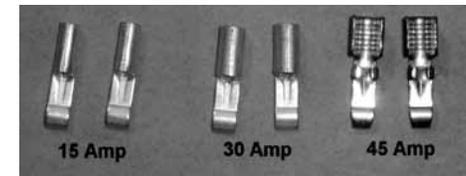
After crimping, the contacts go in the housings in only one way. Insert the contacts so that their sharp hooked edge will be facing against the flat spring that is in the housing. **IMPORTANT:** Before inserting the crimped contacts, make sure that the tab is not bent up or down, compare the finished crimped contact to a new one and make sure it is straight and the same angle. The contacts should slide in and click. Check to ensure they are fully seated and that the contact and its wire "floats" slightly inside the housing. If it feels tight the contact may not be snapped in fully or the contact is bent or has become wider than it was originally during crimping or soldering.

Tip: If you are using small gauge wire, use a small screwdriver to push the contact into the housing.



REMOVING A CONTACT FROM A HOUSING

With a small screwdriver lightly pry the contact up away from the housing flat spring clip while gently pulling the wire and contact out. Be sure to bend the contact back correctly straight before re-inserting it in another housing. For a pair of heavy wires, gently work each wire out of the paired housing.



CONTACT RATING AND WIRE SIZE

Anderson 15, 30, and 45 ampere contacts all mount in the same plastic housings. All contacts have the same connection contact area. The difference is the size wire that fits each contact.

- 15 amp contacts can be used with #15-20 AWG wire. (For #20 AWG or smaller the wire will have to be doubled or tripled over to fill the contact for a good crimp. Another option is to fold it back on the insulated wire so the crimp includes the insulation for a sturdier cable.)
- 30 amp contacts can be used with #12-16 AWG wire. (It is possible to use up to #10 wire in a 30 amp contact even though they are made for 12 to 14 gauge. The #10 will need to be cut cleanly and neatly twisted to get all of the strands inside. For #18 AWG or smaller the wire will have to be doubled or tripled over to fill the contact for a good crimp.)
- 45 amp contacts can be used with #10-14 AWG wire.

Powerpole current ratings are according to the National Electric Code by wire gauge for a 30°C rise above ambient at the rated current. Powerpoles will easily sustain these ratings continuously without ventilation. With proper ventilation they will easily sustain double their ratings and much more for short bursts.

CRIMPING WITH THE PWRcrimp

This tool is a custom designed crimp tool for professionally crimping Anderson 15, 30, and 45 ampere Powerpoles®. It has a contact holder to position the contact correctly, and a ratcheting mechanism to assure correct force is applied each time.

NEVER USE THIS TOOL FOR ANY OTHER BRAND CRIMP CONTACT, YOU MAY BREAK THE TOOL AND VOID THE WARRANTY!

The long handles on the PWRcrimp will provide extra leverage, however it is normal to use two hands to fully crimp a contact. For 45 Amp contacts with #10 wire you may need to push the tool against your bench using your weight against the top lever. The results are professional, providing aerospace quality and the strongest and lowest possible resistance crimp, and much faster than soldering.

The PWRcrimp tool has three crimping dies, marked 15, 30, and 45, for the respective Anderson Powerpole contacts and wire gauge ranges. The plastic contact positioner extends off the other side of the lower jaw. Without a contact in the tool, try the crimper by squeezing the handles closed. The ratchet will click until the end of travel, and with some force, only then allowing the tool to open. When it is partially closed, try the release lever which is located between the handles under the "W" in West Mountain Radio. The release allows you to start over without damaging the tool or the contact if the contact was incorrectly positioned to start.



PREPARING TO CRIMP

Wire cutters are needed to cut the wire and wire strippers should be used to strip the wire. Use of cutters to strip wire might possibly nick the wire strands. With the strippers, strip the wire insulation back 3/8 in., trying not to nick the strands.

PREPARING THE WIRE ASSEMBLY

Tip: If you are using heavy paired-wire, orient the paired wire with the red/plus wire on your right with the stripped end of the wire facing away. Install the contacts so the hooked edge of the contact is down and they will install in the housings correctly without twisting the wire into alignment.

CRIMPING 15, AND 30 AMP CONTACTS

Carefully insert all of the strands of the wire into the wire cup on the contact end. Fully open the PWRcrimp jaw. With the hooked edge downward, place the contact and wire fully into the plastic contact positioner for the respective 15 or 30 amp die. Notice that the contact's split seam of the wire barrel is facing squarely up towards the center of the upper die. Make sure that the wire is still fully inserted into the contact and crimp down firmly. Continue to squeeze through each ratchet index, only until the tool opens. **DO NOT SQUEEZE PAST THE POINT WHERE THE RATCHET RELEASES**, doing this may make a poor or damaged crimp or damage the tool. The ratchet release point assures that the crimp is fully compressed and makes the best connection.

CRIMPING 45 AMP CONTACTS

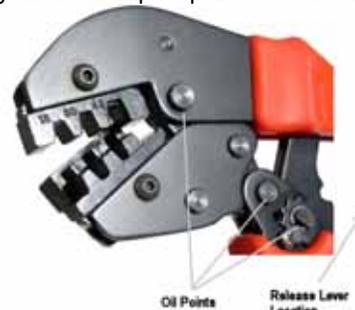
For 45 Amp contacts, do not place the wire in the contact. Fully open the PWRcrimp jaw and with the flat tab downward and the open end of the "U" upward, place the contact fully into the 45 amp die and contact positioner opening. Slightly close the tool, but only until both tabs of the 45 Amp contact are just touching inside the upper die. **Be sure that both tabs are symmetrical inside the upper die.** One tab may want to spread outward instead of inward, ruining the contact and possibly jamming or damaging the tool. (Some Anderson 45 amp contacts supplied are formed slightly wide, and the contact may not fit properly in the die.)

If the tabs are not inside the die when partially closing the handles, use the release lever and take the contact out. Slightly squeeze the contact tabs together with a pair of pliers so they are more of a U shape than a V and start over. With the contact properly aligned inside the slightly closed tools die, neatly place all the strands of the wire fully in to U shaped channel and crimp until the ratchet mechanism just releases. This will take considerable force.

IMPORTANT: Only if the 45 Amp contact appears to be aligned properly, and will curl inward, continue to squeeze. If the contact is misaligned, use the release lever to start over. **DO NOT CONTINUE SQUEEZING.** If it is properly aligned, continue, but **ONLY TO THE POINT WHERE THE RATCHET RELEASES.** Squeezing past the release point may over crimp the contact or damage the tool. The ratchet release point assures that the crimp is fully compressed and makes the best connection crimped to the proper dimensions.

PWRcrimp MAINTENANCE

For a long service life, the PWRcrimp, like any crimp tool, requires periodic and proper lubrication. This should be done every 50 or 100 crimps. Always make sure that all of the pivot points are oiled with machine oil. Ensure that the lubricant flows inside bearing surface of all pivot points. See the figure below.



The crimp dies come pre-lubricated. It is recommended to periodically spray the dies with a light coating of silicon lubricant or WD40 to allow the crimped contacts to be removed easily and to make the dies last longer. The tools are adjusted at the factory for a full strength crimp. If you feel that the crimps are too tight or too loose, you may check the crimp by measuring the height (smaller dimension) of a finished crimp with a micrometer or accurate vernier caliper.

Contact finished crimp measurements: (the height of the crimped portion, smaller dimension)

45 amp contact with 10 gauge wire .100" to .120"

30 amp contact with 12 gauge wire .090" to .110"

15 amp contact with 16 gauge wire .080" to .100"

If the tool does not crimp within this range, try the following adjustment procedure:

The tension and compression of any crimp tool tends to lessen with use and wear. There is a toothed wheel held in place by a silver colored Phillips head screw that adjusts a tension pivot cam. The adjustment is not obvious as it is impossible to see the position of the cam and adjustment should not be attempted without an accurate way to measure the finished crimps according to the table above. The toothed cam wheel is set to minimum tension when the flat on the shaft is facing the pivot point directly next to it. It is at maximum tension when the flat is 180 degrees opposite and away from the adjacent pivot point. Rotating the toothed cam wheel in either direction between these extremes will adjust the tension and crimping force. Note that there are two locations for the set screw to allow for finer adjustment.

NOTE: YOUR WARRANTY MAY BE VOIDED IF THE TOOL IS DAMAGED DUE TO SETTING THE TENSION TOO HIGHLY.

PWRcrimp Warranty

The PWRcrimp is warranted against failure due to defects in workmanship or materials for ninety days after the date of purchase from West Mountain Radio or an authorized dealer. If purchased from an authorized dealer it must be returned with a copy of the original sales receipt or proof of purchase.

Warranty does not cover damage caused by abuse, accident, misuse, improper or abnormal usage, failure to follow instructions. If failure occurs within this period, return the PWRcrimp to West Mountain Radio at your shipping expense with a full explanation and necessary proof of purchase. The tool will be repaired or replaced, at our option, without charge, and returned to you at our shipping expense. Repaired or replaced items are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the tool if returned after the expiration of the warranty period.

West Mountain Radio shall have no liability or responsibility to customer or any other person or entity with respect to any liability, loss, or damage caused directly or indirectly by use or performance of the products or arising out of any breach of this warranty, including, but not limited to, any damages resulting from inconvenience, loss of time, data, property, revenue, or profit, or any indirect, special incidental, or consequential damages, even if West Mountain Radio has been advised of such damages.

Except as provided herein, West Mountain Radio makes no express warranties and any implied warranties, including fitness for a particular purpose, are limited in duration to the stated duration provided herein.



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